December 9, 2011

Update
Final Alternative Urban Areawide Review

Shenandoah Business Park and
Minnesota Valley West

FAUAR Comment Period:
December 9 – 28, 2011

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FINAL ALTERNATIVE URBAN AREAWIDE REVIEW UPDATE

SHENANDOAH BUSINESS PARK
UNITED LAND LLC

AND

MINNESOTA VALLEY WEST
OPUS NORTHWEST LLC

FOR THE
CITY OF SHAKOPEE, MINNESOTA

December 9, 2011

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I. Introduction and Purpose

The Shenandoah Business Park and Minnesota Valley West herein referred to as the "Study Area" is located in the City of Shakopee, Scott County, on approximately 187 acres (Shenandoah Business Park – 112 acres; Minnesota Valley West -75 acres). The Shenandoah Business Park area is bordered on the north by County State Aid Highway (CSAH) 101, on the south by 4th Avenue, on the east by Scherer Brothers Lumber and CertainTeed Corporation further east, and on the west by Sarazin Street and Shakopee Public Utilities. Shenandoah Drive passes through the westerly portion of the site, connecting TH 101 on the north and 4th Avenue on the south.

The Minnesota Valley West area is bordered on the north by 4th Avenue and by Kosovich Valley Park First Addition, on the south by Canterbury Park Racetrack, on the east by Canterbury Road (County Road 83), and on the west by Canterbury Park access roadway and undeveloped land (see **Figure 1 and Figure 2**).

The City of Shakopee adopted a Final Alternative Urban Areawide Review (FAUAR) for the Study Area in 2001 (available for review on the City's website at http://www.ci.shakopee.mn.us/). Some development within the Study Area has occurred since the FAUAR was adopted in 2001. In particular, two of the three parcels included in the Minnesota Valley West area have been developed for a total of 390,000 square feet (SF) of building space. It is anticipated that additional new development within the Study Area will commence in 2012 and continue for the next 10 to 15 years. Pursuant to Minnesota Rules 4410.3610 Subp. 7, for the FAUAR to remain valid as the environmental review document for the Study Area, the document needs to be updated every five years until all development in the Study Area has received final approval. Since portions of this area still remain undeveloped, the City of Shakopee as the Responsible Government Unit has completed this AUAR Update pursuant to Minnesota Rules.

II. Scenario Description

The FAUAR adopted in 2001 included two development scenarios. Each scenario proposed to include 1.1 million square feet of floor space, and each of the sites were proposed to contain access roadways, parking, and loading docks for trucks. Portions of the site have developed since the adoption of the FAUAR in 2001, however no change to these scenarios is proposed for this FAUAR Update. The development scenario is shown on **Figure 3** and includes the following:

Shenandoah Business Park: United Land LLC is proposing to construct an office/warehouse development on a 112-acre site that is currently undeveloped and brush/grassland. There are no wetlands on this site. The original scenario includes development of 1,161,000 gross square feet, which consists of the following:

Shenandoah Business Park (United Land LLC)				
	Low Office Alternative		**High Office Alternative**	
Gross Square Footage (GSF)	Office (14%)	Warehouse (86%)	Office (50%)	Warehouse (50%)
1,161,000 sf	162,540 sf	998,460 sf	580,500 sf	580,500 sf

Minnesota Valley West: Opus Northwest L.L.C. is proposing to construct an office/warehouse development on a 75-acre site. The site has been graded and contains two buildings that have been constructed since the 2001 AUAR. Prior to grading and construction , the site formerly included a farmstead with a two-story home and several out buildings, a grass airstrip and taxi area, several rye grass fields, pine plantations, and some small deciduous woodlots. There are no wetlands on this site. The original scenario includes development of 1,160,000 gross square feet, which consists of the following:

Minnesota Valley West (Opus Northwest L.L.C.)				
	Low Office Alternative		**High Office Alternative**	
Gross Square Footage (GSF)	Office (10%)	Warehouse (90%)	Office (14%)	Warehouse (86%)
1,160,000 sf	116,000 sf	1,044,000 sf	162,400 sf	997,600 sf

It is anticipated that additional new development within the Study Area will commence in 2012 and continue for the next 10 to 15 years.

It should be noted that there is potential to have less office use upon development in the Study Area than analyzed in the AUAR Update. However, since the 50% office use in the Shenandoah Business Park area and the 14% office use in the Minnesota Valley West area provide a “worst case scenario” for possible impacts, only this scenario was reviewed.

III. Update to the Original 2001 FAUAR Environmental Review

Since the FAUAR was adopted in 2001, development has occurred within the Study Area. Approximately 31 acres of the 75 acre site of the Minnesota Valley West (Opus Northwest, L.L.C.) land has developed. ConAgra Foods Inc. currently occupies a 232,000 square foot (SF) office/warehouse building on the westernmost portion of the Minnesota Valley West area, while COKeM International LTD., an office/warehouse use, occupies 158,000 square feet of building space on northeastern portion of the Minnesota Valley West area.

This update to the FAUAR includes brief background information and an update to specific sections of the 2001 FAUAR and an update of the mitigation measures as needed. Only sections requiring an update are included in this report. The analysis that was completed with the 2001 FAUAR remains valid unless updated in this report. A copy of the 2001 FAUAR is available from the City of Shakopee upon request and is available on the City’s website (http://www.ci.shakopee.mn.us/).

Item 6: **Project description**

One development scenario has been analyzed as part of the FAUAR Update. This scenario is the same “worst case scenario” as analyzed in the 2001 FAUAR. This scenario includes proposed office/warehouse type development on approximately 187 acres of land total. Development within the Study Area could include up to a total of 2,321,000 SF of office/warehouse with associated parking areas and access roads. This scenario assumes 50% office and 50% warehouse land use within the Shenandoah Business Park and 14% office and 86% warehouse within the Minnesota Valley West area. It is anticipated that additional new development within the Study Area will commence in 2012 and continue for the next 10 to 15 years.

Item 7: Project Magnitude
The Study Area is a total of 187 acres with 112 acres in the Shenandoah Business Park (United Land LLC) and 75 acres in the Minnesota Valley West (Opus Northwest, L.L.C.). The development within the Shenandoah Business Park could include up to 580,500 SF of office use and 580,500 SF of warehouse use for a total development of 1,161,000 SF.

Two buildings have already been constructed on the Minnesota Valley West property that include a total of 17,400 SF office use and 372,600 SF of warehouse use. The development remaining within the Minnesota Valley West property could include up to 145,000 SF of office use and 625,000 SF of warehouse use for a total development of 1,160,000 SF.

Item 8: Permits
A listing of permits and approvals needed for each development of the Study Area is provided below.

State	***Permit***	***Status***
Pollution Control Agency	NPDES Storm Water Permit	To be applied for
	Sanitary Sewer Extension Permit	To be applied for
Department of Natural Resources	Temporary dewatering for construction	To be applied for, if needed
	Water appropriations permits, if needed	To be applied for
Department of Health	Watermain Extension Permit	To be applied for
Regional/ County/ Local	***Permit/Approval***	
Lower Minnesota River Watershed District (LMRWD)	Grading and Stormwater Management	To be applied for
Metropolitan Council	Sanitary Sewer Connection Permit	To be applied for
City of Shakopee	Preliminary plat approval	To be applied for
	Final plat approval	To be applied for
	Site plan approval	To be applied for
	Grading plan approval	To be applied for
	Utility Plan	To be applied for
	Building permits	To be applied for
	Stormwater plan approval	To be applied for

Item 9: Land Use

The Study Area is currently zoned as I1, Light Industrial as delineated on the April 2011 Official City Zoning Ordinance. The Shenandoah property is surrounded by land that is zoned light industrial, heavy industrial, major recreation, highway business, agricultural preservation, and an area of urban residential to the south. The Minnesota Valley West property is surrounded by land that is zoned heavy industrial and major recreation. Historical land use has not changed since the 2001 FAUAR with the exception of a light industrial building being constructed just north and west of the Shenandoah property. A vacant parcel of land is zoned major recreation currently exists south of the Shenandoah property. There is no known existing or future plans for development of this site.

Item 10: Cover Types

An updated cover types map is shown on **Figure 4.** The following tables have been updated using the most recent Minnesota Land Cover Classification System (MLCCS) data from the DNR and current existing conditions within the Study Area. The existing cover types include the following:

Table 10-1: Shenandoah Business Park Existing and Proposed Cover Types

Cover Type	Existing (acres)	Proposed (acres)
Wetlands	0	0
Wooded/Forest	7.9	0
Brush/Grassland	72.1	0
Cropland/Cultivated	26.2	0
Lawn/Landscaping	0	10
Impervious Surfaces	5.8	84
Stormwater Ponds	0	18
Total Area	**112**	**112**

Table 10-2: Minnesota Valley West Existing and Proposed Cover Types

Cover Type	Existing (acres)	Proposed (acres)
Wetlands	0	0
Wooded/Forest	0	0
Brush/Grassland	0	0
Cropland/Cultivated	43	0
Lawn/Landscaping	48	16
Impervious Surfaces	22	52
Road Right of Way	0	0
Stormwater Ponds	7	7
Total Area	**75**	**75**

Item 11: Fish, Wildlife, and Ecologically Sensitive Resources

Figure 5 shows the National Wetland Inventory (NWI) and DNR Public Waters map. While the NWI indicates a small wetland in the Shenandoah Business Park, field review indicates there are no wetlands within the Study Area. The DNR Natural Heritage Database program was contacted for an update on any rare, threatened, or endangered species for the Study Area (ERDB# 20010701-0004). The information from DNR Natural Heritage Database program (**Appendix B**) indicates there are no rare features within or adjacent to the Study Area.

Additional coordination with the DNR's Natural Resource specialist indicated that there were historical records of nesting loggerhead shrike in the vicinity of the Study Area (see **Appendix B**). The loggerhead shrike is a state-listed threatened bird species that prefers dry upland prairie or open grassland with scattered hedgerows, shrubs, and small trees. The original AUAR indicated that a field survey for loggerhead shrike of the Shenandoah Business Park site was conducted in the spring of 2001 and no shrike activity or nests were noted during the survey. A mitigation measure has been added that states that an additional loggerhead shrike survey may be required by the DNR as part of a development project if disturbance would be planned during the nesting season (April through July).

The DNR also indicated that areas within the Shenandoah Business Park are identified by the DNR as a Regionally Significant Ecological Area. These areas have been identified using a landscape-scale assessment based on the size and shape of the ecological area, land cover within the ecological area, adjacent land cover/use, and connectivity to other ecological areas. The area is ranked as having a moderate ecological score on the east side of Shenandoah Drive and outstanding score on the west side of Shenandoah Drive. Further review of the datasets was completed for this AUAR Update and outlined below:

- The area has been relatively undisturbed since the 1950's with the exception of some agriculture in the southeast and southwest corners of the project area and a road through central portion of the site.
- The area is ranked as moderate and outstanding in the Regionally Significant Ecological Areas database (see **Figure 11**). The models used for this dataset are based on the 2008 Minnesota Land Classification System (MLCCS) assessment.
- The entire area was identified in the 2008 MLCCS as an altered/non-native grassland with sparse deciduous trees. There was no mention of native vegetation being present in the 2008 assessment.
- The site has no biodiversity significance as defined in the Minnesota County Biological Survey (MCBS) dataset. Information from the MCBS program indicates that MCBS Sites that are found to be disturbed are retained in the layer as negative data and are given the Biodiversity Significance rank of "Below." Those disturbed areas within MCBS Sites and all areas outside MCBS Sites are lands where native plant communities have been seriously altered or destroyed by human activities such as farming, recent logging, draining, and development. It was likely that this area was included in the original survey and a field visit showed no biodiversity significance.

Overall, the site is 112 acres and does provide some habitat for wildlife. There area is mostly isolated by roads and development, but it could provide a wildlife corridor function between habitat to the south and the river corridor to the north. The area has been mostly undisturbed for at least 50 years and it is probable that there could be some native habitat present, albeit very low quality. The "moderate" ecological score is appropriate for this area because of its function as habitat and its location as a corridor in proximity to the Minnesota River Valley. A mitigation measure has been added that states that development within the Shenandoah Business Park site will consider protecting an area of open space for wildlife habitat.

The remaining analysis in the 2001 FAUAR remains valid.

Item 13: Water Use
The 2001 AUAR estimated average day water demand from the Shenandoah Business Park to be 97,896 gallons per day (gpd) and 63,349 gpd from Minnesota Valley West. These estimates were based on water demand of 110% of estimated wastewater flow. Wastewater flow estimate methodology is identified in Item 18 of the 2001 AUAR. Water demand projections and their basis remain valid.

Maximum day water demand from Shenandoah Business Park and Minnesota Valley West upon full development was estimated to be 205,582 gpd and 133,033 gpd respectively. Estimates of maximum day water demand were based on the 2011 maximum day water demand (10.7 million gallons per day (mgd)) to 2011 average day water demand (5.2 mgd) ratio of 2.1 for Shakopee Public Utilities (SPU).

The remaining analysis in the 2001 AUAR remains valid. See Item 28 below for additional analysis and information.

Item 16: Erosion and Sedimentation
Any development within the study area will be required to obtain grading and erosion control permits from the City and the Lower Minnesota River Watershed District. Additionally, an NPDES Construction Stormwater Permit will be required from the MPCA and a Stormwater Pollution Prevention Plan (SWPPP) will need to be developed. Any development will meet the requirements of these agencies.

> <u>Shenandoah Business Park:</u> The original AUAR estimated 332,000 cubic-yards (cy) of material to be graded over 112 acres for the Shenandoah Business Park site. Additional information has been analyzed related to site conditions and the type of grading that could be needed at the site. With this analysis, the estimate for grading on the site is 486,580 cy of material. This estimate was based on taking the site area to be graded and assuming that between 2-3 feet of grading would occur.
>
> <u>Minnesota Valley West:</u> The original AUAR estimated 30,000 cy of material to be graded over 14-acres. Additional information has been analyzed related to site conditions and the type of grading that could be needed at the site. Approximately 45 acres of the 75 acre site remains to be graded. With this analysis, the estimate for grading on the site is 145,200 cy of material. This estimate was based on taking the site area to be graded and assuming that approximately two feet of grading would occur.

Item 17: Water Quality: Surface Water Use
Stormwater will be managed on-site to meet local and state requirements prior to discharge from the site. Water will ultimately flow the Minnesota River, which is listed as an impaired

water for mercury and dissolved oxygen. Development within the study area is not anticipated to have a negative impact on the impairments of the River.

Shenandoah Business Park: Project development will increase impervious surface to a maximum of 75% of the site, but it will also create up to 18 acres of storm water ponding. Stormwater runoff from all impervious surfaces will be routed into on-site storm water ponds which will be constructed as part of the project. The ponds will discharge to the north for ultimate discharge to the Minnesota River via existing channels and culverts. The storm water ponds will be designed to be consistent with the Nationwide Urban Runoff Program (NURP) guidelines and will conform to drainage criteria developed by the City of Shakopee.

The site discharge rate will be limited to 0.3 cfs per tributary acre to the discharge point from the site. The discharge rates from the site are not anticipated to exceed the existing conditions. On-site ponding will be required to meet the City's rate control requirements. No increase in the rate of discharge off-site is anticipated as a result of development in the study area based on the storm water management system that will need to be included.

No decrease in the quality of site runoff is anticipated as a result of this project due to the ponding that will be constructed to provide water quality treatment. Post-development runoff is expected to be typical of light industrial development. The proposed on-site ponding will provide treatment of runoff before it flows off-site.

Minnesota Valley West: The site currently has storm water ponds in place that have been constructed to accommodate full development of the site and to treat water to NURP guidelines. Additionally, the pond has been designed to provide rate control to 0.3 cfs per acre of the tributary area. The pond discharges to the north across 4th Avenue for ultimate discharge to the Minnesota River via existing channels and culverts. Because of the ponding, no increase in the rate of site runoff discharging to the north is anticipated as a result of the project and local and state water quality requirements will be met.

Item 18: Wastewater

The 2001 AUAR estimated average day wastewater flow to be 88,996 gallons per day (gpd) from the Shenandoah Business Park and 57,590 gpd from Minnesota Valley West. These estimates were based on Metropolitan Council Environmental Services (MCES) Service Availability Charge (SAC) Criteria for Commercial Properties. Wastewater flow projections and their basis remain valid from the original AUAR.

Substantial development has occurred in the City since 2001. Also, a Comprehensive Sanitary Sewer System Plan (CSSP) update was completed in 2007 as part of the City's 2030 Comprehensive Plan. Therefore, wastewater flow impacts were reevaluated with this AUAR Update with respect to the existing sanitary sewer system plan and conformance to the CSSP.

Shenandoah Business Park: The development lies within the North Shakopee (NS) sewer district, as identified in the CSSP. Sewer service lines and sewer mains within the development will be sized in accordance with City of Shakopee design standards dependent upon the final building elevations, location, sizes, and uses.

Based on a review of recent plans, the wastewater generated by development east of Shenandoah Drive will be connected to a 24-inch trunk sewer flowing east along 4th Avenue from the intersection of Shenandoah Avenue and 4th Avenue, then north along the eastern property boundary to County Road 101 (CR 101). Wastewater generated by development west of Shenandoah Drive is planned to connect to a 10-inch sewer flowing north along Sarazin Street.

Existing wastewater flows were estimated within each of the existing sewers to which wastewater generated at Shenandoah Business Park would flow. Residential units within each sewershed and non-residential areas were determined based on a review of the City's GIS mapping. Record drawings were not available for all existing sewers that will be receiving wastewater from the Study Area. However, existing sewer invert elevations, locations, and capacities will be verified at the time of final plat. Existing wastewater flows per residential unit and non-residential area were based on MCES design standards of 274 gpd/unit and 800 gallons per acre per day (gpad) respectively. **Table 18-1** below summarizes existing wastewater flow, wastewater flow generated by the Shenandoah Business Park, and remaining sanitary sewer capacity.

Table 18-1 – Existing Sanitary Sewer System Capacity and Estimated Wastewater Flows (Shenandoah Business Park)

Location	Sewer Size (in)	Estimated Total Capacity (gpd)	Estimated Existing Avg. Day Flow (gpd)	Shenandoah Generated Avg. Day Flow (gpd)	Cumulative Avg. Day Flow (gpd)	Peak Hour Flow (gpd)
Shenandoah/4th Ave	24	4,000,000	289,018	53,398	342,416	1,232,698
Sarazin Street	10	750,000	30,000	35,598	65,598	262,392
Total				**88,996**		

As shown in **Table 18-1**, both existing sewers receiving wastewater generated by Shenandoah Business Park have capacity to accommodate wastewater flows generated by the Shenandoah Business Park assuming service lines and mains internal to the development are routed and designed to meet City standards. Final sanitary sewer design and connections to existing trunk sewers will be reviewed at the time of final plat to verify the above described assumptions.

Based on City GIS data, it appears there is additional land available for development upstream of the 24-inch trunk sewer along 4th Avenue designated to have a land use of Entertainment according to the City's 2030 Land Use Plan. Average day wastewater flow generated from the future Entertainment properties upon full development was estimated to be approximately 98,000 gpd. Total future flow in the 24-inch trunk sewer along 4th Avenue was estimated to be approximately 440,000 gpd average day and 1,540,000 peak including estimated existing wastewater flow, estimated wastewater flow generated by the Shenandoah Business Park, and estimated wastewater flow generated upstream by future Entertainment property. Therefore, the existing 24-inch trunk sewer would have adequate capacity to serve the Shenandoah Business Park without limiting upstream future development in the sewershed assuming future development was similar to other non-residential development within Shakopee.

Wastewater generated by the Shenandoah Business Park will ultimately flow to MCES Blue Lake Wastewater Treatment Facility (WWTF) for treatment and disposal, which has an existing capacity of 42 million gallons per day (mgd) and is currently receiving 29.97 mgd. Therefore, the existing WWTF has adequate capacity for treatment of wastewater generated by the development.

Minnesota Valley West: The development lies within the North Shakopee (NS) sewer district, as identified in the CSSP. The sewer main collecting wastewater from the existing buildings is a 10-inch sewer along the south side of 4th Avenue from the western lot to CR 83 and connects to the existing 15-inch trunk sewer along County Road 83 (CR 83) approximately 200 feet south of the intersection of CR 83 and 4th Avenue.

Existing wastewater flows within the existing 15-inch trunk sewer to which wastewater generated at Minnesota Valley West would flow were estimated. Non-residential areas were determined based on a review of the City's GIS mapping. Record drawings were not available for all existing sewers that will be receiving wastewater from the development, however existing sewer invert elevations, locations, and capacities will be verified at the time of final plat. Existing wastewater flows per non-residential area were based on MCES design standard of 800 gallons gpad. The existing 15-inch trunk sewer serves only non-residential properties.

Existing average day wastewater flow in the 15-inch trunk sewer was estimated to be 189,020 gpd. Wastewater generated by the development was estimated to be 57,590 gpd, so existing wastewater flow and wastewater generated by the development were estimated at a combined average day flow of 247,510 gpd and 915,787 gpd peak hour flow upon full development. The existing 15-inch trunk sewer estimated capacity is approximately 1,616,000 gpd, therefore the existing trunk sewer has adequate capacity to serve Minnesota Valley West upon full development.

It should be noted record drawings were unavailable for sanitary sewer at Canterbury Park, so it is unknown where wastewater generated at Canterbury Park enters the municipal sewer system. However, based on the estimated flow capacity remaining in the 15-inch trunk sewer along CR 83, the variable nature of size and type of events at Canterbury Park, and the timing of wastewater flows from Canterbury Park it is highly unlikely that the additional wastewater generated at Canterbury Park when combined with wastewater generated by Minnesota Valley West will exceed capacity of the 15-inch trunk sewer along CR 83.

Based on City GIS data it appears there is additional land available for development upstream of the 15-inch trunk sewer along CR 83 designated to have a land use of Entertainment according to the City's 2030 Land Use Plan. Average day wastewater flow generated from this property upon full development was estimated to be approximately 24,000 gpd. Total future flow in the 15-inch trunk sewer along CR 83 was estimated to be approximately 272,000 gpd average day and 1,005,000 gpd peak hour including estimated existing wastewater flow, estimated wastewater flow generated by Minnesota Valley West, and estimated wastewater flow generated upstream by future Entertainment property. Therefore, the existing 15-inch trunk sewer would have adequate capacity to serve Minnesota Valley West without limiting future development upstream in the sewer shed, assuming future development was similar to other non-residential development within Shakopee.

Wastewater generated by the Minnesota Valley West will ultimately flow to MCES Blue Lake Wastewater Treatment Facility (WWTF) for treatment and disposal, which has an existing capacity of 42 million gallons per day (mgd) and is currently receiving 29.97 mgd. Therefore, the existing WWTF has adequate capacity for treatment of wastewater generated by the development.

Item 21: Traffic

A detailed Traffic Study was prepared for the Study Area as part of the 2001 FAUAR. Traffic and transportation conditions in the City of Shakopee have changed since the 2001 FAUAR was completed. Based on the current conditions in the area, the FAUAR analysis has been updated in this section.

Existing Roadway System/Operations

The key intersections that were included in the analysis for this FAUAR Update and the existing traffic control at each are shown in **Table 21-1** below.

Table 21-1: Key Intersections

Intersection		***Traffic Control***
Sarazin Street	/ CSAH 101	Thru-Stop
Sarazin Street	/ 4th Avenue	Thru-Stop
Shenandoah Drive	/ CSAH 101	Thru-Stop
Shenandoah Drive	/ 4th Avenue	All-way Stop
Canterbury Park Drive	/ 4th Avenue	Thru-Stop
CSAH 83 (Canterbury Rd)	/ CSAH 101	Signal
CSAH 83 (Canterbury Rd)	/ 4th Avenue	Thru-Stop
CSAH 83 (Canterbury Rd)	/ 12th Avenue	Signal
CSAH 83 (Canterbury Rd)	/ TH 169 North Ramp	Signal
CSAH 83 (Canterbury Rd)	/ TH 169 South Ramp	Signal

Existing (2011) traffic volumes were developed based on traffic counts conducted in early November of 2011. **Figure 6** in **Appendix A** shows the existing PM peak hour traffic volumes.

Based on the existing traffic volumes and traffic control at each of the key intersections, a traffic operations analysis was conducted. The results of the analysis are shown in **Table 21-2**. The results found that all key intersections experienced satisfactory Levels of Service (LOS) conditions during the PM peak hour.

Table 21-2: Existing 2011 Peak Hour Operations

Intersection			***Scenario***
Control	***Roadways***		***2011 PM No Build LOS***
Thru-Stop	Sarazin Street	/ CSAH 101	A
Thru-Stop	Sarazin Street	/ 4th Avenue	A
Thru-Stop	Shenandoah Drive	/ CSAH 101	A
All-way Stop	Shenandoah Drive	/ 4th Avenue	A
Thru-Stop	Canterbury Park Drive	/ 4th Avenue	A
Signal	CSAH 83 (Canterbury Rd)	/ CSAH 101	C
Thru-Stop	CSAH 83 (Canterbury Rd)	/ 4th Avenue	A
Signal	CSAH 83 (Canterbury Rd)	/ 12th Avenue	C
Signal	CSAH 83 (Canterbury Rd)	/ TH 169 North Ramp	C
Signal	CSAH 83 (Canterbury Rd)	/ TH 169 South Ramp	B

Future 2030 No-Build Conditions

The Study Area development is anticipated to be constructed by year 2030. Therefore, the year 2030 was assumed for the future year analyses.

The 2030 background traffic was developed by factoring the existing 2011 traffic volume by a growth factor ranging from 0.5% to 3.5% per year. The growth factors related to each intersection's approaches were developed by comparing existing daily traffic volumes to forecasted 2030 daily traffic volumes contained within Shakopee's current Comprehensive Plan. Generally, CSAH 83 (Canterbury Road) traffic increased at a rate of 1.8% per year, CSAH 101 at 3.5% per year, and other segment at 0.5% to 1.0% per year. Two buildings within the Minnesota Valley West development site have been completed and the traffic is included in the 2011 existing traffic volumes. **Figure 7** in **Appendix A** shows the projected PM peak hour 2030 No-Build traffic volumes.

Based on the projected 2030 No-Build traffic volumes, an operational analysis was conducted to determine the future base line conditions that will be used to compare the anticipated build conditions. The results of the analysis are shown in **Table 21-3** below. The results of the analysis were similar to the existing conditions analysis. All intersections were operating at acceptable LOS conditions.

Table 21-3: Projected 2030 No-Build Peak Hour Operations

Intersection			***Scenario***
Control	***Roadways***		***2030 PM No Build LOS***
Thru-Stop	Sarazin Street	/ CSAH 101	A
Thru-Stop	Sarazin Street	/ 4th Avenue	A
Thru-Stop	Shenandoah Drive	/ CSAH 101	A
All-way Stop	Shenandoah Drive	/ 4th Avenue	A
Thru-Stop	Canterbury Park Drive	/ 4th Avenue	A
Signal	CSAH 83 (Canterbury Rd)	/ CSAH 101	C
Thru-Stop	CSAH 83 (Canterbury Rd)	/ 4th Avenue	A
Signal	CSAH 83 (Canterbury Rd)	/ 12th Avenue	C
Signal	CSAH 83 (Canterbury Rd)	/ TH 169 North Ramp	C
Signal	CSAH 83 (Canterbury Rd)	/ TH 169 South Ramp	B

Future 2030 Build Conditions

The future 2030 build traffic volumes were determined by adding the additional traffic generated by the Study Area developments to the 2030 No-Build traffic. However, not all development traffic was considered a new trip. The background trips included in the 2030 No-Build traffic volumes assume forecasted/planned development throughout the City and the region. Therefore, some of the trips associated with the Study Area developments were already included in the background growth. To avoid double counting of development trips, only those trips beyond the background increase in trips on roadway segments were added to the 2030 No-Build traffic volumes to arrive at the forecasted 2030 Build traffic volumes.

The full build development scenario has been updated to better reflect the existing land use currently being used within the Minnesota Valley West development and the use of update trip generation rates from *ITE Trip Generation, 8th Edition*. In comparing rates between the 6th Edition and the 8th Edition, trip generation rates for office remained the same while warehouse rates decreased by approximately 25%.

The Minnesota Valley West development includes 1,160,000 SF of office/warehouse with associated parking areas and access roads. Approximately 86% of the development is anticipated to be warehouse use and 14% office use. Currently, 17,400 SF of office and 372,600 SF of warehouse are built and in use. The remaining traffic generation from this development was determined to be approximately 3,825 daily trips with 505 (95 IN and 410 OUT) PM peak hour trips.

The Shenandoah Business Park development scenario remains unchanged including 1,161,000 SF of office/warehouse with associated parking areas and access roads. Approximately 50% of the development is anticipated to be warehouse use and 50% office use. The traffic generation from this development was determined to be approximately 8,465 daily trips with 1,130 (205 IN and 925 OUT) PM peak hour trips.

Tables 21-4 and **21-5** show the anticipated land use and traffic generation for each development.

Table 21-4: Development Land Use

Minnesota Valley West (Opus Northwest L.L.C.)			
100% Build-out	***Total Project***	***In Background***	***New for Traffic Impact Study***
	Total GSF	***Existing GSF***	***New GSF***
General Office	162,400	17,400	145,000
Warehouse	997,600	372,600	625,000
Total	1,160,000	390,000	770,000
Shenandoah Business Park (United Land LLC)			
100% Build-out	***Total Project***	***In Background***	***New for Traffic Impact Study***
	Total GSF	***Existing GSF***	***New GSF***
General Office	580,500		580,500
Warehouse	580,500		580,500
Total	1,161,000		1,161,000
Combined Projects			
100% Build-out	***Total Project***	***In Background***	***New for Traffic Impact Study***
	Total GSF	***Existing GSF***	***New GSF***
General Office	742,900	17,400	725,500
Warehouse	1,578,100	372,600	1,205,500
Total	2,321,000	390,000	1,931,000

Table 21-5: Traffic Generation

Minnesota Valley West (Opus Northwest L.L.C.)						
100% Build-out	***Estimated Daily New Trips***		***Estimated PM Peak Hour New Trips***			
	Rate/1000 SF	***Trips***	***Rate/1000 SF***	***Trips***	***IN***	***OUT***
General Office	11.01	1,600	1.49	220	40	180
Warehouse	3.56	2,225	0.45	285	55	230
Total		3,825		505	95	410
Shenandoah Business Park (United Land LLC)						
100% Build-out	***Estimated Daily New Trips***		***Estimated PM Peak Hour New Trips***			
	Rate/1000 SF	***Trips***	***Rate/1000 SF***	***Trips***	***IN***	***OUT***
General Office	11.01	6,395	1.49	865	150	715
Warehouse	3.56	2,070	0.45	265	55	210
Total		8,465		1,130	205	925
Combined Projects						
100% Build-out	***Estimated Daily New Trips***		***Estimated PM Peak Hour New Trips***			
		Trips		***Trips***	***IN***	***OUT***
General Office		7,995		1,085	190	895
Warehouse		4,295		550	110	440
Total		12,290		1,635	300	1,335

The projected traffic generated by the Study Area was assigned to the roadway system based on the traffic distribution assumed in the 2001 FAUAR. In general, the additional traffic was distributed as shown in **Figure 8** in **Appendix A**.

Figure 9 in the **Appendix A** shows the 2030 Build PM peak hour traffic volumes. Based on these traffic volumes an operation analysis was conducted and compared to the 2030 No-Build conditions to determine the impact the proposed developments have on the adjacent roadway system. **Table 21-6** below shows the results of the 2030 Build analysis. The results indicate that three intersections will be operating under unacceptable LOS conditions.

The CSAH 83 / 12th Avenue intersection is experiencing LOS E conditions due to the increase in north-south vehicle volumes warranting more green time, thus allowing less green time for the east-west approaches. This condition is increasing the delay, especially related to the westbound left-turning vehicles.

The eastbound traffic volume at the 4th Avenue / CSAH 83 intersection is heavy for a one-lane through-stop condition. This is causing high eastbound delays and queues resulting in LOS F conditions. The eastbound vehicle queues are backing up through the 4th Avenue / Canterbury Park Drive intersection, causing that intersection to also experience LOS F conditions.

Table 21-6: Projected 2030 Build Peak Hour Operations

Intersection				***Scenario***
Control	***Roadways***			***2030 PM Build LOS***
Thru-Stop	Sarazin Street	/	CSAH 101	A
Thru-Stop	Sarazin Street	/	4th Avenue	A
Thru-Stop	Shenandoah Drive	/	CSAH 101	A
All-way Stop	Shenandoah Drive	/	4th Avenue	C
Thru-Stop	Canterbury Park Drive	/	4th Avenue	F
Signal	CSAH 83 (Canterbury Rd)	/	CSAH 101	C
Thru-Stop	CSAH 83 (Canterbury Rd)	/	4th Avenue	F
Signal	CSAH 83 (Canterbury Rd)	/	12th Avenue	E
Signal	CSAH 83 (Canterbury Rd)	/	TH 169 North Ramp	D
Signal	CSAH 83 (Canterbury Rd)	/	TH 169 South Ramp	B

Based on the 2030 Build conditions, potential improvements to mitigate the unacceptable conditions were developed. These potential improvements include:

- CSAH 83 / 12th Avenue Intersection
  - Construct additional westbound left-turn lane (dual left-turn lanes)
- CSAH 83 / 4th Avenue Intersection
  - Install traffic signal
  - Dedicated left-turn lane on northbound CSAH 83
  - Dedicated left-turn lane on eastbound 4th Avenue
  - Dedicated right-turn lane on southbound CSAH 83

The addition of a traffic signal at the CSAH 83 / 4th Avenue intersection is consistent with the conclusions drawn in the 2001 FAUAR.

> *The intersection of 4th Avenue and CSAH 83 will likely require major reconstruction including the installation of a traffic signal, left turn lanes on CSAH 83, and three lanes of approach on 4th Avenue.*

Based on the previously mentioned improvements, an additional, post mitigation analysis was conducted to determine the resulting LOS conditions. The results of the analysis are shown in **Table 21-7**. The results indicate that all intersections operate at LOS D or better with the mitigation improvements.

Table 21-7: Post Mitigation – Projected 2030 Build Peak Hour Operations

Intersection				***Scenario***
Control	***Roadways***			***2030 PM Build LOS***
Thru-Stop	Sarazin Street	/	CSAH 101	A
Thru-Stop	Sarazin Street	/	4th Avenue	A
Thru-Stop	Shenandoah Drive	/	CSAH 101	A
All-way Stop	Shenandoah Drive	/	4th Avenue	C
Thru-Stop	Canterbury Park Drive	/	4th Avenue	A
Signal	CSAH 83 (Canterbury Rd)	/	CSAH 101	C
Signal	CSAH 83 (Canterbury Rd)	/	4th Avenue	B
Signal	CSAH 83 (Canterbury Rd)	/	12th Avenue	D
Signal	CSAH 83 (Canterbury Rd)	/	TH 169 North Ramp	D
Signal	CSAH 83 (Canterbury Rd)	/	TH 169 South Ramp	B

The following conclusions were drawn based on the forecasted 2030 Build traffic volumes:

- The 4th Avenue and CSAH 83 intersection will likely require major reconstruction involving the installation of a traffic signal and turn lanes.
- The 12th Avenue and CSAH 83 intersection will likely need dual westbound left-turn lanes.
- The all-way stop control at the 4th Avenue and Shenandoah Drive intersection is anticipated to operate at acceptable conditions.
- Based on the site plans provided in the 2001 FAUAR, multiple driveways are located off of 4th Avenue. With the increased traffic volumes on 4th Avenue and multiple driveway access present, a 3-lane urban section, as recommended in the 2001 AUAR, would increase safety and mobility along 4th Avenue through the study area.

In the future, if racino legislation passes, Canterbury Park is likely to expand, thus attracting more traffic. If this occurs, this traffic analysis would have to be revisited and likely updated to reflect the new traffic on the roadway network.

Item 24: Odors, Noise, and Dust

An updated L_{10} noise analysis was completed for the PM Peak hour to reflect changing traffic projections and receptors. The 2001 FAUAR included noise estimates for the Goemer residence. This property is no longer used for residential purposes and the structures have been removed. This updated noise analysis also includes several receptors that were not included in the 2001 FAUAR noise analysis, including Valley Cemetery on 4th Avenue, and a receptor to represent the residential properties located along nearby Spruce Street, Ash Street, and Pinewood Drive. The model made the following assumptions:

- Along CSAH 101, a vehicle mix of 3% medium and 3% heavy trucks has been assumed.
- Along other roadways, a mix of 3% medium, and 2% heavy trucks has been assumed.
- Average travel speed has been assumed to be 55 mph on CSAH 101, 40 mph on CSAH 83.
- Ground attenuation of 0.5 was used between all roadways and receptors.

Table 24-1 - Roadways and Receptor Sites Analyzed for Noise

Roadway	Segment	Adjacent Receptor	Distance from Roadway
CSAH 101	Sarazin Street to CSAH 83	1- Murphy's Landing	250 ft
4th Avenue	Sarazin Street to Shenandoah Drive	2- Valley Cemetery	100 ft
		3- Residences	150 ft
4th Avenue	Shenandoah Drive to CSAH 83		
CSAH 83	CSAH 101 to 4th Avenue	4- Industrial site	100 ft
CSAH 83	4th Avenue to 12th Avenue		
CSAH 83	12th Avenue to US-169	5- Hotel	100 ft

Table 24-2 - Predicted L_{10} Traffic Noise Levels at Receptor Sites

Receptor Location	Land Use Class	State Standard	2011 Existing	2030 No Build	2030 Build
1 - Murphy's Landing	NAC-2	70	62.8	65.1	65.4
2 - Cemetery	NAC-2	70	58.3	59.8	64.5
3 - Residential	NAC-1	65	56.0	57.5	61.7
4 - Industrial	NAC-3	80	64.8	66.3	68.5
5 - Hotel	NAC-1	65	**69.2**	**70.1**	**71.0**
Numbers that are **bold** indicate that the modeled sound levels exceed State standards.					

The analysis indicates that traffic noise levels are generally below applicable standards, except for at the hotel site located near the CSAH 83/US-169 interchange. The updated model differs from the 2001 FAUAR analysis in that the projected traffic volumes are higher, and also that the receptor is located 100 feet from CSAH 83 (the 2001 FAUAR assumed 250 feet).

Item 25: Nearby Resources
An updated request for data from the State Historic Preservation Office (SHPO) was obtained and is included in **Appendix B**. While there are nearby resources noted. The updated data confirms the 2001 FAUAR's analysis that there are no known historic, archeological, or architectural resources within the Study Area.

The original AUAR contained additional information and study about lithic scatter within the northern portion of the Shenandoah Business Park site. This information and related mitigation measures still remain valid with this AUAR Update.

Item 27: Compatibility with Local Plans
The 2030 Comprehensive Plan was adopted by the City Council on August 18, 2009 and is consistent with the requirements of the Metropolitan Land Planning Act. The Plan was reviewed and approved by the Metropolitan Council, and was found to be consistent with Minnesota Rules 4410.3610, subpart 1, which requires all local comprehensive plans to address land use, transportation, and sanitary sewer systems and include an implementation plan.

The FAUAR adopted in 2001 included two development scenarios of different development densities, but the same land uses. No change to these scenarios is proposed for this FAUAR Update. This scenario reflects the land use designation in the City of Shakopee Comprehensive Plan – Land Use Plan.

> <u>Comprehensive Plan (2030) – Land Use Plan</u>
> The Land Use Plan identified in the City's 2030 Comprehensive Plan as shown in **Figure 10**, guides the Study Area for Industrial land use. This land use category is defined as follows:
>
> > Light Industrial (I1): The I1 Zone is intended to accommodate industrial, office, and manufacturing uses that are relatively unobtrusive, and which can serve as transitions between more intensive industrial sites and residential or other, less intense business uses.
>
> The Study Area is proposed as a mixture of office/warehouse use and is consistent with the policies and land use outlined in the Comprehensive Plan. There is no need for a Comprehensive Plan amendment for the proposed development in the Study Area.
>
> <u>Zoning Ordinance</u>
> The Study Area is currently zoned as I1, Light Industrial. In Light Industrial Districts, the Zoning Ordinance permits the following uses: warehousing and wholesaling, research laboratories, establishments supplying goods or services primarily to industrial uses, agricultural uses, but limited to the growing of field crops, utility services, utility service

structures, offices within the principal structure and directly associated with another permitted use, public buildings, single and mixed use developments, and office buildings. There is no need for a rezoning or ordinance amendment for the proposed development in the Study Area.

Metropolitan Council - 2030 Regional Development Framework
(Adopted January 2004, Amended December 2006, Updated January 2007)
Shakopee is designated as a Developing Area in the 2030 Regional Development Framework. This indicates that the Metropolitan Council anticipates growth and development in the City of Shakopee. The proposed development in the Study Area is consistent with the regional policies by encouraging expanded choices and improved access to jobs and opportunities, protecting locally significant natural resources, planning interconnected bicycle and pedestrian trails, as well as planning, coordinating, and investing in regional infrastructure.

Lower Minnesota River Watershed District Third Water Management Plan
The Lower Minnesota River Watershed District Third Water Management Plan was submitted to the Board of Water and Soil Resources (BWSR) for review and approval in October 2011 and is anticipated to be formally adopted in December 2011. The Plan was prepared in accordance with Minnesota Rules Chapter 8410, as administered by the Minnesota Board of Water and Soil Resources.

All development in the Study Area will be subject to the Lower Minnesota River Watershed District Management Plan that is adopted and in effect at the time of development and the Lower Minnesota River Watershed District rules that implement the plan. No inconsistencies between the proposed scenario and the Plan have been identified.

Item 28: Impacts on Infrastructure and Public Services
Average day water demands were to be 97,896 gallons per day (gpd) from Shenandoah Business Park and 63,349 gpd from Minnesota Valley West, for a combined total of 161,245 gpd. Maximum day water demand from Shenandoah Business Park and Minnesota Valley West upon full development was estimated to be 205,582 gpd and 133,033 gpd respectively for a combined total of 338,615 gpd. Maximum day water demands are important for evaluation of Shakopee Public Utility's (SPU) water supply (well) capacity.

The City's existing average day demand is 5.2 mgd or 3,611 gallons per minute (gpm), and the City's maximum day demand is 10.7 mgd (7,430 gpm).

According to American Water Works Associated (AWWA), it is typical to recommend that the water systems have an approximate storage capacity equal to the average day demand plus a fire flow equalization amount. For purposes of this study, a fire flow of 3,500 gallons per minute for 3 hours (630,000 gallons) was added to the average day demand to determine the required storage capacity for the entire City. Therefore, 5,830,000 gallons is required for the SPU's water storage. Currently, SPU has approximately 9,250,000 gallons in elevated storage.

According to 10-State Standards, a water system should be able to provide a water supply in the amount of their peak day demands with their largest well out of service (firm capacity). SPU has a firm capacity of 17,150 gpm, with Well No. 16 having a capacity of 1,350 gpm out of service.

Both the water storage and well supply capacities for SPU are sufficient for existing water demands.

Upon full development of Shenandoah Business Park and Minnesota Valley West, Shakopee's average day water demand and maximum day water demand would be increased to approximately 5.36 mgd (3,723 gpm) and 11.04 mgd (7,664 gpm) respectively. Therefore, SPU's supply and storage capacity is adequate to serve the Shenandoah Business Park and Minnesota Valley West upon full development.

Shenandoah Business Park:

The 2001 AUAR indicated water main would be sized in accordance with SPU design standards and that due to the size of the development, 12-inch water mains would be necessary. Recent development plans appear to be in accordance with the 2001 AUAR, therefore the 2001 AUAR remains valid. Final water main design, looping within the site, and connections to existing water mains will be reviewed by the City and SPU at the time of final plat to verify conformance to design standards.

The 2001 AUAR indicated the area east of Shenandoah Drive would connect to the 24-inch trunk sewer located along 4th Avenue and the eastern property line, and the area west of Shenandoah might require lift stations to pump wastewater to existing sanitary sewers but did not specify which existing sanitary sewer it would be connected to.

Based on a review of recent plans, wastewater generated by lots east of Shenandoah will generally connect to a 24-inch trunk sewer flowing east along 4th Avenue from the intersection of Shenandoah Avenue and 4th Avenue, then north along the eastern property boundary to County Road 101 (CR 101). Wastewater generated by lots west of Shenandoah are planned to connect to a 10-inch sewer flowing north along Viking Steel Road. Some individually owned grinder pumps may be required to pump wastewater to sanitary sewers within the development, due to building elevations, but no centralized public lift stations has been proposed.

Minnesota Valley West:

The 2001 AUAR indicates water and sanitary sewer infrastructure is in place to serve existing and future buildings on the site. Sanitary sewer and water infrastructure is in place to serve existing buildings, but additional water main and sanitary sewer will need to be constructed when future buildings are constructed. No utility plans were available for construction of the future buildings.

Based on existing sanitary sewer on the site, it is assumed wastewater from future buildings will flow to a 10-inch sanitary sewer ultimately connecting to the existing 15-inch trunk sewer along CR 83, approximately 200 feet south of the intersection of CR 83 and 4th Avenue. Final sanitary sewer design and connections to existing trunk sewers will be reviewed at the time of final plat to verify the above described assumptions.

Water mains will be sized in accordance with SPU design standards. Currently there are 12-inch water mains serving the existing buildings on-site. Due to the size of development and in accordance with SPU design standards, 12-inch water mains will be required to extend across the site in both the north-south and east-west directions, and all water mains will be looped. Water services from the 12-inch main will be sized as necessary depending upon building demands. Final water main design, looping within the site, and connections to existing water mains will be reviewed by the City and SPU at the time of final plat to verify conformance to design standards.

Item 29: Cumulative Impacts

The original AUAR did not address Cumulative Impacts. Since guidance on this item has changed over the years, it is discussed in this Update.

When the original AUAR was completed, much of the surrounding area had already been developed. There was light industrial development around the Study Area and Canterbury Downs existed to the south. Since the original AUAR, the Shakopee Public Utilities constructed a new facility in the northwest corner adjacent to Shenandoah Business Park.

The remaining area to develop near the Study Area is south of Shenandoah Business Park and west of Minnesota Valley West. This area is planned as Entertainment (see **Figure 8**). No specific plans are known for this area by the City.

IV. Mitigation Summary and Update

Many of the mitigation measures outlined in the 2001 FAUAR still remain valid. In some cases, additional analysis has been completed to reflect updated information and regulations. Updated mitigation measures from the 2001 FAUAR are outlined below and the original mitigation either remains in effect or has been updated as noted based on the new analysis.

A. <u>Traffic</u>

The traffic analysis update described in Item 21 identifies three key intersections that are expected to operate at an unacceptable LOS conditions for the 2030 Build scenario. Poor operations at the CSAH 83 / 4th Avenue intersection are directly affecting the operations at the 4th Avenue / Canterbury Park Drive intersection, causing it to fail. Correcting the conditions at the CSAH 83 / 4th Avenue intersection will also correct the conditions at the 4th Avenue / Canterbury Park Drive intersection. Also, constructing an additional westbound left-turn lane is anticipated to improve operations at the CSAH 83/12th Avenue intersection producing acceptable LOS conditions.

The 2001 FAUAR identified several potential mitigation measures to improve traffic operations in the study area. These potential measures are still applicable to this AUAR Update. These measures include:

1. Addition of an eastbound right-turn or left-turn lane on 4th Avenue at the intersection of 4th Avenue with CSAH 83.

2. Installation of a traffic signal at the intersection of 4th Avenue with CSAH 83.
3. Addition of a northbound left-turn lane on CSAH 83 at the intersection of CSAH 83 with 4th Avenue.
4. Addition of a southbound right-turn lane on CSAH 83 at the intersection of CSAH 83 with 4th Avenue.
5. Addition of raised concrete medians on CSAH 83.
6. Improvement of 4th Avenue from CSAH 17 to CSAH 83 to a three-lane urban section with center turning lane.

B. Surface Water

Mitigation for potential impacts to water quality and quantity from development in the Study Area is controlled through requirements of the City, the Lower Minnesota River Watershed District, and the MPCA's NPDES Permit. The mitigation measures outlined in the original AUAR still apply.

Shenandoah Business Park: The stormwater management system for Shenandoah Business Park will need to be constructed as part of development to meet the City, Watershed Management District and NPDES requirements to provide permanent treatment as discussed in this AUAR Update. Development will also be required to develop a SWPPP and implement these temporary Best Management Practices during construction.

Minnesota Valley West: The stormwater management system for Minnesota Valley West is already in place. No additional permanent stormwater mitigation measures will be needed. However, any additional development will be required to develop a SWPPP and implement these temporary Best Management Practices during construction.

C. Wastewater

Wastewater generated by the development in the study area will be typical of domestic sewage. The estimated average daily wastewater flow for both sites together is 146,586 gallons per day.

Shenandoah Business Park: Sanitary sewers will be constructed on the site and connected to existing municipal sanitary sewers to collect wastewater generated from each of the lots, and ultimately transport it to the Blue Lake WWTF for treatment.

Wastewater generated by lots east of Shenandoah will generally connect to a 24-inch trunk sewer flowing east along 4th Avenue from the intersection of Shenandoah Avenue and 4th Avenue, then north along the eastern property boundary to County Road 101 (CR 101). Wastewater generated by lots west of Shenandoah is planned to be connect to a 10-inch sewer flowing north along Sarazin Street. Some individually owned grinder pumps may be required to pump wastewater to sanitary sewers within the development due to building elevations.

Minnesota Valley West: Sanitary sewers will be constructed on the site and connected to existing municipal sanitary sewers to collect wastewater generated from each of the lots, and ultimately transport it to the Blue Lake WWTF for treatment. Sanitary sewer is in place to serve existing buildings, but additional sanitary sewer will need to be constructed when future buildings are constructed.

Based on existing sanitary sewer on the site, it is assumed wastewater from future buildings will flow to a 10-inch sanitary sewer ultimately connecting to the existing 15-inch trunk sewer along CR 83, approximately 200 feet south of the intersection of CR 83 and 4th Avenue. Final sanitary sewer design and connections to existing trunk sewers will be reviewed at the time of final plat to verify the above described assumptions.

D. Water System

Estimated average day water demand within the study area is estimated at 161,245 gallons per day for both sites. The maximum day water demand from both sites is 338,615 gallons per day.

Shenandoah Business Park: Water mains will need to be extended to provide water service. Water mains will be sized in accordance with Shakopee Public Utility (SPU) design standards. Due to the size of development and in accordance with SPU design standards, 12-inch water mains will be required to extend across the site in both the north-south and east-west directions, and all water mains will be looped. Water services from the 12-inch main will be sized as necessary depending upon building demands. Final water main design, looping within the site, and connections to existing water mains will be reviewed by the City and SPU at the time of final plat to verify conformance to design standards.

Minnesota Valley West (Opus Northwest, L.L.C.): Water mains will need to be extended to provide water service. Currently there are 12-inch water mains serving the existing buildings on-site. Future water mains will be sized in accordance with SPU design standards. Due to the size of development and in accordance with SPU design standards, 12-inch water mains will be required to extend across the site in both the north-south and east-west directions, and all water mains will be looped. Water services from the 12-inch main will be sized as necessary depending upon building demands. Final water main design, looping within the site, and connections to existing water mains will be reviewed by the City and SPU at the time of final plat to verify conformance to design standards.

E. Noise and Vibration

The mitigation measures outlined in the original AUAR still apply. To control construction noise, construction equipment will be fitted with mufflers and other noise control equipment as specified by the manufacturer. Shakopee City Ordinance (10.60, subd. 3 (D) limits construction activity to the hours of 7:00 a.m. to 10:00 p.m. on weekdays and 9:00 a.m. to 9:00 p.m. on weekends and holidays.

To control vibrations from blasting in the vicinity of any existing structures, the blasting contractor will be required to perform preliminary tests as necessary and monitor vibrations and air blast overpressure from blasting at the nearest structure to the blast to ensure that Department of Natural Resource guidelines are not exceeded.

The original AUAR included mitigation for the Goemer residence. The residence no longer exists as it was acquired and removed. This mitigation item no longer applies.

F. Archaeological and Historical Resources

The original AUAR included an Archaeological Survey of the Shenandoah Business Park as a result of comments from the State Historic Preservation Office. The mitigation measures in the original AUAR apply for the Shenandoah Business Park. This includes avoiding a small area along the northern edge of the project site to avoid potential impact on some lithic scatter found in the area. Should avoiding this not be feasible, further study and more intensive testing will be needed in order to evaluate the significance of the site and determine whether or not it meets the criteria of eligibility for the National Register of Historic Places.

To control visual impacts on The Landing north of the site, visual screening through appropriate landscaping and appropriate design of lighting on the site will be provided through landscape plans for parcels along the north boundary of the site and site plan review by the City of Shakopee.

G. Visual Impacts

The original AUAR identified potential impact and mitigation measures for the Goemer property. The house in this area has since been removed so the mitigation measures outlined in the original AUAR no longer are necessary. Lighting will still be required to be in conformance with City standards.

H. Wildlife

Loggerhead shrike survey may be required by the DNR as part of a development project if disturbance would be planned during the nesting season (April through July). Additionally, development within the Shenandoah Business Park site will consider protecting an area of open space for wildlife habitat within the Regionally Significant Ecological Areas.

V. FAUAR Update Review

Pursuant to Minnesota Rules 4410.3610 Subp. 7, this FAUAR Update is being submitted for a ten-day comment period. The City Council will consider adoption after this comment period. Upon adoption, the Shenandoah Business Park (United Land LLC) and Minnesota Valley West (Opus Northwest, L.L.C.) FAUAR will remain valid for an additional five years from the adoption date.