Rivers Edge FINAL
Alternative Urban Areawide Review (AUAR)
And
Mitigation Plan

Adopted May 17, 2004
Resubmitted for Review February 27, 2009
Adopted April 20, 2009
Resubmitted for Review February 24, 2014
Adopted April 21, 2014

RGU/Public Representatives

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AUAR Responsibility:
Responsible Governmental Unit (RGU)

AUAR Responsibility:
City Engineer and Planning Consultants
CITY OF ST. PAUL PARK
WASHINGTON COUNTY, MINNESOTA
RESOLUTION NO. 1371

A RESOLUTION ADOPTING THE UPDATED ALTERNATIVE URBAN AREAWIDE REVIEW (AUAR) AND MITIGATION PLAN FOR THE RIVERS EDGE DEVELOPMENT

WHEREAS, the Updated Alternative Urban Areawide Review (AUAR) and Mitigation Plan for the Rivers Edge Development is a renewal of the Updated Final AUAR and Mitigation, which the City of St. Paul Park adopted by Resolution on April 20, 2009; and

WHEREAS, Minnesota Rules 4410.3610 Subp 7A, states that in order to remain valid as a substitute form of review, the AUAR and Mitigation Plan must be revised every five years until all development in the area has been approved; and

WHEREAS, the site conditions did not change and development has not occurred. The intentions of the AUAR or development scenarios as described in the AUAR also have not been modified; and/or the AUAR document itself has not been amended in any manner; and

WHEREAS, as the RGU, the City of St. Paul park prepared the Updated AUAR according to guidance provided by the Minnesota Environmental Quality Board and approved the Updated AUAR for distribution on February 18, 2014; and

WHEREAS, on February 20, 2014, the Final Updated AUAR was distributed for comment in accordance with 4410.3610 subp. 5, items D to H, and the 10-day comment period ended on March 24, 2014; and

WHEREAS, the Updated AUAR was discussed at the regularly scheduled April 14, 2014 meeting of the St. Paul Park Planning Commission; and

WHEREAS, the City of St. Paul Park received written comments from five agencies, one local unit of government, and no written public comment on the Updated AUAR during the comment period, in which the Metropolitan Council concluded that the Updated AUAR is complete and accurate with respect to regional concerns and raises no major issues of consistency with the Metropolitan Council policies; and

WHEREAS, pursuant to Minnesota Rules 4410.3610, subp. 5D, state agencies had 10 business days from receipt of the Updated AUAR and Mitigation Plan to file an objection to the document with the City of St. Paul Park and the Minnesota Environmental Quality Board; and

WHEREAS, The City of St. Paul Park received no objections to the Updated AUAR within the specified time period; and

WHEREAS, pursuant to Minnesota Rules 4410.3610, Subp. 5E, the City of St. Paul Park shall adopt the Updated AUAR and Mitigation Plan at its first regularly scheduled meeting held 15 or more days after the distribution of the revised documents unless and objection is filed.

NOW, THEREFORE BE IT RESOLVED, that the City Council of the City of St. Paul Park hereby adopts the Updated AUAR and Mitigation Plan.

BE IT FURTHER RESOLVED, that pursuant to Minnesota Rules 4410.3610, subp 5E residential, commercial, warehousing, and light industrial project and associated infrastructure within the AUAR area that are consistent with the Updated AUAR and Mitigation Plan are exempt from review under Minnesota Rules 4410.1100 to 4410.1700 and 4410.2100 to 4410.2800.

Adopted this 21st day of April, 2014 by the City Council of St. Paul Park, Minnesota.

[Signature]
Mayor

ATTEST:

[Signature]
City Clerk
CITY OF ST. PAUL PARK
WASHINGTON COUNTY, MINNESOTA

RESOLUTION NO. 1365

AUTHORIZING DISTRIBUTION OF THE RIVERS EDGE DEVELOPMENT
ALTERNATIVE URBAN AREAWIDE REVIEW (AUAR)

WHEREAS, the City of St. Paul Park, as the responsible government unit (RGU) adopted the original Rivers Edge Alternative Urban Areawide Review and mitigation plan on May 17, 2004; and

WHEREAS, pursuant to Minnesota Rules, parts 4410.3600 subpart 7A, an Updated Alternative Urban Areawide Review is required for the development known as “Rivers Edge Development”; and

WHEREAS, five years had passed since the RGU adopted the original Alternative Urban Areawide Review and mitigation plan and an Updated Alternative Urban Areawide Review was prepared, distributed, and adopted on April 20, 2009; and

WHEREAS, another five years have passed since the RGU adopted the Updated Alternative Urban Areawide Review and Mitigation Plan; and

WHEREAS, the site conditions have not changed and development has not occurred; and

WHEREAS, an Updated Alternative Urban Areawide Review has been prepared for the proposed development referenced above.

NOW, THEREFORE BE IT RESOLVED, by the City Council of the City of St. Paul Park, Washington County, Minnesota as follows:

1. The City Council of the City of St. Paul Park hereby authorizes the distribution of the Updated Alternative Urban Areawide Review for the development known as “Rivers Edge Development” is hereby accepted for distribution.

2. The City Staff is hereby directed to distribute copies of this Updated Alternative Urban Areawide Review to the Minnesota Environmental Quality Board for publication of the notice of availability in the Environmental Quality Board Monitor, to all persons on the official distribution list, and to all other persons who might request a copy.

BE IT FURTHER RESOLVED, the City Staff hereby directed to schedule the review of this Updated Alternative Urban Areawide Review at a regularly scheduled meeting of the City of St. Paul Park Planning Commission during the formal review period.

Adopted this 18th day of February, 2014 by the City Council of St. Paul Park, Minnesota.

[Signature]
Mayor

[Signature]
City Clerk
Rivers Edge FINAL
Alternative Urban Areawide Review (AUAR)
And
Mitigation Plan

Adopted May 17, 2004
Resubmitted for Review February 27, 2009
Adopted April 20, 2009

RGU/Public Representatives

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City Administrator
City of St. Paul Park

AUAR Responsibility:
Responsible Governmental Unit (RGU)

Jeffrey Roos, City Engineer
Kristina Smitten, City Planner
McCombs Frank Roos Associates, Inc

AUAR Responsibility:
City Engineer and Planning Consultants
CITY OF ST. PAUL PARK
WASHINGTON COUNTY, MINNESOTA

RESOLUTION NO. 1186

A RESOLUTION ADOPTING THE UPDATED
ALTERNATIVE URBAN AREAWIDE REVIEW (AUAR) AND MITIGATION PLAN
FOR THE RIVERS EDGE DEVELOPMENT

WHEREAS, the Updated Alternative Urban Areawide Review (AUAR) and Mitigation Plan for the Rivers Edge Development is a renewal of the Final AUAR and Mitigation Plan, which the City of St. Paul Park adopted by resolution on May 17, 2004; and

WHEREAS, Minnesota Rules 4410.3610 Subp. 7A, states that in order to remain valid as a substitute form of review, the AUAR and Mitigation Plan must be revised if five years have passed since the Responsible Governmental Unit (RGU) adopted the Original AUAR; and

WHEREAS, the site conditions did not change and development has not occurred. The intentions of the AUAR or development scenarios as described in the AUAR also have not been modified; and/or the AUAR document itself has not been amended in any manner; and

WHEREAS, as the RGU, the City of St. Paul Park prepared the Updated AUAR according to guidance provided by the Minnesota Environmental Quality Board and approved the Updated AUAR for distribution on February 17, 2009; and

WHEREAS, on February 27, 2009, the Final Updated AUAR was distributed for comment in accordance with 4410.3610 Subp. 5, items D to H, and the 10-day comment period ended on March 16, 2009; and

WHEREAS, the Updated AUAR was discussed at the regularly scheduled April 13, 2009, meeting of the St. Paul Park Planning Commission; and

WHEREAS, the City of St. Paul Park received written comments from four agencies, one local unit of government, and no written public comment on the Updated AUAR during the comment period, in which the Metropolitan Council concluded that the Updated AUAR is complete and accurate with respect to regional concerns, and raises no major issues of consistency with Metropolitan Council policies; and

WHEREAS, pursuant to Minnesota Rules 4410.3610, Subp. 5D, state agencies had 10 business days from receipt of the Updated AUAR and Mitigation Plan to file an objection to the document with the City of St. Paul Park and the Minnesota Environmental Quality Board; and

WHEREAS, the City of St. Paul Park received no objections to the Updated AUAR within the specified time period; and

WHEREAS, pursuant to Minnesota Rules 4410.3610, Subp. 5E, the City of St. Paul Park shall adopt the Updated AUAR and Mitigation Plan at its first regularly scheduled meeting held 15 or more days after the distribution of the revised documents unless an objection is filed.

NOW THEREFORE BE IT RESOLVED, that the City Council of the City of St. Paul Park hereby adopts the Updated AUAR and Mitigation Plan.

BE IT FURTHER RESOLVED, that pursuant to Minnesota Rules 4410.3610, Subp. 5E residential, commercial, warehousing, and light industrial project and associated infrastructure within the AUAR area that are consistent with the Updated AUAR and Mitigation Plan are exempt from review under Minnesota Rules 4410.1100 to 4410.1700 and 4410.2100 to 4410.2800.

ADOPTED this 20th day of April 2009 by the City Council of the City of St. Paul Park, Minnesota.

John Hunziker, Mayor

Sharon Orquist, City Clerk
CITY OF ST. PAUL PARK
WASHINGTON COUNTY, MINNESOTA

RESOLUTION NO. 1177

AUTHORIZATION TO DISTRIBUTE ALTERNATIVE URBAN AREAWIDE REVIEW
RIVERS EDGE DEVELOPMENT

WHEREAS, pursuant to Minnesota Rules, pts. 4410.3600 subpart 7A, an Updated Alternative
Urban Areawide Review is required for the development known as “Rivers Edge Development”; and

WHEREAS, five years have passed since the RGU adopted the original Alternative Urban
Areawide Review and Mitigation Plan; and

WHEREAS, the site conditions have not changed and development has not occurred; and

WHEREAS, an Updated Alternative Urban Areawide Review has been prepared for the
proposed development referenced above as attached hereto; and

WHEREAS, City Staff has reviewed the Updated Alternative Urban Areawide Review for
accuracy and completeness of information.

NOW, THEREFORE BE IT RESOLVED, by the City Council of the City of St. Paul Park,
Washington County, Minnesota, that the Updated Alternative Urban Areawide Review for the
development known as “Rivers Edge Development” is hereby accepted for distribution.

BE IT FURTHER RESOLVED, that the City Staff is hereby directed to distribute copies of
this Updated Alternative Urban Areawide Review to the Minnesota Environmental Quality
Board for publication of the notice of availability in the Environmental Quality Board Monitor,
to all persons on the official distribution list, and to all other persons who might request a copy.

BE IT FURTHER RESOLVED, the City Staff hereby directed to schedule the review of this
Updated Alternative Urban Areawide Review at a regularly scheduled meeting of the City of St.
Paul Park Planning Commission during the formal review period.

Adopted this 17th day of February, 2009 by the City Council of St. Paul Park, Minnesota.

[Signature]
John Hunziker, Mayor

ATTEST:
Sharon Ornquist, City Clerk
Rivers Edge FINAL
Alternative Urban Areawide Review (AUAR) and
Mitigation Plan

Prepared for the
City of St. Paul Park, MN
Grey Cloud Island Township, MN

By
Dahlgren, Shardlow & Uban, Inc.
Westwood Professional Services, Inc.
Applied Ecological Services, Inc.
GME Consultants, Inc.
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The 106 Group Ltd.

Adopted May 17, 2004
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Executive Summary

The Rivers Edge Final AUAR and Mitigation Plan has been prepared for the City of St. Paul Park (city) and Grey Cloud Island Township (township) in accordance with Minnesota Rules Chapter 4410. The city and township determined that an AUAR was the best method to integrate environmental review into their comprehensive and master development planning process for the AUAR area. The AUAR area is located within the city and township (see Figure 5-1). These two communities are jointly coordinating annexation, planning and decision-making, and sharing public services to develop the AUAR area. The communities are jointly preparing Comprehensive Plan and Mississippi River Corridor Critical Area Plan amendments and will work together to develop a dual jurisdictional mixed use, planned unit development (PUD) and critical area ordinance amendments to guide and control the land use and development of the AUAR area.

This Final AUAR includes a review of three development scenarios. Mn Rules state that, “the Responsible Governmental Unit (RGU) may specify more than one scenario of anticipated development provided that at least one scenario is consistent with the adopted comprehensive plan. At least one scenario must be consistent with any known development plans of property owners within the area” (Mn Rules. Chapter 4410.3610 subp.3). Scenario One is consistent with the adopted comprehensive plans of the city and township and allows for 52 additional housing units. Scenario Two is based on known development plans of a property owner within the AUAR area and on the Settlement Agreement (Appendix B). Scenario Two includes 1,800 units plus a mixed use Village Center, which includes 600 housing units and 83,000 square feet of non-residential uses. The total number of housing units in Scenario Two is 2,400. Scenario Three differs from Scenario Two in that the 600 residential units in the Village Center are excluded. The total number of residential units in Scenario Three is 1,800. This Scenario also includes 83,000 square feet of non-residential uses. One non-participating property owner’s 1-acre parcel located within the AUAR area is included in all three development scenarios.

Distribution of the proposed Final AUAR does not constitute approval of any specific project pursuant to zoning, subdivision, or other official controls of either the City of St. Paul Park or Grey Cloud Island Township, as applicable. Rather, preparation and distribution of the proposed Final AUAR is mandated by the Environmental Review Program, Environmental Quality Board, Chapter 4410 Minnesota Rules. Any proposed specific project within the Subject Property remains subject to applicable local zoning, subdivision, or other official controls. Specific projects that are consistent with the assumptions of the adopted Final AUAR and which comply with the mitigation plan within the Final AUAR are exempt from further environmental review pursuant to Minnesota Rules Section 4410.3610 Subp. 5 E.

AUAR PROCESS SUMMARY
The Draft AUAR, including a draft Mitigation Plan was prepared and distributed to the Environmental Quality Board (EQB) and persons and agencies on the official EQB mailing list in accordance with EQB rules on May 26, 2003. The 30-day comment period ended on June 25, 2003. Several agencies requested, in writing, a 15-day extension, which ended on July 17, 2003. Five agencies, five local units of government, four non-profit organizations, and six citizens submitted comment letters on the Rivers Edge Draft AUAR. The comment letters are included in Appendix J. Additionally, the City of St. Paul Park and Grey Cloud Island Township held public open houses on August 4th and October 1st and workshops on August 13th and September 2nd to receive additional comments. A question and answer (Q & A) document that responds to comments raised at the August 4, 2003, public open house is included in Appendix K.
The RGU hosted several meetings with the commenting agencies in order to better understand the comments on the Draft AUAR and to further involve the agencies in the preparation of the Final AUAR and Mitigation Plan. The RGU and members of the AUAR technical team met with the commenting agencies to discuss their comments, the technical team’s approach to addressing the comments, and additional mitigation strategies. These meetings were held on a topic-by-topic basis. A river ecology topic meeting was held on August 11, 2003, and was attended by staff from the Department of Natural Resources, National Park Service, Metropolitan Council, South Washington Watershed District, and Washington County. A traffic and transportation topic meeting was held on August 25, 2003, and was attended by staff from Washington County, Metropolitan Council, and Cottage Grove. A storm water management/groundwater topic meeting was held on September 8, 2003, and was attended by staff from South Washington Watershed District, Washington Conservation District, Department of Natural Resources, and the Metropolitan Council. A viewshed topic meeting was held on October 7, 2003, and was attended by staff from the Department of Natural Resources, the Metropolitan Council, and the National Park Service.

The city and township received a draft of the Final AUAR in November 2003. The communities held several workshops between November 2003 and February 2004 to review and discuss the draft Final AUAR document. Three joint workshops between the city and township were held for the purposes of the city and township sharing their issues and questions with one another. The Mitigation Plan was the focus of the joint workshop discussions. The Final AUAR was revised to incorporate the changes discussed at the workshops.

The city and township will follow the procedures mandated by Minnesota Rules, Section 4410.3610 to and through the conclusion of the AUAR process, as required by Minnesota law, rules and regulations. Unless an objection is filed, the city and township shall adopt the Final AUAR and its plan for mitigation at its first regularly scheduled meeting held 15 or more days after distribution of the proposed Final AUAR, as required by Minnesota Rules, Section 4410.3610 Subp. 5 E.

**MAJOR ISSUES AND PROPOSED MITIGATION SUMMARY**

The potential impacts and major issues that were identified in the Draft AUAR and/or in the Draft AUAR comment letters are summarized in the following section. The major issues include storm water management, traffic, ecologically sensitive resources, steep slope alterations, boat access ramp and riverside development, groundwater contamination, and scenic views. The discussion of each issue also includes a discussion of the proposed mitigation measures that address the identified impacts and issues. A comprehensive summary of potential impacts and the proposed Mitigation Plan are included in Item B. The Mitigation Plan will become a component of the action plan to ensure that the city and township avoid, minimize, or mitigate significant environmental impacts from the development of the AUAR area.

**Storm Water Management System**

The storm water management system proposed in the Draft AUAR to mitigate the potential water quality impacts associated with an increase in the rates and volumes and composition of runoff was identified as being inadequate with respect to minimizing the volume of runoff. The comments on the Draft AUAR requested that a more comprehensive storm water management system be developed to address how runoff would be minimized. The intent of the revised storm water management plan presented in this Final AUAR is to infiltrate between 70 and 80 percent of all rainfall, thereby limiting the runoff to the river to rates less than existing conditions. The revised storm water management system will pretreat all storm water from impervious surfaces and infiltrate much of the volume from frequent storm events through a series of infiltration/detention basins, and discharge to the river at rates less than the existing
conditions. The storm water system will be designed to provide an infiltration pool volume equal to runoff that would be generated in a 2.4-inch rainfall.

Storm water outfalls will no longer be located at the normal water level of the Mississippi River as stated in the Draft AUAR. The outfalls will be located above the normal water level and directed into a constructed forebay south of the bay, and into a 2-cell treatment area as part of the manure lagoon restoration area located north of the bay, to capture runoff from the proposed building and surrounding undisturbed land. Directing runoff into the forebay and 2-cell treatment area will decrease the velocity of the discharge into the bay and river, thereby reducing impacts to the receiving waterbodies, and provide for secondary removal of suspended sediment and nutrients prior to discharging to the river.

Traffic
The traffic study prepared for the Draft AUAR concluded that five major transportation system improvements would be needed to mitigate the potential impacts from the additional traffic associated with the development of Scenarios Two and Three. These improvements include: upgrading Third Street; upgrading and realigning Grey Cloud Island Drive (CR 75) through the AUAR area, the westerly extension of 95th Street in Cottage Grove over the railroad tracks to the AUAR area; signalization of the intersections of Broadway/Summit and Broadway/Third Street; and correcting the skewed intersection at Grey Cloud Trail/CR 75. A series of connecting roads will be constructed within the AUAR area to facilitate efficient internal site access that can be accomplished without using CR 75. Comments on the Draft AUAR questioned the viability of extending 95th Street to the AUAR area, raised concern about the impacts of the 95th Street extension on Hadley Avenue in Cottage Grove, and identified issues regarding the change in character of roads in the city such as Broadway Avenue, Third Street, and Pullman Avenue.

The traffic study concluded that the development of the AUAR area under Scenarios Two and Three is not viable without the 95th Street extension. Completion of the 95th Street extension and the bridge construction will require coordination with Cottage Grove. As the AUAR area develops in a phased manner, a point will be reached when the 95th Street extension and bridge are required as part of the overall network serving area traffic. The Mitigation Plan requires that the city and township will limit the amount of development allowed within the AUAR area prior to the extension of the 95th Street to the AUAR area. The extension of 95th Street will increase traffic in Cottage Grove. The traffic forecasts estimate that at full build-out approximately 5,300 daily trips would be made between the AUAR area and the new 95th Street extension. These are not trips oriented to the north on Trunk Highway (T.H.) 61 as suggested by Draft AUAR comments. The trips that will use the 95th Street connection are primarily trips oriented to the south on T.H. 61 or to the commercial node at the T.H. 61/Jamaica Avenue junction. Fewer than 100 vehicles per day from the AUAR area are projected to use Hadley Avenue.

The city will implement an on-going traffic management plan to monitor traffic volume growth and any operational issues that may develop in and around the AUAR area. This traffic management plan will be coordinated with the city’s Municipal State Aid (MSA) street system traffic counting program, which will bi-annually study the traffic volumes on the system to determine when traffic control adjustments are needed, when thoroughfare upgrades are needed and when traffic signal warrants are met. The city will continue to solicit the input of the public and affected property owners during the detailed design phase of planning the transportation system.

Ecologically Sensitive Resources
Mitigating impacts to ecologically sensitive resources is discussed throughout the AUAR. In the Draft AUAR, all three scenarios proposed to generally adhere to the township’s existing bluffline setback standard that requires structures to be set back 40 feet from the bluffline (Grey Cloud Island Township Zoning Ordinance Section III.D.11.a) to mitigate impacts to sensitive resources. The Draft AUAR also
included a commitment to publicly dedicate and/or provide conservation easements over the river islands, shoreline, bluffs, and 40-foot bluffline setback area. The Draft AUAR comment letters generally stated that the 40-foot setback to the bluffline was not adequate to protect sensitive resources such as natural plant communities, wildlife habitat, oak savanna, cliffs/bluffs, floodplain, and seepage areas, and that more information regarding conservation and restoration plans was needed to adequately assess potential impacts. Scenarios Two and Three have been revised to include significantly wider setbacks from the bluffline, natural area restoration, sensitive design of the trail system, and to eliminate alterations to the bluffs to construct access to the bay. The Final AUAR includes a proposal to increase the setback to 100 feet from the bluffline. This revision will help mitigate impacts to savanna, deciduous forest and woodlands, bluff, floodplain, and seepage areas. In particular, all oak savanna areas located along the bluff will be protected.

Further revisions to Scenarios Two and Three also mitigate impacts to ecologically sensitive resources. The aforementioned revisions to the storm water management system mitigate impacts to the seeps/springs, bay, backwater channels, and river. The focus of the Village Center/Commercial area has been pulled back from the edge of the bay to 100 feet from the bluffline, and the boat access ramp has been eliminated in Scenarios Two and Three to mitigate the potential impacts associated with motorized boats and development near the edge of the bay. Additionally, development proposed on the “secondary bluff” located south of the bay has been eliminated, except for one road. This secondary bluff rises up from an old river channel and does not border the existing configuration of the river and backwater channels. The revisions to the scenarios also eliminated the need to alter bluff areas near the previously proposed boat access area.

Steep Slope Alterations
As noted in the previous discussion of mitigating impacts to ecologically sensitive resources, the boat access ramp has been eliminated in Scenarios Two and Three, proposed development has been pulled back from the edge of the bay, and development on the secondary bluff located immediately south of the bay has been eliminated, except for one road. The development of areas adjacent to and immediately south of the bay potentially required altering 1.6 acres of slopes greater than 18% (as shown on Figure 14-2 in the Draft AUAR). Comments on the Draft AUAR noted that steep slope alterations are potential short-term environmental hazards and potential long term recurring problematic situations. Development scenario revisions have resulted in removal of potential structures from slopes greater than 18%, and from most areas greater than 12%. There are locations where two roadways and the trail system will run at perpendicular or off-perpendicular angles through slopes greater than 12%. To minimize impacts associated with the construction of these facilities, great care has been taken in the specific locations to route these facilities on old farm roads and eroded drainage routes already needing stabilization.

All development, except for one road, has been removed through the secondary bluff in the south central part of the AUAR area. This secondary bluff will remain unaltered, except for approximately 1/20 acre of slopes greater than 18% will be altered to construct this road. An access through the secondary bluff is necessary for developing the southwestern portion of the AUAR area. The alignment of the road has been located in an area of previous disturbance. Alignment of the road at this location allows for access to the southwestern portion of the AUAR area and will address existing erosion problems at this location. Best Management Practices (BMPs) for erosion and sediment control will be a part of design and construction in this area.

Boat Access Ramp and Riverside Development
In the Draft AUAR, Scenarios Two and Three included a boat access ramp, vehicle/boat trailer parking, docks, a pedestrian boardwalk, and a mixed use building within the consolidated river access area located adjacent to the southeastern edge of the bay. Draft AUAR comment letters suggested that motorized boat
use was not appropriate for the bay because its shallow depth may result in sediment re-suspension and the re-suspended sediments could potentially impact fresh water mussels that may be located downstream. The comments suggested that dredging may be necessary to provide river access at the bay; however, neither scenario proposed dredging. To mitigate potential impacts to the bay, the proposed boat access, ramp, docks, mixed use building, and parking areas have been eliminated from Scenarios Two and Three. The focus of the Village Center has been pulled back from the edge of the bay to 100 feet landward of the bluffline. Trails will be the only access provided to the bay and potential non-motorized recreational users will have to portage their non-motorized craft to the bay. The lack of a road to the bay and parking areas near the bay will limit the accessibility of the bay to motorized boats.

**Groundwater Contamination**

The Draft AUAR noted that the Minnesota Department of Health (MDH) designated an area north of the AUAR area as a Special Well Construction Area (SWCA) in 1999. The SWCA is located approximately 1,360 feet north of the AUAR area. The purposes of a SWCA are to inform the public of potential health risks in areas of groundwater contamination, provide for the construction of safe water supplies, and prevent the spread of contamination due to the improper drilling of wells or borings. If new wells are constructed in the eastern portion of the AUAR area, the wells would be located at approximately 2,500 to 3,400 feet south of the SWCA.

Source Water Assessments provided by the MDH for St. Paul Park and Cottage Grove indicate that none of the surrounding municipal wells are susceptible to contamination because they meet construction standards and do not present a pathway for contamination to readily enter the water supply. Given that a new well would be constructed according to the MDH standards, in similar geology as the six surrounding municipal wells, and located equidistant or greater from outside the SWCA as the surrounding municipal wells, it is unlikely that a new well would draw contamination into the water supply system. Additionally, review of the Minnesota Geological Survey maps, and additional research conducted by Westwood Professional Services and GME Consultants, suggests that the groundwater and surface water flow westerly, not south of the SWCA. The combination of the groundwater flowing westerly from the SWCA, the location of new wells being located approximately 2,500 to 3,400 feet south of the SWCA, and that new wells would be constructed according to the MDH standards, will mitigate the potential for new wells located within the AUAR area presenting a pathway for the existing contamination area to enter the water supply.

The Draft AUAR noted that the upper bedrock in the AUAR area contains fractures and that the soils have moderate to high permeability. Comments on the Draft AUAR suggested that blasting and excavating fractured bedrock may potentially cause groundwater contamination and that a decrease in water infiltration could potentially impact groundwater supplies. GME consultants located the lineament (rock fracture) traces by reviewing stereoscopic pairs of aerial photos. The lineaments are shown on Figure 19-1 in this Final AUAR. GME stated that blasting and excavating bedrock is a routine construction activity that occurs in areas with shallow depth to bedrock. The act of ripping bedrock does not impact the potential for groundwater contamination. The AUAR area is not proposed for land uses that may have a high potential for contaminating groundwater, such as heavy industrial uses. Additionally, the stormwater management system has been revised to include infiltration basins that will promote groundwater recharge.

**Scenic Views**

The Draft AUAR included a discussion of strategies to limit the view of the development from the river for structures proposed to exceed the existing height limitation of 35 feet within the Mississippi River Critical Area. The areas where structures are proposed to exceed 35 feet in height within the Critical Area are located in the Village Center/Commercial area (see Figure 14-3). Comments on the Draft AUAR
suggested that the AUAR should discuss and evaluate the impacts on views from the river at several vantage points. The Final AUAR includes a computer simulated visual analysis of proposed development under Scenario Two (maximum height scenario) from seven vantage points, including the main river channel, backwater channels, bay, and the island owned by the National Park Service (see Appendix I). To mitigate potential visual impacts of structures proposed to exceed 35 feet in height within the Critical Area, the city will require a site-specific view analysis during the site planning process. This will allow the city to assess the visual impacts of the specific buildings in the future, rather than the “worst case scenario” height assessed for the purposes of the AUAR. The Mitigation Plan outlines conditions that must be met for buildings to exceed 35 feet in height within the Critical Area. These conditions are partially derived from Executive Order 79-19, State Shoreland Rules, and the Mississippi National River and Recreation Area Comprehensive Management Plan (MNRRA-CMP). The township will continue to limit heights to 35 feet within the Critical Area.

MITIGATION PLAN
A comprehensive summary of potential impacts and the proposed Mitigation Plan are included under Item B in this Final AUAR. The Mitigation Plan will become a component of the action plan to ensure that the city and township avoid, minimize, or mitigate significant environmental impacts from the development of the AUAR area. A conceptual site plan for the portion of the AUAR area within the Mississippi River Critical Area has been prepared to illustrate a site plan that is consistent with the proposed Mitigation Plan. This conceptual site plan is shown on the next page.
This is an example of a site plan for the Mississippi River Critical Area that is consistent with the proposed mitigation measures. This site plan has not been reviewed or approved by the City or Township.
This guidance has been prepared by the Environmental Quality Board (EQB) staff to assist in the preparation of AUAR documents. It is based on the directive of 4410.3610, subpart 4, that “the content and format [of an AUAR document] must be similar to that of an Environmental Assessment Worksheet (EAW), but must provide for a level of analysis comparable to that of an Environmental Impact Statement (EIS) for impacts typical of urban residential and commercial development.” The requirements and guidance on this form pertinent to the AUAR process are in italics.

**GENERAL GUIDANCE FOR AN AUAR (EQB, October 2000)**

This guidance is based on the items of the standard EAW form (February 1999 version); the numbers listed below refer to the item numbers of that form. Except where stated otherwise, the information requested here is intended to augment (or clarify) the information asked for on the EAW form; therefore, the EAW form and the guidance booklet “EAW Guidelines” must be read along with this guidance.

The information requested must be supplied for each of the major development scenarios being analyzed, and it is important to clearly explain the differences in impacts between the various scenarios.

If this guidance indicates that an EAW item is not applicable to the AUAR, the item number and its title (the text in bold print on the EAW form) should be included with a indication that the EQB guidance indicates that no response is necessary in an AUAR (as opposed to just skipping reference to that item at all).

One general rule to keep in mind throughout the preparation of the AUAR document is that whenever a certain impact may or may not occur, depending on the exact design of future developments, the AUAR should cover the possible impacts through a “worst case scenario” analysis or else prevent the impacts through the provisions of the mitigation plan. Failure to cover possible impacts by one of these means risks the invalidation of the environmental review exemption for specific development projects.

Again, please note that the requirements on this form pertinent to the AUAR process are in italics.

**Document format.** If the RGU wishes to reorganize the AUAR content into a format other than that of the EAW form, it may do so, provided that a cross-reference index is supplied that informs the reader where the response(s) to each of the EAW items can be found (identifying the page(s) or specific section(s)).
1. **Project Title:** Rivers Edge AUAR  
   *AUAR Guidelines: An appropriate descriptive title for the geographic area of the AUAR should be chosen*

2. **Proposer:** DR Horton Custom Homes  
   *AUAR Guidelines: It is not necessary for AUAR proposers to identify property owners within the AUAR area (although it may be useful to use such names as identifiers of various land parcels).*

   Contact: 
   - Peter Gualtieri  
   - Title: President, Bridgeland Consulting  
   - Address: 15026 Bridgewater Ct.  
   - Savage MN, 55378  
   - Phone: 612.590.1933  
   - Fax: 952.440.9238  
   - E-Mail: peterg@integraonline.com

3. **RGU:** City of St. Paul Park  
   Contact: Barry Sittlow  
   - Title: City Administrator  
   - Address: 600 Portland Ave  
   - St. Paul Park, MN 55071  
   - Phone: 651.459.9785  
   - Fax: 651.459.6144  
   - E-Mail: bsittlow@attbi.com

4. **Reason for EAW Preparation**  
   *AUAR Guidelines: Not applicable to AUAR*

5. **Project Location (Figure 5-1 and 5-2)**  
   
   County: Washington  
   City: St. Paul Park  
   Township: Grey Cloud Island

   The project is located in the S½ of the SE¼ of Section 11, the majority of Section 13, the E½ of Section 14, the NE¼ of Section 24 of T 27N, R 22W and the W½ of the SW¼ of the NW¼ of Section 19 of T 27N, R 21W.

   Attach each of the following maps to the AUAR: county map, USGS map, and a site plan.

   *AUAR Guidelines: The county map is not needed for an AUAR. The USGS map should be included. Instead of a site plan, include: (1) a map clearly depicting the boundaries of the AUAR and any subdistricts used in the AUAR analysis; (2) land use and planning maps as required in conjunction with items 9 and 27; and (3) a cover type map as required for item 10. Additional maps may be included throughout the document wherever maps are useful for displaying relevant information.*

   All required maps and additional maps displaying relevant information are found in Appendix A.
6. Description
   a. Provide a project summary of 50 words or less to be published in the EQB Monitor.
   b. Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal or remodeling of existing structures. Indicate the timing and duration of construction activities.
   c. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.
   d. Are future stages of this development including development on any outlots planned or likely to happen? ☐ Yes ☐ No
      If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.
   e. Is this project a subsequent stage of an earlier project? ☐ Yes ☐ No
      If yes, briefly describe the past development, timeline and any past environmental review.

AUAR Guidelines: For the AUAR the following elements for each major development scenario should be included instead of the above information called for on the EAW form:

6a. Anticipated types and intensity (density) of residential land and commercial/warehouse/light industrial development throughout the AUAR area

6b. Infrastructure planned to serve the development (roads, sewers, water, stormwater system, etc.). Roadways intended primarily to serve as adjoining land uses within an AUAR area are normally expected to be reviewed as part of an AUAR. More arterial types of roadways that would cross an AUAR area are an optional inclusion in the AUAR analysis; if they are to be included, a more intensive level of review, generally including an analysis, is necessary

6c. Information about the anticipated staging of various developments, to the extent known, and of the infrastructure, and how the infrastructure staging will influence the development schedule.

BACKGROUND

This background section includes information related to existing land use, surrounding land uses, past land use, and annexation.

Existing Land Use – Subject Property

The AUAR area encompasses the northernmost portion of Grey Cloud Island Township and a small portion of the existing city limits of St. Paul Park (Figure 6-1). Existing land use is described in Table 6-1 and shown on Figure 6-2. The AUAR area consists of terraced landforms along the eastern side of the Mississippi River in the northern portion of Grey Cloud Island Township, Minnesota. Much of the AUAR area is relatively flat to rolling, with the majority of this area consisting of active agricultural fields, old pastures, and old fields. Two farmsteads and several outbuildings exist in the central portion of the AUAR area. The western portion of the AUAR area consists of forests, bluffs, floodplain forests, and the Mississippi River. The river bluffs rise between 20 to 50 feet above the river and are characterized by a combination of exposed limestone cliffs and mesic oak savanna. A bay of the river is located near the center of
the AUAR area’s western land edge. The Burlington Northern railroad represents the eastern boundary of the AUAR area with the exception of a tract of land that extends further east in the central portion of the eastern property boundary. This tract is mostly active agricultural fields; however, the northeastern portion of this tract slopes uphill and is dominated by grassland vegetation. Grey Cloud Island Drive transects the northern two-thirds of the AUAR area and Grey Cloud Trail forms the southern boundary on the eastern half of the AUAR area. A dirt road extends from Grey Cloud Island Drive through the central and southwestern portions of the AUAR area.

Table 6-1. 2000 Existing Land Use

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Acres</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>334</td>
<td>50.1%</td>
</tr>
<tr>
<td>Undeveloped</td>
<td>173</td>
<td>25.9%</td>
</tr>
<tr>
<td>Open Water</td>
<td>142</td>
<td>21.3%</td>
</tr>
<tr>
<td>Farmstead</td>
<td>10</td>
<td>1.5%</td>
</tr>
<tr>
<td>Park/Recreation</td>
<td>2</td>
<td>0.3%</td>
</tr>
<tr>
<td>Rail Road</td>
<td>3</td>
<td>0.5%</td>
</tr>
<tr>
<td>Single Family</td>
<td>3</td>
<td>0.4%</td>
</tr>
<tr>
<td>Total</td>
<td>667</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: Metropolitan Council, DSU, Westwood

Existing Land Use – Surrounding Area

A variety of land uses surround the project site in the jurisdictions of St. Paul Park, Cottage Grove, and Grey Cloud Island Township (see Figure 6-2). The majority of the surrounding land uses are single family residential, agricultural, the Mississippi River and undeveloped land near the river corridor. Three major industrial uses are in the vicinity of the project site and include: auto salvage yards (St. Paul Park), an Ashland Oil tank farm (Cottage Grove), and mineral extraction (Grey Cloud Island Township). The auto salvage yard is adjacent to the AUAR area and is incompatible with residential development. Washington County Department of Public Health and Environment officials state that the imminent threat associated with that facility is that of a mosquito breeding ground. The auto salvage yard is guided for multifamily residential uses in the city’s Land Use Plan. The development of the area adjacent to the auto salvage yard is included in the later development stages to afford adjacent property owners more time for the potential clean up and redevelopment of this incompatible industrial facility. To mitigate the potential risk associated with the elevated mosquito levels the city, township, and private developers will need to work with the Metropolitan Mosquito Control District to coordinate appropriate spraying or other control mechanisms to adequately reduce mosquito exposure to workers and future residents.

Past Land Use

The subject property has been in agricultural production or pasture, including two stockyards, for over a century. Historical plat maps indicate that the two stockyards located to the west of Grey Cloud Island Drive were originally constructed between 1874 and 1887. These maps also indicate that the stockyards have undergone multiple changes in ownership during the past century. A 1927 aerial photograph shows the landscape of the AUAR area before the construction of the dams in the 1930s (Figure 6-3). Before the construction of the dams, the configuration of the islands, backwater channels, and bay were significantly different that the existing landscape. In 1927 many of the backwater channels were “dry” and the extent of the islands was greater. The amount of upland has been significantly reduced due to the elevated water levels of the Mississippi River that are needed to support commercial navigation on the
main channel (i.e., water level accretion).

A historical aerial photograph from 1936 shows two farmsteads and the majority of the AUAR area in agricultural production or pasture, including the stockyards. This photograph also shows a tree canopy forming a relatively thin band along the Mississippi River bluffs and it appears that the bay is not inundated (flooded). A historical photograph from 1956 also shows the majority of the AUAR area in agricultural production or pasture, and it appears that the tree canopy east of the bluff was thinned since the 1936 photograph. The bay was inundated in the 1956 photograph.

**Annexation**

The city and township signed a Settlement Agreement in November 2002 (Appendix B). Section B of the Settlement Agreement between the city and township states that the city and township will make a reasonable division of the subject property between the two jurisdictions that will preserve the identity of each. Pursuant to the Settlement Agreement, the city and the township have reached an agreement regarding the division of the subject property between the two jurisdictions (see Figure 6-1).

6a. **AUAR Guidelines: Anticipated types and intensity (density) of residential land and commercial/warehouse/light industrial development throughout the AUAR area.**

Mn Rules state that, “the Responsible Governmental Unit (RGU) may specify more than one scenario of anticipated development provided that at least one scenario is consistent with the adopted comprehensive plan. At least one scenario must be consistent with any known development plans of property owners within the area” (Mn Rules. Chapter 4410.3610 subp.3). This Final AUAR includes a review of three development scenarios and a description of each scenario’s anticipated type and intensity of development follows.

**SCENARIO ONE**

Scenario One is based on the “worst case” land uses and intensities proposed in the city and township’s adopted land use plans (Figure 6-4) and zoning (Figure 6-5). Scenario One consists of low density Rural Residential land uses (Table 6-2). The adopted plans and regulations would accommodate 52 units. Under a “worst case scenario,” the bluffs, shoreline, and islands would remain in private ownership and ownership would be divided amongst 19 riparian lot owners. Under the existing zoning, each riparian lot owner has the right to access the river by the preferred method of constructing stairways, lifts, and/or landings along the bluff face to the shore area. Each owner also has the right to locate a dock in the shore area as long as it meets state requirements (see Figure 6-4).

**Table 6-2. Scenario One - Land Use**

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Maximum Housing Units</th>
<th>Allowed Gross Density</th>
<th>Acres</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Residential</td>
<td>48</td>
<td>1 unit/10 acres</td>
<td>497</td>
<td>74.5%</td>
</tr>
<tr>
<td>Rural Residential</td>
<td>4</td>
<td>1 unit/2.5 acres</td>
<td>11</td>
<td>1.6%</td>
</tr>
<tr>
<td>Park/Recreation</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Right of Way</td>
<td>0</td>
<td>10</td>
<td>10</td>
<td>1.5%</td>
</tr>
<tr>
<td>Railroad</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>0.5%</td>
</tr>
<tr>
<td>Open Water</td>
<td>0</td>
<td>145</td>
<td>145</td>
<td>21.7%</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>667</td>
<td>667</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: Grey Cloud Island Township and City of St. Paul Park's 2020 Comprehensive Plans
SCENARIO TWO
Scenario Two is based on known development plans of a property owner within the AUAR area and the Settlement Agreement. The location of the Mixed Use Village Center has been changed to address comments on the Draft AUAR. The focal point of the Village Center has been pulled back from the bay and the bluffline. Scenario Two consists of Single Family/Twins, Multifamily Residential, Village Center Multifamily Residential, Mixed Use, and Scenic River/Recreational Areas, Open Water, and Railroad land uses (Figure 6-6 and Table 6-3).

### Table 6-3. Scenario Two - Land Use

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Units</th>
<th>Net Density Range</th>
<th>Acres</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>~ Single Family &amp; Twins</td>
<td>1,000</td>
<td>2 - 5 units/acre</td>
<td>264</td>
<td>39.6%</td>
</tr>
<tr>
<td>~ Multifamily</td>
<td>800</td>
<td>6 - 16 units/acre</td>
<td>129</td>
<td>19.3%</td>
</tr>
<tr>
<td>Village Center</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>~ Multifamily Residential</td>
<td>400</td>
<td>16 -20 units/acre</td>
<td>23</td>
<td>3.4%</td>
</tr>
<tr>
<td>~ Mixed Use*</td>
<td>200</td>
<td>0.2 - 0.35 FAR**</td>
<td>10</td>
<td>1.5%</td>
</tr>
<tr>
<td>River Open Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>~ Open Water</td>
<td>142</td>
<td></td>
<td>142</td>
<td>21.3%</td>
</tr>
<tr>
<td>~ River Islands</td>
<td>63</td>
<td></td>
<td>63</td>
<td>9.4%</td>
</tr>
<tr>
<td>~ Bluffs</td>
<td>20</td>
<td></td>
<td>20</td>
<td>3.0%</td>
</tr>
<tr>
<td>~ Riparian Shoreline</td>
<td>6</td>
<td></td>
<td>6</td>
<td>0.9%</td>
</tr>
<tr>
<td>Parkway</td>
<td>7</td>
<td></td>
<td>7</td>
<td>1.0%</td>
</tr>
<tr>
<td>Railroad</td>
<td>3</td>
<td></td>
<td>3</td>
<td>0.5%</td>
</tr>
<tr>
<td>Total</td>
<td>2,400</td>
<td></td>
<td>667</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

* Residential and commercial uses allowed throughout the 10 ac.
** Floor Area Ratio - the ratio of floor area to the total area of the lot

The predominant developed land use under Scenario Two is Residential. Approximately 416 acres will be designated Residential and these acres are divided into two major residential land use categories: Mixed Residential and Village Center Multifamily Residential. Of those 416 acres, approximately 94% will be allocated to Mixed Residential and 6% will be allocated to Village Center Multifamily Residential.

**Mixed Residential – 393 Acres**
The Mixed Residential category includes single family, twins and multifamily units. The multifamily units within the Mixed Residential category will have individual or separate entrances to each unit (e.g., townhouses)

- **Single Family Detached and Twin Homes (2 – 5 units/acre) – 264 acres**
  The purpose of this category is to accommodate future residential uses with a variety of single family housing styles at an average net density of 3.8 units per acre. Approximately 67% of the Mixed Residential acres will be used for single family housing types. Housing types within this land use category include single family detached homes and twin homes on a variety of lot sizes ranging from approximately 5,000 to 18,000 square feet.
Multifamily (Attached Units) – Medium-High Density (6 – 16 units/acre) – 129 acres
The purpose of this category is to accommodate future residential uses with a variety of housing types and styles. Approximately 33% of the Mixed Residential acres will be used for multifamily housing types at an average net density of 6.2 units per acre. Medium density residential will range from 6–9 units per acre. Housing types within the medium density range will include four (4) thru twelve (12) -plex type housing, which includes town homes, villas, and row houses. Higher density residential will range from 9 – 16 units per net acre. Housing types within the high density range will include up to twenty-four (24) -plex type housing.

Village Center – 33 Acres
The purpose of this category is to establish a Village Center to create a sense of place for and a strong community linkage to the Mississippi River for the community. The Village Center represents 5% of the total project area. The Village Center will be connected to the neighborhoods by open space and trail corridors as well as the roadway system. The Village Center will accommodate a mix of residential and commercial uses. The Mixed Use area, which may include commercial and residential uses, is located east of the bay and will include a trail system to connect the Village Center to the river.

Village Center Multifamily (16 – 20 units/acre) – 23 acres
The purpose of this category is to accommodate future residential uses within the Village Center at an average net density of 17 units per acre. Approximately 23 acres are included in this land use category, which represents 5% of the total residential acres and 70% of the Village Center area. Village Center Multifamily Residential includes units that share common entryways to access each individual unit. Housing types within this land use category include condominiums and potentially a senior housing component that provides a variety of housing types and care facilities.

Village Center Mixed Use – 10 acres
Although the Village Center Multifamily land use category is discussed above, multifamily residential uses may also be located above commercial uses in the Mixed Use portion of the Village Center. The housing component of the Mixed Use area will accommodate residential development at an average net density of 20 units per acre.

The commercial component is intended to include services for the community. These non-residential uses may include the following: medical clinic, offices (i.e., insurance, travel, etc.), community retail (i.e., drug store, deli, bakery, gas station, etc.) community services (i.e., bank, day care, etc.) and restaurants may be located in the Village Center. These commercial uses are expected to occupy approximately 10 acres of the Village Center and may be mixed both vertically and horizontally with the residential uses.

A community center may be located within the Village Center. The community center may include park and recreation facilities, a fire station, a police station and community gathering space.
Open Water – 142 acres
The AUAR area contains 142 acres of water below the ordinary high water level, which represents 21% of the total project area. The property owner owns the land under the water because these areas were land and seasonally flooded areas before the construction of the dams in the 1930s (see Figure 6-3, 1927 Aerial Photograph).

Scenic River/Recreational Areas – 89 acres
The purpose of this category is to provide passive open space areas within the subject property. The scenic river/recreational areas comprise 89 acres, which represents 13% of the total project area. Passive open space lands will help conserve environmentally sensitive areas such as the river, undeveloped river islands, shoreline, bluffs, ravines, floodplain, and the on-site Bald Eagle’s nest. Passive recreational opportunities will be provided along the river’s edge and may include a trail system, public recreational structures, and scenic overlooks.

The assumed location of development follows the bluffline, as shown on Figure 6-6 and 6-7, as a “worst case scenario.” Blufflines within the Mississippi River Critical Area are defined as the line delineating the top of a slope connecting the points at which the slope becomes less than 18 percent. Generally, undevelopable lands riverward of the bluffline are included in the Scenic River/Recreational Areas land use category. To mitigate potential impacts to environmentally sensitive areas, the Mitigation Plan includes a 100-foot setback to the bluffline. This buffer area has the potential to add approximately 20 acres to the parks and open space system. The exact ownership of the setback area will be determined through the PUD process (i.e., public verse private ownership of the setback area). The Mitigation Plan discusses the development parameters for the bluffline setback area in more detail.

Parkway – Seven (7) acres
A two lane, tree lined parkway will function as the collector that provides access to and through the subject property. The parkway comprises seven (7) acres, which is 1% of the total project area. In the future, the parkway can provide suitable access through the subject property to the potential Regional Park on Lower Grey Cloud Island in Cottage Grove.

Railroad – Three (3) acres
The Burlington Northern Railroad is located at the eastern edge of the AUAR area. The railroad comprises 0.5% of the AUAR area.

Scenario Three
The development intensity of the third scenario is based on the average of the lowest urban density goals contained in Metropolitan Council policies, which support a density range of three (3) to five (5) units or more per acre for new residential development. The major difference between the second and third scenarios is the lack of a mixed use Village Center, although such a Village Center is also consistent with Metropolitan Council policies. By eliminating the condominiums and specialty senior housing in the Village Center, the total number of units in the project is reduced from 2,400 to 1,800. The amount and intensity of non-residential uses is the same under Scenario Two and Three. Scenario Three consists of Single Family Residential, Multifamily Residential, Commercial, Open Water, Scenic River/Recreational Areas, Parkway, and Railroad land uses (Figure 6-7)
<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Units</th>
<th>Net Density Range</th>
<th>Acres</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family</td>
<td>1,000</td>
<td>2 - 5 units/acre</td>
<td>264</td>
<td>39.6%</td>
</tr>
<tr>
<td>Multifamily</td>
<td>800</td>
<td>5 - 16 units/acre</td>
<td>152</td>
<td>22.8%</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td>0.35 FAR</td>
<td>10</td>
<td>1.5%</td>
</tr>
<tr>
<td>Open Water</td>
<td></td>
<td></td>
<td>142</td>
<td>21.3%</td>
</tr>
<tr>
<td>Scenic River/Recreational Areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>~ River Islands</td>
<td></td>
<td></td>
<td>63</td>
<td>9.4%</td>
</tr>
<tr>
<td>~ Bluffs</td>
<td></td>
<td></td>
<td>20</td>
<td>3.0%</td>
</tr>
<tr>
<td>~ Riparian Shoreline</td>
<td></td>
<td></td>
<td>6</td>
<td>0.9%</td>
</tr>
<tr>
<td>Parkway</td>
<td></td>
<td></td>
<td>7</td>
<td>1.0%</td>
</tr>
<tr>
<td>Railroad</td>
<td></td>
<td></td>
<td>3</td>
<td>0.5%</td>
</tr>
<tr>
<td>Total</td>
<td>1,800</td>
<td>667</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

**Single Family Detached and Twin Homes (2 – 5 units/acre) – 264 acres**
The purpose of this category is to accommodate future residential uses with a variety of single family housing styles at an average net density of 3.8 units per acre. Approximately 63% of the Residential acres will be used for single family housing types. Housing types within this land use category include single family detached homes and twin homes on a variety of lots sizes ranging from approximately 5,000 to 18,000 square feet.

**Multifamily (Attached) – Medium-High Density (5 – 16 units/acre) – 152 acres**
The purpose of this category is to accommodate future residential uses with a variety of housing types and styles. Approximately 37% of the Residential acres will be used for multifamily housing types at an average net density of 5.3 units per acre. Medium density residential will range from 5 – 9 units per acre. Housing types within the medium density range will include four (4) thru twelve (12) -plex type housing, which includes town homes, villas, and row houses. Higher density residential will range from 9 – 16 units per acre. Housing types within the high density range will include twelve (12) thru sixteen (16) -plex type housing, which includes row houses.

**Commercial – 10 acres**
The Commercial area is intended to include the same type of services for the community as described for Scenario Two. Medical offices, community retail, community services, and restaurants may be located in the commercial area. These commercial uses are expected to occupy approximately 1.5% of the total project area and 2% of the developable portion of the AUAR area. Given the types of units allowed in Scenario Three and the reduced number of units accommodated, the aforementioned range of commercial uses may not be supported by the market, and therefore not feasible. A community center may be located within the commercial area. The community center may include park and recreation facilities, a fire station, a police station and community gathering space.

**Open Water – 142 acres**
The AUAR area contains 142 acres of water below the ordinary high water level, which represents 21% of the total project area. The property owner owns the land under the water because these areas were land and seasonally flooded areas before the construction of the dams in the 1930s (see Figure 6-3, 1927 Aerial Photograph).
Scenic River/Recreational Areas – 89 acres
The purpose of this category is to provide passive open space areas within the subject property. The scenic river/recreational areas comprise 89 acres, which represents 13% of the total project area. Passive open space lands will help conserve environmentally sensitive areas such as the river, undeveloped river islands, shoreline, bluffs, ravines, floodplain, and the Bald Eagle nesting site. Passive recreational opportunities will be provided along the river’s edge and may include a trail system, public recreational structures, and scenic overlooks.

The assumed location of development follows the bluffline, as shown on Figure 6-6 and 6-7, as a “worst case scenario.” Generally, undevelopable lands riverward of the bluffline are included in the River Open Space land use category. To mitigate potential impacts to environmentally sensitive areas, the Mitigation Plan includes a 100-foot setback to the bluffline. This area has the potential to add approximately 20 acres to the river open space system. The exact ownership of the setback area will be determined through the PUD process (i.e., public verse private ownership of the setback area). The Mitigation Plan discusses the development parameters for the bluffline setback area in more detail.

Parkway – Seven (7) acres
A two lane, tree lined parkway will function as the collector that provides access to and through the subject property. The parkway comprises seven (7) acres, which is 1% of the total project area. In the future, the parkway can provide suitable access through the subject property to the potential Regional Park on Lower Grey Cloud Island in Cottage Grove.

Railroad – Three (3) acres
The Burlington Northern Railroad is located at the eastern edge of the AUAR area. The railroad comprises 0.5% of the AUAR area.

6b. **AUAR Guidelines: Infrastructure planned to serve the development (roads, sewers, water, storm water system, etc.). Roadways intended primarily to serve as adjoining land uses within an AUAR area are normally expected to be reviewed as part of an AUAR. More arterial types of roadways that would cross an AUAR area are an optional inclusion in the AUAR analysis; if they are to be included, a more intensive level of review, generally including an analysis, is necessary**

**SCENARIO ONE**

**Roads**
The township has a combination of paved and gravel roads that serve existing development. Under this Scenario, Grey Cloud Island Drive (County Road 75) would serve as the main road throughout the project site and connect with several smaller roads. The existing roadway system would provide access to Trunk Highway 61.

**Sanitary Sewer**
Each residential lot will be served by an individual sewage treatment system (ISTS). The potential wastewater generation under Scenario One is estimated at 0.013 million gallons per day (mgd), or 4.9 million gallons per year.
Storm Water Management System
The township has adopted Minnesota Pollution Control Agency’s (MPCA’s) Best Management Practices (BMPs) and a Storm Water Management Ordinance based on the Metropolitan Council’s model ordinance. A rural-scale storm water system, if any, would need to follow the aforementioned practices and regulations.

Water
Each residential lot will be served by an individual domestic well. The quantity of water used is expected to be proportional to the amount of sanitary wastewater produced. The estimated water demand under Scenario One is 0.014 million gallons per day (mgd) or 5.3 million gallons per year, which is based on the assumption that consumption is approximately 110 percent of wastewater generation.

Scenario Two
Roads
Roadway improvements will be necessary to serve the future growth and development under Scenario Two. The transportation network is planned around a major collector, (divided parkway design) forming the spine of the transportation system. Within the AUAR area, a series of connecting roads will be constructed to facilitate efficient internal site access that can be accomplished without using the main roadway. Keeping internal circulation traffic off of the main artery will serve to lessen the traffic demand on that road.

At the north end of the AUAR boundary, the main roadway is planned to connect to existing 3rd Street, a collector street in the city’s current Transportation Plan. The roadway will connect to Grey Cloud Trail at the south end of the AUAR area. Ultimately, Third Street will be realigned and upgraded to a two lane divided parkway within the project area. The parkway will replace a portion of CR 75 that passes through the AUAR area. The parkway comprises seven (7) acres, which is one (1) percent of the total project area.

The design of the upgraded roadway will address the current intersection of CR 75 and Grey Cloud Trail. The inplace intersection with its skew angle and restricted sight distance experiences a high crash rate and realignment of this intersection will serve to correct the current design deficiencies. As the parkway is planned, a connection will be maintained to CR 75 south of the AUAR area providing continued southerly access to Grey Cloud Island and the potential future regional park on the island.

The main access to the new urban area is planned to come from an improved interchange on T. H. 61, through downtown St. Paul Park on Summit Avenue and Broadway Avenue (County Road 22) and down Third Street.

In the early phases of development traffic oriented to the east and southeast will primarily use Pullman Avenue to reach Hastings Avenue (CSAH 39). Hastings Avenue provides access to the Grange Boulevard/80th Street interchange with T.H. 61. During later phases of development, the extension of 95th Street is will be constructed with a grade separated railroad crossing. Ninety-fifth Street will provide an effective route for easterly destinations within Cottage Grove. It will also provide a route to T.H. 61 and southerly destinations via the 95th Street connection to Jamaica Avenue and the T.H. 61/Jamaica interchange.
Sanitary Sewer
A sanitary sewer study and Sanitary Sewer Plan were prepared for the AUAR area. The Sewer Plan will be used to plan the orderly expansion of wastewater collection facilities. The plan delineates the location of future sewer extensions, force mains, and lift stations to serve future growth areas.

Wastewater generated with the AUAR area will be collected in proposed gravity sewer lines and drained to central locations within the AUAR area. Since there are no existing gravity sewer lines with sufficient depth to serve the AUAR area, one or more lift stations and forcemains will be required for the discharge of wastewater north into the city’s sewer system. In the early phases of the development, the city’s existing sewer system may be able to accommodate pumped discharges from a portion of the AUAR area assuming there are some upgrades to existing sewer lines. However, a new larger diameter gravity line will ultimately be required to convey flows from the AUAR area towards the Metropolitan Council’s connection point.

Under Scenario Two, the estimated maximum potential wastewater generation is 0.66 million gallons per day (mgd) from residential units and 0.008 mgd from institutional/office and commercial/retail development. The estimated maximum potential daily wastewater production for the entire development under Scenario Two is 0.66 mgd.

Storm Water Management System
The goal is to design the storm water management system so that post-development surface water runoff rates and volumes are equal to or lower than the existing surface runoff rates and volumes for storm events of 2-year frequency or less, and post-development water quality is equal to or better than the pre-development water quality. This will be achieved by:

- Emphasizing infiltration as a management strategy, and setting a goal of infiltration between 70 to 80 percent of the runoff from all rainfall;
- Reducing impervious surface areas where possible; and
- Directing storm water into vegetated landscaped areas including swales, native plantings, and other infiltration zones.

Storm water will be directed to the treatment areas by storm sewer pipes and overland drainage features. Infiltration/detentions basins will be installed with each phase of the development and be designed to handle a 100-year storm event. In a 100-year event, storm water will be retained in the ponds and discharged at or below existing levels.

As part of the storm water management system, two outfall structures are proposed above the ordinary high water level of the Mississippi River. One outfall will be directed into a constructed wetland forebay adjacent to the river (south of the bay) and the other into a 2-cell treatment area as part of the manure lagoon restoration (north of the bay). The existing stockyard discharge pipe corridor through the bluffs may be used to route about 72 percent of the drainage area to the 2-cell treatment area. This pipe corridor represents an area of previous disturbance through the bluffs.

Water
The existing public water main system is comprised of an interconnected network of 6-to 12-inch diameter water mains. The likely connection points to the existing city water main system are north and east of the AUAR area. Figure 13-1 shows where the water main connections would be extended into the AUAR area. The two northern water main connections include an 8-inch water
main connection point at Second Street, and a 12-inch water main connection point at Sixth Street. The eastern portion of the AUAR area would connect to an 8-inch water main at Summit Avenue. Additionally, Scenario Two will require a looped water main system, and may require new wells, pump houses, and a water tower. Some of the city’s existing water mains will need to be enlarged to increase water pressures and flows between the city and the AUAR area.

Additional lateral water mains will be installed as development occurs. It is anticipated that all of the property within the AUAR area will be served by municipal water service by 2015. All municipal water lines will be sized to appropriate specifications and constructed to serve the AUAR area.

The quantity of water used is expected to be proportional to the amount of sanitary wastewater produced. The estimated water demand under Scenario Two is 0.73 million gallons per day or 267.5 million gallons per year, which is based on the assumption that consumption is approximately 110 percent of wastewater generation.

**SCENARIO THREE**

**Roads**
Roadway improvements will be similar to Scenario Two where the transportation network is planned around a major collector, (divided parkway design) forming the spine of the transportation system.

**Sanitary Sewer**
The sanitary sewer infrastructure will be similar to Scenario Two. The estimated residential wastewater production predicted in Scenario Three is 0.49 mgd. Scenario Three has the same amount of institutional/office and commercial/retail wastewater production as Scenario Two.

**Storm Water Management System**
The storm water management system will be similar to Scenario Two.

**Water**
Infrastructure needed for the water system will be similar to Scenario Two. The quantity of water used is expected to be proportional to the amount of sanitary wastewater produced. The estimated water demand under Scenario Three is 0.52 million gallons per day or 190.6 million gallons per year, which is based on the assumption that consumption is approximately 110 percent of wastewater generation.

6c. **AUAR Guidelines: Information about the anticipated staging of various developments, to the extent known, and of the infrastructure, and how the infrastructure staging will influence the development schedule.**

The development of the AUAR area is proposed in response to anticipated future regional growth of 930,000 people by 2030, investments in nearby components of the regional transportation system, and Metropolitan Council policies. New infrastructure and improvements to existing infrastructure will be necessary to accommodate development of the AUAR area. It is anticipated that development will begin in 2004 and be phased over the next 10-12 years. However, the ultimate development schedule will depend on market conditions. Development will generally progress from the northeast to the southeast and then from the northwest to the southwest. Construction of the Village Center/Commercial area is planned to occur during the last phase.
The depth to bedrock within the subject property is a major factor that will determine the infrastructure/development staging plan (Figure 6-8). The depth to bedrock generally becomes shallower moving from north to south. The Phase 1 area was selected due to its greater depth to bedrock and is location adjacent to the existing Metropolitan Urban Service Area (MUSA). Phases 2 through 4 facilitate urbanization occurring in a contiguous pattern from north to south. Since the bedrock generally becomes shallower moving from north to south, the southern areas are included in Phases 6 through 11 to allow for excavation activities that are necessary to provide the cost effective extension of utilities. Table 6-5 includes a summary of the anticipated infrastructure development schedule.

Although Phase 5 is located in the northern portion of the AUAR area containing greater depth to bedrock, it was not included in the initial phases due to the additional time afforded to property owners adjacent to the AUAR area to clean up and redevelop the adjacent auto salvage yards.

Table 6-5. General Development Schedule*

<table>
<thead>
<tr>
<th>Timing</th>
<th>General Development Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>Upgrade 3rd Street through alternative lane configurations, south of Pullman Avenue</td>
</tr>
<tr>
<td>Phase 1</td>
<td>Install new 12-inch water main in 13th Avenue and south on 6th Street to project boundary</td>
</tr>
<tr>
<td>Phase 1</td>
<td>Remove existing 8-inch sanitary sewer line and construct new 10-inch sanitary sewer line along Pullman Avenue from 3rd Street to 6th Street</td>
</tr>
<tr>
<td>Phases 1 – 7, 9, and 11</td>
<td>Upgrade and realignment of current County Road 75, internal roadways</td>
</tr>
<tr>
<td>Phases 1 - 11</td>
<td>Installation of sanitary sewer pipes and water mains</td>
</tr>
<tr>
<td>Phases 1 - 11</td>
<td>Construct building pads, parking areas, storm water ponding, and potential infiltration basins</td>
</tr>
<tr>
<td>Phase 2</td>
<td>Add 8-inch water main in 2nd Street, south from 13th Avenue to project boundary</td>
</tr>
<tr>
<td>Phase 6</td>
<td>Upgrade 3rd Street through alternative lane configurations, south of Broadway Avenue to Pullman Avenue</td>
</tr>
<tr>
<td>Phases 6 - 11</td>
<td>Excavation activities, development of the Village Center</td>
</tr>
<tr>
<td>Prior to Pullman Ave.</td>
<td>Construct 95th Street extension bridge</td>
</tr>
<tr>
<td>reaching capacity</td>
<td></td>
</tr>
<tr>
<td>Phases 4 and 7</td>
<td>Realignment of the intersection at County Road 75 and Grey Cloud Trail.</td>
</tr>
<tr>
<td>Phase 11</td>
<td>Construction of the Village Center</td>
</tr>
<tr>
<td>Prior to Full Development</td>
<td>Signalize Broadway/3rd Street and Broadway/Summit when a signal warrant is met</td>
</tr>
<tr>
<td>Prior to Full Development</td>
<td>Regional Trail Planning</td>
</tr>
</tbody>
</table>

* The ultimate timing of the phasing plan will be adjusted to reflect market conditions. The timing of infrastructure improvements will be determined by the city and stipulated in developer agreements (see the Mitigation Plan for further details).

**AUAR Guidelines:** The RGU must assure that the development described complies with the requirements of 4410.3610, subpart 3 (and also that it properly orders the AUAR and sets the description in that order as required by 4410.3610, subpart 3).
Mn Rules state that, “the Responsible Governmental Unit (RGU) may specify more than one scenario of anticipated development provided that at least one scenario is consistent with the adopted comprehensive plan. At least one scenario must be consistent with any known development plans of property owners within the area” (Mn Rules. Chapter 4410.3610 subp.3). The City Council and Township Board ordered the AUAR and specified three development Scenarios (Appendix C). Scenario One is consistent with the adopted city and township Comprehensive Plans, which are more restrictive than the County’s Comprehensive Plan for the township. Scenario Two is consistent with known development plans of a property owner within the AUAR area and with the Settlement Agreement. The Master Development Plans and PUDs for the AUAR area will be consistent with Metropolitan Council reviewed and DNR-approved Comprehensive Plan and Critical Area Plan amendments, which will be formally submitted for review and approval in the near future. Scenario Three is based on the average of the lowest urban density goals supported in the Metropolitan Council policies. Scenario Three has also been revised to address comments received on the Draft AUAR.

As set forth under Minnesota Rules Part 4410.3610, subp. 7, this Final AUAR and Mitigation Plan must be revised if any of the circumstances listed below apply:

1. Five years have passed since the RGU adopted the original environmental analysis document and plan for mitigation or the latest revision. This item does not apply if all development within the area has been given final approval by the RGU.

2. A comprehensive plan amendment is proposed that would allow an increase in development over the levels assumed in the environmental analysis document.

3. Total development within the area would exceed the maximum levels assumed in the environmental analysis document.

4. Development within any subarea delineated in the environmental analysis document would exceed the maximum levels assumed for that subarea in the document.

5. A substantial change is proposed in public facilities intended to service development in the area that may result in increased adverse impacts on the environment.

6. Development or construction of public facilities will occur on a schedule other than that assumed in the environmental analysis document or plan for mitigation so as to substantially increase the likelihood or magnitude of potential adverse environmental impacts or to substantially postpone the implementation of identified mitigation measures.

7. New information demonstrates that important assumptions or background conditions used in the analysis presented in the environmental analysis document are substantially in error and that environmental impacts have consequently been substantially underestimated.

8. The RGU determines that other substantial changes have occurred that may affect the potential for, or magnitude of, adverse environmental impacts.
7. **Project Magnitude Data (see Table 7-1 below)**

Total Project Acreage: __________

Number of residential units: _____ unattached _____ attached

Commercial, industrial or institutional building area (gross floor space): total square feet_______

Indicate areas of specific uses (in gross square feet):
- Office: ______________________________
- Manufacturing: ______________________
- Retail: ______________________________
- Other Industrial: _____________________
- Warehouse: __________________________
- Institutional: _______________________
- Light Industrial: _______________________
- Agricultural: ________________________
- Other Commercial (specify): ________________

Building Height __________. If over two stories, compare to heights of nearby buildings***.

**AUAR Guidelines**: The cumulative totals of the parameters called for should be given for each major development scenario, except that the information on manufacturing, other industrial, institutional, agricultural and building heights is optional: See Table 7-1 below:

---

### Table 7-1. Project Magnitude Data

<table>
<thead>
<tr>
<th>Project Magnitude Data</th>
<th>Scenario One</th>
<th>Scenario Two</th>
<th>Scenario Three</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Project Area:</td>
<td>667 acres</td>
<td>667 acres</td>
<td>667 acres</td>
</tr>
<tr>
<td>Open water, floodplain, river islands, bluffs</td>
<td>226 acres</td>
<td>226 acres</td>
<td>226 acres</td>
</tr>
<tr>
<td>Net Developable Area</td>
<td>441 acres</td>
<td>441 acres</td>
<td>441 acres</td>
</tr>
<tr>
<td>Number of Residential Units:</td>
<td>Gross Density</td>
<td>Net Density</td>
<td>Net Density</td>
</tr>
<tr>
<td>Detached Units (density)</td>
<td>48 (1 unit/10 ac.)</td>
<td>1,000 (3.8 units/ac.)</td>
<td>1,000 (3.8 units/ac.)</td>
</tr>
<tr>
<td>Detached Units (density)</td>
<td>4 (1 unit/2.5 ac.)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Multifamily Attached Units (density)*</td>
<td>NA</td>
<td>800 (6.2 units/ac.)</td>
<td>800 (5.3 units/ac.)</td>
</tr>
<tr>
<td>Maximum Units Per Building</td>
<td>NA</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Village Center Attached Units (density)</td>
<td>NA</td>
<td>600 (18-20 units/ac.)</td>
<td>NA</td>
</tr>
<tr>
<td>Maximum Units Per Building</td>
<td>NA</td>
<td>300**</td>
<td>16</td>
</tr>
<tr>
<td>Non Residential Building Area (gross floor space):</td>
<td>0 sq ft</td>
<td>83,000 sq ft</td>
<td>83,000 sq ft</td>
</tr>
<tr>
<td>Total Square Feet of Specific Uses:</td>
<td>Office</td>
<td>0 sq ft</td>
<td>10,000 sq ft</td>
</tr>
<tr>
<td></td>
<td>Retail</td>
<td>0 sq ft</td>
<td>38,000 sq ft</td>
</tr>
<tr>
<td></td>
<td>Other Commercial: medical clinic, bank, daycare</td>
<td>0 sq ft</td>
<td>20,000 sq ft</td>
</tr>
<tr>
<td></td>
<td>Industrial</td>
<td>0 sq ft</td>
<td>0 sq ft</td>
</tr>
<tr>
<td></td>
<td>Public/Institutional</td>
<td>0 sq ft</td>
<td>15,000 sq ft</td>
</tr>
<tr>
<td></td>
<td>Agricultural</td>
<td>0 sq ft</td>
<td>0 sq ft</td>
</tr>
<tr>
<td>Building Height*** (maximum):</td>
<td>35 ft</td>
<td>70 ft (55 ft Critical Area)</td>
<td>45 ft</td>
</tr>
</tbody>
</table>

* The Environmental Quality Board (EQB) rules (which includes the rules for AUARs) defines “attached units” as units consisting of groups of four or more units, each of which shares one or more common walls with another unit (Mn Rules Chapter 4410.0200, subp 5).

** A Potential Continuum of Care Senior Housing Facility may have a maximum of 300 units per building.

*** The only nearby existing struture is a 50+ ft. feed mill that will be removed from the site.
8. **Permits and Approvals Required** List all known local, state, and federal permits, approvals, and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance, including bond guarantees, Tax Increment Financing and infrastructure.

**AUAR Guidelines:** A listing of major approvals and public financial assistance and infrastructure likely to be required by the anticipated types of development projects should be given. This list will help orient reviewers to the idea that the AUAR process is only one piece of the regulatory framework that will protect environmental resources. The list can also serve as a starting point for the development of the implementation aspects of the mitigation plan to be developed as part of the AUAR.

<table>
<thead>
<tr>
<th>UNIT OF GOVERNMENT</th>
<th>TYPE OF APPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal</strong></td>
<td></td>
</tr>
<tr>
<td>Army Corps of Engineers</td>
<td>Section 404 Permit GP/LOP-98-MN</td>
</tr>
</tbody>
</table>
| National Park Service | Review of federally funded projects or permits within the MNRRA corridor  
                         Review of state permits in the MNRRA corridor |
| **State**          |                     |
| Minnesota Environmental Quality Board | Environmental Assessment (AUAR) |
| Minnesota Pollution Control Agency | 401 Water Quality Certificate  
                                   NPDES/SDS General Permit  
                                   Wastewater Permit  
                                   Sanitary Sewer Permit |
| State Historic Preservation Office | Cultural Resources Review |
| Minnesota Department of Natural Resources | Natural Heritage Program Threatened and Endangered Species Review  
                       Water Appropriations Permit  
                       Public Waters Work Permit  
                       General Permit 97-0005 for Temporary Water Appropriations  
                       Plan Amendments affecting lands within the Critical Area Corridor  
                       Ordinance Amendments affecting lands within the Critical Area Corridor  
                       Shoreland Management District Ordinance and Ordinance Amendments  
                       Planned Unit Developments (PUD) within the Shoreland Management District of St. Paul Park until the DNR approves a Shoreland Management District Ordinance and Shoreland PUD regulations for the city. |

* All required permits and approvals will be obtained. Any necessary permits or approvals that are not listed in the table were unintentionally omitted, and some listed may not be necessary.
## Table 8-1. List of Permits and Approvals (continued)*

<table>
<thead>
<tr>
<th>UNIT OF GOVERNMENT</th>
<th>TYPE OF APPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State</strong></td>
<td></td>
</tr>
<tr>
<td>Minnesota Department of Health</td>
<td>Watermain Plan Review</td>
</tr>
<tr>
<td></td>
<td>Well Location and Construction Approval</td>
</tr>
<tr>
<td></td>
<td>Wellhead Protection Plan Approval</td>
</tr>
<tr>
<td><strong>Board of Soil and Water Resources</strong></td>
<td>Wetland Conservation Act Permits</td>
</tr>
<tr>
<td><strong>Regional</strong></td>
<td></td>
</tr>
<tr>
<td>South Washington Watershed District</td>
<td>Erosion and Sediment Control Review</td>
</tr>
<tr>
<td></td>
<td>Storm Water Management Plan Review</td>
</tr>
<tr>
<td>Metropolitan Council</td>
<td>Comprehensive Plan Amendment Review</td>
</tr>
<tr>
<td></td>
<td>Critical Area Plan and Ordinance Review</td>
</tr>
<tr>
<td></td>
<td>Sanitary Sewer Connection Permit</td>
</tr>
<tr>
<td></td>
<td>Regional Trail Planning and Funding</td>
</tr>
<tr>
<td>Washington Conservation District</td>
<td>Wetland Conservation Act Permits</td>
</tr>
<tr>
<td><strong>County</strong></td>
<td></td>
</tr>
<tr>
<td>Washington County</td>
<td>Comprehensive Plan Amendment</td>
</tr>
<tr>
<td></td>
<td>Zoning Code Amendment</td>
</tr>
<tr>
<td></td>
<td>Planned Unit Development (PUD) Permit</td>
</tr>
<tr>
<td></td>
<td>Preliminary Plat</td>
</tr>
<tr>
<td></td>
<td>Final Plat (multiple)</td>
</tr>
<tr>
<td></td>
<td>Permit to work within the Public Right-of-Way (multiple)</td>
</tr>
<tr>
<td></td>
<td>Regional Trail Planning and Funding</td>
</tr>
<tr>
<td></td>
<td>County Road Access Permit(s)</td>
</tr>
<tr>
<td></td>
<td>Shoreland Management Ordinance Amendment</td>
</tr>
</tbody>
</table>

* All required permits and approvals will be obtained. Any necessary permits or approvals that are not listed in the table were unintentionally omitted, and some listed may not be necessary.
Table 8-1. List of Permits and Approvals (continued)*

<table>
<thead>
<tr>
<th>UNIT OF GOVERNMENT</th>
<th>TYPE OF APPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Paul Park / Grey Cloud</td>
<td>Annexation Agreement</td>
</tr>
<tr>
<td>Island Township</td>
<td>Comprehensive Plan Amendment</td>
</tr>
<tr>
<td></td>
<td>Critical Area Plan Amendment</td>
</tr>
<tr>
<td></td>
<td>Critical Area Ordinance Amendment</td>
</tr>
<tr>
<td></td>
<td>Master Development Plan</td>
</tr>
<tr>
<td></td>
<td>Planned Unit Development</td>
</tr>
<tr>
<td></td>
<td>Site Plan Approval (multiple)</td>
</tr>
<tr>
<td></td>
<td>AUAR and Mitigation Plan Approval</td>
</tr>
<tr>
<td></td>
<td>Preliminary Plat</td>
</tr>
<tr>
<td></td>
<td>Final Plat (multiple)</td>
</tr>
<tr>
<td></td>
<td>Grading, Excavation, and Foundation Permits (multiple)</td>
</tr>
<tr>
<td></td>
<td>Building Permit (multiple)</td>
</tr>
<tr>
<td></td>
<td>Sewer Connection Permit (multiple)</td>
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<td></td>
<td>Water Connection Permit (multiple)</td>
</tr>
<tr>
<td></td>
<td>Use Permit – Floodplain District</td>
</tr>
<tr>
<td></td>
<td>Shoreland Management District Ordinance (St. Paul Park)</td>
</tr>
<tr>
<td></td>
<td>Wetland Alteration and Design</td>
</tr>
</tbody>
</table>

* All required permits and approvals will be obtained. Any necessary permits or approvals that are not listed in the table were unintentionally omitted, and some listed may not be necessary.

Public Financial Assistance
At this time, no public financial assistance has been allocated for development within the AUAR area.
9. **Land Use.** Describe the current and recent past land use and development on the site and on adjacent lands. Discuss the compatibility of the project with adjacent and nearby land uses; indicate whether any potential conflicts involve environmental matters. Identify any potential environmental hazard due to past land uses, such as soil contamination or abandoned storage tanks.

*AUAR Guidelines: No changes from the EAW form*

**PLEASE NOTE:** The summary of existing and past land uses and potential land use conflicts is included in the response to Items 6 and 10. The identification of any potential environmental hazards due to past land uses, such as soil contamination or abandoned storage tanks is included under Item 19.
10. **Cover Types.** Estimate the acreage of the site with each of the following cover types before and after development:

<table>
<thead>
<tr>
<th>Types</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types 1-8 wetlands</td>
<td></td>
<td>See Table 10-4</td>
</tr>
<tr>
<td>Wooded/forest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brush/Grassland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cropland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lawn/landscaping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impervious Surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (describe)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If **Before** and **After** totals are not equal, explain why:

**AUAR Guidelines:** For an AUAR the following information should be provided instead:

a. **Cover Type Map (Figure 10-1),** at least at the scale of a USGS topographic map, depicting:
   - wetlands - identified by type (Circular 39)
   - watercourses - rivers, streams, creeks, ditches
   - lakes - identify protected water status and shoreland management classification
   - woodlands – breakdown by classes where possible
   - grassland - identify native and old field
   - cropland
   - current development

b. **An Overlay Map** showing anticipated development in relation to the cover types; this map should also depict any “protection areas,” existing or proposed, that will preserve sensitive cover types. Separate maps for each major development scenario should generally be provided.

**NATURAL RESOURCE INVENTORY**

In September and October 2002 and March and April 2003, Applied Ecological Services, Inc (AES) conducted a Natural Resource Inventory of the AUAR area. The purpose of this investigation was to identify land use and cover features focusing on plant community structure and ecological health and also to conduct a limited wildlife survey. A description of each cover type included in the inventory is described in the following section. In general, land cover mapping is similar to existing Minnesota Land Cover and Classification System (MLCCS) mapping for the AUAR area; however, the land cover mapping completed by AES is the best representation of existing natural resources within the AUAR area because it is based on ground reconnaissance. Figure 10-1 shows the cover types within the AUAR boundary. Table 10-1 shows how the land cover map code correlates with the MLCCS.
<table>
<thead>
<tr>
<th>Natural Resource Management System Code</th>
<th>Potential MLCCS¹ Correlate²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious/Hard Surface</td>
<td>14123 (91-100% Impervious Cover, Buildings and Pavement)</td>
</tr>
<tr>
<td>Planted or Maintained Vegetation</td>
<td>23100 (Planted or Maintained Grasses with Sparse Tree Layer)</td>
</tr>
<tr>
<td>Grasslands/Croplands:</td>
<td></td>
</tr>
<tr>
<td>Agricultural Field</td>
<td>24114 (Upland Soils – Cultivated Row Cropland – Soybeans)</td>
</tr>
<tr>
<td>Old Field</td>
<td>61220 (Medium-Tall Non-Native Dominated Herbaceous Vegetation)</td>
</tr>
<tr>
<td>Old Field with Woody Vegetation</td>
<td>62140 (Non-Native Dominated Herbaceous Vegetation with Sparse Deciduous Trees)</td>
</tr>
<tr>
<td>Dry Prairie</td>
<td>61210 (Dry Prairie); 61220 (Medium-Tall Non-Native Dominated Herbaceous Vegetation)</td>
</tr>
<tr>
<td>Grasslands/Croplands:</td>
<td></td>
</tr>
<tr>
<td>Agricultural Field</td>
<td>24114 (Upland Soils – Cultivated Row Cropland – Soybeans)</td>
</tr>
<tr>
<td>Old Field</td>
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</tr>
<tr>
<td>Old Field with Woody Vegetation</td>
<td>62140 (Non-Native Dominated Herbaceous Vegetation with Sparse Deciduous Trees)</td>
</tr>
<tr>
<td>Dry Prairie</td>
<td>61210 (Dry Prairie); 61220 (Medium-Tall Non-Native Dominated Herbaceous Vegetation)</td>
</tr>
<tr>
<td>Forest/Woodland/Savanna:</td>
<td></td>
</tr>
<tr>
<td>Deciduous Forest</td>
<td>32170 (Boxelder-Green Ash Disturbed Native Forest); 32110 (Oak Forest)</td>
</tr>
<tr>
<td>Deciduous Woodland</td>
<td>42130 (Disturbed Deciduous Woodland); 42120 (Oak Woodland-Brushland)</td>
</tr>
<tr>
<td>Mesic Oak Savanna</td>
<td>62130 (Mesic Oak Savanna)</td>
</tr>
<tr>
<td>Floodplain Forest</td>
<td>32211 (Floodplain Forest, Silver Maple Subtype)</td>
</tr>
<tr>
<td>Tree Row</td>
<td>21213 (Other Deciduous Trees)</td>
</tr>
<tr>
<td>Water Features³:</td>
<td></td>
</tr>
<tr>
<td>Spring and Seepage Area</td>
<td>63210 (Seepage Meadow)</td>
</tr>
<tr>
<td>Wet Meadow</td>
<td>61420 (Wet Meadow); 61480 (Saturated Non-Native Dominated Herbaceous Vegetation)</td>
</tr>
<tr>
<td>Dumps and Material Storage</td>
<td>14233 (Landfill); 14234 (Other Exposed/Transitional Land)</td>
</tr>
<tr>
<td>Open Water</td>
<td>91100 (Slow Moving Linear Open Water Habitat); 93300 (Palustrine Open Water)</td>
</tr>
</tbody>
</table>

Table 10-1 Notes:
1 MLCCS = Minnesota Land Cover Classification System, developed by the Minnesota Department of Natural Resources
2 Potential MLCCS correlates are incorporated into this document for general comparisons between classification systems. However, it should be noted that direct correlation between classification systems is not always possible.
3 USFWS National Wetlands Inventory (NWI) mapping identifies two palustrine emergent wetlands with temporarily flooded water regimes and a history of ditching/draining (PEMAd) in the east-central portion of the AUAR area within the stockyards shown on the USGS topographic quadrangle map. These wetlands were not observed during the field investigation. Numerous additional palustrine wetlands (floodplain forest islands and the riverbank) were mapped within the Mississippi River corridor (Figure 10-1).
Impervious/Hard Surface – 14 acres
A small portion of the AUAR area was observed to consist of impervious/hard surfaces. These surfaces included existing structures, roads, and railroad tracks. A barn on the project site had been burned down shortly before the field reconnaissance in fall 2002; however, the foundation and portions of the structure remained. Many of the farmstead outbuildings appeared dilapidated and abandoned.

Planted or Maintained Vegetation – 8 acres
Areas of maintained vegetation were observed around some of the existing buildings. Much of the maintained turf area was dominated by Kentucky bluegrass (*Poa pratensis*). Planted trees and shrubs were observed around some of the structures.

Agricultural Field – 303 acres
Almost the entire eastern half of the AUAR area was in agricultural production. The majority of this area consisted of cultivated soybeans. The remaining agricultural land, located in the east-central portion of the AUAR area, is subdivided and currently leased by multiple individuals. This area consisted of a community garden containing a variety of crops including lettuce species, squash species, and others. This community garden is located in the area identified on the USGS topographic map as “Stockyards”. Although the 1953 aerial photograph suggests a wetland and NWI mapping suggests two wetlands in this community garden area, indications of wetland conditions were not observed during the site reconnaissance.

Old Field and Old Field with Woody Vegetation – 69 acres
Based on field observations and confirmation from the landowner, all of the old fields within the AUAR area have experienced historical grazing. The landowner stated that the old fields in the northern portion of the AUAR area were grazed until approximately 1987, whereas the old fields in the south were released from grazing in the 1940’s or 1950’s.

Two general types of old field plant communities were identified within the AUAR area. Most of the old fields in the north are currently mowed periodically and consist primarily of stinging nettle (*Urtica dioica*), hemp (*Cannabis sativa*), and other agronomic weeds. Most of the old fields in the south were typically dominated by smooth brome grass (*Bromus inermis*), with interspersed native and exotic plant species. Woody invasion by common buckthorn (*Rhamnus cathartica*), Siberian elm (*Ulmus pumila*), Tartarian honeysuckle (*Lonicera tatarica*), green ash (*Fraxinus pennsylvanica*), and eastern red cedar (*Juniperus virginiana*) was observed within the old fields.

The old field in the southwestern portion of the AUAR area is identified on the DNR Minnesota County Biological Survey (MCBS) map as “Dry Sand Dune Prairie” (Figure 11-2). However, field review of this area indicated that this old field is dominated largely by smooth brome grass and contains only two areas with native prairie species. These two prairie areas are shown in Figure 10-1 and are described below. This old field was reviewed by DNR staff who concurred that this area was not dry sand prairie as indicated on MCBS and MLCCS mapping.

Dry Prairie – 3 acres
Several areas containing native prairie plants were identified within the AUAR area, all of which appear to be degraded remnants. Prairie areas were identified within the old field in the southwestern portion of the AUAR area. According to the current landowner, this area has been grazed previously. Prairie species observed in these areas included stiff goldenrod (*Solidago rigida*), wild bergamot (*Monarda fistulosa*), side-oats grama (*Bouteloua curtipendula*), ironweed
(Vernonia fasciculata), thimbleweed (Anemone sp.), and hoary vervain (Verbena stricta). Prairie areas were also identified adjacent to the railroad tracks within the east-central portion of the AUAR area. Some of these areas were very small and only contained one or two native prairie species.

The prairie areas in the eastern-most portion of the AUAR area contain several native plant species. The most diverse prairie patch in this area was observed to contain blazing star (Liatris cf. aspera), little bluestem (Schizachyrium scoparium), gray-headed coneflower (Ratibida pinnata), dropseed (Sporobolus cf. asper), stiff goldenrod, aster (Aster sp.), thimbleweed, and whorled milkweed (Asclepias verticillata). The old field containing these prairie patches is triangular in shape and bound by roads and residential development to the north and east, and agricultural land along its southwestern edge. The boundaries of this field were disturbed by human activities including mowing, dumping of yard waste, and farming practices.

Deciduous Forest and Deciduous Woodland – 37 acres

Deciduous forest was generally observed in the northern portion of the AUAR area between the old field/farmstead areas and the mesic oak savanna located along the Mississippi River bluffs. The deciduous forest contained areas of oak forest (in the northern-most and central portions of the AUAR area) and disturbed native forest (dominated by boxelder, Acer negundo). In lower topographic settings these forests contained some areas of lowland hardwood forest that then transitioned to floodplain forest. A concentration of oaks was observed in the northern-most portion of the AUAR area.

The disturbed deciduous forests were shade-suppressed due to thick woody vegetation, and significant sheet erosion was observed in some areas. Several ravines were also observed within the AUAR area and are shown in Figure 10-1. A channel approximately 6 feet deep has been eroded in the ravine located near the bay.

Deciduous woodland was generally observed in the southern portion of the AUAR area between the old field areas and the mesic oak savanna located along the Mississippi River bluffs. The deciduous woodlands were similar to the deciduous forest areas with slightly less canopy cover, fewer boxelder trees, and much more invasive shrub cover.

Much of the deciduous forest and woodland is dominated by aggressive native species including boxelder, green ash (Fraxinus pennsylvanica), Eastern red cedar (Juniperus virginiana), American elm (Ulmus americana), and prickly ash (Xanthoxylum americanum). Invasive, exotic species were also observed in these areas, including common buckthorn and Tartarian honeysuckle, particularly in the woodlands. Several desirable native species were also observed throughout the higher quality forests and woodlands, including mature bur oak (Quercus macrocarpa), red oak (Quercus rubra), basswood (Tilia americana), ironwood (Ostrya virginiana), butternut (Juglans cinerea), bitternut hickory (Carya cordiformis), and common hackberry (Celtis occidentalis). Ground cover vegetation, both native and non-native, was often sparse.

Mesic Oak Savanna – 16 acres

Mesic oak savanna was observed along the Mississippi River bluffs and in a few other portions of the AUAR area. The DNR classified the area north of the bay as a dry oak savanna during a site visit; however, AES believes this area constitutes a mesic oak savanna based on the soils and vegetation present. Review of historical photographs suggests that the trees along the bluff have been relatively undisturbed since 1936, but the south and central portions may have been in
pasture from 1936 to 1953. Barbed-wire fencing was observed along the bluff in some areas, suggesting past grazing in this area. Several large black maples (*Acer nigrum*) and other native trees were observed near the homesteads.

The mesic oak savanna areas along the bluff were dominated by native plant species and contained mature bur oaks and ironwood. Mature red oak and possibly northern pin oak (*Quercus ellipsoidalis*) were also observed, primarily near the farmstands. Native prairie/savanna species (e.g., big bluestem, native sedges) were observed in several areas near the bluff, particularly where there were openings in the canopy. However, mesic savanna areas near the farmstands contained mostly smooth brome grass and other weedy vegetation in the ground layer. Significant invasion by red cedar was observed along portions of the mesic oak savanna, north of the bay and in the southern portion of the AUAR area. The DNR MCBS map identifies “Oak Woodland-Brushland” in the southern portion of the mesic oak savanna (see Figure 11-2). In addition, the MCBS map identifies the area north of the bay as a “Dry Cliff”. This area consisted of bare bedrock bluff/cliff interspersed with savanna vegetation.

**Floodplain Forest – 65 acres**
Floodplain forests were observed along the bank of the Mississippi River in areas where the shoreline sloped gradually upward from the waterline. Off shore islands were observed to consist of floodplain forests as well; however, these areas were not assessed because no change in land cover is proposed, no access to these areas is proposed by the developer, and these areas will likely be gifted to a public or private conservation organization as a voluntary conservation donation. The visible portions of the floodplain forests were dominated by silver maple (*Acer saccharinum*); however, mature eastern cottonwood (*Populus deltoides*) likely exist in these forests as well. Floodplain forests are depicted as “Silver Maple Floodplain Forest” on the MCBS map.

**Tree Row – 5 acres**
Several tree rows were observed within the AUAR area. Most of these features are located along agricultural fields and are dominated by boxelder, Siberian elm, and hackberry trees with an understory of weedy vegetation.

**Spring and Seepage Area – 1 acre**
Springs and seeps were observed in the bay area of the Mississippi River in the west-central portion of the AUAR area at the toe of the bluff slope. Clear spring water was observed to upwell from beneath the shallow water’s surface and along portions of the bluff’s toe of slope. Some of the vegetation observed in this area is typical of groundwater discharge areas, including marsh marigold (*Caltha palustris*) and watercress (*Rorippa nasturtium-aquaticum*). Other native plant species observed adjacent to the springs included iris (*Iris* sp.), sedges (*Carex* spp.), beggar-ticks (*Bidens* cf. *cernua*), river bulrush (*Scirpus fluviatilis*), clearweed (*Pilea pumila* or *P. fontana*), and Virginia wild rye (*Elymus virginicus*). Some areas of invasive Eurasian reed canary grass (*Phalaris arundinacea*) were also observed in this portion of the AUAR area. Trees observed in this area include silver maple, bur oak, and American elm.

Another seepage area was observed just north of the wet meadow wetland along the toe of the bluff slope. This seep was located in an area transitional between the floodplain forest and deciduous forest.
Wet Meadow – 0.2 acre
One depressional wetland was identified approximately 500 feet north of the bay. This wetland was not delineated. The wetland was located in the Mississippi River floodplain and was characterized as a poor quality wet meadow, dominated by reed canary grass (*Phalaris arundinacea*) and stinging nettle (*Urtica dioica*). However, sweet flag (*Acorus calamus*) and a few other native species were also observed in the wetland. A culvert was observed to discharge into the eastern portion of this wetland; severe erosion was observed around the culvert. This culvert is the discharge point for an existing storm water collection system that was constructed to discharge storm water and stockyard waste into the wet meadow. This wet meadow is proposed to be restored and used as part of the 2-cell storm water treatment area. The existing sludge from years of stockyard waste disposal will be removed and the eroded culvert area will be reconstructed as part of the restoration project. This wet meadow is also referred to as “the manure lagoon” throughout this document.

Dumps and Material Storage Areas – 5 acres
Multiple farm dumps, a personal material storage area containing mainly old vehicles, and a wood material storage area were identified within the AUAR area. Materials identified in the farm dumps include glass, metal, tires, assorted construction materials, and miscellaneous residential wastes. The personal material storage area contained dilapidated vehicles including dump trucks, cars, buses, boats, and snowmobiles. Other materials including lawn mowers, a toilet, and various household materials were identified within the personal material storage area. An area in the northern portion of the AUAR area contained piles of mulch material, wooden pallets, and other wood materials that are being stored.

Open Water – 142 acres
The only open water observed within the AUAR area consisted of the Mississippi River. The AUAR area is located along Pool 2 (DNR Protected/Public Water 19-5P, normal pool elevation 687 ft above mean sea level), which extends from Minnehaha Falls Park (along the Mississippi River) and the Interstate Highway 494 bridge (over the Minnesota River) downstream to Hastings, Minnesota. The bay area represents a submergent wetland based on its relatively shallow water and submerged aquatic vegetation.

NATURAL RESOURCE ASSESSMENT
A ranking of condition was applied to native plant communities (e.g., dry prairie, mesic oak savanna) and not to non-native communities (e.g., old field). Native plant communities (except floodplain forest which was not visited) were assigned a condition rank using the MN Natural Heritage Program’s Element Occurrence Ranking Guidelines (Table 10-2). These guidelines require that each plant community be evaluated using the appropriate ranking considerations in the guidelines.

Native Plant Communities in Fair Condition
Nine locations of native plant communities in fair condition were identified on the property (Figure 10-1 and Table 10-3). Two locations were in deciduous forest, two in deciduous woodland, one in the dry prairie community, and four of the mesic oak savanna areas. These nine locations have high restoration potential. Restoration in these locations would involve brush removal, prescribed burning, trash removal, slope stabilization, and selective planting of native wildflowers, grasses, sedges, shrubs, and trees. The floodplain forest was not visited because no change in land cover is proposed.
### Table 10-2. General Explanation of Native Plant Community Condition Ranking

<table>
<thead>
<tr>
<th>Condition</th>
<th>Rank</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>A</td>
<td>The plant community is intact and has existed on the site for decades. It has diversity typical of the type, no invasion by non-native species, and no significant adverse disturbances.</td>
</tr>
<tr>
<td>Good</td>
<td>B</td>
<td>The plant community was altered by adverse human intervention. It has native diversity that is slightly lower than typical for an excellent example of the type, little non-native species invasion, and slight evidence of past adverse disturbances.</td>
</tr>
<tr>
<td>Fair</td>
<td>C</td>
<td>The plant community has been significantly altered by adverse human intervention. Native diversity is noticeably lower and non-native species may be common and even abundant. There is much evidence of past adverse disturbances, including long-term fire suppression if the plant community is fire-maintained (i.e., it requires fire to maintain typical diversity and vegetation structure).</td>
</tr>
<tr>
<td>Poor</td>
<td>D</td>
<td>The plant community is dramatically altered by adverse human intervention. Native diversity is very low and one or more vegetation layers have few if any native species, or may be dominated by non-native species. There are abundant signs of recent adverse disturbances, including long-term fire suppression of fire-dependent plant communities.</td>
</tr>
<tr>
<td>Restored</td>
<td>R</td>
<td>The plant community is a restored example of a native plant community on a site that was formerly of human origin (e.g., cropland, lawn).</td>
</tr>
</tbody>
</table>

### Table 10-3. Land Cover with Native Plant Community Ranking

<table>
<thead>
<tr>
<th>Land Cover Type</th>
<th>Total (acres)</th>
<th>Fair Condition</th>
<th>Poor Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Field</td>
<td>302.85</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Impervious Surface</td>
<td>14.43</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Planted or Maintained Vegetation</td>
<td>7.91</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Old Field</td>
<td>44.32</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Old Field w/Trees/Woody Invasion</td>
<td>24.20</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Dry Prairie</td>
<td>2.52</td>
<td>0.06</td>
<td>2.46</td>
</tr>
<tr>
<td>Deciduous Forest</td>
<td>22.81</td>
<td>7.82</td>
<td>15.00</td>
</tr>
<tr>
<td>Deciduous Woodland</td>
<td>13.88</td>
<td>7.12</td>
<td>6.76</td>
</tr>
<tr>
<td>Mesic Oak Savanna</td>
<td>15.84</td>
<td>9.84</td>
<td>6.00</td>
</tr>
<tr>
<td>Floodplain Forest</td>
<td>65.19</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Tree Row</td>
<td>4.87</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Spring and Seepage Wetland</td>
<td>0.77</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Wet Meadow</td>
<td>0.17</td>
<td>0.00</td>
<td>0.17</td>
</tr>
<tr>
<td>Dumps and Material Storage</td>
<td>5.26</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Open Water</td>
<td>142.00</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td><strong>Total (acres)</strong></td>
<td><strong>667.00</strong></td>
<td><strong>24.83</strong></td>
<td><strong>30.38</strong></td>
</tr>
</tbody>
</table>

NR = Not Ranked
Native Plant Communities in Poor Condition
The remaining native plant communities within the AUAR area were considered to be in poor condition. These locations present greater challenges for restoration, but their condition could be improved with restoration and management. For example, the mesic oak savanna containing oak and maple trees (located nearest Grey Cloud Island Drive) could be restored with a planting of wildflowers, savanna grasses, and savanna shrubs.

Condition of Non-Native Plant Communities
The non-native plant communities within the AUAR area were not ranked. These communities could be restored to more native conditions by clearing existing vegetation to allow complete replanting of these locations.

b. AUAR Guidelines: An Overlay Map showing anticipated development in relation to the cover types; this map should also depict any “protection areas,” existing or proposed, that will preserve sensitive cover types. Separate maps for each major development scenario should generally be provided.

SCENARIO ONE
An overlay map for Scenario One depicts a potential large-lot residential subdivision and existing protection areas (Figure 10-2). The adopted land use plans of the communities indicate that only a small portion of the AUAR area is proposed as additional protection area. This parcel is designated as part of St. Paul Park’s Riverside Park (see Figure 10-2). The township’s rural residential land use plan did not indicate any additional “protection areas” above and beyond the areas currently protected by ordinance. No clustering or public ownership is contemplated under a “worst case scenario” analysis. The existing areas in private ownership regulated by ordinance that are included in the hypothetical “protection area” shown of Figure 10-2 include the undeveloped river islands, floodplain, slopes greater than 18%, a 40-foot structure setback landward from the bluffline, and a 100-foot structure and road setback from the ordinary high water level (OHWL). The exact location of potential rural residential buildings within each lot is unknown. Therefore, the entire area outside the existing protection zone could be converted from the existing land cover to another use under a “worst case scenario.” Furthermore, the existing dumps/material storage areas may not be cleaned up under Scenario One given the lack of an overall development plan at this time.

SCENARIO TWO/THREE
The location of the developed area is identical between Scenario Two and Three in terms of potential building locations. The decrease in development intensity from Scenario Two to Three is reflected in the type and height of buildings in the Village Center/Commercial area, rather than the footprint of the buildings. An overlay map for Scenario Two/Three depicts anticipated development in relation to cover types (Figure 10-3) and Table 10-4 describes the extent of cover types before and after development. The determination of the existing protection areas for Scenario Two and Three are derived from the township’s existing ordinances (see Figure 10-2 and explanation of existing protection areas for Scenario One above); however, protection areas have generally been expanded in Scenario Two and Three. Only minor deviations from the existing protection areas are anticipated and these deviations are further discussed in the response to Item 14.
Table 10-4. Land Cover Conversion Under Scenarios Two and Three

<table>
<thead>
<tr>
<th>Land Cover Type</th>
<th>Before</th>
<th>After</th>
<th>% Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Field</td>
<td>302.85</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Impervious Surface¹</td>
<td>14.43</td>
<td>7.09</td>
<td>49%</td>
</tr>
<tr>
<td>Planted or Maintained Vegetation</td>
<td>7.91</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Old Field</td>
<td>44.32</td>
<td>4.91</td>
<td>11%</td>
</tr>
<tr>
<td>Old Field w/Trees/Woody Invasion</td>
<td>24.20</td>
<td>4.15</td>
<td>17%</td>
</tr>
<tr>
<td>Dry Prairie</td>
<td>2.52</td>
<td>0.01</td>
<td>0%</td>
</tr>
<tr>
<td>Deciduous Forest</td>
<td>22.81</td>
<td>19.13</td>
<td>84%</td>
</tr>
<tr>
<td>Deciduous Woodland</td>
<td>13.88</td>
<td>4.31</td>
<td>31%</td>
</tr>
<tr>
<td>Mesic Oak Savanna</td>
<td>15.84</td>
<td>10.29</td>
<td>65%</td>
</tr>
<tr>
<td>Floodplain Forest</td>
<td>65.19</td>
<td>65.19</td>
<td>100%</td>
</tr>
<tr>
<td>Tree Row</td>
<td>4.87</td>
<td>0.13</td>
<td>3%</td>
</tr>
<tr>
<td>Spring and Seepage Wetland</td>
<td>0.77</td>
<td>0.77</td>
<td>100%</td>
</tr>
<tr>
<td>Wet Meadow</td>
<td>0.17</td>
<td>0.17</td>
<td>100%</td>
</tr>
<tr>
<td>Dumps and Material Storage</td>
<td>5.26</td>
<td>1.24</td>
<td>24%</td>
</tr>
<tr>
<td>Open Water</td>
<td>142.00</td>
<td>142.00</td>
<td>100%</td>
</tr>
<tr>
<td>Potential Development Area²</td>
<td>NA</td>
<td>407.61</td>
<td>NA</td>
</tr>
<tr>
<td>Total</td>
<td>667.00</td>
<td>667.00</td>
<td>39%</td>
</tr>
</tbody>
</table>

¹ Existing areas of impervious surface. "Impervious After" located within undeveloped bluffline setback area. These impervious areas will likely be removed through restoration activities.

² Pertains to stipled areas shown on Figure 10-3.

³ Does not account for restoration activities within protected areas or the potential development area

⁴ Pertains to non-stipled areas shown on Figure 10-3.

MITIGATION SUMMARY (Refer to Item B for the complete Mitigation Plan)

Mitigation measures related to Item 10, Cover Types, are included with Item 11, Fish, Wildlife, and Ecologically Sensitive Resources, in the Mitigation Plan.

Sensitive environmental areas and the majority of fair quality natural communities are proposed to be protected in a contiguous greenway corridor along the river (Table 10-5). In contrast to Scenario One, much of this greenway corridor is contemplated for public ownership and/or would be protected and managed under legally binding conservation easements. These protected areas encompass the river, floodplain, islands, bluffs, and the bluffline setback area. Although the city’s adopted ordinances do not require a bluffline setback, Scenarios Two and Three propose to adhere to a 100-foot setback from the bluffline. Only natural area restoration and management activities, trails, public recreation structures, and scenic overlooks would be allowed within the bluffline setback area. The location of the bluffline setback may be increased or decreased based on PUD performance standards and restoration plans. An average bluffline setback of 100 feet will be maintained along the river corridor (e.g., the setback is decreased to 80 feet in one area and increased to 120 feet in another area for an average setback of 100 feet). The setback areas would be regulated by a restrictive covenants and/or conservation easements. These plan revisions will limit the impacts to native plant communities, bluff, floodplain, and seepage areas. In particular, oak savanna areas along the bluff will be protected with setbacks that exceed...
existing bluffline setback requirements. Additional protection areas include the potential parks and open space components proposed for the AUAR area (see Figure 25-1). The exact acreage, type, and location of parks and open space will be determined through the PUD process.

Table 10-5. Native Plant Communities – After Development

<table>
<thead>
<tr>
<th>Native Plant Community</th>
<th>Total (acres)</th>
<th>Fair Condition</th>
<th>Poor Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mesic Oak Savanna</td>
<td>15.84</td>
<td>9.84</td>
<td>0.00</td>
</tr>
<tr>
<td>Deciduous Forest</td>
<td>22.81</td>
<td>4.58</td>
<td>3.24</td>
</tr>
<tr>
<td>Deciduous Woodland</td>
<td>13.88</td>
<td>2.87</td>
<td>4.25</td>
</tr>
<tr>
<td>Dry Prairie</td>
<td>2.52</td>
<td>0.00</td>
<td>0.06</td>
</tr>
<tr>
<td>Total</td>
<td>55.04</td>
<td>17.29</td>
<td>7.54</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Protected</th>
<th>Unprotected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mesic Oak Savanna</td>
<td>0.45</td>
<td>5.55</td>
</tr>
<tr>
<td>Deciduous Forest</td>
<td>14.55</td>
<td>0.44</td>
</tr>
<tr>
<td>Deciduous Woodland</td>
<td>1.44</td>
<td>5.32</td>
</tr>
<tr>
<td>Dry Prairie</td>
<td>0.01</td>
<td>2.45</td>
</tr>
<tr>
<td>Total</td>
<td>16.45</td>
<td>13.76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Protected</th>
<th>Unprotected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mesic Oak Savanna</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Deciduous Forest</td>
<td>70%</td>
<td></td>
</tr>
<tr>
<td>Deciduous Woodland</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Dry Prairie</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>54%</td>
<td>46%</td>
</tr>
</tbody>
</table>

In addition to the protection mechanisms mentioned above, it is anticipated that deed restrictions will be implemented, a site-specific restoration and management plan will be developed for the site’s natural areas, a stewardship and perpetual management endowment will be established for the site’s natural areas, and an educational program for residents and commercial business owners will be initiated. Each of these strategies will help to ensure the protection and stewardship of the preserved and restored natural resources within the AUAR area.
11. **Fish, Wildlife, and Ecologically Sensitive Resources**

   a. Identify fish and wildlife resources and habitats on or near the site and describe how they would be affected by the project. Describe any measures to be taken to minimize or avoid impacts.

   **AUAR Guidelines:** The description of wildlife and fish resources should be related to the habitat types depicted on the cover type maps (item 10). Any differences in impacts between development scenarios should be highlighted in the discussion.

   AES conducted a limited wildlife survey at the project site on March 31st and April 10th, 2003. The response to Item 11 is based on this survey with inferences using available data. The most important wildlife features are: 1) Bald Eagle nesting sites on and near the property, 2) freshwater mussel species in the Mississippi River, and 3) non-game wildlife populations in different habitats on the property.

   **BALD EAGLE**

   The Natural Heritage Program documented three Bald Eagle nests within 1 mile of the AUAR area (Figure 11-1 illustrates two nest locations; the third nest is located approximately one mile north of the AUAR area). The Bald Eagle is a species of special concern in Minnesota and listed as threatened at the federal level.

   A nest on the property was used in 2002 and in 2003. A second nest near the southwest corner of the property was used in 2001. A third nest lies about one (1) mile north of the property. Bald Eagles remain together for many years and usually return to the same territory each year (Coffin and Pfannmuller 1988). They occupy several nests in a territory covering a square mile or more and move to different nests depending on conditions at the nest site (Ontario Ministry of Natural Resources 1987). Longer observation would be needed to fully understand the habits of the eagles using this area and to determine if the same pair is returning each year; however, this is beyond the scope of an AUAR.

   Some eagles have become habituated to disturbance and the presence of people. However, some eagles will abandon the nest during mating, egg laying, and incubation if they feel threatened (Ontario Ministry of Natural Resources 1987). The perceived threat may be in the form of disturbance to vegetation, constant loud noise, groups of people, increased traffic, frequent visual distractions, etc. Currently, there are three sources of disturbance to the on-site nest: recreational motor boating, an on-site mulching operation, and an auto wrecking facility just north of the AUAR area. Motorized boats use a backwater channel that is located within 200 feet of the on-site nest. There is a mulching operation within 600 feet of the on-site eagle’s nest that emits loud noise intermittently from grinding and chipping materials. An auto wrecking facility is located within 700 feet of the on-site nest. The presence of intrusive human activities within the vicinity of the nest and data indicating the eagles returning to the nest demonstrate that the eagles using the nest may have become habituated or accustomed to these nearby human activities.

   The most sensitive time for Bald Eagles is February 1 – May 15. To ensure that eagles continue to use a traditional nesting area, the DNR and Ontario Ministry of Natural Resources developed disturbance limit guidelines (Table 11-1).
Table 11-1. Recommended Disturbance Limits for Eagle Nesting Areas

<table>
<thead>
<tr>
<th>Distance (feet)</th>
<th>Period</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-330</td>
<td>Entire year</td>
<td>Avoid any land use change</td>
</tr>
<tr>
<td></td>
<td>February 1-May 15</td>
<td>Avoid human visitation</td>
</tr>
<tr>
<td>330-660</td>
<td>Entire year</td>
<td>Avoid significant change (e.g., clear-cutting, major construction)</td>
</tr>
<tr>
<td></td>
<td>February 1-May 15</td>
<td>Avoid vegetation thinning, human visitation, trail construction</td>
</tr>
<tr>
<td>660-1320</td>
<td>Entire year</td>
<td>Avoid significant land use change in sight-line of nesting area</td>
</tr>
<tr>
<td></td>
<td>February 1-May 15</td>
<td>Human visitation, other non-intensive activities are possible</td>
</tr>
</tbody>
</table>

To address comments on the Draft AUAR, revisions to Scenarios Two and Three have moved trails and other potential disturbances further away from the existing on-site Bald Eagle nest. The trail has been moved from the floodplain to the top of the bluff and will be approximately 400 feet from the nest at its nearest point. The addition of a 100-foot setback from the bluffline results in the nearest structure being at least 500 feet from the nest, and the nearest road may be approximately 450 feet from the nest. Limiting construction activities during the nesting season and removing the existing mulching operation will also help mitigate impacts to the nest.

**Mussels**

Three of Minnesota’s threatened and endangered mussel species were recently found living in the Mississippi River in the vicinity of the AUAR area. In August 2001, the Army Corps of Engineers discovered a population of Wartyback (*Quadrula nodulata*, state endangered) within a quarter mile of the southern property boundary. Additional information was not available for the other two species: the Rock-pocketbook (*Arcidens confagosus*, state endangered) and the Monkeyface (*Quadrula metanevra*, state threatened). The Wartyback and Monkeyface prefer sandy and gravely river bottoms, while the Rock-pocketbook occurs in pool areas with slower flow and muddy or sandy bottoms. Since mussels are attached to the river bottom and filter food from the water, they can be harmed or destroyed by channel dredging or elevated sediment levels caused by motorboats and bank and soil erosion upstream. No dredging, boat ramps, or marinas are proposed in any of the development scenarios. Several existing eroded ravines on the bluff slopes will be re-graded and stabilized as part of the proposed restoration plan to reduce sediment inputs to the river. Bank and soil erosion will be mitigated through the provisions of the infiltration-focused stormwater management plan, which will be consistent with applicable regulations and best management practices. Therefore, development of the AUAR area is not expected to result in potentially significant impacts to mussels or their habitat.

**Wildlife**

The following discussion focuses on the five major wildlife habitat types: short grassland, tall grassland, savanna, woodland/forest, and wetland (Table 11-2). A brief discussion of the property as a corridor during migration is also included.

Table 11-2. Wildlife Habitat Related to Land Cover Types

<table>
<thead>
<tr>
<th>Wildlife Habitat</th>
<th>Land Cover Type</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Grassland</td>
<td>1. Planted or Maintained Vegetation</td>
<td><em>Short grassland vegetation.</em> Mowed grass sometimes with ornamental shrubs/trees, located near buildings and other impervious surfaces.</td>
</tr>
<tr>
<td>Tall Grassland</td>
<td>1. Old Field</td>
<td><em>Tall grassland vegetation.</em> Old field is mostly uniform stands of non-native smooth brome grass (<em>Bromus inermis</em>) or other non-native species.</td>
</tr>
<tr>
<td></td>
<td>2. Dry Prairie</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Agricultural Field</td>
<td></td>
</tr>
</tbody>
</table>
Wildlife Habitat | Land Cover Type | Comment
--- | --- | ---
Dry prairie is a more diverse concentration of native prairie plants. Agricultural fields are crop monocultures with herbaceous structure. Corn provides tall vegetation, soybeans shorter vegetation.

Savanna 1. Old Field with Woody Plants 2. Mesic Oak Savanna Grassland with scattered trees and shrubs. Old field of mostly smooth brome grassland is being colonized by native and non-native trees and shrubs. Mesic oak savanna consists of large and small native trees (mostly oaks) with native or non-native groundcover, depending on the history of use.

Woodland/Forest 1. Deciduous Forest 2. Deciduous Woodland 3. Floodplain Forest 4. Tree Row Mostly closed canopy forest. Deciduous woodland and forest are areas where oaks dominate or are common, as well as areas where light-seeded native trees (e.g., box-elder, green ash) have invaded historic savannas. Floodplain forest is located in the river floodplain. Tree rows represent a narrow woodland patch, mainly along agricultural fields.

Wetland 1. Spring and Seepage Area 2. Wet Meadow 3. Open Water (wetland) Wetlands with wetland vegetation, soils, and hydrology. Small spring and seepage areas exist at the toe of the bluff. One wet meadow was identified on the property. The largest wetland within the AUAR area is the submersent aquatic river/lake bed in the bay of the Mississippi River.

Disturbed Ground 1. Impervious/Hard Surface 2. Dumps and Material Storage These areas retain little or no trace of original conditions; vegetation is usually mostly removed or buried, and soils are altered.

Wildlife on the property respond to vegetation structure, the variety of plant life, and the presence of key resources such as water; insects and other animal prey; or fruits, seeds and nuts. In the discussion below, the presence of known species and the wildlife habitat and its condition will be used to describe the wildlife that might be expected within the AUAR area.

Short Grassland
Typical species of this habitat would be House Sparrow and House Finch in the vicinity of buildings, and also Common Grackle, European Starling, and American Robin foraging on mowed areas. Several mammals (e.g., House Mouse) are also common in these areas. These species are abundant in urban and suburban settings, but are more rare in rural settings with no nearby development.

Tall Grassland
Most of the tall grassland within the AUAR area is dominated by smooth brome grass, which does not provide good structural diversity. The open, agricultural fields provide seasonal food and cover for species such as pheasant, meadowlark, and field sparrow. During the breeding season a greater variety of bird life would be expected near the prairies, in areas with native plants, and where the grassland meets savanna. Pocket gophers and other rodents use the tall grassland. Pocket gophers are predated by badgers, which may be in the general vicinity, and mice and voles are eaten by hawks, owls, and some snakes (e.g., bull snake, which is in the vicinity). A racer snake (\textit{Coluber constrictor}, state special concern) was found one mile southeast of the AUAR area near a native prairie at Grey Cloud Dunes.
Savanna
Savannas have more diverse vegetation structure and as a result have a more diverse animal community than the grasslands on the property. Although the species seen on the property are common, the Great-horned Owl, Pileated Woodpecker, and Eastern Phoebe typically do not inhabit areas of dense development.

Woodland/Forest
Typical species of closed canopy settings were seen and are to be expected. The wooded habitats provide cover and habitat for species such as raccoon, red fox, white-tailed deer, woodcock, thrushes, and woodpeckers. It is likely that the observed Pileated Woodpecker and Great-horned Owl also use the woodland/forest areas. The Bald Eagle was discussed earlier.

Wetland
Significant wetland habitat on the property is associated with the floodplain. Raccoon and potentially some amphibians likely use floodplain areas and the riverbank. The open water wetlands support waterfowl and herons. AES observed 60-70 Green-winged Teal in the bay during the 2003 spring waterfowl migration. Other dabbling ducks may use this bay because of the submerged and floating vegetation (coontail, pondweed, duckweed, etc.) and its isolated, protected location. During the rest of the year Canada Geese, Wood Ducks, and Great Blue Herons may use the bay. The backwaters of the Mississippi River provide similar habitat.

The species observed during the limited wildlife survey are included in the table below.

<table>
<thead>
<tr>
<th>Table 11-3. Species Observed During Limited Wildlife Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short Grassland</strong></td>
</tr>
<tr>
<td>Common Grackle</td>
</tr>
<tr>
<td><strong>Tall Grassland</strong></td>
</tr>
<tr>
<td>Pocket Gopher (mounds)</td>
</tr>
<tr>
<td>Red-tailed Hawk</td>
</tr>
<tr>
<td><strong>Savanna</strong></td>
</tr>
<tr>
<td>White-tailed Deer</td>
</tr>
<tr>
<td>Unidentified Snake</td>
</tr>
<tr>
<td>American Toad</td>
</tr>
<tr>
<td>Black-capped Chickadee</td>
</tr>
<tr>
<td>Great-horned Owl</td>
</tr>
<tr>
<td>Pileated Woodpecker (pair)</td>
</tr>
<tr>
<td>Blue Jay</td>
</tr>
<tr>
<td>American Crow</td>
</tr>
<tr>
<td>Song Sparrow</td>
</tr>
<tr>
<td>Red-tailed Hawk</td>
</tr>
<tr>
<td>Eastern Phoebe</td>
</tr>
<tr>
<td><strong>Woodland/Forest</strong></td>
</tr>
<tr>
<td>Bald Eagle (pair)</td>
</tr>
<tr>
<td>Eastern Wood-pewee</td>
</tr>
<tr>
<td>Broad-winged Hawk</td>
</tr>
<tr>
<td>American Robin</td>
</tr>
<tr>
<td>Cardinal</td>
</tr>
<tr>
<td>Red-bellied Woodpecker</td>
</tr>
<tr>
<td>Black-capped Chickadee</td>
</tr>
<tr>
<td>White-tailed Deer</td>
</tr>
<tr>
<td><strong>Wetland</strong></td>
</tr>
<tr>
<td>Great Blue Heron</td>
</tr>
<tr>
<td>Canada Goose</td>
</tr>
<tr>
<td><strong>Migratory Species</strong></td>
</tr>
<tr>
<td>Green-winged Teal</td>
</tr>
<tr>
<td>Dark-eyed Junco</td>
</tr>
<tr>
<td>Ruby-crowned Kinglet</td>
</tr>
</tbody>
</table>

Migration
Bird species move through the project site because it is adjacent to the largely vegetated corridor of the Mississippi River, a known migratory flyway. AES observed Turkey Vultures, Great Egrets, Bald Eagles, hawks, and Great Blue Herons flying over the AUAR area near the bluffs and river. Smaller birds, such as Ruby-crowned Kinglets and Dark-eyed Juncos (observed by AES), and vireos, flycatchers, thrushes and warblers (not observed, but expected later in spring)
use the forests and woodlands while migrating. Waterfowl and shorebirds use the open water portions of the property during migration.

Development of the property will affect local populations of migratory birds that depend on grasslands and agricultural habitats, such as meadowlarks, field sparrows, and mourning doves. However, all riverine habitat and over 80 percent of the wooded, wetland, and prairie habitat will be preserved. Natural community restoration within the river corridor will improve habitat for migratory bird species and other wildlife. The provision of upland buffers extending to 100 feet landward the bluffs will help mitigate potential impacts on many migratory birds.

Habitat fragmentation has been minimized along the river corridor by limiting trail corridors and cross-through roadway locations. Two proposed roadways that cross through bluff areas follow existing areas of disturbance (e.g., field road and old building foundation locations). Restoration of the habitat along the bluff will enhance wildlife habitat in some locations that are currently degraded. The trail that was previously proposed along the bluff slope north of the bay area has been eliminated from the design to reduce human intrusion, and noise near the on-site Bald Eagle nest.

**General Wildlife Discussion**

Previous agricultural activities have converted over half the site to agricultural fields, many of which support annually tilled agricultural row crops. The predominance of row crops and low-production sandy soils limit the quality and suitability of wildlife habitat on the site, especially during the winter.

Development will affect agricultural and old-field habitats, and respective resident wildlife species more than wooded and riverine habitats. Approximately 408 acres, or 61 percent of the site, will be converted to developed uses. Agricultural and old-field habitat accounts for approximately 90 percent of the proposed development area. All riverine habitat and about 80 percent of the wooded, wetland, and prairie habitat will be preserved.

The scenarios focus development impacts on the most disturbed habitats on the site. Some local decline in wildlife abundance is expected to result from development in the AUAR area. Populations of species that depend on agricultural and old field habitat will likely decrease or be displaced. Migratory birds that depend on fields and grasslands are expected to respond to the development by looking elsewhere for alternative nesting sites upon their return from wintering habitats. However, due to regional development pressure, the acreage of total habitat is declining, offsetting the ease and potential for birds displaced within the AUAR area to find other places to forage, breed, and live. Non-migratory agricultural and grassland species with small home ranges, such as small mammals, will also decline or be displaced.

Preservation of riverine habitat, restoration of native vegetation communities, and increased setbacks along the bluffs are expected to mitigate adverse effects on wildlife. Preservation and setback requirements placed on development within the AUAR area have been designed to preserve the least disturbed, highest quality wildlife habitat and convert the disturbed agricultural areas to developed uses.
b. Are any state-listed (endangered, threatened or special concern) species, rare plant communities or other sensitive ecological resources such as native prairie habitat, colonial waterbird nesting colonies or regionally rare plant communities on or near the site? ☐ Yes ☐ No.

If yes, describe the resource and how it would be affected by the project. Indicate if a site survey of the resources has been conducted and describe the results. If the DNR Natural Heritage and Nongame Research Program has been contacted give the correspondence reference number: **ERDB 20030371**. Describe measures to minimize or avoid adverse impacts.

**AUAR Guidelines:** For an AUAR, prior consultation with the DNR Natural Heritage program for information about reports of rare plant and animal species in the vicinity is required. If such consultation indicates the need, an on-site habitat survey for rare species in the appropriate portions of the AUAR area is required. Areas of on-site surveys should be depicted on a map, as should any “protection zones” established as a result.

Federal-listed threatened and endangered species in Washington County include the threatened Bald Eagle (*Haliaeetus leucocephalus*) and endangered Higgin’s eye pearlymussle (*Lampsilis higginsti*). The typical habitat of the Bald Eagle is mature forest near water, and that of the Higgin’s eye pearlymussle is the Mississippi River.

Minnesota County Biological Survey (MCBS) mapping identifies five natural plant communities within the AUAR area including Silver Maple Floodplain Forest, River Bed, Dry Cliff, Oak Woodland-Brushland, and Dry Sand Dune Prairie. These communities are all identified in the western half of the AUAR area (Figure 11-2) and discussed in the response to Item 10a.

A written request was made to the DNR Natural Heritage and Nongame Research Program regarding known occurrences of rare natural features on or near the AUAR area. The response letter (Appendix D) identifies 27 known occurrences of rare species or natural communities within an approximate one-mile radius from the AUAR area. Of these occurrences, the DNR identifies three elements for which they have concerns regarding development activities within the AUAR area. These elements are multiple “Sites of Biodiversity Significance”, three Bald Eagle nesting sites along the Mississippi River corridor, and three rare mussel species within the Mississippi River. These elements are described further in Table 11-4. None of the “Sites of Biodiversity Significance” are proposed for development. The Bald Eagle was discussed earlier in this section, and the nesting areas with the disturbance guidelines are shown on Figure 11-1. No potentially significant impacts to the mussels are anticipated due to infiltration-focused stormwater management, erosion and sediment control, lack of boat ramps or a marina and a lack of dredging.

<table>
<thead>
<tr>
<th>Table 11-4. State and Federal Listed Species Identified On or Near the AUAR Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status</strong></td>
</tr>
<tr>
<td>Federal Threatened, State Special Concern</td>
</tr>
<tr>
<td>Bald eagle (<em>Haliaeetus leucocephalus</em>)</td>
</tr>
<tr>
<td>Three Bald Eagle nesting areas have been identified near the AUAR area. Of those, 1 is within the AUAR area and another is within 0.5 mile of the AUAR area</td>
</tr>
<tr>
<td>State Endangered</td>
</tr>
<tr>
<td>Wartyback mussel (<em>Quadrula nodulata</em>)</td>
</tr>
<tr>
<td>Documented in the Mississippi River within the vicinity of the AUAR area</td>
</tr>
<tr>
<td>State Endangered</td>
</tr>
<tr>
<td>Rock Pocketbook mussel (<em>Arcidens confragosus</em>)</td>
</tr>
<tr>
<td>Documented in the Mississippi River within the vicinity of the AUAR area</td>
</tr>
<tr>
<td>State Threatened</td>
</tr>
<tr>
<td>Monkeyface mussel (<em>Quadrula metanevra</em>)</td>
</tr>
<tr>
<td>Documented in the Mississippi River within the vicinity of the AUAR area</td>
</tr>
</tbody>
</table>
### Status Species/Natural Community Description

<table>
<thead>
<tr>
<th>Status</th>
<th>Species/Natural Community</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sites of Moderate Biodiversity Significance</td>
<td>Floodplain Forest - Silver Maple Subtype, Dry Cliff (Southeast), and River Bed</td>
<td>These elements include the islands in the Mississippi River (some of which are within the AUAR area) and the bay area</td>
</tr>
<tr>
<td>Sites Ranking Below Moderate Biodiversity Significance</td>
<td>Dry Prairie (Central) Sand-Gravel Subtype and Oak Woodland-Brushland (Central)</td>
<td>These areas are identified in the southwestern portion of the AUAR area</td>
</tr>
</tbody>
</table>

### MITIGATION SUMMARY (refer to Item B for complete Mitigation Plan)

The following strategies are proposed to help mitigate potential impacts to wildlife habitat and environmentally sensitive resources:

- Existing habitat areas (open water, islands, bluffs, and the bluffline setback area) will largely remain unchanged except for areas where ecological restoration and management will occur. Under Scenarios Two and Three, key components of the wildlife habitat corridor within the aforementioned existing habitat areas and the increased bluffline setback area will be transferred from private to public ownership and/or protected and managed through legally binding conservation easements for perpetual protection and stewardship.

- Require a site-specific Natural Resource Restoration and Management Plan to restore and improve native plant communities and to offset the impact of converting agricultural, deciduous forests and woodlands, and prairie remnant habitat to urban development. This plan will include the following major elements:
  - Invasive and non-native species removal along the shoreline, the bluff, and within the bluffline setback area.
  - Restoration and planting plan for degraded natural areas along the mainland shoreline, the bluff, within the bluffline setback area, and in wetland restoration areas created as part of the storm water management system.
  - A conservation program to protect and ensure perpetual stewardship of natural resource areas within the AUAR area. It is anticipated that the one or more of the following six elements may be integrated into a conservation program to protect undeveloped river islands, shoreline, bluffs, bluffline setback areas, the on-site Bald Eagle’s nest, and wetland restoration areas:
    - Transfer land from private to public ownership
    - Deed restrictions
    - Restrictive covenants
    - Conservation easements
    - Stewardship program and perpetual management funding
    - Educational program for future residents and business owners

- A 100-foot structure and road setback to the bluffline is proposed to protect ecologically sensitive resources such as the river, river bluffs, shoreline, floodplain forest, deciduous forest and woodlands, and oak savanna. This will help mitigate the conversion of deciduous forest and woodlands to urban uses. General guidelines for permitting uses and activities within bluff setback areas include the following:
- Permitted uses – natural area restoration and management activities, trails, public recreational structures and scenic overlooks.

- Exception areas include the bluffline setback to secondary bluff located south of the bay and the structure setback to the manure lagoon for the building proposed north of the bay. The secondary bluff and the area landward of it is a previously disturbed area containing dilapidated farm structures/footings and its land cover is characterized as “old field with woody invasion.” Furthermore, this secondary bluff rises up from an old river channel and does not border the current configuration of the river and backwater channels. The setback exception area north of the bay allows for a bluffline setback greater than 100 feet from to the sensitive mesic oak savanna located along the bluffs north of the bay while still providing a potential development area centered on the previously disturbed area north of the bay. The minimum structure setback from the bluffline in these two exception areas will remain 40 feet, in accordance with existing ordinance requirements.

- Two roads are proposed within the bluffline setback area to provide access to the development area north of the bay and to southwestern portion of the AUAR area located south of the bay.

- The location of the bluffline setback may be increased or decreased based on PUD performance standards and restoration plans. An average bluffline setback of 100 feet should be maintained along the river corridor (e.g., the setback is decreased to 80 feet in one area and increased to 120 feet in another area for an average setback of 100 feet).

- Provide educational materials to property owners to encourage revegetating gaps in the natural vegetation cover and planting native understory trees and shrubs, particularly within and adjacent to the bluffline setback area.

- Maximize vegetation continuity by minimizing the width of the road bisecting the vegetation corridor north and south of the bay and minimize the contrast between the road and adjacent habitats.

- Develop a tree preservation plan that will provide feasible and reasonable guidelines for mitigating impacts to desirable trees within areas proposed for development.

- Require individual lot grading plans for lots that encompass bluffline setback areas to minimize site alteration and maximize native habitat conservation.

- Consult with the DNR and/or US Fish and Wildlife Service to determine appropriate mitigation strategies for activities (e.g., trails and structures) near the on-site Bald Eagle’s nest before development occurs within the vicinity of the nest, including reviewing recommended disturbance limit guidelines developed by the DNR, ensuring that adequate vegetation screening is established prior to development activities occurring, and that vegetation restoration activities (e.g., invasive and non-native species removal along the bluff and bluffline setback areas) maintain adequate screening.

- Require that trails within the vicinity of the Bald Eagle’s nest be located landward of the bluffline.
12. **Physical Impacts on Water Resources.** Will the project involve the physical or hydrologic alteration (dredging, filling, stream diversion, outfall structure, diking, impoundment) of any surface water such as a lake, pond, wetland, stream, drainage ditch? ☐ Yes ☑ No

If yes, identify water resource affected and give the DNR Protected Waters Inventory number(s) if the water resources affected are on the PWI: **19-5P**

Describe alternatives considered and proposed mitigation measures to minimize impacts

**AUAR Guidelines:** The information called for on the EAW form should be supplied for any of the infrastructure associated with the AUAR development scenarios, and for any residential or commercial development expected to physically impact any water resources. Where it is uncertain whether water resources will be impacted depending on the exact design of future developments, the AUAR should cover the possible impacts through a "worst case scenario" or else prevent impacts through the provision of the mitigation plan.

**EXISTING WATER RESOURCES**

The DNR Protected Waters Inventory (PWI) for Washington County (DNR, 1996) indicates the AUAR area includes one DNR protected water (19-5P), which is the Mississippi River basin. A field review conducted by AES indicated that the AUAR area contains wetland features along the toe of the bluff and the Mississippi River. These river-related wetland areas include the bay backwater of the river (characterized as a riverbed wetland or submergent wetland), floodplain wetlands, one depressional wetland (wet meadow) along the river, and springs and seeps along the toe of the bluff in the bay area.

Although a review of National Wetlands Inventory (NWI) mapping suggests the AUAR area may contain two depressional wetlands in the former stockyard area, the field review conducted by AES indicates the stockyard area is void of wetland. The stockyard area has been used as a commercial feedlot and more recently as a community garden. During stockyard operations, a 10- to 12-inch diameter elevated pipe was used to drain stockyard wastes and excess water to a depressional wetland located near the Mississippi River (manure lagoon). Because the pipe outfall is several feet above the wetland, significant erosion has occurred along the wetland edge.

The city and township will require project proposers to complete wetland delineations prior to project construction. The delineation will be performed in accordance with the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, Waterways Experiment Station, 1987), and wetlands will be classified according to Wetlands of the United States (US Fish and Wildlife Service Circular 39; Shaw and Fredine, 1971) and Wetlands and Deepwater Habitats of the United States (FWS/OBS Publication 79/31; Cowardin et. al. 1979). The Washington Conservation District, as the Local Governmental Unit, will administer the Wetland Conservation Act on behalf of the city, and in conjunction with the township.

**AFFECTED WATER RESOURCES**

**Wet Meadow/Manure Lagoon Restoration**

Future development plans will be required to include a plan for restoring the wet meadow that was previously used as a manure lagoon. This restoration effort is a part of the storm water management system described under Item 17. Historical plat maps indicate that two stockyards were located west of Grey Cloud Island Drive and were originally constructed between 1874 and 1887. During stockyard operations, a 10- to 12-inch diameter elevated pipe was used to drain stockyard wastes and excess water to the wet meadow. Because the pipe was elevated, significant
erosion has occurred along the bluff slope and wetland edge. The eroded area will be reconstructed as part of the restoration project.

Restoration of the wet meadow will entail excavating and removing the nutrient-rich material that has resulted from years of piping stockyard wastes into the wetland. Soil samples will be taken prior to excavation to determine the depth of the sludge material. Clean uncontaminated soil will be imported to replace the excavated material, and the restored wetland surface will be finished and smoothed with black, organic, or wetland soils. The saturated wetland fringe will be planted with a wet meadow or sedge meadow mix. Part of the restoration plan will include monitoring to help ensure the success of the wetland restoration.

Topography and bedrock characteristics, combined with the proximity of other springs, suggest that springs may be present beneath the manure lagoon. Excavating the manure lagoon may reveal these potential historic springs. If this becomes the case, the springs will be directed to supplement the hydrology of the new wetland to the extent feasible.

Restoration of the manure lagoon will likely require permitting from the appropriate regulatory agencies. Preliminary fieldwork indicates that the lowest elevation of the manure lagoon is one to two feet above of the ordinary high water level (OHWL) of the Mississippi River. A berm was previously constructed between the manure lagoon and the Mississippi River, which has been broken, leaving an approximate 3-foot wide swath through the berm. The swath may provide a hydrologic connection between the manure lagoon and the Mississippi River. If it is determined that the swath provides a hydrologic connection between the manure lagoon and the River, restoration activities would require a Section 404 permit from the U.S. Army Corps of Engineers. A DNR Public Waters Work permit would be required if restoration activities result in connecting the manure lagoon with the OHWL of the river, or if the course, current, or cross-section of the Mississippi River is altered in any way. Because detailed restoration plans have not been completed, the extent of restoration activities and required permits are unknown.

Erosion and sediment control measures will be required to protect the Mississippi River from erosion and sedimentation during restoration activities.

**Storm Water Routes and Outfall Structures**

As part of the storm water management system, two outfall structures are proposed above the ordinary high water level of the Mississippi River. One outfall will be directed into a constructed wetland forebay adjacent to the river (south of the bay) and the other into a 2-cell treatment area as part of the manure lagoon restoration (north of the bay). About 72 percent of the AUAR drainage area will be routed to the 2-cell treatment area. The existing stockyard discharge pipe corridor may be used to route discharge to the 2-cell treatment area. This pipe corridor represents an area of previous disturbance through the bluffs.

The outfall structures and associated storm water management system will be designed to accommodate runoff in a 100-year storm event. The 2-cell treatment area will capture runoff from the proposed building north of the bay and surrounding undisturbed land. Directing runoff into the forebay to the south of the bay will provide for secondary removal of suspended sediment and nutrients prior to discharge to the river (Figure 17-2).
Seepage Areas and Springs
Dr. E. Calvin Alexander of the University of Minnesota, a state expert on springs, seeps, and groundwater behavior in limestone formations, was contacted. After reviewing site information, Dr. Alexander believes the springs originate in the Jordan Sandstone at an elevation of approximately 600 feet. It is believed that the springs located along the eastern edge of the bay rise 87 feet through river alluvium.

Dr. Alexander is uncertain as to the origin of the northern seep and bay area seep. However, the elevation of the seeps suggests they may receive some water from the Jordan aquifer. Bedrock topography indicates the bay area seep is at an approximate elevation of 600 to 650 feet, and the northern seep is at an elevation of 550-600 feet (Bedrock Topography Dataset for the Washington County Digital Geological Atlas, MN Geological Survey, 1990).

Research conducted by GME Consultants Inc. concluded that the source of the springs is well beyond the AUAR boundary from the north and east. GME conducted a field visit in early September 2003 to observe the seeps and springs. The springs were discharging substantial amounts of water despite the recent drought conditions (near zero infiltration on the farm fields). GME concluded that development of the AUAR area would have little or no effect on the springs, and that the placement of infiltration/detention basins near bedrock fractures would enhance the springs.

River Bay
A pedestrian boardwalk may be located in the bay area. A passive recreational trail will be constructed to provide users access to the bay. Motorized boats will not be allowed access from the AUAR area. Recreational users seeking to use the bay must portage their non-motorized craft using the trail system.

MITIGATION SUMMARY (refer to Item B for complete Mitigation Plan)
Under any scenario, direct impacts to the known wetlands as a result of development are not anticipated. The restoration of the manure lagoon will require excavating organic material from a wetland area. Regardless of the Scenario, if wetlands are altered the project proposer will be required to follow the sequencing process of wetland avoidance, minimization, rectification, and mitigation as outlined in the Minnesota Wetland Conservation Act (WCA). Under WCA and Section 404 of the Federal Clean Water Act, a Corps permit is required for the discharge of dredged or fill material into the river or backwater channels. A DNR Public Waters Work permit may be required for the manure lagoon restoration activities. Wetland permit applications will be prepared and submitted to appropriate regulatory authorities to obtain authorization for wetland alterations. Wetland applications and designs will undergo additional review and approval by the Minnesota Board of Water and Soil Resources, Washington Conservation District, and the City of St. Paul Park, and Grey Cloud Island Township.

The Mitigation Plan emphasizes on-site infiltration of treated storm water throughout the developed area. GME concluded that development of the AUAR area would have little or no effect on the springs, and that the placement of infiltration swales and basins near bedrock fractures would enhance the seeps and springs. Trail plans near the seeps and springs in the bay area will be required to explore the use an elevated boardwalk to minimize soil compaction and disturbance to vegetation.
Erosion and sediment control measures will be implemented during and after construction to protect water quality, control erosion, and minimize effects on the existing water resources. Inspection and maintenance of BMPs during construction will be consistent with National Pollution Discharge Elimination System/State Disposal System (NPDES/SDS) General Permit requirements, including site inspection after rainfall events, perimeter sediment control maintenance, and sediment removal.
13. **Water Use.** Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)? ☐ Yes ☐ No

If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity and purpose of any appropriations; and unique well numbers and DNR appropriation permit numbers, if known. Identify any existing (forthcoming) and new wells on the site map (Figure 13-2). If there are no wells known on site, explain methodology used to determine.

*AUAR Guidelines: If the area requires new water supply wells, specific information about the appropriation and its potential impacts on groundwater levels should be given; if groundwater levels would be affected, any impacts resulting on other resources should be addressed.*

**ABANDONMENT OF WATER WELLS**
The abandonment of water wells will be required. According to the Minnesota Geological Survey’s (MGS) 2002 County Well Index, there is one registered well within the project site (Unique Well No. 531425), which is located in the north-central portion of the project site. However, according to the landowner there are approximately 10 wells within the AUAR area. Westwood Professional Services, Inc. along with the landowner identified and surveyed 10 wells within the AUAR area (see Figure 13-1). All existing wells that are located on the property or identified during construction will be sealed and abandoned in compliance with Minnesota Department of Health regulations prior to development.

**INSTALLATION OF WATER WELLS**

**Scenario One**
Scenario One will involve the installation of individual domestic water wells under Scenario One. All wells will be designed and installed in accordance with state and local regulations.

**Scenarios Two and Three**
Scenarios Two and Three will require connection to the City of St. Paul Park municipal water supply system. Preliminary calculations indicate the city’s water supply system can be expanded to accommodate the demand under Scenarios Two and Three. Water demand is the highest in Scenario Two and is estimated at 267.5 million gallons per year. If the city increases the capacity of the municipal water supply system, a new municipal well would not be needed within the AUAR boundary. If the city does not increase the capacity, new wells would be needed to serve the AUAR area.

The city is currently conducting a study to determine the feasibility of constructing new wells in the eastern portion of the AUAR area to service the needs of Scenarios Two and Three. The city’s study is not completed at this time. In the interim, Westwood Professional Services, Inc. conducted a preliminary wellhead protection delineation and assessment for new wells, in accordance with the MDH’s standards. The following assumptions were made based on a review of surrounding municipal Well Logs, geology, aquifer conditions, and existing surface water flow: 1) the maximum daily water demand would be 730,000 gallons per day (gpd) from the aquifer (using Scenario Two); 2) the new well would have a discharge rate of 750 gallons per minute (gpm); 3) the new well would be located in the southeast corner of the AUAR area, at an elevation of 750 feet, in similar geology as municipal Well One; 4) the static water level would be
45 feet below the surface; 5) the drawdown would be 50 feet; 6) the specific capacity would be 15.0 gpm/foot of drawdown; 7) the effective porosity is 0.25; and 8) the length of the open hole is 90 feet.

Based on the aforementioned assumptions, a well located in the northeastern portion of the AUAR area would have a maximum estimated preliminary wellhead protection radius of 2,245 feet. The amount of water drawn to meet demand within the radius would be 35.62 million cubic feet per year after full development of the AUAR area under Scenario Two.

**CONNECTION TO A PUBLIC WATER SUPPLY**

The City of St. Paul Park currently operates four wells within the Prairie Du Chien-Jordan aquifer. Well 1 is active but is used as a standby/emergency well. The four wells have a combined capacity of approximately 3.0 million gallons of water per day (mgd). Additionally, the city has three water storage facilities that provide 1.35 million gallons of water storage for domestic and fire-fighting purposes. The City of St. Paul Park does not have a water treatment plant; the municipal water supply is treated with fluoride.

The existing public water main system is comprised of an interconnected network of 6-to 12-inch diameter water mains. The likely connection points to the existing city water main system are north and east of the AUAR area. Figure 13-1 shows where the water main connections would be extended to the AUAR area. The two northern water main connections include an 8-inch water main connection point at Second Street, and a 12-inch water main connection point at Sixth Street. The eastern portion of the AUAR area would connect with an 8-inch water main at Summit Avenue.

The quantity of water used is expected to be proportional to the amount of sanitary wastewater produced. Table 13-1 provides information on the estimated average daily water demand for each Scenario. Water demand estimates for the three scenarios were based on the assumption that consumption is approximately 110 percent of wastewater generation (Item 18a). Water demand will differ for each scenario according to development density and land use type. Commercial development generally consumes more water than residential development.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Estimated Water Demand (million/gallons/day)</th>
<th>Estimated Water Demand (million/gallons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.014</td>
<td>5.3</td>
</tr>
<tr>
<td>2</td>
<td>0.73</td>
<td>267.5</td>
</tr>
<tr>
<td>3</td>
<td>0.52</td>
<td>190.6</td>
</tr>
</tbody>
</table>

The number of wells and pumping rates for a public water system is usually based on the maximum daily water demand. The maximum daily water demand is typically four times the average daily water usage. The maximum daily water demand for Scenario One is 0.06 mgd, Scenario Two is 2.92 mgd, and Scenario Three is 2.08 mgd.

Additional water storage may be necessary within the AUAR area to overcome pressure losses in the water main system due to the AUAR area’s distance from existing water storage tanks. Figure 13-1 shows the potential location for a new water tower. Some of the city’s existing water mains will need to be enlarged to increase water pressures and flows between the city and the AUAR area.
DEWATERING
One or more temporary DNR Water Appropriation Permits may be necessary to conduct construction dewatering. Dewatering may be necessary during construction to install sanitary sewer, municipal water, and storm sewer in some areas. Contractors will carry out these activities on a case-by-case basis at the minimum duration and quantity necessary to construct utility service for the affected sites. The quantity and duration of construction dewatering is not known at this time, but it is expected that the dewatering will be temporary. Groundwater appropriated for construction dewatering purposes will be discharged to temporary or permanent ponds located within the AUAR area.

A temporary DNR Water Appropriation Permit would be required if construction dewatering and pumping from development exceeds the 10,000-gallon per day or 1,000,000 gallons per year thresholds. If it becomes apparent that construction dewatering will not exceed 50 million gallons in total, and a duration of one year from the start of pumping, the contractor or project proposer will apply to the DNR for coverage under DNR General Permit 97-0005 for Temporary Water Appropriations. It is not anticipated that construction dewatering or pumping will be extensive or continue long enough to impact domestic or municipal wells.

WATER APPROPRIATION
The City of St. Paul Park municipal water supply is authorized under DNR Water Appropriation Permit number 63091. The city is currently permitted to pump up to 250 million gallons per year (mgy) under this permit. According to DNR Water Appropriation records, the city pumped 176.5 million gallons in 2002. If the city increases the capacity of the municipal water supply system, an amendment to the Water Appropriation Permit would be required.

GROUNDWATER LEVELS
According to the Minnesota Geological Survey County Atlas C-5, Plate 5 of 7 (University of Minnesota 1990), the general direction of groundwater movement beneath the project site is west and southwest towards the Mississippi River. This corresponds to the depth to bedrock, which generally becomes shallower moving from north to south and east to west. Depth to bedrock is generally less than 10 feet and not more than 50 feet thick throughout the project site.

GME Consultants, Inc. (GME) performed a geotechnical evaluation in the fall of 2002. GME completed 189 auger probe borings to collect information on depth and types of overburden. The boring logs include information on water level observations. Of the 189 borings, water was observed in only 8 of the borings. Groundwater was encountered at depths ranging from 3.2 to 21.5 feet below the surface, which generally corresponds to surface elevations of 745.0 to 752.6 feet above mean sea level.

According to the Minnesota Geologic Atlas (1990), potential yields of the Prairie du Chien-Jordan aquifer in the project area are 1,000 to 2,000 gallons per minute. Yields are generally higher in the southern portion of the County (Minnesota Geological Survey 1990). Six municipal wells surround the project site, which pump groundwater from the Prairie du Chien-Jordan aquifer at a rate of over 3,500 gallons per minute. Water levels in these wells have remained relatively constant over time, which suggests they are pumping at rates that can be sustained by the aquifer.

SPECIAL WELL CONSTRUCTION AREA (SWCA)
In 1999, The Minnesota Department of Health (MDH) designated an area north of the project site as a Special Well Construction Area (SWCA). The SWCA is bound on the north by Second
Street in Newport, on the east by Hastings Avenue in Newport and St. Paul Park, on the west by the Mississippi River, and on the south by 11th Avenue in St. Paul Park (Figure 13-2). This area includes parts of Sections 1, 2, 11, and 12 in Township 27 North, Range 22 West. The southernmost boundary of the SWCA ends at 11th Avenue, which is approximately 1,360 feet north of the AUAR area. The purposes of a Special Well Construction Area are to inform the public of potential health risks in areas of groundwater contamination, provide for the construction of safe water supplies, and prevent the spread of contamination due to the improper drilling of wells or borings.

Source Water Assessments provided by the MDH for St. Paul Park and Cottage Grove indicate that none of the surrounding municipal wells are susceptible to contamination because they meet construction standards and do not present a pathway for contamination to readily enter the water supply. Because St. Paul Park Well 1 is a standby well, a source water assessment was not completed by the MDH. Given that new wells would be constructed according the MDH standards, in similar geology as the six surrounding municipal wells, and located equidistant or greater from outside the SWCA as the surrounding municipal wells, it is unlikely that new wells would draw contamination into the water supply system. Additionally, review of the Minnesota Geological Survey maps, and additional research conducted by Westwood Professional Services and GME Consultants, suggests that the groundwater and surface water flow westerly, not south of the SWCA. If a new well were constructed within the AUAR area, the well would be located at approximately 2,500 to 3,400 south of the SWCA (see Figure 13-2).

**MITIGATION SUMMARY** (refer to Item B for complete Mitigation Plan)

Installation of private individual wells under Scenario One would be constructed and installed in accordance with the City of St. Paul Park Zoning code, Section 74-796 (Development Regulations), and the MDH regulations (Minnesota Well Code).

Under Scenarios Two and Three, a new water supply system would be constructed and installed in accordance with the MDH standards, and with the goals and policies set forth in the City of St. Paul Park’s Water Supply and Distribution Plan (July, 1997), and the Comprehensive Land Use Plan (2000-2010). The MDH requires the city to follow the wellhead protection planning process (Minnesota Rules, Chapter 4720.5100 - 4720.5590), which sets standards for wellhead protection planning. The city is currently conducting a wellhead study. The wellhead protection planning process involves:

1. Delineating the wellhead protection area and drinking water supply management area;
2. Assessing the vulnerability of wells and wellhead protection areas;
3. An inventory of potential sources of contamination within wellhead protection areas based on the vulnerability assessment; and
4. Amending the city’s draft Wellhead Protection Plan including goals, objectives, plan of action, evaluation program, and contingency plan should the water supply be disrupted by contamination or mechanical failure.

Wells will be sited at appropriate locations to avoid potential impacts to groundwater levels near existing homes that have individual domestic wells and the seep discharge areas along the river. The city will need to amend its draft Wellhead Protection Plan to delineate wellhead protection areas and the cone of influence for new wells.

Because the City of St. Paul Park has planned for an adequate water supply and distribution system, water supply issues are not anticipated.
14. **Water-related Land Use Management Districts.** Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district? ☑ Yes ☐ No

If yes, identify the district and discuss project compatibility with district land use restrictions.

AUAR Guidelines: Such districts should be delineated on appropriate maps and the land use restrictions applicable in those districts should be described. If any variances or deviations from these restrictions within the AUAR area are envisioned, this should be discussed.

The western portion of the AUAR area is within the Mississippi River Critical Area Corridor, Shoreland Management District, and 100-year Floodplain District. The project area is not subject to a comprehensive land use plan of the Project Riverbend or the Mississippi River Headwaters Boards. The water-related land use management districts are shown on Figure 14-1. The applicable land use restrictions related to the city and township’s Critical Area and Shoreland Districts are extensive and are summarized in Appendix E.

**MISSISSIPPI RIVER CRITICAL AREA CORRIDOR**

The AUAR area contains waters and lands that are located within the Critical Area. The Mississippi River Corridor was designated as a State Critical Area in 1976, reaffirmed through Executive Order 79-19 in 1979, and made permanent by the Metropolitan Council in 1979. The purposes of designating the Mississippi River as a Critical Area include:

- protecting and preserving a unique and valuable state and regional resource for the benefit of the health, safety and welfare of the citizens for the state, region, and nation;
- preventing and mitigation irreversible damage to this resource;
- preserving and enhancing its natural, aesthetic, cultural, and historical value for public use;
- protecting and preserving the river as an essential element in the national, state and regional transportation, sewer and water and recreational systems; and
- protecting and preserving the biological and ecological functions of the corridor.

Under Scenarios Two and Three, the city will be annexing portions of the Critical Area from the township and will need to amend its plan and ordinance to address the annexed Critical Area lands and waters. The township has agreed to support urbanization of Critical Area lands that are not annexed to the city, but fall within the AUAR boundary. Therefore, the township will develop an urban element for its Critical Area plan. The amendments will need to be consistent with Executive Order 79-19, reviewed by the Metropolitan Council, and reviewed and approved by the DNR. The development of the AUAR area will be compatible with the DNR-approved Critical Area plan and ordinance amendments.

Urban development is contemplated and authorized in appropriate circumstances pursuant to Executive Order 79-19 for the Mississippi River Critical Area Corridor. The Standards and Guidelines for Preparing Plans and Regulations state that the corridor shall be managed as a “multiple-purpose resource” by “providing for the continuation and development of a variety of urban uses, including industrial and commercial uses, and residential, where appropriate, within the river corridor” (Section B.1.c., Standards and Guidelines). In addition, the Executive Order provides “The clustering of structures and the use of designs which will reduce public facility costs and improve scenic quality, shall be encouraged. The location of clustered high-rise structures may be proposed where public services are available and adequate and compatible with adjacent land uses” (Section C.2.c., Standards and Guidelines). Consistent with Section C 10.a...
and c. and Section E.3 of the Standards and Guidelines, the following section includes a summary of the development scenarios’ compatibility with and proposed deviations from adopted Critical Area ordinances.

**Scenario One**
No deviations from the existing land use restrictions are anticipated under Scenario One.

**Scenarios Two and Three**
Currently, the developable portion of the Critical Area is within the township. Portions of the Critical Area lands will be annexed to the city and portions will remain in the township. Scenarios Two and Three propose to deviate from components of the township’s existing land use restrictions in the Critical Area and propose changes to the critical area district boundary (see Figures 14-2 and 14-3).

**Compatibility with City/Township Critical Area Regulations**

**Bluff/Steep Slope Protection**
Under Scenarios Two and Three, the river bluffs will be preserved in perpetuity through public dedication and/or conservation easements. Plan revisions in response to comments on the Draft AUAR have resulted in removal of structures from slopes greater than 18%, and most areas greater than 12%. There are several locations where roadways and trails will run at perpendicular or off-perpendicular angles through slopes greater than 12%. To minimize impacts associated with the construction of these facilities, specific facilities may be routed on old farm roads and eroded drainage routes already needing stabilization.

A small portion of slopes greater than 18% are proposed to be altered to construct a road to accommodate access to the southern portion of the AUAR area, to provide trails within the bay area, and to construct scenic overlooks that will provide opportunities to view the river. All but one road has been removed through the secondary bluff in the south central part of the AUAR area. An access through the secondary bluff is necessary for developing the southwestern portion of the AUAR area. The new alignment has been located in an area of previous disturbance. Alignment of the road at this location allows for access to the southwestern portion of the property and addresses existing erosion problems at this location. This roadway will require altering 1/20 acre of slopes greater than 18%, which represents 0.2% of slopes greater than 18%.

Plan revisions in response to comments on the Draft AUAR have resulted in increasing the existing bluffline setback distance from 40 feet to 100 feet. This revision will help mitigate potential impacts to bluffs and other environmentally sensitive areas. The bluffline setback is further described under Item 11 and in the Mitigation Plan.

Under Scenario One, the bluff would remain in private ownership under a “worst case scenario” and be subdivided amongst 19 property owners. Without conservation easements, the preservation of the bluffs would not be assured under decentralized private ownership. Under existing zoning regulations, each riparian lot owner has the right to access the river by the preferred method of constructing stairways, lifts, and/or landings along the bluff face to the shore area.

**Shoreline Conservation**
Under Scenarios Two and Three, 100% of the shoreline area will be preserved in perpetuity through public dedication and/or conservation easements. Portions of the mainland shoreline will
be restored under Scenarios Two and Three, including the bay area and the northern portion of the AUAR area. Under Scenario One, 0% of the shoreline area will be preserved in perpetuity under a “worst case scenario.” The entire 1.5 miles of mainland shoreline would remain in private ownership and be subdivided amongst 19 property owners. Without conservation easements, the preservation of the shoreline would not be assured under decentralized private ownership. Under existing zoning regulations, each new owner has the same right as current township residents to locate a dock in the shore area.

Restoration, Minimization of Direct Overland Runoff and Improved Quality of Runoff; Beach and Riverbank Erosion Control

The subject property has been in agricultural production or pasture, including two stockyards, for over a century. These past land uses have left an impact on the property including, but not limited to, several dumps and material storage areas within the bluffs, a storm sewer outfall pipe causing bluff erosion and conveying untreated storm water and manure to the Mississippi River, severely eroded ravines through the bluffs, and degraded plant communities that contain non-native and invasive species.

Under Scenarios Two and Three, the dumps and material storage areas throughout the Critical Area will be removed. Overland runoff will be diverted from the eroded ravines and natural stabilization techniques will be used to help reduce the effects of erosion on the ravines within the bluff area. The storm sewer outfall pipe will be repaired and a comprehensive storm water management plan will minimize the volume and rate overland runoff and improve the quality of runoff. The majority of the existing wildlife habitat will be publicly dedicated and/or held in conservation easements and invasive species would be removed in several areas to help restore the degraded plant communities. The urbanization of the AUAR area provides the economic source necessary to fund restoration efforts. Under Scenario One, restoration efforts would not be centralized or guaranteed and would rely on the individual property owner.

River Island Conservation

Under any scenario the river islands will remain undeveloped. Under Scenario Two and Three the islands will be preserved in perpetuity through public dedication and/or conservation easements. The conservation easements would ensure that only appropriate passive recreational use of the islands would be allowed, that the on-site Bald Eagle nest be protected, and that river island habitat be preserved.

Under Scenario One, 0% of the river islands will be preserved in perpetuity under a “worst case scenario.” The islands would remain in private ownership and be subdivided amongst 19 property owners. Although the Township states that “undeveloped islands should be maintained in their existing natural state,” without conservation easements, the preservation of the islands would not be assured under decentralized private ownership. The privately held islands and the habitat they provide may be subject to incompatible recreation activities, habitat degradation, and disturbances to the on-site Bald Eagle nest.

Wetland Protection

No negative wetland impacts are anticipated. A degraded wet meadow (manure lagoon) will be restored as a 2-cell storm water treatment area to provide secondary treatment to storm water before discharging to the river and to capture and treat storm water from development located north of the bay.
Management of Vegetative Cutting
The city and township’s vegetation management regulations will be followed. No clear cutting will occur within 40 feet of the bluffline or within 100 feet of the ordinary high water mark. The road needed to access the developable land north of the bay is proposed to be located within 40 feet of the bluffline; however, this road will be located on a previously disturbed site that contains an existing unvegetated roadbed. Seventy percent of the fair quality natural plant communities will be retained and restored along the river corridor. The bluffline setback area will also provide protection for existing native, non-invasive vegetation. The Mitigation Plan includes a provision for the city and township to develop a tree preservation plan that contains specific tree replacement requirements and to require individual lot grading plans for development immediately landward of the bluffline to minimize site alteration and to retain existing vegetation.

Land Use
Under Scenarios Two and Three, the Critical Area would host an array of residential and non-residential uses. The Critical Area would include a new Village Center/Commercial area that would create a sense of place for and a strong community linkage to the Mississippi River for the residents of St. Paul Park, Grey Cloud Island Township, and Cottage Grove. The Village Center/Commercial area may provide community services such as a community center, medical clinic, bank, day care, drugstore, and retail opportunities. These services are not widely available within the city or township and would fill a gap in services for the community. Under Scenario One, only residential uses would be allowed.

Under Scenarios Two and Three, open space and the recreation potential of the Critical Area will be maximized by designating at least 26% of the AUAR area for open space purposes (134 acres of open space, which does not include 142 acres of open water), publicly dedicating and/or providing conservation easements along the river corridor to preserve existing environmentally sensitive areas, and providing trails, scenic overlooks, and scenic views. Under Scenario One, the perpetual conservation of open space and recreational potential is nonexistent under a “worst case scenario.”

Anticipated Deviations from City/Township Critical Area Regulations

Critical Area District Boundary Modification
The majority of the AUAR area is within the Rural Open Space District and a small portion (30 acres) is within the Urban Developed District. The intensity and type of land uses proposed in Scenarios Two and Three are not consistent with the character and intent of the Rural Open Space District. Therefore, the plan amendment will propose to modify the Urban Developed District boundary in St. Paul Park to extend to the southernmost portion of the AUAR area (Figure 14-2). Currently, the Urban Developed District terminates at the common boundary between the city and township. The District boundary amendment process will follow the Critical Area Plan amendment process as described in Executive Order 79-19.

Steep Slope Alteration
Limited areas that contain slopes greater than 18% are proposed to be altered. Prohibiting the alteration of these specific slope areas would prohibit trails within the bay area, access to all the lands south of the bay, and the opportunity to provide scenic overlooks along the top of the bluff. One roadway will involve altering approximately 1/20 acre of slopes greater than 18% (Figure 14-3). The soil borings completed to date in this area identify the overburden soils as silty sand and sand. A detailed erosion control and protection plan and storm water management plan, consistent with or exceeding applicable ordinances, will mitigate any potential adverse impacts to
slope stability and water quality in the bay and river.

**Height Limitations**
Existing ordinances limit the height of structures within the Critical Area to 35 feet. The maximum height of buildings in the Village Center is proposed to be 55 feet (or four to five stories) within the Critical Area. Structures outside the Village Center, within the Critical Area are proposed to be limited to 35 feet. To minimize interference with views from the river, existing mature trees along the bluffs and landward of the bluffline and the floodplain forested islands will be protected as permanent open space. Within the city, additional mitigation measures will include requiring a view analysis during the site planning process to assess the visual impacts of buildings proposed to exceed 35 feet within the Critical Area. Item 25d of the Final AUAR includes a summary of a “worst case scenario” view analysis conducted for the purposes of an AUAR. Appendix I includes the complete view analysis. The township will continue to limit height to 35 feet within the Critical Area.

**Land Uses**
Urban density residential development is planned in portions of the Critical Area. Urban density development is not allowed under the township’s existing ordinance. Commercial uses are planned within the Mixed Use Village Center. Commercial uses are not permitted under the township’s Critical Area plan and ordinance.

**SHORELAND MANAGEMENT DISTRICT**
The Shoreland District is shown on Figure 14-1. The city does not have a state approved Shoreland Management Ordinance and the township’s shoreland regulations are administered by Washington County. Pool 2 of the Mississippi River is classified as “Natural Environment Lake” in Washington County’s Shoreland Ordinance. Consistent with Mn Rules shoreland classification system descriptions (see Table 14-1), the city will prepare a shoreland management ordinance in accordance with the state shoreland management regulations for “Urban Rivers” for the entire city, including portions of the AUAR area. Likewise, amendments to Washington County’s Shoreland Management Ordinance will be prepared in accordance with the state shoreland management regulations for “Urban Rivers.” The Urban River designation is more consistent with the proposed urban development and is consistent with the shoreland designations of other urban areas along the Mississippi River. Figure 14-2, Proposed Changes to Water-related Land Use Management District Boundaries, shows the proposed 300’ shoreland zone that accompanies the change to an Urban River designation. Inconsistencies between the County’s shoreland regulations and the state shoreland regulations for “Urban Rivers” are shown in Table 14-1.
Table 14-1. Shoreland Management Regulations

<table>
<thead>
<tr>
<th>Shoreland Classification</th>
<th>Urban River (Mn Rules Chapter 6120)</th>
<th>Natural Environment Lake (Washington County)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Urban river segments are located within or adjacent to major cities throughout the state. A variety of residential and other urban land uses exists within these segments. Recreational uses of these segments and adjacent lands are common, but vary widely in types and intensities. These segments have potential for additional development, for redevelopment, and for additional recreational use, although recreational use on some of these segments competes with commercial river traffic.</td>
<td>Natural environment lakes are generally small, often shallow lakes with limited capacities for assimilating the impacts of development and recreational use. They often have adjacent lands with substantial constraints for development such as high water tables, exposed bedrock, and unsuitable soils. These lakes, particularly in rural areas, usually do not have much existing development or recreational use.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shoreland Zone</th>
<th>Lot Area (square feet)</th>
<th>Lot Width (feet)</th>
<th>Structure Setback from OHWL</th>
<th>Maximum Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 feet</td>
<td>There is no minimum lot size requirement for rivers. The underlying zoning district determines minimum lot size.</td>
<td>Riparian: Single – 40,000</td>
<td>50 feet (residential districts)</td>
<td>25 feet (residential districts)</td>
</tr>
<tr>
<td>1000 feet</td>
<td>The County’s ordinance does not contain lot area requirements for sewered Natural Environment Lakes. Unsewered Natural Environment Lakes require a minimum 5-acre lot. The following are the state shoreland rules (Mn Rules Chapter 6120):</td>
<td>Non-Riparian: Single – 20,000</td>
<td>150 feet (Multifamily must be setback 200 feet from OHWL)</td>
<td>35 feet (all districts)</td>
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<td></td>
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<td>Riparian: Single – 125</td>
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<td>Single – 125</td>
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<td>Duplex – 115</td>
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<td>Triplex – 150</td>
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<td>Quad – 190</td>
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<td>Riparian: Single – 225</td>
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<td></td>
<td></td>
<td>duplex – 225</td>
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<td></td>
<td></td>
<td>Triplex – 325</td>
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<td>Quad – 425</td>
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<td>Non-Riparian: Single – 125</td>
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<td>Single – 125</td>
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<td>Duplex – 35,000</td>
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<td>Triplex – 52,000</td>
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<td>Quad – 65,000</td>
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<td>Riparian: Single – 40,000</td>
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<td>Single – 20,000</td>
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<td>Duplex – 70,000</td>
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<td>Triplex – 100,000</td>
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<td></td>
<td>Quad – 130,000</td>
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<td></td>
<td></td>
<td>Non-Riparian: Single – 20,000</td>
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<td></td>
<td>Single – 35,000</td>
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<td>Duplex – 52,000</td>
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<td></td>
<td></td>
<td>Triplex – 65,000</td>
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Many shoreland regulations apply to all shoreland zones regardless if whether the classification is Natural Environment or Urban River and these regulations will not change under the Urban River classification. These regulations include, but are not limited to: vegetation management, steep slope/bluff alterations, excavations, grading and filling, connections to public waters, stormwater management, water supply, sewage treatment, subdivision provisions, and planned unit developments. Furthermore, Critical Area standards also apply within shoreland zone. The only anticipated deviation from the state Urban River standards is related to height. Under Scenario Two, the maximum proposed building height within the shoreland management district is 55 feet.
FLOODPLAIN DISTRICT
Two-hundred and fifteen (215) acres of the AUAR area are within St. Paul Park and Washington County’s Floodplain Districts (Figure 14-1). The Floodplain District includes 142 acres of open water, 63 acres of islands, 4 acres of bluffs, and 6 acres of the mainland shoreline. The Floodplain regulations contain land use restrictions that apply to the Floodway and Flood Fringe Districts. The permitted uses in the Floodway District are limited to uses that have a low flood damage potential and uses that do not obstruct the flood flows or increase the flood elevations, and that do not involve structures, fill, obstructions, excavations, or storage of materials or equipment. Conditional uses are subject to standards such as, but not limited to, not increasing the stage of the 100-year or regional flood, not increasing flood damages in reaches affected, and protecting fill and dredge materials from erosion. Scenarios Two and Three are proposing to locate trails within the floodway district, which has a low flood damage potential and does not obstruct the flood flows or increase flood elevations.

The permitted uses in the Flood Fringe District are the same as the underlying Zoning District. The ordinances contain standards that must be met for all permitted uses including, but not limited to, structures being elevated at or above the Regulatory Flood Protection Elevation or flood proofing small accessory structures. Scenarios Two and Three are proposing to locate trails within the Flood Fringe district. Trails have a low flood damage potential and are permitted by the city and permitted by conditional use by the County. Any buildings constructed within the Flood Fringe District will meet all district standards. No variances or deviations from the land use restrictions in the Floodplain Ordinances are anticipated for any of the development scenarios.
15. **Water Surface Use.** Will the project change the number or type of watercraft on any water body?

☑ Yes ☐ No

If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.

*AUAR Guidelines: This item need only be addressed if the AUAR area would include or adjoin recreational water bodies.*

**Scenario One**
A limited increase in watercraft usage is projected under Scenario One. Approximately 19 new riparian lots would be created and no public access would be provided. No overcrowding or conflicts are anticipated.

**Scenarios Two and Three**
Motorized boat access is not proposed in the development scenarios. A limited increase in non-motorized and motorized watercraft usage is projected under Scenario Two and Three. This limited increase in motorized watercraft usage is attributed to the possibility that new property owners in the AUAR area may use a motorized access point outside of the AUAR area (e.g., Lion’s Levee Park and Willies Hidden Harbor) and boat to the AUAR area, which includes backwater channels and portions of the main Mississippi River channel. A trail to the bay will provide a pathway for portaging canoes, kayaks, and other small non-motorized watercraft. Under existing zoning regulations, a non-commercial dock is a permitted accessory use, a four-foot wide pedestrian access to the river is allowed, and stairways, lifts, and/or landings are the only permitted alterations for achieving access up and down bluffs and steep slopes to the shore area. New property owners have the opportunity to request river access. Given the shallow depth of the backwater channels, limited motorized watercraft usage is projected. No overcrowding or conflicts are anticipated from this potential increase in watercraft usage.

Nearby accesses to the river are one (1) mile or more to the north or south of the bay area. The bay is located approximately one and a half (1½) miles north of the existing barge fleeting area on Upper Grey Cloud Island and approximately one (1) mile south of the commercial marina in St. Paul Park. No conflicts with other uses are anticipated.
16. **Erosion and sedimentation.** Give the acreage to be graded or excavated and the cubic yards of soil to be moved: NA acres NA cubic yards. Describe any steep slopes or highly erodible soils and identify them on the site map. Describe any erosion and sedimentation control measures to be used during and after project construction.

AUAR Guidelines: The number of acres to be graded and number of cubic yards of soil to be moved need not be given; instead, a general discussion of the likely earthmoving needs for development of the area should be given, with an emphasis on unusual or problem areas. In discussing mitigation measures, both the standard requirements of the local ordinances and any special measures that would be added for AUAR purposes should be included.

**HIGHLY ERODIBLE SOILS**

According to the USDA/NRCS Highly Erodible Soil Map Unit List for Washington and Ramsey Counties, Minnesota (October 1993), Dorerton-rock outcrop complex, 25-65 percent slopes is the only highly erodible soil identified within the AUAR area. Three soils located primarily along the western bluffs are identified as being potentially highly erodible, however the determinations were not made in the field; they are based on a typical slope percentage and length.

AES observed a severely eroded ravine along the bluff during their field review. The ravine appears to originate in Sparta loamy sand, 0-2 percent slopes, and end in Alganssee loamy sand. Most of the ravine is located in Dorerton-rock outcrop complex with 25-65 percent slopes. Storm water runoff will be diverted from the ravines and natural stabilization techniques will be used to prevent further erosion.

**STEEP SLOPES**

Steep slopes are shown on Figure 16-1 and soils are shown on Figure 16-2. The Soil Survey of Washington and Ramsey Counties, Minnesota (Vinar, 1980) identifies 15 soil map units within the AUAR area. The soil survey identifies two “Rock Outcrops” in the south-central portion of the AUAR area and a “Short Steep Slope” in the east-central portion of the AUAR area. Soil unit slopes, water erosion potential, wind erodibility, and the hydrologic group for soils within the AUAR area, as described in the soil survey, are outlined in Table 16-1.

<table>
<thead>
<tr>
<th>Soil Name (Symbol)</th>
<th>% Slope</th>
<th>Erosion Factor K*</th>
<th>Wind Erodibility **</th>
<th>Hydrologic Group***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hubbard loamy sand (7B)</td>
<td>1-6</td>
<td>0.15</td>
<td>Highly erodible</td>
<td>A</td>
</tr>
<tr>
<td>Hubbard loamy sand (7D)</td>
<td>12-18</td>
<td>0.15</td>
<td>Highly erodible</td>
<td>A</td>
</tr>
<tr>
<td>Sparta loamy sand (8)</td>
<td>0-2</td>
<td>0.17</td>
<td>Highly erodible</td>
<td>A</td>
</tr>
<tr>
<td>Sparta loamy sand (8B)</td>
<td>2-6</td>
<td>0.17</td>
<td>Highly erodible</td>
<td>A</td>
</tr>
<tr>
<td>Sparta loamy sand (8C)</td>
<td>6-15</td>
<td>0.17</td>
<td>Highly erodible</td>
<td>A</td>
</tr>
<tr>
<td>Copastone loam (100B)</td>
<td>0-6</td>
<td>0.28</td>
<td>Slightly erodible</td>
<td>D</td>
</tr>
<tr>
<td>Burkhardt sandy loam (151)</td>
<td>0-3</td>
<td>0.10-0.20</td>
<td>Highly erodible</td>
<td>B</td>
</tr>
<tr>
<td>Richwood silt loam (298)</td>
<td>0-2</td>
<td>0.15-0.32</td>
<td>Slightly erodible</td>
<td>B</td>
</tr>
<tr>
<td>Lindstrom silt loam (301B)</td>
<td>2-4</td>
<td>0.32-0.43</td>
<td>Slightly erodible</td>
<td>B</td>
</tr>
<tr>
<td>Dickman sandy loam (327)</td>
<td>0-2</td>
<td>0.15-0.20</td>
<td>Highly erodible</td>
<td>A</td>
</tr>
<tr>
<td>Chaska silt loam (329)</td>
<td>---</td>
<td>0.28</td>
<td>Moderately erodible</td>
<td>B/D</td>
</tr>
<tr>
<td>Urban Land-Chetek complex (858C)</td>
<td>3-15</td>
<td>0.10-0.20</td>
<td>Highly erodible</td>
<td>B</td>
</tr>
<tr>
<td>Dorerton-Rock outcrop complex (1819F)</td>
<td>25-65</td>
<td>0.10-0.32</td>
<td>Highly erodible</td>
<td>B</td>
</tr>
<tr>
<td>Soil Name (Symbol)</td>
<td>% Slope</td>
<td>Erosion Factor K*</td>
<td>Wind Erodibility **</td>
<td>Hydrologic Group***</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
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</tr>
<tr>
<td>Algansee loamy sand (1821)</td>
<td>---</td>
<td>0.17</td>
<td>Highly erodible</td>
<td>B</td>
</tr>
<tr>
<td>Sparta loamy sand, bedrock substratum (1848B)</td>
<td>0-6</td>
<td>0.17-0.32</td>
<td>Highly erodible</td>
<td>A</td>
</tr>
</tbody>
</table>

* Erosion Factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Values of K range from 0.05 to 0.69; the higher the value, the more susceptible the soil is to water erosion.
** Wind erodibility represents the susceptibility of the soil to wind erosion.
*** Hydrologic soil groups are used to estimate runoff from precipitation: A – high infiltration rate, low runoff potential; B – moderate infiltration rate; D – slow infiltration rate, high runoff potential.

**EARTHMOVING**

Under Scenarios Two and Three, the AUAR area will likely be graded in phases beginning in 2004 in the northeastern portion of the AUAR area and continue south and westward. Full build out is anticipated by 2015. Earthmoving for development will include grading for streets, utilities, buildings, residential lots, and other urban amenities throughout the developable portions of the AUAR area.

The upper 2 to 4 feet of bedrock consists of Ordovician age dolomite (dolostone) of the Prairie du Chien formation. The dolomite in the upper one-half to two-thirds of the formation is commonly sandy or oolitic (small rocks cemented together) with occasional thin beds of sandstone and chert. The dolomite in the lower portion is massive to relatively thick-bedded and generally not oolitic or sandy except for a sandy transitional zone at the contact with the underlying Jordan sandstone formation. Since the upper bedrock contains fractures, it is relatively easy to excavate (rip) with a large backhoe. Chipping, grinding, or explosives would be used to excavate bedrock below 4 feet to accommodate utility construction, ponding areas, and basements. Blasting and excavation is not likely to negatively affect the existing bedrock fractures. The city will prepare blasting regulations and a permitting process to mitigate potential impacts.

The excavated materials will be stockpiled and reused on-site as road aggregate during each phase. It is anticipated that stockpiles created for each phase of development will be used within a timely manner in conjunction with best management practices. Commercial mining is not proposed under any scenario. The excavation activities will comply with the local ordinances and regulatory authorities.

Under Minnesota’s new General Storm water Permit for Construction Activity (MNR100001) issued August 1, 2003, an NPDES/SDS permit must be obtained from the MPCA because development within the AUAR area involves disturbance of more than one (1) acre of land. Under the NPDES/SDS permit, BMPs will be used and potential adverse erosion and sedimentation impacts are anticipated to be limited to short-term. The permit requires that temporary and permanent erosion and sediment control plans be completed prior to applying for the permit.

Erosion control practices to be considered for use within the AUAR area include:

1. Construction of temporary sediment basins in the locations proposed for storm water ponding, and development of these basins for permanent use following construction.
2. Silt fence and other erosion control features installed prior to initiation of earthwork and maintained until viable turf or ground cover is established on exposed areas.
3. Street cleaning at the end of each workday and installation of a rock construction entrance to reduce tracking of dirt onto public streets.
4. Stabilization of exposed soils within 14 calendar days of completion of rough grading unless otherwise directed by the project engineer.

5. Energy dissipation, such as riprap, installed at storm sewer outfalls.

6. Use of cover crops, native seed mixes, sod, and landscaping to stabilize exposed surface soils after final grading.

Inspection and maintenance of BMPs during and after construction will be consistent with NPDES/SDS General Permit requirements, including site inspection after rainfall events, perimeter sediment control maintenance, and sediment removal. Long-term maintenance of the permanent storm water management system will be addressed in the developer’s agreements with the city and township.

**MITIGATION SUMMARY** (refer to Item B for the complete Mitigation Plan)

Pre- and post-development activities will minimize runoff and improve the quality of runoff, and provide erosion control through BMPs and other low-impact development techniques such as the use of drainage swales, vegetation buffers, tree planting and mulching, and outfall stabilization. Project proposers will submit detailed erosion and sediment control plans prior to project construction that will undergo review and approval by the city and township. The appropriate watershed authority will review plans and provide recommendations to the city and township prior to approval.

With the implementation of the above BMPs potential adverse effects from construction-related sediment and erosion on water quality will be minimized to the extent practical. It is anticipated that potential adverse erosion and sedimentation impacts will be limited primarily to short-term effects.

**Ordinance Requirements**

In addition to the requirements of the NPDES/SDS permit, the St. Paul Park Zoning Ordinance, Section 74-796, subpart C, states that the city building official must approve grading and filling within the city’s River Development District, or any alterations of the natural topography where the slope of the land is toward a public watercourse. A building permit must be obtained prior to the project construction. Building permits are issued subject to compliance with the following conditions:

- No development shall be permitted on slopes greater than 18 percent; (deviations to be sought on 1/20 acre for a roadway)
- Slopes greater than 12 percent shall be preserved to the greatest extent possible;
- No more than one-third of the surface area shall be devoid of vegetative cover at any time;
- Temporary groundcover such as mulch shall be used and permanent cover such as sod shall be planted as soon as possible;
- Methods to prevent erosion and trap sediments shall be employed in accordance with the subdivision regulations;
- Fill shall not be placed in areas lower in elevation than the normal high water level;
- Fill shall not restrict a floodway or alter the storage capacity of a floodplain;
- The maximum slope of the finished surface that slopes toward a water body shall be six units horizontal to one vertical; and
- No grading or filling shall be permitted within 20 feet of the normal high water level of a water body.

Long-term erosion and sedimentation control measures that will be implemented include permanent infiltration/detention basins and drainage swales, restoration of the existing vegetation along the bluff areas, preservation of most slopes greater than or equal to 18 percent, tree planting, and mulching.
17. **Water Quality - Surface Water Runoff.**
   a. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Describe any stormwater pollution prevention plans.
   b. Identify routes and receiving water bodies for runoff from the site; include major downstream water bodies as well as the immediate receiving waters. Estimate impact runoff on the quality of receiving waters.

**AUAR Guidelines:** For an AUAR the following additional guidance should be followed in addition to that in EAW Guidelines:

- it is expected that an AUAR will have a detailed analysis of storm water issues;
- a map of the proposed storm water management system and of the water bodies that will receive stormwater should be provided;
- the description of the storm water system should identify on-site and regional detention ponding and also indicate whether the various ponds will be new water bodies or converted existing ponds or wetlands. Where on-site ponds will be used but have not yet been designed, the discussion should indicate the design standards that will be followed.
- if present in or adjoining the AUAR area, the following types of water bodies must be given special analyses: **Not applicable to the AUAR area.**
  - lakes: within the Twin Cities metro area a nutrient budget analysis must be prepared for any “priority lake” identified by the Metropolitan Council (see Appendix E of EAW Guidelines (1990) or contact the Council staff. Outside of the metro area, lakes needing a nutrient budget analysis must be determined by consultation with the MPCA and DNR staffs;
  - trout streams: if stormwater discharges will enter or affect a trout stream an evaluation of the impacts on the chemical composition and temperature regime of the stream and the consequent impacts on the trout population (and other species of concern) must be included.

a. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Describe any storm water pollution prevention plans.

**Storm Water Issues**
The storm water management system has been designed to infiltrate much of the runoff from frequent storm events, thereby limiting the runoff to the river to rates less than the existing conditions. The storm water management system considers runoff volume, peak runoff rates, frequency and size of storm events, and water quality management. Site-specific storm water management issues to be addressed include:

1. Piped outlet that previously drained manure and excess water into a floodplain wetland adjacent to the river;
2. Eroded ravines;
3. Lack of appropriate soil for infiltration in the southern 1/3 of the AUAR area;
4. Avoiding direct discharge of pretreated storm water runoff into the river through outfalls;
and;

**PRE DEVELOPMENT SITE RUNOFF**
Existing site runoff likely contains pesticides, herbicides, and fertilizer residues due to the presence of agricultural fields (see Figure 17-1). The majority of the runoff infiltrates into the site’s sandy soils; however, some runoff reaches the Mississippi River via overland runoff and an old pipe that connects the former stockyards (east of Grey Cloud Island Drive) to a floodplain wetland (manure lagoon) adjacent to the river (see Table 17-1 for a summary of existing and proposed runoff rates and volumes).

**POST DEVELOPMENT SITE RUNOFF**
Effects of post-development runoff under Scenarios Two and Three will be less than typical mixed-use developments because alternative storm water management and low impact development techniques will be employed. The change in land use will decrease the amount of agricultural chemicals and suspended solids, and increase other components typical of urban runoff. The quantity of surface water runoff will increase as additional impervious surface area is added with the construction of pavement and buildings.

The storm water management system will be designed to improve storm water quality, increase infiltration, and increase the total flood storage volume. The storm water management system will meet or exceed National Urban Runoff Program (NURP) guidelines. Because the storm water management system will provide rate and volume control, water quality treatment, and infiltration, only negligible post-development downstream water quality effects are anticipated.

The goal is to design the storm water management system so that post-development surface water runoff rates and volumes for storm events of 2-year frequency or less, and post-development water quality is equal to or better than the pre-development water quality. This will be achieved by:
- Emphasizing infiltration as a management strategy, and setting a goal of infiltration between 70 to 80 percent of the runoff from all rainfall;
- Reducing impervious surface areas where possible; and
- Directing storm water into vegetated landscaped areas including swales, native plantings, and other infiltration zones.

b. Identify routes and receiving water bodies for runoff from the site; include major downstream water bodies as well as the immediate receiving waters. Estimate impact runoff on the quality of receiving waters.

The AUAR area falls within a 1,000-acre subwatershed that drains to the Mississippi River, and is located in the South Washington Watershed District (SWWD). Storm water generated from the AUAR area will be routed through a series of storm water management areas (e.g. infiltration/detention basins, native plantings, and treatment wetlands) to provide water quality treatment, infiltration, and storage (Figure 17-2). Design and placement of these areas will consider the source of the runoff as well as the type of soils, depth to bedrock, bedrock fractures, and groundwater recharge potential. Storm water will be directed to the storm water management areas by overland drainage features such as vegetated swales, and storm water pipes.
Approximately 14 percent of the AUAR area’s drainage areas will continue to be routed south of the AUAR area, into the vegetated swales through the township, and into the river as it currently drains today.

Storm water management areas and storm sewer pipes will be installed with each phase of development. Construction of the storm water management system may extend into future development phase areas to effectively manage runoff prior to full development of the AUAR area. Storm water management areas will also be integrated into open space plans for the AUAR area. Areas of compacted soil that may result from construction activities may be ripped or deep chisel-plowed to restore more natural soils structure and enhance infiltration capacity.

It is anticipated that runoff from the more frequent storm events will be managed on-site with no discharge to the Mississippi River. However, larger events will likely result in some discharge to the river. Based on the past five years of precipitation data, storms that result in discharge to the river will be limited to the largest 23 percent of rainfall events.

Because the storm water management system will provide rate and volume control for the most frequent storm events, and provide water quality treatment and infiltration, only negligible post-development downstream water quality effects are anticipated.

**MITIGATION DISCUSSION** (refer to Item B for complete Mitigation Plan)

**Entire AUAR area**

The storm water management system within the AUAR area will pretreat storm water from impervious surfaces, infiltrate much of the volume from frequent storm events through a series of infiltration/detention basins, and discharge to the river at rates less than the existing conditions. The storm water management system will be designed to provide storage volume equal to runoff that would be generated from a 2.4-inch rainfall event.

Eleven infiltration/detention basins will be constructed for drainage areas B, C, D, E, F, G, H, J, K, O, and P, totaling 32.16 acre-feet of infiltration storage volume within the basins and infiltration swales leading to the basins.

The following table is a summary of the existing and proposed runoff rate and volume from basin modeling data.

<table>
<thead>
<tr>
<th>Storm Event</th>
<th>Existing Runoff Rate (cfs)</th>
<th>Proposed Runoff Rate (cfs)</th>
<th>Existing Runoff Volume (acre-feet)</th>
<th>Proposed Runoff Volume (acre-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Year</td>
<td>8.7</td>
<td>3.2</td>
<td>1.7</td>
<td>0.7</td>
</tr>
<tr>
<td>2-Year</td>
<td>22.5</td>
<td>10.5</td>
<td>3.0</td>
<td>1.1</td>
</tr>
<tr>
<td>10-Year</td>
<td>100.5</td>
<td>73.2</td>
<td>9.6</td>
<td>23.2</td>
</tr>
<tr>
<td>100-Year</td>
<td>251.8</td>
<td>203.4</td>
<td>37.5</td>
<td>76.3</td>
</tr>
</tbody>
</table>

The 0.7 acre-feet of runoff volume from the 1-year storm event will originate from vegetated areas that do not drain through the series of ponds and infiltration basins.

Development of the AUAR area will include a system of infiltration/detention basins, vegetated swales, prairies, and treatment wetlands. The incorporation of an alternative storm water management system and low-impact development techniques will minimize potential impacts from development of the AUAR area. Assuming typical rainfall events, it is anticipated that the
infiltration system would infiltrate between 70 and 80 percent of all rainfall or 848.4 acre-feet (see Table 17-2), and increase groundwater recharge.

The following table shows the mitigation benefits derived from the proposed infiltration basins.

<table>
<thead>
<tr>
<th>Item</th>
<th>Rainfall Amount (inches)</th>
<th>Drainage Area (acres)</th>
<th>Required Pond Volume (acre-feet)</th>
<th>Water Quality Impact</th>
<th>Annual Reduction in Discharge Volume Downstream (acre-feet)</th>
<th>% Runoff Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infiltration Basins</td>
<td>2.4</td>
<td>433.4^1</td>
<td>26.6</td>
<td>Full Infiltration</td>
<td>848.4</td>
<td>76.7^2</td>
</tr>
</tbody>
</table>

^1 Total AUAR area less ponding areas at the normal water level: 462.0 acres – 18.6 acres = 443.4 acres.

^2 Because the infiltration basins will be sized to accommodate the total runoff of a 2.4-inch rainfall, it is anticipated that only 23.3 percent of the rainfall events will exceed the capacity of the infiltration system on an annual basis, based on the previous 5 years worth of rainfall data.

The preceding conclusions are based on the following development and modeling data concerning discharge rates and volumes. Scenario Two Development Data:

- Drainage Area = 462.0 Acres
- Existing Runoff Curve Number (CN) = 68
- Proposed Runoff Curve Number (CN) = 78
  - 10 acres @ 92 (Commercial)
  - 264 acres @ 75 (Single Family)
  - 152 acres @ 85 (Multi-Family)
  - 36 acres @ 61 (open space: good conditions)
- Time of Concentration = 10-125 minutes (existing conditions)
- Time of Concentration = 8-41 minutes (proposed conditions)
- Infiltration Volume Proposed = 32.16 acre feet (below outlet elevation of on-site infiltration basins and swales)

Based on these criteria, the total runoff during a 1-year storm event (2.4 inch rainfall) for 443.4 acres of development (all of the AUAR area less the pond areas) equals 26.6 acre-feet. This runoff will be captured by the series of the infiltration basins and held until it infiltrates to recharge groundwater.

Rainfall data for the past 5 years (data excludes events from November through March due to frozen conditions where infiltration would not be effective) were reviewed to determine the average yearly rainfall, and storm event frequency and amount over the AUAR area (Station No. 217844 - South St. Paul, High Density Network-State Climatology Office, DNR Waters). The data revealed that of the 270 total rain events, totaling 143.36 inches; only 10 events exceeded a 2.4-inch rainfall. The highest recorded rainfall event was 5.67 inches in June 1998. The average yearly rainfall is about 28.7 inches. The total of all rainfall events less than 2.4 inches was 109.9 inches, or 76.7% of the 143.36 inches of rainfall that falls within the AUAR area during a typical year.

The Soil Survey indicates that permeability in the area of infiltration is 6.0-20.0 inches/hour for the majority of the AUAR area. For the purposes of this analysis, 0.60-1.5 inches/hour was used as a conservative estimate of existing infiltration. The actual amount of infiltration in the proposed system will depend on the soil types in the proposed infiltration basins.
Based on the intended land use, approximately 90 percent of the AUAR area’s runoff will be captured and routed into an infiltration basin. The total annual volume of rainfall onto the AUAR area, and draining through the infiltration/detention basins, would be 1,106.17 acre-feet (513.9 acres x 28.7 inches / 12 inches / ft x 90%). Assuming typical rainfall events, the storm water management system would infiltrate between 70 and 80 percent of all rainfall events.

Approximately 14 percent of the AUAR area’s ponded discharge will continue to be routed south of the AUAR area, into vegetated swales through the township, and into the river as it currently drains today. The city will construct the trunk storm water system through dedicated right-of-ways or easements through private property, as part of the city’s trunk storm sewer system expansion.

**Bay Area**

In an effort to minimize the potential impacts to the bay caused by storm water runoff generated from the AUAR area, the storm water management system has been designed to restrict the discharge into the bay to approximately 9% of the total discharge from the AUAR area. Specifically, the only discharge into the bay will be runoff from the surrounding slopes and bluff area (Drainage Area L-2 on Figure 17-2), and the discharge from infiltration/detention Basin H.

As mentioned in Item 12, the storm water outfall proposed south of the bay will be directed into a forebay prior to discharging to the bay. The runoff entering the forebay will be pretreated as part of the upstream infiltration/ponding system. Thus, storm water runoff will have secondary treatment prior to discharging into the bay, and the treatment system will significantly reduce the discharge flow velocity. Storm water management features will restrict peak discharge rates into the bay to the bay’s pre-development conditions, and restrict the volume of discharge into the bay to pre-development conditions for 1- and 2-year storm events. The following table provides information on pre-and post-development discharge rates into the bay.

### 17-3. Discharge Rate and Volume Modeling Data into the Bay

<table>
<thead>
<tr>
<th>Storm Event</th>
<th>Existing Runoff Rate (cfs)</th>
<th>Proposed Runoff Rate (cfs)</th>
<th>Existing Runoff Volume (acre-feet)</th>
<th>Proposed Runoff Volume (acre-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Year</td>
<td>1.5</td>
<td>0.9</td>
<td>0.4</td>
<td>0.2</td>
</tr>
<tr>
<td>2-Year</td>
<td>4.5</td>
<td>2.8</td>
<td>0.7</td>
<td>0.3</td>
</tr>
<tr>
<td>10-Year</td>
<td>24.1</td>
<td>19.4</td>
<td>2.4</td>
<td>3.2</td>
</tr>
<tr>
<td>100-Year</td>
<td>60.5</td>
<td>51.0</td>
<td>5.3</td>
<td>8.1</td>
</tr>
</tbody>
</table>

**Additional Storm Water Management Techniques**

The city and township will consider the use of additional storm water management techniques when specific development proposals are submitted for review in the future. The extent of the techniques used would depend on soil suitability and compatibility with future development proposals. The following is a list of additional storm water management techniques for the city and township to consider:

- Placement of the green spaces near bedrock fracture locations in order to facilitate the prompt infiltration of clean water from the landscapes and to promote groundwater recharge.

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1 Total area routed from the site: 462 acres Rivers Edge + 51.9 acres off-site draining through the AUAR area.
Use a combination of side and rear lot drainage easements that are no-mow zones planted to formal or informal native landscaping. The rear lot areas would be designed for infiltration, and side lot areas would be designed for effective drainage and conveyance of water from around foundations to ensure no standing water remains adjacent to the houses.

Create infiltration opportunities in public right-of-ways (ROW), and establish depressed drainage easements and landscaping on private lands, which would be maintained by Homeowner Association documents. Route driveway, sidewalk and gutter downspout waters into landscape features in yards to decentralize runoff and create off-line areas for storage and infiltration. This would be accomplished without compromising safe and effective drainage and dewatering needs around foundations and road subgrades.

Intercept road runoff into parkway and road ROW swales or landscape features to encourage water cleansing and some storage capacity for rare events.

Placement of swales in depressional areas along buffers, parking lot islands, road ROW, and other suitable locations that support infiltration.

An additional mitigation measure is to restrict the use of fertilizer containing phosphorus, which will reduce the amount of phosphorus runoff from turf areas that would ultimately reach the Mississippi River.

**Ordinance Requirements**

Because the city does not have an approved Surface Water Management Plan, the Metropolitan Council required that, until the city has an approved Plan, the city must adopt the Interim Strategy to Reduce Non-point Source Pollution and ordinances required to implement the Interim Strategy. The city has adopted the Interim Strategy and is in the process of implementing it. The three components to the Interim Strategy include:

1. Minimum design standards for new storm water ponds. The minimum standards are aimed at removing pollutants from water so that it will meet the requirements of the Nationwide Urban Runoff Program.

2. Water quality practices recommended by Minnesota Pollution Control Agency as described in Protecting Water Quality in Urban Areas.

3. A shoreland ordinance acceptable to the Department of Natural Resources. The city will develop a shoreland ordinance. Washington County’s shoreland ordinance applies to the township.

The proposed storm water management system will comply with the City of St. Paul Park zoning code Section 74-796 (Development Regulations), which requires:

1. The proposed development will not increase the runoff rate or decrease the natural rate of absorption of storm water;

2. Ponding shall be used for the collection of storm water and to regulate stormwater where necessary;

3. The development shall be located in such a manner as to minimize the alternation of the natural drainageways; and
4. The quality of storm water runoff and water infiltration to the water table or aquifer shall be as high after development as it was before the development of the site.

Due to the AUAR area’s location within the Mississippi River corridor, development plans must also comply with the surface water-related aspects of the city and township codes regarding floodplain, shoreland, wetland, and critical area.
18. **Water Quality - Wastewater**

   a. Describe sources, composition and quantities of all sanitary, municipal and industrial wastewater produced or treated at the site.

   b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies, and estimate the discharge impact on the quality of receiving waters. If the project involves on-site sewage systems, discuss the suitability of site conditions for such systems.

   c. If wastes will be discharged into a publicly owned treatment facility, identify the facility, describe any pretreatment provisions and discuss the facility’s ability to handle the volume and composition of wastes, identifying any improvements necessary.

   d. If the project requires disposal of liquid animal manure, describe disposal technique and location and discuss capacity to handle the volume and composition of manure. Identify any improvements necessary. Describe any required setbacks for land disposal systems.

**AUAR Guidelines:** Observe the following points of guidance in an AUAR:

- **only domestic wastewater should be considered in an AUAR - industrial wastewater would be coming from industrial uses that are excluded from review through an AUAR process;**
- **wastewater flows should be estimated by land use subareas of the AUAR area; the basis of flow estimates should be explained;**
- **the major sewer system features should be shown on a map and the expected flows should be identified;**
- **if not explained under item 6, the expected staging of the sewer system construction should be described;**
- **the relationship of the sewer system extension to the RGU's comprehensive sewer plan and (for metro area AUARs) to Metropolitan Council regional systems plans, including MUSA expansions, should be discussed. For non-metro area AUARs, the AUAR must discuss the capacity of the RGU's wastewater treatment system compared to the flows from the AUAR area; any necessary improvements should be described;**
- **if on-site systems will serve part of the AUAR the guidance in EAW Guidelines (pages 16-17) should be followed.**

   a. Describe sources, composition and quantities of all sanitary, municipal and industrial wastewater produced or treated at the site.

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**SCENARIO ONE**

Only normal domestic wastewater production is expected. Each residential lot will be served by an individual sewage treatment system (ISTS). ISTS are primarily comprised of wastewater collection, primary treatment (septic tank), and the final soil treatment system. In general, all wastewater containing human wastes, nutrients, dirt, and other contaminants are collected and delivered to the septic tank and drainfield. The final treatment occurs in the soil where disease-causing organisms are destroyed and nutrients are removed.
Because development under Scenario One will not include a connection to a public water supply system, the Metropolitan Council’s Service Availability Charge (SAC) was not used to estimate the amount of domestic water demand. Instead, 100 gallons per person per day was used as recommended in the EAW Guidelines. Table 18-1 shows that sanitary wastewater production is estimated at 13,312 gallons per day.

### Table 18-1. Wastewater Production Predicted Under Scenario One

<table>
<thead>
<tr>
<th>Proposed Use</th>
<th>Units</th>
<th>Average # of People per Household</th>
<th>Estimated Population</th>
<th>Total Wastewater (gallons/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family</td>
<td>52</td>
<td>2.56</td>
<td>133.12</td>
<td>13,312</td>
</tr>
</tbody>
</table>

1 According to the Metropolitan Council, the average household size in the Twin Cities is 2.56 people.

2 The estimated population is multiplied 100 gallons per day per person to determine the total amount of wastewater generated.

**SCENARIO TWO**

Only normal domestic wastewater production is expected. The types of wastewater produced will be typical of mixed-use developments. No on-site municipal or industrial wastewater treatment is anticipated.

In 1997, St. Paul Park generated and directed to the public sanitary sewer system an average of 0.482 million gallons per day (mgd) of wastewater. Since the population at that time was 5,024, the wastewater generated per person was approximately 96 gallons per capita day (gpcd). According to the city’s population and wastewater forecasts, the city will generate approximately 0.543 mgd of wastewater in the year 2020. This figure does not include the development proposed under Scenario Two.

Sanitary wastewater production was estimated using the methods outlined in the Service Availability Charge (SAC) Procedures Manual (Metropolitan Council Environmental Services, January 2003). SAC is assessed based upon the maximum potential daily wastewater flow, which in turn is based on the usage of individual properties. Single family units, townhomes, duplexes, and most apartments equal one SAC per dwelling unit. One SAC unit is defined as 274 gallons of daily wastewater flow volume. Commercial properties are assessed SAC units based on maximum potential daily wastewater flow.

SAC units vary depending on the type of facility. The volume of wastewater production for institutional/office was estimated by assigning one SAC unit per 2,400 square feet of floor space, and commercial/retail was assigned 3,000 square feet of floor space. Generally, retail services such as restaurants, convenience/gas stations, deli shops, and video and drug stores are assigned one (1) SAC per 3,000 square feet. Institutional/office developments such as banks and travel/insurance offices use 2,400 square feet as a parameter. Residential SAC units are calculated using one (1) SAC unit per dwelling, and commercial SAC units are determined by total floor area.

Under Scenario Two, the estimated maximum potential wastewater generation is 0.66 million gallons per day (mgd) from residential units and 0.008 mgd from institutional/office and commercial/retail development. The estimated maximum potential daily wastewater production for the entire development under Scenario Two is 0.66 mgd, as shown in Table 18-2.
Table 18-2. Wastewater Production Predicted Under Scenario Two

<table>
<thead>
<tr>
<th>Proposed Use</th>
<th>SAC Rate</th>
<th>Units</th>
<th>SAC Units</th>
<th>Wastewater (gallons/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single family units</td>
<td>1:1 dwelling</td>
<td>1000</td>
<td>1,000</td>
<td>274,000</td>
</tr>
<tr>
<td>Multi Family units</td>
<td>1:1 dwelling</td>
<td>1400</td>
<td>1,400</td>
<td>383,600</td>
</tr>
<tr>
<td>Institutional/Office</td>
<td>1:2,400 s.f.</td>
<td>45,000 s.f.</td>
<td>19</td>
<td>5,206</td>
</tr>
<tr>
<td>Commercial/Retail</td>
<td>1:3,000 s.f.</td>
<td>38,000 s.f.</td>
<td>13</td>
<td>3,562</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>2,432</strong></td>
</tr>
</tbody>
</table>

The city’s projected average daily wastewater flow for the year 2020, including Scenario Two, is 1.198 mgd. Discussions with the Metropolitan Council’s Environmental Services department indicate that the projected flows can be accommodated within the existing interceptor sewer and can be treated at the Metropolitan Wastewater Treatment Plant (WWTP).

**SCENARIO THREE**

Sanitary wastewater production was estimated using the SAC methods outlined in Scenario Two. The estimated residential wastewater production predicted in Scenario Three is 0.49 mgd. Scenario Three has the same amount of institutional/office and commercial/retail wastewater production as Scenario Two.

Table 18-3. Wastewater Production Predicted Under Scenario Three

<table>
<thead>
<tr>
<th>Proposed Use</th>
<th>SAC Rate</th>
<th>Units</th>
<th>SAC Units</th>
<th>Wastewater (gallons/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single family units</td>
<td>1:1 dwelling</td>
<td>1000</td>
<td>1,000</td>
<td>274,000</td>
</tr>
<tr>
<td>Multi Family units</td>
<td>1:1 dwelling</td>
<td>800</td>
<td>800</td>
<td>219,200</td>
</tr>
<tr>
<td>Institutional/Office</td>
<td>1:2,400 s.f.</td>
<td>45,000 s.f.</td>
<td>19</td>
<td>5,206</td>
</tr>
<tr>
<td>Commercial/Retail</td>
<td>1:3,000 s.f.</td>
<td>38,000 s.f.</td>
<td>13</td>
<td>3,562</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>1,832</strong></td>
</tr>
</tbody>
</table>

**SANITARY SEWER SUMMARY**

The city’s public sanitary sewer system includes pipes ranging from 8-to 15-inch in diameter and due to bedrock much of the city’s sewer system is at shallow depths. The sanitary sewer system drains entirely by gravity to the northwest portion of the city where it connects to the Metropolitan Council’s Interceptor Sewer #7102-2. The 30-inch interceptor sewer flows west under the Mississippi River to Inver Grove Heights then north to the Metropolitan WWTP. The interceptor’s design flow at the city’s connection point is 1.80 mgd.

Wastewater generated within the AUAR area will be collected in proposed gravity sewer lines and drained to central locations within the AUAR area. Since there are no existing gravity sewer lines with sufficient depth to serve the AUAR area, one or more lift stations and force mains will be required for the discharge of wastewater north into the city’s sewer system. In the early phases of the development within the AUAR area, the city’s existing sewer system may be able to accommodate pumped discharges from a portion of the development assuming there are some upgrades to existing sewer lines. However, a new larger diameter gravity line will ultimately be required to convey flows from the AUAR area towards the Metropolitan Council’s connection point.
Figure 18-1 shows potential locations and alignments for lift stations, forcemains, and city sewer upgrades required for the AUAR area.

b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies, and estimate the discharge impact on the quality of receiving waters. If the project involves on-site sewage systems, discuss the suitability of site conditions for such systems.

**SCENARIO ONE**

Scenario One includes the installation of 52 ISTS. Sewage facilities must be installed to meet the applicable standards, criteria, rules and regulations of the MDH, and the MPCA. Most of St. Paul Park’s existing ISTS are located in the southwest area of the city.

The following table was adapted from the *Soil Survey of Washington and Ramsey Counties* (1980). The table shows the degree and kind of soil limitations that affect septic tank absorption fields. The limitations are considered slight if soils properties and site features are generally favorable; moderate if soil properties or site features are not favorable and special planning, design, or maintenance is needed to overcome or minimize the limitations; and severe if soil properties or site features are not favorable unless special design, significant increases in construction costs, and possibly increased maintenance are required. The *Soil Survey* indicates that six (6) of the 15 soil types within the AUAR area have severe limitations for the installation of septic tank absorption fields. A majority of these soils are located along the western edge of the AUAR area, the islands, and the southeastern portions of the AUAR area.

<table>
<thead>
<tr>
<th>Map Symbol</th>
<th>Soil Name</th>
<th>Septic Tank Absorption Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>7B</td>
<td>Hubbard loamy sand, 1-6% slopes</td>
<td>Slight</td>
</tr>
<tr>
<td>7D</td>
<td>Hubbard loamy sand, 12-18% slopes</td>
<td>Severe: slope</td>
</tr>
<tr>
<td>8</td>
<td>Sparta loamy sand, 0-2% slopes</td>
<td>Slight</td>
</tr>
<tr>
<td>8B</td>
<td>Sparta loamy sand, 2-6% slopes</td>
<td>Slight</td>
</tr>
<tr>
<td>8C</td>
<td>Sparta loamy sand, 6-15% slopes</td>
<td>Moderate: slope</td>
</tr>
<tr>
<td>100B</td>
<td>Copastone loam, 0-6% slopes</td>
<td>Severe: depth to rock</td>
</tr>
<tr>
<td>151</td>
<td>Burkhardt sandy loam, 0-3% slopes</td>
<td>Slight</td>
</tr>
<tr>
<td>298</td>
<td>Richwood silt loam</td>
<td>Slight</td>
</tr>
<tr>
<td>301B</td>
<td>Lindstrom silt loam, 2-4% slopes</td>
<td>Slight</td>
</tr>
<tr>
<td>327</td>
<td>Dickman sandy loam, 0-2% slopes</td>
<td>Slight</td>
</tr>
<tr>
<td>329</td>
<td>Chaska silt loam</td>
<td>Slight</td>
</tr>
<tr>
<td>858C</td>
<td>Urban Land-Chetek Complex, 25-65% slopes</td>
<td>Moderate: slope</td>
</tr>
<tr>
<td>1819F</td>
<td>Dorerton-Rock outcrop complex, 25-65% slopes</td>
<td>Severe: slope, large stones</td>
</tr>
<tr>
<td>1821</td>
<td>Algansee loamy sand</td>
<td>Severe: wetness, floods</td>
</tr>
<tr>
<td>1848</td>
<td>Sparta loamy sand, bedrock substratum, 0-6% slopes</td>
<td>Severe: wetness, floods, perc slowly</td>
</tr>
</tbody>
</table>
SCENARIO TWO
No on-site waste treatment is proposed under Scenario Two because development will be connected to the St. Paul Park sanitary sewer system and treated at the Metropolitan WWTP.

SCENARIO THREE
No on-site waste treatment is proposed under Scenario Three because the development will be connected to the St. Paul Park sanitary sewer system and treated at the Metropolitan WWTP.

c. If wastes will be discharged into a publicly owned treatment facility, identify the facility, describe any pretreatment provisions and discuss the facility’s ability to handle the volume and composition of wastes, identifying any improvements necessary.

Wastewater will ultimately be treated at the Metropolitan WWTP in St. Paul. The Metropolitan WWTP opened in 1938 and is the largest wastewater treatment facility in Minnesota. The Metropolitan WWTP currently serves 62 communities and 1.8 million people, and has the capacity to treat 251 mgd. The WWTP uses advanced secondary treatment with chlorination/dechlorination. Post-treatment water is discharged to the Mississippi River.

Under Scenarios Two and Three, wastewater will be routed through the St. Paul Park municipal sewer system to the Metropolitan Council’s Interceptor via connecting sanitary sewer pipes sized and constructed to appropriate specifications. The Metropolitan Council has indicated that their interceptor at the point of connection has a capacity of 1.8 mgd, and the sewer siphon across the Mississippi River has a capacity of 3 mgd with 1.6 mgd allocated to St. Paul Park and 1.4 mgd for Newport. The city’s projected average daily wastewater flow for the year 2020, including Scenario Two, is 1.198 mgd.

Scenarios Two and Three are consistent with the future volume assumptions set forth in the City of St. Paul Park Comprehensive Land Use Plan and the Sanitary Sewer Plan. No wastewater facility or treatment capacity issues are anticipated.

d. If the project requires disposal of liquid animal manure, describe disposal technique and location and discuss capacity to handle the volume and composition of manure. Identify any improvements necessary. Describe any required setbacks for land disposal systems.

Liquid animal manure will not be generated or require disposal of under any Scenario.

- AUAR Guidelines: The relationship of the sewer system extension to the RGU’s comprehensive sewer plan and (for metro area AUARs) to Metropolitan Council regional systems plans, including MUSA expansions, should be discussed. For non-metro area AUARs, the AUAR must discuss the capacity of the RGU’s wastewater treatment system compared to the flows from the AUAR area; any necessary improvements should be described;

Local and metropolitan regional plans identify the AUAR area for urban development through orderly annexation. The Regional Growth Strategy contained in the Metropolitan Council’s 1996 Regional Blueprint identifies the AUAR area as “Urban Reserve” with an overlay designation of “Illustrative 2020 MUSA.” According to the Regional Blueprint, communities inside the Urban Reserve boundary may be developed before 2040 and communities within the Illustrative 2020 MUSA may be developed before 2020. The township’s plan identifies the
AUAR area as “Possible Urban Density Residential if Future Orderly Annexation Occurs.”

The Metropolitan Council is in the process of revising its regional policy plans. The Metropolitan Council’s 2030 Development Framework (adopted on January 14, 2004) identifies the city as “Developed” and the township as a “Developing” community with portions of the community remaining “Diversified Rural” due to the existing rural residential development pattern. The Metropolitan Council’s comments on the Draft AUAR indicated that there is adequate capacity in the metropolitan wastewater treatment system to accommodate the growth of the AUAR area under Scenarios Two and Three.

A Comprehensive Plan amendment for the AUAR area will include a sanitary sewer element. This plan amendment will be sent to the appropriate agencies for formal review and approval before development occurs under Scenario Two or Three. Also, see Item 27 for additional information regarding plan compatibility.

MITIGATION SUMMARY (refer to Item B for the complete Mitigation Plan)

Scenario One
ISTS are comprised of wastewater collection, primary treatment (septic tank), and the final soil treatment system. In general, all wastewater containing human wastes, nutrients, dirt, and other contaminants are collected and delivered to the septic tank and drainfield. The final treatment occurs in the soil where disease-causing organisms are destroyed and nutrients are removed. The area where the sewage and soil meet is termed biomat, and once wastewater is through the biomat, harmful pathogens are destroyed. Proper installation and maintenance of an ISTS will ensure all disease-causing pathogens are destroyed. The ISTS will also remove many of the nutrients in wastewater, and recycle some water and nutrients to grass and trees. The remainder percolates downward replenishing the groundwater. When properly designed, installed, operated and maintained, an ISTS treats sewage as well as municipal treatment plants. (Olson et al. Septic System Owner’s Guide. University of Minnesota Extension Service, 1997.)

Minnesota statutes require that each community with on-site sewage systems include in its comprehensive plan a program for managing their operation, and standards for issuing permits for new on-site systems. The City of St. Paul Park has signed an agreement to join Washington County, in cooperation with the Metropolitan Council, to establish a program to monitor septic tanks throughout the county.

Scenario Two and Three
Because the development under Scenario Two or Three would be connected to the St. Paul Park sanitary sewer system and treated at the Metropolitan WWTP mitigation measures are related to system planning, monitoring wastewater flows, and constructing sanitary sewer system improvements.
19. **Geologic Hazards & Soil Conditions.**

a. Approximate depth (in feet) to groundwater: 3.2 minimum; 9 average; to bedrock: 2 minimum; 8.3 average. Describe any of the following geologic site hazards to groundwater and also identify them on the site map: sinkholes, shallow limestone formations or karst conditions. Describe measures to avoid or minimize environmental problems due to any of these hazards.

**AUAR Guidelines:** A map should be included to show groundwater hazards identified. A standard soils map for the area should be included.

The USGS Quadrangle Map for the AUAR area (St. Paul Park, 7.5 minute, 1967 and photo revised 1980) identifies a “sinkhole” in the southeastern corner of the AUAR area (Figure 19-1). While the bedrock in this area, Prairie du Chien limestone, is classified as “karstic,” research indicates that there has not been a recorded history of “sinkholes” causing adverse effects on structures, roads, utilities, or railroads in this area. (Such effects are well-known and documented in southeastern Minnesota, around Rochester.) To date, the geotechnical exploration, geophysical testing, and site reconnaissance by a Geotechnical Engineer has not indicated evidence of a widespread incidence of karstic activity within the AUAR area. According to the Public Works Departments of St. Paul Park and Cottage Grove, there have been no reported incidents in the area of karstic activity contributing to structural damage. The “sinkhole” has been field verified and is the only known sinkhole to exist on-site.

b. Describe the soils on the site, giving NRCS (SCS) classifications, if known. Discuss soil granularity and potential for groundwater contamination from wastes or chemicals spread or spilled onto the soils. Discuss any mitigation measures to prevent such contamination.

**AUAR Guidelines:** A map should be included to show groundwater hazards identified. A standard soils map for the area should be included. Include any relevant information on soil contamination due to past land uses within the area, as mentioned under item 9.

The predominant soil type within the AUAR area is granular glacio-fluvial alluvium, comprised of sand and silty sand (see Table 16-1 and Figure 16-2). There are pockets of cohesive and semi-cohesive glacio-lacustrine soils within the AUAR area. The granular soils are estimated to have moderate to high permeability; surface infiltration into these soils would likely travel primarily downward until encountering an aquiclude or aquitard, or until encountering the groundwater table, and then moving laterally. Figure 19-2 indicates that the sensitivity of the water table to contamination beneath the AUAR area is Very High and High. According to the digital *Geologic Atlas of Washington County, Minnesota* (Minnesota Geological Survey, 1990), about 68 percent of the Washington County land base is rated either Very High or High for sensitivity to groundwater contamination. Although the project site is classified as Very High and High, the classifications are not absolute. According to the Geologic Atlas for Washington County, a High susceptibility rating does not indicate that the water quality has been or will become degraded, just as a low susceptibility does not guarantee that groundwater will remain pristine.

GME consultants located the lineament (rock fracture) traces by reviewing stereoscopic pairs of aerial photos. The detected lineaments are shown on Figure 19-1. The lineaments are orthogonal; that is, they intersect at approximately 90 degrees, aligned in the northeast to southwest direction and the northwest to southeast direction. The fractured bedrock will need to be ripped and
excavated in areas to develop the AUAR area. The excavation of bedrock is a routine construction activity that occurs in areas with shallow depth to bedrock. The act of ripping bedrock does not impact the potential for groundwater contamination. Furthermore, the AUAR area is not proposed for land uses that may have a high potential for contaminating groundwater, such as heavy industrial uses.

Historically, the property had been used for agricultural purposes and for that reason, there are no recognized environmental conditions associated with the property’s historic use. Considering that the development under Scenarios Two and Three will have municipal sewers serving primarily residential buildings (the only commercial area will be within the Village Center/Commercial area), with an engineered storm water collection, treatment, and infiltration system, the potential for adverse impacts on the groundwater are limited.

At least two 300-gallon underground storage tanks (“USTs”) were observed on the western portion of the property. These tanks were apparently installed in the 1940s and were used to store gasoline. One of the USTs has been “capped” and left in place. Only the fuel dispenser appears to have been removed from the other UST. At least one other UST as well as three above-ground storage tanks have also been identified at the property. These tanks all appear to be used for storing water. Finally, two 265-gallon fuel oil above ground storage tanks (“AST”) are within AUAR area and are connected to buildings via underground piping. A third AST is located where a demolished barn once stood. In the course of developing the property, all tanks and associated underground piping will be removed. Soil and groundwater contamination, if any, will need to be remediated pursuant to Minnesota law.

Pipelines owned by Minnesota Petroleum Company and Marathon-Ashland Oil carrying crude oil and petroleum are located south and east of the AUAR area (see Figure 19-1). Development of the property will be subject to the existence of the pipelines. There is no information to suggest that either of the pipelines are or have presented an environmental risk to the property.

The St. Paul Auto Wrecking facility is located north and adjacent to the property. Washington County Department of Public Health and Environment officials state that the imminent threat associated with that facility is that of a mosquito breeding ground. The auto wrecking facility has apparently impacted surface waters and there may have been illegal dumping at the facility. The Washington County Department of Public Health and Environment has over the last several years, removed more than 20,000 used tires from the salvage yard. The tire removal was accompanied by a rigorous reduction of other mosquito habitat. These efforts have reduced Ochlerotatus triseriatus mosquito levels; however, levels are still elevated and may pose a risk to workers and future residents of the AUAR area.

A Limited Phase II Environmental Assessment responsive to the matters described under Item 19.b was conducted in January 2003. Soil borings and laboratory analyses did not detect any chemical contaminants above the MPCA remediation thresholds for soils within the AUAR area. The Assessment concluded that the soils had not been impacted by petroleum or metal contaminants.
MITIGATION SUMMARY (refer to Item B for complete Mitigation Plan)
Prudent engineering exploration and design will be followed to evaluate the subsurface
conditions around the reported “sinkhole”. When a more defined plat identifies the type of
feature to be built in the area around the “sinkhole,” i.e., parkland, roadway, underground
utilities, or residential structures, construction procedures for filling “sinkholes” in karstic areas
will be evaluated and implemented.

To mitigate the potential risk associated with the elevated mosquito levels, lands adjacent to the
St. Paul Auto Wrecking facility are included in the latter development stages and the city,
township, and private developers will need to work with the Metropolitan Mosquito Control
District to coordinate appropriate spraying or other control mechanisms to adequately reduce
mosquito exposure to workers and future residents.
20. Solid Wastes; Hazardous Wastes; Storage Tanks

a. Describe types, amounts and compositions of solid or hazardous wastes, including solid animal manure, sludge and ash, produced during construction and operation. Identify method and location of disposal. For projects generating municipal solid waste, indicate if there is a source separation plan; describe how the project will be modified for recycling. If hazardous waste is generated, indicate if there is a hazardous waste minimization plan and routine hazardous waste reduction assessments.

AUAR Guidelines: For an AUAR, only the estimated total quantity of municipal solid waste generated and information about any recycling or source separation programs of the RGU need to be included.

According to Washington County, the average amount of municipal solid waste generated per household for the year 2002 was 1.3 tons, the average amount of municipal solid waste recycled per household is 0.4 tons, and municipal solid waste generated per employee for the year 2002 was 2.06 tons. Both the city and township have curbside recycling programs. The total quantity of municipal solid waste generated and recycled under each scenario is shown in Table 20-1.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Total Households</th>
<th>Total Solid Waste Generation (Tons/HH)</th>
<th>Total Solid Waste Generation (Tons/HH/YR)</th>
<th>Recycled (Tons/HH)</th>
<th>Total Amount Recycled (Tons/HH/YR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>52</td>
<td>1.3</td>
<td>67.6</td>
<td>0.4</td>
<td>20.8</td>
</tr>
<tr>
<td>Two</td>
<td>2400</td>
<td>1.3</td>
<td>3120</td>
<td>0.4</td>
<td>960</td>
</tr>
<tr>
<td>Three</td>
<td>1800</td>
<td>1.3</td>
<td>2340</td>
<td>0.4</td>
<td>720</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Total Employees</th>
<th>Total Solid Waste Generation (Tons/Employee/YR)</th>
<th>Total Solid Waste Generation (Tons/Employee/YR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>0</td>
<td>2.06</td>
<td>0</td>
</tr>
<tr>
<td>Two</td>
<td>100</td>
<td>2.06</td>
<td>206</td>
</tr>
<tr>
<td>Three</td>
<td>100</td>
<td>2.06</td>
<td>206</td>
</tr>
</tbody>
</table>

b. Identify any toxic or hazardous materials to be used or present at the site and identify measures to be used to prevent them from contaminating groundwater. If the use of toxic or hazardous materials will lead to a regulated waste, discharge or emission, discuss any alternatives considered to minimize or eliminate the waste, discharge or emission.

AUAR Guidelines: For an AUAR, no response is necessary for this item 20.b.
c. Indicate the number, location, size and use of any above or below ground tanks to store petroleum products or other materials, except water. Describe any emergency response containment plans.

AUAR Guidelines: Potential locations of storage tanks associated with commercial uses in the AUAR should be identified (e.g., gasoline tanks or service stations).

Gas stations are proposed to be a permitted use within the Village Center (Scenario Two) and the Commercial area (Scenario Three). The potential location of a gas station is likely near the main parkway and the entrance into the Mixed Use Village Center or Commercial area. The gas station must comply with state law and regulations regarding such facilities.
Traffic. Parking spaces added approximately 415 commercial spaces in the Village Center. Existing spaces (if project involves expansion) N.A. Estimated total average daily traffic generated 21,655. Estimated maximum peak hour traffic generated (if known) and time of occurrence 1,277 (4:30 p.m. to 5:30 p.m.). Provide an estimate of the impact on traffic congestion on affected roads and describe any traffic improvements necessary. If the project is within the Twin Cities metropolitan area, discuss its impact on the regional transportation system.

For each affected road indicate the ADT and the directional distribution of traffic with and without the project. Provide an estimate of the impact on traffic congestion on the affected roads and describe any traffic improvements which will be necessary.

AUAR Guidelines: For most AUAR reviews a relatively detailed traffic analysis will be needed, especially if there is to be much commercial development in the AUAR area or if there are major congested roadways in the vicinity. The results of the traffic analysis must be used in the responses to item 22 and to the noise aspect of item 24.

Instead of responding to the information called for in item 21, the following information should be provided:

21a. a description and map of the existing and proposed roadway system, including state, regional, and local roads to be affected by the development of the AUAR area. This information should include existing and proposed roadway capacities and existing and projected background (i.e., without the AUAR development) traffic volumes (see Appendix F, and Figures 21-1 and 21-2);

21b. trip generation data -- trip generation rates and trip totals -- for each major development scenario broken down by land use zones and/or other relevant subdivisions of the area. The projected distributions onto the roadway system must be included;

21c. analysis of impacts of the traffic generated by the AUAR area on the roadway system, including: comparison of peak period total flows to capacities and analysis of Levels of Service and delay times at critical points (if any);

21d. a discussion of structural and non-structural improvements and traffic management measures that are proposed to mitigate problems;

Note: in the above analyses the geographical scope must extend outward as far as the traffic to be generated would have a significant effect on the roadway system and traffic measurements and projections should include peak days and peak hours, or other appropriate measures related to identifying congestion problems, as well as ADTs.

Appendix F contains the complete traffic study. This section contains a summary of key findings from the traffic study. This summary focuses on impacts and mitigations for Scenario Two (2,400 housing units and 83,000 square feet of non-residential uses) and Scenario Three (1,800 housing units and 83,000 square feet of non-residential uses); Scenario One causes no significant traffic related impacts.
21B - TRIP GENERATION
The daily, A.M. peak hour and P.M. peak hour trip generation is summarized in Table 21-1. The values listed under the “Daily” column represent total trip ends. A trip end is one movement to or from a location. For example, a resident leaving home in the morning to drive to work produces one morning trip end from the house. The return trip home in the afternoon produces a second trip end to that house.

Table 21-1. Trip Generation Summary

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Daily Trips (Trip Ends)</th>
<th>A.M. Peak Hour (Approx. 7:30 - 8:30 A.M.)</th>
<th>P.M. Peak Hour (Approx. 4:30 - 5:30 P.M.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In</td>
<td>Out</td>
<td>Total</td>
</tr>
<tr>
<td>Scenario 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Family Detached Housing</td>
<td>498</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Scenario 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Family Detached Housing</td>
<td>9,579</td>
<td>192</td>
<td>561</td>
</tr>
<tr>
<td>Residential Condominium/ Townhouse</td>
<td>4,689</td>
<td>61</td>
<td>290</td>
</tr>
<tr>
<td>Village Center Housing Composite (1)</td>
<td>2,400</td>
<td>40</td>
<td>87</td>
</tr>
<tr>
<td>Specialty Retail Center</td>
<td>1,220</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>General Office Building</td>
<td>110</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Restaurant - High-Turnover (Sit-down)</td>
<td>1,043</td>
<td>38</td>
<td>36</td>
</tr>
<tr>
<td>Composite - Special Uses (2)</td>
<td>2,360</td>
<td>90</td>
<td>89</td>
</tr>
<tr>
<td>Fire Station</td>
<td>25</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Recreational Community Center</td>
<td>229</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Total Trips</td>
<td>21,655</td>
<td>461</td>
<td>1,081</td>
</tr>
<tr>
<td>Scenario 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Family Detached Housing</td>
<td>9,579</td>
<td>192</td>
<td>561</td>
</tr>
<tr>
<td>Residential Condominium/ Townhouse</td>
<td>4,689</td>
<td>61</td>
<td>290</td>
</tr>
<tr>
<td>Village Center Housing Composite (1)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Specialty Retail Center</td>
<td>1,220</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>General Office Building</td>
<td>110</td>
<td>14</td>
<td>2</td>
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<td>2,360</td>
<td>90</td>
<td>89</td>
</tr>
<tr>
<td>Fire Station</td>
<td>25</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Recreational Community Center</td>
<td>229</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Total Trips</td>
<td>19,255</td>
<td>421</td>
<td>994</td>
</tr>
</tbody>
</table>

(1) “Village Center Housing Composite” rate is derived from standard townhouse/condo and elderly attached housing rates.
(2) “Special Uses” rates are a composite of typical community retail land uses, including drive-in bank, gas station with convenience store, day care, medical & dental offices and specialty retail.

21C - IDENTIFICATION OF KEY ANALYSIS LOCATIONS
Figure 21-1 shows the area roadway network surrounding St. Paul Park, Grey Cloud Island Township and the AUAR area. Included on the figure is the proposed T.H. 61 interchange reconstruction. This 2004/2005-construction project will enhance the access opportunities at the north end of St. Paul Park for the AUAR area and all surrounding traffic. The T.H. 61 project will also include the relocation of St. Paul Park Road with a new bridge connection over the railroad tracks. This will serve as a reliever to the at grade railroad crossing on Broadway.

The major connection to the in-place surrounding roadway system is via Third Street. From that connection, traffic destined to the north is expected to primarily utilize Third Street to access Broadway Avenue and the T.H. 61 interchange area. Once the T.H. 61 project is completed, some of the traffic destined to the north is expected to utilize Third Street to access St. Paul Park.
Road, with its new bridge connection over the railroad tracks, to access T.H. 61. In the early stages of development, traffic destined to the east and south (e.g., shopping trips to Cottage Grove) will be expected to utilize Pullman Avenue. In the latter stages of development a new bridge over the railroad tracks and extension of 95th Street from Cottage Grove is proposed. When this new connection is in place, vehicles destined to the east and south will transfer to that route.

The small portion of the AUAR area east of the railroad tracks will connect into the inplace residential street system in that vicinity.

In the traffic study, the trip generation values shown in Table 21-1 were assigned to the roadway network and the potential impacts of these volumes were analyzed. Figure 21-2 shows key roadways that accommodate traffic generated from the AUAR area. For each roadway, three (or four) traffic values are shown in a stacked manner. The top value represents the current daily traffic volume on that link. The middle value represents the current capacity of that roadway. If an upgrade to the roadway is planned, the proposed future capacity is also shown in parentheses on the second line. The bottom value represents that projected traffic volume on that link with full development of the AUAR area in place.

The area traffic forecasts were computed for full development conditions under Scenario Two and Three and also on a phase-by-phase basis to determine the timing of any needed roadway improvements. The results of the traffic assignment and analysis process show the following:

- With the improvements already planned, the new T.H. 61 interchange at the north end of St. Paul Park will be able to accommodate traffic at a high level of service.
- Broadway Avenue will be able to accommodate the increased area traffic volumes with its current width.
- Third Street will need to be upgraded to a three-lane roadway to handle the projected traffic demands.
- Without a new connection to 95th Street prior to full build out of Scenarios Two and Three, Pullman Avenue would need to be upgraded; with the 95th Street connection in place, there is not a need to upgrade Pullman Avenue.
- Summit Avenue will not need to be upgraded.
- Intersections along Broadway (at Third Street and at Summit) will need to be signalized prior to full build out of Scenarios Two and Three.
- With the above mitigations in place, the road network within the AUAR area and surrounding roadway network could support an additional 48,000 square feet of Village Center commercial uses or 290 additional housing units (50/50 ratio of SF/MF) without requiring additional transportation system mitigations under Scenario Two.

The findings shown above are the same for Scenarios Two and Three and are reflected in the Mitigation Plan.
Traffic Volumes Related to the Aggregate Industries Mining Operations

An additional issue considered in the traffic study is the effect of truck traffic generated by the Aggregate Industries mining operation. Aggregate Industries operates a large mining operation to the south of the project site in the township. The majority (over 95%) of the resource volume extracted from the mines is transported off-site via barging. The mining operation is comprised of two separate pits: the northerly pit, known as the Nelson Pit, which is a sand and gravel pit, and the southerly pit, known as the Larson Pit, which is a limestone pit. Table 21-2 summarizes the amount and direction of truck traffic from each of the two pits over the last two years. All of the limestone material that is trucked from the site travels to the north on CR 75. Twenty-five percent (25%) of the sand and gravel trucked out of the site traveled to the north on CR 75; the majority of the sand and gravel trucked out was destined to locations in Cottage Grove and accessed that area via the 103rd Street crossing of the railroad tracks en route to 100th Street. The Aggregate Industries mines operate for about seven months during the course of the year, with a winter season shutdown.

The Aggregate Industries mining operation is governed by a permit that limits the total extraction to one million tons per year for each pit. The same permit process limits the amount of material that can be trucked to be no more than 10% of the total resource volume. At these tonnage limits, translated into the number of trucks needed to carry this volume, each pit can legally generate no more than about 4,167 trucks over the course of an entire year. As shown in Table 21-2 the actual truck volumes are substantially below the maximum permitted values, with no significant changes in actual volume forecasted at this time.

The roadway layouts within AUAR area, including the intersections, traffic circles and connections to inplace surrounding roadways, will be designed to properly and safely accommodate truck traffic volumes and maneuvers.

<table>
<thead>
<tr>
<th>Pit</th>
<th>Year</th>
<th>Total Truck Traffic Yearly Volume</th>
<th>Avg. Daily Volume</th>
<th>Volume to C.R. 75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nelson</td>
<td>2001</td>
<td>956</td>
<td>6</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>2002</td>
<td>1,008</td>
<td>7</td>
<td>25%</td>
</tr>
<tr>
<td>Larson</td>
<td>2001</td>
<td>3,490</td>
<td>23</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>2002</td>
<td>3,341</td>
<td>22</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Aggregate Industries

Intersection Safety Concerns

Within the study area there is one intersection that has experienced an unsatisfactory crash rate. The inplace intersection with its skew angle and restricted sight distance has experienced four crashes over the three year period ending September 30, 2003. Over the seven-year period dating to January 1, 1997, the intersection has experienced eleven crashes. This occurs at the “Y” intersection of CR 75 and Grey Cloud Trail. Although the volumes at this intersection are fairly modest, with the current skewed alignment and restricted sight distance, a higher than expected crash rate has been experienced for the low traffic volume levels. With additional development in the area and construction of new internal and access roads, this intersection will be realigned to improve the geometric layout and safety of the intersection.
21D - MITIGATION SUMMARY (refer to Item B for complete Mitigation Plan)

Scenarios Two and Three
The proposed upgrades to accommodate Scenarios Two and Three traffic are:

- Upgrade and realignment of Grey Cloud Island Drive (CR 75) through the AUAR area.
- Construct the internal roadway network with each phase of development in the AUAR area.
- Upgrade 3rd Street through alternative lane configurations.
- Construct 95th Street Connection prior to exceeding the capacity of the roadway system.
- Signalize Broadway/Third Street and Broadway/Summit when a signal warrant is met (prior to full development)
- Improve intersection geometrics to alleviate problems at locations contiguous to the AUAR area (e.g., current intersection of CR 75 and Grey Cloud Trail).
22. **Vehicle-Related Air Emissions.** Estimate the effect of the project's traffic generation on air quality, including carbon monoxide levels. Discuss the effect of traffic improvements or other mitigation measures on air quality impacts. Note: If the project involves 500 or more parking spaces, consult *EAW Guidelines* about whether a detailed air quality analysis is needed.

*AUAR Guidelines: The guidance provided in EAW Guidelines should also be followed for an AUAR. Mitigation proposed to eliminate any potential problems may be presented under item 21 and merely referenced here. The MPCA staff should be consulted regarding possible ISP requirements for certain proposed developments; although the RGU may not want to assume responsibility for applying for an ISP for specific developments, it may be desirable to coordinate the AUAR and ISP analyses closely.*

The detailed vehicle-related air emissions analysis is located in Appendix G. The analysis concludes that there are no significant adverse air quality impacts under any development Scenario.

23. **Stationary Source Air Emissions.** Describe the type, sources, quantities and compositions of any emissions from stationary sources of air emissions such as boilers, exhaust stacks or fugitive dust sources. Include any hazardous air pollutants (consult *EAW Guidelines* for a listing) and any greenhouse gases (such as carbon dioxide, methane, nitrous oxide) and ozone-depleting chemicals (chloro-fluorocarbons, hydrofluorocarbons, perfluorocarbons or sulfur hexafluoride). Also describe any proposed pollution prevention techniques and proposed air pollution control devices. Describe the impacts on air quality.

*AUAR Guidelines: This item is not applicable to an AUAR. Any stationary source air emissions source large enough to merit environmental review requires individual review.*

Not applicable to the Rivers Edge AUAR.
24. **Dust, Odors, and Noise Impacts.** Will the project generate odors, noise or dust during construction or during operation?

☑ Yes ☐ No

If yes, describe sources, characteristics, duration, quantities or intensity and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at item 23 instead of here.)

**AUAR Guidelines:** Dust, odors, and construction noise need not be addressed in an AUAR, unless there is some unusual reason to do so. The RGU might want to discuss as part of the mitigation plan, however, any dust control or construction noise ordinances in effect. If the area will include or adjoin major noise sources, a noise analysis is needed to determine if any noise levels in excess of standards would occur, and if so, to identify appropriate mitigation measures. With respect to traffic generated noise, the noise analysis should be based on the traffic analysis of item 21.

Deposits of dolostone contained within the subject property will be excavated to facilitate cost effective extension of utilities and grading of the AUAR area. These deposits are found throughout the subject property. The excavated materials would be stockpiled and reused on-site as road aggregate during each phase. It is anticipated that stockpiles created for each phase of development will be used within in timely manner along with BMPS. Commercial mining is not proposed under any development scenario.

The noise and dust associated with excavating the dolostone will be similar to regular construction activities. Noise from occasional blasting and earthmoving equipment activities are anticipated to be short lived and episodic in nature. The noise levels on and adjacent to the AUAR area will vary considerably depending on the pieces of equipment being operated simultaneously and the percent of time in operation. It is anticipated that most construction activities will be confined to the hours between 7:00 am and 7:00 pm and that a number of machines could potentially be operating simultaneously.

**MITIGATION SUMMARY** (refer to Item B for complete Mitigation Plan)

The township has a mineral excavation ordinance that includes standards for controlling the effects of noise, dust, erosion, traffic, drainage, groundwater pollution and other factors related to mining upon adjacent property owners. The ordinance requires that a mining permit is obtained from the Town Board. The city does not have ordinances to regulate blasting activities. The city will prepare blasting regulations and a permitting process to mitigate potential impacts.
25. **Sensitive Resources.** Are any of the following resources on or in proximity to the site:

a. archeological, historical, or architectural resources?

☑️ Yes ☐ No

AUAR Guidelines: For an AUAR, contact with the State Historic Preservation Office (SHPO) is required to determine whether there are areas of potential impacts to these resources. If any exist, an appropriate site survey of high probability areas is needed to address the issue in more detail. The mitigation plan must include mitigation for any impacts identified.

The 106 Group conducted a Phase I archaeological survey, which is on file with SHPO. The Phase I archaeological survey did not identify any historical sites that may be potentially eligible for listing of the National Register of Historic Places. One archaeological site produced two lithic flakes of Prairie du Chien chert. However, the archaeologist recommended that the site is not eligible for listing on the NRHP and no further testing was recommended for the site. The two lithic flakes of Prairie du Chien chert found on the property were properly documented and reported to the Historical Society’s Collections Department before being returned to the landowner.

The SHPO was contacted and their History/Architecture Inventory indicates that two sites are within the AUAR boundary (Table 26a):

- **The Chicago Burlington & Quincy Railroad line (WA-CGC-212).** A new bridge may be constructed over the railroad tracks to extend 95th Street in Cottage Grove to connect to Grey Cloud Trail.

- **Farmstead (WA-CGI-001).** The Phase I archaeological survey included a cursory review of historical farmstead sites. The review did not yield any evidence for association with events or property owners that would be considered significant on a local, state, or national level other than the Swift Company, which was one of the nation’s top four meat-packing companies during the early 1900s. As Swift and Company owned the property for less than 25 years, though, it would be difficult to isolate features and deposits associated with the company’s occupation of the property.

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Address</th>
<th>Twp</th>
<th>Range</th>
<th>Sec</th>
<th>Quarters</th>
<th>USGS</th>
<th>Report</th>
<th>NRHP/CEF/DOE</th>
<th>Inventory Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago Burlington &amp; Quincy Railroad Line</td>
<td>27 21 19 W St. Paul Park</td>
<td>WA-91-1H</td>
<td>WA-CGC-212</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>farmstead</td>
<td>off Co. Hwy. 75</td>
<td>27 22 13 SW-SE-NW St. Paul Park</td>
<td>WA-GCI-001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A Phase II Survey of the potential historical significance of the farmstead (SHPO Inventory Number WA-GCI-001) and Railroad Line (SHPO Inventory Number WA-CGC-212) will be required if there is federal involvement (i.e. federal permits, funding, etc.). A federal permit will likely be needed for the manure lagoon restoration, which constitutes federal involvement.
If any archaeological, historical, or architectural resources are found during the construction, the city, township, or the developer will contact SHPO to report the resource for inclusion in its database. The city, township, and/or the developer will work with SHPO to determine the appropriate strategies to mitigate any potential impacts.

b. prime or unique farmlands?

☑ Yes ☐ No

**AUAR Guidelines:** The extent of conversion of existing farmlands anticipated in the AUAR should be described. If any farmland will be preserved by special protection programs, this should be discussed.

The Lindstrom silt loam (301B) soil is a prime farmland map unit. A small area of this soil is located in the northeastern portion of the AUAR area. The entire 334 acres of agricultural fields will be converted to urban development. Because the AUAR area is guided for development, and is not part of an Agricultural Preserve designation, no mitigation measures have been considered.

c. designated parks, recreation areas, or trails?

☑ Yes ☐ No

**AUAR Guidelines:** If development of the AUAR will interfere or change the use of any existing such resource, this should be described in the AUAR. The RGU may also want to discuss under this item any proposed parks, recreation areas, or trails to be developed in conjunction with development of the AUAR area.

**Mississippi National River and Recreation Area (MNRRRA)**

The Mississippi National River and Recreation Area (MNRRRA), a unit of the National Park System, is a 72-mile, 54,000-acre corridor extending from the mouth of the Crow River at Dayton and Ramsey, Minnesota, to the Goodhue County line just south of Hastings, Minnesota. The MNRRRA boundary is the same as that of the Mississippi River Critical Area (see Figure 14-1). Congress established MNRRRA in 1988 in recognition of the unique scenic, recreation, natural, cultural and economic values of this portion of the river. National Park Service activities are carried out in cooperation with 25 local units of government in the river corridor (including St. Paul Park and Grey Cloud Island Township) as well as numerous other federal state and local agencies. The portion of the AUAR area west of CR 75 is within the MNRRRA.

The National Park Service owns two islands near the southwestern portion of the AUAR area. Scenarios Two and Three will provide public recreational opportunities that do not currently existing on the privately owned land. These opportunities are related to trails, parks, and open space.

**Metropolitan Council Regional Parks and Open Space System**

A regional trail is proposed to follow the existing alignment of CR 75 through the AUAR boundary (Figure 25-1). CR 75 may be slightly realigned to accommodate the parkway system, which would slightly change the proposed alignment of the regional trail corridor. Scenarios Two and Three are planned to contain an extensive trail system that links the neighborhoods to the river corridor. It is unknown if Metropolitan Council funds will be available to plan for and
construct a regional trail through the AUAR area.

As the proposed parkway is planned, a connection will be maintained to CR 75 south of the AUAR area to continue to provide southerly access to Grey Cloud Island and the potential future regional park on the lower island.

WASHINGTON COUNTY GREENWAY CORRIDOR
Washington County identifies a greenway corridor within the AUAR boundary that follows the existing alignment with CR 75, rather than along the edge of the river. The identified greenway corridor currently includes agricultural fields, old fields, dumps and material storage, and farmsteads. Given that the river, river islands, and shoreline are proposed to be protected as open space and include trails, the alignment of the greenway corridor could potentially follow the river shoreline, or portions of the river shoreline, instead of CR 75. It is unknown if county funds will be available to assist with restoring and maintaining a greenway corridor through the AUAR area at this time.

GREY CLOUD ISLAND TOWNSHIP’S ADOPTED 2020 COMPREHENSIVE PLAN
The township’s current plan does not identify any local parks or trails within the AUAR boundary. However, the township’s plan does indicate that it prefers the alignment of the regional trail to follow CR 75 and then follow Grey Cloud Trail to the east. The township has indicated that following Grey Cloud Trail is a safer route that avoids the narrow bridge that crosses over Grey Cloud Island Channel.

RIVERSIDE PARK / ST. PAUL PARK’S ADOPTED 2020 COMPREHENSIVE PLAN
Riverside Park is located adjacent to the AUAR area and the city’s adopted land use plan identifies a small portion of the AUAR area as Riverside Park. The city has already constructed park benches on the portion of the park within the AUAR area, which is privately owned. It is anticipated that this portion of the project site may become part of Riverside Park through the PUD process. Riverside Park is 10 acres in size, is largely undeveloped, and has been designated as a nature study area by the city. Four acres of the park are set aside for the city’s compost.

The future development of the AUAR area may provide park and open space connections to Riverside Park including portions of the wooded corner adjacent to Riverside Park. The park connections will increase community use of Riverside Park. The Mitigation Plan proposes to require a restoration plan that will involve habitat restoration activities along the river corridor, which will minimize the potential impact of existing invasive and non-native species invading the existing habitat restoration areas within Riverside Park.

POTENTIAL PARKS, TRAILS, AND OPEN SPACE SYSTEM
The conceptual park, open space, and trail system for the AUAR area is shown on Figure 25-1. Sidewalks will also be located adjacent to the major roadways shown on Figures 6-6 and 6-7. The specific locations of proposed parks, open spaces, and trail alignments will be determined through the PUD process.

d. scenic views and vistas?
   ☑ Yes ☐ No

   AUAR Guidelines: Any impacts on such resources present in the AUAR should be addressed. This would include both direct physical impacts and impacts on visual quality or integrity. EAW Guidelines contains a list of possible scenic resources (page 20).
The AUAR area is located along the Mississippi River and contains vistas of and from the river corridor. Critical Area guidelines require that structure site and location be regulated to ensure that riverbanks, bluffs, and scenic overlooks remain in their natural state, and to minimize interference with views of and from the river. A view analysis was conducted to illustrate the impact of development on the views of the riverbank and bluff from the river (Appendix I). The view analysis was based on the “worst case” height proposed in the AUAR. The scope of the view analysis was limited to locations within the Critical Area where buildings are proposed to exceed the existing regulated maximum height of 35 feet under Scenarios Two and Three. The areas where buildings are proposed to exceed 35 feet in height are shown on Figure 14-3. The location of structures is based on the Mitigation Site Plan Concept, Figure B. Under Scenario One, all structures would be limited to 35 feet in height, which is consistent with the township’s Critical Area regulations.

The potential visual impact of 55-foot tall structures is shown on Figures I-3 through I-10. There are no prescriptive regulations, standards, or guidelines that attempt to quantify a visual impact. The following are the results of the view analysis:

Leaf-on Conditions

- The view from the opposite shore (bank) of the river is not impacted. The river islands screen the proposed development area from the opposite shore. View points 5 and 6 illustrate this. A small portion of the roof of one building is visible in view point 6.

- Most structures are completely screened from the main river channel and the NPS island (view point 7). View points 5, 6, and 7 illustrate this. A portion of the roof of one building is visible in view point 6.

- From the backwater channels, most structures are screened. Portions of roofs are visible in view points 1 and 3. Portions of the roofs and top floors are visible from view point 2, which is located within the bay.

Leaf-off Conditions

- From the main river channel and the NPS island, portions of structures can be seen through the canopy and understory. View points 5, 6, and 7 illustrate this.

- From the backwater channels, portions of structures can be seen through the canopy and understory. View points 1, 2, 3, and 4 illustrate this.

Under Scenarios Two and Three, potential visual impacts will be mitigated by locating structures approximately 100 feet from the bluffline, retaining the mature trees along the bluffs, and restoring and managing vegetation along the bluffs and within 100 feet landward of the bluffline. The floodplain forest located on the river islands also provides additional screening of development from the main river channel and from some of the backwater channels. Potential structures located in the development area located immediately north of the bay will be located approximately 100 feet from the bluffline, except for the bluff rising up from the manure lagoon. The setback to the manure lagoon bluffline is proposed at 40 feet in accordance with existing ordinances. The bluffline setback to the secondary bluff is proposed at 40 feet in accordance with
existing ordinances.

The Mitigation Plan contains strategies for minimizing the potential visual impact of structures that are proposed to exceed 35 feet in height within the portions of the Critical Area shown on Figure 14-3. Within the city, a view analysis will become an additional site plan requirement for buildings proposed to exceed 35 feet within the Critical Area. The township will continue to limit heights to 35 feet within the Critical Area. Additional mitigation measures include performance standards that must be considered before the city approves a structure/building that would exceed 35 feet in height within the Critical Area, including:

- The view of structures/buildings from public waters is minimized, assuming summer, leaf-on conditions;
- Structure/building screening is maximized by retaining native vegetation along the bluff and within the bluff setback area and/or re-establish native vegetation to screen development from the river;
- Building materials shall be earth tones, blend into the surroundings, and reduce window glare; and
- Structure site and location shall be regulated to ensure that riverbanks, bluffs and scenic overlooks remain in their natural state, and to minimize interference with views of and from the river, except for specific uses requiring river access.

e. other unique resources?
   ☐ Yes ☒ No
   If yes, describe the resource and identify any project-related impacts on the resource. Describe any measures to minimize or avoid adverse impacts.

26. **Adverse Visual Impacts.** Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas and large visible plumes from cooling towers or exhaust stacks?
   ☐ Yes ☒ No

   If yes, explain.

   *AUAR Guidelines: If any non-routine visual impacts would occur from the anticipated development, this should be discussed here along with appropriate mitigation.*

   No non-routine visual impacts would occur from the anticipated development.
27. **Compatibility with Plans and Land Use Regulations.** Is the project subject to an adopted local comprehensive plan, land use plan or regulation, or other applicable land use, water, or resource management plan of a local, regional, state or federal agency?

☑ Yes ☐ No

If yes, describe the plan, discuss its compatibility with the project and explain how any conflicts will be resolved. If no, explain.

**AUAR Guidelines:** The AUAR must include a statement of certification from the RGU that its comprehensive plan complies with the requirements set out at 4410.3610, subpart 1. The AUAR document should discuss the proposed AUAR area development in the context of the comprehensive plan. If this has not been done as part of the responses to items 6, 9, 18, 21, and others, it must be addressed here; a brief synopsis should be presented here if the material has been presented in detail under other items. Necessary amendments to comprehensive plan elements to allow for any of the development scenarios should be noted. If there are any management plans of any other local, state, or federal agencies applicable to the AUAR area, the document must discuss the compatibility of the plan with the various development scenarios studied, with emphasis on any incompatible elements.

The City of St. Paul Park and Grey Cloud Island Township completed their comprehensive plans consistent with the requirements of the Metropolitan Land Planning Act requirements for 1998 plan updates. The plans were reviewed by the Metropolitan Council and found to be consistent with the Regional Blueprint and with the Metropolitan Council’s regional system plans. The plans comply with the requirements set out in Minnesota Rules 4410.3610, subpart 1, which requires local comprehensive plans to address land use, transportation, and sanitary sewer systems and include an implementation program.

**SCENARIO ONE**
This development scenario is based on adopted plans and regulations and for that reason, it is compatible with the adopted plans and regulations of the city and township.

**SCENARIO TWO AND THREE**
The urbanization of the AUAR area under Scenarios Two and Three cannot commence without plans and regulations that guide the permitted land use, zoning, utility extensions, and other development activities. The city and township will not grant final approval of master development plans, PUD and subdivision applications, plats, and/or site plans until the appropriate plans and regulations have been formally adopted by the appropriate jurisdiction (e.g. city, township, and/or Washington County).

Currently, there are no adopted plans or regulations that address the urbanization of the AUAR area. Therefore, certain elements of the plans and regulations that guide the land use and development of the property must be amended prior to facilitating the development of Scenarios Two or Three (see Minnesota Statutes Chapters 414 and 462). The following plans and regulations will be amended:

- City of St. Paul Park Comprehensive Plan/Critical Area Plan
- City of St. Paul Park Zoning Ordinance
  - River Development/Shoreland Management District
  - PUD District
  - Rivers Edge PUD District
- Grey Cloud Island Township Comprehensive Plan/Critical Area Plan
- Grey Cloud Island Township Zoning Ordinance
  - Critical Area Regulations
  - PUD District
  - Rivers Edge PUD District
- Washington County Comprehensive Plan
- Washington County Zoning Ordinance

The nature and scope of the plan amendments follow:

**Metropolitan Council – Regional Blueprint (dated December 1996)**
**Metropolitan Council - Blueprint 2030 (adopted December 18, 2002)**

The urbanization of the AUAR area is compatible with the regional policy documents and no amendments are anticipated. St. Paul Park is designated as “Developed” and Grey Cloud Island Township is designated as “Developing” in *Blueprint 2030* and the *2030 Regional Development Framework*. The “Developing” designation is consistent with the previous *Regional Blueprint* adopted by the Metropolitan Council in 1996 that identified the subject property as “Urban Reserve” with the “Illustrative 2020 MUSA” overlay, which indicates that the Metropolitan Council anticipated that urban services would be extended to serve the subject property by the year 2020 or 2040. The urbanization of the AUAR area is compatible with regional policies including, but not limited to, achieving regional density goals, providing life-cycle housing opportunities, planning centers that are desirable places to live, shop and do business, planning interconnected bicycle and pedestrian paths, protecting locally significant natural resources, and capitalizing on regional infrastructure investments. A regional investment of approximately $250 million has been allocated to upgrading the Wakota Bridge and T.H. 61, which serve the project site. In addition, the local and regional sanitary sewer system has capacity to serve the AUAR area. Moreover, its proximity to the eastern metropolitan employment centers and location within the region qualifies it as an “infill” development site, and it can further act as a catalyst to revitalize an aging downtown St. Paul Park.

**Rivers Edge Comprehensive Plan Amendment**

The city and township, with the help of the project proposer, jointly prepared a draft Comprehensive Plan amendment for Scenario Two, the proposed Rivers Edge project. This jointly prepared draft Comprehensive Plan amendment reflects the multi-jurisdictional cooperation needed to implement the proposed Rivers Edge project. Many elements of the city’s Comprehensive Plan need to be amended to address the areas annexed from the township to the city. Many elements of the township’s Comprehensive Plan need to be amended to address the urbanization of township lands. These elements include: land use, housing, development staging (MUSA extension), community facilities, parks and open space, transportation, sanitary sewer, water supply and distribution, surface water management, capital improvement program, and implementation. The Metropolitan Council, the DNR, and Washington County have informally reviewed a draft of the Rivers Edge Comprehensive Plan amendment. The draft Comprehensive Plan amendment will be revised to be consistent with the Final AUAR and Mitigation Plan and will be formally submitted to the appropriate agencies for review and approval in the near future.
Mississippi River Critical Area Corridor Plans
Please refer to Item 14 of this document for context relative to Critical Area Standards and Guidelines.

City of St. Paul Park Plan for the River Corridor (Critical Area Plan)
The city’s Critical Area Plan will be amended to address the lands annexed from the township to the city that are within the Critical Area. Incompatible elements of Scenarios Two and Three and the adopted Critical Area Plan are related to building height limitations, development restrictions on slopes exceeding 12%, and the boundary of the Urban Developed District.

- The DNR approved plan limits heights of buildings to 35 feet. The heights of buildings within the Village Center under Scenario Two and around the bay in Scenario Three are proposed to exceed 35 feet (see Figure 14-3). Existing mature trees (protected as open space), structure setbacks, and the floodplain forest islands will help mitigate potential visual impacts. See discussion under Item 25d and Appendix I – View Analysis.

- The prohibition of development on slopes exceeding 12% would prevent reasonable access to the southwestern portion of the AUAR area, the northern point of the bay, and the development of scenic overlooks and the trail system. Proposed development would alter selected areas that contain slopes greater than 12%. The MPCA’s BMPs and the city’s Critical Area Ordinance will be followed to mitigate potential impacts. Also, see steep slope discussion under Item 14.

- The southern boundary of the Urban Developed District is defined by the southern boundary of city limits. Since the city will be annexing portions of Critical Area lands and waters from the township, the amendment includes extending the boundary to the AUAR area (see Figure 14-2). Also, see the previous discussion under Metropolitan Council plans.

Grey Cloud Island Township Comprehensive Plan/Critical Area Plan
The township’s Critical Area Plan and Land Use Plan identifies the AUAR area as a “Possible Urban Density Residential if Future Orderly Annexation Occurs.” The plan also recognizes that the township is not prepared to offer public utilities to serve urban development. However, the plan does not address the provisions of the settlement agreement signed by the city, township, landowner, and developer (see Appendix B). Instead of the entire AUAR area being annexed to the city, the agreement states that portions of the AUAR area are proposed to remain within the township. The city has agreed to provide urban services to lands within the project site that remain within the township. The existing Critical Area Plan does not address the urbanization of any township lands. In general, the proposed amendments to the Critical Area Plan will create an urban element to the existing rural plan that is similar to the city’s plans and policies for the Urban Developed District. Likewise, the urbanizing lands are proposed to be included in the Urban Developed District rather than the existing Rural Open Space District.

Washington County Comprehensive Plan
Scenarios Two and Three are not consistent with the County’s Land Use Plan designations. The Land Use Plan identifies lands west of CR 75 for Rural Residential at a density of 16 units per 40 acres and lands east of CR 75 for Commercial/Industrial development. The nature of the land use plan amendments will be to change the land use designation of the AUAR area to reflect the annexation of lands to the city. The annexed portions will likely be designated “Suburban Housing” and “Commercial/Industrial” (for lands within the Village Center guided for Mixed Use
development under Scenario Two or the Commercial area under Scenario Three). The portions of the project site that remain within the township will likely be designated “Suburban Housing” to reflect residential densities that support public utilities. Washington County will remain involved in the development process for lands that remain within the township. This includes preliminary and final review of the PUDs and review of all final subdivision plats.

The jurisdiction of CR 75 through the AUAR area may change. If the jurisdiction changes, the County’s Transportation Plan would need to be amended to reflect a change in jurisdiction of CR 75.

**National Park Service - Mississippi National River and Recreation Area (MNRRA) Comprehensive Management Plan (CMP)**

The township and city have adopted Critical Area Plans that include some of the voluntary policies contained in the MNRRA-CMP. Under Scenarios Two and Three, development may deviate from development polices regarding slopes greater than 12%. Scenarios Two and Three are not entirely compatible with the MNRRA policy that “prohibits land disturbance along the bluff face (slopes in excess of 12%).” The city adopted a policy prohibiting all development on slopes in excess of 12%, which applies to 12% slopes that are not along the bluff face. This city policy is stricter than the MNRRA-CMP policy. Prohibiting the alteration of slopes greater than 12% would prohibit access to the lands south of the bay, as well as, the northern point of the bay. Storm water management, erosion and sedimentation, and grading plans will be required to mitigate any potential impacts resulting from altering slopes greater than 12%.

**Mitigation Summary** (refer to Item b for the complete Mitigation Plan)

Under any scenario, development plans will be consistent with the Metropolitan Council-reviewed and DNR-approved Comprehensive and Critical Area Plan amendments, which will be formally submitted for review and approval in the near future. To resolve conflicts with the proposed draft plan amendments (dated December 2002) and the Final AUAR and Mitigation Plan, the draft Comprehensive Plan, draft Critical Area Plan, draft Concept Plan, or the infrastructure plans may be revised.
28. **Impact on Infrastructure and Public Services.** Will new or expanded utilities, roads, other infrastructure or public services be required to serve the project?

- [X] Yes  
- [ ] No

If yes, describe the new or additional infrastructure or services needed. (Note: any infrastructure that is a connected action with respect to the project must be assessed in the EAW; see *EAW Guidelines* for details.)

**AUAR Guidelines:** This item should first of all summarize information on physical infrastructure presented under other items (such as 6, 18, 19, and 22). Other major infrastructure or public services not covered under other items should be discussed as well -- this includes major social services such as schools, police, fire, etc. As noted above and in the “EAW Guidelines,” the RGU must be careful to include project-associated infrastructure as an explicit part of the AUAR review if it is to be exempt from project-specific review in the future.

**PHYSICAL INFRASTRUCTURE**

**Roads**
Under Scenario One, the township has a combination of paved and gravel roads that serve existing development. Under this scenario, Grey Cloud Island Drive (CR 75) would serve as the main road throughout the site and connect with several smaller roads. The roads would provide access to T.H. 61.

Scenarios Two and Three are planned around a major collector, (divided parkway design) forming the spine of the AUAR area’s transportation system. A series of connecting roads will be constructed to facilitate efficient internal access that can be accomplished without using the main roadway. Keeping internal circulation traffic off of the main artery will serve to lessen the traffic demand on that road.

The main roadway, at the north end of the AUAR area, is planned to connect to existing Third Street, a collector street in the current city transportation plan. The roadway will connect to Grey Cloud Trail at the south end of the AUAR area. Ultimately, Third Street will be realigned and upgraded to a two lane divided parkway within the AUAR area. The parkway will replace a portion of CR 75 that passes through the AUAR area. The parkway comprises 7 acres, which is 1 percent of the total project area.

The final roadway design will address the current intersection of CR 75 and Grey Cloud Trail. The in place intersection with its skew angle and restricted sight distance experiences a high crash rate and realignment of this intersection will serve to correct the current design deficiencies. As the parkway is planned, a connection will be maintained to CR 75 south of the AUAR area providing continued southerly access to Grey Cloud Island and the potential future regional park on the island.

The main access to the new urban area is planned to come from an improved interchange on T.H. 61, through downtown St. Paul Park on Summit Avenue and Broadway Avenue (County Road 22) and down Third Street (CR 75).
In the early phases of development, traffic oriented to the east and southeast will primarily use Pullman Avenue to reach Hastings Avenue (CSAH 39). Hastings Avenue provides access to the Grange Boulevard/80th Street interchange with T.H. 61. During later phases of development the extension of 95th Street is expected to be in place with a grade separated railroad crossing. Ninety-fifth Street will provide an effective route for easterly destinations within Cottage Grove. It will also provide a route to T.H. 61 and southerly destinations via the 95th Street connection to Jamaica Road and the T.H. 61/Jamaica interchange.

**Sanitary Sewer**
In Scenario One, each residential lot will be served by an ISTS. The estimated sanitary wastewater production under Scenario One is estimated at 0.01 million gallons per day, or 4.9 million gallons per year.

Development under Scenarios Two and Three will include connection to the City of St. Paul Park municipal sewer system. Wastewater will be collected in proposed gravity sewer lines and drained to central locations within the AUAR area. Wastewater will be routed through the St. Paul Park municipal sewer system to the Metropolitan Council’s Interceptor via connecting sanitary sewer pipes sized and constructed to appropriate specifications. Wastewater will ultimately be treated at the Metropolitan WWTP in St. Paul.

Since there are no existing gravity sewer lines with sufficient depth to serve the AUAR area, one or more lift stations and forcemains will be required for the discharge of wastewater north into the city’s sewer system. In the early phases of the development, the city’s existing sewer system may be able to accommodate pumped discharges from a portion of the AUAR area assuming there are some upgrades to existing sewer lines. However, a new larger diameter gravity line will ultimately be required to convey flows from the AUAR area towards the Metropolitan Council’s connection point.

Under Scenario Two, the estimated maximum potential wastewater generation is 0.66 mgd from residential units and 0.008 mgd from institutional/office and commercial/retail development. The estimated maximum potential daily wastewater production for the entire development under Scenario Two is 0.66 mgd.

The sanitary sewer infrastructure in Scenario Three will be similar to Scenario Two. The estimated residential wastewater production predicted in Scenario Three is 0.49 mgd. Scenario Three has the same amount of institutional/office and commercial/retail wastewater production as Scenario Two.

**Storm Water Management System**
A storm water study was conducted and a Storm Water Management Plan was developed for the AUAR area. Development of the AUAR area will include the creation of infiltration/detention basins for the treatment and rate and volume control of storm water runoff. Storm water management features and infrastructure, including two outfall structures, will be installed with each phase of development. An existing storm water discharge pipe corridor through the bluff may be used to minimize bluff impacts to areas of previous disturbance. Approximately 14% of the site’s ponded discharge will continue to be routed south of the site, into grassed swales through the township, and into the river as it currently drains today.

The city will construct the storm water management system through dedicated right-of-ways or easements through private property as part of the city’s trunk storm water system expansion.
city will follow set policies and procedures for obtaining easements on private lands.

**Water**

In Scenario One, residential lots will be served by an individual domestic well. The estimated demand under Scenario One is 0.014 mgd. The estimate is based on the assumption that consumption is approximately 110% of wastewater generation.

Development in Scenarios Two and Three will be connected to the City of St. Paul Park municipal water supply system. The existing public water main system is comprised of an interconnected network of 6-to 12-inch diameter water mains. The likely connection points to the existing city water main system are north and east of the AUAR area. Figure 13-1 shows where the water main connections would be extended onto the site. The two northern water main connections include an 8-inch water main connection point at Second Street, and a 12-inch water main connection point at Sixth Street. Additionally, serving the AUAR area will require a looped water main system, and may require new wells and pump houses. Additional water storage may be necessary within the AUAR area to overcome pressure losses in the water main system due to the AUAR area’s distance from existing water storage tanks. Figure 13-1 shows the potential location for a new water tower. Some of the city’s existing water mains will need to be enlarged to increase water pressures and flows between the city and the AUAR area.

Additional lateral water mains will be installed as development occurs. It is anticipated that all of the property within the AUAR area will be served by municipal water service by 2015. All municipal water lines will be sized to appropriate specifications and constructed to serve the AUAR area.

The estimated water demand under Scenario Two is 0.73 mgd, and 0.52 mgd under Scenario Three. The estimates are based on the assumption that consumption is approximately 110 percent of wastewater generation.

**PUBLIC SERVICES**

**Schools**

Projecting actual enrollment in the foreseeable future required the assistance of the South Washington County School District (#833), as they are keenly aware of recent growth trends in their rapidly growing district. The district recently added three new elementary schools, and are in the initial stages of planning for a third senior high school to potentially add by 2008. Given the addition of new households and families within the AUAR area, the district will need to look more closely at their facility and staffing plans in the St. Paul Park and West Cottage Grove area. Also, another sizable housing development (400 single-family units) is in the pending stages in western Cottage Grove, which will increase the pressure to provide suitable classroom spaces and staffing near the subject site.

When looking ahead, the District assumes that for every housing unit added, 0.5 pupils will be added to the district, a ratio that takes into account different types of residential development (multifamily versus single-family; owner versus rental; etc.), as they generate differing levels of school enrollment. Assuming this rate, an additional 2,400 housing units in St. Paul Park/Grey Cloud Island Township will generate 1,200 new pupils for the district to accommodate (Scenario Two). An additional 1,800 housing units in St. Paul Park/Grey Cloud Island Township will generate 900 new pupils for the district to accommodate (Scenario Three).
Based on their current facility situation in the St. Paul Park/western Cottage Grove area, the two elementary schools in the area are operating at or near capacity (550 students, Kindergarten-6th Grade). Both of these facilities feed into the Junior High School located in St. Paul Park, which currently accommodates 750 students, with room for an additional 150 students.

Aware of the new 400-unit development in western Cottage Grove, the district is discussing options for adding classrooms to the at-capacity elementary schools. However, with the new development plans for the AUAR area recently surfacing, the district plans to explore the feasibility of adding a new elementary school instead. The city, township, private developers, and school district will work together towards accommodating each other’s needs, as new schools also require substantial property acquisition and services planning prior to development beginning. The zoning of AUAR area will ensure that schools and other public facilities are permitted uses so that a school could be constructed within the AUAR area in the future.

Fire
Under Scenario Two, the Fire Department anticipates the need for 30 additional firefighters, which is a ratio of 4.6 firefighters per 1,000 people. Under Scenario Three, the Fire Department anticipates the need for 22 additional firefighters. This ratio strikes a balance between the city’s existing ratio and the proposed ratio of 3.5 per 1,000. The location of the existing fire hall, in relation to the proposed development, may necessitate a second fire station within the project site or in the southwestern part of St. Paul Park. A fire hall/community center can be accommodated within the Village Center (Scenario Two) or Commercial area (Scenario Three) to meet this identified need.

The fire department anticipates that the following equipment will be need to serve the housing types and commercial uses in under Scenario Two (the needs may be less under Scenario Three):
- One (1) aerial platform ladder truck
- One (1) engine
- Mobile air unit/Command unit for SCBA refill
- One (1) additional Rescue Truck

Police
According to the data, as of 2000, 1.97 local (1.31 municipal and 0.66 county) police jobs existed for every 1,000 persons in the State of Minnesota. In terms of actual sworn police officers, however, the ratio was 1.48 local (1.03 municipal and 0.45 county) officers to every 1,000 persons. The community’s existing ratio of police personnel to population is consistent with the BJS data. Based on these rates and assuming a potential of an additional 6,500 residents at the under Scenario Two, an additional nine (9) city police jobs would be required, seven (7) of which would be sworn officers. The additional officers may include Captain, Sergeant, Investigator, and Patrol Officers. The other two (2) police jobs would be a Community Service Officer and a Secretary. A police station can be accommodated with the Village Center (Scenario Two) or Commercial area (Scenario Three) to meet this identified need.

City Hall
The City Administrator has identified the following needs for City Hall under Scenario Two (the needs may be less under Scenario Three):
- Administrative Assistant to City Administrator and 200 sq. ft. for their office
- Two (2) fulltime office staff and two (2) additional workstations for these staff will all pertinent equipment
- An upgraded phone system to accommodate new needs in all departments
- 400 sq. ft. for records and file storage
- Potentially, new networking capabilities with the computer software

**Public Works**
The following needs were identified by the city’s public works department under Scenario Two (the needs may be less under Scenario Three):

**Personnel**
*Maintenance Workers.* The average number of maintenance workers for first and second ring metropolitan cities with a population of 6,000 to 10,000 people is 11.5 persons. The city currently has six (6) full-time employees. Additional staff may include three (3) to four (4) maintenance workers and a mechanic.

*Part-time (summer workers).* Currently the city employs one (1) to two (2) high school or college students for parks maintenance. An increase in parks may require three (3) to four (4) part-time summer workers.

*Secretary.* Currently the Public Works Department relies on City Hall staff for the majority of secretarial duties for memos, utility billing, engineering reports, assessments, letter correspondence and state reports. Serving the increase in population and the associated workload would require additional staff.

**Buildings**
The department has two building locations – the main public works building and a parks building for park activities. With the anticipated increase in service needs – streets, parks, and utility operations – building expansion will be needed for employees, equipment, offices, yard storage for sand/salt and gravel, and utility storage.

**Vehicles/Equipment**
*Streets.* With additional streets to plow, sand and sweep, additional equipment will be needed:
- 2-3 plow trucks – at least one (1) tandem and one (1) single axle dump truck with related equipment
- One (1) sweeper
- One (1) large tractor with related equipment will be needed to maintain roadside mowing
- A salt storage building

*Parks.* With additional parkland development, the workload for park mowing and park maintenance will increase. One to two wing mowers and parks vehicles would be anticipated.

*Water/Sanitary Sewer/Storm Sewers*
- One (1) Standby Portable Generator
- One (1) Utility Truck with Lift Crane
- One (1) Sewer Jetter/Vactor Truck

The additional demand for water, sanitary sewer, and storm sewer services may require new wells and a sewage lift station. Storm water maintenance requires a standby generator for power failures. A utility truck with a crane will be needed for lift station repairs. A sewer jetter/vactor truck will be needed for sanitary and storm sewer maintenance.
Utility Billing/Meter Reading/Computer Services

- Computer updates (office)
- Computerized meters (installation program)
- One (1) van with computer for automatic meter reading
- The increased number of utility users will require an updated automated program for reading and billing. A system for setting up meter installations would also be required.

29. **Cumulative Impacts.** Minnesota Rule part 4410.1700, subpart 7, item B requires that the RGU consider the "cumulative potential effects of related or anticipated future projects" when determining the need for an environmental impact statement. Identify any past, present or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative impacts. Describe the nature of the cumulative impacts and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to cumulative impacts (or discuss each cumulative impact under appropriate item(s) elsewhere on this form).

   **AUAR Guidelines:** This item does not require a response for an AUAR since the entire AUAR process deals with cumulative impacts from related developments within the AUAR area.

30. **Other Potential Environmental Impacts** If the project may cause any adverse environmental impacts which were not addressed by items 1 to 28, identify them here, along with any proposed mitigation.

   **AUAR Guidelines:** If applicable, this item should be answered as requested by the EAW form.

31. **Summary Of Issues** (This section need not be completed if the EAW is being done for EIS scoping; instead, address relevant issues in the draft Scoping Decision document which must accompany the EAW.) List any impacts and issues identified above that may require further investigation before the project is commenced. Discuss any alternatives or mitigative measures that have been or may be considered for these impacts and issues, including those that have been or may be ordered as permit conditions.

   **AUAR Guidelines:** The RGU may answer this question as asked by the form, or instead may choose to provide an Executive Summary to the document that basically covers the same information. Either way, the major emphasis should be on potentially significant impacts, the differences in impacts between major development scenarios, and the proposed mitigation.

   An Executive Summary is provided at the beginning of this document (page vii) and the proposed Mitigation Plan includes a comprehensive summary of potential impacts and proposed mitigation (see Item B).

A. **Certification by RGU.** AUAR Guidelines: In an AUAR document, no certifications as listed at the end of the EAW form are necessary. (The RGU is legally responsible for the accuracy and completeness of the document and for properly distributing it nonetheless.)
B. Mitigation Plan. AUAR Guidelines: The final AUAR document must include an explicit mitigation plan. At the RGU’s option, a draft plan may be included in the draft AUAR document; of course, whether or not there is a separate item for a draft mitigation plan, the proposed mitigation must be addressed through the document.

It must be understood that the mitigation plan in the final document takes on the nature of a commitment by the RGU to prevent potentially significant impacts from occurring from specific projects. It is more than just a list of ways to reduce impacts -- it must include information about how the mitigation will be applied and assurance that it will. Otherwise, the AUAR may not be adequate and/or specific projects may lose their exemption from individual review.

The RGU’s final action on the AUAR must specifically adopt the mitigation plan; therefore, the plan has a “political” as well as a technical dimension.

INTRODUCTION
This Mitigation Plan is submitted as part of the Final AUAR to provide reviewers, regulators and prospective tenants or purchasers of land with an understanding of the actions necessary to protect the environment and limit potential impacts by proposed development projects. The potential impacts and mitigation strategies included under Item B of the Draft AUAR have been revised and expanded upon to address Draft AUAR comments.

This Mitigation Plan is intended to satisfy the AUAR rules that require the preparation of a “mitigation plan” that specifies measures or procedures that will be used to avoid, minimize, or mitigate the potential impacts of development within the AUAR area. Although mitigation strategies are discussed throughout the Final AUAR document, this plan will be formally adopted by the RGU and the township as their action plan to prevent potentially significant environmental impacts.

The primary mechanism for mitigation of environmental impacts is the effective use of ordinances, rules, and regulations. The plan does not modify the regulatory agencies responsibilities for implementing their respective regulatory programs, nor create additional regulatory requirements. The Mitigation Plan specifies the legal and institutional arrangements that will assure that the adopted mitigation measures are implemented.

The Mitigation Plan is organized by the AUAR Item numbers. Mitigation measures are presented for Items 11-13, 16-19, 21, 24, 25, and 27. Table 8-1 from Item 8, Permits and Approvals Required, is adopted as part of the Mitigation Plan. The preparers of the AUAR determined that Items 10, 14, 15, 20, 22, and 28 did not represent significant environmental impacts that required mitigation measures that go beyond existing ordinance and regulatory requirements; or that the necessary mitigation measures were presented under a different AUAR Item. Items 1-7, 9, and 31 are for the purposes of gathering and summarizing information and do not require mitigation. Items 23, 26, 29, and 30 were not applicable to the Rivers Edge AUAR.
ITEM 11. FISH, WILDLIFE, AND ECOLOGICALLY SENSITIVE RESOURCES

Potential Impacts

- Development may impact the use of the property as a migratory and wildlife corridor.
- Development and trail users may impact the use of a Bald Eagle’s nest on a river island within the AUAR area.
- Development may impact sensitive resources such as bluffs, oak savanna, and the river.
- Development may convert eight (8) acres of deciduous forest and woodland that is ranked “C” (fair condition) and 14 acres of deciduous forest, woodland, and savanna that is ranked “D” (poor condition) to urban uses.
- Development may remove scattered desirable tree species to facilitate development.

Mitigation Measures

The city and township will:

11-1. Require a site-specific Natural Resource Restoration and Management Plan to restore and improve native plant communities and to offset the impact of converting agricultural, deciduous forest and woodlands, and prairie remnant habitat to urban development. This plan will include the following major elements:

   a. Selective invasive and non-native species removal along the shoreline, the bluff, and within the bluffline setback area. The Natural Resource Restoration and Management Plan will provide detailed specifications regarding woody vegetation management and replanting to ensure compliance with Critical Area standards and guidelines. Woody vegetation management will occur prior to development landward of the specific restoration area.

   b. Restoration and planting plan for degraded natural areas along the mainland shoreline, the bluff, within the bluffline setback area, and in wetland restoration areas created as part of the storm water management system.

   c. A conservation program to protect and ensure perpetual stewardship of natural resource areas on the site. It is anticipated that the one or more of the following six elements may be integrated into a conservation program to protect undeveloped river islands, shoreline, bluffs, bluffline setback areas, the on-site Bald Eagle’s nest, and wetland restoration areas:

      i. Transfer land from private to public ownership
      ii. Deed restrictions
      iii. Restrictive covenants
      iv. Conservation easements
      v. Stewardship program and perpetual management funding
      vi. Educational program for future residents and business owners

11-2. Require a 100-foot structure and road setback to the bluffline to protect ecologically sensitive resources such as the river, river bluffs, shoreline, floodplain forest, deciduous forest and woodlands, and oak savanna. This will help mitigate the conversion of deciduous forest and woodlands to urban uses. General guidelines for permitting uses and activities within
bluffline setback area includes the following, subject to the exceptions listed in 11-2b, 11-2c and 11-2d:

a. Permitted uses – natural area restoration and management activities, trails, public recreational structures, and scenic overlooks.

b. Exception areas include the bluffline setback to the secondary bluff located south of the bay and the bluffline setback to the manure lagoon for the building proposed north of the bay. The minimum structure setback from the bluffline in these two exception areas is 40 feet, in accordance with existing regulations.

c. Two roads will be allowed within the bluffline setback area to provide access to the development area north of the bay and to the southwestern portion of the AUAR area.

d. The location of the bluffline setback may be increased or decreased based on PUD performance standards and restoration plans. An average bluffline setback of 100 feet should be maintained along the river corridor (e.g., the setback is decreased to 80 feet in one area and increased to 120 feet in another area for an average setback of 100 feet). A minimum bluffline setback of 40 feet will be maintained, subject to the permitted uses described in Mitigation Measure 11-2.a. and the exceptions described in Mitigation Measure 11-2.c.

11-3. Protect the majority of existing habitat areas including river islands, bluff areas, bluffline setback area, and ordinary high water level (OHWL) setback area from development to maintain the existing riparian habitat, wildlife corridor, and migratory bird corridor.

11-4. Provide educational materials to property owners to encourage revegetating gaps in the natural vegetation cover and planting native understory trees and shrubs, particularly within and adjacent to the bluffline setback area.

11-5. Develop a tree preservation plan that will provide feasible and reasonable guidelines for mitigating impacts to desirable tree species located outside of existing and proposed protection areas.

11-6. Require individual lot grading plans for lots that encompass bluffline setback areas in order to minimize site alteration and retain existing native, non-invasive vegetation to the extent practical.

11-7. Maximize vegetation continuity by minimizing the width of the road bisecting the vegetation corridor north and south of the bay and minimize the contrast between the road and adjacent habitats. Also, require that the road north of the bay follow the disturbed area where the existing road corridor is located.

11-8. Consult with the DNR and/or US Fish and Wildlife Service to determine appropriate mitigation strategies for activities (e.g., trails and structures) near the on-site Bald Eagle’s nest before development occurs within the vicinity of the nest, including reviewing recommended disturbance limit guidelines developed by the DNR, ensuring that adequate vegetation screening is established prior to development activities occurring, and that vegetation restoration activities (e.g., invasive and non-native species removal along the bluff and bluffline setback areas) maintain adequate screening.

11-9. Require that trails within the vicinity of the Bald Eagle’s nest be located landward of the bluffline.

11-10. Require that any ecological restoration plans proposing dredging undergo appropriate environmental analysis in accordance with Minnesota Environmental Review Rules and that all necessary permits including, but not limited to a public waters permit are obtained.
How Mitigation Will be Applied and Assured
Several strategies and potential relationships will be explored to ensure that restoration, management, and protection is in place and successfully implemented over the years (mitigation measure 11-1). Deed restrictions and restrictive covenants can provide protection of natural resources by clearly stating what activities are allowed and prohibited on private lots within the development. Conservation easements can be placed on public open space or private lots and provide a legally binding commitment to how the natural resources are protected and managed. Remedial and perpetual stewardship tasks for restoring and maintaining the natural resources require an appropriate funding mechanism. This could be accomplished through establishing a dedicated non-profit foundation that receives annual homeowner association fees (or other funding sources) earmarked for stewardship, and these monies could be used to hire professional stewardship firms to do management, monitoring and to provide educational services.

Figure B, Mitigation Site Plan Concept, illustrates an example of a site plan that is consistent with the development parameters proposed for mitigating impacts to ecologically sensitive resources within the Mississippi River Critical Area. Figure B is located in Appendix A.

The city and township will need to amend their Comprehensive Plans, Critical Area Plans, and ordinances to implement some of the mitigation measures.

Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

Involvement by Other Agencies, if applicable
Non-profit conservation organizations such as The Conservation Fund, the Trust for Public Lands, and The Minnesota Land Trust may hold conservation easements and ensure compliance through annual field inspections. The DNR and/or US Fish and Wildlife Service will be consulted before development activities take place within the vicinity of the on-site Bald Eagle nest. The Metropolitan Council will review plan amendments and the DNR will review and approve any plan amendments or ordinances affecting lands within the Critical Area.

ITEM 12. PHYSICAL IMPACTS TO WATER RESOURCES - WETLANDS

Potential Impacts
- Development may impact wetlands.
- The restoration of the wet meadow (manure lagoon) will require excavating in a wetland area and may result in connecting the manure lagoon with the OHWL of the River.

Mitigation Measures
The city and township will:
12-1. Require wetland delineations in accordance with the Corps of Engineers Wetlands Delineation Manual and classify wetlands according to Wetlands of the United States (Circular 39) and Wetlands and Deepwater Habitats of the United States (Cowardin et. al).
Delineated wetlands will be reviewed and approved by the Washington Conservation District (WCD) in St. Paul Park, and by the Washington Conservation District (WCD) and the Township Board in Grey Cloud Island Township.

12-2. Require private developers to follow the sequencing standards of the Wetland Conservation Act (WCA) if development activities may impact a wetland.

12-3. Require private developers to apply for applicable wetland permits to obtain authorization for wetland alterations under WCA and Section 404 prior to project construction if development activities will impact a jurisdictional wetland.

12-4. Require private developers to mitigate areas of wetland impacts according to the requirements of the WCA.

12-5. Require private developers to submit wetland permit applications and replacement plans, as appropriate, to the Minnesota Board of Water and Soil Resources, WCD, the City of St. Paul Park, and Grey Cloud Island Township.

12-6. Require a DNR Public Waters Work permit if manure lagoon restoration activities result in connecting the manure lagoon with the OHWL of the river, or if the course, current, or cross-section of the Mississippi River is altered in any way.

**How Mitigation Will be Applied and Assured**

Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

**Involvement by Other Agencies, if applicable**

The WCD, as the Local Governmental Unit, will administer the Wetland Conservation Act on behalf of the city, and in conjunction with the township. As appropriate, Minnesota Board of Water and Soil Resources and the WCD will be involved in wetland permit review and approval and wetland replacement plans.

A DNR Public Waters Work permit would be required if restoration activities result in connecting the manure lagoon with the OHWL of the river, or if the course, current, or cross-section of the Mississippi River is altered in any way. Because detailed restoration plans have not been completed, the extent of restoration activities and required permits are unknown.

**ITEM 12. PHYSICAL IMPACTS TO WATER RESOURCES – MISSISSIPPI RIVER AND BACKWATERS**

**Potential Impacts**

- Two storm water outfall structures may impact the river (see Figure 17-2 for proposed outfall locations).
- Increase in impervious surfaces may decrease groundwater recharge, which may impact the seeps and springs.
- Development may impact the river bay.
Mitigation Measures

The city and township will:

12-7. Require discharge from the storm water outfall structure located south of the bay to be directed to a wetland stilling basin to provide secondary removal of suspended sediment and nutrients prior to discharge to the river bay.

12-8. Require discharge from the storm water outfall structure located north of the bay to be directed to a 2-cell treatment area, which will be created as part of the manure lagoon restoration, to capture and treat runoff from the proposed buildings and surrounding undisturbed land and to provide secondary removal of suspended sediment and nutrients prior to discharge to the river.

12-9. Explore the use of the existing stockyard discharge pipe corridor, which represents a previously disturbed area through the bluff, to discharge runoff into the 2-cell treatment area located north of the bay.

12-10. Require that infiltration/detention basins be used as part of the storm water management system to enhance groundwater recharge.

12-11. Explore the use of an elevated boardwalk for trails near the seeps and springs to minimize soil compaction and disturbance to vegetation.

12-12. Prohibit boat access ramps within the AUAR area, which includes the bay.

12-13. Enforce applicable ordinances regarding storm water management, Mississippi River Corridor Critical Area, Shoreland Management, and Flood Plain Management.


How Mitigation Will be Applied and Assured

Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

Involvement by Other Agencies, if applicable

The South Washington Watershed District will review site plans and provide recommendations to the city and township.

ITEM 13. WATER USE

Potential Impacts

- The future increase in households and jobs will impact the city’s current water supply system. Additional well and storage capacity is needed to accommodate the development of Scenarios Two and Three. At this time, it is undetermined if the city will need new wells or if it will expand the capacity of existing wells.

- An area north of the project site is designated as a Special Well Construction Area (SWCA) by the Mn Department of Health and a new well may present a pathway for contamination to enter the water supply.
The location of new municipal wells may impact groundwater levels near existing homes that have individual domestic wells and the seep discharge areas along the river.

Abandoned private wells may impact groundwater.

**Mitigation Measures**

The city and township will:

13-1. Construct the water supply system in accordance with Minnesota Department of Health standards and with the goals and policies set forth in the City of St. Paul Park’s Water Supply and Distribution Plan.

13-2. Amend the city’s Water Supply and Distribution Plan and Capital Improvements Plan to accommodate the needs of development within the AUAR area.

13-3. Monitor water usage and not permit new development to proceed if it exceeds the capacity of the water supply system.

13-4. Construct additional wells for the water supply system, if needed. These wells may be located within the eastern portion of the AUAR area. If new wells are needed, appropriate testing, sampling, and well construction methods will be employed to ensure a clean, reliable water supply. The wells must be located equidistant or greater from outside the SWCA as the surrounding existing municipal wells.

13-5. Prepare a Wellhead Protection Plan amendment for new wells, if new wells are needed. The amended wellhead protection plan will be developed in accordance with Minnesota Rules, Chapter 4720-5100 – 4720.5590), which sets standards for wellhead protection planning. The wellhead protection planning process involves:
   a. Delineating the wellhead protection area and drinking water supply management area;
   b. Assessing the vulnerability of the well and the wellhead protection area;
   c. An inventory of potential sources of contamination within the wellhead protection area based on the vulnerability assessment; and
   d. Amend the draft Wellhead Protection Plan, which includes goals, objectives, plan of action, evaluation program, and contingency plan should the water supply be disrupted by contamination or mechanical failure.

13-6. Provide additional water storage for development within AUAR area.

13-7. Site new wells at appropriate locations to ensure that the cone of influence/drawdown area does not impact existing individual domestic wells or the seeps.

13-8. Require abandoned private wells to be sealed in accordance with State Department of Health regulations.

13-9. Require, under Scenario One, that the installation of any private individual wells will be constructed and installed in accordance with the Minnesota Department of Health regulations (Minnesota Well Code).


**How Mitigation Will be Applied and Assured**

Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through
developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

**Involvement by Other Agencies, if applicable**
Amendments to the city’s Water Supply and Distribution Plan will be reviewed by the Metropolitan Council and review and approved by the Department of Health. The Department of Health reviews and approves Wellhead Protection Plan amendments and consults with the Department of Agriculture, Department of Natural Resources, and Minnesota Pollution Control Agency before approving the plans. In addition the public water supplier must submit the Wellhead Protection Plan amendments to local units of government wholly or partly within the wellhead protection area, the Metropolitan Council, and the South Washington Watershed District for review and comment.

**ITEM 16. EROSION AND SEDIMENTATION**

**Potential Impacts**
- Construction activities that involve moving soil and/or removing vegetative ground cover and may cause erosion and sedimentation.
- The AUAR area contains areas of highly erodible soils along the bluffs; 1/20 acre of this soil is proposed to be graded.

**Mitigation Measures**
The city and township will:

16-1. Apply for a NPDES/SDS General Permit for Construction Activities to the MPCA prior to initiating earthwork. This permit requires that the MPCA’s Best Management Practices be used to control erosion and that all erosion controls be inspected after each rainfall exceeding 0.1 inch of precipitation. The permit requires that temporary and permanent erosion and sediment control plans be completed prior to applying for the NPDES/SDS permit.

16-2. Require private developers to submit detailed erosion and sediment control plans for review and approval to the city or township prior to project construction.

16-3. Enforce the erosion and sediment control regulations in all applicable ordinances.

16-4. In addition to BMP’s and ordinance requirements, require temporary catch basins during grading activities on highly erodible soils.

**How Mitigation Will be Applied and Assured**
Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed. A qualified representative of the city will inspect erosion and sediment controls after each rainfall exceeding 0.1 inch of precipitation.
Involvement by Other Agencies, if applicable
South Washington Watershed District will review erosion and sediment control plans and provide recommendations to the city and township prior to their approval. The Washington Conservation District may review erosion and sediment control plans.

ITEM 17. WATER QUALITY: SURFACE WATER RUNOFF

Potential Impacts
- Under Scenarios Two and Three, the quantity of surface water runoff will increase during storm events as additional impervious surface area is added with the development of the AUAR area.
- Increased rates and volumes, and composition of runoff may impact the water quality of the Mississippi River.

Mitigation Measures
The city and township will:

17-1. Require that the storm water management system is developed in accordance with the city’s zoning code (Section 74-796 Development Regulations), which requires that:
   a. The proposed development will not increase the runoff rate or decrease the natural rate of absorption of storm water;
   b. Ponding shall be used for the collection of storm water and to regulate storm water where necessary;
   c. The development shall be located in such a manner as to minimize the alteration of the natural drainageways; and
   d. The quality of storm water runoff and water infiltration to the water table or aquifer shall be as high after development as it was before the development of the site.

17-2. Require that the storm water management system for the AUAR area:
   a. Emphasize infiltration as a management strategy, and set a goal of infiltration between 70 and 80 percent of the runoff from all rainfall;
   b. Reduce impervious surface areas where possible, such as placing some parking beneath buildings; and
   c. Direct storm water into vegetated landscaped areas including swales, prairies, and other infiltration zones.

17-3. Consider the following storm water techniques in addition to the infiltration basins and swales and storm water ponds shown on Figure 17-2 to establish additional infiltration opportunities throughout the AUAR area:
   a. Placement of the infiltration areas near bedrock fracture locations in order to facilitate the prompt infiltration of clean water from the landscapes, and to promote groundwater recharge.
   b. Use a combination of side and rear lot drainage easements that are no-mow zones planted to formal or informal native landscaping. The rear lot areas would be designed for infiltration, and side lot areas would be designed for effective drainage and conveyance of water from around foundations to ensure no standing water remains adjacent to the houses.
c. Create infiltration opportunities in public right-of-ways (ROW), and establish depressed drainage easements and landscaping on private lands, which would be maintained by Homeowner Association documents. Route driveway, sidewalk and gutter downspout waters into landscape features in yards to decentralize runoff and create off-line areas for storage and infiltration. This would be accomplished without compromising safe and effective drainage and dewatering needs around foundations and road subgrades.

d. Intercept road runoff into parkway and road ROW swales or landscape features to encourage water cleansing and some storage capacity for rare events.

e. Placement of swales in depressional areas along buffers, parking lot islands, road ROW, and other suitable locations that support infiltration.

17-4. Require that the storm water management system comply with the surface water-related aspects of the city codes regarding floodplain, shoreland, wetland, and critical area.

17-5. Follow the Metropolitan Council’s _Interim Strategy to Reduce Non-point Source Pollution_ until the city has an approved Surface Water Management Plan.

17-6. Provide education materials to property owners regarding proper disposal of yard waste, phosphorous free fertilizer, and other ecologically sensitive landscape design and maintenance practices.

**How Mitigation Will be Applied and Assured**
Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

**Involvement by Other Agencies, if applicable**
A Comprehensive Plan amendment for the AUAR area will include a storm water management component that will be reviewed by South Washington Watershed District, the Metropolitan Council, and the DNR. The DNR will review and approve any plan amendments or ordinances affecting lands within the Critical Area. The South Washington Watershed District will review site-specific storm water management plans and provide recommendations to the city and township before their approval.

**ITEM 18. WATER QUALITY: WASTEWATER**

**Potential Impacts**
- The development of the AUAR area will increase households and jobs. The city’s wastewater system will need to be upgraded to serve development in the AUAR area.
- Individual septic treatment systems (ISTS) are currently used in the AUAR area and will continue to be used under Scenario One. ISTS may impact water resources due to soils with severe limitations.

**Mitigation Measures**
The city and township will:

18-1. Monitor wastewater flows and not permit new development to proceed if it exceeds the capacity of the wastewater system.
18-2. Amend their Sanitary Sewer System Plan and Capital Improvements Plan to accommodate the needs of development within the AUAR area.

18-3. Work with private developers to plan for and construct the major infrastructure improvements needed to expand the capacity of the wastewater system (i.e., lift stations, forcemains, and upgrades to the existing system).

18-4. Require that ISTS under Scenario One be designed and installed to meet the applicable standards, criteria, rules and regulations of the Minnesota Department of Health and the MPCA.

**How Mitigation Will be Applied and Assured**

Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

**Involvement by Other Agencies, if applicable**

Amended Sanitary Sewer System Plans and Capital Improvements Plans must be submitted to the Metropolitan Council for review. The DNR will review and approve any plan amendments or ordinances affecting lands within the Critical Area.

**ITEM 19. GEOLOGIC HAZARDS AND SOIL CONDITIONS**

**Potential Impacts**

- A “sinkhole” was identified within the project site. The “sinkhole” may impact groundwater.
- Underground storage tanks (“UST”) and aboveground storage tanks (“AST”) are located on the property and may have impacted groundwater.
- The St. Paul Auto Wrecking facility located north and adjacent to the property has been identified by Washington County Department of Public Health and Environment officials as an imminent threat due to mosquito breeding grounds. The mosquito levels may pose a risk to workers and residents in the AUAR area.
- The AUAR area has a “very high sensitivity” or “high sensitivity” of pollution to groundwater contamination in the Prairie du Chien – Jordan aquifer according to the Washington County Geologic Atlas.

**Mitigation Measures**

The city and township will:

19-1. Require private developers to explore the subsurface conditions around the reported sinkhole and ensure that the location and design of any roads, utilities, or structures be consistent with the exploration findings.

19-2. Require appropriate construction procedures for filling “sinkholes” when development occurs within the vicinity of the “sinkhole.”

19-3. Require the removal of all tanks and associated underground piping in accordance with applicable state and federal laws.
19-4. Require any party that may discover residual petroleum contamination shall follow state law and report the information to the MPCA for further investigation and potential remediation.

19-5. Work with private developers, the Washington County Department of Public Health and Environment, and the Metropolitan Mosquito Control District to coordinate appropriate spraying or other control mechanisms to adequately reduce mosquito exposure to workers and future residents adjacent to the St. Paul Auto Wrecking facility.

19-6. Provide city sewer to development in the AUAR area to mitigate potential groundwater contamination from ISTS on poor soils.

**How Mitigation Will be Applied and Assured**
Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

**Involvement by Other Agencies, if applicable**
The city, township, and private developers will work with the Washington County Department of Public Health and Environment and the Metropolitan Mosquito Control District prior to the development of lands adjacent to the St. Paul Auto Wrecking facility. The MPCA will be contacted if residual petroleum contamination is discovered.

**ITEM 21. TRAFFIC**

**Potential Impacts**
- Traffic generated under Scenarios Two and Three may impact Third Street, Pullman Avenue, and County Road (CR) 75, and the intersections of Broadway Avenue/Summit Avenue and Broadway Avenue/Third Street. Therefore, transportation system improvements are required to adequately serve new development within the AUAR area.
- At the south boundary of the AUAR area, the current intersection of CR 75 and Grey Cloud Trail has experienced crash problems due to the skewed intersection angle and the restricted sight distance. Increased traffic levels may further impact the intersection.

**Mitigation Measures**
The city and township will:

21-1. Monitor traffic counts and not permit new development to proceed if counts exceed the capacity of the transportation system.

21-2. Require that the capacity of Third Street be increased through implementation of alternative lane configurations. Timing of transportation improvements will be determined by the city.

21-3. Work with the City of Cottage Grove and require that private developers work with the City of Cottage Grove to implement the 95th Street extension and bridge over the railroad tracks. Timing of transportation improvements will be determined by the city.

21-4. Require signalization of the intersections of Broadway/Third Street and Broadway/Summit when an appropriate signal warrant is met.
21-5. Achieve effective traffic operations within the city and the AUAR area by requiring that future detailed site planning will make use of access management practices to promote safe, effective traffic flow.

21-6. Require that future detailed site planning and final design of the roadway/intersection interface at Grey Cloud Trail and Grey Cloud Island Drive addresses the skewed intersection angle and the restricted sight distance.

21-7. Require that Comprehensive Planning process and the detailed design phase of the transportation system planning process will include a public involvement strategy to solicit the input of the public and affected property owners.

How Mitigation Will be Applied and Assured
The city will implement an on-going traffic management plan to monitor traffic volume growth and any operational issues that may develop in and around the AUAR area. This traffic management plan will be coordinated with the city’s Municipal State Aid (MSA) street system traffic counting program, which will bi-annually study the traffic volumes on the system to determine when traffic control adjustments are needed, when road upgrades are needed and when traffic signal warrants are met. The public involvement process will continue as specific development plans are submitted to the city and township for review and approval.

Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

Involvement by Other Agencies, if applicable
The city and township will work with Washington County on improvements to CR 75. The city and township will work with the City of Cottage Grove to extend 95th Street and construct the 95th Street bridge over the railroad tracks.

ITEM 24. DUST, ODORS, AND NOISE IMPACTS

Potential Impacts
- Blasting may impact residents (vibrations, noise, dust, individual wells).
- The city does not have blasting or mining regulations.

Mitigation Measures
The city will:

24-1. Prepare blasting regulations and a permitting process.

How Mitigation Will be Applied and Assured
Mitigation will be regulated through the city and township’s development approval and permitting process. No blasting shall be permitted within the AUAR area prior to preparing and adopting blasting regulations.
ITEM 25A. SENSITIVE RESOURCES: ARCHEOLOGICAL, ARCHITECTURAL, AND HISTORIC RESOURCES

Potential Impacts
- The potential historic significance of a farmstead (SHPO Inventory Number WA-GCI-001) and Railroad Line (SHPO Inventory Number WA-CGC-212) located within the AUAR area is unknown.
- Development may impact potential archaeological, historical, or architectural resources that were not inventoried for the purposes an AUAR.

Mitigation Measures
The city and township will:

25-1. Require a Phase II Survey of the potential historical significance of the farmstead (SHPO Inventory Number WA-GCI-001) and Railroad Line (SHPO Inventory Number WA-CGC-212) if there is federal involvement in the project (i.e. federal permits, funding, etc.).

25-2. Contact SHPO to report any archaeological, historical, or architectural resources found during the construction of the project. Consult SHPO to determine the appropriate mitigation strategies.

How Mitigation Will be Applied and Assured
If there is federal involvement, the city and township will work with federal agencies to assure that a Phase II survey is completed. Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

Involvement by Other Agencies, if applicable
If there is federal involvement, the federal agency will conduct a Phase II Survey. SHPO will be contacted if any resources are found during the construction and will consult with the city, township, and/or private developer to determine the appropriate mitigation strategies.

ITEM 25C. SENSITIVE RESOURCES: PARKS, RECREATION AREAS, AND TRAILS

Potential Impacts
- Development of the AUAR area will increase the demand for parks, open space, and trails.
- Trail development and alignments may impact sensitive resources such as the bluff, river floodplain, and on-site Bald Eagle’s nest.
- Development of the area may impact the opportunity to construct the identified regional trail corridor along CR 75 through the AUAR area. This trail is intended to provide bike and pedestrian access to the potential future regional park on the lower island.

Mitigation Measures
The city and township will:
25-3. Require that the minimum amount of parks and open space be consistent with applicable ordinance requirements.

25-4. Require trail development to follow these guidelines:
   a. Minimize alteration of slopes greater than 12%;
   b. Minimize trail construction within the floodplain;
   c. Prohibit trails within 330 feet of the Bald Eagle’s nest;
   d. Align trails on previously disturbed sites, when practical;
   e. Use stairs and landings as the preferred method to provide access up and down bluffs; and
   f. Explore the use an elevated boardwalk near the bay seeps and springs to minimize soil compaction and disturbance to vegetation.

25-5. Work with the Metropolitan Council, Washington County, and private developers to plan the regional trail through the AUAR area.

**How Mitigation Will be Applied and Assured**
Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

**Involvement by Other Agencies, if applicable**
The Metropolitan Council plans for regional parks and trails and Washington County is the Implementing Agency for regional trails within the AUAR area.

**ITEM 25D. SENSITIVE RESOURCES: SCENIC VIEWS AND VISTAS**

**Potential Impacts**
- Development of the AUAR area may impact views from the river.

**Mitigation Measures**
The city will:

25-6. Require a view analysis as a component of site plan review for structures/buildings proposed to exceed 35 feet in height within the portions of the Critical Area shown on Figure 14-3. The city will determine if the intent of Critical Area Standards and Guidelines have been met.

25-7. Allow structure/building heights to exceed 35 feet within the portions of the Critical Area shown on Figure 14-3 subject to the following conditions:
   a. The view of structures/buildings from public waters is minimized, assuming summer, leaf-on conditions;
   b. Structure/building screening is maximized by retaining native vegetation along the bluff and bluffline setback area and/or re-establish native vegetation to screen development from the river;
c. Building materials shall be earth tones, blend into the surroundings, and reduce window glare; and

d. Structure site and location shall be regulated to ensure that riverbanks, bluffs and scenic overlooks remain in their natural state, and to minimize interference with views of and from the river, except for specific uses requiring river access.

The township will:


25-9. Limit height to 35 feet within the Critical Area.

**How Mitigation Will be Applied and Assured**
The city will need to amend its Comprehensive Plan, Critical Area Plan, and ordinance to implement mitigation measures 25-6 and 25-7.

Mitigation will be regulated through the city and township’s development approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the appropriate jurisdiction. Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

**Involvement by Other Agencies, if applicable**
The Metropolitan Council will review plan amendments and the DNR will review and approve any plan amendments or ordinances affecting lands within the Critical Area.

**ITEM 27. COMPATIBILITY WITH PLANS**

**Potential Impacts**
- No adopted plans or regulations address the urbanization of the AUAR area. Certain elements of plans and regulations must be amended to address the urbanization of the AUAR area.

**Mitigation Measures**
The city and township will:

27-1. Work with the appropriate governmental units (e.g., DNR, Metropolitan Council, and Washington County) to amend the following plans and regulations and submit them to the required governmental units for review and/or approval:

a. City of St. Paul Park Comprehensive Plan/ Critical Area Plan

b. City of St. Paul Park Zoning Ordinance

   i. River Development District (Critical Area and Shoreland Management Ordinance)

   ii. PUD District

   iii. Rivers Edge PUD District

c. Grey Cloud Island Township Comprehensive Plan/ Critical Area Plan

d. Grey Cloud Island Township Zoning Ordinance
i. Critical Area Regulations
ii. PUD District
iii. Rivers Edge District
e. Washington County Comprehensive Plan
f. Washington County Zoning Ordinance
g. Washington County Shoreland Management Ordinance

How Mitigation Will be Applied and Assured
The urbanization of the AUAR area under Scenarios Two and Three cannot commence without plans and regulations that guide the permitted land use, zoning, utility extensions, and other development activities. Mitigation will be regulated through the city and township’s development approval and permitting process. The city and township will not grant final approval of master development plans, planned unit development and subdivision applications, plats, and/or site plans until the appropriate plans and regulations have been formally adopted by the appropriate jurisdiction (e.g. city, township, and/or Washington County). Implementation of mitigation measures will be assured through developer agreements with the city and/or township, which will require a financial security for land and infrastructure improvements and/or revoke the right to acquire building permits and/or certificates of occupancy until all relevant mitigation measures have been addressed.

Involvement by Other Agencies, if applicable
The DNR, the Metropolitan Council, Washington County and National Park Service-MNRRRA will be involved by providing technical assistance, reviewing, and/or approving the plans and regulations listed in mitigation measure 27-1.

General Implementation Tools:
- All development must comply with Comprehensive Plans and Critical Area Plans. The Comprehensive Plans and Critical Area Plans will guide the permitted land use, zoning, utility extensions, and other development activities.
- Under Scenario Two or Three, approval of a planned unit development (PUD), together with the development agreement, which include specific requirements.
- Execution of a developer’s agreement under the City of St. Paul Park and Grey Cloud Island Township’s subdivision ordinances.
- Enforcement of the permitting requirements of all applicable local, state, and federal agencies. A list of all known required permits is included in Table 8-1 and is herein adopted as part of the Mitigation Plan.
- Update the AUAR in five years, or earlier, if certain conditions or assumptions change in accordance with Mn Rules 4410.3610, subp. 3.
  - Five years have passed since the RGU adopted the original environmental analysis document and plan for mitigation or the latest revision. This item does not apply if all development within the area has been given final approval by the RGU.
  - A comprehensive plan amendment is proposed that would allow an increase in development over the levels assumed in the environmental analysis document.
  - Total development within the area would exceed the maximum levels assumed in the environmental analysis document.
  - Development within any subarea delineated in the environmental analysis document
would exceed the maximum levels assumed for that subarea in the document.

- A substantial change is proposed in public facilities intended to service development in the area that may result in increased adverse impacts on the environment.

- Development or construction of public facilities will occur on a schedule other than that assumed in the environmental analysis document or plan for mitigation so as to substantially increase the likelihood or magnitude of potential adverse environmental impacts or to substantially postpone the implementation of identified mitigation measures.

- New information demonstrates that important assumptions or background conditions used in the analysis presented in the environmental analysis document are substantially in error and that environmental impacts have consequently been substantially underestimated.

- The RGU determines that other substantial changes have occurred that may affect the potential for, or magnitude of, adverse environmental impacts.
C. Response to comments on the draft AUAR document. AUAR Guidelines: The final AUAR document must include a section specifically responding to each timely and substantive comment on the draft that indicates the way in which the comment has been addressed. Similar comments may be combined for purposes of responding.

The Draft Alternative Urban Areawide Review (Draft AUAR) was prepared for the AUAR area (see Figure 6-1) by the City of St. Paul Park and Grey Cloud Island Township and distributed to the Environmental Quality Board (EQB) and persons and agencies on the official Environmental Quality Board (EQB) mailing list in accordance with EQB rules on May 26, 2003. The 30-day comment period ended on June 25, 2003. Several agencies requested, in writing, a 15-day extension, which ended on July 17, 2003.

Additionally, the City of St. Paul Park and Grey Cloud Island Township held public open houses on August 4th and October 1st and workshops on August 13th and September 2nd to receive additional comments. A question and answer (Q & A) document was prepared in regards to the development of Scenario Two and was available to the public at the October 1, 2003, Open House. The Q & A is located in Appendix K. This Q & A provides some answers to comments regarding financial impacts that do not fall under the scope of an AUAR. The city and township are currently working with a financial advisor to assess the potential fiscal impacts associated with the development of the AUAR area under Scenarios Two and Three.

The original text of the Draft AUAR has been revised and expanded to address the comments. Together, these documents and the Mitigation Plan included under Item B, constitute the Final AUAR.

Five agencies, five local units of government, four non-profit organizations, and six citizens submitted comment letters on the Rivers Edge Draft AUAR. This section provides responses to each timely and substantive comment received. Copies of all comment letters submitted are included in Appendix J in the order shown below.

<table>
<thead>
<tr>
<th>Agency/Organization/Citizen</th>
<th>Date of Letter</th>
<th>Signatory</th>
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<tbody>
<tr>
<td>Richard A. Williams Citizen</td>
<td>June 12, 2003</td>
<td>Richard A. Williams</td>
</tr>
<tr>
<td>Minnesota Department of Transportation (MnDOT)</td>
<td>June 19, 2003</td>
<td>Brigid Gombold</td>
</tr>
<tr>
<td>South Washington Watershed District (SWWD)</td>
<td>June 20, 2003</td>
<td>Matt Moore</td>
</tr>
<tr>
<td>Ron Glubka</td>
<td>June 21, 2003</td>
<td>Ron Glubka</td>
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<tr>
<td>Jerry Taube</td>
<td>June 23, 2003</td>
<td>Jerry Taube</td>
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<tr>
<td>Friends of the Bay (FOB)</td>
<td>June 24, 2003</td>
<td>Harland Hiemstra Alice Robinson Ron Glubka Elizabeth Bell Daniel Pena Layne Nelson Jerry Taube Michael Waldo Dorothy Larsen</td>
</tr>
<tr>
<td>Minnesota Center for Environmental Advocacy (MCEA)</td>
<td>June 24, 2003</td>
<td>James L. Erkel</td>
</tr>
</tbody>
</table>
The RGU hosted several meetings with the commenting agencies in order to better understand the comments on the Draft AUAR and to further involve the agencies in the preparation of the Final AUAR and Mitigation Plan. The RGU and AUAR technical team met with the commenting agencies to discuss their comments, the AUAR technical team’s approach to addressing the comments, and additional mitigation strategies. These meetings were held on a topic-by-topic basis. A river ecology topic meeting was held on August 11, 2003, and was attended by staff from the Department of Natural Resources, National Park Service, Metropolitan Council, South Washington Watershed District, and Washington County. A traffic and transportation topic meeting was held on August 25, 2003, and was attended by staff from Washington County, Metropolitan Council, and Cottage Grove. A stormwater management/groundwater topic meeting was held on September 8, 2003, and was attended by staff from South Washington Watershed District, Washington Conservation District, Department of Natural Resources, and the Metropolitan Council. A viewshed topic meeting was held on October 7, 2003, and was attended by staff from the Department of Natural Resources, the Metropolitan Council, and the National Park Service.

The project proposer provided several opportunities for agencies and the public to tour the project area to better understand the existing conditions of the site. The site tours were held on May 7th, May 29th, June 2nd, July 25th (boat tour) and September 15th. Staff from and/or members of the St. Paul Park City Council, Grey Cloud Island Township Board, Department of Natural Resources, National Park Service, Metropolitan Council, Washington County, South Washington Watershed District, Friends of the Mississippi River, Friends of the Bay, and community residents attended these tours.
The city and township received a draft of the Final AUAR in November 2003. The communities held several workshops between November 2003 and February 2004 to review and discuss the draft Final AUAR document. Three joint workshops between the city and township were held for the purposes of the city and township sharing their issues and questions with one another. The Mitigation Plan was the focus of the joint workshop discussions. The Final AUAR was revised to incorporate the changes discussed at the workshops.

Responses are generally confined to substantive issues that “address the accuracy and completeness of the information provided in the draft analysis, potential impacts that may warrant further analysis, further information that may be required in order to secure permits for specific projects in the future, and mitigation measures or procedures necessary to prevent significant environmental impacts within the area when actual development occurs” (Minnesota Rules Part 4410.3610, Subp. 5). Although comments and recommendations that do not address these areas need not have a response, they have been duly noted for the record and are not necessarily specifically addressed in the responses. As required by MN Rules, we have provided replies to comments that are substantive (involving matters with major or practical importance) and where necessary, note any correction(s) to be made to the appropriate sections of the AUAR or Mitigation Plan.

As suggested in the EQB’s document “Recommended Content and Format for Alternative Urban Areawide Review Documents” (AUAR Guidelines) similar comments are combined for the purposes of responding. Responses to comments are organized by AUAR Item number. The substantive comments regarding each AUAR item are summarized and the agencies or persons submitting similar comments are listed. This method assures consistency in the responses and allows the reviewer to easily identify the major issues raised amongst the 21 comment letters received. A general response to each substantive comment follows.

**Item 6. Project Description**

1. **Comment Summary:** Need to clarify the description and acreages summarized in the River Open Space land use designation and subsequent density calculations. It is misleading to include public waters as part of the project and include it as part of the open space in the development. The preservation of water does not receive credit for calculating the required percentages of open space in a Planned Unit Development (PUD) within a Shoreland Management Zone.

   **Agencies/Persons Commenting:** DNR, NPS, Washington County, FOB, Sierra Club, Ron Glubka, Jerry Taube, and Daniel Pena.

   **Response:** The 226 acres included in the River Open Space land use designation in the Draft AUAR included the following: 142 acres of open water below the ordinary high water mark, 63 acres of river islands, 17 acres of bluffs, and 4 acres along the mainland shoreline. The land use designation “River Open Space” has been divided into two land use categories in the Final AUAR, which are “Open Water” and “Scenic River/Recreational Areas.” The amount of upland open space included in the Scenic River/Recreational Areas land use designation has increased from 84 acres to 89 acres to address Draft AUAR comments and implement proposed mitigation strategies to better protect the Mississippi River Critical Area. The increase is attributed to eliminating proposed bluff alterations for the consolidated river access area/boat ramp, protecting the secondary bluff south of the bay, and removing non-recreational development near the edge of the bay.
The revised Scenic River/Recreational Areas land use designation, as shown on Figures 6-6 and 6-7, includes the following: 63 acres of islands, 20 acres of bluffs, and 6 acres along the mainland shoreline. In addition, the Mitigation Plan proposes that the city and township will require a 100-foot setback to the bluffline. It is anticipated that approximately 20 acres will be included in this bluffline setback area. The specific location and acres of open space will be determined through the PUD process and will meet all local PUD ordinance requirements.

All of these calculations are based on the most accurate GIS datasets available. The text, tables, and figures regarding Item 6 include the revised land use information in the Final AUAR.

All of the density calculations for Scenarios Two and Three in the Draft AUAR are net density figures based on the Metropolitan Council’s definition of residential acres which excludes major parks and open space, NWI wetlands, steep slopes over 18%, and major transportation rights-of-way. The AUAR boundary includes 441 acres that meet the Metropolitan Council’s definition of residential areas, and density calculations are based on the developable portion within the AUAR boundary. The only place gross density calculations are used are in reference to the township’s plans and regulations that use gross acres to calculate rural density. These gross density calculations were used to determine the number of units allowed under Scenario One (see Table 7-1, Project Magnitude Data). All references to density in the Final AUAR are clarified by noting if the density calculation is “net” or “gross”.

Public water is included in the description of land uses because the AUAR boundary includes 142 acres of land below the ordinary high water level of the river. The property owner owns the land under the river as well as all of the islands because these areas were above water or seasonally flooded before the construction of the dams in the 1930s (e.g., water level accretion) (see Figure 6-3, 1927 Aerial Photograph). If the normal pool elevation of Pool 2 is changed in the future, portions of the existing riverbed may be located above a revised ordinary high water mark (e.g., water level reliction).

2. **Comment Summary:** The AUAR needs to better describe the character of the bluff (height above river, degree of slope). This is needed in evaluating the impacts of the development close to the bluffline.

**Agencies/Persons Commenting:** Washington County

**Response:** The bluffs along the northern portion of the site gradually rise landward of the floodplain forest to a height of 40 to 50 feet above the river. The bay area and the southern portion of the site are characterized by exposed limestone cliffs and vegetated bluffs that rise between 20 to 40 feet above the river. Generally, the rock outcropping of the river bluffs become more pronounced as one moves from north to south. A description of the bluffs is added to the Background section of Item 6. Figure 16-1 shows the differentiation between the steepness and extent of the bluff areas. Proposed alterations of bluffs described in the Draft AUAR have been withdrawn from the development proposal. All bluffs, except 1/20 acre of slopes greater than 18%, will be protected and a 100-foot bluffline setback will be implemented to mitigate potential impacts to bluffs.

3. **Comment Summary:** The township’s Comprehensive Plan requires the developer to dedicate reasonable portions of riverfront access land (or other lands in interest therein), or in the case of difficulties, contribute an equivalent in cash to be used for public services in the corridor. The apportioning in the Draft AUAR of only 1 acre of Park/Recreation in Scenario One cannot be
assumed and is contradictory to the Critical Area standards, existing plan, and ordinance. The assumptions of Scenario One are incorrect and do not include all of the DNR-approved requirements in order for Scenario One to be compatible with adopted plans. Information provided on page 25 regarding existing areas in private ownership regulated by the township ordinance needs to also include presently undeveloped islands, natural habitats, backwaters, natural drainages, significant vegetative stands, and shorelines.

Agencies/Persons Commenting: DNR

Response: In accordance with AUAR guidelines, whenever a certain impact may or may not occur, depending on the exact design of future developments, the AUAR should cover the possible impacts through a “worst case scenario” analysis. The parameters of Scenario One are based on a worst case scenario of existing plans and regulations. Existing plans and regulations do not identify any lands within the township that are guided for Parks/Recreation (Land Use Plan) or Conservation District (Zoning Code). The only land within the AUAR boundary that is identified in existing plans and regulations for parks/recreation is the small parcel of land within the City of St. Paul Park that is adjacent to Riverside Park (see Figure 6-4). Under a worst case scenario, it is incorrect to assume that the developer would publicly dedicate riverfront land rather than contributing a cash equivalent. Regardless of the scenario, future development plans will need to meet the local ordinance requirements for parkland dedication.

4. Comment Summary: Development of Scenario One is not a likely way for the subject property to be developed. Individual drives onto CR 75 would be restricted and it would be likely for the property to be developed utilizing an open space design type subdivision, thus protecting the bluff and other natural characteristics of the property. In addition, there could be a common boat docking facility.

Agencies/Persons Commenting: Washington County, FMR, and FOB.

Response: In accordance with AUAR guidelines, whenever a certain impact may or may not occur, depending on the exact design of future developments, the AUAR should cover the possible impacts through a “worst case scenario” analysis. The parameters of Scenario One are based on a worst case scenario of existing plans and regulations. Scenario One is consistent with the bulk requirements (minimum lot size, width, depth, etc.) and permitted uses allowed under the township’s zoning ordinance and the County’s Shoreland Management Ordinance. An open space/cluster subdivision and common boat docking facilities are allowed as conditional uses; however, assuming that these design concepts apply does not meet the worst case scenario guidelines of the EQB. Regardless of scenario, the future development plans will comply with local, state, and federal regulations.

Washington County’s access spacing guidelines allow accesses to CR 75 every 1/8 of a mile. The configuration of access points under Scenario One has been revised to be consistent with this guideline. Figures 6-4 and 10-2 reflect this change.

5. Comment Summary: How much land will be publicly dedicated and where will it be located? Comparison of Scenario One to the impacts of Scenario Two/Three is skewed without full disclosure of potential private lot lines and parcels in Scenario Two and Three
Agencies/Persons Commenting: DNR and NPS.

Response: At this time, the exact location and amount of lands in public verses private ownership and property lines have not been determined and is not required for an AUAR. Throughout the Draft AUAR document the mitigation strategy of contemplating the River Open Space system for public ownership and/or conservation easements is proposed. As stated in the Draft and Final AUAR, the exact acreage, type, and location of parks and open space will be determined through the PUD process and will meet local ordinance requirements.

6. **Comment Summary:** The AUAR does not contain meaningful scenarios due to Scenarios Two and Three containing a similar development footprint, supporting the same amount of development east of CR 75, and providing the same amount of open space.

Agencies/Persons Commenting: DNR, MCEA, FMR, Jerry Taube, & Daniel Pena

Response: The development footprint, or impervious surface, is not the only development parameter that can generate potential impacts. The intensity of the uses is greater under Scenario Two than Scenario Three. The greater intensity of uses proposed under Scenario Two result in more municipal groundwater use, more traffic generation, more sanitary sewer flows, and more school age children than under Scenario Three.

7. **Comment Summary:** Provide site plan level of detail within the Critical Area/MNRRRA corridor, including building, road, and parking footprints, specific locations, number of units, and acreage in each location for single family, multi-family, Mixed Residential, Village Center Multi-family, and Village Center Mixed use, impervious surface percentages, heights of each building in the Village Center.

Agencies/Persons Commenting: DNR & NPS

Response: An AUAR is not based on a specific subdivision proposal, but on the location of land use types and intensities. The specific locations of buildings, roads, and parking areas will be determined through the site planning process. In developing the Mitigation Plan, the project proposer developed a conceptual site plan that would meet the development parameters contained within the Mitigation Plan. This concept plan is shown on Figure B, Mitigation Site Plan Concept. This plan shows a theoretical range of 55,000 – 75,000 sq feet of non-residential uses (retail, service, office) and 450 - 700 units within the Critical Area Corridor under the following land use designations: 100 - 125 Single Family units, 150 - 175 Multifamily units, 150 - 250 Village Center Multifamily units (condos/townhomes), and 50 - 150 Village Center Mixed Use units (condos).

8. **Comment Summary:** Provide a copy of the flowage easement applicable to the project property to inform staff of the permitted uses and protected areas applicable for the scenarios.

Agencies/Persons Commenting: DNR

Response: A copy of the flowage easements will be transmitted to the DNR with its copies of the Final AUAR.
9. **Comment Summary:** The AUAR incorrectly refers to attached units with a separate entrance as single family. Only single family detached units should be referred to as single family. All attached units should be referred to as multifamily units.

**Agencies/Persons Commenting:** FOB and Ron Glubka

**Response:** The Environmental Quality Board (EQB) rules (which includes the rules for AUARs) defines “attached units” as units consisting of groups of four or more units, each of which shares one or more common walls with another unit (Mn Rules Chapter 4410.0200, subp 5). Consistent with the EQB’s rules, “Single Family” includes single family detached and twin homes (2 units) and multifamily includes all other attached housing units.

10. **Comment Summary:** Metropolitan Council’s Blueprint 2030 is incorrectly interpreted or incorrectly implies the recommended densities of 3 to 5 units per acre is for the entire city when it should only apply to new residential development (Blueprint 2030, page 45). The net density of the development exceeds the Metropolitan Council’s Blueprint 2030 recommended densities. Explain why this development should exceed the density guidelines.

**Agencies/Persons Commenting:** FOB and Ron Glubka

**Response:** The Final AUAR has been corrected to state the goal of 3 to 5 units per acre for new development. However, page A-3 of Blueprint 2030 states the Metropolitan Council “will give priority to plans that achieve densities of 8 to 30 or more residential units per acre in centers along transit corridors and 3 to 5 units or more outside of centers.” Blueprint 2030 does not encourage limiting development density to 3 to 5 units per acre. The current Metropolitan Council was in the process of revising Blueprint 2030 during the Draft AUAR comment period and the Metropolitan Council’s comments on the Draft AUAR note that the Metropolitan Council is reviewing land use plans against the 1996 Regional Blueprint. The 1996 Regional Blueprint states, “in newly developing suburbs at the edge of the urban area the Council will advocate a minimum density of three housing units per residential acre, including streets, alleys and local parks.” The Metropolitan Council’s 2030 Regional Development Framework was adopted on January 14, 2004. This policy document states that the appropriate density for developing communities is “3 to 5 units plus per acre overall in developing communities for areas outside the current staged development as shown in local plans and target higher density in locations with convenient access to transportation corridors and with adequate sewer capacity” (page 23). 2030 Regional Development Framework Appendix B, Accommodating Growth, further defines the Framework density assumptions for developed and developing communities (Table B-2, page B-5).

11. **Comment Summary:** Phase 5 of the development schedule (Table 6-5) notes the clean-up of the auto salvage yard and ultimate redevelopment of this property. If the auto salvage yard property is ultimately going to be included in the project it should be included in the AUAR. In addition, there should be discussion as to how the auto salvage yards on the adjacent property and the dumps/material storage areas are to be cleaned up and what environmental issues are likely.

**Agencies/Persons Commenting:** Washington County

**Response:** The timing of the clean up and redevelopment of the auto salvage yards is unknown. If these properties are proposed for redevelopment, the redevelopment process will need to follow Mn Rules Chapter 4410. As noted under Item 19 of the Draft AUAR, a limited Phase II
Environmental Assessment concluded that the soils within the AUAR area had not been impacted by petroleum or metal contaminants and that soil borings did not detect any chemical contaminants above the MPCA remediation thresholds for soils. If solid or hazardous wastes are encountered during the clean up of the dumps/material storage areas or elsewhere in the AUAR area they must be disposed of in accordance with Mn Rules 7035 and 7045 and Washington County Ordinances #114 and #119.

**Item 8. Permits and Approvals Required**

1. **Comment Summary:** Required permits and reviews were omitted

   **Agencies/Persons Commenting:** DNR, METC, NPS, and Washington County

   **Response:** The following corrections/omissions are included in the revised Table 8-1:

   DNR: Plan Amendments affecting lands within the Critical Area Corridor
   DNR: Ordinance Amendments affecting lands within the Critical Area Corridor
   DNR: Shoreland Management District Ordinance and Ordinance Amendments
   DNR: Planned Unit Developments within the Shoreland Management District within St. Paul Park until the DNR approves a Shoreland Management Ordinance and Shoreland PUD regulations for St. Paul Park
   NPS: Review of federally funded projects or permits within the MNRRRA corridor.
   NPS: Review of state permits within the MNRRRA corridor.
   METC: Sanitary Sewer Connection Permit
   Washington County: County Road Access Permit(s)
   MPCA: NPDES/SDS Permit

**Item 10. Cover Types**

1. **Comment Summary:** An area of Dry Oak Savanna was not included in the Natural Resource Inventory

   **Agencies/Persons Commenting:** DNR, FMR, Sierra Club, and FOB

   **Response:** Dry oak savanna was not found during the fieldwork completed by AES for the on-site inventory and mapping of natural resources. The DNR stated that an area of dry oak savanna, which was identified by their representative during a field visit, is located in the area north of the bay. This area was identified by AES as mesic oak savanna during inventory and assessment work at the site. The identification by AES was based on the indicator plant species present as well as the unique soil moisture regime for this area. According to publications that have reviewed savanna and oak forest types, the type present in the property does not function like the dry sand substrates typical of dry oak savannas. Additionally, the largest on-site population of the state Special Concern butternut (*Juglans cinerea*) occurs in this area, and this species is not found in dry oak savanna.

   Both savanna community types are rare in the region, and regardless of the oak savanna cover type present, revisions to the plan have resulted in the protection and stewardship of this area north of the bay.
2. **Comment Summary:** Discuss discrepancies between the land cover datasets (Met Council NRI/A, MLCCS, & MCBS).

**Agencies/Persons Commenting:** NPS, WCD, FMR, MCEA, and FOB

**Response:** Minnesota Land Cover Classification System (MLCCS) and Minnesota County Biological Survey (MCBS) mapping of natural resources on the AUAR area were completed using aerial photogrammetry. AES completed mapping for the site based on ground reconnaissance. During this work, AES found some significant discrepancies between the MCBS and MLCCS mapping and actual on-ground conditions. Most significantly, a relatively large area identified on the MCBS and MLCCS mapping as dry sand prairie was found to be a fallowed agricultural field dominated by a non-native grass. Two small areas containing prairie plant species were found within this area and were mapped by AES. This area was reviewed by DNR staff who concurred that this area was not dry sand prairie as indicated on MCBS and MLCCS mapping.

The Metropolitan Council/DNR’s Terrestrial and Aquatic Ecological Assessment mapping (part of the Preliminary Regional Natural Resource Inventory and Assessment, or NRI/A effort) identified the Mississippi River, associated backwaters, floodplain forest islands, and the bluff areas of the site as “outstanding” ecological resources. This classification is reasonable given the contiguous natural and semi-natural habitats in this area, their size, their association with the river, and the remotely derived MCBS mapping that was likely considered in the assessment. AES does not disagree that the river and bluff areas on the site present a significant ecological resource; however, historical land uses (clearing of vegetation, pasture, stockyards) and invasive species (particularly common buckthorn) have severely degraded much of this area. Much of the areas classified as “outstanding” ecological resources are not proposed for development and much of these areas are proposed to be restored (see Mitigation Plan).

Overall, the mapping completed by AES is the best representation of existing natural resources on the site because it is based on ground reconnaissance that was conducted in 2002-2003.

3. **Comment Summary:** The floodplain forest should be visited and inventoried despite the fact that the land cover will not change based on the proposed development.

**Agencies/Persons Commenting:** WCD, FMR, and Sierra Club

**Response:** The floodplain forest areas will not be impacted from their current condition by the proposed development scenarios. No access to the islands will be provided, and this open space is anticipated to be gifted to a public or private conservation organization as a voluntary conservation donation. No additional assessment work of these areas is deemed necessary at this time.

4. **Comment Summary:** Include Applied Ecological Services’ Natural Resource Inventory (NRI) as an appendix to the AUAR

**Agencies/Persons Commenting:** GCI, FOB, & FMR

**Response:** The NRI is included as Appendix H
Item 11. Fish, Wildlife, and Ecologically Sensitive Resources

1. **Comment Summary:** Storm water discharge may impact potential freshwater mussel habitat. Need to adequately identify the location of the three threatened and endangered fresh water mussel species that could be impacted by the project/dredging. Need a mussel survey if dredging will occur.

**Agencies/Persons Commenting:** DNR, METC, SWWD, & WCD

**Response:** Dredging the bay was not proposed in any development scenario in the Draft AUAR. Proposed revisions to the scenarios and the storm water management system in the Final AUAR further minimize negative impacts on water quality and the volume of runoff. The development of the AUAR area is not expected to result in substantial effects on mussels or their habitat.

2. **Comment Summary:** AUAR underestimates the impacts on wildlife, including Bald Eagles and migratory birds. Has Joan Galli at the DNR been contacted to discuss impacts to Bald Eagles?

**Agencies/Persons Commenting:** Sierra Club, FMR, FOB, Daniel Pena, and Jerry Taube

**Response:**

**Wildlife:** Fish and wildlife resources on and near the site are related to the composition, quality, size, and connectivity of natural communities. The AUAR area includes three basic types of wildlife habitat. The largest type, agricultural and old fields, covers 379 acres, or 57 percent of the site. The second type is the Mississippi River, which accounts for about 142 acres, or 21 percent of the site. The third type, which includes forests, woodlands, savanna, wetlands, and prairie remnants, covers 121 acres, or 18 percent of the site. The open, agricultural fields provide seasonal food and cover for species such as pheasant, meadowlark, and field sparrow. The wooded habitats and river provide cover and habitat for species such as raccoon, red fox, white-tailed deer, woodcock, thrushes, woodpeckers, waterfowl, and amphibians.

Previous agricultural activities have converted over half the site to agricultural fields, many of which support annually tilled agricultural row crops. The predominance of rowcrops and low-production sandy soils limit the quality and suitability of wildlife habitat on the site, especially during the winter.

Development of the AUAR area will affect agricultural and old-field habitats, and respective resident wildlife species more than wooded and riverine habitats. Approximately 408 acres, or 61 percent of the site, will be converted to developed uses. Agricultural and old-field habitat accounts for approximately 90 percent of the proposed development area. All riverine habitat and about 80 percent of the wooded, wetland, and prairie habitat will be preserved.

The scenarios focus development impacts on the most disturbed habitats on the site. Some local decline in wildlife abundance is expected to result from development of the AUAR area. Populations of species that depend on agricultural and old field habitat will likely decrease or be displaced. Migratory birds that depend on fields and grassland are expected to respond to development by looking elsewhere for alternative nesting sites upon their return from wintering habitats. However, due to regional development pressure, the acreage of total habitat is declining, offsetting the ease and potential for birds displaced within the AUAR area to find other places to forage, breed and live. Non-migratory agricultural and grassland species with small home ranges, such as small mammals, will also decline or be displaced.
Preservation of riverine habitat, restoration of native vegetation communities, and increased setbacks along the bluffline are expected to mitigate adverse effects on wildlife. Preservation and setback requirements placed on development have been designed to preserve the least disturbed, highest quality wildlife habitat and convert the disturbed agricultural areas to developed uses.

**Bald Eagle:** Revisions to Scenarios Two and Three include moving trails and other potential disturbances further away from the existing on-site Bald Eagle nest. The trail has been moved from the floodplain to above the bluffline and will be approximately 400 feet from the nest at its nearest point. The nearest structures may be approximately 500 feet from the nest, and the nearest road may be approximately 450 feet from the nest. These revisions were reviewed with Joan Galli over the phone and she suggested that vegetation screening and buffers between development and the nest were important factors to consider. The issue of vegetation screening in the vicinity of the on-site Bald Eagle’s nest will be addressed during restoration and management of this area and will be included in the Natural Resource Restoration and Management Plan.

**Migratory Birds:** Development of the AUAR area will affect local populations of migratory birds that depend on grasslands and agricultural habitats, such as meadowlarks, field sparrows, and mourning doves. However, the design will preserve all riverine habitat and over 80 percent of the wooded, wetland, and prairie habitat. Natural community restoration within the river corridor will improve habitat for migratory bird species and other wildlife. The provision of upland buffers extending to 100 feet landward of the bluffline will help mitigate potential impacts on many migratory birds.

Habitat fragmentation has been minimized along the river corridor by limiting trail corridors and cross-through roadway locations. Two proposed roadways that cross through bluff areas follow existing areas of disturbance (e.g., field road and old building foundation locations). Restoration of the habitat along the bluff will enhance wildlife habitat in some locations that are currently degraded. The trail that was previously proposed along the bluff slope north of the bay has been eliminated from the design to reduce human intrusion, noise, and erosion near the bluff.

3. **Comment Summary:** A 40-foot bluffline setback is not adequate to protect sensitive resources such as oak savanna, cliffs/bluffs, floodplain, and seepage areas.

**Agencies/Persons Commenting:** DNR, METC, FMR, Sierra Club, FOB, Daniel Pena, & Jerry Taube.

**Response:** The township’s current zoning regulations require a 40-foot bluffline setback for structures (Grey Cloud Island Township Zoning Ordinance Section III.D.11.a). This is the typical bluffline setback that many communities have adopted within the Mississippi River Critical Area Corridor. The Mitigation Plan includes significantly wider setbacks from the bluffline, natural area restoration, and sensitive design of the trail system. The revised setbacks include a 100-foot setback from the bluffline (see Mitigation Plan for further details). These revisions will mitigate the impacts to savanna, bluff, floodplain, and seepage areas.

All oak savanna areas along the bluff will be protected with setbacks that exceed existing bluffline setback requirements. The building proposed north of the bay will be set back approximately 100-175 feet from the bluffline to the south to better protect the mesic oak savanna. This will result in the building being setback approximately 40 feet from the northern
4. **Comment Summary:** Mitigation for fish and wildlife should include water quality treatment practices and erosion and sediment control during construction. Water quality and soil quality are important for maintaining habitat.

**Agencies/Persons Commenting:** SWWD

**Response:** Infiltration swales and basins and erosion control BMPs will be implemented during and after project construction to protect water quality, control erosion, and minimize effects on fish and wildlife habitat.

5. **Comment Summary:** Provide detailed information regarding proposed conservation easements/protection strategies for sensitive resources and/or restoration plans for proposed conservation areas.

**Agencies/Persons Commenting:** NPS, DNR, METC, WCD, FMR, Sierra Club, FOB, & Daniel Pena

**Response:** Detailed information regarding the restoration and management plan for the site will be provided during the site plan review process, and most likely the Planned Unit Development (PUD) process.

**Protection of resources:** A proven conservation program will be tailored for the AUAR area to protect and ensure perpetual stewardship of natural resource areas on the site. It is anticipated that one or more of the following six elements will be integrated into the conservation program for the project site:

- Transfer lands from private to public ownership (fee title transfer)
- Deed restrictions
- Restrictive covenants
- Conservation easements
- Stewardship program and perpetual management endowment
- Educational program for residents and business owners

It is anticipated that several strategies and potential relationships will be explored to ensure that restoration, management, and protection is in place and successfully implemented over the years. Deed restrictions and restrictive covenants can provide protection of natural resources by clearly stating what activities are allowed and prohibited on private lots within the AUAR area. Conservation easements can be placed on public open space or private lots and provide a legally binding commitment to how the natural resources are protected and managed. Typically, non-profit conservation organizations such as The Conservation Fund, the Trust for Public Lands, and The Minnesota Land Trust would hold such conservation easements and would ensure compliance through annual field inspections. Remedial and perpetual stewardship tasks for restoring and maintaining the natural resources require an appropriate funding mechanism. Several large developments have included establishing a dedicated non-profit foundation that receives annual homeowner association fees (or other funding sources) earmarked for
stewardship, and these monies are used to hire professional stewardship firms to do management, stewardship, monitoring and to provide educational services.

A 100-foot setback from the bluff line is included in the Mitigation Plan to mitigate potential impacts to ecologically sensitive resources such as the river, river bluffs, shoreline, floodplain forest, deciduous forest and woodlands, and oak savanna. Natural area restoration and management activities, trails, public recreational structures, and scenic overlooks are allowed within the setback area.

Restoration of resources: Portions of the site’s open space and degraded natural areas along the river corridor will be restored to healthier, native plant communities through implementation of a site-specific natural resource restoration and management plan. Habitats that will be restored include: approximately 50 acres of forests, woodlands, and oak savanna and approximately 15-25 acres of wet prairie and wetland. Some of the wetland restoration areas will be created as part of the storm water management system.

Item 12. Physical Impacts to Water Resources

1. Comment Summary: The AUAR should include alternatives considered for routes and locations of storm water outfall structures and include analysis of storm water impacts to the bay.

Agencies/Persons Commenting: DNR, NPS, FMR, & FOB

Response: Figure 17-1 of the Draft AUAR shows two potential locations for storm water outfalls into the bay. Based on comments received, the storm water management system has been revised to include alternative outfall locations and the incorporation of infiltration basins throughout the AUAR area. Storm water outfalls will no longer be located at the normal water level of the Mississippi River as mentioned in the Draft AUAR. The outfalls will be located above the normal water level and directed into a constructed treatment wetland forebay adjacent to the river (south of the bay) and into a 2-cell treatment area as part of the manure lagoon restoration (north of the bay). Directing runoff into the forebay will provide for secondary removal of suspended sediment and nutrients prior to discharge to the river. The 2-cell treatment area will capture and treat runoff from the proposed building and surrounding undisturbed land (see revised Figure 17-2).

See Item 17, comment response 2, for additional information on the revised storm water management plan.

2. Comment Summary: Further information is needed on how the seeps and springs will be impacted in reference to reduced groundwater recharge and increased groundwater use for municipal wells.

Agencies/Persons Commenting: DNR, NPS, SWWD, WCD, FMR, MCEA, Sierra Club, FOB, Alice Robinson, & Jerry Taube

Response: As stated in the Draft AUAR, the on-site springs likely originate in the Jordan sandstone and upwell through river alluvium. GME Consultants Inc. conducted further research to detect the lineament (bedrock fracture) traces within and near the AUAR area. Based on the lineament traces, GME concluded that the source of the springs is well beyond the AUAR boundary from the north and east. Furthermore, GME conducted a field visit in early September
2003 to observe the seeps and springs. The springs were discharging substantial amounts of water despite the recent drought conditions (near zero infiltration on the farm fields). Based on these observations, GME concluded that development of the AUAR area would have little or no effect on the springs, and that the placement of infiltration basins near bedrock fractures would enhance the seeps and springs.

Appropriation of groundwater for a new municipal well would likely have minimal effects on the seeps and springs. Water levels in the Jordan aquifer have remained relatively constant over time (see Item 13 for additional information), which suggests that the Jordan receives sufficient recharge despite considerable growth in cities north and east of the AUAR boundary, especially Woodbury. Additionally, there are six active municipal wells located within a 1.5-mile radius north and east of the site that pump over 3,500 gallons per minute from the Jordan aquifer. These findings suggest that the seeps and springs receive sufficient surface and groundwater recharge to maintain their characteristics.

Wells will be sited at appropriate locations to avoid potential impacts to ground water levels near existing homes that have individual domestic wells and the seep discharge areas along the river. The city will need to amend its draft Wellhead Protection Plan to delineate wellhead protection areas and the cone of influence for new wells.

For further information see Item 13, comment response 1.

3. **Comment Summary:** It is possible that the commercial development above the boat access area will alter and perhaps eliminate the springs on the site. Certainly runoff from all hard surfaces will degrade water quality over time, even with storm water treatment. Trash from the commercial properties will also ultimately degrade the bay and shoreline areas.

**Agencies/Persons Commenting:** DNR

**Response:** Commercial development is not anticipated to impact the springs. Runoff from the commercial areas will be pretreated to remove trash, suspended solids and adsorbed contaminants in order to improve water quality, and the subsequent runoff will be infiltrated in the same manner as the residential areas. As a result, and using the revised stormwater management approach, the springs will not be eliminated by commercial development. Additionally, the commercial development areas have been relocated further away from the bluffs and bay than shown in previous development scenarios for the Draft AUAR.

4. **Comment Summary:** AUAR needs to include more detailed information regarding the boat access ramp, associated facilities, and motorized boat use to evaluate potential impacts to the bay.

**Agencies/Persons Commenting:** DNR, NPS, Washington County, FMR, FOB, & MCEA

**Response:** The boat access ramp and all improvements that would have been required for such an access have been eliminated from Scenarios Two and Three.
Item 13. Water Use

1. **Comment Summary:** AUAR does not adequately address water supply issues. Mitigation efforts for water supply must focus on the development of the water supply system and potential impacts to groundwater supplies.

**Agencies/Persons Commenting:** DNR, Washington County, GCI, & FOB

**Response:** Page 35 of the Draft AUAR states that a new municipal well may be installed in the southeastern portion of the project site.

The city currently operates four active wells, and is in the process of replacing St. Paul Park Well 1, which is a standby well located in the Special Well Construction Area (SWCA). The replacement well may be located within the eastern portion of the AUAR area. If the city increases the capacity of the new replacement well, an amendment to the Water Appropriation Permit would be required, and new municipal wells may not be needed. If new municipal wells maintain the permitted amount of Well One, new wells would be needed to serve the AUAR area (Figure 13-2).

If new municipal wells are constructed within the AUAR area, the Minnesota Department of Health (MDH) must review and approve all new municipal well site locations, plans and specifications. The city will coordinate with the MDH to ensure that a new water supply system meets all applicable regulations. These regulations are in place to ensure a safe (public water supply systems are tested regularly for various contaminants) and adequate public water supply system.

The MDH requires the city to follow the wellhead protection planning process (Minnesota Rules, Chapter 4720.5100 - 4720.5590), which sets standards for wellhead protection planning. The wellhead protection planning process involves:

1. Delineating the wellhead protection area and drinking water supply management area;
2. Assessing the vulnerability of the well and the wellhead protection area;
3. An inventory of potential sources of contamination within the wellhead protection area based on the vulnerability assessment; and
4. Creation of a Wellhead Protection Plan including goals, objectives, plan of action, evaluation program, and contingency plan should the water supply be disrupted by contamination or mechanical failure.

The city is currently conducting a study to determine the feasibility of constructing new wells within the AUAR area to service the needs of Scenarios Two and Three. The city’s study is not completed at this time. In the interim, Westwood Professional Services, Inc. conducted a preliminary wellhead protection delineation and assessment, in accordance with the MDH’s standards. The following assumptions were made based on a review of surrounding municipal Well Logs, geology, aquifer conditions, and existing surface water flow:

1. The average daily water demand would be 730,000 gallons per day (gpd) from the aquifer (using Scenario 2);
2. The new well would have a discharge rate of 750 gallons per minute (gpm);
3. The new well would be located in the southeast corner of the AUAR area, at an elevation of 750 feet, in similar geology as municipal Well One;
4. The static water level would be 45 feet below the surface;
5. The drawdown would be 50 feet;
6. The specific capacity would be 15.0 gpm/foot of drawdown;
7. The effective porosity is 0.25; and
8. The length of the open hole is 90 feet.

Based on the aforementioned assumptions, a well located in the eastern portion of the AUAR area would have a maximum estimated preliminary wellhead protection radius of 2,245 feet. The amount of water drawn to meet demand within the radius would be 35.62 million cubic feet per year at full development.

The surrounding municipal wells draw similar amounts of groundwater from the Prairie du Chien-Jordan aquifer at a rate of over 3,500 gallons per minute. Water levels in the surrounding municipal wells have remained relatively constant over time, which suggests that the wells are pumping at rates that can be sustained by the aquifer.

Based on the preliminary wellhead assessment and information obtained on surrounding wells, new wells constructed within the AUAR area would likely have minor affects on groundwater levels in the project area.

2. **Comment Summary:** The developer needs to provide assurances as to well placement and that additional pumping will not draw contamination from the Special Well Construction Area into the Prairie du Chien-Jordan aquifer.

**Agencies/Persons Commenting:** WCDPH & FOB

**Response:** The Draft AUAR notes that a Special Well Construction Area (SWCA) is located 1,360 feet north of the AUAR area. If a new well were constructed in the eastern portion of the AUAR area, the well would be located at approximately 2,500 to 3,400 feet south of the SWCA.

Review of the Minnesota Geological Survey maps, and additional research conducted by Westwood Professional Services and GME Consultants, suggests that the groundwater and surface water flow westerly, not south of the SWCA.

Source Water Assessments provided by the MDH for St. Paul Park and Cottage Grove indicate that none of the existing municipal wells are susceptible to contamination because they meet MDH construction standards and do not present a pathway for contamination to readily enter the water supply. Because the new well would be constructed according the MDH standards, in similar geology as the surrounding wells, and located equidistant or greater from outside the SWCA as the surrounding municipal wells, there is little supporting evidence that a new well would draw contamination into the water supply system.

**Item 14. Water-related Land Use Management Districts**

1. **Comment Summary:** The AUAR incorrectly identifies the Shoreland Designation of the Mississippi River as *Transition River* with a 300’ shoreland zone. Washington County Shoreland Ordinance designates the Mississippi River as a *Natural Environment Lake*, which includes a 1000’ shoreland zone, a 30’ setback to the bluff and a 200’ setback to the ordinary high water mark (OHWM) for unsewered structures, and 150’ setback to the OHWM for sewered structures.
Under Scenarios 2 and 3, the Washington County Shoreland Management Ordinance would need to be amended ultimately changing the shoreland classification of the Mississippi River in this particular area.

**Agencies/Persons Commenting:** Washington County, DNR, METC, FMR, FOB, & Sierra Club

**Response:** Figure 14-1 has been corrected to show the existing 1000’ shoreland zone within the township. Consistent with Mn Rules shoreland classification system descriptions (see following table), the city will prepare a shoreland management ordinance in accordance with the state shoreland management regulations for Urban Rivers for the entire city, including lands annexed from the township. Likewise, amendments to Washington County’s Shoreland Management Ordinance will be prepared in accordance with the state shoreland management regulations for Urban Rivers. The Urban River designation is consistent with the proposed urban development and is consistent with the Shoreland designations of adjacent urban communities along the Mississippi River. Figure 14-2, Proposed Changes to Water-related Land Use Management District Boundaries, shows the proposed 300’ shoreland zone that accompanies the change to an Urban River designation. As required for an AUAR, the text under Item 14 regarding Shoreland Management is revised to note proposed deviations from the existing shoreland management regulations. The following table describes some of the differences between Washington County’s shoreland regulations for Natural Environment Lakes and the State Shoreland Management Rules for Urban Rivers (Mn Rules Chapter 6120).

<table>
<thead>
<tr>
<th>Shoreland Classification</th>
<th>Urban River (Mn Rules Chapter 6120)</th>
<th>Natural Environment Lake (Washington County)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoreland Classification Description (Mn Rules Chapter 6120)</td>
<td>Urban river segments are located within or adjacent to major cities throughout the state. A variety of residential and other urban land uses exists within these segments. Recreational uses of these segments and adjacent lands are common, but vary widely in types and intensities. These segments have potential for additional development, for redevelopment, and for additional recreational use, although recreational use on some of these segments competes with commercial river traffic.</td>
<td>Natural environment lakes are generally small, often shallow lakes with limited capacities for assimilating the impacts of development and recreational use. They often have adjacent lands with substantial constraints for development such as high water tables, exposed bedrock, and unsuitable soils. These lakes, particularly in rural areas, usually do not have much existing development or recreational use.</td>
</tr>
<tr>
<td>Shoreland Zone</td>
<td>300 feet</td>
<td>1000 feet</td>
</tr>
<tr>
<td>Lot Area (square feet)</td>
<td>There is no minimum lot size requirement for rivers. The underlying zoning district determines minimum lot size.</td>
<td>The County’s ordinance does not contain lot area requirements for sewered Natural Environment Lakes. Unsewered Natural Environment Lakes require a minimum 5-acre lot. The following are the state shoreland rules (Mn Rules Chapter 6120):</td>
</tr>
<tr>
<td>Lot Area (square feet)</td>
<td>Riparian:</td>
<td>Non-Riparian:</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td>Single – 40,000</td>
<td>Single – 20,000</td>
</tr>
<tr>
<td></td>
<td>Duplex – 70,000</td>
<td>Duplex – 35,000</td>
</tr>
<tr>
<td></td>
<td>Triplex – 100,000</td>
<td>Triplex – 52,000</td>
</tr>
<tr>
<td></td>
<td>Quad – 130,000</td>
<td>Quad – 65,000</td>
</tr>
<tr>
<td>Riparian:</td>
<td>Single – 125</td>
<td>Single – 125</td>
</tr>
<tr>
<td>Duplex – 125</td>
<td>Duplex – 225</td>
<td>Duplex – 220</td>
</tr>
<tr>
<td>Triplex – 225</td>
<td>Triplex – 325</td>
<td>Triplex – 315</td>
</tr>
<tr>
<td>Quad – 425</td>
<td>Quad – 425</td>
<td>Quad – 410</td>
</tr>
<tr>
<td>Non-Riparian:</td>
<td>Single – 75</td>
<td>Single – 125</td>
</tr>
<tr>
<td>Duplex – 115</td>
<td>Duplex – 225</td>
<td>Duplex – 220</td>
</tr>
<tr>
<td>Triplex – 150</td>
<td>Triplex – 325</td>
<td>Triplex – 315</td>
</tr>
<tr>
<td>Quad – 190</td>
<td>Quad – 425</td>
<td>Quad – 410</td>
</tr>
<tr>
<td>Lot Width (feet)</td>
<td>Single – 75</td>
<td>Single – 125</td>
</tr>
<tr>
<td>Duplex – 115</td>
<td>Duplex – 225</td>
<td>Duplex – 220</td>
</tr>
<tr>
<td>Triplex – 150</td>
<td>Triplex – 325</td>
<td>Triplex – 315</td>
</tr>
<tr>
<td>Quad – 190</td>
<td>Quad – 425</td>
<td>Quad – 410</td>
</tr>
<tr>
<td>Structure Setback from OHWL</td>
<td>50 feet</td>
<td>150 feet</td>
</tr>
<tr>
<td></td>
<td>(Multifamily must be setback 200 feet from OHWL)</td>
<td></td>
</tr>
</tbody>
</table>

Many shoreland regulations apply to all shoreland zones regardless of the classification (i.e., *Natural Environment* or *Urban River*) and these regulations will not change under the Urban River classification. These regulations include, but are not limited to: vegetation management, steep slope/bluff alterations, excavations, grading and filling, connections to public waters, storm water management, water supply, sewage treatment, subdivision provisions, and planned unit developments.

2. **Comment Summary:** The AUAR needs to include a discussion of the impacts; appropriateness of location within the Critical Area that meets all purposes and guidelines; and consistency with applicable Executive Order standards for the following development proposals: Village Center, parking areas, trails, scenic overlooks, pedestrian boardwalk, boat launch/access, proposed vegetative alterations, proposed topographic alterations, utilities, stormwater, sewer, and roads. The figures and text under item 14 do not include all of the deviations that have been proposed by the Draft Plan the DNR received, dated December 30, 2002.

**Agencies/Persons Commenting:** DNR

**Response:** According to the AUAR Guidelines, an AUAR should include 1) a delineation of the water-related land use management districts, 2) a description of the land use restrictions applicable in water-related land use management districts (e.g. Critical Area, Shoreland, and Floodplain), 3) a discussion of project compatibility with the land use restrictions, and 4) a discussion of any variances or deviations from the restrictions.

As discussed in the Draft AUAR, the city and township’s existing Critical Area Plans and Ordinances do not address the urbanization of the AUAR area, and they will be required to be updated/amended to address the annexation and urbanization of the AUAR area. Future development of the AUAR area, under any scenario, will be consistent with the existing ordinances as augmented by any future Critical Area Plan and Ordinance amendments that are approved by the DNR. Through the PUD process, the city and township will review proposed development plan’s consistency with adopted plans and regulations for the Critical Area Corridor.

The Draft Comprehensive Plan and Critical Area Plan amendments, dated December 30, 2002, were sent to the DNR, Metropolitan Council, and Washington County for informal review. The city and township tabled consideration of the plan amendments, until the AUAR process was
completed. Plans for the AUAR area have changed significantly since the preparation of the draft plan documents in December 2002 to make the development scenarios more compatible with Critical Area standards and guidelines, to respond to comments, and to reflect information gathered through the environmental review process. The Draft AUAR document and now the Final AUAR document contain the most current plans for the Critical Area, including measures to mitigate potential environmental impacts. The AUAR process informs the comprehensive and critical area planning process; the proposed amendments to Comprehensive Plans, Critical Area Plans, and subsequent ordinances will be revised and formally submitted to the applicable agencies for review and approval.

A discussion of the potential impacts within the Critical Area corridor is discussed throughout the AUAR document and Figure B, Mitigation Site Plan Concept, illustrates how potential impacts are proposed to be mitigated within the Critical Area corridor. A considerable amount of analysis and discussion during the preparation of the Final AUAR has focused on mitigating impacts within the Critical Area corridor. In summary, mitigation will include avoiding the majority of slopes greater than 18%, avoiding most slopes greater than 12%, increasing the bluffline setback from 40 to 100 feet, minimizing the volume and rate of run-off, maintaining or improving water quality and moving the focus of the Village Center/Commercial area away from the bay.

As discussed in the Draft AUAR, Grey Cloud Island Township’s Critical Area Ordinance, which was approved by the DNR, contains the Critical Area land use regulations applicable to the majority of the AUAR area. A small portion of the AUAR boundary is within the City of St. Paul Park and its River Development Ordinance (approved by the EQB) contains the Critical Area land use restrictions applicable to the small area within the city. These ordinances contain the applicable Executive Order 79-19 standards and guidelines that apply to development within the Critical Area corridor including, but not limited to bluff protection, site alteration, vegetation management, site plan approval criteria, storm water management, capital improvements, water quality, utilities, and views. A description of the project’s compatibility with these plans is included under Item 14 in the Final AUAR.

3. **Comment Summary:** Appendix E, Critical Area and Shoreland District Regulations Summary, omits key ordinance requirements and reframes and reinterprets the organization and context. This Appendix should be titled “Excerpts.” The Appendix should be omitted, or heavily annotated that landowners must check their local zoning official for complete zoning ordinances that may apply to their property.

**Agencies/Persons Commenting:** DNR

**Response:** Appendix E has been revised to note that landowners must check their local zoning official for complete zoning ordinances that may apply to their property.

**Item 15. Water Surface Use**

1. **Comment Summary:** Motorboat traffic in the bay is problematic due to low water levels and potential re-suspension of sediments. Additional information is needed to evaluate the impacts from water surface use, including locations of docks, parking, fueling, maintenance, or other service facilities, types of boats, and size of boats allowed to use the boat launch during different water level periods. Porous pavements are recommended for the boat ramp and river access area.

**Agencies/Persons Commenting:** DNR, NPS, METC, GCI, SWWD, FMR, & FOB
Response: The proposed boat access, ramp, and parking areas have been eliminated from Scenarios Two and Three. Trails will be the only access provided to the bay and potential non-motorized recreational users will have to portage their non-motorized craft to the bay. The lack of a road to the bay and parking areas near the bay will limit the accessibility of the bay to motorized boats. Items 6 and 15 in the Final AUAR have been revised to eliminate the boat ramp and docks from Scenarios Two and Three within the bay area.

Item 16. Erosion & Sedimentation

1. **Comment Summary:** Avoid alteration of slopes greater than 18%. Provide specific erosion and sediment control plans for alteration of steep slopes. Slopes greater than 12% should be protected without exception

   **Agencies/Persons Commenting:** DNR, METC, GCI, SWWD, FMR & FOB

   **Response:** Plan revisions have resulted in removal of potential structures from slopes greater than 18%, and from most areas greater than 12%. There are locations where two roadways and the trail system will run at perpendicular or off-perpendicular angles through slopes greater than 12%. To minimize impacts associated with the construction of these facilities, great care has been taken in the specific locations to route these facilities on old farm roads and eroded drainage routes already needing stabilization.

   All but one road has been removed through the secondary bluff in the south central part of the site. This secondary bluff will remain unaltered, except for potentially 1/20 acre of slopes greater than 18% will be altered to construct this one road. An access through the secondary bluff is necessary for developing the southwestern portion of the AUAR area. The alignment of the road has been located in an area of previous disturbance. Alignment of the road at this location allows for access to the southwestern portion of the property and addresses existing erosion problems at this location. BMPs for erosion and sediment control will be a part of design and construction in these areas.

2. **Comment Summary:** Need to include more detailed information regarding blasting and excavation activities, including disposition, reuse, and location and length of storage.

   **Agencies/Persons Commenting:** DNR, NPS, Washington County, METC

   **Response:** As mentioned on page 42 of the Draft AUAR, chipping, grinding, or explosives would be used to excavate bedrock below 4 feet to accommodate utility construction, storm water treatment areas, and basements. The excavated materials would be stockpiled and reused on-site as road aggregate during each phase. It is anticipated that stockpiles created for each phase of development will be used in a timely manner in conjunction with best management practices. Commercial mining is not proposed under any development scenario.

3. **Comment Summary:** Need to consider the impacts of disrupting the bedrock on the seeps and springs, wildlife, & humans

   **Agencies/Persons Commenting:** SWWD, NPS, FMR, & FOB
Response: Excavation activities including temporary on-site noncommercial aggregate excavation are not anticipated to represent a significant impact to hydrogeologic features, humans, and wildlife. As discussed in Item 12, comment response 2, the site springs are likely fed by deep aquifers that would not be affected by shallow soil and bedrock manipulation. Blasting and excavation is not likely to negatively affect the existing bedrock fractures. Likewise, shallow soil and bedrock alterations are not expected to impact site seeps because the revised, infiltration-focused storm water management approach would not be compromised by these earthwork activities. The majority of the area in which excavation will occur is highly disturbed annual row cropped agricultural lands and fallow fields. These areas currently have limited seasonal wildlife habitat. Noise from occasional blasting and earthmoving equipment activities are anticipated to be short lived and episodic in nature. In addition, the existing wood mulching/grinding facility that generates noise near the on-site eagle’s nest will be phased out with development of the AUAR area. The city will develop blasting regulations and a blasting permitting process to mitigate potential impacts.

4. Comment Summary: Request that a preliminary grading plan to be included in the AUAR.

Agencies/Persons Commenting: DNR & Washington County

Response: The EQB does not require a grading plan for an AUAR; therefore, a detailed grading plan has not been prepared for the AUAR area. Private developers will submit detailed grading plans to the city and township prior to each development phase (see Figure 6-8 in the Final AUAR for phasing information). As stated in the Draft AUAR, development will be phased over the next 10-12 years.

All grading, drainage, and erosion control plans will undergo review and approval by the city, township, and review by the South Washington Watershed District prior to project construction.

5. Comment Summary: Need an extensive erosion and sediment control plan, with adequate and timely implementation and maintenance of erosion and sediment control measures. Erosion control practices should include tire washing facility, a grading activity phasing plan that minimizes soil exposure and maintains vegetative cover on any areas not identified for grading, specified mulching rates for construction activities, and natural stabilization techniques for ravines and highly erodible soils.

Agencies/Persons Commenting: NPS, SWWD, & WCD

Response: EAW Guidelines (February 2000) indicate that if the project proposer has not prepared specific plans for erosion and sedimentation control measures, the requirements of the local governmental unit should be described. Page 43 of the Draft AUAR describes the city’s requirements for erosion and sediment control measures.

Pre- and post development activities will minimize runoff and maintain or improve the quality of runoff, and provide erosion control through BMPs such as stabilizing exposed soils within 72 hours after completion of final grading, and other low-impact development techniques such as the use of drainage swales, vegetation buffers, tree planting and mulching, and outfall stabilization. Private developers will submit detailed erosion and sediment control plans prior to project construction that will comply with all state and local requirements.
Additionally, under Minnesota’s new General Stormwater Permit for Construction Activity (MNR100001) issued August 1, 2003, an NPDES/SDS permit must be obtained from the Minnesota Pollution Control Agency. Under the NPDES/SDS permit, BMPs will be used and potential adverse erosion and sedimentation impacts are anticipated to be limited to short-term effects. Inspection and maintenance of BMPs during construction will be consistent with NPDES/SDS General Permit requirements, including site inspection after rainfall events, perimeter sediment control maintenance, and sediment removal. Long-term maintenance of the permanent storm water management system will be addressed in the Homeowners Association Documents and/or the developer’s agreements with the city and township.

6. **Comment Summary:** Regular maintenance of the temporary sediment basin at the edge of the bay is critical. Consider relocation of this proposed basin due to the high potential of re-suspension of fine sediments in the bay.

**Agencies/Persons Commenting:** DNR, NPS, SWWD, WCD, & METC

**Response:** Page 43 of the Draft AUAR states that a temporary sediment basin would be constructed adjacent to the waters edge to control runoff from construction activities on the landward side of the bluff. Because a boat ramp is no longer being proposed, the temporary sediment basin adjacent to the waters edge will not be needed.

**Item 17. Water Quality - Surface Water Runoff**

1. **Comment Summary:** The AUAR needs to include a detailed analysis of storm water issues, including the quantity of site runoff before the project under peak flow and volume discharges; quality and quantity of site runoff after the project, modeling using scenarios to bracket a range of flows under maximum and minimum conditions; amount of increase in impervious surfaces after the project; and an analysis of any existing and post-development runoff that is received from areas outside the project area.

**Agencies/Persons Commenting:** DNR, Sierra Club, & FOB

**Response:** The revised storm water management system has been designed to infiltrate much of the rainfall from frequent storm events, and infiltrate between 70 and 80 percent of all rainfall. The storm water management system within the AUAR area will pretreat storm water from impervious surfaces, infiltrate much of the volume from frequent storm events through a series of infiltration/detention basins, and discharge to the river at rates less than the existing conditions. The storm water system will be designed to provide storage volume equal to runoff that would be generated from a 2.4-inch rainfall event.

Eleven infiltration/detention basins will be constructed for drainage areas B, C, D, E, F, G, H, J, K, O, and P, totaling 32.16 acre-feet of infiltration storage volume within the basins and infiltration swales leading to the basins.

The following table is a summary of the existing and proposed runoff rate and volume from basin modeling data.
Existing and Proposed Runoff Rate and Volume from Basin Modeling Data

<table>
<thead>
<tr>
<th>Storm Event</th>
<th>Existing Runoff Rate (cfs)</th>
<th>Proposed Runoff Rate (cfs)</th>
<th>Existing Runoff Volume (acre-feet)</th>
<th>Proposed Runoff Volume (acre-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Year</td>
<td>8.7</td>
<td>3.2</td>
<td>1.7</td>
<td>0.7&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>2-Year</td>
<td>22.5</td>
<td>10.5</td>
<td>3.0</td>
<td>1.1</td>
</tr>
<tr>
<td>10-Year</td>
<td>100.5</td>
<td>73.2</td>
<td>9.6</td>
<td>23.2</td>
</tr>
<tr>
<td>100-Year</td>
<td>251.8</td>
<td>203.4</td>
<td>37.5</td>
<td>76.3</td>
</tr>
</tbody>
</table>

<sup>1</sup> The 0.7 acre-feet of runoff volume from the 1-year storm event will originate from vegetated areas that do not drain through the series of ponds and infiltration basins.

Development of the AUAR area will include a system of infiltration/detention basins, vegetated swales, prairies, and treatment wetlands. The incorporation of an alternative storm water management system and low-impact development techniques will minimize potential impacts from development of the AUAR area. Assuming typical rainfall events, it is anticipated that the infiltration system would infiltrate between 70 and 80 percent of all rainfall or 848.4 acre-feet (see Table 17-2), and increase groundwater recharge.

The following table shows the mitigation benefits derived from the proposed infiltration basins. These improvements will be made by private developers and enforced through neighborhood covenants.

Mitigation Benefits Derived from the Proposed Infiltration Basins

<table>
<thead>
<tr>
<th>Item</th>
<th>Rainfall Amount (inches)</th>
<th>Drainage Area (acres)</th>
<th>Required Pond Volume (acre-feet)</th>
<th>Water Quality Impact</th>
<th>Annual Reduction in Discharge Volume Downstream (acre-feet)</th>
<th>% Runoff Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infiltration Basins</td>
<td>2.4</td>
<td>433.4&lt;sup&gt;1&lt;/sup&gt;</td>
<td>26.6</td>
<td>Full Infiltration</td>
<td>848.4</td>
<td>76.7&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>1</sup> Total site less ponding areas at the normal water level: 462.0 acres – 18.6 acres = 443.4 acres.

<sup>2</sup> Because the infiltration basins will be sized to accommodate the total runoff of a 2.4-inch rainfall, it is anticipated that only 23.3 percent of the rainfall events will exceed the capacity of the infiltration system on an annual basis, based on the previous 5 years worth of rainfall data.

The preceding conclusions are based on the following development and modeling data concerning discharge rates and volumes. Scenario Two Development Data:

Drainage Area = 462.0 Acres
Existing Runoff Curve Number (CN) = 68
Proposed Runoff Curve Number (CN) = 78
  10 acres @ 92 (Commercial)
  264 acres @ 75 (Single Family)
  152 acres @ 85 (Multi-Family)
  36 acres @ 61 (open space: good conditions)
Time of Concentration = 10-125 minutes (existing conditions)
Time of Concentration = 8-41 minutes (proposed conditions)
Infiltration Volume Proposed = 32.16 acre feet (below outlet elevation of on-site infiltration basins and swales)

Based on these criteria, the total runoff during a 1-year storm event (2.4 inch rainfall) for 443.4 acres of development (all of the AUAR area less the pond areas) equals 26.6 acre-feet. This runoff will be captured by the series of the infiltration basins and held until it infiltrates to recharge groundwater.
Rainfall data for the past 5 years (data excludes events from November through March due to frozen conditions where infiltration would not be effective) were reviewed to determine the average yearly rainfall, and storm event frequency and amount over the AUAR area (Station No. 217844 - South St. Paul, High Density Network-State Climatology Office, DNR Waters). The data revealed that of the 270 total rain events, totaling 143.36 inches; only 10 events exceeded a 2.4-inch rainfall. The highest recorded rainfall event was 5.67 inches in June 1998. The average yearly rainfall is about 28.7 inches. The total of all rainfall events less than 2.4 inches was 109.9 inches, or 76.7% of the 143.36 inches of rainfall that falls on the site during a typical year.

The Soil Survey indicates that permeability in the area of infiltration is 6.0-20.0 inches/hour for the majority of the site. For the purposes of this analysis, 0.60-1.5 inches/hour was used as a conservative estimate of existing infiltration. The actual amount of infiltration in the proposed system will depend on the soil types in the proposed infiltration basins.

Based on the intended land use, approximately 90 percent of the AUAR area’s runoff will be captured and routed into an infiltration basin. The total annual volume of rainfall onto the AUAR area, and draining through the infiltration/detention basins, would be 1,106.17 acre-feet (513.9 acres x 28.7 inches/12 inches/Ft x 90%). Assuming typical rainfall events, the storm water management system would infiltrate between 70 and 80 percent of all rainfall events.

2. **Comment Summary:** A more comprehensive storm water management system needs to be included in the AUAR. The storm water management system must address how runoff will be minimized (volume control), how the storm water management plan will improve or maintain the water quality to predevelopment conditions, outfall and pond locations, impacts of outfall construction on bluffs, how to reduce or maintain downstream pollutant loading. Additional storm water management techniques beyond NURP standards are needed to meet the mitigation strategy contain under AUAR Item 17 that states, “The quality of stormwater runoff and water infiltration to the water table or aquifer shall be as high after development as it was before the development of the site.” As much infiltration as possible should be achieved to protect and maintain the surface water resources (Mississippi River) and the groundwater resources of the area.

**Agencies/Persons Commenting:** DNR, METC, NPS, SWWD, WCD, FOB, FMR, Sierra Club, & CG

**Response:** The goals of storm water management system are to design the system so that post-development surface water runoff rates are equal to or lower than the existing surface runoff rates and volumes for storm events of 2-year frequency or less, and post-development water quality is equal to or better than the pre-development water quality. This will be achieved by:

- Emphasizing infiltration as a management strategy, and setting a goal of infiltration between 70 to 80% of the runoff from all rainfall;
- Reducing impervious surface areas where possible; and
- Directing storm water into vegetated landscaped areas including swales, native plantings, and other infiltration zones.

The intent of the revised storm water management plan presented in this Final AUAR is to infiltrate between 70 and 80 percent of all rainfall, thereby limiting the runoff to the river to rates

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1 Total area routed from the site: 462 acres Rivers Edge + 51.9 acres off-site draining through the AUAR area.
less than the existing conditions. Storm water management areas included in the revised system are wet and dry infiltration basins, infiltration wetlands, infiltration swales, and detention basins.

Storm water outfalls will no longer be located at the normal water level of the Mississippi River as mentioned in the Draft AUAR. The outfalls will be located above the normal water level and directed into a constructed forebay adjacent to the bay, and into a 2-cell treatment area as part of the manure lagoon restoration to capture and treat runoff from the proposed building north of the bay and surrounding undisturbed land. The final storm water infrastructure plans will explore the possibility of using the existing stockyard discharge pipe corridor to discharge runoff (about 75 percent of the AUAR drainage area) to the 2-cell treatment area. The pipe corridor represents an existing area of disturbance through the bluffs. Directing runoff into the 2-cell treatment area and forebay will decrease the velocity of the discharge into the bay and river, thereby reducing impacts to the receiving water bodies, and providing for secondary removal of suspended sediment and nutrients prior to discharge to the river.

Approximately 14 percent of the site’s ponded discharge will continue to be routed south of the site, into vegetated swales through the township, and into the river as it currently drains today.

The revised storm water management system greatly reduces the previously proposed ponded discharge into the bay to less than 9 percent of the total site drainage. Specifically, the only discharge into the bay will be the surrounding slopes and bluff area (Drainage Area L-2 on Figure 17-2), and the discharge from infiltration/detention Basin H.

The storm water outfall proposed south of the bay will be directed into a forebay prior to discharging to the bay. The runoff entering the forebay will be pretreated as part of the upstream infiltration/ponding system. Thus, storm water runoff will have secondary treatment prior to discharging into the bay, and the treatment system will significantly reduce the discharge flow velocity. The storm water management plan will restrict peak discharge rates to the bay’s pre-development conditions, and restrict the volume of discharge to the bay to pre-development conditions for 1- and 2-year frequency storms events. The following table provides information on pre-and post-development discharge rates into the bay.

<table>
<thead>
<tr>
<th>Storm Event</th>
<th>Existing Runoff Rate (cfs)</th>
<th>Proposed Runoff Rate (cfs)</th>
<th>Existing Runoff Volume (acre-feet)</th>
<th>Proposed Runoff Volume (acre-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Year</td>
<td>1.5</td>
<td>0.9</td>
<td>0.4</td>
<td>0.2</td>
</tr>
<tr>
<td>2-Year</td>
<td>4.5</td>
<td>2.8</td>
<td>0.7</td>
<td>0.3</td>
</tr>
<tr>
<td>10-Year</td>
<td>24.1</td>
<td>19.4</td>
<td>2.4</td>
<td>3.2</td>
</tr>
<tr>
<td>100-Year</td>
<td>60.5</td>
<td>51.0</td>
<td>5.3</td>
<td>8.1</td>
</tr>
</tbody>
</table>

The city and township will consider the use of additional storm water management techniques when specific development proposals are submitted for review in the future. The extent of the techniques would depend on soil suitability and compatibility with the final site design. The following is a list of additional storm water management techniques for the city and township to consider:

a. Placement of the infiltration systems near bedrock fracture locations in order to facilitate the prompt infiltration of clean water from the landscape, and to promote groundwater recharge.
b. Use a combination of side and rear lot drainage easements that are no-mow zones planted to formal or informal native landscaping. The rear lot areas would be designed for infiltration, and side lot areas would be designed for effective drainage and conveyance of stormwater from around foundations to ensure no standing water remains adjacent to the houses.

c. Create infiltration opportunities in public right-of-ways (ROW), and establish depressed drainage easements and landscaping on private lands, which would be maintained by Homeowner Association documents. Route driveway, sidewalk and gutter downspout waters into landscape features in yards to decentralize runoff and create off-line areas for storage and infiltration. This would be accomplished without compromising safe and effective drainage and dewatering needs around foundations and road subgrades.

d. Intercept road runoff into parkway and ROW swales or landscape features to encourage water cleansing and some storage capacity for rare events.

e. Placement of swales in depressional areas along buffer areas, parking lot islands, road rights-of-way, and other suitable locations that support infiltration.

3. **Comment Summary:** The storm water system is interconnected and moves through all areas of the site. Despite the phasing of development, does the construction of the storm water system require disturbance of large areas of the site when Phase I begins?

**Agencies/Persons Commenting:** WCD

**Response:** As mentioned in the Draft AUAR on page 45, ponding areas and storm sewer pipes will be installed with each phase of development. Construction of the storm water management system may extend into the other phased areas in order to effectively manage runoff prior to full development. The storm water management system has been revised to include a combination of infiltration basins and detention ponds.

The amount of exposed soil will be limited to the area needed for the creation of the storm water system at the time of construction, and will not require disturbance of areas beyond what is necessary. The exposed surface area will be seeded or stabilized within 72 hours after grading is completed within each phase.

4. **Comment Summary:** Storm water ponds A and B direct water across private property. How will this be handled?

**Agencies/Persons Commenting:** GCI

**Response:** The storm water management plan will limit the site’s drainage area discharged to the south, across private property, to 14 percent of the total site area. The city will construct the trunk storm water system through dedicated right-of-ways or easements through private property as part of the city’s trunk storm water system expansion. The city will follow set policies and procedures for obtaining easements on private lands.

5. **Comment Summary:** The SWWD has expanded its boundary to include the East Mississippi Watershed Management Organization. The Minnesota Board of Water and Soil Resources took action to approve the SWWD Boundary Change petition on May 28, 2003.
Agencies/Persons Commenting: SWWD

Response: Item 17 is revised to reflect the SWWD Boundary Change petition.

Item 18. Water Quality - Wastewater

1. Comment Summary: Need to discuss the relationship of the sewer system extension to the RGU’s sewer system plan and Metropolitan Council’ regional sewer system plans.

Agencies/Persons Commenting: DNR

Response: This requested information was included under Draft AUAR Item 27, Compatibility with Plans, and is repeated under Item 18 in the Final AUAR. Item 27 in the Draft AUAR noted that the Metropolitan Council’s 1996 regional plan identifies the AUAR area as “2020 MUSA,” the township’s plan identifies the AUAR area as “Possible Urban Density Residential if Future Orderly Annexation Occurs,” and the city is identified as “Urban Area.” Item 27 also discussed the Rivers Edge Comprehensive Plan amendment that will include a sanitary sewer element for the project site (see Figure 18-1).

The Metropolitan Council is in the process of revising its regional policy and system plans. The Metropolitan Council’s 2030 Development Framework (adopted January 14, 2004) identifies the township as a “Developing” community with portions of the community remaining “Diversified Rural” due to the existing rural residential development pattern. The Metropolitan Council’s comments on the Draft AUAR indicated that there is adequate capacity in the metropolitan wastewater treatment system to accommodate the growth of the AUAR area under Scenarios Two and Three.

Item 19. Geologic Hazards & Soil Conditions

1. Comment Summary: The AUAR inadequately addresses the potential for groundwater contamination given the fractured limestone and shallow depth to bedrock, including impacts from blasting and excavation of bedrock. A major finding of a Washington County study indicates that faulting is located approximately 4 to 6 miles east of the AUAR area. It is possible that fault zones also exist in the AUAR area.

Agencies/Persons Commenting: DNR, NPS, FOB, & Daniel Pena

Response: GME consultants located the lineament (rock fracture) traces by reviewing stereoscopic pairs of aerial photos. The detected lineaments are shown on Figure 19-1. The lineaments are orthogonal; that is, they intersect at approximately 90 degrees, aligned in the northeast to southwest direction and the northwest to southeast direction. The blasting and excavation of bedrock is a routine construction activity that occurs in areas with shallow depth to bedrock. The act of ripping bedrock does not impact the potential for groundwater contamination. The site is not proposed for land uses that may have a high potential for contaminating groundwater, such as heavy industrial uses.

Also see Item 19, comment response 2, regarding groundwater contamination.
2. **Comment Summary:** The majority of the AUAR area has a “very high sensitivity” of pollution to groundwater contamination in the Prairie du Chien – Jordan aquifer according to the Washington County Geologic Atlas. The remainder of the AUAR area is classified as “high sensitivity.” Thoughtful, environmentally friendly development should be integrated into the development plans.

**Agencies/Persons Commenting:** WCDPH

**Response:** According to the Geologic Atlas for Washington County, Plate 6 (Minnesota Geological Survey, 1990), susceptibility of the water table system is rated on the basis of the depth to the local water table and the vertical conductivity of geologic materials. The sensitivity of an aquifer to pollution is based on the vertical distance from the land surface to the aquifer and the material composition of the area in which the pollutant must travel.

Figure 19-2 indicates that the sensitivity of the water table to contamination beneath the proposed site is Very High and High. According to the digital Geologic Atlas of Washington County, Minnesota (Minnesota Geological Survey, 1990), about 68 percent of the Washington County land base is rated either Very High or High for sensitivity to groundwater contamination. Although the project site is classified as Very High and High, the classifications are not absolute. According to the Geologic Atlas for Washington County, a High susceptibility rating does not indicate that the water quality has been or will become degraded, just as a low susceptibility does not guarantee that groundwater will remain pristine.

Scenarios Two and Three have been revised to include more environmentally friendly concepts. The storm water management system has been revised to include infiltration basins and buffers have been increased along the river corridor to 100 feet landward of the bluffline. These design changes reduce the amount of impervious surfaces and promote groundwater recharge by infiltrating runoff. Additionally, the Mitigation Plan requires restricting the use of phosphate fertilizers, which will reduce the nutrient loadings of runoff from turf areas.

3. **Comment Summary.** The Washington County Department of Public Health and Environment has over the last several years, removed more than 20,000 used tires from the salvage yard. The tire removal was accompanied by a rigorous reduction of other mosquito habitat. These efforts have reduced *Ochlerotatus triseriatus* mosquito levels; however, levels are still elevated and pose a risk to workers and future residents of the AUAR area. The Department recommends that if development occurs, the area directly adjacent to the salvage yard be developed last to avoid exposure to workers and future residents to the potential disease carrying mosquitoes. Further, the Department recommends that the Company will work closely with the Metropolitan Mosquito Control District to coordinate appropriate spraying and other efforts to adequately reduce mosquito exposure.

**Agencies/Persons Commenting:** WCDPH

**Response:** The additional information regarding the salvage yards has been added to Item 19 in the Final AUAR. The development staging information described under Item 6 and shown on Figure 6-8 indicates that the development of lands adjacent to the salvage yard is anticipated in latter stages to afford additional time for the potential clean up and redevelopment of the mosquito breeding area by adjacent property owners. The Mitigation Plan includes a requirement for the city, township, and private developers to work with the Metropolitan Mosquito Control
District to coordinate appropriate spraying or other control mechanisms to adequately reduce mosquito exposure to workers and future residents.

**Item 20. Solid Wastes; Hazardous Wastes; Storage Tanks**

1. **Comment Summary:** A review of Washington County’s open dumps inventory found no dumps on the AUAR property. If such areas are encountered during development, the solid waste must be addressed within Mn Rules 7035 and the Washington County Solid Waste Ordinance #114. If hazardous wastes are encountered during development they must be addressed within Mn Rules 7045 and Washington County Ordinance #119. If Household hazardous Waste (HHW) from existing structures is encountered during development, it could be delivered to the Washington County HHW facility with approval from Washington County Department of Public Health and Environment.

**Agencies/Persons Commenting:** WCDPH

**Response:** If solid or hazardous wastes are encountered during development of the AUAR area they will be disposed of in accordance with Mn Rules 7035 and 7045 and Washington County Ordinances #114 and #119.

**Item 21. Traffic**

1. **Comment Summary:** This project may accelerate the need for traffic signals at both County Road 22 and Broadway and County Road 22 and the new St. Paul Park Road.

**Agencies/Persons Commenting:** MnDOT

**Response:** The traffic generated by the proposed development of the AUAR area is expected to cause signal warrants to be met in the future at approximately two to four off-site intersections. The City of St. Paul Park will monitor intersections to determine when signal warrants are met and will proceed with installation of traffic signals at the appropriate times.

2. **Comment Summary:** The AUAR does not specifically explain how the needed roadway mitigations and improvements will be funded.

**Agencies/Persons Commenting:** METC, Washington County, and GCI

**Response:** The City of St. Paul Park and Grey Cloud Island Township will each enter into a developer’s agreement with the project applicant(s). This agreement will stipulate how all required mitigations and other infrastructure improvements (transportation and other elements) would be funded. The developer’s agreement is not included as part of the AUAR process. The developer’s agreement will be executed as an implementation control document at the conclusion of the overall city/township approval process subsequent to adoption of the Final AUAR.

3. **Comment Summary:** The extension of 95th Street into Cottage Grove and the construction of the 95th Street Bridge will need to meet the requirements of Cottage Grove.

**Agencies/Persons Commenting:** Washington County, GCI, FOB, Alice Robinson & Jerry Taube
Response: Completion of the 95th Street extension and the bridge construction will require coordination with Cottage Grove. City staff is proceeding with those coordination efforts. As the AUAR area develops in a phased manner, a point will be reached when the 95th Street extension and bridge are required as part of the overall network serving area traffic. The city and township’s approval process will limit the amount of development allowed prior to completion of 95th Street.

4. Comment Summary: Lane configurations, parking accommodation, delay to cross-streets and right-of-way impacts need to be addressed for Broadway. Public input should be solicited.

Agencies/Persons Commenting: Washington County

Response: The construction items noted in this comment will be further addressed in the detailed design phase of the project subsequent to adoption of the Final AUAR, which is overseen by the city. The city and township have already started an extensive public input process with workshops, newsletters and open houses for the project. The public involvement process will continue as specific development plans are submitted to the city and township for review and approval.

5. Comment Summary: Lane configurations, parking accommodation, delay to cross-streets and right of way impacts need to be addressed for Third Street. Public input should be solicited. Also, specifically how will parking be addressed for Oltman Junior High?

Agencies/Persons Commenting: Washington County, GCI, FOB, Ron Glubka & Daniel Pena

Response: The construction items noted in this comment will be further addressed in the detailed design phase of the project subsequent to adoption of the Final AUAR. The city and township have already started an extensive public input process with workshops, newsletters and open houses for the project. The public involvement process will continue through the upcoming stages of planning for development of the AUAR area. As traffic volumes increase along Third Street it will become even more important to develop, and enforce the use of, off-street parking facilities for Oltman Junior High. The city will continue to work with the school district to establish suitable off-street parking areas.

6. Comment Summary: The development is not viable without the 95th Street connection; Pullman Avenue is not a suitable alternative.

Agencies/Persons Commenting: Washington County

Response: The studies conducted for the AUAR concluded the same fact for full development. Full development is predicated on the development of the 95th Street extension (see response to Item 21, comment response 3).

7. Comment Summary: The character of Third Street and Broadway will change.

Agencies/Persons Commenting: Washington County

Response: The character of these roadways will change as traffic volumes gradually increase over the ten to twelve year period of project build-out. The city’s public involvement process will keep nearby residents informed of changes to the roadways and in the concept and detailed
design phases residents will have an opportunity to help shape the design solutions for accommodating the increased traffic volumes.

8. **Comment Summary:** The traffic impacts to Pullman Avenue should be analyzed.

**Agencies/Persons Commenting:** Washington County, FOB, Ron Glubka, Daniel Pena, Jerry Taube & Ron Waldo

**Response:** The projected full development traffic volumes on Pullman Avenue are 7,450 west of Summit Avenue and 6,600 east of Summit Avenue. These volume levels do not warrant the expansion of the roadway beyond the current two lanes. In the detailed design phases subsequent to adoption of the AUAR, and on an on-going basis as the project proceeds, the city will work with residents of Pullman Avenue to determine if additional traffic control devices or traffic management strategies are needed.

9. **Comment Summary:** At the junction of the proposed upgraded three-lane section of Third Street with the four-lane parkway through the site a bottleneck could be created.

**Agencies/Persons Commenting:** Washington County

**Response:** The design parameters for the parkway/Third Street junction will be addressed in the detailed design phase. The parkway concept was included in the AUAR planning stage for both its traffic carrying capacity and its aesthetic appeal. If a suitable junction design cannot be developed, the parkway concept will be modified at the connection with Third Street.

10. **Comment Summary:** There is a potential that County Road 75 would be turned back to the local jurisdictions. If the roadway is not turned back, County standards will need to be followed for roadway design, right of way and intersection spacing.

**Agencies/Persons Commenting:** Washington County

**Response:** The specific design parameters of the roadway will be addressed in the detailed final design process. The site plan illustrations included in the AUAR are not meant to reflect final design level of detail.

11. **Comment Summary:** It is recommended that upgrades to Third Street be made prior to completion of Phase 4 and that the extension of 95th Street be completed prior to Phase 4. A detailed schedule for road improvements should be shown in the AUAR.

**Agencies/Persons Commenting:** Washington County, FOB, & Jerry Taube

**Response:** As indicated on page 59 of the Draft AUAR, it is not expected to be necessary to upgrade Third Street until before construction of Phase 6 and it is not expected to be necessary to construct the 95th Street connection until before construction of Phase 9. Timing of infrastructure improvements will be determined by the city. The requirements for phasing of construction will be stipulated in the developer’s agreement.
12. **Comment Summary:** Trip Distributions to the local Cottage Grove network should be shown.

**Agencies/Persons Commenting:** CG

**Response:** Figure 21-2 of the Final AUAR has been revised to show more data points, including additional locations in the City of Cottage Grove.

13. **Comment Summary:** Traffic estimated to use the 95th Street extension will also be added to the current Hadley traffic rather than using Jamaica as intimated by the AUAR.

**Agencies/Persons Commenting:** CG

**Response:** The traffic forecasts for Scenario Two estimate that at full build-out approximately 5,300 daily trips would be made between the AUAR area and the new 95th Street extension. These are not trips oriented to the north on T.H. 61 as intimated by the comment. The trips that will use the 95th Street connection are primarily trips oriented to the south on T.H. 61 or to the commercial node at the T.H. 61/Jamaica Avenue junction. Fewer than 100 vehicles per day from AUAR area are expected to use Hadley Avenue.

14. **Comment Summary:** Projected future traffic volumes should be shown on a number of local streets.

**Agencies/Persons Commenting:** GCI, FOB, Ron Glubka & Jerry Taube

**Response:** Figure 21-2 of the Final AUAR shows projected volumes for roadways that will carry a significant amount of traffic. Data for roadways that carry minor loadings from the AUAR area are not shown.

15. **Comment Summary:** The proposed three-lane road for Third Street is not compatible with the residences along the road. A three-lane roadway with numerous driveways will create unacceptable head-on crash rates.

**Agencies/Persons Commenting:** GCI, FOB & Ron Glubka

**Response:** Research sponsored by the Minnesota Department of Transportation has shown that a higher density of residential driveways along a three-lane roadway does not correlate to a higher crash rate. The projected volumes for Third Street are less than the thresholds for Level of Service "C" shown in the Washington County Comprehensive Transportation Plan, Table T-3. The proposed three-lane road is expected to effectively and safely handle the projected volumes. The Mitigation Plan requires that the capacity of Third Street be increased through alternative lane configurations, rather than limiting options to the three lane configuration supported by the traffic analysis.

16. **Comment Summary:** An analysis needs to be completed on the train traffic times and crossing closure durations.

**Agencies/Persons Commenting:** GCI, FOB, Ron Glubka & Daniel Pena
Response: The T.H. 61/St. Paul Park Interchange upgrade project will also include the relocation of St. Paul Park Road with a new bridge connection over the railroad tracks. This will serve as a reliever to the at grade railroad crossing on Broadway. In addition, the 95th Street extension will include a bridge over the railroad tracks, creating another opportunity for traffic, including emergency vehicles, to traverse east-west without impedance by trains. The projected area traffic increases are not expected to cause significant additional congestion impacts from the railroad.

17. Comment Summary: The study does not include information with regard to the 103rd Street underpass.

Agencies/Persons Commenting: GCI, FOB, Ron Glubka & Daniel Pena

Response: An insignificant amount of traffic generated from the development of the AUAR area will utilize this crossing. Issues relative to the adequacy of that underpass will need to be addressed through other planning and study efforts led by the City of Cottage Grove.

18. Comment Summary: Projected volumes on Third Street produce Level of Service D (close to E); all roads must be designed to a minimum level of service C.

Agencies/Persons Commenting: FOB & Ron Glubka

Response: The projected volume on Third Street, with a three-lane road, will produce a level of service C (most metro area roadway facilities are actually designed for level D).

Item 25. Sensitive Resources

1. Comment Summary: The discussion of two properties included in the SHPO history/architecture inventory addresses their potential archaeological significance, but does not address any issues related to their potential historical significance.

Agencies/Persons Commenting: SHPO

Response: A Phase II Survey of the potential historical significance of the farmstead (SHPO Inventory Number WA-GCI-001) and Railroad Line (SHPO Inventory Number WA-CGC-212) will be required if there is federal involvement (i.e. federal permits, funding, etc.). The mitigation plan includes an item related to this requirement.

2. Comment Summary: What plans are in place to address any archaeological, historical, or architectural resources that might be discovered during the construction of the project?

Agencies/Persons Commenting: NPS

Response: If any archaeological, historical, or architectural resources are found during construction, the city, township, or the developer will contact SHPO to report the resource for inclusion in its database. The city, township, and/or the developer will work with SHPO to determine the appropriate strategies to mitigate any potential impacts. Also, see Item 25, comment response 1.
3. **Comment Summary**: Add Riverside Park as a heading under Item 25c and discuss if the project will affect the use of and the habitat restoration of Riverside Park. Mitigation could include adding the wooded corner of the AUAR property to Riverside Park

**Agencies/Persons Commenting**: NPS & METC

**Response**: Riverside Park has been added as a heading under Item 25c in the Final AUAR. The development of the AUAR area may provide park and open space connections to Riverside Park including portions of the wooded corner adjacent to Riverside Park. The exact location and acreage of parks and open space will be determined through the PUD process and will meet all local ordinance requirements. The park connections will increase community use of Riverside Park. The proposed restoration plans for the AUAR area will involve similar habitat restoration activities along the river corridor, which will minimize the potential impact of existing invasive and non-native species invading the existing habitat restoration areas within Riverside Park. In addition, residents within the AUAR area will be provided information and/or signage regarding habitat restoration activities along the river corridor in an effort to educate residents and mitigate any potential impacts to restoration activities.

4. **Comment Summary**: The AUAR needs to note the two NPS owned islands within the vicinity of the AUAR boundary.

**Agencies/Persons Commenting**: NPS

**Response**: Item 25 has been revised to note that the NPS owns two islands within the vicinity of the AUAR boundary.

5. **Comment Summary**: Trail alignments within the lowland riparian areas, floodplain, and the secondary buffer zone for Bald Eagle’s nest are inappropriate. A trail along the upland area, well set back from the bluff with an occasional “spur” to a vista, would be more enjoyable, protective of natural resources (away from the eagles and the more sensitive habitats), and less costly to maintain. The AUAR needs to include alternatives considered for trails and the pedestrian boardwalk. Information regarding the location, construction details, and maintenance of trails is needed to adequately assess impacts on the bay environment.

**Agencies/Persons Commenting**: DNR & NPS

**Response**: The location of proposed trails has been revised and Figure 25-1 shows the proposed alignments. The trail that was previously shown along the bluff slope in the northern portion of the site has been removed in order to reduce visitor intrusion, noise, non-native species entry potential, and erosion that may have occurred with the trail in the steep bluff face and toe of the bluff. Specifically, the proposed trail within 330 feet of the Bald Eagle’s nest has been eliminated and any trails in the vicinity of the nest will be on top of the bluff rather than below the bluff, which will help mitigate potential human intrusions in the nest area during the breeding season and year round. The majority of the trail system is proposed within the bluffline setback area with occasional overlooks to the river.

Since the boat ramp and access have been eliminated, the trails within the bay will provide non-motorized access to the bay (for both pedestrians and non-motorized recreational boaters) and hiking opportunities. This bayside trail is proposed to be located within a small portion of the
floodplain and is anticipated to be located near the spring and seepage area. The bayside trails will be designed sensitively.

The final design of the trail system will occur through the local government PUD process. Development of all trails will need to follow the development parameters contained in the Mitigation Plan. These parameters include: minimize alteration of slopes greater than 12%, minimize trail construction within the floodplain, prohibit trails within 330 feet of the Bald Eagle’s nest, align trails on previously disturbed sites when practical, use stairs and landings for access up and down bluffs, and exploring the use an elevated boardwalk near the bay seeps and springs to minimize soil compaction and disturbance to vegetation.

6. **Comment Summary:** The AUAR needs to include a comprehensive view analysis to adequately assess the potential visual impacts of structures greater than 35 feet. The analysis should include an array of views from potential vantage points of the bay, backwaters, main channel, NPS island, and other public lands under: (1) leaf-on and leaf-off conditions of existing vegetation and (2) leaf-on and leaf-off conditions of proposed retained vegetation following site preparation for various types of structures at varying heights, potential areas of clustered or massed structures, and the boat ramp and docks.

**Agencies/Persons Commenting:** DNR, NPS, & METC

**Response:** A more comprehensive view analysis was conducted to assess potential visual impacts of structures 55 feet in height within the Critical Area. This is the “worst case scenario” height identified for the purposes of the AUAR process (see Item 7, Project Magnitude Data). The city and township worked with the Department of Natural Resources, National Park Service, and Metropolitan Council to identify viewshed vantage points and methodologies. Seven vantage points were selected and the visual impacts were assessed under leaf-on and leaf-off conditions. The results of the view analysis are included in Appendix I of the Final AUAR and summarized under Item 25. In order to mitigate potential visual impacts of structures proposed to exceed 35 feet in height within the Critical Area, the city will require a site-specific view analysis during the site planning process. This will allow the city to assess the visual impacts of the specific buildings in the future, rather than the “worst case scenario” height impacts assessed for the purposes of the AUAR. The Mitigation Plan outlines conditions that must be met for buildings to exceed 35 feet in height within the Critical Area. These conditions are partially derived from Executive Order 79-19, State Shoreland Rules, and the Mississippi National River and Recreation Area Comprehensive Management Plan (MNRRA-CMP). The township will continue to limit height to 35 feet within the Critical Area.

7. **Comment Summary:** One connection to the SWWD greenway corridor plan terminates at the eastern edge of the AUAR area. Consideration should be given to an east/west connection through the proposed park and open space concept plan, giving access to larger network of future greenways, corridors, trails, and open space.

**Agencies/Persons Commenting:** SWWD

**Response:** This information will be considered in developing the Parks and Open Space plans for the AUAR area.
Item 27. Compatibility with Plans

1. **Comment Summary:** The height limitation of the city’s Critical Area plan is incorrect as stated in the AUAR. The DNR did not approve the city’s Critical Area Plan policy of allowing buildings setback 100’ from the bluffline to be limited to 45 feet.

   **Agencies/Persons Commenting:** DNR

   **Response:** The language regarding height limitations under item 27 has been revised.

2. **Comment Summary:** The statement on page 68 of the AUAR that “the proposed project may deviate from the city and township’s adopted Mississippi National River and Recreation Area Comprehensive Management Plan (MNRRA-CMP) policies regarding vegetation management” does not identify other inconsistencies with regard to minimal disturbance in the 100-foot bluffline setback, such as roads, parking lots, and buildings. In addition to MNRRA-CMP policies noted on page 68, the proposed development appears to be inconsistent with a number of additional CMP policies.

   **Agencies/Persons Commenting:** NPS

   **Response:** Scenarios Two and Three have been revised to implement a 100-foot bluffline setback, which is consistent with the township’s adopted MNRRA policy regarding vegetation management and minimal disturbance in an area 100 feet landward of the bluffline. It is recognized that the MNRRA-CMP contains additional policies and guidelines that the city and township have not adopted in their plans, and therefore, are not required to follow. Future development plans for the AUAR area will consider and may follow some of the voluntary guidelines contained in the MNRRA-CMP. Any future development will comply with the city and township’s Critical Area/MNRRA plans that have been approved by the DNR and any future amendments that are approved by the DNR.

3. **Comment Summary:** Not following existing Critical Area Plans and Ordinances is unacceptable. Amending Critical Area Plans and Ordinances is not an acceptable mitigation strategy.

   **Agencies/Persons Commenting:** NPS, FMR, FOB, MCEA, Sierra Club, & Daniel Pena

   **Response:** The urbanization of the AUAR area under Scenarios Two and Three cannot commence without plans and regulations that guide the permitted land use, zoning, utility extensions, and other development activities. The AUAR area is currently guided for a density of one unit per ten acres, which does to provide for the cost effective extension of urban utilities. As lands are annexed from a township to a city or when a township decides to support urban development, the appropriate local unit of government must develop plans and regulations to guide decision-making (see Minnesota Statutes Chapters 414 and 462). The DNR, the Metropolitan Council, Washington County and National Park Service-MNRRA will be involved by providing technical assistance, reviewing, and/or approving the plans and regulations listed under Item 27 in the Final AUAR.
Item 28. Impact on Physical Infrastructure & Public Services

1. **Comment Summary:** The AUAR inadequately addresses impacts to the local school system. The AUAR does not identify land for a new elementary school or outline provisions that would allow the city or school district to purchase land for a new elementary school.

   **Agencies/Persons Commenting:** GCI & FOB

   **Response:** As noted in the Draft AUAR, the school district anticipates an additional 0.5 pupils for every new unit added in the district. The school district is aware of the proposed development plans for the AUAR area and will continue to monitor student growth in the area and plan for new facilities or expansion to existing facilities as the demand warrants. The future zoning of the AUAR area will permit the use of public facilities, such as schools, within the AUAR area to ensure that a school could be located there in the future.

2. **Comment Summary:** The AUAR inadequately discusses the need for expanded public facilities, including space for new police officers and provisions to purchase land for a new fire hall.

   **Agencies/Persons Commenting:** GCI & FOB

   **Response:** The police department indicated that their expansion needs could be accommodated through an addition to city hall. A stand-alone police station or a combined police/fire station within the AUAR boundary is another option to provide the needed space. Item 28 has been revised to include this information. The future zoning of the AUAR area will permit the use of public facilities, such as fire and police stations, within the AUAR area to ensure that a police and/or fire station could be located there in the future. The city will plan for these new or expanded facilities through their Capital Improvement Programming (CIP) process. As required by the Metropolitan Land Planning Act, an amended CIP will be prepared as an element of the city/township’s Comprehensive Plan amendment for the development of the AUAR area.

**EXHIBITS**

1. **Comment Summary:** Figure 10-2 does not depict potential lands for public dedication, all areas that are protected by the township’s plan and ordinance, all slopes greater than 18%, nor all 40-foot setbacks from slopes greater than 18%.

   **Agencies/Persons Commenting:** DNR

   **Response:** As required for an AUAR, Figure 10-2 depicts protection areas, existing or proposed, that will preserve sensitive cover types under Scenario Once. As described in our response to Item 6, comment number 3, Scenario One represents a “worst case scenario” under existing plans and regulations. The township’s ordinance “encourages permanent protection of sensitive environmental resources;” however, clear cutting and development are only prohibited in certain areas. The areas where clear cutting and development are prohibited are shown as protection areas on Figure 10-2. These areas include slopes greater than 18%, undeveloped islands, lands within 100 feet from the OHWL, and lands 40 feet from the bluffline. Figure 10-2 has been corrected to show a protected area of slopes greater than 18% and a 40-foot setback from the bluffline in an area that is located south of the bay.
2. **Comment Summary:** Figures 10-3, 10-4, and 14-3 do not include all slopes greater than 18% nor all the 40-foot setbacks from slopes greater than 18%.

   **Agencies/Persons Commenting:** DNR

   **Response:** Figure 10-2 and 10-3 have been corrected to show an additional protected area of slopes greater than 18% (located south and east of the bay) and a 40-foot setback from the bluffline in this area. The Draft AUAR Figure 14-3 is not included in the Final AUAR.

3. **Comment Summary:** Figure 14-1 incorrectly shows the boundary between Rural Open Space District and Urban Developed District.

   **Agencies/Persons Commenting:** DNR

   **Response:** Figure 14-1 has been corrected to show the boundary between Rural Open Space District and Urban Developed District. As describe in Executive Order 79-19 Appendix B, the boundary between the districts is the St. Paul Park-Grey Cloud Island Township common boundary. The boundary between the Rural Open Space District and Urban Developed District follows the St. Paul Park-Grey Cloud Island Township common boundary.

4. **Comment Summary:** Figure 14-1 shows an incorrect shoreland district boundary, as designated by Washington County. The Mississippi River is designated by Washington County as Natural Environment Lake, which has a 1000’ shoreland zone, rather than a 300’ zone.

   **Agencies/Persons Commenting:** Washington County, DNR, METC, FMR, FOB, & Sierra Club

   **Response:** Figure 14-1 has been corrected to show a 1000’ shoreland district, consistent with Washington County’s Shoreland Management regulations.

5. **Comment Summary:** Figure 14-2 and its legend and corresponding text need to be changed to omit the term “non-bluff” and reflect the impacted slopes greater than 18% equally throughout the Critical Area as bluffs. Show 40-foot bluff setback areas for all slopes greater than 18%.

   **Agencies/Persons Commenting:** DNR

   **Response:** Figure 14-2 (now Figure 14-3 in the Final AUAR) and its legend and corresponding text have been changed to omit the term “non-bluff”. The bluffline setback is shown on all relevant Figures in the Final AUAR.

6. **Comment Summary:** Figure 16-1 omits some slopes greater than 18%. A two-foot contour map of the project site, at a scale of 1 inch = 100 feet, will be required in order to accurately determine slopes, blufflines, and setbacks.

   **Agencies/Persons Commenting:** DNR

   **Response:** A two-foot contour map at a scale of 1 inch = 100 feet has been transmitted to the DNR along with copies of the Final AUAR. The northernmost portion of the AUAR boundary, which is currently located within the city, is not contemplated for development due to it being identified as Riverside Park on the city’s Land Use Plan. Therefore, topographic information was
not collected for this area. If this area is contemplated for development in the future, a two-foot contour map will be produced to accurately determine slopes, blufflines, and setbacks.

7. **Comment Summary:** Tables 16-1 and 18-4 are inconsistent with Figure 16-2. Soil type number 1848B seen in Figure 16-2 seems to be missing from the tables and number 1847 is listed in the tables but not seen in Figure 16-2. The soil characteristics for slope also need to be made consistent.

**Agencies/Persons Commenting:** DNR

**Response:** Tables 16-1 and 18-4 included a typo and have been corrected to include soil type 1848B rather than 1847. Soil type 1847 is not found within the vicinity of the AUAR boundary. The slope characteristics for 7B Hubbard loamy sand has been corrected to indicate the slope of 1 to 6 percent in the table seen on Figure 16-2.

8. **Comment Summary:** Table 18-4 and 16-1 should include additional information regarding soil suitability for infrastructure components, vegetation, building sites, construction materials, water management, as well, as erosion potential.

**Agencies/Persons Commenting:** WCD

**Response:** Table 16-1 in the Draft AUAR provides information on the wind and water erodibility of the soils, and Table 18-4 provides information relating to the suitability of the soil for septic tank absorption fields. Because both tables provide the information required in Items 16 and 18(b), information on the suitability of the soil for infrastructure components, vegetation, building sites, and construction materials was not included and is not necessary.

9. **Comment Summary:** Figure 19-1 does not show one or more pipelines crossing the SE portion of the AUAR property as described in Item 19. Correct to accurately show.

**Agencies/Persons Commenting:** DNR

**Response:** The pipeline location, as shown on Figure 19-1, is correct. The text under Item 19 has been revised to accurately describe the location of the pipeline.

10. **Comment Summary:** Show the proposed regional trail on Figure 25-1 and include the trail infrastructure in the Development Schedule Table 6-5.

**Agencies/Persons Commenting:** METC

**Response:** Figure 25-1 has been revised to show the proposed regional trail. Table 6-5 has been revised to indicate the timing of parks, trails and open space development.