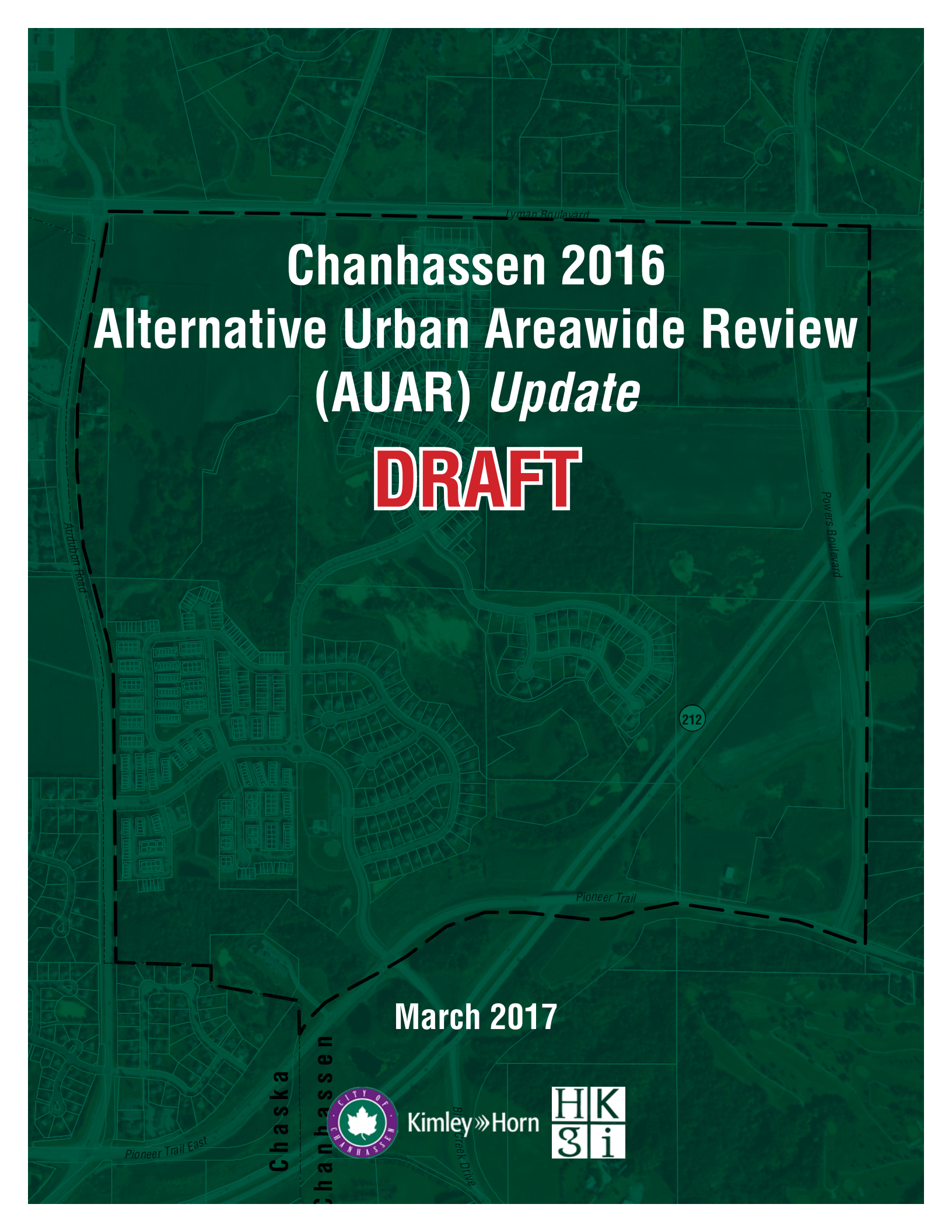
Chanhassen 2016 Alternative Urban Areawide Review (AUAR) *Update*

DRAFT

March 2017



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EXECUTIVE SUMMARY

What is an AUAR?

An Alternative Urban Areawide Review (AUAR) is authorized under Minnesota Rules Chapter 4410.3610 as an alternative form of environmental review. Generally, the AUAR consists of a hypothetical development scenario or scenarios, an inventory of environmental and cultural resources, an assessment of the "cumulative" impacts that the development scenario may have on these resources as well as public infrastructure services, and a set of mitigation measures that reduce or eliminate the potential impacts generated by the development. The AUAR is intended to address the "cumulative" impacts resulting from a sequence of related development projects as opposed to an Environmental Assessment Worksheet (EAW) or Environmental Impact Statement (EIS) which simply looks at a single project's impacts.

Why an AUAR for this Project?

This study area was originally guided by the Chanhassen 2005 AUAR, which utilized the 2020 Comprehensive Plan and a proposal by Town and Country Homes as a basis for land use decisions. The 2005 AUAR anticipated the project area to be built out by 2010; however, the northwest, northeast, and southeast quadrants remain undeveloped to date. This AUAR will act as an update to the previous version, and incorporate the City's updated comprehensive plan as well as the portions of the study area that are already constructed. Since 2005, Highway 212 has been constructed, four subdivisions have been platted throughout the project area, and Bluff Creek Boulevard, a major collector, has been partially constructed along the route depicted in the 2005 AUAR.

The 2030 Comprehensive Plan

The City of Chanhassen adopted its plan for 2030 in November of 2008. The comprehensive plan evaluates land supply and projects growth of the community over a 20 year period. The plan identifies future land use patterns and suggests that the City of Chanhassen will be fully built out by the year 2030. This update identified the desire for a regional/lifestyle center within the AUAR study area, and has changed the guided land uses to include commercial uses. The area intended for this type of use is the undeveloped property in the northeast corner of the project area. A proposal called Avienda is a principal subject for this AUAR update.

Avienda Proposal

A Concept PUD (called Avienda) for Regional Commercial zoning was approved by Planning Commission and the City Council in 2015. The proposal includes approximately 118 acres of regional commercial, office, and medium/high density residential development. This proposal called for the City to update the 2005 AUAR to ensure the development is in compliance with Minnesota rules and to identify and better understand any development issues for the project.

How is an AUAR used?

An AUAR is used as a tool to help parties interested in development within the project area understand the existing environmental and cultural resources present on a site prior to initiating detailed planning and design. It is also used to identify key initiatives that must or should be undertaken to minimize negative impacts generated by proposed development.

Any proposed development in the project area would need to be reviewed for consistency with the AUAR and Mitigation Plan. If a development plan is not consistent with these documents or other statutory requirements, the developer *may need to conduct additional environmental documentation or review or request an amendment to the AUAR*. Natural and cultural inventory information in the AUAR and the Mitigation Plan will be used to guide development**.** Design and construction would proceed only after all approvals and appropriate agreements are complete.

Overview of the Chanhassen AUAR Process

2005 AUAR

City staff began exploring the concept of performing an AUAR for the project area originally in September and October of 2002 in response to heightened developer interest in the project area. The City hired a consulting team to assist with the preparation and assembled a task force to provide community input into the process. As part of the process, two meetings were held with the task force and a general open house was held prior to a planning commission public hearing. The process followed the statutory requirements for completion of an AUAR.

2016 AUAR Update

As part of the entitlement process for the Avienda development proposal, the update of the 2005 AUAR was authorized by Chanhassen's City Council in November of 2016. The process to update the AUAR included presentations to the City Council and Planning Commission, a public open house held on February 28, 2017 and a public hearing on March 7, 2017. The Draft AUAR was made available for review during the months of March and April.

Summary of Natural, Cultural, and Physical Resources Inventoried

As part of the original inventory work completed in 2002/2003, field research was conducted on portions of the site that were identified for immediate development. Local and regional data sources were collected and analyzed for the remaining portions of the project area. For the update, additional field work was completed on the proposed Avienda project site and regional data sources were updated for the remaining areas.

The area that was subject to the more detailed field review for the original AUAR was the Bernardi property or Town and Country Homes proposal in the southwest portion of the project area. Wetlands on this site were physically delineated and documented as part of the original AUAR. The project has been fully constructed and the wetlands were managed according to the development plan and AUAR mitigation plan. For the updated AUAR, a field delineation of the wetlands on the proposed Avienda Project area site has been completed and is included as part of Appendix 2. The National Wetland Inventory (NWI) was consulted for the remainder of the project area.

A Historical and Cultural Resource inventory was also conducted for the project area in 2002. This inventory included a search of local, regional, and state historic and cultural resource data bases. The report is included as Appendix 3 of the AUAR. The findings of the Historical and Cultural Resource inventory included two pre-recorded archeological sites within the project area and seven others within a mile of the project area. Based on the overall lack of disturbance of these sites, their proximity to significant water sources, and previously reported sites, and their topographic prominence, the sites are considered to have high potential for intact pre-contact archaeological resources. For the Avienda proposal site, a Phase I Archaeological Reconnaissance Survey was conducted due to the presence of previously documented cultural resource sites within and near the perimeter of the defined Project boundary, in compliance with the Minnesota Field Archaeology Act (MN 138.31-42). This study concluded that there would be no adverse impacts to these sites. Both sites are located in the primary zone of the Bluff Creek Overlay. The inventory also evaluated various farmsteads for architectural history. Most farmsteads exhibit building types commonly constructed during the 1910s and 1920s. Only one

was found to maintain a complement of outbuildings consistent with farmsteads of this period. In some cases, the historical integrity of the primary buildings, such as the house or barn, have been significantly compromised. As a result, the farmsteads do not sufficiently convey their association with late nineteenth and early twentieth-century farming practices. Although several of the individual buildings retain good historical integrity, their styles are typical of the period and do not appear to be significant representations of architectural styles.

Since 2005, no natural or cultural resources have significantly changed with the development that has occurred.

Description of the Development Scenarios

Land Use

For the AUAR update, two new hypothetical development scenarios were generated incorporating existing developed areas with the remaining undeveloped land within the project area. The scenarios are based on the directions established within the 2030 Comprehensive Plan approved in November of 2008, which included dual land use guidance on a number of key parcels and two alternatives for the Avienda proposal. Both scenarios are consistent with the Comprehensive Plan. The Comprehensive Plan would permit land uses such as medium and high density residential, regional commercial, office, industrial and park and open space. The development scenarios assumed for this project would generate development projections of 400 to 600 units of new medium and high density housing, approximately 800,000 to 1,000,000 square feet of office industrial, and 250,000 to 460,500 square feet of commercial (retail/service) space. Concept A replaces an existing 3+ acre wetland complex with development and has the most retail space. Concept B preserves the wetland complex and as a result has a lower amount of retail land area. A small area of remnant right-of-way from the construction of Highway 212 (near Pioneer Trail) was assumed as medium density residential in concept A. The assumption is based on the concentration of commercial intensity on the Avienda site. In concept B, this area is assumed as office following the assumption that less concentration of commercial space on the Avienda site would allow for more office absorption in other areas.

Differences between the 2005 AUAR and the 2016 AUAR Update

The primary difference in land use between the 2005 AUAR and 2016 AUAR update is summarized in two key areas. First, the 2005 AUAR assumed a new high school facility would be located within the NW quadrant of the project area. The High School was ultimately built outside of the project area. The land use assumption for where the high school would have been located was reverted to office/industrial for the 2016 AUAR update. Second, the 2005 AUAR assumed the area subject to the Avienda proposal as predominantly low density residential. The 2016 AUAR update assumes the Avienda proposal area as a mix of commercial, office, and medium to high density residential. The resultant change in these two key assumptions include roughly 250 to 400 ***fewer*** housing units and 500,000 to 600,000 ***more*** square feet of non-residential development in the 2016 AUAR update than what was originally assumed in the 2005 AUAR.

Municipal Infrastructure

Municipal sewer and water facilities have been planned to serve this area consistent with the projections of the original and proposed development scenarios. Sanitary sewer service is provided through Lift Station #24 located at Lyman Boulevard and Audubon Road except for the portion of the project area lying east of TH 212/312. An inactive trunk sanitary sewer has been constructed to serve this area. Construction of a future lift station and force main will be required to provide active service to this area. No future wells are anticipated in the project area as a result of the development scenarios. A trunk water distribution system has been constructed to serve new development within the area.

Storm sewer improvements have been, and will be built in conjunction with other infrastructure systems. The City's Surface Water Management Plan was adopted in 2006. The plan, along with watershed district rules, provide the framework for the management of storm water runoff quantity and quality and improvements that would need to be constructed to serve the project area. National Pollutant Discharge Elimination System (NPDES) Phase II requirements also regulate individual site development requirements.

Roadways

Since the completion of the 2005 AUAR study, there have been significant infrastructure investments made in the study area. These include the construction of Trunk Highway 212 as a four-lane limited access freeway, extension of Powers Boulevard from Lyman Boulevard to Pioneer Trail, and the widening of Lyman Boulevard from Audubon Road to Powers Boulevard.

As the remaining AUAR development moves forward, there are still a few roadways to be constructed.

As part of the development of the NW quadrant of the study area, a collector roadway will be constructed and connect to the intersection of Lyman Boulevard & Audubon Road North and Audubon Road & Lakeview Drive.

As part of the development of the NE quadrant, Bluff Creek Boulevard will be extended to the east and connect with the intersection of Powers Boulevard & TH 212 Ramp (North). Also, a north-south roadway will be constructed through the development that will connect Bluff Creek Boulevard to the south and the intersection of Lyman Boulevard & Sunset Trail to the north.

As part of the SE quadrant development, three cul-de-sac roadways will be constructed; one connecting to Powers Boulevard, one connecting to Pioneer Trail, and the third connecting to Bluff Creek Drive.

Identification of Potential Impacts Resulting from the Development Scenario

Environmental Impacts

Environmental impacts would normally result from construction activities and elements associated with development such as impervious surface coverages, lawns, and other urban treatments. However, the current use of the site as agriculture creates an impact on these features that when new development occurs, could be enhanced with proper environmental design. The City has existing tools in place with the Bluff Creek Ordinance and other provisions to ensure future development pays high respect to natural and cultural features.

Traffic Related Impacts

A traffic analysis was conducted to determine the impact of existing and future traffic volumes on the adjacent roadway network, with and without the remaining AUAR undeveloped parcels. Results of the analysis of existing traffic showed that all study intersections are currently operating at an acceptable Level of Service (LOS) during the weekday AM and PM peak hours, except for Lyman Boulevard & Audubon Road North and Powers Boulevard & Pioneer Trail, where the SB left-turn movements are operating at LOS E during the weekday AM peak hour.

Area traffic forecasts were also computed for full development conditions, which project that Concept A will generate +/- 23,000 average daily trips and that Concept B will generate +/- 17,350 average daily trips. Analysis of future traffic levels indicate that the following intersections should be monitored for potential to be signalized prior to full build-out of the AUAR:

- Lyman Boulevard & Audubon Road North/NW Quadrant Access
- Lyman Boulevard & Sunset Trail/NE Quadrant Access
- Powers Boulevard & Pioneer Trail

Mitigation Initiatives

Mitigation initiatives are designed to minimize or negate the negative impacts that urban development will have on the physical environment. These initiatives include a combination of existing regulatory processes (such as wetland permitting), physical capital improvements (such as roadway signalization or striping), and best management practices (such as low impact development). With the exception of traffic/transportation system, mitigation initiatives identified in the 2005 AUAR remain largely relevant for the project area. Mitigation initiatives for the project area are outlined in the following topic areas:

- General Mitigation Initiatives
- Fish, Wildlife and Ecologically Sensitive Resources
- Water Resources (wetlands, creeks, lakes) and Surface Water Management
- Erosion and Sedimentation
- Wastewater
- Water Supply
- Traffic/Transportation Mitigation Initiatives
- Land Use Management Initiatives

ALTERNATIVE URBAN AREAWIDE REVIEW (AUAR) WORKSHEET FORM

This section consists of the Environmental Assessment Worksheet (EAW) form and response to questions as modified by Environmental Quality Board (EQB) AUAR Guidance. The EAW question is shown in bold text, AUAR guidance is shown in faded italicized text, and the response to the question is shown as regular text.

AUAR Guidance as Revised by EQB staff 10-2-00

This guidance has been prepared by the EQB to assist in the preparation of AUAR documents. It is based on the directive of 4410.3610, subp. 4 that "the content and format [of an AUAR document] must be similar to that of an EAW, but must provide for a level of analysis comparable to that of an EIS for impacts typical of urban residential, commercial warehousing, and light industrial development and associated infrastructure."

General AUAR Guidance

This guidance is based on the items of the standard EAW form; 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 # and its title (the text in bold print on the EAW form) should be included with an 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.

1. Project Title

Chanhassen 2005 Metropolitan Urban Service Area AUAR Update area is the approximately 625 acres bounded by Lyman Boulevard (CR 18) on the north, Audobon Road (CR 15) on the west, Pioneer Trail (CR 14) on the south, and Powers Boulevard (CR 17) on the east.

2. Proposer

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4. Reason for EAW (AUAR) preparation.

The City completed the Chanhassen 2005 AUAR in 2003 for this 625 acre project area. MN Environmental Rules require that AUARs be updated every 5 years. The AUAR has not been updated by the City since the initial development occurred consistent with the AUAR document. When the City updated the Comprehensive Plan in 2008, the City identified property within this project area as a significant development opportunity due in part to the residential development potential in the western portion of the City and the need to provide regional commercial for Chanhassen residents. While the AUAR was not updated with the Comprehensive Plan, the City did discuss land use changes from the residential land uses shown in the Chanhassen 2005 AUAR to the regional/ lifestyle mixed use shown in the 2030 Comprehensive Plan.

An updated AUAR would also reflect the land use and infrastructure changes that have occurred since the original AUAR was developed.

5. Project Location and Maps.

a. The country map is not needed for an AUAR.
b. The USGS map should be included.
c. 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 and zoning 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.

The projects general location is southwestern Chanhassen bounded by Lyman Boulevard on the north, Audubon Road on the west, Pioneer Trail on the south and Powers Boulevard on the east. The western boundary of the project area is the corporate limits between the cities of Chanhassen and Chaska. For project location maps see Figures 1 and 2.

County: Carver City: Chanhassen
Sections: SE ¼ of Section 22, SW ¼ of Section 23, NW ¼ of Section 26 and NE ¼ of Section 27
Township: 116
Range: 23

The following figures are included within this AUAR.

- Figure 1—Project Location
- Figure 2—AUAR Project Boundary
- Figure 3—USGS Map
- Figure 4—Primary Habitat Areas
- Figure 5—NWI Wetlands by Type and Delineated (updated map)
- Figure 6—City Wetland Classification
- Figure 7—Surface Water Features
- Figure 8—Geologic Inventory
- Figure 9—Soils
- Figure 10—Cultural and Historical Resource Information
- Figure 11—Existing Land Use (updated map)
- Figure 12—Zoning Map (updated map)
- Figure 13—Land Use Plan (updated map)
- Figure 14—AUAR Development Scenarios (updated map)
- Figure 15—Existing and Proposed Sanitary Sewer
- Figure 16—Existing and Proposed Watermain
- Figure 17—Surface Water Management Plan
- Figure 18—Existing and Future Roadway Network
- Figure 19—Existing Traffic Volumes
- Figure 20—Concept A Site Generated Traffic Assignments
- Figure 21—Concept B Site Generated Traffic Assignments
- Figure 22—2022 Build-Out Traffic Volumes (Concept A)
- Figure 23—2022 Build-Out Traffic Volumes (Concept B)
- Figure 24—Existing and Proposed Lane Use and Traffic Control

6. Description.

Instead of the information called for on the form, the description section of an AUAR should include the following elements for each major development scenario included:
-anticipated types and intensity (density) of residential and commercial/warehouse/light industrial development throughout the AUAR area;
-infrastructure planned to serve 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 included, a more intensive level of review, generally including an analysis of alternative routes, is necessary;
-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 original Chanhassen AUAR was prepared to address the cumulative impacts of development in a planned growth area of the City. This area contained significant environmental features primarily along the Bluff Creek corridor and the (at the time) proposed US Highway 212 expansion. The Bluff Creek Corridor is identified as a significant natural resource area. To protect its natural resources, the city completed the Bluff Creek Watershed Natural Resources Management Plan (adopted in 1996) and subsequently adopted an ordinance to implement the plan. The City's 2030 Comprehensive Plan adopted in November of 2008 provides the basis for this updated AUAR.

The Comprehensive Plan

The 2030 Comprehensive Plan establishes the future growth plans for the community over an approximate 20 year period. The plan acknowledges the city's dominant single-family residential

character and establishes goals and policies that seek to achieve a balance of uses. The plan includes polices that:

- Strive for a mixture of development that will work towards financial well being;
- Preservation and enhancement of significant natural features;
- Encourage development through a PUD process to enable flexibility in design in order to achieve community objectives;
- Encourage a diversity of housing types by designating areas for medium and high density housing;
- Encourage commercial development to focus within or adjacent to the downtown area unless they are mixed use developments or PUDs while discouraging the arrangement of commercial facilities in a strip mall orientation;
- Minimize environmental and traffic impacts on neighborhoods;
- Make the most efficient use of the regional highway system;
- Phase future development based on the City's ability to provide adequate public services; and
- Promote coordination with other entities for the adequate and efficient provision of public services such as transit, recreation and education.

The plan establishes a future land use map that identifies the location of various types of anticipated future development. The comprehensive land use plan is illustrated in Figure 13.

Since the original AUAR, the land use changed to a dual Office and Regional Commercial District as a part of the 2030 Comprehensive Plan, and was based on the city' s vision for a lifestyle center. The Comprehensive Plan states: ***Definition/ Vision:*** A mixed commercial district with retail and entertainment uses of a scale and function that serves a regional market. The physical environment emphasizes an attractive, comfortable walking experience for shoppers and visitors and is designed to serve trail users and mass transit as well as automobile traffic. Centers of this type have at least two major retail anchors and are characterized by the diversity and mix of retail and service uses within their boundaries. Uses within this district should complement existing retail users in the other commercial districts. Development of these centers shall be planned as a group of organized uses and structures to accommodate a sensitive transition between commercial activities such as loading, parking of automobiles, lighting and trash collection and surrounding residential uses. Such centers shall be designed with one theme, with similar architectural style, similar exterior building materials, and a coordinated landscaping theme. Vehicle and pedestrian access is coordinated and logically linked to provide a comprehensive circulation system.

Bluff Creek Watershed Natural Resources Management Plan

The Project Area is in the lower-middle reach of the Bluff Creek watershed where the natural resources are primarily lowland plant communities. The natural resource goal for this section of the creek *"...is to restore and expand where possible the natural areas to their pre-settlement condition while still providing recreational opportunities and hydrologic control of stormwater."* Development recommendations are to incorporate Watershed Based Zoning, Cluster/Open Space Zoning or other tools intended to protect the primary and secondary zones. Land use recommendations are provided in this section as shown in the land use plan. The book, Site Planning for Urban Stream Protection, is referenced. To provide continuity of natural features, primary and secondary corridors are mapped and generally described as follows (see Figure 12):

The Primary Zone

The Primary Zone is a buffer zone for direct impacts that would affect the creek. This area is intended to be preserved in its natural state. First choice is City ownership of this area. A number of flexible land use techniques such as conservation zoning, conservation easements, public purchase, cluster development, transfer of development rights and public dedication are noted as appropriate tools to achieve community objectives.

The Secondary Zone

The Secondary Zone is a management zone where limited development is recommended and would be achieved through conservation measures to balance the ecosystem. Conservation areas, impervious surface reductions and land stewardship are high priorities in this zone.

The plan sites Tom Schueler's book, *Site Planning for Urban Stream Protection,* as a model for appropriate development guidelines to use in the Bluff Creek Watershed. The plan "suggests" that the average impervious cover in undeveloped areas should not exceed 20%. This is also the percent of the watershed that was developed in 1996. The plan responds to this by identifying subwatersheds that should be managed based on their impervious cover as follows:

- Sensitive Subwatershed (1-10 percent impervious cover)
- Degrading Subwatershed (11-25 percent impervious cover)
- Non-supporting Subwatershed (26-100 percent impervious cover)

Design and location of creek crossings need to be sensitive to significant habitat areas and preservation of corridors for wildlife movement.

The Development Scenarios

Three development scenarios have been created to address the remaining undeveloped land within the original 625 acre project area, and provide a more detailed view of land uses than illustrated in the 2030 Comprehensive Plan. The comprehensive plan identifies multiple land uses that overlap one another. For example, a site may be identified as either low density residential or medium density residential. Where land use categories are shown as overlapping in the land use plan, one land use pattern that would generate the greatest impact while maintaining consistency with the comprehensive plan was selected. These scenarios represent the greatest impact or "worst case" development scenario.

There is a large property in the northwest corner of the project area that is currently used for agriculture and is guided for office industrial use by the 2030 Comprehensive Plan. In the southern portion of the project area, multiple open space and agricultural parcels exist both east and west of Highway 212 that are dual guided for either medium density residential or office uses by the 2030 Comprehensive Plan. The northeast corner of the project area contains the largest area of undeveloped land currently utilized for agriculture and dual guided for office and/or commercial use by the 2030 Comprehensive Plan. This area is where Avienda has proposed a development project containing a mix of medium and high density residential, office, and commercial uses.

Concepts A and B involve the development of a regional commercial center, the Avienda Development, in the northeast corner of the project area. The two concepts represent different residential and commercial development magnitudes that are dependent on the amount of existing wetland that is maintained; Concept A prioritizes commercial square footage while Concept B maintains the wetland area and has lower development magnitudes. Other undeveloped areas in the project area would develop in accordance with the 2030 Comprehensive Plan planned land use. Outside of the Avienda Development, the only difference between the two concepts involves the development of a remnant portion of right of way near Highway 212 and Pioneer Trail into either office or medium density residential.

The development scenario assessed in this AUAR reflects land uses in more detail than illustrated in the land use plan of the comprehensive plan. The comprehensive plan identifies multiple land uses that overlap one another. For example, a site may be identified as either low density residential or medium density residential. Where land use categories are shown as overlapping in the land use plan, one land use pattern that would generate the greatest impact while maintaining consistency with the comprehensive plan was selected. This scenario represents the "worst case" development scenario.

One area to specifically note is the school designation for the site at the intersection of Lyman and Audubon. This site is guided as Office/Industrial Park/Open Space in the comprehensive plan. As described earlier, a school facility is a possibility for the site but not certain. For purposes of the AUAR, a school facility is being used due to the higher traffic impacts. Details of the school site are described below in the School section and in question #21 - Traffic.

The Development Scenarios are illustrated in Figure 14.

Types and Intensity of Development anticipated within the AUAR Project Area

Within the project area the Comprehensive Plan anticipates a mix of residential, office, office/industrial uses, commercial, and park land uses at varying densities or intensity levels. The types and intensity levels expressed in the comprehensive plan are defined as follows:

Medium Density Residential – The medium density designation is intended to accommodate multiple units including duplexes, townhouses, and lower density apartments with net density of about 8.5 units per acre.

High Density Residential – The high density designation is intended for multiple units within stacked apartment-style buildings. The net density is assumed to be 27.0 units per acre.

Commercial – Commercial uses include retail, restaurant, and hospitality uses generally in one or two-story arrangements. Floor area rations are assumed at 0.30.

Office – Office uses include professional trade and service uses generally in one or two-story arrangements. Floor area ratios are assumed at 0.30.

Office/Industrial – Office/Industrial includes larger scale light industrial, warehouse, and manufacturing uses. Floor area ratios are assumed at 0.20.

Park/Open Space –This category includes natural areas primarily along Bluff Creek intended predominantly for passive park activities and open space protection. However, some active community park like facilities may be appropriately located within this land use designation. Park and open space opportunities are directed towards the Bluff Creek Overlay districts.

Development Staging

It is expected that the Avienda project will be completed within the next five years. The Comprehensive Plan anticipates that the City will achieve full build out before 2030.

Transportation Improvements

There have been significant roadway infrastructure improvements made in the project study area in the last ten years, including the construction of TH 212 as a limited access facility, extension of Powers Boulevard from Lyman Boulevard to Pioneer Trail as a four-lane divided roadway (with an interchange at TH 212), and the widening of Lyman Boulevard from Audubon Road to Powers Boulevard. These improvements have served the area traffic needs well as the area has developed.

Future roadway improvements will be made as the AUAR area continues to develop. As part of the development of the NE quadrant, Bluff Creek Boulevard will be extended east from its current terminus to Powers Boulevard, and connect at the existing Powers Boulevard & TH 212 North intersection. To serve the NW quadrant development, a roadway will be constructed through the site that will connect to the intersections of Audubon Road & Lakeview Drive and Lyman Boulevard & Audubon Road North. The SE quadrant is broken into three areas due to roadway and drainage constraints. These development areas will be served by cul-de-sac roadways connecting to Powers Boulevard, Pioneer Trail, and Bluff Creek Drive.

Sanitary Sewer Improvements

Chanhassen Lift Station #24 is located on Lyman Boulevard at Audubon Road. Lift Station #24 routes flows north to the Lake Ann Interceptor MSB-7138. Capacity exists within this system to handle the growth anticipated in the project area. Since the original AUAR, trunk sanitary sewer has been constructed through much of the project area principally along existing and planned roadway corridors wherever possible to minimize additional vegetative disturbances. Additional sewer will need to be constructed to serve the proposed development scenarios. The 2030 Comprehensive Plan illustrates two sewer sub-districts that comprise the project area. They are a large portion of BC-9 and the western portion of LB-5. Flows from the BC-9 sub-district are routed north through Lift Station #24 to the Lake Ann Interceptor, while flows from the LB-5 sub-district are routed to the east along Pioneer Trail through existing and future trunk sewer. Servicing the LB-5 sub-district will require construction of a lift station and force main to the Shorewood II Interceptor MSB-7017.

See Figure 15 for the location of existing and proposed sanitary sewer in the project area.

Public Water Supply Improvements

The Comprehensive Plan identifies a future elevated water tower storage site near Lyman Boulevard and Powers Boulevard and future trunk water main systems generally following the major roadway corridors of Lyman Boulevard, Audubon Road, Pioneer Trail and the extension of Powers Boulevard. The City is currently working on an update to the comprehensive water supply and distribution plan. The draft plans anticipate that the project area may be served by the Central Water Treatment Plant (site 10). If this is the case, the future elevated water tower may be eliminated.

See Figures 15 and 16 for location of existing and future utility services in the project area.

Storm Sewer Improvements

The current Chanhassen Surface Water Management Plan (SWMP) was adopted in August 2006. The project area is located within the Bluff Creek and Lake Susan Storm Drainage Sub-Districts of the Riley Purgatory Bluff Creek Watershed District (RPBCWD). Figure 17 shows the existing drainage sub-districts and flow directions in the AUAR area. Existing storm water improvements constructed within the project area since the original AUAR generally utilize wet storm water ponds to improve water quality and control the rate of runoff. Future storm water improvements to serve the proposed development scenarios will need to be designed and constructed to meet the requirements of the SWMP, RPBCWD rules, and National Pollutant Discharge Elimination System (NPDES) Phase II storm water requirements.

Any portions of the proposed development scenarios that will drain to the TH 212/312 right-of-way will need to be reviewed and approved by MnDOT.

***Note**: 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).*

City of Chanhassen Resolution # 2003-70 ordered the preparation of the original AUAR. The Order for Review was passed by the Chanhassen City Council on Monday, August 11, 2003 consistent with the requirements of Minnesota Rules Section 4410.3610, subpart 3. City of Chanhassen Resolution #2016-xx ordering the update to the 2005 AUAR is included as Appendix 1 and was passed by the Chanhassen City Council on November 28, 2016 consistent with the requirements of Minnesota Rules Section 4410.3610, subpart 3.

7. Project magnitude data.

The cumulative totals of the parameters called for should be given for each major development scenario, except that information on "manufacturing," "other industrial," "institutional," and "agricultural."

The following data represents the anticipated types and intensity/density of residential, office, office/industrial, and commercial development throughout the AUAR area based on the development scenarios described in question 6 and updated as part of the 2016 AUAR update.

Developable land inventory is that land area that is unconstrained by wetlands as defined by the National Wetland Inventory (or specific wetland delineation), the Bluff Creek Overlay District's Primary Zone, floodways, and areas of land that are already platted.

Key assumptions made to arrive at a net land area for development include the following:

- Medium Density Residential/Low Density Residential (MDR/LDR) land use will consist predominantly of single family detached homes and attached townhome type structures.
- Medium Density Residential (MDR) land use will consist of all attached homes
- Office (O) uses will generally consist of one or two story office buildings.
- Office/Industry (O/I) uses are typically warehouse or manufacturing uses with a limited area (less than 30%) used for office space.
- Commercial/Retail uses include commercial goods and services including hotel

TABLE 7.1 PROJECT MAGNITUDE DATA – "NO BUILD" CONCEPT GROSS ACREAGE

Land Use Types	Total Acres	% of Total	Units	Business S.F.	Retail S.F.
Agriculture	215.01	34.4%			
Parks	8.70	1.4%			
Passive Open Space	135.65	21.7%			
Public Semi Public	0.35	0.1%			
Residential Low Density	27.01	4.3%	328		
Residential Medium Density	92.12	14.7%	436		
Right of Way	146.52	23.4%			
Total	**625.35**	**100%**	**764**		

TABLE 7.2 PROJECT MAGNITDUE DATA – CONCEPT A NET DEVELOPABLE ACREAGE

Land Use Type	Net Developable Acres	% of Total	Units	Business S.F.	Retail S.F.
Commercial (Avienda)	46.93	29%			460,500
Office	18.41	11%		240,544	
Office (Avienda)	13.33	8%		150,000	
Office Industrial	50.52	31%		440,128	
Residential Medium Density	18.42	11%	157		
Residential Medium Density (Avienda)	8.50	5%	38		
Residential High Density (Avienda)	7.11	4%	407		
Total	**163.22**	**100%**	**602**	**830,671**	**460,500**

TABLE 7.3 PROJECT MAGNITUDE DATA – CONCEPT B NET DEVELOPABLE ACREAGE

Land Use Type	Net Developable Acres	% of Total	Units	Business S.F.	Retail S.F.
Commercial (Avienda)	28.74	17%			250,000
Office	32.80	20%		428,675	
Office (Avienda)	13.86	8%		150,000	
Office Industrial	50.52	31%		440,128	
Passive Open Space	9.07	5%			
Residential Medium Density	4.02	2%	34		
Residential Medium Density (Avienda)	17.09	10%	80		
Residential High Density (Avienda)	9.43	6%	280		
Total	**165.53**	**100%**	**394**	**1,018,802**	**250,000**

8. Permits and approvals required.

A listing of major approvals (including any comprehensive plan amendments and zoning amendments) 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 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 8.1 presents a list of known local, state, and federal permits and approvals. Table 2-8 provides a list of known infrastructure and public financial assistance.

TABLE 8.1 PERMITS AND REGULATORY REVIEW/APPROVALS

Unit of Government	Type of Permit/review or approval	Regulatory Citation (as may be noted)
City of Chanhassen	Subdivision Approval	City Code Chapter 18
	Planned Unit Development Approval	City Code Chapter 20, Article VIII
	Rezoning	City Code Chapter 20, Article II, Div. 2
	Bluff Creek Overlay	City Code Chapter 20 Article XXXI
	Conditional Use Permit Approval	City Code Chapter 20, Article IV
	Grading Permit	City Code Chapter 7, Article III
	Site Plan Review Approval	City Code Chapter 20, Article II, Div. 6
	Wetland Alteration Permit	City Code Chapter 20, Article VI
	Comprehensive Plan Amendments	
	Zoning Ordinance Amendments	City Code Chapter 20, Article II, Div. 2
Carver County	Roadway Access Permit	
	Comprehensive Plan Amendment Review	
Minnesota Department of Natural Resources	Utility Crossings Permit	MN Statute 103G, MN Rules 6115.0810
	Natural Heritage Program Coordination	Federal Endangered Species Preservation Act of 1973, as amended in 1978, 1982, and 1988; MN Statutes Chapter 84.0895; MN Rules Chapter 6134
U.S. Army Corps of Engineers	Clean Water Act Section 404/10 Wetland Permits	Section 404 Of The Clean Water Act Title 33CFR26 - Water Pollution Prevention and Control Subchapter IV - Permits and Licenses
Minnesota Department of Health	Water Main Plan Review	MN Rules 4720
Minnesota Pollution Control Agency	NPDES Permit	MN Statute 115, MN Rules 7002
	Sanitary Sewer Extension Permit	
	401 Water Quality Certificate	
	Surface Water Discharge Permit	

Unit of Government	Type of Permit/review or approval	Regulatory Citation (as may be noted)
	Wastewater Permit	
	Indirect Source Permit (ISP)	
Riley, Purgatory, Bluff Creek Watershed District	Grading Permit	
Metropolitan Council Environmental Services	Sanitary Sewer Plan Approval	
Minnesota State Historic Preservation Office	Cultural Resource Coordination	Section 106 of the Historic Preservation Act, Protection of Historic Properties" (36 CFR Part 800), MN Statutes 138.31-.42, MN Private Cemeteries Act- MN Statute 307.08
Metropolitan Council	Comprehensive Plan Amendment	Metropolitan Land Planning Act Minnesota Statutes Section ____
Minnesota Environmental Quality Board (EQB)	Environmental Assessments (AUAR)	Minnesota Rules 4410

9. Land use.

Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses. Indicate whether any potential conflicts involve environmental matters. Identify any potential environmental hazards due to past site uses, such as soil contamination or abandoned storage tanks, or proximity to nearby hazardous liquid or gas pipelines.

- *Discuss past and current land use at the project's site.*
- *Generally, "proximity" means within a mile or so of the project; however, the distance can be greater in specific instances.*
- *If a site assessment for past contamination has been done, include a brief summary of the results.*
- *Discuss what is adjacent to the site (all directions).*
- *Note any nearby features of concern, including areas where vulnerable populations live or visit such as nursing homes, schools, day care centers, water resources, parks, etc.*
- *Indicate the distance and direction to the nearest residential receptor. Since air and water contamination can potentially travel in any direction, please include all residential areas surrounding the site. You may need to contact the city or county in which the project is located for information.*

Past land use in the project area has been agricultural based uses, mostly row crops. Since the 2005 AUAR, much of the project area has developed to include low and medium density residential uses consistent with the assumptions established in the original AUAR. Included in the gross acreage calculations are 77 acres of wetland, 79 acres of floodway, and 168 acres of primary Bluff Creek Overlay District. The following table provides a breakdown of existing land use in the project area.

TABLE 9.1 EXISTING LAND USE CALCULATIONS

Land Use	Gross Acreage	Net Developable Acreage*
Agriculture	215.01	160.85
Commercial		
Office		
Office Industrial		
Parks	8.70	
Passive Open Space	135.65	14.26
Public Semi Public	0.35	
Residential Low Density	27.01	
Residential Medium Density	92.12	1.69
Residential High Density		
Right of Way	146.52	
Total	**625.35**	**176.80**

Adjacent land uses consist of a combination of suburban and rural residential land uses and industrial park uses. To the northwest is Chanhassen High School, which the Chaska School District was originally looking to place within the AUAR project area. Directly north of the project area are several large lot residential home sites that access local streets such as Sunset Trail, Sunridge Court and Oak Side Circle and some that directly access Lyman Boulevard. The Bluff Creek Corridor also continues to extend north of the project area following Bluff Creek. To the east of the project area is TH 212/312 right of way and adjacent environmental features that again are part of the Bluff Creek Corridor. A rural residential subdivision is located adjacent to the southeast portion of the site. This subdivision accesses the regional roadway system at Pioneer Trail. Also southeast of the site is the Bluff Creek Golf Course. The more pristine environmental features near the project area can be found to the south of the site within the Bluff Creek Corridor. More suburban residential uses are found to the southwest and west of the project area in Chaska. Directly to the west is Lake Hazeltine and the Hazeltine Country Club and Golf Course. This area includes many suburban residential developments.

Future land use guided for adjacent land uses includes a continued pattern of development with municipal services. Future patterns are generally low density residential with the exception of roughly 5 acres in Chaska at the northwest quadrant of Autumn Woods Drive which is designated for High Density Residential.

10. Cover types.

The following information should be provided instead:
a) cover type map, 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 waters 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.

The following cover types are illustrated in their respective figures including Figure 14 illustrating the development scenario in relation to the natural features:

- Figure 4 Primary Habitat Areas as identified by Peterson Environmental Consulting
- Figure 5 NWI Wetlands by Type (and delineated wetlands) (updated map)
- Figure 6 The City of Chanhassen Wetland Inventory.
- Figure 7 Surface Water Features (including shoreland management districts and flood plain)
- Figure 11 Existing Land Use Pattern (updated map)
- Figure 14 Development Scenario with natural features overlay (updated map)

11. Fish, wildlife, and ecologically sensitive resources. (This section of the AUAR remains largely unchanged from the original 2005 AUAR with the exception of the section on wetlands)

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

b) For an AUAR, prior consultation with the DNR Division of Ecological Resources for information about reports of rare plant and animal species in the vicinity is required. Include the reference numbers called for on the EAW form in the AUAR and include the DNR's response letter. 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

Although the AUAR project area consists primarily of actively cultivated crop land, other cover types are present. The site is utilized by a variety of wildlife species typical of streams, wetlands, cropland, and fragmented woodlands. The primary areas of wildlife habitat on the project site fall within the Bluff Creek Corridor and are: (1) a portion of Bluff Creek (tributary to the Minnesota River) flowing north to south through the heart of the AUAR examination area, (2) a riparian wetland along Bluff Creek with one distinct lobe projecting west from the creek, including a forested wetland, (3) an isolated wetland surrounded by upland maple-basswood forest which is the highest quality wetland on the site, (4) three upland woodlands (see Figure 4) that are dominated by mature maple, basswood, elm, red and white oaks and hop hornbeam, but none having a developed shrub or herbaceous layer because of past agricultural use (i.e., grazing), (5) eighteen flow through type wetlands located along agricultural drainage paths, (6) eight isolated wetlands that are currently cultivated, and (7) currently cultivated cropland wetlands (corn, soybeans and hayland) comprising the majority of the site. The plant communities and wildlife habitat characteristics of these communities are as follows:

Stream/Riparian

Bluff Creek is a small, first-order (headwater) tributary of the Minnesota River system. It primarily receives drainage from agricultural land, so nutrient loading, turbidity, sedimentation, and fecal coliform bacteria are ongoing concerns for the river system. The portion of Bluff Creek on the project property receives drainage from Lyman Boulevard, Audubon Road, Pioneer Trail, numerous residential streets, a large area of cropland, and receives its main channel flow from the upstream reach via a culvert under Lyman Boulevard. Primarily mature boxelder trees, elms and green ash with moderately developed understory shrubs and herbaceous plants inhabit the corridor, although the community consists largely of species that are invasive and/or indicative of disturbance, such as common buckthorn and stinging nettle. Streambanks are relatively steep and muddy, suggesting variability in stage height. Some reaches of the creek and associated drainage swales exhibit signs of excessive erosion. The creek bottom consists of sand and silt with a relatively small cobble component, providing relatively poor invertebrate habitat and suggesting substantial siltation impacts. The stream is relatively low-gradient, and at the time of

site visit in July, 2003, flow was slow to moderate, the channel was shallow (<1' to 3') and narrow (~10'), and was at least 2 ft. below bank-full stage height. The City has developed the Bluff Creek Overlay Zoning District to assist in management and preservation of the Bluff Creek habitat.

The Minnesota River system lies downstream from the assessment area and supports a warm water fishery. Fishes known to inhabit the river include channel catfish, flathead catfish, black crappie, northern pike, walleye, sauger, largemouth and rock bass, sunfishes, and a variety of "rough" and "forage" fish such as bullhead, carp, chubs, suckers, sheepshead, redhorse, and various species of dace, minnow, and shiner. Erosion and nutrient contributions from industries further upstream have degraded the status of the system and limits the habitat quality for many fish species.

No construction or landscaping is planned in or directly adjacent to Bluff Creek (as preserved through the Primary District of the Bluff Creek Overlay), or in the riparian zone or the wooded corridor with the exception of a bridge and potential utility crossings near the southeast corner of the Bernardi site to facilitate the development of the east west collector roadway. Temporary construction-related siltation would affect Bluff Creek and the river, temporarily increasing siltation and nutrients to downstream habitats, but appropriate management practices would minimize this impact.

Wetlands

The original AUAR identified 27 wetlands within the project area. Existing wetlands are shown in Figures 4 and 5. The proposed Avienda development has identified ten wetlands within the development area as described in the Wetland Permit Application prepared by Kjolhaug Environmental Services Company, Inc. in Appendix 2. These wetlands are of various types and have been disturbed/degraded by either excavation, drainage, and/or farming. Of the ten wetlands, only Wetland 10 was rated high for amphibian habitat. The other nine wetlands were rated low to moderate for wildlife habitat, amphibian habitat, and vegetative diversity.

In the long run, the agricultural wetlands would provide greater functions and values than they do at present, because they would no longer be impacted by cultivation and most of the runoff contribution would be treated in on-site detention ponds or other surface water management practices. They could continue to receive nutrient inputs, depending on development densities, but it is likely that inputs would be lower than those occurring under intensive cultivation of the site. Other wetlands that were not as highly impacted by agricultural practices would be protected by the Bluff Creek Corridor management area. In a full development scenario, numerous wetlands could receive increased road pollutants, but it is likely that these inputs would not increase as a pollution source to Bluff Creek.

Wooded/Forest

Three mature wooded areas exist within the assessment area (see Figure 4), combined with the stream riparian area and several wooded fence rows, supports wildlife species that are well adapted to fragmented forest and forest edges in agricultural areas. This includes mammals such as white-tailed deer, eastern chipmunks, raccoons, gray squirrels, cottontail rabbits, woodchucks, and red foxes. Bird species include American crows, red-tailed hawks, downy woodpeckers, blue jays, black-capped chickadees, mourning doves, great horned owls, American robins, eastern wood-pewees, eastern phoebes, great crested flycatchers, chimney swifts, white breasted nuthatches, house wrens, gray catbirds, brown thrashers, cedar waxwings, northern cardinals, Baltimore orioles, warbling and red-eyed vireos, indigo buntings, chipping sparrows, song sparrows and American goldfinches. Reptiles and amphibians occurring in this portion of the site probably include garter snakes, ring-necked snakes, spring peepers, leopard frogs and gray treefrogs.

The wooded areas show signs of previous disturbance, so the plant community composition is not consistent with a native climax community. This undoubtedly has had some effect on animal communities as well, but the area provides considerable habitat resources nonetheless, including

some protection for Wetlands B, C and Bluff creek. With the application of proper land use management strategies that are largely already in place, future development within the project is not likely to adversely affect the three major wooded areas, and may create long-term benefits because cultivation will no longer occur at the forest margins, surrounding land will be continuously vegetated.

Cropland

The majority of the undeveloped AUAR project area is cropland, including portions of existing wetland areas. With the exception of the previously mentioned wooded areas the bulk of the remaining land cover is in existing cultivated fields. The cropland on the site is generally planted in corn and soybean monocultures, so habitat value is very limited. Relatively few wildlife species use such areas as habitat, and none of these species exclusively use cropland as habitat. However, cropland, and especially the more diverse margins, can provide substantial foraging opportunities for many raptors, songbirds, small mammals, and snakes.

The cropland area of the site would ultimately be altered in its entirety. All structures, impervious surfaces, and associated building improvements would be constructed on land that is presently under cultivation. The area would be excavated and graded, creating a potential short-term sedimentation risk to wetlands, and any wildlife habitat values presently occurring in this area would be indefinitely lost. The cultivated areas have the poorest wildlife habitat quality on the site, but they would be replaced with a constructed environment that would have minimal wildlife habitat value.

c) 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.

The Minnesota Department of Natural Resources Natural Heritage Rare Features Database was obtained from the DNR during the original 2005 AUAR. At that time, phone conversations were held with DNR staff members Sarah Hoffman (Data Delivery Specialist / End. Spp. Env. Rev. Coordinator) and Shannon Flynn (GIS Specialist) regarding the project area and associated natural resource information. No coordination letter (Sarah Hoffman personal communication) was sent. DNR Natural Heritage and Nongame Research Program staff will review the AUAR for accuracy of data interpretation.

There were no occurrences of rare features or species identified in the AUAR Project Area. However, there were numerous sites identified within a mile or so to the south of the project area and within the downstream stretches of Bluff Creek. Species that were identified are illustrated in Table 11.1.

TABLE 11.1 NATURAL RARE FEATURES DATABASE –SITES WITHIN A MILE OF THE PROJECT AREA

Common Name (common name accepted by the Natural Heritage & Nongame Research Program)	Element Occurrence Records
AMERICAN BROOK LAMPREY	1
AMERICAN GINSENG	1
BEAKED SPIKE-RUSH	1
CALCAREOUS SEEPAGE FEN (CENTRAL) PRAIRIE SUBTYPE	2
DRY PRAIRIE (CENTRAL) HILL SUBTYPE	1
HAIR-LIKE BEAK-RUSH	1
LOWLAND HARDWOOD FOREST	1
MAPLE-BASSWOOD FOREST (BIG WOODS)	3

Common Name (common name accepted by the Natural Heritage & Nongame Research Program)	Element Occurrence Records
OAK FOREST (BIG WOODS) MESIC SUBTYPE	1
SMALL WHITE LADY'S-SLIPPER	1
STERILE SEDGE	2
TWIG-RUSH	1
VALERIAN	1
WET MEADOW	1
WHORLED NUT-RUSH	1

The Environmental Impact Statement for the TH 212/312 expansion project contains additional information on these resources.

12. Physical impacts on water resources.

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 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 development, the AUAR should cover the possible impacts through a "worst case scenario" or else prevent impacts through the provisions of the mitigation plan.

The original AUAR identified 27 wetlands covering 54 acres. Some of these wetlands have been impacted by development that has occurred since. The proposed Avienda development has identified ten wetlands within the project area as described within the Wetland Permit Application in Appendix 2.

The ten identified wetlands comprise isolated basins or waterways that ultimately drain into Bluff Creek. Nine of these wetlands are highly affected by agricultural practices, such as plowing, draining or tilling and most have plant communities indicative of high levels of nutrient inputs, sedimentation or effective drainage.

Concept A of the proposed Avienda development would impact nine of the ten wetlands. Wetland 10 is located in the woodland area of the site and would be preserved. The other nine wetlands are proposed to be impacted by 4.6462 acres of jurisdictional wetland fill and 0.3499 acres of jurisdictional wetland excavation. The development also includes 714.5 linear feet of USACE regulated waterway impacts. Concept B of the proposed Avienda development would impact five wetlands with 1.33 acres of jurisdictional wetland fill. Additional detail on the proposed wetland impacts and mitigation measures are provided in Appendix 2.

13. Water Use.

If the area requires new water supply wells specific information about that 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.

New water supply wells are not planned or needed to provide water supply specifically to the AUAR area. Water supply is provided thru existing wells, the East Water Treatment Plant and a series of trunk watermains that have been constructed in recent years.

A new 12" trunk watermain will need to be extended through the Avienda development to complete the trunk watermain system within the AUAR area. Water supply to individual properties or developments within the Avienda project will extend from the trunk system.

Figure 16 shows proposed water supply line sizes and locations.

14. Water-related Land Use Management Districts.

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 project area includes two shoreland designations. The Bluff Creek is a protected stream that falls under the regulations of the shoreland district for property within 300 feet of the ordinary high water mark. Hazeltine Lake in Chaska is also covered by the shoreland ordinance within 1,000 feet of the ordinary high water mark. Other land use restrictions include the FEMA flood plain district regulations. These districts are mapped on Figure 7—Surface Water Features.

15. Water surface use.

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

There are no recreational water bodies in the AUAR project area.

16. Erosion and sedimentation.

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.

The development scenarios described in question 6 include development of roadway systems and municipal utility systems to accommodate development of roughly 1,366 housing units, park facilities, and approximately 1.3 million square feet of industrial/office development. While it is premature to determine the detailed earthmoving requirements for the general development pattern described above and in question 6, typical earthwork recommendations are that the topsoil and soft alluvial soils within the study area be removed prior to construction of the buildings. More removal of existing soils and placement of engineered soils may be required in areas near wetlands. A detailed site grading plan will be required as part of the plan submittals for City approval of specific development proposals in the AUAR area. Also, a detailed erosion control mitigation plan will be prepared and approved prior to the City's issuance of site grading permits.

Preparation of preliminary site development plans will include consultation with an urban forester to identify important specimens that should be preserved and/or existing trees that could be relocated within the development, using a tree spade. The details of the transplanting as well as an overall tree/landscape plan will be completed and reviewed by City staff for conformance to the City's tree ordinance as part of the preliminary and final site review. Similarly, City and watershed district regulations require maintenance of a minimum width of natural vegetation buffer around all wetlands. This buffer area promotes protection of natural vegetative cover to minimize erosion and sedimentation as part of site development plans.

The Bluff Creek Overlay District zoning overlay places restrictions on grading and site preparation activities in order to minimize erosion and sedimentation.

The potential for erosion of soils exposed during development of the AUAR study area will be minimized by using Best Management Practices (BMPs) during and after construction. Examples of possible BMPs include:

- Installation of erosion control measures prior to grading operations and maintaining them until all areas disturbed have been restored.
- Construction of detention ponds prior to site mass grading, to contain construction-related runoff/sediment.

- Sweeping streets as necessary where construction sediment has been deposited.
- After construction, paving or vegetating all disturbed areas to eliminate exposed soil surfaces.
- Delaying removal of erosion control measures until all disturbed areas have been stabilized.
- Preservation of existing vegetation adjacent to wetlands and the Bluff Creek.

Specific erosion control practices will be identified in final grading and construction plans for each proposed development project as required by the National Pollutant Discharge Elimination System (NPDES) permit the City of Chanhassen and the Regional Watershed Management Districts erosion/sedimentation control standards.

17. Water Quality-stormwater runoff.

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 stormwater issues;
-a map of the proposed stormwater management system and of the water bodies that will receive stormwater should be provided;
-the description of the stormwater systems would 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:
-lakes: within the Twin Cities metro area a nutrient budget analysis must be prepared for any "priority lake" identified by the Metropolitan Council. 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; National Pollutant Discharge Elimination System (NPDES)

City and watershed district regulations as well as National Pollutant Discharge Elimination System (NPDES) Phase II regulations (administered by the Minnesota Pollution Control Agency (MPCA)), establish the standard for surface water conveyance, detention, and mitigation for any development proposed in the AUAR study area. Mitigation requirements include:

- Abstracting the first 1.1-inch of runoff from new impervious surfaces.
- Maintaining discharge rates at or below current levels.
- Providing water quality treatment of runoff prior to discharge from the site or into onsite wetlands.
- Conform to NURP standards.
- Remove 60% of phosphorous and 90% of total suspended solids on an annual basis.
- Discharge to Lake Susan shall not impair water quality.
- Discharge to Bluff Creek shall improve water quality.
- Providing pre-treatment of runoff for infiltration or filtration practices.
- Developing storm water quality and quantity treatment by site or development.
- Preparing a Storm Water Pollution Prevention Plan (SWPPP) for each development or site.

In August 2006, the City developed and adopted a "Second Generation Surface Water Management Plan" (SWMP) to guide the development and implementation of a storm water collection and treatment system within the City. Figure 17 shows the existing drainage sub-districts and flow directions in the AUAR area. As development plans are refined, developer and City/watershed staff will work together to refine the storm water management plan, including sizing and location of ponds, the identification of potential additional abstraction areas, and the

implementation of the proposed storm water management BMP's. This plan will include a detailed storm water analysis for water quality discharges, including demonstration of conformance to National Pollutant Discharge Elimination System (NPDES) Phase II regulations and City/watershed storm water treatment standards for total system discharges. The storm water plan will also review wetland 'bounce' effects from storm water discharges as well as assessment of potential storm water impacts on wetland quality.

18. Water Quality-Wastewater.

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.

The City has reviewed the estimated sewer needs for the AUAR development and determined that the impact of additional flow on the existing municipal sewer system infrastructure is acceptable due to available or planned capacity. The estimated wastewater generation for the original AUAR study area is approximately 640,000 gallons per day which is consistent with the projected daily flow identified for this area (in the 2030 Comprehensive Sewer Policy Plan which forms the sanitary sewer component of the City's Comprehensive Plan). Existing development within the AUAR area combined with the proposed development scenario result in daily flow rates equal to or less than the original projected flow rates. Any major wastewater flow changes for this area will haveneed to be updated to reflect the additional sewer needs for the AUAR study area in the City's Comprehensive Sanitary Sewer PolicySystem plan and in coordination with Metropolitan Council Environmental Services (MCES).

19. Geologic hazards and soil conditions.

A map should be included to show any groundwater hazards identified. A standard soils map for the area should be included.

The County Well Index (CWI) was searched data regarding water-well contractors' logs of geologic materials encountered during drilling by quarter section in the project area. Records indicate that the deepest well in the project area is 278 feet and did not experience bedrock during drilling. The Geologic Inventory map illustrating bedrock and surficial geologic information is included as Figure 8. A map illustrating soil types is included as Figure 9. Appendix 7 contains a code to the soil types identified on the map.

20. (a) Solid wastes; (b) hazardous wastes; (c) storage tanks.

For a, generally 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. No response is necessary for b. For c, potential locations of storage tanks associated with commercial uses in the AUAR should be identified (e.g., gasoline tanks at service stations).

(A) Solid Wastes

The project area will develop with residential, office/industrial, and commercial uses that will generate municipal solid waste (MSW), recycling products, and hazardous waste. Carver County Environmental Services logs the amount of waste generated within the County on an annual basis. The City of Chanhassen licenses 8 collection companies to collect and transport waste and recyclables to landfill sites at various locations in the metropolitan area. Residents and businesses contract with collection companies from those licensed to operate in the city. Waste is either stored at those landfill locations or transported to other locations in Minnesota or to facilities located in Wisconsin and Iowa.

According to data from Carver County, the City of Chanhassen, and the Minnesota Pollution Control Agency, the average person in Chanhassen generated 1.098 tons of MSW and .026 tons of recycling.

TABLE 20.1. SUMMARY OF CURRENT AND FUTURE RESIDENTIAL WASTE GENERATION

Residential Waste Generation Rates	Current Population Estimate	Current Estimate tons/Year	Future Population Estimate	Future Estimate Tons/Year at full buildout
1.098 tons of **MSW**/person/year	2,032	2231	3,632	3988
0.026 tons of **recycling**/person/year	2,032	53	3,632	94

Notes:
1) MSW generation based on data from the Minnesota Pollution Control Agency's *Report on 2013 SCORE Programs*.
2) Recycling materials generation based on 2015 county-wide data.
3) 2030 Chanhassen population forecast – 31,700; household forecast – 11,900; 2.66 persons/household (Metropolitan Council).

TABLE 20.2. SUMMARY OF CURRENT AND FUTURE COMMERCIAL WASTE GENERATION

Commercial Waste Generation Rates	Current Employment Estimate	Current Estimate Of tons/Year	Future Employment Estimate	Future Estimate Of tons/Year
1.59 tons of **MSW**/employee/year	0	0 tons	3,945	6,272
1.1 tons of **recycling**/employee/year	0	0 tons	3,945	4,339

Notes:
1) MSW generation based on 2015 data for the City of Chanhassen from Carver County Environmental Services.
2) Recycling materials generation based on 2015 county-wide data.
3) Assumes office employment @ 4 employees/1000 square feet and office/industrial employment @ 2 employees/1000 square feet and Commercial Areas @3 employees/1000 square feet.

(B) Hazardous Wastes

No response necessary for this section.

(C) Storage Tanks

The Minnesota Pollution Control Agency maintains a database of all identified leaking under/above ground storage tanks. The Leaking Underground Storage Tank (LUST) program database was searched for leaking tanks within the project area. No sites within the project area were identified.

Farming operations within the project area do however create the potential for petroleum soil contamination in and around farmsteads.

The land use plan does not anticipate commercial development in the project area that might utilize underground storage tanks as part of operations. Office businesses would likely not need tanks. A future middle/high school facility would not likely have fueling facilities on-site. Bus refueling would occur elsewhere off-site. However, should one develop, it would be required to apply with MPCA and other applicable standards.

21. Traffic.

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 response to item 22 and to the noise aspect of item 24.

A traffic analysis was completed for the AUAR study area. The complete traffic study for the AUAR study area is included in Appendix 4. This section presents a summary of key findings and focuses on traffic impacts and measures to mitigate impacts for the remaining AUAR development based on two future development scenarios.

Study Intersections and Roadways

Since the completion of the 2005 AUAR study, there have been significant infrastructure investments made in the study area. These include the construction of Trunk Highway 212 as a four-lane limited access freeway, extension of Powers Boulevard from Lyman Boulevard to Pioneer Trail, and the widening of Lyman Boulevard from Audubon Road to Powers Boulevard.

As the remaining AUAR development moves forward, there are still a few roadways to be constructed. As part of the development of the NW quadrant of the study area, a collector roadway will be constructed and connect to the intersection of Lyman Boulevard & Audubon Road North and Audubon Road & Lakeview Drive. As part of the development of the NE quadrant, Bluff Creek Boulevard will be extended to the east and connect with the intersection of Powers Boulevard & TH 212 Ramp (North). Also, a north-south roadway will be constructed through the development that will connect to Bluff Creek Boulevard to the south and the intersection of Lyman Boulevard & Sunset Trail to the north. As part of the SE quadrant development, three cul-de-sac roadways will be constructed; one connecting to Powers Boulevard, one connecting to Pioneer Trail, and the third connecting to Bluff Creek Drive.

Figure18 shows the existing and future network in the AUAR development study area. This figure shows the existing roadway network, including roadway improvements identified in the 2005 AUAR study that has been completed, as well as the remaining future roadway connections to serve the development area.

The study area includes existing intersections that are expected to be impacted by the AUAR development. These intersections include:

- Audubon Road & Lyman Boulevard
- Audubon Road & Lakeview Drive
- Audubon Road & Bluff Creek Boulevard/Butternut Drive
- Audubon Road & Pioneer Trail
- Pioneer Trail & Bluff Creek Drive
- Pioneer Trail & Powers Boulevard
- Powers Boulevard & TH 212 Ramp (South)
- Powers Boulevard & TH 212 Ramp (North)
- Lyman Boulevard & Powers Boulevard
- Lyman Boulevard & Sunset Trail

- Lyman Boulevard & Audubon Road (North)

In addition to the existing intersections, connections to the existing roadway network will be made to serve the remaining AUAR development. Development-related connections include:

- Audubon Road & Lakeview Drive/NW Quadrant Access
- Lyman Boulevard & Audubon Road (North)/NW Quadrant Access
- Lyman Boulevard & Sunset Trail/NE Quadrant Access
- Powers Boulevard & TH 212 Ramp (North)/NE Quadrant Access
- Powers Boulevard & SE Quadrant Access
- Pioneer Trail & SE Quadrant Access
- Bluff Creek Drive & SE Quadrant Access

Trip Generation

As part of the AUAR update, two future development concepts were considered. The NE quadrant has considered two different development concepts; one that assumes the existing wetlands will be mitigated (Concept A), and one that preserves the wetlands (Concept B). The SE quadrant has also considered two different development concepts, both containing a mix of residential and office: more residential land use is assumed as part of Concept A to support the more intense use on the NE quadrant, whereas Concept B for the SE quadrant assumes more office development as the NE quadrant would have a smaller development intensity. The NW quadrant remains the same for both Concept A and Concept B and will provide general light industrial uses.

Trip generation for daily and the AM and PM peak hour was calculated for the remaining development based on trip generation rates published by the Institute of Transportation Engineers (ITE) in Trip Generation, 9th Edition. The assumed AUAR development's land uses and corresponding trip generation for Concept A is shown in Table 21.1, whereas the assumed AUAR development's land uses and corresponding trip generation for Concept B is shown in Table 21.2.

TABLE 21.1 – TRIP GENERATION ESTIMATES (CONCEPT A)

Property	Land Use	Intensity	Trip Generation Values		
			Daily	AM Total (In/Out)	PM Total (In/Out)
NE Quadrant	Day Care Center	16,000 SF	1,185	195 (105/90)	195 (90/105)
	Retail	393,000 SF	16,780	375 (235/140)	1,460 (700/760)
	Restaurant	26,500 SF	3,370	285 (155/130)	260 (155/105)
	Office	150,000 SF	1,655	235 (205/30)	225 (40/185)
	Residential-Attached (Apartments)	407 DU	2,590	205 (40/165)	240 (155/85)
	Residential-Attached (Townhomes)	38 DU	125	10 (0/10)	10 (5/5)
	Hotel	100 Rooms	520	55 (30/25)	60 (30/30)
	Total Site Generated Trips		**26,225**	**1,360 (770/590)**	**2,450 (1,175/1,275)**
	Internal Capture Reduction		*6,448*	*295 (150/145)*	*660 (330/330)*
	Total Driveway Trips		**19,777**	**1,065 (620/445)**	**1,790 (845/945)**
	Pass-By Reduction		5,512	--	460 (230/230)

	Total Net New Trips		**14,265**	**1,065 (620/445)**	**1,330 (615/715)**
NW Quadrant	General Light Industrial	440,100 SF	3,065	405 (355/50)	425 (50/375)
	Total Net New Trips		**3,065**	**405 (355/50)**	**425 (50/375)**
SE Quadrant	Office	240,600 SF	2,655	375 (330/45)	360 (60/300)
	Residential-Attached (Apartments)	157 Units	1,075	80 (15/65)	105 (70/35)
	Total Site Generated Trips		3,730	455 (345/110)	465 (130/335)
	Internal Capture Reduction		*54*	*0 (0/0)*	*10 (5/5)*
	Total Net New Trips		**3,676**	**455 (345/110)**	**455 (125/330)**

TABLE 21.2 – TRIP GENERATION ESTIMATES (CONCEPT B)

Property	Land Use	Intensity	Trip Generation Values		
			Daily	AM Total (In/Out)	PM Total (In/Out)
NE Quadrant	Day Care Center	6,000 SF	445	75 (40/35)	75 (35/40)
	Retail	224,000 SF	9,565	215 (135/80)	830 (400/430)
	Restaurant	7,000 SF	890	75 (40/35)	70 (40/30)
	Office	150,000 SF	1,655	235 (205/30)	225 (40/185)
	Residential-Attached (Apartments)	280 DU	1,820	140 (30/110)	170 (110/60)
	Residential-Attached (Townhomes)	80 DU	265	20 (5/15)	25 915/10)
	Hotel	150 Rooms	970	80 (45/35)	90 (45/45)
	Total Site Generated Trips		**15,610**	**840 (500/40)**	**1,485 (685/800)**
	Internal Capture Reduction		*3,206*	*160 (80/80)*	*380 (190/190)*
	Total Driveway Trips		**12,404**	**680 (420/260)**	**1,105 (495/6100**
	Pass-By Reduction		2,958	--	240 (120/120)
	Total Net New Trips		**9,446**	**680 (420/260)**	**865 (375/490)**
NW Quadrant	General Light Industrial	440,100 SF	3,065	405 (355/50)	425 (50/375)
	Total Net New Trips		**3,065**	**405 (355/50)**	**425 (50/375)**
SE Quadrant	Office (West)	287,600 SF	3,170	450 (395/55)	430 (75/355)
	Office (East)	141,000 SF	1,555	220 (195/25)	210 (35/175)
	Residential-Attached (Townhomes)	34 Units	115	10 (0/10)	10 (5/5)
	Total Site Generated Trips		**4,840**	**680 (590/90)**	**650 (115/535)**

Traffic Analysis

A traffic analysis was completed for Existing conditions and Build conditions (2022 horizon year), with and without the proposed AUAR development. Background traffic volumes for 2022 were developed by applying a 1.5% annual growth rate to existing traffic volumes throughout the study area. Scenarios included in this analysis are shown in Table 21.3. Figure 19 provides Existing traffic volumes on the surrounding roadway segments and intersections.

TABLE 21.3 – TRAFFIC ANALYSIS SCENARIOS

SCENARIO	ANALYSIS PERIOD
WITHOUT UNDEVELOPED AUAR PARCELS	
E-1	Existing Traffic; Existing Network
F-1	2022 Projected Background Traffic
WITH UNDEVELOPED AUAR PARCELS	
F-2	2022 Projected Traffic, Concept A Land Uses; includes all internal roads
F-3	2022 Projected Traffic, Concept B Land Uses; includes all internal roads

Traffic generated for the proposed development (Table 21.1 and Table 21.2) was assigned to existing and future roadway networks. From this traffic assignment that included background traffic growth, potential future traffic impacts were determined. Figure 20 and Figure 21 provide the site traffic assignment for Concept A and Concept B, respectively. Figure 22 and Figure 23 provide the 2022 total traffic volumes for Concept A and Concept B, respectively.

Scenarios F-1, F-2, and F-3 demonstrate future conditions (include 1.5% background traffic growth) with and without the AUAR development. These were used to demonstrate the combined impact of background traffic growth and the proposed AUAR development.

Level of Service Analysis

Level of service (LOS) analysis was conducted for the AM (7 to 9 AM) and PM (4 to 6 PM) peak hours at each study intersection. LOS is a qualitative measure used by traffic engineers to describe the operations of an intersection. It ranges from A to F, with A being the best and F being the worst level of operation. LOS A conditions are characterized by minimal vehicle delay and free-flow conditions, while LOS F is characterized by long vehicle delay—usually when demand exceeds available roadway capacity. Although LOS E is defined as at-capacity, LOS D is generally the minimum acceptable level of operation at an intersection.

Each study intersection was analyzed for each analysis scenario based on the Highway Capacity Manual. For comparison purposes, analysis results of unsignalized and signalized intersections for each scenario are shown in Table 21.4 and Table 21.5, respectively.

For unsignalized intersections, LOS was reported for the stop-controlled movements and major road left-turn movements. This is because major street through movement vehicles are assumed to experience zero delay and it can disproportionately skew the weighted average of all movements, which can mask important LOS deficiencies. For signalized intersection, the overall intersection LOS is reported.

TABLE 21.4 – UNSIGNALIZED INTERSECTION LEVEL OF SERVICE

Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Lyman Boulevard & Audubon Road North												
AM – Scenario E-1				E		A	A	--			--	--
PM – Scenario E-1				B		A	A	--			--	--
AM – Scenario F-1				F		A	B	--			--	--
PM – Scenario F-1				B		A	A	--			--	--
AM – Scenario F-2	D	F	A	F	F	F	B	--	--	A	--	--
PM – Scenario F-2	C	D	B	D	D	A	A	--	--	A	--	--
AM – Scenario F-3	F	C	A	F	F	F	B	--	--	A	--	--
PM – Scenario F-3	C	D	B	C	C	A	A	--	--	A	--	--
Lyman Boulevard & Sunset Trail/ NE Quadrant Access												
AM – Scenario E-1				A		A	A	--			--	--
PM – Scenario E-1				B		A	A	--			--	--
AM – Scenario F-1				B		A	A	--			--	--
PM – Scenario F-1				B		A	A	--			--	--
AM – Scenario F-2	C	A	A	C	A	A	A	--	--	A	--	--
PM – Scenario F-2	F	A	F	D	A	A	A	--	--	A	--	--
AM – Scenario F-3	C	A	A	C	A	A	A	--	--	A	--	--
PM – Scenario F-3	F	A	B	D	A	A	A	--	--	A	--	--
Powers Boulevard & Pioneer Trail												
AM – Scenario E-1				E		A	A	--			--	--
PM – Scenario E-1				B		A	A	--			--	--
AM – Scenario F-1				F		A	B	--			--	--
PM – Scenario F-1				F		C	B	--			--	--
AM – Scenario F-2				F		D	B	--			--	--
PM – Scenario F-2				F		F	B	--			--	--
AM – Scenario F-3				F		A	B	--			--	--
PM – Scenario F-3				F		F	B	--			--	--
Audubon Road & Lakeview Drive/NW Quadrant Access												
AM – Scenario E-1	A	--			--	--	B		A			
PM – Scenario E-1	A	--			--	--	A		A			
AM – Scenario F-1	A	--			--	--	B		A			
PM – Scenario F-1	A	--			--	--	B		A			
AM – Scenario F-2	A	--	--	A	--	--	C	A	A	C	A	A
PM – Scenario F-2	A	--	--	A	--	--	C	A	B	C	A	A
AM – Scenario F-3	A	--	--	A	--	--	C	A	A	C	A	A
PM – Scenario F-3	A	--	--	A	--	--	C	A	B	C	A	A
Powers Boulevard & SE Quadrant Access												
AM – Scenario E-1												
PM – Scenario E-1												
AM – Scenario F-1												
PM – Scenario F-1												
AM – Scenario F-2	A	--	--	A	--	--	B	A	C	A	A	A
PM – Scenario F-2	B	--	--	A	--	--	F	A	F	A	A	A
AM – Scenario F-3	A	--	--	A	--	--	A	A	C	A	A	A
PM – Scenario F-3	A	--	--	A	--	--	F	A	F	A	A	A

(1) "--" = Not applicable
(2) Darkened boxes = movement not available

TABLE 21.4 (CONT.) – UNSIGNALIZED INTERSECTION LEVEL OF SERVICE

Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Pioneer Trail & SE Quadrant Access												
AM – Scenario E-1								--			--	--
PM – Scenario E-1								--			--	--
AM – Scenario F-1								--			--	--
PM – Scenario F-1								--			--	--
AM – Scenario F-2				C		A	A	--			--	--
PM – Scenario F-2				D		C	A	--			--	--
AM – Scenario F-3				C		A	A	--			--	--
PM – Scenario F-3				D		C	A	--			--	--
Bluff Creek Drive & SE Quadrant Access												
AM – Scenario E-1		--	--		--							
PM – Scenario E-1		--	--		--							
AM – Scenario F-1		--	--		--							
PM – Scenario F-1		--	--		--							
AM – Scenario F-2		--	--	A	--					A		A
PM – Scenario F-2		--	--	A	--					A		A
AM – Scenario F-3		--	--	A	--					A		A
PM – Scenario F-3		--	--	A	--					A		A

(1) "--" = Not applicable
(2) Darkened boxes = movement not available

TABLE 21.5 – SIGNALIZED INTERSECTION LEVEL OF SERVICE

Intersection	Scenario E-1		Scenario F-1		Scenario F-2		Scenario F-3	
	AM	PM	AM	PM	AM	PM	AM	PM
Lyman Boulevard & Audubon Road	B	B	B	B	B	B	B	B
Lyman Boulevard & Powers Boulevard	B	B	B	B	B	C	B	C
Powers Boulevard & TH 212 (North)	B	B	B	B	C	C	C	C
Powers Boulevard & TH 212 (South)	B	A	B	A	B	B	B	B
Pioneer Trail & Bluff Creek Drive	B	B	B	B	C	B	C	B
Audubon Road & Pioneer Trail	B	B	B	C	B	C	B	C
Audubon Road & Bluff Creek Boulevard	B	A	B	A	B	B	B	B
Bluff Creek Boulevard & Bluff Creek Drive (RAB)	A	A	A	A	A	A	A	A
Lyman Boulevard & Audubon Road North/NW Quadrant [(1)]					B	B	B	B
Lyman Boulevard & Sunset Trail/NE Quadrant [(1)]					A	B	A	A
Powers Boulevard & Pioneer Trail [(1)]					B	B	A	B

(1) Analyzed as a potential signal for Scenario F-2 and F-3 due to results of unsignalized intersection analysis

(2) Darkened boxes = movement not available

Existing Conditions Level of Service Analysis

This analysis was completed to determine the impact of existing traffic volumes on the existing roadway network. This includes the built-out of portions of the AUAR development. Based on the Existing conditions (Scenario E-1) capacity analysis, all signalized study intersections are anticipated to operate at an acceptable LOS. For unsignalzied intersections, all movements are anticipated to operate at an acceptable LOS with the exception of the following:

- **Lyman Boulevard & Audubon Road North** – The southbound left-turn movement is reported as operating at LOS E during the AM peak hour.
- **Powers Boulevard & Pioneer Trail** – The southbound left-turn movement is reported as operating at LOS E during the AM peak hour. Based on field observations, the capacity analysis is likely overestimating vehicle delay for the southbound left-turn movement.

2022 Buildout Conditions Level of Service Analysis

In addition to the Existing analysis, an analysis of Year 2022 conditions was completed. This was completed to determine the impact of future traffic volumes on the adjacent roadway network, with and without the remaining AUAR undeveloped parcels. Area traffic forecasts were computed for full development conditions. Two concepts were considered for full development; Concept A and Concept B. Results of the traffic analysis are as follows:

Based on the Future Background conditions (Scenario F-1) capacity analysis, all signalized study intersections are anticipated to operate at an acceptable LOS. For unsignalized intersections, all movements are anticipated to operate at an acceptable LOS with the exception of the following:

- **Lyman Boulevard & Audubon Road North** – The southbound left-turn movement is anticipated to operate at LOS F during the AM peak hour.
- **Powers Boulevard & Pioneer Trail** – The southbound left-turn movement is anticipated to operate at LOS F during the AM and PM peak hours.

Based on the Future conditions (Scenario F-2 and F-3) capacity analyses, all signalized study intersections are anticipated to operate at an acceptable LOS. For unsignalized intersections, all movements are anticipated to operate at an acceptable LOS with the exception of the following:

- **Lyman Boulevard & Audubon Road North** – The northbound and southbound left-turn movements are anticipated to operate at LOS F during the AM peak hour.
- **Powers Boulevard & Pioneer Trail** – The southbound left-turn movement is reported as operating at LOS F during the AM and PM peak hours.
- **Lyman Boulevard & Sunset Trail/NE Quadrant Access** – The northbound left-turn movement is anticipated to operate at LOS F during the PM peak hour for both Scenario F-2 and Scenario F-3.
- **Powers Boulevard & SE Quadrant Access** – The eastbound left-turn movement is anticipated to operate at LOS F during the PM peak hour for both Scenario F-2 and Scenario F-3.

Based on the capacity analysis for Scenario F-2 and F-3, the following intersections should be monitored for potential signalization (if volumes warrants are met) as the area develops:

- Lyman Boulevard & Audubon Road North/NW Quadrant Access
- Lyman Boulevard & Sunset Trail/NE Quadrant Access
- Powers Boulevard & Pioneer Trail

Figure 24 provides the Existing and Build-Out intersection control and lane assignments at the study intersections.

The interchange with TH 212 is anticipated to accommodate the future growth of the area, including the Buildout of the entire AUAR development. The interchange has already been constructed with signals and with dedicated turn lanes for all turning movements.
At the intersection of Audubon Road & Lakeview Drive/NW Quadrant Access, the northbound and southbound approaches are recommended to be restriped to provide a dedicated left-turn lane and shared through-right lane.

22. Vehicle-related air emissions.

Although the Pollution Control Agency no longer issues Indirect Source Permits, traffic-related air quality may still be an issue if the analysis in item 21 indicates that development would cause or worsen traffic congestion. The general guidance for item 22 in EAW 4 Guidelines should still be followed. Questions about the details of air quality analysis should be directed to the MPCA staff.

Typical of most developments, the proposed development will generate air pollution because of increased motor vehicle activity. Motor vehicles emit a variety of air pollutants including carbon monoxide (CO), hydrocarbons, nitrogen oxides, and particulates. The primary pollutant of concern is CO, which is a byproduct of the combustion process of motor vehicles. CO concentrations are highest where vehicles idle for extended periods of time. For this reason, CO concentrations are generally highest near signalized intersections where vehicles are delayed and emitting CO. Generally, concentrations approaching state air quality standards are found within about 100 feet of a roadway source. Further from the road, the CO in the air is dispersed by the wind such that concentrations rapidly decrease.

The Indirect Source Permit (ISP) rule 7023.9010 was terminated in 2001; therefore, an ISP is not required for the proposed development. A hot spot air quality screening was conducted and is described below.

The EPA has approved a screening method to determine which intersections need analysis for potential hot spot air quality impacts. The screening analysis consists of two criteria. If either criterion is met, then an intersection analysis would be required.

The first criterion is to determine whether the total daily approach volume of the AUAR study area exceeds 79,400 AADT. If it does, then an analysis would be required. The highest AADT on signalized roadways is approximately 19,200 on Powers Boulevard south of Lyman Boulevard, resulting in approach volumes at all of the signalized intersections near the AUAR study area that are well below 79,400 AADT. Therefore, the first criterion is not met.

The second criterion compares the AUAR study area to the locations of 10 intersections that the MPCA has identified as having the highest volumes in the metro area. If any of these 10 intersections were affected by either development scenario, analysis would be required. The nearest of these intersections is over five miles away, at the intersection of TH 101 and CR 101 in Minnetonka, and would not be impacted by the development; therefore, the second criterion is not met. Thus, no hot spot analysis is needed, and no measurable change in air quality is anticipated under either of the development scenarios.

23. Stationary source air emissions.

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

24. Dust, odors, noise.

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.

As stated in the AUAR guidelines, construction noise need not be addressed unless there is some unusual reason to do so. No unusual circumstances have been identified that would necessitate a detailed noise analysis. It should also be noted that all county roads are exempt from State noise standards.

A sound increase of 3 dBA is barely noticeable by the human ear, a 5 dBA increase is clearly noticeable, and a 10 dBA increase is heard as twice as loud. For example, if the sound energy is doubled (i.e., the amount of traffic doubles), there is a 3 dBA increase in noise, which is just barely noticeable to most people. On the other hand, if traffic increases by a factor of 10, the resulting sound level will increase by about 10 dBA and be heard as twice as loud.

Traffic levels attributable to the project are well below the amount that would generate a sound increase that could be noticeable. Residential areas exist within the westerly portion of the AUAR area, in the area immediately west of the project, along the north side of Lyman Boulevard, and in the northeast quadrant of Powers Boulevard and Pioneer Trail. In the vicinity of these residential areas, the greatest increase in traffic volume between existing and 2022 Build is approximately 65%, which would result in noise level changes of less than 3 dBA.

The AUAR study area will be developed such that any land use activities that are sensitive to noise will have sufficient setbacks from existing noise sources to thereby reduce the potential for noise impact. These details will be determined as the project development proceeds.

Construction within the AUAR study area will result in increases in traffic noise of less than 3.0 dBA. A change in sound levels of three dBA is barely noticeable by the human ear. Therefore, the change in traffic noise levels is not anticipated to be readily perceptible. To the extent possible, construction activities will be conducted in a way such that noise levels are minimized, and that nighttime construction activities are kept to a minimum.

25. Sensitive resources:

Archeological, historic, and architectural resources. For an AUAR, contact with the State Historic Preservation Office 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.

On May 21, 2003, The 106 Group Ltd. (The 106 Group) conducted a cultural resources assessment for the Chanhassen AUAR. The report provides preliminary cultural resources information for completion of the AUAR and to assist in future compliance requirements under federal and state law. If the regulatory review for this project is at the state or local level, consultation with the Minnesota State Historic Preservation Office (SHPO) is appropriate. If there will be any federal involvement in the future (for example, through funding or permitting), consultation with the applicable federal agency and SHPO is required.

The purpose of this cultural resources assessment was to identify any historic properties within the study area of the Chanhassen AUAR that require further investigation in order to determine their potential eligibility for listing on the National Register of Historic Places (NRHP) and to eliminate those properties that are clearly not eligible. In addition, the survey assessed the project area's potential for containing previously unidentified archaeological resources. Should

the boundaries of the Chanhassen AUAR be altered from their current configuration, the study area for architecture-history and archaeological resources will need to be adjusted as appropriate.

The cultural resources assessment for the AUAR included background research, a visual reconnaissance of the entire study area, assessment of archaeological potentials within the study area, and photographic documentation of buildings and structures 50 years of age or older within the study area. The study area for archaeological and architecture-history resources was approximately 650 acres (263 hectares). The full report is included in Appendix 3.

Two reported (not field checked) archaeological sites (21CRaj, 21CRak) are located within the study area for the Chanhassen AUAR (Table 25.1; see Figure 10 and Appendix 3). There are seven additional previously recorded (confirmed) archaeological sites (21CR14, 21CR15, 21CR97, 21CR103, 21CR104, 21CR108, 21CR109) within a one-mile (1.6-km) radius of the study area (Table 25.2).

TABLE 25.1. ARCHAEOLOGICAL SITES WITHIN STUDY AREA

Site No.	Site Name	T	R	S	¼ Sec.	Description	NRHP Status
21CRaj	unnamed	116N	23W	23	SE-SW-SW-SW	Reported mound group	Not evaluated
21CRak	unnamed	116N	23W	23	SE-SE-SE-SW	Reported burial	Not evaluated

TABLE 25.2. ARCHAEOLOGICAL SITES WITHIN ONE MILE OF STUDY AREA

Site No.	Site Name	T	R	S	¼ Sec.	Description	NRHP Status
21CR14	unnamed	116N	23W	22	N-SW-SW-SW	Artifact scatter	Not evaluated
21CR15	unnamed	116N	23W	22	W-NE-SE-SW	Lithic scatter	Not evaluated
21CR97	unnamed	116N	23W	21	NW-NW-NE-SE	Single flake	Not evaluated
21CR103	unnamed	116N	23W	27	SE-NW-SE	Lithic scatter	Determined not eligible
21CR104	unnamed	116N	23W	27	SW-NE-NE-SE	Lithic scatter	Not evaluated
21CR108	Lake Susan-Riley Creek	116N	23W	14	N-NW-NE-SE and S-SW-SE-NE	Lithic scatter	Not evaluated
21CR109	Lake Susan SW Shore	116N	23W	14/23	C-S-S-SE/ NE-NW-NE	Lithic scatter and possible mound group	Not evaluated

No properties have been previously inventoried within the study area. A total of three farmsteads/houses have been inventoried within one mile (1.6 km) of the project area. These farmsteads, located just north of the project area on Audubon Road, are indicative of the types of properties that may be considered to be significant within the study area. Each of the farmsteads (CR-CHC-004, CR-CHC-005, and CR-CHC-006) has a house made of Chaska brick and constructed circa 1890. Chaska brick is a locally manufactured brick known for its cream color. The Albertine and Fred Heck House (CR-CHC-006) is listed on the NRHP under Criterion A “as a well-preserved example of a building constructed of Chaska brick” (Albertine and Fred Heck House NRHP nomination, on file at the Minnesota SHPO, St. Paul). It is located adjacent to the project area.

The 106 Group inventoried eight properties within the study area that contained buildings 50 years of age or older. All of the properties are associated with farmsteads in this agricultural region. Building types include frame houses, barns, silos, granaries, chicken houses, and other outbuildings dating to the late nineteenth and early twentieth centuries. House styles include a Queen Anne, a Craftsman-style bungalow, and American Foursquares.

Due to its proximity to Chaska, this area is known for its houses constructed of Chaska brick, a distinctive cream-colored brick associated with the region. Three previously recorded properties constructed in the 1890s, located just north of the project area, are examples of the use of

Chaska brick. None of the properties located within the study area utilized this building material. Most farmsteads exhibit building types commonly constructed during the 1910s and 1920s. One exception is 1600 Pioneer Trail, which features a Queen Anne style house, more typical of the late nineteenth century.

None of the farmsteads retain a complete complement of agricultural outbuildings typical of farms from this period, such as a granary, a chicken house, and other sheds. Some only retain the original house and barn. In some cases, the historical integrity of the primary buildings, such as the house or barn, have been significantly compromised. As a result, the farmsteads do not sufficiently convey their association with late nineteenth- and early twentieth-century farming practices.

Although several of the individual buildings retain good historical integrity, their styles are typical of the period and do not appear to be significant representations of architectural styles.

One property listed on the NRHP is located adjacent to the project area (CR-CHC-006; the Albertine and Fred Heck House). Should the Chanhassen AUAR project involve a federal agency in the future, this house should be considered when assessing effects to historical properties.

In October of 2016 Merjent, Inc. conducted a Phase I Archaeological Reconnaissance Survey of "Avienda" development project area consisting of a pedestrian and subsurface archaeological investigation. During the field survey Merjent confirmed location of and delineated one previously documented site. No previously undocumented archaeological sites were identified. The full study from Merjent is included within Appendix 3 and appended to the original inventory conducted by 106 Group.

Prime or unique farmlands. 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.

It is not anticipated that existing farmlands will be protected through special programs, deed restrictions, conservation easements, or other means. It is expected that the project area will fully develop.

Designated parks, recreation areas, or trails. 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.

One neighborhood park and one preserve were developed as part of the developments within the project area. Neither area will be impacted by future development within the AUAR area. Trail connections constructed as part of future development will provide linkages to recreational areas generally following roadway corridors and the Bluff Creek corridor.

Scenic views and vistas. 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).

It is a goal of the community to protect the physical and visual resources of the Bluff Creek Corridor as identified in the Bluff Creek Watershed Natural Resources Management Plan. This will be accomplished through land use management practices and strategies that protect key areas within the Primary and Secondary Districts of the Bluff Creek Corridor.

26. Adverse visual impacts.

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

Edge conditions to the commercial aspects of the Avienda project or other office/industrial developments can be screened from adjacent residential neighborhoods

through landscaping or berming established as part of the PUD or site plan approval processes. This screening shall be done to manage glare and noise emanating from the site during and after project construction. Building height and placement will be reviewed as part of the development process in a manner that preserves high quality views and vistas.

27. Compatibility with Plans.

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 Chanhassen maintains an updated Comprehensive Plan that is consistent with regional policy. The current comprehensive plan was updated in 2008. The plan contains the following elements:

- Land use
- Housing
- Natural resources
- Park and open space
- Transportation
- Sewer and Water
- Capital Investment Program

The City has a Second Generation Surface Water Management Plan (SWMP) that was adopted in 2006 and provides guidance on surface water management issues. A Natural Resource Management Plan for the Bluff Creek Watershed was prepared in 1996 that provides a thorough inventory of natural resources along the Bluff Creek Corridor. This plan formed the basis for development of the Bluff Creek Overlay district, which helps implement the Management Plan and general goals/policies of the Comprehensive Plan.

The development scenario described in Question #6 is based on the general directions outlined in the above mentioned official plans and studies.

28. Impact on infrastructure and public services.

This item should first of all summarize information on physical infrastructure presented under items (such 6, 17, 18 and 21). 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. The RGU must be careful to include project-associated infrastructure as an explicit part of the AUAR review if it is to exempt from project-specific review in the future.

Physical infrastructure systems that will be impacted include municipal sanitary sewer, municipal water supply, storm sewer, and transportation facilities including transit facilities.

Municipal Infrastructure Systems

Impacts on sanitary sewer systems, storm sewer systems, and public water supply systems because of the projected development outlined in question 6 will be significant but consistent with City planning. The City has identified in its planning efforts improvements to its municipal infrastructure associated with anticipated development of the AUAR area per the 2030

Comprehensive Plan. Trunk sanitary sewer will be extended to serve the Avienda project. A new lift station, force main, and additional trunk sewer will be required to serve the portion of the project area east of TH 212/312. The water distribution system will be expanded to serve the Avienda project with water supply from the East Water Treatment Plant. No new wells are anticipated. The City's Second Generation SWMP, watershed district rules, and the NPDES Phase II Program outline requirements for managing storm water. A strong position on environmental site design is outlined by existing City polices and ordinances.

Transit Facilities

The City of Chanhassen is served by SouthWest Transit. Two park-and-ride facilities are located in the City, one at Highway 212 and Highway 101, and one at the Chanhassen Transit Station on Market Street in downtown Chanhassen.

Since 2003 a number of park and ride facilities have been built near the project area. Future transit facilities and service will be evaluated as growth continues and service becomes more feasible.

Fire and Police

Police services in Chanhassen are provided by the Carver County Sheriff. This would not change. Fire services are located north of the project area. Development of the project area will place a greater demand on improved emergency response times to this area; however, services are adequate for the level of development in the project area. Completion of Bluff Creek Boulevard will provide greater connectivity and enhanced emergency services.

29. Cumulative impacts.

Because the AUAR process by its nature is intended to deal with cumulative potential effects from all future developments within the AUAR area, it is presumed that the responses to all items on the EAW form automatically encompass the impacts from all anticipated developments within the AUAR area. However, the total impact on the environment with respect to any of the items on the EAW form may also be influenced by past, present, and reasonably foreseeable future projects outside of the AUAR area. The cumulative potential effect descriptions may be provided as part of the responses to other appropriate EAW items, or in response to this item. No response required.

30. Other potential environmental impacts.

If applicable, this item should be answered as requested by the EAW form.

The projected development described in question 6 will not generate any environmental impacts beyond those described in this AUAR.

31. Summary of Issues.

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.

See Executive Summary

MITIGATION INITIATIVES

> ***Mitigation Plan.*** *The final AUAR document must include an explicit mitigation plan. At the RGU's option, a draft plan may be include in the draft AUAR document; of course, whether or not there is a separate item for a draft mitigation plan, 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 the 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.*

This Mitigation Plan identifies initiatives that address potential impacts resulting from future development within the AUAR Project area. This mitigation plan specifies the controls, procedures, and other steps that may be implemented to protect or minimize potential negative impacts. In order to mitigate the potential environmental impacts identified in the Chanhassen AUAR, The City of Chanhassen will commit to implementing the mitigation initiatives identified in this plan.

Intent of Mitigation Plan

New development generates impacts on the environment and on existing development. These impacts result from construction activities associated with new development (i.e. erosion, dust, noise) as well as post construction associated with the activities and design of the development (i.e. traffic, runoff, pollution, infrastructure demand). This plan identifies existing tools and policies that the City of Chanhassen has in place to address the types of impacts that may result through development of the Chanhassen AUAR project area. The plan also identifies additional initiatives that will need to be implemented to mitigate potential environmental impacts resulting from projected development of the project area.

There are multiple ways in which Mitigation Initiatives may be implemented such as:

- Enforcing existing zoning and subdivision ordinances and other development regulations at the time of development concept submittals, preliminary and final platting, and during construction monitoring activities;
- Referencing and implementing policy directions during the review and approvals of development projects;
- Facilitating additional study as regional transportation planning initiatives become more finalized or as other regional developments alter travel patterns/behaviors.
- Planning and building public infrastructure (local roads, parks, trunk sewer systems and water systems) in conjunction with private development initiatives;
- Maintaining and updating of existing plans and studies for the community;
- Requiring additional field work/investigations as part of pre development planning where potential environmental or cultural resources may exist but have not been verified.

General Mitigation Initiatives

This section identifies a series of mitigation initiatives that are general in nature and apply to all public and private development within the AUAR.

1. All permits identified in the AUAR (See question #8) as well as other necessary permits that may be required will be secured by the City, or private parties as appropriate, for all development activities within the project area.
2. The City will follow its own regulations, ordinances, plans, and policies currently in place in the review and approval of all development activities within the project area. These items include *The 2030 Comprehensive Land Use Plan, the official zoning and subdivision ordinances* and *the Bluff Creek Overlay ordinance.* In addition, the *Bluff Creek Watershed Natural Resource Management Plan, the Surface Water Management Plan, the Comprehensive Water Supply Plan,* and the *Comprehensive Sanitary Sewer System Plan* will be used as technical resources in reviewing development activities and developing associated public infrastructure.
3. The City will extend public sewer and water services in a manner consistent with existing plans and policies for delivering trunk sanitary sewer service and water main systems. Abandonment and closure of individual well and septic systems will follow existing local and state regulations.
4. The City will work with Mn/DOT and Carver County to periodically monitor traffic as generated from development within the project area as well as regional development initiatives that will affect the project area. Performing traffic counts and monitoring traffic movements will help in facilitating future local roadway improvements.
5. The City will provide for adequate regional and local stormwater ponds and trunk facilities to protect water resources and water quality as guided by the *Surface Water Management Plan* and the *Bluff Creek Watershed Natural Resource Management Plan*.
6. The City will to monitor development within the AUAR Project Area and its conformance with the development scenarios assumed in the AUAR.
7. The City will enforce its parkland dedication practices consistent with the goals and policies outlined in the *2030 Comprehensive Plan* and the *Bluff Creek Watershed Natural Resource Management Plan* and the requirements of the subdivision ordinance.
8. The City will follow existing zoning regulations including Floodplain Overlay (Article V), Wetland Protection (Article VI), Shoreland Management (Article VII), Bluff Protection (Article XXVIII) and Bluff Creek Overlay (Article XXXI) to protect natural and environmental resources from potential impacts resulting from the Development Scenario. The City will reference policies and strategies outlined in the *2030 Comprehensive Plan*, *Surface Water Management Plan* and the *Bluff Creek Watershed Natural Resource Management Plan* as technical resources during the review of specific development projects.

Focused Mitigation Initiatives

Mitigation initiatives that are explicitly intended to mitigate or minimize impacts on a particular resource or action are outlined by topic in this section.

Fish, Wildlife and Ecologically Sensitive Resources

The Bluff Creek Overlay zoning ordinance contains provisions that require a detailed analysis of habitat conditions prior to development. This analysis is provided as part of the preparation of development plans. Staff will verify the findings of the work and will work with developers to design projects in a manner that protects and preserves these habitat areas. Implementation of the Bluff Creek Overlay zoning ordinance will protect resources within the Bluff Creek corridor (See Figure 4 Significant Habitat Areas of the AUAR Document.)

Other areas within the project area maintain significant wildlife or ecologically sensitive resources. The most prominent resources are identified in Figure 4. The identification of these areas provide advance notice to developers to plan developments in a manner that protects their ecological function. The *City's 2030 Comprehensive Plan, the Bluff Creek Watershed Natural Resources Management Plan*, the Bluff Creek Overlay zoning ordinance and the Planned Unit Development (PUD) zoning mechanism (Article VIII) provide the City with the necessary tools to be flexible with subdivision design in order to preserve these areas. A cooperative approach to planning and design will be implemented to protect other wildlife and sensitive resources.

In addition to implementing existing plans, policies and regulations, the City will actively work with non-profit groups focused on preserving quality open spaces and environmental resources that are identified with this AUAR and future more detailed development planning initiatives.

Water Resources (wetlands, creeks, lakes) and Surface Water Management

Increased stormwater runoff will result from future development in the project area. *The Surface Water Management Plan* and watershed regulations establish standards for surface water runoff. Key policy directives relative to the protection of water resources and the management of surface water runoff include:

- Abstracting the first 1.1-inch of runoff from new impervious surfaces.
- Maintaining peak discharge rates at or below current levels.
- Providing water quality treatment of runoff prior to discharge from the site or into onsite wetlands.
- Conform to NURP standards.
- Remove 60% of phosphorous and 90% of total suspended solids on an annual basis.
- Discharge to Lake Susan shall not impair water quality.
- Discharge to Bluff Creek shall improve water quality.
- Providing pre-treatment for infiltration or filtration practices.
- Developing storm water quality and quantity treatment by site or development.
- Preparing a Storm Water Pollution Prevention Plan (SWPPP) for each development or site.
- Conformance to NPDES Phase II requirements as outlined in the EPA Clean Water Act.

Additional strategies and policies that direct development in a manner that minimizes impervious surface coverage are outlined in the *2030 Comprehensive Plan*, *The Bluff Creek Watershed Natural Resource Management Plan, the Wetland Conservation Act and the City's Wetland Protection Ordinance.*

Projects within the AUAR that impact wetlands will be subject to regulation under the City of Chanhassen Wetland Ordinance, Wetland Conservation Act, Chapter 103G Waters of the State (i.e. Department of Natural Resources), and possibly Section 404 of the Clean Water Act (i.e. the U. S. Army Corps of Engineers). Should wetland impacts be part of a project within the AUAR these regulatory programs have sequencing requirements which require applicants to demonstrate that wetland impacts have been avoided and minimized to the extent practicable and if impacts cannot be avoided these programs require replacement of wetlands impacted by fill or excavation.

Erosion and Sedimentation

The City of Chanhassen utilizes "Best Management Practices" as outlined in various resources and by the Metropolitan Pollution Control Agency (MPCA). During construction activities and prior to the maturing of vegetative cover over disturbed ground, proper techniques will be used to control erosion and sedimentation. The City's existing code provides the regulatory tools for this initiative. Land use management and zoning tools (PUD, density transfers, Bluff Creek Overlay) will be implemented to direct development to less erosion prone areas of the site.

Wastewater

The development scenarios identified in this AUAR are consistent with the *City of Chanhassen 2030 Comprehensive Sanitary Sewer System Plan*. The City of Chanhassen through its site development plan review process will monitor and verify estimated wastewater flows for general conformance to the Plan. In addition, each development will be responsible for the following:

- Conformance to the City of Chanhassen Comprehensive Sanitary Sewer System Plan.
- Metropolitan Council Environmental Services (MCES) Sanitary Sewer Extension Permit(s)
- Sewer Access Charges (SAC) related to their proposed development.
- The proportional share of the costs of Trunk Sanitary Sewer Mains.
- Construction of local sewer mains to serve the development.

Water Supply

Public water supply has been provided to the study area by the extension of trunk water lines. The Avienda project will need to install a 12-inch trunk water line from the existing end of Bluff Creek Boulevard to Powers Boulevard to complete the trunk system. These trunk water lines will supply water to the development area through a local system of water lines to be constructed as development occurs. Each development will be responsible for the following:

- Conformance to the City of Chanhassen Comprehensive Water Supply Plan.
- Minnesota Department of Health permit(s) for the extension of water supply systems.
- Water Access Charges (WAC) related to their development.
- The proportional share of the costs of Trunk Water Supply lines.
- Construction of local water supply lines to serve the development.

Traffic/Transportation Mitigation Initiatives

There are a number of specific traffic/transportation initiatives already constructed to adequately address potential development impacts. As discussed in the AUAR Question 21-Traffic and Appendix 5-Traffic Analysis, the mitigation approaches outlined below depend on the remaining AUAR development growth..

1. Proposed improvements to accommodate the remaining AUAR development traffic include the following:
    a. With the improvements already constructed, the TH 212 interchange at the east end of the AUAR Development will be able to accommodate project traffic at acceptable levels of service.
    b. Improvements to Audubon Road include adding left-turn lanes on the northbound and southbound (Audubon Road) approaches to the intersection with Lakeview Drive.
    c. Based on the capacity analysis for Scenario F-2 and F-3, the following intersections should be monitored for potential signalization (if volumes warrants are met) as the area develops:
        a) Lyman Boulevard & Audubon Road North/NW Quadrant Access
        b) Lyman Boulevard & Sunset Trail/NE Quadrant Access
        c) Powers Boulevard & Pioneer Trail
3. When plans for reconstruction of existing roads or construction of new roads are developed, incorporate design considerations that will mitigate noise impacts. These design considerations would include landscaping, berming and speed limit controls.
4. Coordinate development of perimeter road connections (such as where a collector roadway within the project area connects to Audubon, Lyman or Pioneer Trail) with Carver County, the City of Chaska and adjacent neighborhoods.

5. Ensure subdivisions include plans for Pedestrian and Bicycle movement in and through the project area as well as linkages to the greater community. Roadway designs will meet the City's current design standards for on-street and off-street trail connections. The City will work with Carver County to preserve Right-of-Way (ROW) for off road trails.

Land Use Management Initiatives

The project area is unique because of its topographical features and the Bluff Creek corridor. This uniqueness poses challenges to development. Efforts to minimize impacts on the Bluff Creek corridor and to maintain as much of the pristine environmental presence of the site will have to come from combined public and private actions. The City of Chanhassen is well positioned from a regulatory position to guide development in a manner that achieves the objectives of the *2030 Comprehensive Plan* and *Bluff Creek Watershed Natural Resource Management Plan.* Specific strategies that enable the City to achieve these objectives include:

- Transfer of density—this approach to development would enable a developer to move units within a development project from areas that are desired to be preserved to areas that are less sensitive. The developer would not loose density in the project by interjecting a broader mix of units and lot sizes.
- Clustering of housing units—this is a conservation development approach used to minimize development impacts on adjacent resource areas. Although it is more widely used in rural developments, it can be used in urban settings to obtain the same resource protection results. Clustering in an urban setting will also reduce infrastructure thereby reducing up front and longer term maintenance costs. In general terms, clustering requires smaller lot sizes, reduced street widths to balance increased protection areas. This would likely be used in conjunction with a transfer of density when properties have environmental protection areas and involve a Planned Unit Development (PUD) process.

As the project area develops, there will be a need for park improvements. The City will use its existing park dedication policies to help fund these improvements.

Monitoring of Development in the AUAR Area and Future Updates to the AUAR

The AUAR assumes a hypothetical development scenario. Because it is based on assumptions, it is important that actual development be monitored and compared to the development that was assumed in the development scenario. Tracking of this development will be done through the City's existing GIS system. The developer as part of the final plat process will submit electronic plats consistent with city development requirements in a compatible form to the City's GIS system. This data will enable the City to maintain an ongoing inventory of platted lots and the ability to directly tie building permits to the lots so that occupied housing units could be tracked in the development area. The City's existing GIS system has the capacity to perform this task.

As required by Minnesota Rule 4410.3610 Subpart 7, to remain valid, the AUAR must be updated if any of the following events should occur:

- Five years have passed since the AUAR and mitigation plan were adopted and all development within the project area has not been given final approval.
- A comprehensive plan amendment is proposed that would allow an increase in development than what was assumed in the development scenario.
- Total development within the area would exceed the maximum levels assumed in the environmental analysis document.

- Development within any subarea delineated in the AUAR would exceed the maximum levels assumed for that subarea in the document or is of a different land use type.
- 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 differently than assumed in the development scenario such that it will postpone or alter mitigation plans or increase the development magnitude.
- New information demonstrates that important assumptions or background conditions used in the analysis presented in the AUAR 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.

LIST OF FIGURES

APPENDIX 1—

- **RESOLUTION ORDERING THE AUAR**
- **CITY OF CHANHASSEN RESOLUTION # 016-XXX**

APPENDIX 2—WETLAND PERMIT APPLICATION: AVIENDA

Report is available and will be provided upon request

APPENDIX 3—CULTURAL RESOURCES ASSESSMENT (INCLUDING AVIENDA PHASE 1 ARCHEAOLOGICAL RECONNAISSANCE SURVEY)

APPENDIX 4—AVIENDA CONCEPT STAFF REPORT

APPENDIX 5—TRAFFIC ANALYSIS

APPENDIX 6—SOIL CLASSIFICATIONS

SYMBOL	NAME
Hm	Hamel Loam
TeB	Terril Loam, 0 to 6 %
HcE3	Lester-Kilkenny Clay Loams, 18 to 25 %, sev. eroded
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
HaF	Lester-Kilkenny Loams, 25 to 40 %
HaC/LaC	Lester-Kilkenny Loams, 6 to 12 %
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
HaD	Lester-Kilkenny Loams, 12 to 18 %
HaF	Lester-Kilkenny Loams, 25 to 40 %
Pd	Houghton and Muskego Mucks
HaF	Lester-Kilkenny Loams, 25 to 40 %
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
HaB/LaB	Kilkenny-Lester Loams, 2 to 6 %
Hm	Hamel Loam
HaC/LaC	Lester-Kilkenny Loams, 6 to 12 %
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
HaF	Lester-Kilkenny Loams, 25 to 40 %
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
HaD	Lester-Kilkenny Loams, 12 to 18 %
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
Hm	Hamel Loam
Ge	Glencoe Loam
HaF	Lester-Kilkenny Loams, 25 to 40 %
Cw	Cordova and Webster Loams
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
HaD	Lester-Kilkenny Loams, 12 to 18 %
TeB	Terril Loam, 0 to 6 %
HaB/LaB	Kilkenny-Lester Loams, 2 to 6 %
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
TeB	Terril Loam, 0 to 6 %

SYMBOL	NAME
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
HaF	Lester-Kilkenny Loams, 25 to 40 %
Hm	Hamel Loam
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
Pm	Palms Muck
Hm	Hamel Loam
TeB	Terril Loam, 0 to 6 %
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaB/LaB	Kilkenny-Lester Loams, 2 to 6 %
Hm	Hamel Loam
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
Hm	Hamel Loam
Pd	Houghton and Muskego Mucks
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaF	Lester-Kilkenny Loams, 25 to 40 %
HaC/LaC	Lester-Kilkenny Loams, 6 to 12 %
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
Hm	Hamel Loam
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
HaC/LaC	Lester-Kilkenny Loams, 6 to 12 %
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
TeB	Terril Loam, 0 to 6 %
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
TeB	Terril Loam, 0 to 6 %
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
Ge	Glencoe Loam
TeB	Terril Loam, 0 to 6 %
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
Hm	Hamel Loam
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
HaB/LaB	Kilkenny-Lester Loams, 2 to 6 %
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
TeB	Terril Loam, 0 to 6 %
Hm	Hamel Loam
Pd	Houghton and Muskego Mucks
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded

SYMBOL	NAME
TeB	Terril Loam, 0 to 6 %
Ge	Glencoe Loam
Pm	Palms Muck
HaB/LaB	Kilkenny-Lester Loams, 2 to 6 %
HaC/LaC	Lester-Kilkenny Loams, 6 to 12 %
Cd	Canisteo Silty Clay Loam, Depressional
HaB/LaB	Kilkenny-Lester Loams, 2 to 6 %
HaB/LaB	Kilkenny-Lester Loams, 2 to 6 %
HcE3	Lester-Kilkenny Clay Loams, 18 to 25 %, sev. eroded
HaD	Lester-Kilkenny Loams, 12 to 18 %
HcC3	Lester-Kilkenny Clay Loams, 12 to 18 %, sev. eroded
HaC/LaC	Lester-Kilkenny Loams, 6 to 12 %
Pd	Houghton and Muskego Mucks
HaC/LaC	Lester-Kilkenny Loams, 6 to 12 %
Hm	Hamel Loam
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
Ge	Glencoe Loam
TeC	Terril Loam, 6 to 12 %
TeB	Terril Loam, 0 to 6 %
TeB	Terril Loam, 0 to 6 %
HaB/LaB	Kilkenny-Lester Loams, 2 to 6 %
HaF	Lester-Kilkenny Loams, 25 to 40 %
Pd	Houghton and Muskego Mucks
Hm	Hamel Loam
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
HcC3	Lester-Kilkenny Clay Loams, 12 to 18 %, sev. eroded
Ge	Glencoe Loam
HcE3	Lester-Kilkenny Clay Loams, 18 to 25 %, sev. eroded
HaB/LaB	Kilkenny-Lester Loams, 2 to 6 %
HaB/LaB	Kilkenny-Lester Loams, 2 to 6 %
Hm	Hamel Loam
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
Hm	Hamel Loam
Hm	Hamel Loam
Pd	Houghton and Muskego Mucks
HaF	Lester-Kilkenny Loams, 25 to 40 %
HaF	Lester-Kilkenny Loams, 25 to 40 %
HcE3	Lester-Kilkenny Clay Loams, 18 to 25 %, sev. eroded
Pm	Palms Muck
HaF	Lester-Kilkenny Loams, 25 to 40 %
Hm	Hamel Loam
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
HcC3	Lester-Kilkenny Clay Loams, 12 to 18 %, sev. eroded
Ge	Glencoe Loam
Ge	Glencoe Loam
Pm	Palms Muck
HcE3	Lester-Kilkenny Clay Loams, 18 to 25 %, sev. eroded

SYMBOL	NAME
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
HaD	Lester-Kilkenny Loams, 12 to 18 %
Ge	Glencoe Loam
HcE3	Lester-Kilkenny Clay Loams, 18 to 25 %, sev. eroded
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaD2	Lester-Kilkenny Loams, 12 to 18 %, eroded
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded
Ge	Glencoe Loam
HaF	Lester-Kilkenny Loams, 25 to 40 %
Hm	Hamel Loam
HaC/LaC	Lester-Kilkenny Loams, 6 to 12 %
Hm	Hamel Loam
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HaB/LaB	Kilkenny-Lester Loams, 2 to 6 %
HcC3	Lester-Kilkenny Clay Loams, 12 to 18 %, sev. eroded
HaC2/LaC2	Lester-Kilkenny Loams, 6 to 12 %, eroded
HcC3	Lester-Kilkenny Clay Loams, 12 to 18 %, sev. eroded
HaE2	Lester-Kilkenny Loams, 18 to 25 %, eroded
HaB2/LaB2	Lester-Kilkenny Loams, 2 to 6 %, eroded