



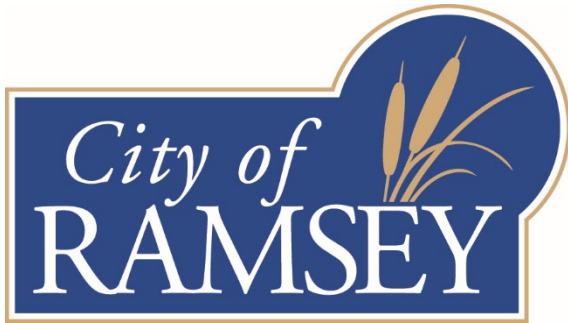
**BOLTON
& MENK**

Real People. Real Solutions.

Center Street Area Analysis Located within the COR

City of Ramsey

DECEMBER 2017



Submitted by:

Bolton & Menk, Inc.
7533 Sunwood Drive NW #206
Ramsey, MN 55303
P: 763-433-2851
F: 763-427-0833

EXECUTIVE SUMMARY

The Ramsey City Council and Ramsey Economic Development Authority (EDA) have identified the need to prepare for further development of the COR. The City has identified an area of publicly owned land located west of Center Street NW for a potential apartment complex and City park. The area is generally located north of Sunwood Drive NW, east of Xenolith Street NW, South of Ramsey Parkway and west of Center Street NW.

This analysis included examining the feasibility of constructing the required supporting public infrastructure, and developing preliminary design layout plans in this area of the COR.

A portion of the public improvements adjacent to the area were completed in 2004 along Sunwood Drive NW and in 2014 along Center Street NW. The street and utility improvements completed include construction of a 30-inch trunk sanitary sewer main in Sunwood Drive, an extension of 12-inch sanitary sewer in Center Street, and an extension of 12-inch watermain in Center Street.

Future improvements required to serve the study area include:

- Construction of Ramsey Parkway west from Center Street NW to Xenolith Street NW,
- Construction of Ramsey Parkway west from Xenolith Street NW to Zeolite Street,
- Expansion of Center Street NW north to Ramsey Parkway,
- Construction of Xenolith Street NW,
- Construction of Yolite Street NW between Ramsey Parkway and Sunwood Drive,
- Extension of an 8-inch sanitary sewer line along Xenolith Street NW,
- Looping an 8-inch water main along Xenolith Street and Ramsey Parkway,
- Relocation of a 15-inch trunk sanitary sewer line along Ramsey Parkway,
- Use of a regional rate control basin to maintain existing storm water flow rates in the COR,
- Construction of a 30-inch regional pond outlet pipe along Yolite Street NW,
- Installation of street lighting, trails/sidewalks, and landscaping consistent with City Policy, and
- Obtaining of ROW required for improvements during the platting process.

The total for the roadway, trail, sidewalk, street lighting, lateral sanitary sewer and water main improvements is estimated at \$3,652,000.

The total trunk related improvements for sanitary sewer and storm sewer is estimated at \$215,000.

The total landscaping improvements along Sunwood Drive from Zeolite Street to Sapphire Lane is estimated at \$691,000.

The costs are considered project costs and include 30% contingencies and project development costs (administrative, engineering, and fiscal).

The information presented in this report is intended to allow for discussions with property owners and developers, as well as allow the City to begin considering funding options

Table of Contents

I.	INTRODUCTION.....	1
II.	STUDY CONTENT	1
III.	BASE DATA AND GUIDANCE.....	1
IV.	GENERAL DISCUSSION	2
V.	UNDERSTANDING PREVIOUS IMPROVEMENTS.....	4
VI.	ADDITIONAL ANALYSIS.....	6
VII.	COST CONSIDERATIONS.....	8
VIII.	COST ALLOCATION ALTERNATIVES	10

Appendix

APPENDIX A: COR EXHIBIT

APPENDIX B: FIGURES

- Figure 1: Area of Study
- Figure 2: Road Segments
- Figure 3: Geometrics
- Figure 4: Right of Way Layout
- Figure 5: National Wetland Inventory
- Figure 6: Sanitary Sewer
- Figure 7: Watermain
- Figure 8: Storm Sewer
- Figure 9: Site Grading
- Figure 10: Segment A-1 Geometrics
- Figure 11: Segment A-2 Geometrics
- Figure 12: Segment B Geometrics
- Figure 13: Segment C Geometrics
- Figure 14: Segment D Landscaping
- Figure 15: Segment E Geometrics
- Figure 16: Typical Sections
- Figure 17: Typical Sections

I. INTRODUCTION

The Ramsey City Council and Ramsey Economic Development Authority (EDA) have identified the need to prepare for further development of the COR. The City has identified an area of publicly owned green space located west of Center Street NW for a potential apartment complex and City park. Appendix A includes the COR Development Plan 6.0 (05.15.2012). Appendix B includes figures referenced throughout this study, Figure 1 depicts the general location of the study area associated with this analysis. Figure 2 depicts the individual street segments analyzed.

The Center Street study area is one component (approximately 22 acres) of a larger green-field area ready for development (approximately 87 acres). The larger area includes property designated for traditional retail/commercial development, along with high-density residential uses. The City anticipates a portion of the Center Street study area to be developed into a City park area (See Figure 3).

The primary roadway system serving this area of the COR is Bunker Lake Boulevard to the north and Sunwood Drive NW to the south. This analysis includes examining the feasibility of constructing supporting public infrastructure in, and adjacent to, the study area.

II. STUDY CONTENT

The purpose of this analysis is to determine the necessary public infrastructure and associated costs required to allow land within the study area to develop. Roadways included in the study are as follows:

- Ramsey Parkway from Center Street NW to Zeolite Street NW,
- Center Street NW from the existing developed section north to Ramsey Parkway,
- Xenolith Street NW from Sunwood Drive to Ramsey Parkway, and
- Yolite Street NW from Sunwood Drive to Ramsey Parkway.

Figure 2 in Appendix B depicts the roadway segments included in this analysis.

Our analysis consists of four separate components that, when combined, provide an overview of the study area needs:

- **Preliminary Design Layout** – Provides a graphical depiction of the public roadways and utilities,
- **Regional Storm Water Analysis** – Defines conceptual storm water ponding needs and building pad elevations,
- **Preliminary Project Cost Estimates** – Provides a baseline for fiscal planning of the improvements, and
- **Final Report** – Describes required infrastructure improvements, layouts and costs.

III. BASE DATA AND GUIDANCE

Prior to initiating the study, the City of Ramsey provided record drawings, plan drawings and GIS information for use in creating an existing infrastructure base map. Additionally, the following information and guidance was given by the City for completing the study.

- The City is not requesting a master-planning effort for this analysis. It is unknown where internal driveways, and related curb-cuts, will be needed.
- Providing service lines for sewer and water utilities should be considered along all future roadways. While the precise locations of the service lines is unknown, costs associated with the improvements should be considered in the report.
- Cost estimations and design should include: roadways, trails/sidewalks, storm water management features, street lighting, trunk water mains and trunk sanitary sewer mains.
- The City has adopted Comprehensive Sanitary Sewer and Water Plans. These plans should be reviewed and consulted as forecasting and design work is completed.
- Regional storm water considerations should be included in the study

IV. GENERAL DISCUSSION

While the primary focus of the analysis is related to identifying the public infrastructure required to serve development, additional considerations can influence decision-making. The following items were considered throughout the course of the analysis.

Right-of-Way Requirements

The COR was originally platted as Ramsey Town Center in 2003, with roadway rights-of-way (ROW) being established over a portion of the area. Future improvements within the COR will be primarily development driven, and ROW secured through the platting process. Understanding and documenting potential ROW needs will allow the City to plan in advance for acquisitions. Additionally, platted ROW can be vacated during the development process, allowing for larger areas of development.

Figure 4 shows the existing ROW that does not follow the master plan roadway alignments, and also shows new ROW required for future public improvements.

National Wetland Inventory

The National Wetland Inventory (NWI) shows three wetland areas within the study area. These areas are shown in Figure 5 in Appendix B.

The City has planned in advance for wetland impacts that may occur within a portion of the COR. In 2003 the City delineated these wetlands and completed a wetland mitigation strategy for replacement of impacted wetlands.

The mitigation plan was titled “On-Site Wetland Mitigation and Replacement Plan” and provided for the construction of four replacement wetlands. We anticipate the City will provide that documentation to developers as they begin to consider development options.

Segment Improvements

While there is a general understanding of the total public improvements required to serve the area, sequencing of the improvements will allow for planning and fiscal responsibility. Our understanding of the most likely individual segments to be developed initially are shown in Figure 2 in the Appendix, and include:

- **Segment A-1:**
 - Extension of Ramsey Parkway from Center Street NW to Xenolith Street NW.
 - Extend the existing typical section from the east (Figures 10 & 16).
 - Extension of sanitary sewer, storm sewer and watermain.
- **Segment A-2:**
 - Extension of Ramsey Parkway from Xenolith Street NW to Zeolite Street NW.
 - Extend the existing typical section from the east (Figures 11 & 16).
 - Extension of sanitary sewer, storm sewer and watermain.
 - Reroute existing 15-inch sanitary sewer to new alignment.
- **Segment B:**
 - Extension of Center Street NW to Ramsey Parkway.
 - Extend the existing typical section from the south (Figures 12 & 16).
 - Extension of storm sewer as needed for roadway drainage.
- **Segments C1 and C2:**
 - Construction of Xenolith Street NW from Sunwood Drive to Ramsey Parkway.
 - 36-foot roadway with two 6-foot sidewalks on either side (Figures 13 & 17).
 - Extension of sanitary sewer, storm sewer and watermain.
- **Segments D1, D2, D3 and D4:**
 - Construction of sidewalk and plantings along the north side of Sunwood Drive.
 - Extend the existing boulevard layout used east of Sapphire Street NW (Figures 14 & 17).
 - Extension of irrigation for planting areas.
- **Segment E:**
 - Construction of Yolite Street NW from Sunwood Drive to Ramsey Parkway.
 - 36-foot roadway with two 6-foot sidewalks on either side (Figures 15 & 17)
 - Extension of watermain.
 - Extension of storm sewer for regional pond outlet.

Estimated project costs for each segment were developed to allow for the City to plan for the sequenced implementation of the improvements and are summarized later in this report.

Jurisdictional Authority/Approvals/Permits

As the project moves from the planning stages to design and construction, permits will be required from various agencies. Understanding and planning for requirements associated with obtaining permits and approvals at this time will be critical to the ultimate success of the process. The following agencies will be permitting entities for considered improvements:

- Minnesota Department of Transportation State Aid: Sunwood Drive NW is a State Aid route,
- Minnesota Pollution Control Agency: NPDES Storm Water Permit,
- Minnesota Pollution Control Agency: Sanitary Sewer Extension Permit,
- Minnesota Department of Health (MDH): Watermain Extension,
- Department of Natural Resources (DNR): Dewatering,
- Lower Rum River Watershed Management Organization: Storm Water.

Recent Improvements

Improvements to the area were completed in 2004, 2005 & 2014. The street and utility improvements completed at that time included:

- 2004: Construction of a 30-inch sanitary sewer trunk main and the installation of a 12-inch watermain along Sunwood Drive NW.
- 2005: Extension of 18-inch sanitary sewer along the anticipated West Ramsey Parkway alignment from Zeolite Street to Yolite Street NW, then along Yolite Street to Sunwood Drive.
- 2014: Extension of 12-inch watermain along Center Street from Sunwood Drive to Ramsey Parkway. A 12-inch sanitary sewer main was also installed along Center Street from Sunwood Drive to 145th Avenue NW.

All of the improvements completed at the time were consistent with the City's Sanitary Sewer and Water System Comprehensive Plans.

V. UNDERSTANDING PREVIOUS IMPROVEMENTS

Significant planning was completed prior to completion of the improvements constructed in 2004, 2005, and 2014. Understanding the thoughts behind previous improvements can help avoid omissions when considering future improvements.

Street and Trail Improvements

Sunwood Drive NW

The improvements completed in 2004 provided a fully developed concrete roadway adjacent to the study area. The boulevard was designed to allow for future widening and expansion as development and other improvements occur.

Center Street NW

Improvements to Center Street NW were completed in 2014 and included construction of a 36-foot wide bituminous street with a 10 foot concrete sidewalk, angled parking along the west side, and parallel parking stalls along the east side of the street.

The extension of the full Center Street typical section was completed to 100-feet north of 145th Avenue NW. The remaining roadway was then constructed as a temporary street section with bituminous curb and a bituminous trail for a distance of approximately 220-feet to Ramsey Parkway.

Zeolite Street NW

Zeolite Street was constructed as a temporary rural section with bituminous surface in 2005 from Sunwood Drive to Bunker Lake Boulevard.

Bituminous Trails

A 10-foot wide bituminous trail was constructed in the wide median of Ramsey Parkway east of Center Street. A continuation of the trail was also constructed along the west side of Center Street to allow for a connection to the 10-foot concrete walk near 145th Avenue NW.

Sanitary Sewer Improvements

In 2004, a 30-inch trunk sanitary sewer was extended along Sunwood Drive to serve the COR. In 2005, 15-inch and 18-inch sanitary sewer was installed from Bunker Lake Boulevard to Sunwood Drive. This main was installed in Zeolite Street from Bunker Lake Boulevard to the currently platted Ramsey Parkway. This main then followed the un-platted Yolite Street alignment to Sunwood Drive.

The segment of sanitary sewer main that follows the platted Ramsey Parkway does not follow the revised 2012 master plan alignment of Ramsey Parkway. This main may need to be realigned when this segment of Ramsey Parkway is constructed.

The existing sanitary sewer trunk mains adjacent to the study area have capacity to provide service to the study area.

Water Distribution and Supply Improvements

12-inch Watermain has been installed in all three streets adjacent to the study area (Sunwood Drive, Center Street, and Zeolite Street). All of the trunk mains installed included provisions for service to the study area in the form of 8-inch lateral watermain services.

The elevated storage for the City of Ramsey is adequate to provide fire flow to the study area. The distribution system was also found to be adequate to serve the study area.

Storm Water Management

A storm sewer system was previously constructed in Sunwood Drive and Center Street NW. The system directed roadway runoff to regional ponds located to the east and south of the study area.

A storm sewer system comprised of 33-inch to 42-inch has been installed directly north of the study area in what was previously named West Town Center Drive. The planned roadway alignment was revised in the 2012 COR master plan, and a portion of the constructed storm sewer system lies within the boundaries of the regional pond. When the pond is constructed, a portion of this storm sewer will most likely be removed.

Drainage for the study area is planned to flow north from Sunwood Drive and west from Center Street to a regional pond located north of Ramsey Parkway and west of Center Street. The outlet for the regional pond currently discharges to an open area located on the south side of the future Ramsey Parkway. The storm water then flows overland to a pipe near the Sunwood Drive and Yolite Street intersection. The pond outlet is anticipated to ultimately include a discharge pipe from the regional pond to the Sunwood Drive storm sewer. This pipe will most likely be extended along the future Yolite Street.

We assume the regional pond will be constructed in phases as properties develop. No cost analysis was performed related to construction of the pond.

VI. ADDITIONAL ANALYSIS

As a portion of this analysis, we reviewed City Comprehensive Plans for sanitary sewer and water main needs for the study area and completed a rough site grading review of the City park area. The following is a summary of results for the various analyses and reviews.

Sanitary Sewer and Water Main

The segment of trunk sanitary sewer main following the currently platted Ramsey Parkway does not follow the revised 2012 master plan alignment. This main may need to be realigned when this segment of Ramsey Parkway is constructed.

An 8-inch gravity sanitary sewer main will be adequate to convey flows from the area. For this analysis, we included an allowance for 8-inch service lines to be extended to properties along the corridor.

All existing streets include provisions to extend 8-inch watermain into the study area. Future roadway construction should include 8-inch watermain to complete looping in the study area. In the case that a high water user plans to develop within the project area, additional flow analysis should be performed to verify they will have adequate flow and pressure for their individual needs.

Figure 6 in Appendix B depicts sanitary sewer and Figure 7 depicts the water main improvements within the study area.

Storm Water Management

Storm water management concepts were developed to maintain existing drainage patterns and preserve the conveyance and flood storage capacity of the existing site.

Storm water runoff within the study area is planned to flow north from Sunwood Drive and west from Center Street NW to a large future regional pond proposed on the north side of Ramsey Parkway. The outlet for this regional pond will most likely to be extended along the future Yolite Street, where an existing 30-inch arch pipe has been extended into the study area from Sunwood Drive.

In the interim condition, a swale should be constructed from the pond to the Sunwood Drive storm sewer pipe. The pipe should be uncovered and an apron installed until such time as the final pond outlet pipe is fully constructed.

The existing hydraulic model was refined, and detail added, to allow for the analysis of storm water within the entire COR area. Preliminary storm water management conditions and requirements were then developed to determine the elevations required for building pads in the area.

The sub-watersheds were modeled using future land use conditions to generally size the regional storm water basin. The basin was sized to ensure proposed discharge rates were equal to existing flow rates. The pond was also reviewed with respect to potential storm sewer depths and potential aesthetic park function.

The pond footprint used in the analysis is as shown in the 2012 COR master plan. The normal water level was determined by using the elevation of the outlet pipe located near Sunwood Drive. Additional design parameters and regional storm water management planning should be further refined as the areas begin to develop. Figure 8 shows the general shape and location of the pond used in the analysis.

After reviewing record drawings and ALTA surveys, it was found that there is no emergency overflow (EOF) for the study area or for the proposed regional pond. Because of this, a back-to-back 100-year storm event was modeled to determine the anticipated elevation water could reach if the outlet should ever clog.

Cost estimates were not developed for the regional pond construction or private site storm sewer conveyance.

Site Grading

Existing hydraulic modeling was refined, and detail added, to analyze storm water conditions for future development scenarios. The regional pond elevation will be used to determine the minimum elevations required for building pads in the area.

The results of the modeling indicate the regional pond could reach an elevation of 865.5 during a 100-year back-to-back storm event. This should be considered a preliminary result at this time, as the actual pond size and shape could be revised based upon other studies occurring at the City.

The Lower Rum River Watershed Management Organization requires the lowest building pad elevation be a minimum of 1-foot above the high water level. Based on that requirement, the minimum building elevation should be 866.5.

Figure 9 depicts the average existing lot elevations, the proposed minimum lot elevations required, and an approximate fill volume required to raise each of the sites to the minimum elevation. Each site requires an average of approximately 1 foot of fill to meet minimum elevations required.

A new City park, located directly adjacent to Center Street NW, is in the planning stages at the City. The costs associated with importing fill for this parcel have been included in the alternate cost analysis section of this report.

Street Lighting

The costs included for street lighting were derived from recent projects within the City of Ramsey and are considered to be reasonable costs associated with providing street and pedestrian lighting along the corridors. Costs include conduit, wiring and the actual light fixtures to be installed. The density of the lighting fixtures is similar to the level provided along Riverdale Drive, east of Armstrong Boulevard. The costs provided are considered conservative and may be reduced depending upon the types of developments proposed and the density of lighting required.

Trails/Sidewalks

Trails were previously constructed along the center of the Ramsey Parkway median east of Center Street. Cost estimates were prepared which include a 10-foot bituminous trail along the extension of Ramsey Parkway to Zeolite Street.

A 10-foot concrete sidewalk is proposed along the west side of Center Street. All other roadways are proposed to include a 6-foot concrete sidewalk on either side of the road segment. Figures 10-17 in the Appendix show these layouts and typical sections.

Landscaping

The base project includes a very utilitarian approach to landscaping for the area. Bituminous trails and lighting were included, but other features, such as trees, shrubs, decorative features and monuments are not included in the estimated project costs. The exception to this is Sunwood Drive NW, where the boulevard costs include continuing the landscaping along the north side of Sunwood Drive as it exists east of Sapphire Street.

An alternative was also reviewed in the Ramsey Parkway median. A bio-retention basin was considered along the entire median to provide pre-treatment to the storm water prior to discharging into the regional pond. The base cost for Ramsey Parkway includes a 10-foot bituminous trail in the median with an alternative cost calculated for the cost difference between the two median options.

Right of Way and Easements

Locations of right of way needs are depicted on the figures based on roadway and trail sections. The exact areas will need to be determined during the platting process. We assumed that the right of ways would be dedicated as a portion of the development process and no costs are included in the project costs for acquisitions. Vacation of the existing platted right of ways that are no longer needed are also not included in the project costs.

Anoka County Regional Trail

The Central Anoka County Regional Trail follows Bunker Lake Boulevard, and currently terminates at Ramsey Boulevard. The trail had been proposed to follow Ramsey Boulevard to the south, crossing TH 10 and connecting to the Anoka County's Mississippi West Regional Park. A new alignment is now being proposed, which ultimately takes advantage of the proposed Mississippi Skyway for crossing TH 10. The new alignment follows Bunker Lake Boulevard further to the west, before turning south at Center Street. The trail then follows Center Street through much of the COR, connecting to the transit station on the north side of TH 10.

Timing of Improvements

While the improvements discussed and depicted in the figures will be required to support the area, timing of the improvements will most likely be dependent upon each proposed development.

As individual developments are considered, the public infrastructure will need to be reviewed and determinations made as to its adequacy to serve the properties. As upgrades, extensions and improvements are determined to be necessary, funding strategies will need to be developed which may include full or partial assessments to benefitting properties.

VII. COST CONSIDERATIONS

Costs estimates were developed for each improvement type. These estimates are based on past bid pricing and similar projects completed previously. The segments are depicted on Figure 2 in Appendix B. All costs presented in the following pages are 2018 costs.

<u>Improvement</u>	<u>Segment A-1</u>	<u>Segment A-2</u>	<u>Segment B</u>	<u>Segment C-1</u>
Roadway	\$ 361,000	\$ 713,000	\$ 150,000	\$ 171,000
Trails/Sidewalks	\$ 32,000	\$ 64,000	\$ 35,000	\$ 75,000
Street Lighting	\$ 22,000	\$ 43,000	\$ 13,000	\$ 17,000
Storm Sewer	\$ 118,000	\$ 234,000	\$ 35,000	\$ 43,000
Trunk Storm Sewer	\$ 43,000	\$ 0	\$ 0	\$ 0
Watermain	\$ 122,000	\$ 241,000	\$ 57,000	\$ 98,000
Sanitary Sewer	\$ 78,000	\$ 47,000	\$ 0	\$ 77,000
Trunk San Sewer	\$ 0	\$ 172,000	\$ 0	\$ 0
Total Costs	\$ 776,000	\$ 1,514,000	\$ 290,000	\$ 481,000

<u>Improvement</u>	<u>Segment C-2</u>	<u>Segment E</u>
Roadway	\$ 67,000	\$ 223,000
Trails/Sidewalks	\$ 30,000	\$ 98,000
Street Lighting	\$ 7,000	\$ 22,000
Storm Sewer	\$ 17,000	\$ 119,000
Trunk Storm Sewer	\$ 0	\$ 0
Watermain	\$ 38,000	\$ 127,000
Sanitary Sewer	\$ 31,000	\$ 27,000
Trunk San Sewer	\$ 0	\$ 0
Total Costs	\$ 190,000	\$ 616,000

Segments D-1, D-2, D-3 and D-4 include trails, sidewalks and miscellaneous street scape improvements along Sunwood Drive. The Segments, and associated costs, are presented in the following table.

<u>Segment</u>	<u>Location</u>	<u>Estimated Cost</u>
D-1	Zeolite Street to Yolite Street	\$ 204,000
D-2	Yolite Street to Xenolith Street	\$ 198,000
D-3	Xenolith Street to Center Street	\$ 176,000
D-4	Center Street to Sapphire Street	\$ 113,000
Total		\$ 691,000

The above costs are considered project costs and include 30% contingencies and project development costs. Project development costs include administrative, engineering, and fiscal related costs.

Summary of Costs

The total for the roadway, trail, sidewalk, street lighting, lateral sanitary sewer and water main improvements is estimated at \$3,652,000.

The total trunk related improvements for sanitary sewer and storm sewer is estimated at \$215,000.

The total landscaping improvements along Sunwood Drive from Zeolite Street to Sapphire Lane is estimated at \$691,000.

General Cost Estimating Assumptions

- Dewatering needed for sewer and water installation.
- Fill required for all roadways.
- Borrow material cost does not assume use of regional pond excavation.
- Aggregate base cost does not assume use of City stockpile.

Segment A-1 Assumptions

- Removal of existing 42-inch storm sewer included in trunk storm sewer cost.
- Sanitary assumed to extend to midpoint of last parcels serviced by sewer line.

Segment A-2 Assumptions

- Relocation of 18-inch trunk sanitary sewer into future Ramsey Parkway alignment included in trunk sanitary sewer cost.
- Sanitary assumed to extend to midpoint of last parcels serviced by sewer line.

Segment E Assumptions

- 30-inch regional pond outlet pipe included in storm sewer cost.
- Extension of sanitary sewer laterals to the right of way included in sanitary sewer cost.

Additional Assumptions

- No costs associated with construction of individual storm water ponds, as it is anticipated the regional pond will address all storm water runoff requirements. We assumed the region pond would be constructed incrementally, as individual parcels develop. The regional pond will be sized to address all impervious surfaces within the developable area including the public improvements and all individual site development within the study area.
- Park Fill is the estimated cost to grade the proposed City park parcel, fill the site to an elevation equal to the adjacent streets, place 4 inches of topsoil and seed and mulch the entire site. The estimated project cost to fill the site, topsoil, seed, and hydromulch is approximately \$231,000.

Alternatives Analysis

An alternate cost analysis was performed to determine the difference in cost if a bioretention basin was constructed along the median in Ramsey Parkway, in lieu of the bituminous trail currently being considered. The bio-retention basin is not required to meet water quality volume requirements, but instead to perform pre-treatment and create a native plantings and landscaping feature.

It is estimated that creating a swale along the median with landscaping would result in a cost savings of approximately \$10 per foot when compared to the installation of a 10-foot bituminous trail and sod.

VIII. COST ALLOCATION ALTERNATIVES

The costs, or a portion of the costs, of the improvements are typically allocated back to adjacent properties through the use of assessments, fees and other methods. The costs are typically allocated in a way that is equitable to the properties benefitting from the improvements. Public improvements that will become City owned and maintained are typically constructed through a public process, while secondary improvements are constructed by the property owner. For our analysis, we assumed the following items

would be constructed through the public process:

- Roadways, including storm water conveyance systems,
- Water System Facilities,
- Sanitary Sewer Facilities,
- Trails,
- Street Lighting, and
- City Parks

While the street lights will most likely be installed by a private utility and the trails could potentially be constructed by the property owner, we have included these items as public improvements.

Other improvements were considered secondary and are typically the property owner's responsibility:

- Sanitary Sewer Service Extensions,
- Water Service Extensions,
- Natural Gas Lines to Buildings,
- Telephone Service to Buildings,
- Electric Service to Buildings,
- Site Grading,
- Site Landscaping,
- Site Storm Water Conveyance, and
- Easement Dedication.

These types of improvements are typically inspected by the City for conformity with applicable codes and standards, but are constructed by the property owner.

APPENDIX A: COR EXHIBIT

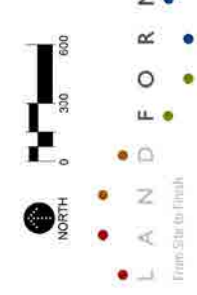
DEVELOPMENT STATUS

	EXISTING DEVELOPMENT
	PROPOSED DEVELOPMENT
	ACTIVE DEALS
	UNDER CONTRACT
	COMPLETED

ACCESS

	EXISTING SIGNALIZED INTERSECTION
	FUTURE SIGNALIZED INTERSECTION
	FULL INTERSECTION
	NO LEFT OUTBOUND MOVEMENTS
	PARKING RAMP

TRAFFIC INFORMATION
 ADT INFORMATION TAKEN FROM 2009
 ACTUAL COUNTS AND 2030 PROJECTED
 VOLUMES




**DEVELOPMENT
 PLAN 6.0**

05.15.2012
 Landform and Site Plan - an unincorporated subdivision of Landform Professional Services, LLC

APPENDIX B: FIGURES



7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: ramsey@bolton-menk.com
www.bolton-menk.com



BOLTON & MENK

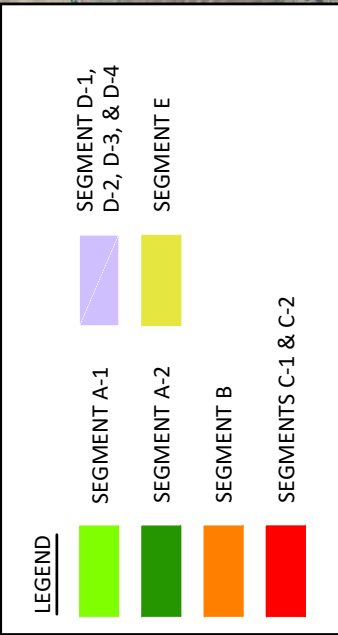
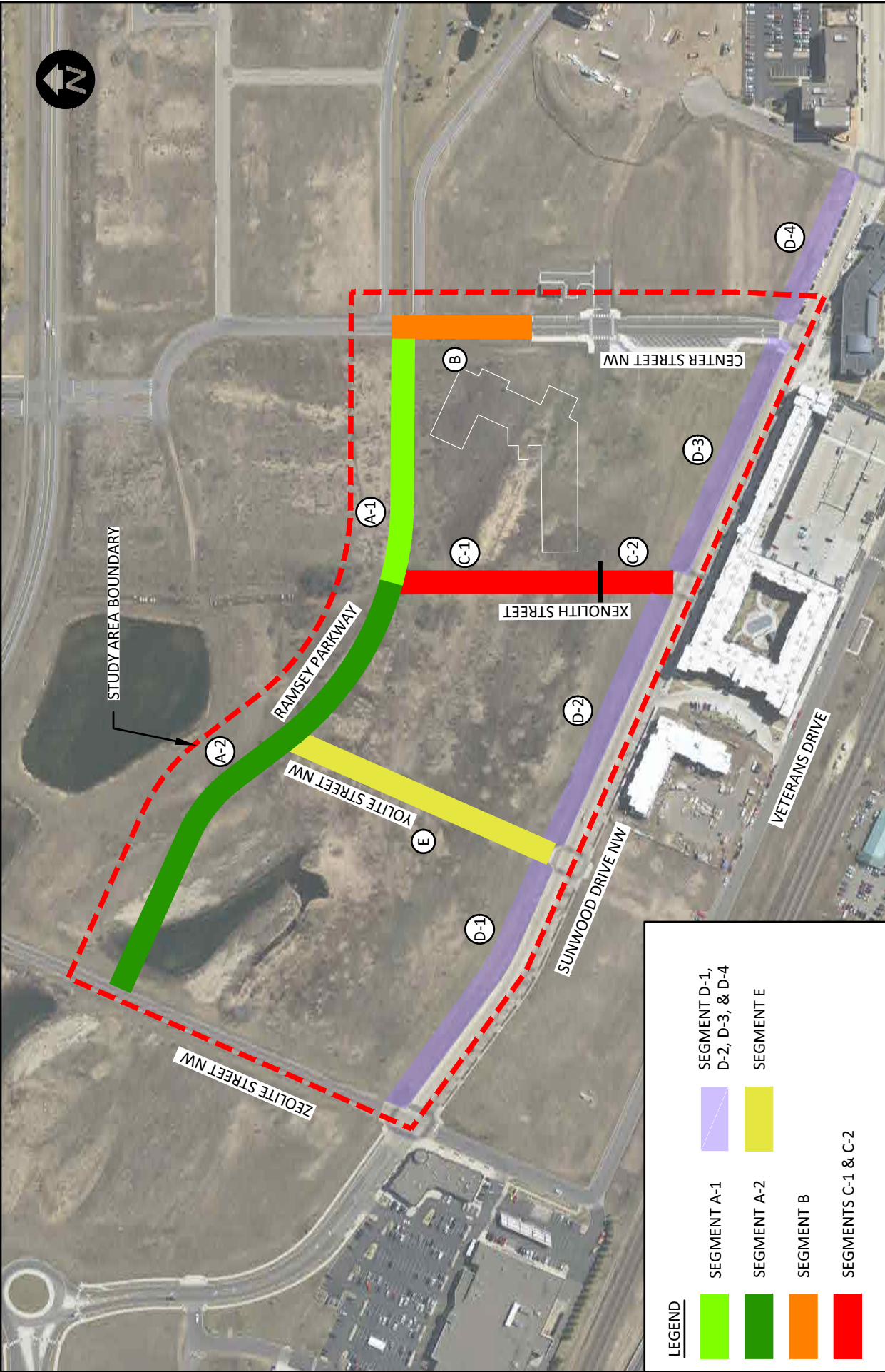
LEGEND

STUDY AREA

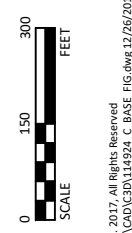
AREA OF ADDITIONAL CONSIDERATION

0 150 300
SCALE FEET

© Bolton & Menk, Inc. 2017. All Rights Reserved
 H:\RAMSEY\16114925\CADD\3D\114924_C_BASE_PIC.dwg 12/26/2017 3:05 PM



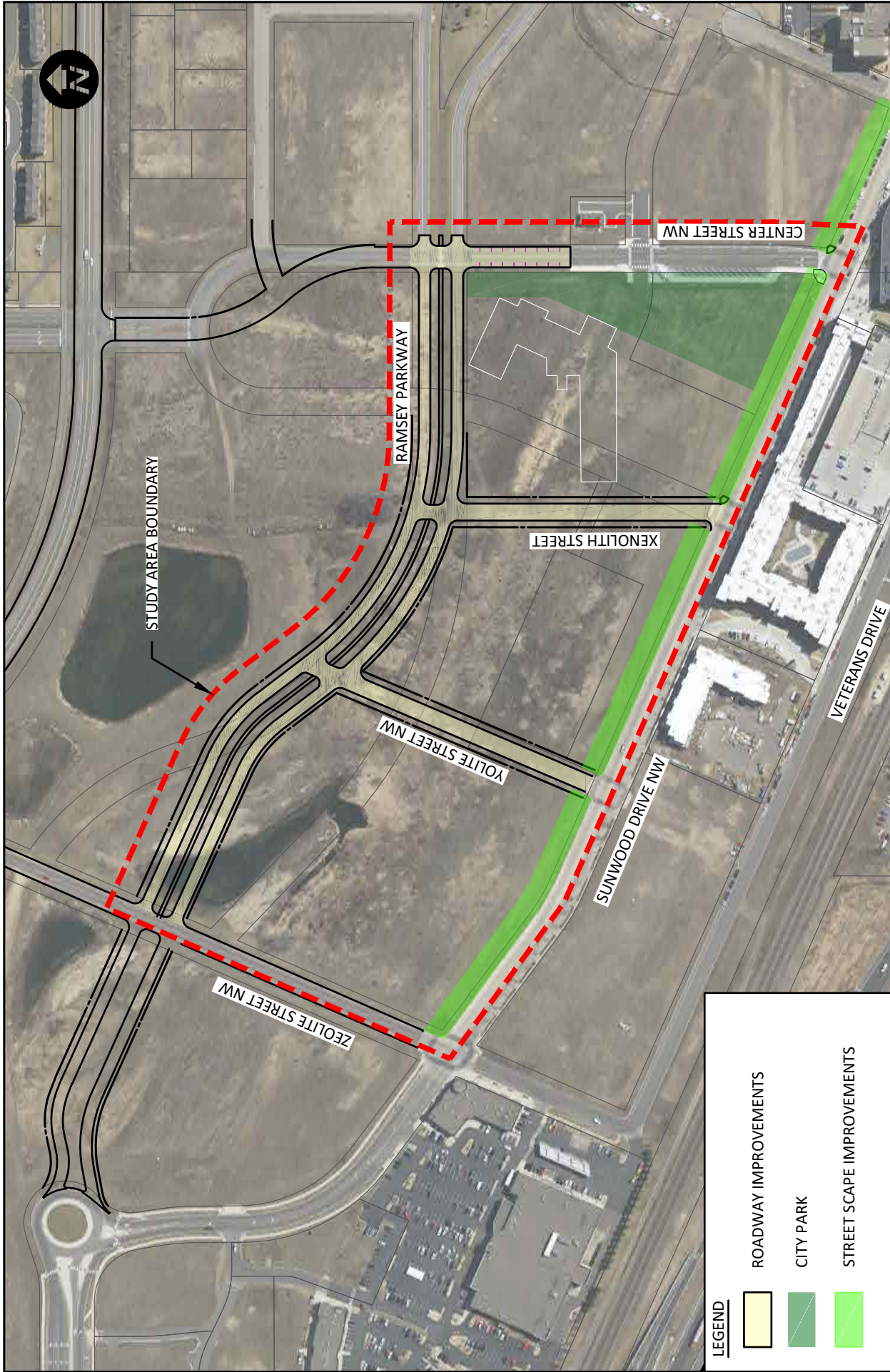
7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: Ramsey@bolton-menk.com
 www.bolton-menk.com



© Bolton & Menk, Inc. 2017. All Rights Reserved
 H:\RAMSEY\16114924\CAD\C3D\14924_C_BASE_FIG.dwg 12/26/2017 3:05 PM

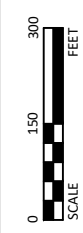
CENTER STREET AREA ANALYSIS
 CITY OF RAMSEY, MINNESOTA
 FIGURE 2 - ROAD SEGMENTS
 DECEMBER 2017





LEGEND

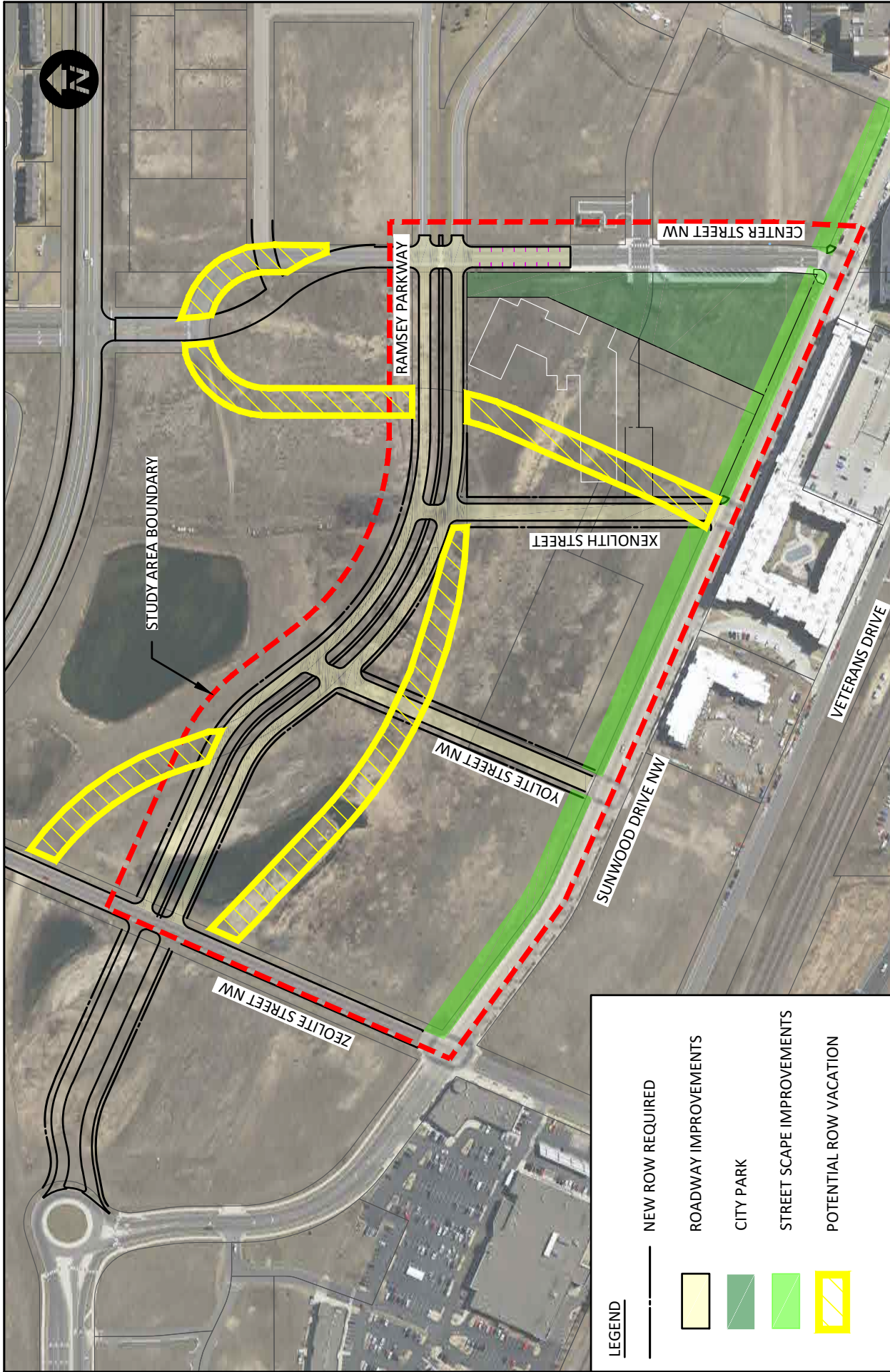
- ROADWAY IMPROVEMENTS
- CITY PARK
- STREET SCAPE IMPROVEMENTS



7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: Ramsey@bolton-menk.com
 www.bolton-menk.com

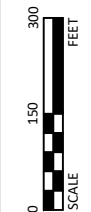


CENTER STREET AREA ANALYSIS
 CITY OF RAMSEY, MINNESOTA
 FIGURE 3 - GEOMETRICS
 DECEMBER 2017



LEGEND

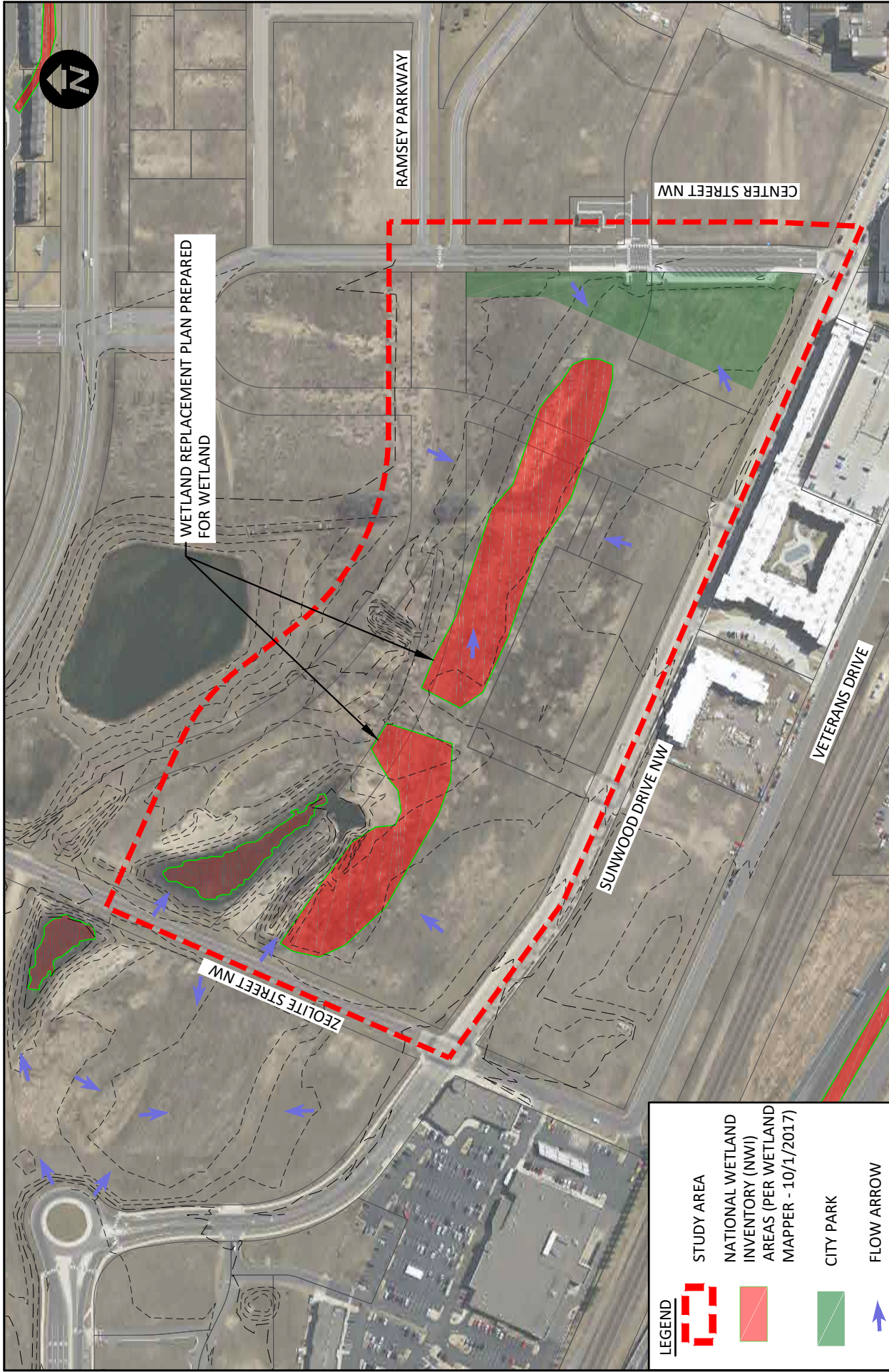
- NEW ROW REQUIRED
- ROADWAY IMPROVEMENTS
- CITY PARK
- STREET SCOPE IMPROVEMENTS
- POTENTIAL ROW VACATION



7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: ramsey@bolton-menk.com
 www.bolton-menk.com



CENTER STREET AREA ANALYSIS
 CITY OF RAMSEY, MINNESOTA
 FIGURE 4 - RIGHT OF WAY LAYOUT
 DECEMBER 2017



WETLAND REPLACEMENT PLAN PREPARED FOR WETLAND

RAMSEY PARKWAY



CENTER STREET NW

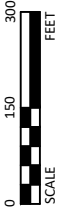
SUNWOOD DRIVE NW

VETERANS DRIVE

ZEOLITE STREET NW

LEGEND

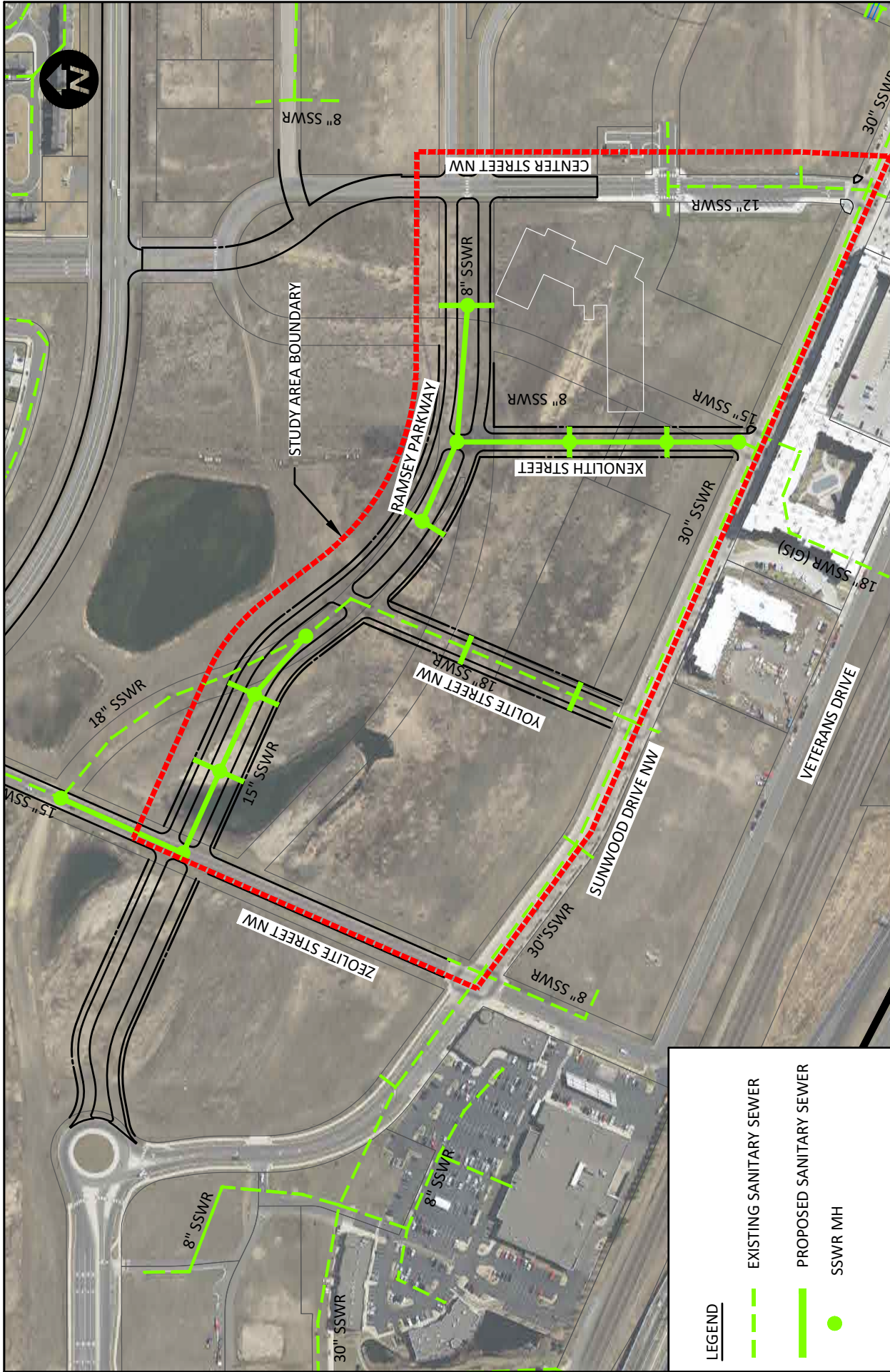
-  STUDY AREA
-  NATIONAL WETLAND INVENTORY (NWI) AREAS (PER WETLAND MAPPER - 10/1/2017)
-  CITY PARK
-  FLOW ARROW



7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

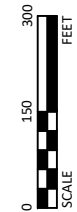


CENTER STREET AREA ANALYSIS
CITY OF RAMSEY, MINNESOTA
FIGURE 5 - NATIONAL WETLAND INVENTORY
DECEMBER 2017



LEGEND

- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- SSWR MH



7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: Ramsey@bolton-menk.com
 www.bolton-menk.com



CENTER STREET AREA ANALYSIS
 CITY OF RAMSEY, MINNESOTA
 FIGURE 6 - SANITARY SEWER

DECEMBER 2017



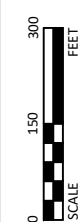
CENTER STREET AREA ANALYSIS
 CITY OF RAMSEY, MINNESOTA
 FIGURE 7 - WATERMAIN
 DECEMBER 2017

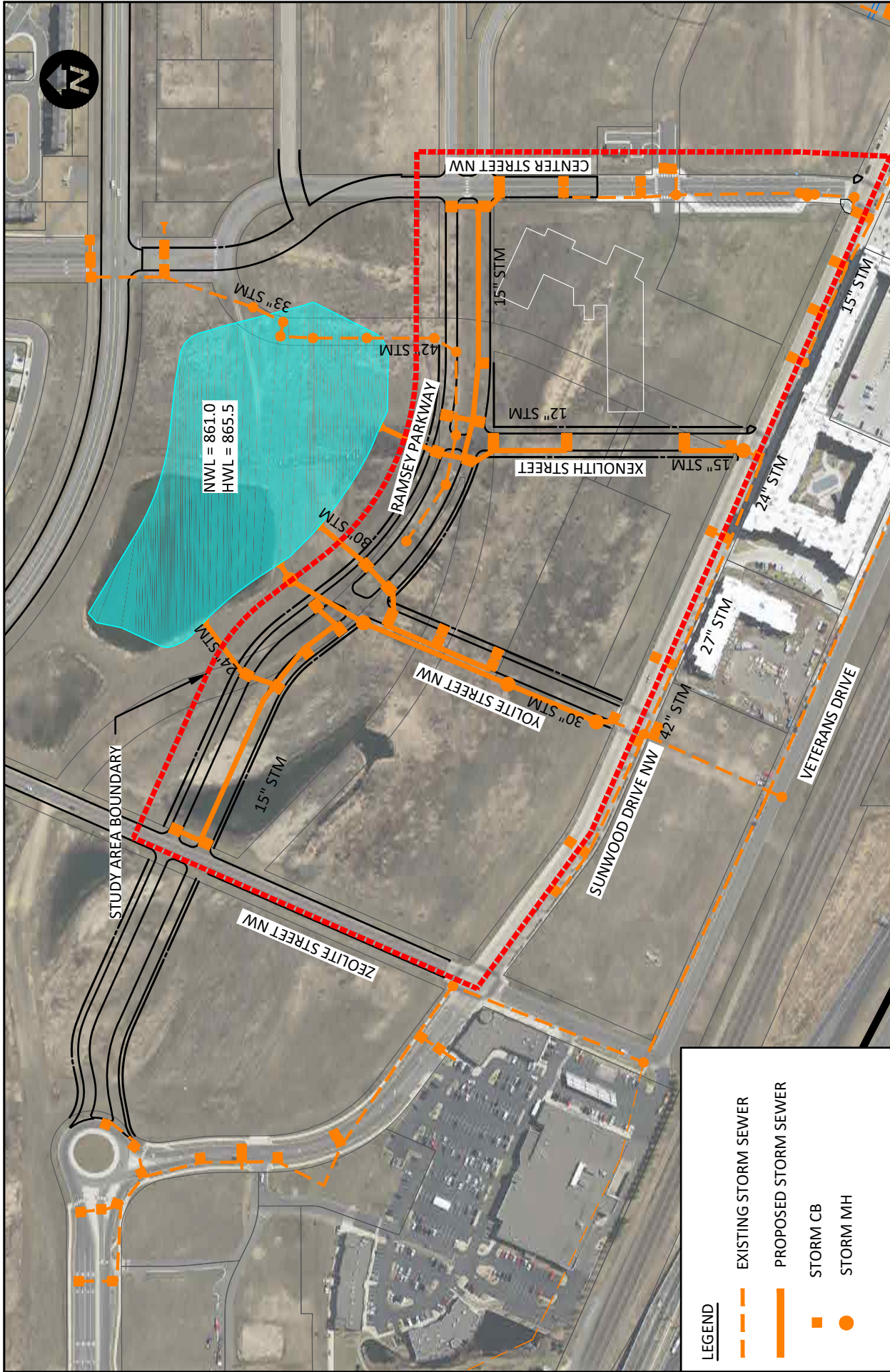
7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: Ramsey@bolton-menk.com
 www.bolton-menk.com



LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- HYDRANT

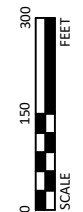




NWL = 861.0
HWL = 865.5

LEGEND

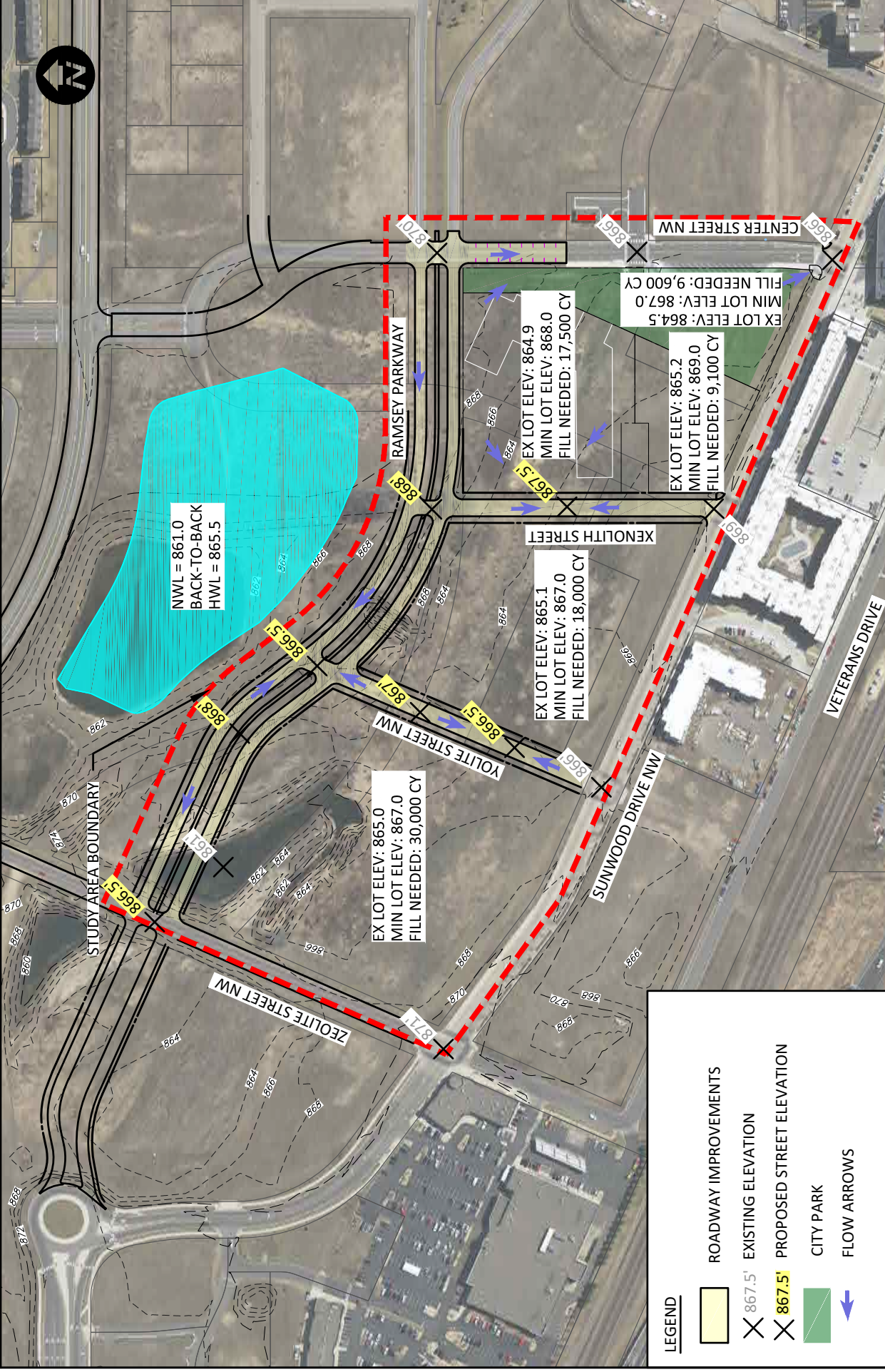
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- STORM CB
- STORM MH



7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com



CENTER STREET AREA ANALYSIS
CITY OF RAMSEY, MINNESOTA
FIGURE 8 - STORM SEWER
DECEMBER 2017



NWL = 861.0
 BACK-TO-BACK
 HWL = 865.5

EX LOT ELEV: 865.0
 MIN LOT ELEV: 867.0
 FILL NEEDED: 30,000 CY

EX LOT ELEV: 865.1
 MIN LOT ELEV: 867.0
 FILL NEEDED: 18,000 CY

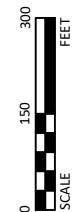
EX LOT ELEV: 864.9
 MIN LOT ELEV: 868.0
 FILL NEEDED: 17,500 CY

EX LOT ELEV: 865.2
 MIN LOT ELEV: 869.0
 FILL NEEDED: 9,100 CY

EX LOT ELEV: 864.5
 MIN LOT ELEV: 867.0
 FILL NEEDED: 9,600 CY

LEGEND

- ROADWAY IMPROVEMENTS
- 867.5' EXISTING ELEVATION
- 867.5' PROPOSED STREET ELEVATION
- CITY PARK
- FLOW ARROWS

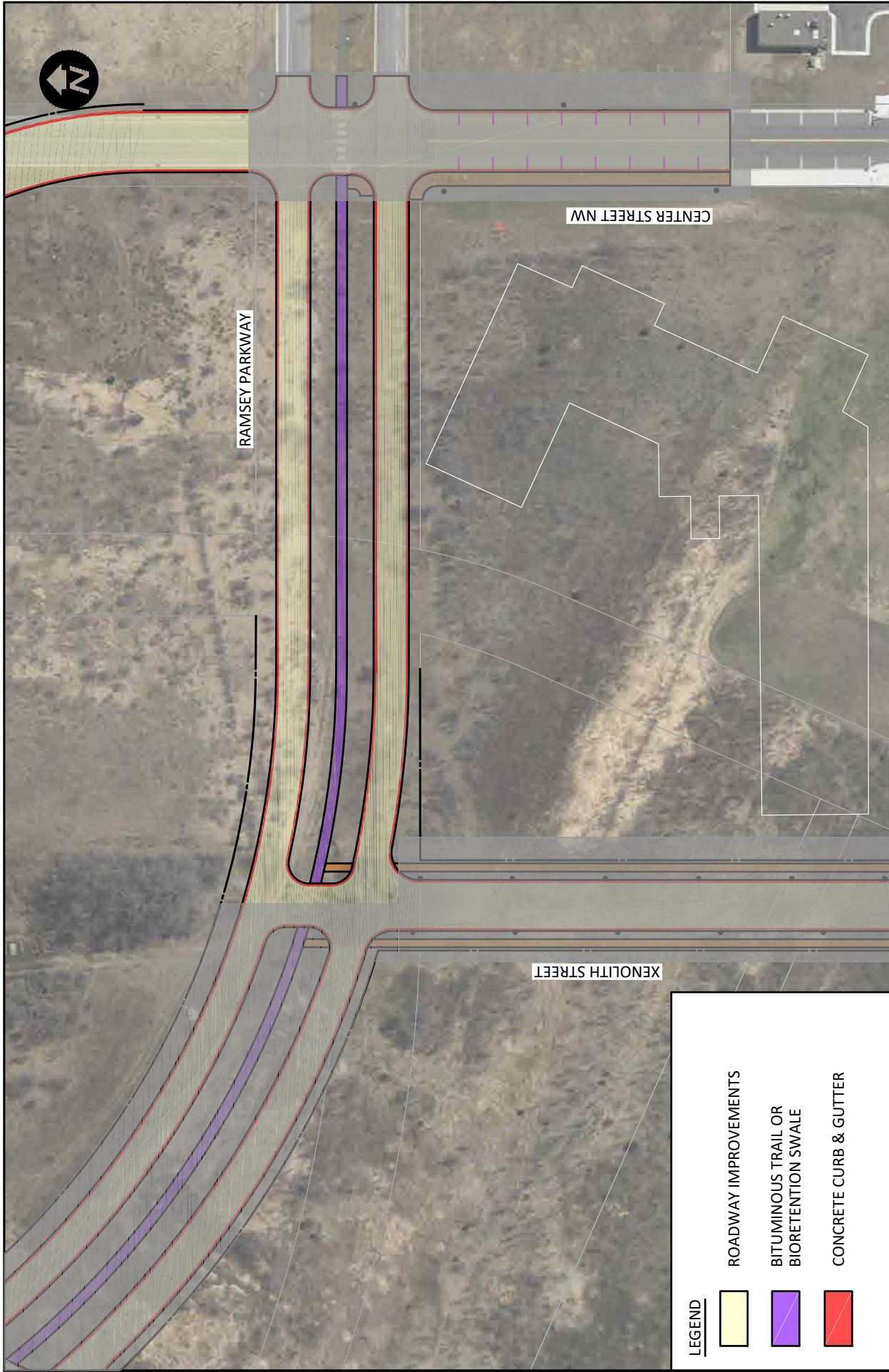


7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: Ramsey@bolton-menk.com
 www.bolton-menk.com






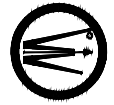
CENTER STREET AREA ANALYSIS
 CITY OF RAMSEY, MINNESOTA
 FIGURE 9 - SITE GRADING

DECEMBER 2017



LEGEND

-  ROADWAY IMPROVEMENTS
-  BITUMINOUS TRAIL OR BIORETENTION SWALE
-  CONCRETE CURB & GUTTER



**BOLTON
& MENK**

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com






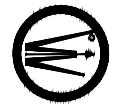
CENTER STREET AREA ANALYSIS
CITY OF RAMSEY, MINNESOTA
FIGURE 10 - SEGMENT A-1 GEOMETRICS

DECEMBER 2017



LEGEND

-  ROADWAY IMPROVEMENTS
-  BITUMINOUS TRAIL OR BIORETENTION SWALE
-  CONCRETE CURB & GUTTER

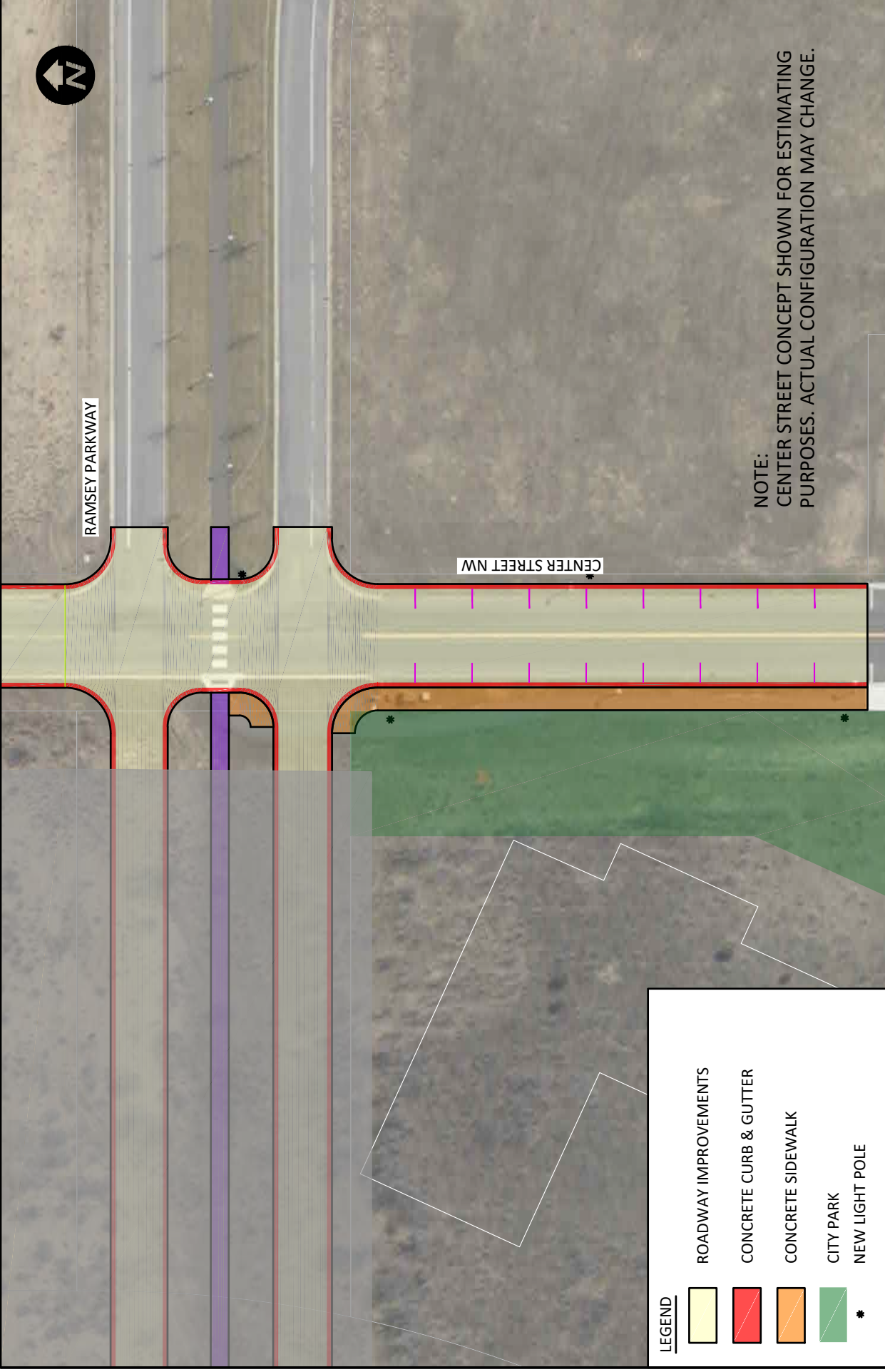


BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com



CENTER STREET AREA ANALYSIS
CITY OF RAMSEY, MINNESOTA
FIGURE 11 - SEGMENT A-2 GEOMETRICS
DECEMBER 2017



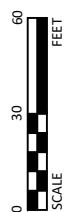
RAMSEY PARKWAY

CENTER STREET NW

NOTE:
CENTER STREET CONCEPT SHOWN FOR ESTIMATING
PURPOSES. ACTUAL CONFIGURATION MAY CHANGE.

LEGEND

-  ROADWAY IMPROVEMENTS
-  CONCRETE CURB & GUTTER
-  CONCRETE SIDEWALK
-  CITY PARK
-  NEW LIGHT POLE
-  *

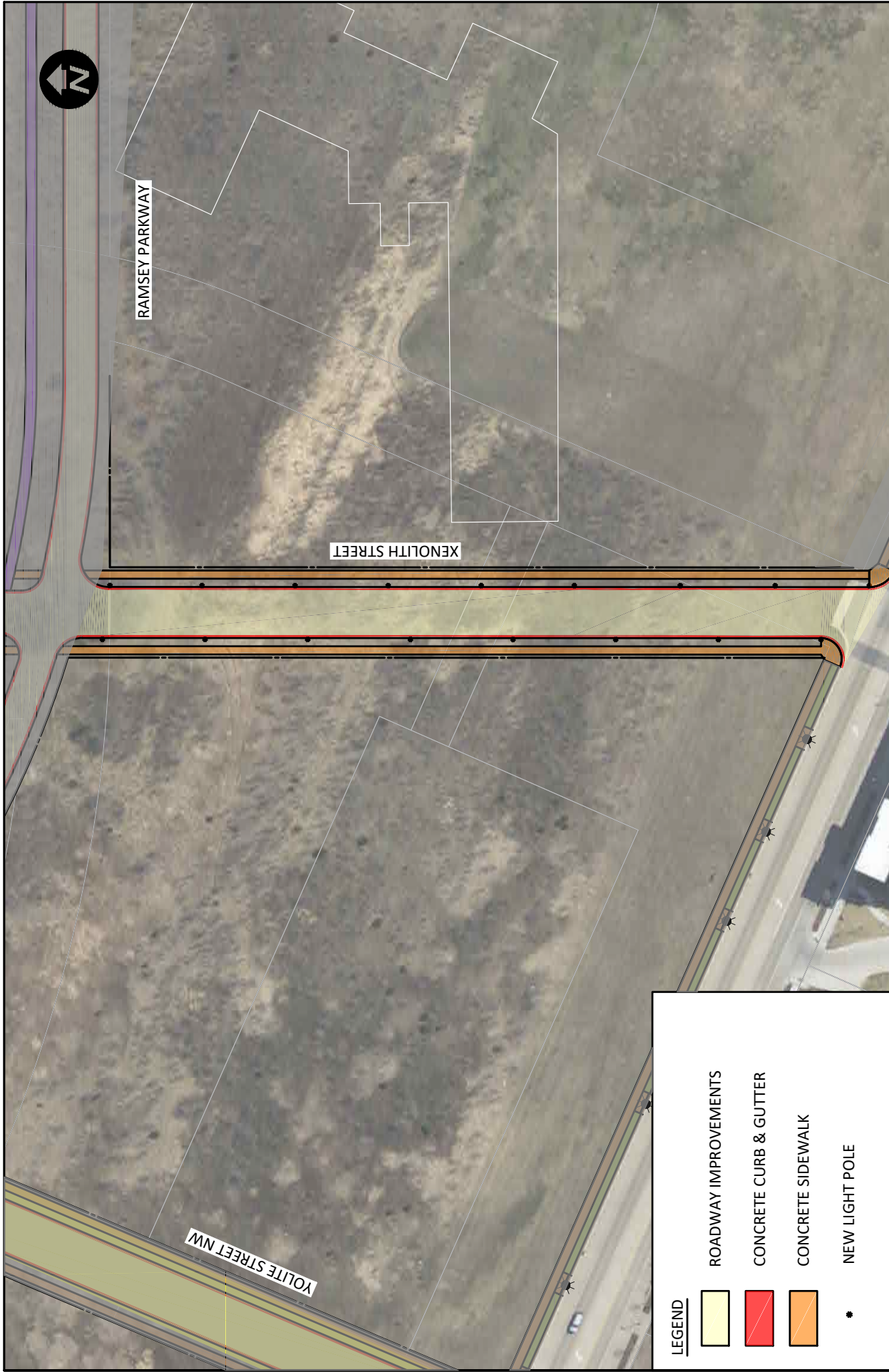


0 30 60
SCALE
FEET

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: ramsey@bolton-menk.com
www.bolton-menk.com



CENTER STREET AREA ANALYSIS
CITY OF RAMSEY, MINNESOTA
FIGURE 12 - SEGMENT B GEOMETRICS
DECEMBER 2017







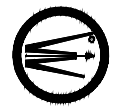
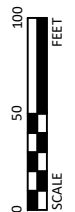
RAMSEY PARKWAY

KENOLITH STREET

YOLITE STREET NW

LEGEND

-  ROADWAY IMPROVEMENTS
-  CONCRETE CURB & GUTTER
-  CONCRETE SIDEWALK
-  NEW LIGHT POLE



**BOLTON
& MENK**

7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: Ramsey@bolton-menk.com
 www.bolton-menk.com



CENTER STREET AREA ANALYSIS
 CITY OF RAMSEY, MINNESOTA
 FIGURE 13 - SEGMENT C GEOMETRICS
 DECEMBER 2017



7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: Ramsey@bolton-menk.com
www.bolton-menk.com



BOLTON & MENK

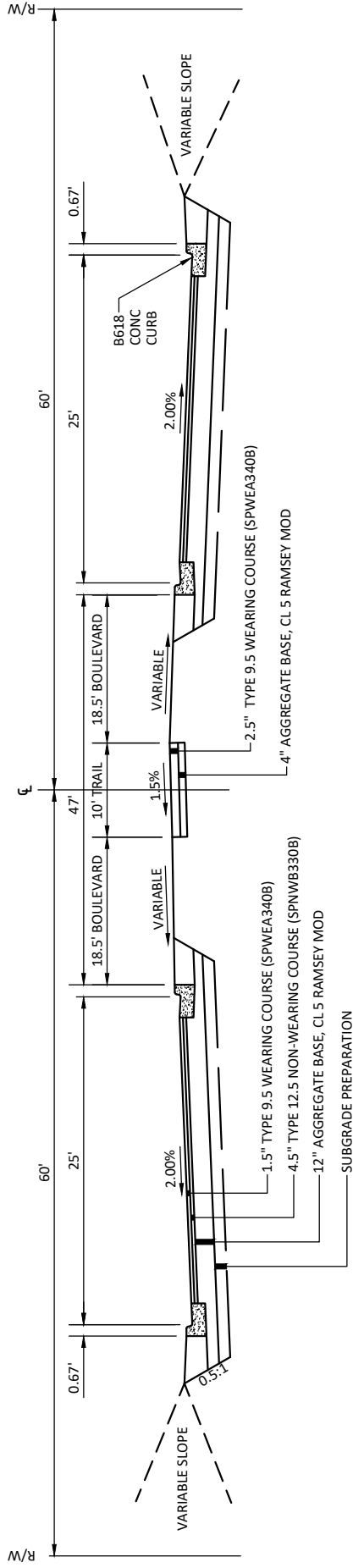
0 30 60
SCALE
FEET



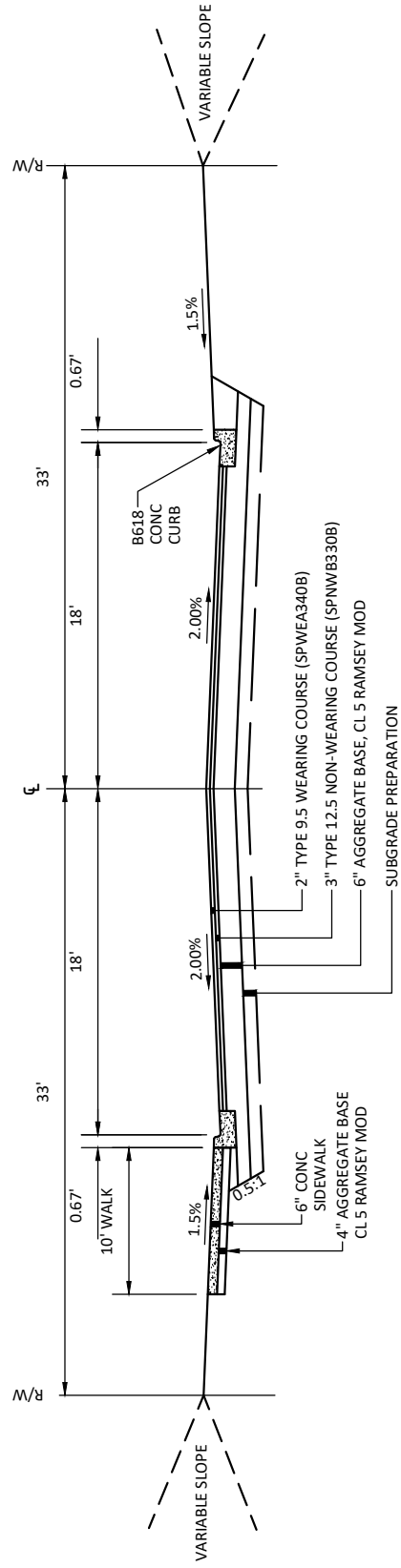
7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: Ramsey@bolton-menk.com
 www.bolton-menk.com



SEGMENT A-1 & A-2 / RAMSEY PARKWAY



SEGMENT B / CENTER STREET



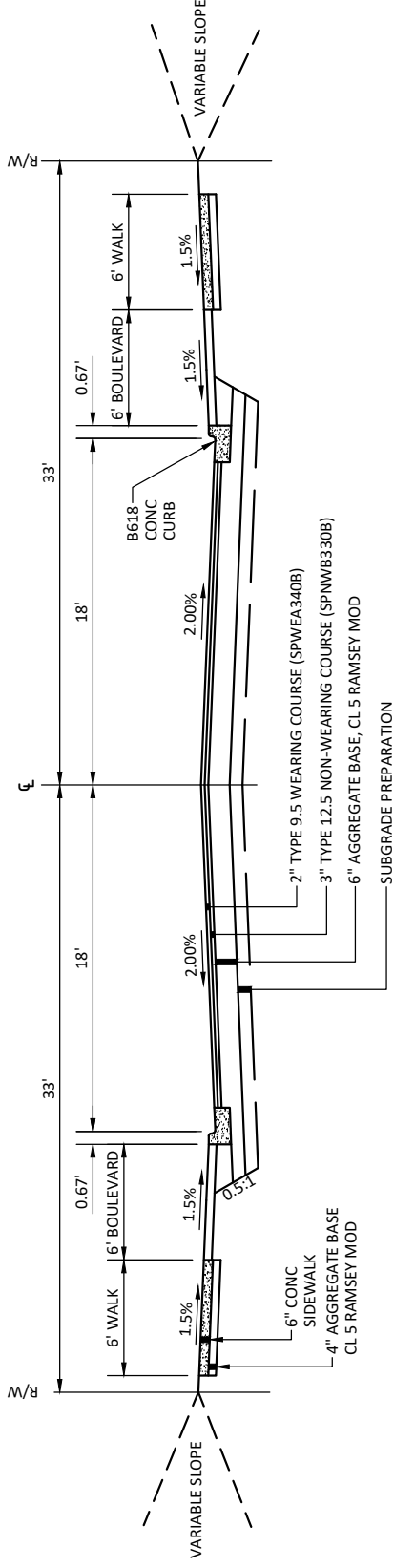
7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: Ramsey@bolton-menk.com
 www.bolton-menk.com



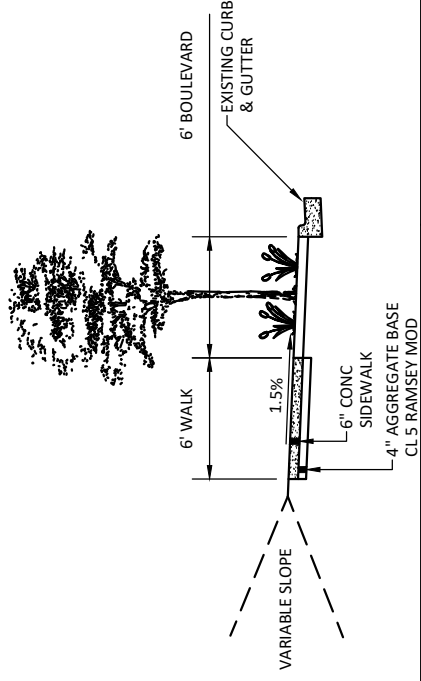
CENTER STREET AREA ANALYSIS
 CITY OF RAMSEY, MINNESOTA
 FIGURE 16 - TYPICAL SECTIONS

DECEMBER 2017

SEGMENT C & E / XENOLITH STREET & YOLITE STREET NW



SEGMENT D / SUNWOOD DRIVE BOULEVARD (LANDSCAPING IMPROVEMENTS)



7533 SUNWOOD DR NW, SUITE 206
 RAMSEY, MINNESOTA 55303
 Phone: (763) 433-2851
 Email: Ramsey@bolton-menk.com
 www.bolton-menk.com



CENTER STREET AREA ANALYSIS
 CITY OF RAMSEY, MINNESOTA
 FIGURE 17 - TYPICAL SECTIONS

DECEMBER 2017