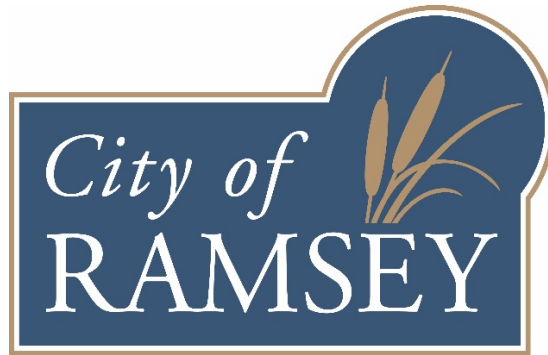


FEASIBILITY REPORT

PUMA STREET IMPROVEMENTS (150th Lane NW to Alpine Drive NW)

CITY IMPROVEMENT PROJECT NO. 20-04



March 19, 2020

Prepared By:

**City of Ramsey
Engineering Department
7550 Sunwood Drive NW
Ramsey, MN 55303
763-433-9839
763-433-9848 (Fax)**



March 19, 2020

Honorable Mayor and City Council
City of Ramsey
7550 Sunwood Drive NW
Ramsey, MN 55303

Re: Feasibility Report – City of Ramsey Improvement Project #20-04
Puma Street Improvements (150th Lane NW to Alpine Drive NW)

Dear Mayor and City Council Members:

Transmitted herewith is a Feasibility Report for the proposed Puma Street Improvements (150th Lane NW to Alpine Drive NW), Improvement Project No. 20-04.

The report examines the feasibility of reconstructing approximately 1,050 linear feet of Puma Street between 150th Lane NW and Alpine Drive NW, extending trunk utilities, and constructing necessary appurtenant improvements, to serve two new residential developments.

This Feasibility Report examines the scope of the proposed improvements, explores estimated costs and available funding sources, defines a preliminary project schedule, and determines the necessity, feasibility and general cost-effectiveness of the proposed improvements, as well as whether the improvements would best be completed separately or in conjunction with another project.

Please contact me at 763-433-9825 or bwestby@cityoframsey.com with any questions regarding this report.

Sincerely,

City of Ramsey

Bruce Westby, PE
City Engineer

Enclosure

C: Kurt Ulrich, City Administrator
Joe Feriancek, Civil Engineer II

CERTIFICATION

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.



Bruce Westby, PE

Date: March 19, 2020

License No. 40116

I hereby certify that this plan, specification or report was reviewed for Quality Control and Quality Assurance purposes and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.



Joe Feriancek, PE

Date: March 19, 2020

License No. 57095

TITLE SHEET
LETTER OF TRANSMITTAL
CERTIFICATION SHEET
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Appendix A

Project Scope – Puma Street Improvements (IP #20-04)
Concept Design – Alpha Development (by AKM Farms/PAXMAR)
Preliminary Plat – Riverstone Addition (by Capstone Homes)

Appendix B

Bolton & Menk Engineering Services Proposal

Appendix C

Bolton & Menk Engineer’s Estimate

Appendix D

Bolton & Menk March 2017 Updated Business Park Study

1. EXECUTIVE SUMMARY

Capstone Homes plans to start developing the north half of the Riverstone residential development in the spring of 2020. To support this proposed development west of Puma Street, as well as another proposed residential development east of Puma Street, approximately 1,050 feet of Puma Street and an adjacent regional trail south of Alpine Drive must be reconstructed to replace existing temporary bituminous pavement sections with permanent bituminous pavement sections, including concrete curb and gutter, storm sewer, and associated appurtenant improvements. In addition, municipal trunk utilities must be extended.

Appendix A of this report includes exhibits outlining the location and scope of the proposed improvements. The north end of Puma Street is proposed to be realigned as shown in *Figure 1* of *Appendix A*.

On February 24, 2020, the Ramsey City Council ordered this feasibility report to explore the necessity, feasibility and cost-effectiveness of the proposed Puma Street improvements, designated as Improvement Project #20-04. This report examines the scope and estimated costs of the improvements, available funding sources, and whether the improvements should be completed alone or in connection with other improvements.

A preliminary engineer's estimate for the proposed Puma Street improvements was prepared by Bolton & Menk and is included in *Appendix C*. The preliminary project cost estimate totals \$925,000, which includes \$625,000 for street and trail improvements, \$70,000 for storm sewer improvements, and \$230,000 for trunk utility improvements. Estimated costs include 10-percent contingency and 15-percent indirect (administrative, engineering, finance and legal) costs.

The proposed improvements are being driven by two private developments, therefore roughly two-thirds of project costs related to streets and trails are proposed to be paid by the developers. The City will therefore pay about one-third of project costs related to streets and trails since the City owns over 4 acres of property fronting the improvements, and since Puma Street is classified as a collector street, which serves regional as well as local traffic.

The improvements proposed within this Feasibility Report are feasible and cost-effective from an engineering standpoint and it is recommended to construct the improvements as proposed in 2020 under City Improvement Project No. 20-04.

2. INTRODUCTION

2.1 Authorization

Preparation of this feasibility report was authorized by the Ramsey City Council on February 24, 2020.

2.2 Project Overview

This project is designated as City Improvement Project #20-04, Puma Street Improvements (150th Lane NW to Alpine Drive NW).

Capstone Homes plans to start developing the north half of the Riverstone residential development in the spring of 2020. To support this proposed development west of Puma Street, as well as another proposed residential development east of Puma Street, approximately 1,050 feet of Puma Street and an adjacent regional trail south of Alpine Drive must be reconstructed to replace existing temporary bituminous pavement sections with permanent bituminous pavement sections, including concrete curb and gutter, storm sewer, and associated appurtenant improvements. In addition, municipal trunk utilities must be extended. *Appendix A* includes exhibits outlining the location and scope of these improvements.

This report explores the necessity, feasibility and cost-effectiveness of the proposed Puma Street improvements, including the scope and estimated costs of the improvements, available funding sources, and whether the improvements should be completed alone or in connection with other improvements.

2.3 Scope

This report examines the feasibility of reconstructing existing temporary bituminous street and trail sections along approximately 1,050 feet of Puma Street south of Alpine Drive NW, constructing storm sewer improvements, extending trunk municipal utilities, and constructing necessary appurtenant improvements, for the purpose of serving the two new residential developments. *Figure 1* in *Appendix A* highlights the project scope.

3. EXISTING CONDITIONS

3.1 Existing Streets and Utilities

The proposed improvements addressed in this report is the last in a series of projects providing necessary street, trail and trunk utility improvements required to serve numerous commercial and residential developments in the immediate area.

The proposed Puma Street improvements are being driven by two residential development projects, one on each side of Puma Street south of Alpine Drive, including Alpha Development by AKM Farm/Paxmar, and Riverstone 4th Addition by Capstone Homes. Figures showing the locations and scope of both developments are included in *Appendix A*.

In 2006, Bunker Lake Boulevard was improved west of Armstrong Boulevard. The easterly 2,650 feet or so was constructed with trunk 18-inch polyvinyl chloride (PVC) sanitary sewer and 16-inch ductile iron pipe (DIP) watermain under a permanent bituminous pavement section. The westerly 1,400 feet or so of Bunker Lake Boulevard to Puma Street, as well as all of Puma Street between Bunker Lake Boulevard and Alpine Drive, was constructed without trunk utilities and only a temporary pavement section generally consisting of 3 inches of aggregate base under 2 inches of bituminous pavement. Based on future demand, trunk utilities were ultimately proposed to be extended to and along Puma Street, after which the temporary pavement sections would be replaced with permanent pavement sections.

In the fall of 2017, municipal utility extension improvements were constructed along the westerly 1,400-foot or so of Bunker Lake Boulevard to Puma Street. These trunk utilities were required to serve portions of the new Riverstone residential development west of Puma Street, as well as a portion of the new Bunker Lake Industrial Park development south of Bunker Lake Boulevard. In March of 2017, Bolton Menk updated their Future Business Park study to include concept designs and estimated costs for extending trunk utilities to Puma Street. A copy of the updated report is attached in *Appendix D* of this report.

In late 2017 through early 2018, trunk utility improvements were extended along Puma Street, north of Bunker Lake Boulevard. These utility improvements were required to serve a majority of the Riverstone residential development, future commercial and residential development east of Puma Street, plus some undeveloped land in the Northfork development, west of the Riverstone development. These development areas are all designated as municipal urban service areas (MUSA) thereby requiring service by City sewer and water.

In the summer and fall of 2018, permanent street sections were constructed on the sections of Bunker Lake Boulevard and Puma Street where the trunk utility improvements were recently constructed.

3.2 Utilities

3.2.a Watermain

A 16” CIP trunk water supply line was constructed under the south end of Puma Street in late 2017 through early 2018. Watermain does not exist under the segment of Puma Street proposed to be reconstructed with the Puma Street improvements, though the Puma Street improvements do propose to extend this line to Alpine Drive.

3.2.b Sanitary Sewer

A 10” PVC trunk gravity sanitary sewer line was constructed under the south end of Puma Street in late 2017 through early 2018. Sanitary sewer does not exist under the segment of Puma Street proposed to be reconstructed with the Puma Street improvements, though the Puma Street improvements do propose to extend this line to Alpine Drive.

3.2.c Storm Sewer/Drainage

Storm sewer exists under the permanent section of Puma Street constructed in 2018. Storm sewer does not exist under the segment of Puma Street proposed to be reconstructed with the Puma Street improvements.

4. CONSIDERED IMPROVEMENTS

4.1 Project Area

As noted earlier, Capstone Homes plans to start developing the north half of the Riverstone residential development in the spring of 2020. To support this proposed development west of Puma Street, as well as another proposed residential development east of Puma Street, approximately 1,050 feet of Puma Street and an adjacent regional trail south of Alpine Drive must be reconstructed to replace existing temporary bituminous pavement sections with permanent bituminous pavement sections, including concrete curb and gutter, storm sewer, and associated appurtenant improvements. Municipal trunk utilities must also be extended. *Appendix A* includes exhibits outlining the location and scope of these improvements.

4.2 Pavement Improvements

The northerly 1,050 feet or so of Puma Street is an existing temporary bituminous pavement section, as is the regional trail west of Puma Street. After the temporary sections are removed, permanent bituminous pavement sections will be constructed. The north end of Puma Street is proposed to be realigned as shown in *Figure 1* in *Appendix A*.

The permanent street section must meet all applicable State Aid standards including curb and gutter design, pavement structural capacity, horizontal and vertical curves, lane and shoulder widths, clear zones, etc. A 9-ton all-weather pavement design will be required for Puma Street. As plans are developed, submittals will be made to the State Aid office to obtain all required State Aid approvals before awarding a contract for construction.

4.3 Utility Improvements

4.3.a Watermain

Trunk watermain (16" DIP) is proposed to be extended to Alpine Drive to allow a portion of the north end of the Riverstone development to be served by water, and to provide a looped watermain system to serve all properties in the immediate area from more than one direction. Alpine Drive is scheduled to be reconstructed in 2025 per the City's current Capital Improvement Program (CIP), at which time the existing trunk watermain running parallel to Armstrong Boulevard will be connected to the watermain installed under Puma Street as part of this project.

4.3.b Sanitary Sewer

Trunk sanitary sewer (10" PVC) is proposed to be extended to Alpine Drive to allow a portion of the north end of the Riverstone development to be served by sanitary sewer, and to allow properties north of Alpine Drive to be served by municipal sewer in the future.

4.3.c Storm Sewer/Drainage

Storm sewer exists under the permanent section of Puma Street constructed in 2018. The proposed Puma Street improvements includes construction of a permanent urban street section with bituminous pavement, concrete curb and gutter, and storm sewer improvements, including connections to an adjacent stormwater pond in the Riverstone development.

4.4 Estimated Costs / Funding Sources

Staff proposes to utilize Bolton & Menk to prepare plans and specifications for the Puma Street improvements since they designed the streets and utilities for the south end of Puma Street, and since they previously surveyed the north end, meaning only minimal survey work would be required to allow design work to commence. An engineering services proposal was therefore secured from Bolton & Menk on March 17, 2020, for preparing plans and specifications, obtaining permits, and bidding the project. The proposal, which is included in *Appendix B*, includes a not-to-exceed fee of \$53,125. This includes \$5,500 for Northern Technologies Inc. to complete a Geotechnical Evaluation. The proposal also includes a not-to-exceed fee of \$8,930 for construction administration and staking, which will be considered at the time bids are accepted.

A preliminary engineer's estimate for the proposed Puma Street improvements was prepared by Bolton & Menk and is included in *Appendix C*. The preliminary project cost estimate totals \$925,000, which includes \$625,000 for street and trail improvements, \$70,000 for storm sewer improvements, and \$230,000 for trunk utility improvements. Estimated costs include 10-percent contingency and 15-percent indirect (administrative, engineering, finance and legal) costs.

Based on consensus direction at the February 11, 2020, joint Planning Commission/City Council work session, a City cost contribution of one-third seemed reasonable given that the City owns 4 acres of real property fronting Puma Street, and since Puma Street is a collector street. The current cost share model is therefore based on this direction.

As also discussed during the joint work session, Capstone Homes requested that the City assess them for their share of project costs benefitting their property. Conversely, AKM Farm/Paxmar does not support an assessment at this time so the Chapter 429 assessment process must be followed requiring a public hearing and acceptance of this Feasibility Report after.

Several funding sources are available to pay for the City's share of street and trail project costs including the Public Improvement Revolving (PIR) fund, the Anoka County Redevelopment Authority (ACHRA), and Municipal State Aid (MSA) funds. All project costs required to extend trunk utilities along Puma Street are proposed to be paid through City sewer and water funds. The developer's share of these costs will be recovered through trunk fees at the time of development.

4.5 Preliminary Schedule

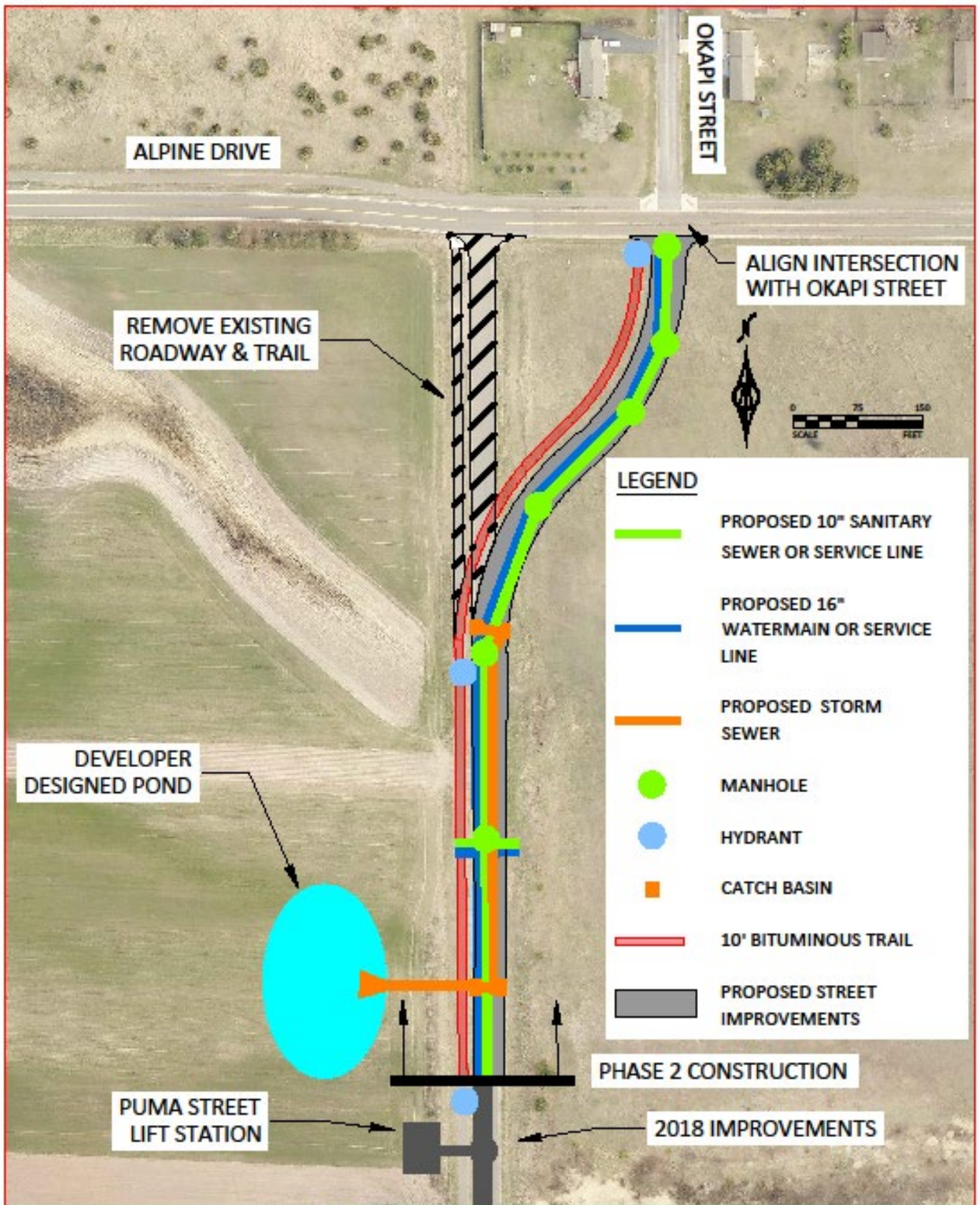
A preliminary project schedule is included in Bolton & Menk's proposal in *Appendix B*.

5. CONCLUSIONS AND RECOMMENDATIONS

It is the conclusion of this report that the Puma Street Improvements as explored within this report are feasible and cost-effective. City Staff therefore recommends constructing the proposed Puma Street improvements in 2020 under City Improvement Project No. 20-04 to support continued development in this area of the City.

APPENDIX A

Figure 1 – Puma Street Improvements (IP #20-04)
Concept Design – North Fork Meadows (AKM Farms/PAXMAR)
Preliminary Plat – Riverstone (Capstone Homes)



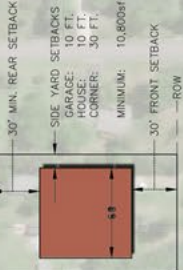
**PUMA STREET IMPROVEMENTS
CITY OF RAMSEY, MINNESOTA**

FIGURE 1
DECEMBER 2019

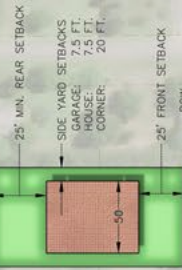
North Fork Meadows

PAXMAR

80' SINGLE FAMILY - R1



65' SINGLE FAMILY - R2

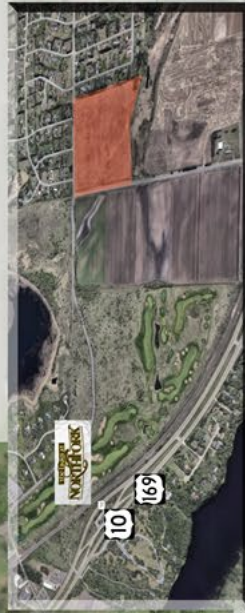


NOTES

1) Subject property address to be determined upon approval of Paving Street & Above State Rd. Station, 4810100000

SITE DATA

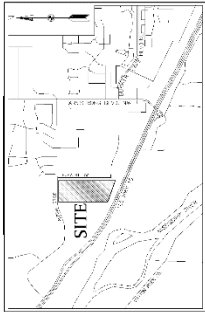
TOTAL BOUNDARY AREA	~33.5 AC.
TOTAL NUMBER OF LOTS	89
65 FT. LOTS	48
80 FT. LOTS	41
NET DENSITY	3.34 LOTS/AC (EXCLUDES ROW AND WETLAND)



RIVERSTONE

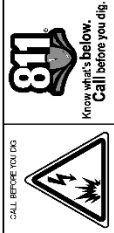
RAMSEY, MINNESOTA

VICINITY MAP

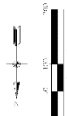


SHEET INDEX

- 1. COVER CONDITIONS
- 2. PRELIMINARY PLAT INDEX
- 3. PRELIMINARY PLAT
- 4-7. PRELIMINARY SITE & UTILITY PLANS
- 8. PRELIMINARY CRADING & EROSION CONTROL PLANS
- 10-13. DETAILS
- 14-15. RETAINING WALL PROFILES
- 16. LANDSCAPE PLANS



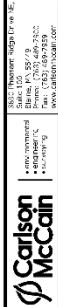
BENCHMARK
 1. 2011-2012 Minnesota State Plane
 2. 2011-2012 Minnesota State Plane
 3. 2011-2012 Minnesota State Plane
 4. 2011-2012 Minnesota State Plane
 5. 2011-2012 Minnesota State Plane



RIVERSTONE DEVELOPMENT, LLC.
 14015 Sunnisi Lane B, Suite 400
 Ramsey, MN 55303

PROJECT INFORMATION
 PROJECT NO: 2011-2012
 SHEET NO: 1 of 16
 DATE: 10/15/11
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 APPROVED BY: [Name]

DESIGNER
 CARLSON MCCAIN
 4000 Hennepin Avenue
 Minneapolis, MN 55412
 Phone: 612.338.7333
 www.carlsonmccain.com



APPENDIX B

Bolton & Menk Engineering Services Proposal



Real People. Real Solutions.

7533 Sunwood Drive NW
Suite 206
Ramsey, MN 55303-5119

Ph: (763) 433-2851
Fax: (763) 427-0833
Bolton-Menk.com

March 17, 2020

Mr. Bruce Westby, P.E.
City Engineer
City of Ramsey
7550 Sunwood Drive NW
Ramsey, Minnesota 55303

RE: Proposal for Engineering Services
Puma Street Improvement Project (City Improvement Project #20-04)

Dear Mr. Westby:

We appreciate the opportunity to present this scope of services for the Puma Street Improvement project. Our scope and fees were prepared based on our understanding of the project and our previous experience in delivering State Aid projects.

The following proposal is based on our December 13, 2019 discussion related to the project, your 02/25/2020 email update, as well as the Future Business Park study and the recently constructed Bunker Lake Boulevard and Puma Street Improvements project.

SCOPE

The improvements will be generally as described in our December 3, 2015 report for the Future Business Park. The phasing will be as generally described in our March 2017 Update Report. The improvements will consist of the following items as presented in the above reports, depicted on the attached figures, and as constructed in 2018:

- Puma Street construction will include the Phase 2 area identified in the Business Park Study Update, which includes street and utility improvements from the Puma Street lift station to Alpine Drive.
- A 10-foot bituminous trail will be constructed along the west side of Puma Street.
- 10-inch sanitary sewer and 16-inch watermain will extend the entire length of the project.
- The Alpine Drive and Puma Street intersection will be relocated to line up with Okapi Street NW.

Project scope assumptions used in creating this fee proposal include the following:

- A full topographic survey was previously completed. Only verification survey is required.
- The Developer will design the storm pond and provide an easement to the City. We will coordinate discharge of the street stormwater into this pond.
- No additional turn lanes will be added to Alpine Drive at this time. Additional development and traffic may warrant turn lanes in the future.
- The Right-of-Way plat for the road realignment will be provided by the City.
- State Aid formatted plans, including plan review checklist and spread calculations are required.

- Street lighting will be completed separately by the City.
- Geotechnical borings will extend 5-feet below the anticipated sanitary sewer depth.
- The anticipated plan set will include the following 34 sheets:
 - Title (1 sheet)
 - Legend (1 sheet)
 - Details & MnDOT Standard Plan Sheets (10 sheets)
 - Tables & SEQ (3 sheets)
 - Existing Conditions & Removals (1 sheet)
 - Erosion Control Plan & SWPPP (5 sheets)
 - Traffic Control Plan (1 sheet)
 - Sanitary Sewer & Water Plan & Profiles (2 sheets)
 - Street & Storm Sewer Plan & Profiles (2 sheets)
 - Storm Sewer Leads (1 sheet)
 - Intersection Detail (1 sheet)
 - Signage & Striping (1 sheet)
 - Cross-Sections (5 sheets)

Project costs associated with the improvements described above are estimated at approximately \$990,000, which includes a 10 percent construction contingency. We will create a detailed engineer’s estimate based on actual design quantities.

SCHEDULE

The proposed schedule for these improvements is as follows:

<u>Task</u>	<u>Date</u>
Council Conducts Public Hearing / Orders Plans and Specifications	March 24, 2020
Council Approves Plans and Specifications / Orders Ads for Bids	May 26, 2020
Bids Advertised	May 29 & June 5, 2020
Staff Receives Bids	June 19, 2020
Council Accepts Bids / Awards Contract	June 23, 2020
Contractor Begins Construction	July 6, 2020
Council Orders Assessment Roll/Hearing	September 8, 2020
Construction Substantially Complete	September 25, 2020
Council Conducts Assessment Hearing	October 13, 2020

PERMITTING AND APPROVALS

The work associated with the roadway improvements will require the following permits:

- State Aid Approvals
- Lower Rum River Watershed Management Organization (Stormwater and Erosion Control)
- MPCA (NPDES – Construction Stormwater General Permit)
- MPCA (Sanitary Sewer Extension Permit)
- MDH (Watermain Installation Permit)

FEES

We have attached a fee spreadsheet depicting hours, rates, and total compensation on a per task basis. We are proposing to enlist Northern Technologies for geotechnical services.

Our proposed fees for the work are as follows:

<u>Design Task</u>	<u>Fees</u>
Design, Permitting, and Bidding	\$ 47,625
<u>Geotechnical Evaluation (NTI)</u>	<u>\$ 5,500</u>
Total Not-to-Exceed Fee	\$ 53,125
<u>Construction Task</u>	<u>Fees</u>
<u>Construction Staking & Administration</u>	<u>\$ 8,930</u>

If there are any questions related to the scope and/or fee portion of this submittal, please call me at (651) 968-7760.

Sincerely,

Bolton & Menk, Inc.



Kevin P. Kielb, P.E.
Project Manager

ATTACHMENTS:

- Detailed Fee Spreadsheet
- Improvements Exhibits

Fee Proposal

CLIENT: City of Ramsey PROJECT: Puma Street Improvements	BOLTON & MENK, INC.						
WORK TASK DESCRIPTION	Project Manager	Senior Designer	Designer	Surveyor	Clerical	Total Hours	Cost

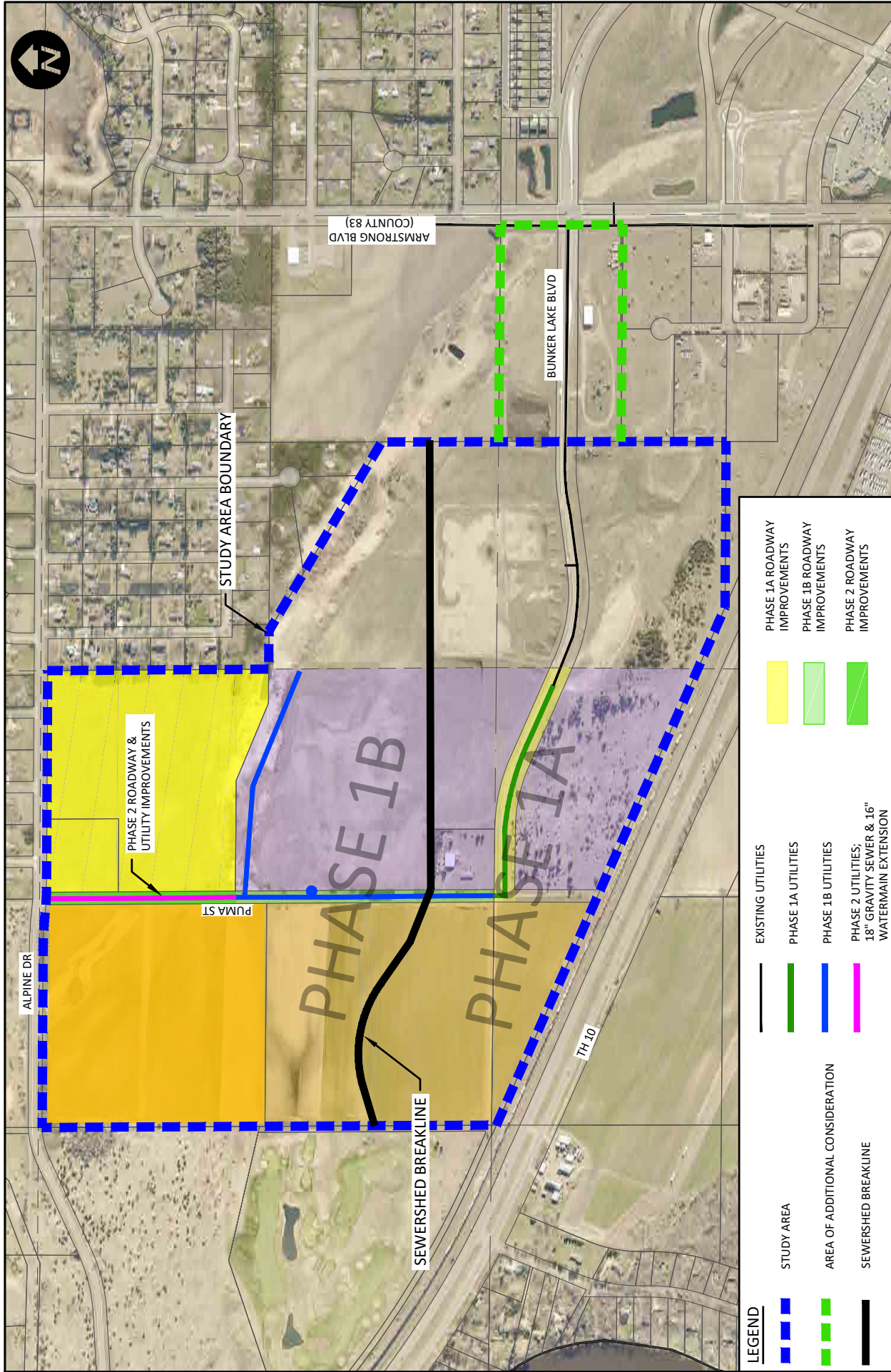
Topographic Survey, Final Design and Construction Staking

1.0 Roadway Design (Includes Topo and State Aid Plan Development)	4	45	98	10	2	159	\$19,265
2.0 Trunk Utility Design (Sanitary Sewer and Water)	2	8	34	0	0	44	\$5,220
4.0 Storm Water Management and Storm Sewer Design	2	24	36	0	0	62	\$7,760
5.0 Reviews and Approvals	2	8	16	0	2	28	\$3,410
6.0 Permitting	2	24	40	0	2	68	\$8,370
7.0 Bidding Services (Questions & Addenda)	4	12	8	0	4	28	\$3,600
Subtotal Bolton & Menk	16	121	232	10	10	389	\$47,625

SUBCONSULTANT - Northern Technologies \$5,500
TOTAL for Design through Bidding **\$53,125**


Construction Services

1.0 Construction Administration (Shop Drawings, Pay Requests, As Builts)	4	16	12	0	2	34	\$4,450
2.0 Construction Staking	0	4	2	32	0	38	\$4,480



LEGEND


	STUDY AREA		EXISTING UTILITIES
	AREA OF ADDITIONAL CONSIDERATION		PHASE 1A UTILITIES
	SEWERSHED BREAKLINE		PHASE 1B UTILITIES
			PHASE 2 UTILITIES; 18" GRAVITY SEWER & 16" WATERMAIN EXTENSION
			PHASE 1A ROADWAY IMPROVEMENTS
			PHASE 1B ROADWAY IMPROVEMENTS
			PHASE 2 ROADWAY IMPROVEMENTS



CITY OF RAMSEY

FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
PHASE 2 IMPROVEMENTS

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



BOLTON & MENK

© Bolton & Menk, Inc. 2017. All Rights Reserved
 H:\RAMS\F161109828\CAD\C3D\109828New Land Use.dwg 3/6/2017 11:36 AM

FIGURE 6

ALPINE DR



PUMA ST

POTENTIAL ROW VACATION



NOTES

CONSIDER LEFT TURN LANES AND RIGHT TURN LANES ON ALPINE DRIVE BASED ON FUTURE TRAFFIC DEMANDS.

LEGEND



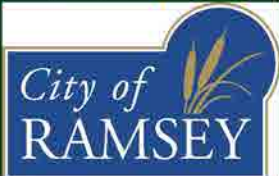
TRAVEL LANES



CONCRETE MEDIAN OR CURB & GUTTER



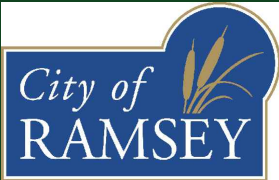
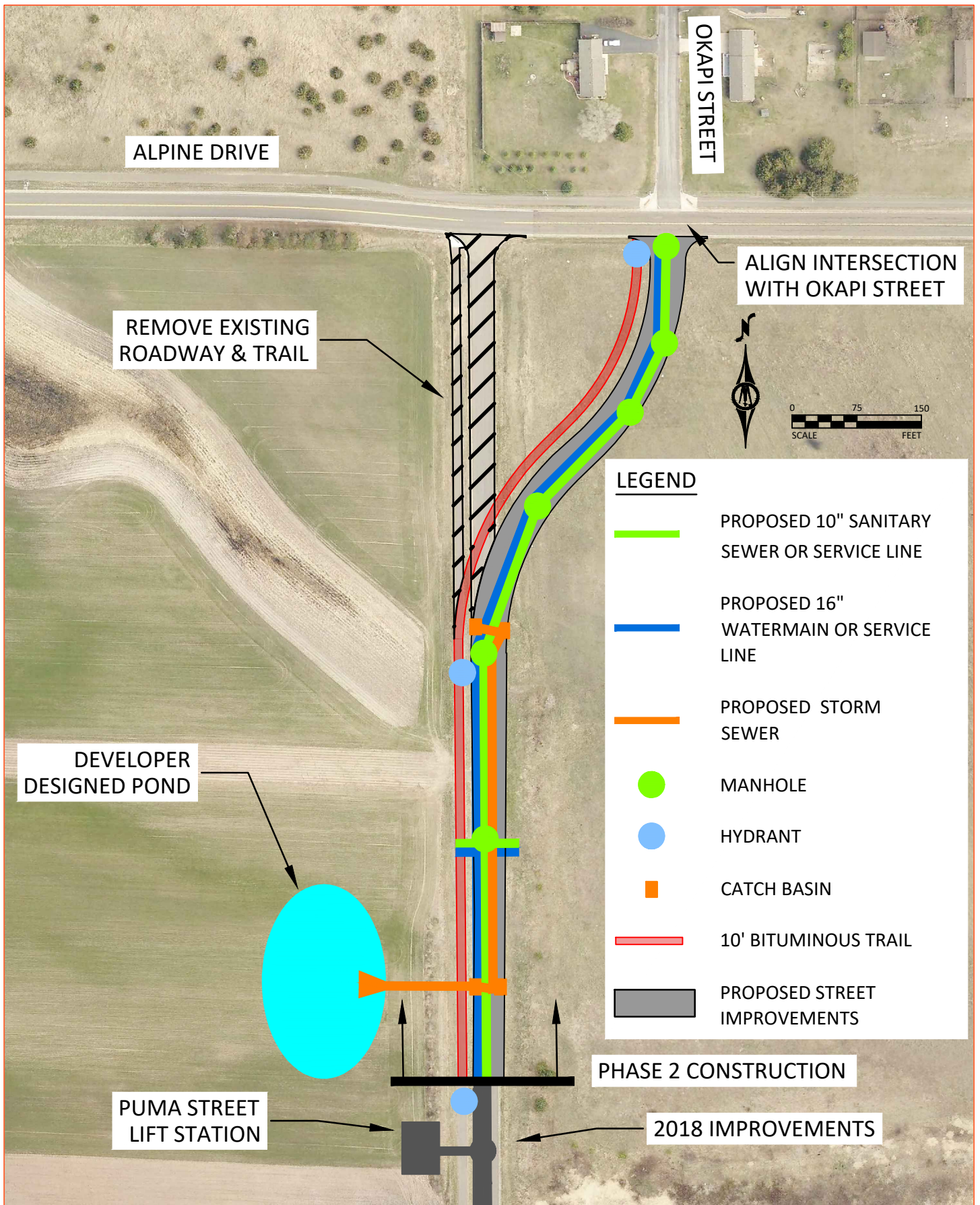
BITUMINOUS TRAIL



**FUTURE BUSINESS PARK
CITY OF RAMSEY, MINNESOTA**

FIGURE 12 - PUMA STREET & ALPINE DRIVE
ALTERNATIVE CONCEPT

July, 2015



**PUMA STREET IMPROVEMENTS
CITY OF RAMSEY, MINNESOTA**

FIGURE 1
DECEMBER 2019

APPENDIX C

Bolton & Menk Engineer's Estimate

ENGINEER'S ESTIMATE
 2020 PUMA STREET IMPROVEMENTS
 CITY OF RAMSEY, MINNESOTA

ITEM NO.	ITEM	QTY	UNIT	UNIT PRICE	ROAD TOTAL	SANITARY TOTAL	WATER TOTAL	STORM TOTAL	PHASE TOTAL
1	TRAIL MOBILIZATION	1	LUMP SUM	\$50,000.00	\$25,000.00	\$13,000.00	\$9,000.00	\$3,000.00	\$50,000.00
2	DEWATERING	1	LUMP SUM	\$28,000.00		\$28,000.00			\$28,000.00
3	REMOVE CURB & GUTTER	110	LN FT	\$5.00	\$550.00				\$550.00
4	REMOVE BITUMINOUS PAVEMENT	3900	SQ YD	\$3.20	\$12,480.00				\$12,480.00
5	REMOVE PAVEMENT MARKING	400	SQ FT	\$8.00	\$3,200.00				\$3,200.00
6	COMMON EXCAVATION	2200	CU YD	\$18.00	\$39,600.00				\$39,600.00
7	SUBGRADE EXCAVATION	500	CU YD	\$15.00	\$7,500.00				\$7,500.00
8	SELECT GRANULAR BORROW	500	CU YD	\$15.00	\$7,500.00				\$7,500.00
9	TOPSOIL	400	CU YD	\$60.00	\$24,000.00				\$24,000.00
10	CONNECT TO EXISTING SANITARY SEWER	1	EACH	\$800.00		\$800.00			\$800.00
11	8" SANITARY SEWER PIPE	80	LN FT	\$24.00		\$1,920.00			\$1,920.00
12	10" SANITARY SEWER PIPE	1050	LN FT	\$28.00		\$29,400.00			\$29,400.00
13	SANITARY SEWER MANHOLE	6	EACH	\$2,950.00		\$17,700.00			\$17,700.00
14	CONNECT TO EXISTING WATER MAIN	1	EACH	\$1,000.00			\$1,000.00		\$1,000.00
15	8" WATER MAIN PIPE	45	LN FT	\$25.00			\$1,125.00		\$1,125.00
16	8" WATER MAIN PIPE	80	LN FT	\$30.00			\$2,400.00		\$2,400.00
17	16" WATER MAIN PIPE	1050	LN FT	\$48.00			\$50,400.00		\$50,400.00
18	6" 3" GATE VALVE AND BOX	5	EACH	\$1,500.00			\$7,500.00		\$7,500.00
19	16" GATE VALVE AND BOX	2	EACH	\$3,500.00			\$7,000.00		\$7,000.00
20	PIPE FITTINGS	700	LB	\$5.00			\$3,500.00		\$3,500.00
21	HYDRANT	3	EACH	\$3,200.00			\$9,600.00		\$9,600.00
22	STORM SEWER PIPE	800	LN FT	\$40.00			\$32,000.00		\$32,000.00
23	STORM SEWER CBMH	8	EACH	\$2,500.00			\$20,000.00		\$20,000.00
24	AGGREGATE BASE CLASS 5 (8" THICK)	2333	TON	\$22.00	\$51,328.20				\$51,328.20
25	TYPE SP 12.5 NON-WEAR COURSE MIXTURE (3.C) 2.5" THICK	712	TON	\$90.00	\$64,050.33				\$64,050.33
26	TYPE SP 12.5 WEARING COURSE MIXTURE (3.B) 2" THICK	569	TON	\$100.00	\$56,933.63				\$56,933.63
27	ADJUST VALVE BOX	2	EACH	\$500.00	\$1,000.00				\$1,000.00
28	ADJUST STRUCTURE (SANITARY)	6	EACH	\$750.00	\$4,500.00				\$4,500.00
29	CONCRETE CURB & GUTTER DESIGN B618	2275	LN FT	\$24.00	\$54,600.00				\$54,600.00
30	BITUMINOUS TRAIL	1080	LN FT	\$75.00	\$81,000.00				\$81,000.00
31	TRAFFIC CONTROL	1	LUMP SUM	\$20,000.00	\$20,000.00				\$20,000.00
32	EROSION CONTROL & TURF ESTABLISHMENT	1	LUMP SUM	\$32,000.00	\$32,000.00				\$32,000.00
33	4" SOLID LINE - EPOXY	5000	LN FT	\$1.20	\$6,000.00				\$6,000.00
34	BROKEN LINE - EPOXY	550	LN FT	\$1.20	\$660.00				\$660.00
35	ARROW MARKING - EPOXY	13	EACH	\$150.00	\$1,950.00				\$1,950.00

ESTIMATED CONSTRUCTION COST:	\$493,852.15	\$90,820.00	\$91,525.00	\$55,000.00	\$731,197.15
RIGHT TURN LANE ALLOWANCE:					
CONSTRUCTION SUBTOTAL:	\$493,852.15	\$90,820.00	\$91,525.00	\$55,000.00	\$731,197.15
10% CONTINGENCY:	\$49,385.22	\$9,082.00	\$9,152.50	\$5,500.00	\$73,119.72
CONSTRUCTION TOTAL:	\$543,237.37	\$99,902.00	\$100,677.50	\$60,500.00	\$804,316.87
ENGINEERING & ADMINISTRATION:	\$81,485.61	\$14,885.30	\$15,101.63	\$9,075.00	\$120,647.53
Construction Cost ONLY per LF:	\$477.57	\$88.41	\$89.10	\$75.63	\$730.70
ESTIMATED PROJECT COST:	\$624,722.97	\$114,887.30	\$115,779.13	\$69,575.00	\$924,964.40

APPENDIX D

Bolton & Menk March 2017 Updated Business Park Study



Real People. Real Solutions.

City of Ramsey

Future Business Park

March 2017 Update

Analysis and Report

Submitted by:

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EXECUTIVE SUMMARY

The City of Ramsey identified the need to prepare for the development of a new business park within the City. A large area of privately owned green-field space located on the north side of Trunk Highway 10, west of Armstrong Boulevard, was identified for a future Ramsey Business Park. A report was prepared in late 2015 and early 2016 which reviewed traffic impacts and outlined infrastructure needs related to business park area.

Development pressures have resulted in proposed land use changes for a portion of the study area. Phasing of the development activities in this area is also different than previously anticipated. As a result, the City requested an update to the previous analysis.

This update primarily includes a study of traffic impacts resulting from the revised anticipated land uses in the business park.

The updated analysis indicates the required improvements within the study area can be implemented based on the phasing plan currently proposed. Each series of improvements for Bunker Lake Boulevard and Puma Street can be implemented as the properties immediately adjacent to the roadways are developed.

Future improvements required to serve the area include:

- Expansion of Bunker Lake Boulevard (west of Armstrong Boulevard) to a four lane section,
- Expansion of the west end of Bunker Lake Boulevard and Puma Street to three lane sections,
- Construction of right turn lanes at entrances,
- Extension of an 18-inch sanitary sewer line along Bunker Lake Boulevard and Puma Street,
- North of the Puma Street/Bunker Lake Boulevard intersection, construction of a lift station,
- North of the lift station, extension of a 12-inch sanitary sewer gravity main,
- Extension of a 16-inch water main along Bunker Lake Boulevard and Puma Street,
- Use of regional rate control basins to maintaining existing flow rates into the COR,
- Installation of street lighting, trails/sidewalks, and landscaping consistent with City Policy, and
- Obtaining of ROW required for improvements during the platting process.

Total costs for all public improvements are approximately \$6,819,000, assuming the project is constructed according to the phases described in this report. The costs are considered project costs and include 30% contingencies and project development costs (administrative, engineering, and fiscal).

Costs related to trunk sanitary sewer and trunk watermain were assumed to be paid from City utility funds. The City will need to develop a funding strategy for the remaining \$5,419,000 in public improvement costs.

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.

I. INTRODUCTION

The Ramsey City Council and Ramsey Economic Development Authority (EDA) identified the need to prepare for the development of a new business park within the City. The City identified a large area of privately owned green-field space located on the north side of Trunk Highway 10, west of Armstrong Boulevard, for a future Ramsey Business Park. A report was prepared in late 2015 and early 2016 which reviewed traffic impacts and outlined infrastructure needs related to the business park area. That report is incorporated by reference to this update.

Development pressures have resulted in proposed land use changes for a portion of the study area. Phasing of the development activities in this area is also different than previously anticipated. As a result, the City requested an update to the previous analysis.

The previous report provided a comprehensive analysis of the study area. This update focuses primarily on areas located adjacent to Puma Street, with a more cursory review of the remaining study area. Infrastructure needed and potential cost allocations related to the required improvements are included in this review.

The overall study area boundary remains unchanged from the previous study (see Figure 1).

II. LAND USE UPDATES

The primary land use changes relate to the area west of Puma Street and north of Bunker Lake Boulevard. The area west of Puma Street was previously a combination of Business Park and Medium Density Residential, and will now be all Medium Density Residential. The area north of Bunker Lake Boulevard had been Public, and will now be Business Park (see Figure 2 for updated land uses).

III. PRELIMINARY CONSIDERATIONS

The previous study described the roadway and public utility improvements required to serve the study area.

Public utility improvements are based on information contained in the City's Comprehensive Plans for sanitary sewer and water. The proposed updates in land use for this specific area are not anticipated to change the strategies contained in those Comprehensive Plans. The sanitary sewer and water system improvements, as outlined in the previous study, are still considered as base requirements for developments occurring in this area.

Roadway improvements require additional analysis based on the new land uses. Both the Average Annual Daily Traffic (AADT) and the Peak Hour turning movements are expected to change due to the updated land uses. The required roadway geometrics (number of through lanes, turns lanes, etc.) will be reviewed and compared to those described in the previous study.

Traffic patterns are expected to change as a result of the changes in land use. For example:

- For Business Park uses, traffic would be expected to enter the area in the morning (AM Peak Hour) and leave in the evening (PM Peak Hour).
- For Residential uses, traffic would be expected to leave the area during the AM Peak Hour and return during the PM Peak Hour.
- For Public, or School, uses, traffic would be expected to enter the area during the AM Peak Hour, leave during an early PM Peak Hour, and not impact the traditional PM Peak Hour. Also,

special events at School properties typically occur at off-peak times, creating congestion outside of the typical peak hours.

The updated land uses include Business Park areas being converted to residential, and also Public areas being converted to Business Park.

IV. DISCUSSION OF PHASES/IMPROVEMENTS

The previous analysis considered a phasing plan beginning a quarter of a mile west of Armstrong Boulevard and then systematically extending to the west along Bunker Lake Boulevard and then north along Puma Street. New development pressures create a revised phasing strategy for implementation of infrastructure improvements.

A Preliminary Plat is anticipated for the 87.8 acre property immediately west of Puma Street and extending from the Union Pacific Railroad tracks to Alpine Avenue. This area is anticipated to ultimately contain 351 lots and be phased from south to north.

The current phasing strategy is depicted on Figure 3. A discussion of the phasing, along with required infrastructure improvements is described below:

A. Phase 1A

The phase 1A improvements are as depicted on Figure 4. The developments will include both Residential and Business Park uses.

The public utility improvements will consist of extending the sanitary sewer and water mains to Puma Street. The utilities will need to be extended beyond the future roadway improvements to avoid the need to impact those facilities when future phases occur.

The roadway improvements will include construction of Bunker Lake Boulevard from the previously constructed west access to the former school property to Puma Street.

B. Phase 1B

See Figure 5 for the anticipated Phase 1B development area. The improvements will include both Residential and Business Park uses, extending north from the Phase 1A development area. The Phase 1B development area is anticipated to extend to the low area along Puma Street.

The public utility improvements will consist of extending the sanitary sewer and water mains north along Puma Street. The utilities will need to be extended beyond the future roadway improvements to avoid the need to impact those facilities when future phases occur.

The roadway improvements will include construction of Puma Street from Bunker Lake Boulevard to the low area along Puma Street.

C. Phase 2

See Figure 6 for the anticipated Phase 2 development area. The improvements are anticipated to consist entirely of residential uses, extending from the low area along Puma Street to Alpine Drive.

The public utility improvements will consist of extending the sanitary sewer and water mains north along Puma Street. The utilities will need to be extended to Alpine Drive, with consideration given to future extensions along Alpine Drive.

The roadway improvements will include construction of Puma Street from the low area

along Puma Street to Alpine Drive.

D. Future Phase

The future phase of development is depicted on figure 7, and includes an area east of the Phase 1A, Phase 1B and Phase 2 improvements.

The area includes Business Park uses. The north half of Bunker Lake Boulevard, along with sanitary sewer and water mains have been constructed through this area. Roadway improvements will include construction of the south half of Bunker Lake Boulevard.

E. Area of Additional Consideration

This area is depicted on Figure 8 and is comprised of the areas along the first ¼ mile of Bunker Lake Boulevard west of Armstrong Boulevard which may access Bunker Lake Boulevard in the future. There is the potential for this area to be developed as a commercial/retail center, which would be a significant traffic generator. There is also the potential for the property located south of Bunker Lake Boulevard to access Armstrong Boulevard at 147th Avenue, which would relieve stress on the Bunker Lake Boulevard and Armstrong Avenue intersection.

V. ASSUMPTIONS CARRIED FORWARD

The primary focus of this analysis is related to providing infrastructure to serve development along Puma Street in the near future. In the previous study, assumptions were made that should be considered by the City as developments are brought forward. The following is a summary of those items:

Right-of-Way Requirements

We have assumed that most of the required improvements will be development driven and Right of Way will be secured through the platting process. The City will need to review the right of way required and secure needed easements during the Preliminary Platting process.

Phased Improvements

A general understanding of the improvements required to ultimately serve the area along with an anticipated sequencing of the improvements is described above. Changes in the sequencing of the improvements could impact the facilities needed for each phase and the costs associated with those improvements.

Jurisdictional Authority/Approvals/Permits

As the project moves from the planning stages to design and construction, permits will be required from various agencies. The following agencies will be permitting entities for considered improvements:

- Minnesota Department of Transportation State Aid: Bunker Lake Boulevard and Puma Street are State Aid routes,
- Minnesota Pollution Control Agency: NPDES Storm Water Permit,
- Minnesota Pollution Control Agency: Sanitary Sewer Extension Permit,
- Minnesota Department of Health (MDH): Watermain Extension and Dewatering,
- Anoka County: Work in Right of Way, and
- Lower Rum River Watershed Management Organization: Storm Water.

Both MnDOT and Anoka County were engaged during the previous study process. Comments from both agencies are reflected in the improvements considered in this report.

Previous Improvements

Significant consideration and planning was completed prior to completion of the improvements constructed in 2011. Those improvements included street, trail, sanitary sewer and water distribution. Additionally, consideration was given to storm water management strategies and a potential 30-inch raw watermain from a future intake on the Mississippi River to the proposed site of the water treatment plant, just south of Fire Station No. 1. All previous analyses and reports are considered as a part of this analysis.

VI. ADDITIONAL ANALYSIS

In the previous analysis, we completed traffic and storm water studies and reviewed City Comprehensive Plans for sanitary sewer and water main needs for the study area. Based on the changes in proposed land use, the traffic study requires revisions. The storm water requirements, along with the sanitary sewer and water main needs, are unchanged as a result of the revised land uses. The following paragraphs relate key findings of the traffic analysis. The complete analysis is included in Appendix B of this report.

a. Traffic Analysis Update

The traffic analysis was completed to determine required lane geometry for Bunker Lake Boulevard and Puma Street, along with turn lane requirements at four intersections in the study area.

The revised land uses result in an increase of 18,100 trips per day into and out of the area at full build. This is at the low end of the range previously calculated for the area (18,500 to 23,300).

Note: Short term improvements are intended to mitigate current safety or operations problems, along with full development of the Study Area. Mid-term improvements are anticipated safety related improvements that may be required within the study area. Long-term improvements are anticipated safety improvements required as a result of growth in the region.

b. Short Term Improvements

- Armstrong Boulevard & Bunker Lake Boulevard:
 - Bunker Lake Boulevard is proposed to be reconstructed in the near future by Anoka County to a four lane divided road between Ramsey Boulevard and Armstrong Boulevard. The dual southbound left turn lanes at this intersection will be striped when Bunker Lake Boulevard is reconstructed. A southbound double left turn lane will help reduce queues entering the COR development.
 - Plan for eastbound dual-right turn lanes, two eastbound through lanes, and a 300 ft. left turn lane.
- Bunker Lake Boulevard (west of Armstrong Boulevard):
 - Expand to a four lane section for development to the first full access to the west of Armstrong Boulevard. This will be between 540 ft. to 775 ft., depending on access from the COR to Bunker Lake Boulevard.

- The eastbound approach should include a left turn lane, two through lanes, and one right turn lane.
- Bunker Lake Boulevard (west of commercial section to Puma Street):
 - Expand to a three lane section for development.
 - Right turn lanes (locations and lengths) will be determined based on development type. Right turn lanes will typically be required where development related trips are anticipated to be more than 100 per day.
- Puma Street:
 - Expand to a three lane section for development (two through lanes and one center left turn lane). Depending on what type of developments occur on the east side of Puma Street, and where those accesses are located, Puma Street could potentially remain as a two lane roadway.
 - Right turn lanes (locations and lengths) will be determined based on development type.
- Bunker Lake Boulevard & Puma Street Intersection:
 - An all-way stop or single lane roundabout will operate adequately at this intersection for the 2040 Full-Build conditions. A southbound left turn lane and westbound right turn lane are recommended for an all way stop.

c. Mid-Term Improvements

- See attached Traffic Memorandum in Appendix B.

d. Long-Term Improvements

- See attached Traffic Memorandum in Appendix B.

e. Discussion of Findings

- The required improvements within the study area can be implemented based on the phasing plan described above. Each series of improvements for Bunker Lake Boulevard and Puma Street can be implemented as the properties immediately adjacent to the roadways are developed.
- Puma Street could potentially be developed as a two lane section with right and left turn lanes at key access points. This will depend on access point locations, type of development on the east side of Puma Street, and location of accesses along the corridor. We recommend proceeding with the three lane section at this time due to the uncertainties of development in the area.
- For Phase 1A, right turn lanes will most likely be required both eastbound and westbound along Bunker Lake Boulevard and southbound along Puma Street at proposed access locations. Temporary paving will be required to transition back to the existing Bunker Lake Boulevard and the existing Puma Street.
- For Phase 1B, right turn lanes will most likely be required both northbound and southbound along Puma Street at proposed development access locations. Temporary paving will be required to transition back to the existing Puma Street.
- For Phase 2, right turn lanes will most likely be required both northbound and southbound along Puma Street at proposed development access locations.

- For the Future Phase, right turn lanes will most likely be required along Bunker Lake Boulevard in both the eastbound and westbound directions. Temporary paving will be required to transition back to the existing Bunker Lake Boulevard.
- Our analysis indicates that, while nearing capacity, the intersection of Bunker Lake Boulevard and Armstrong Boulevard will not require improvements until the Area of Additional Consideration is developed.

VII. ADDITIONAL IMPROVEMENT CONSIDERATIONS

For more detailed information of each of the following items, please reference the previous study report.

Street Lighting

The costs included for street lighting were derived from recent projects within the City of Ramsey.

Trails/Sidewalks

Project costs shown in this report include trails along the south side of Bunker Lake Boulevard and the east side of Puma Street.

Phase Transitions

Bunker Lake Boulevard and Puma Street will be constructed to wider sections than currently exist. Because the roadways will be constructed in phases, they will need to taper to meet the existing, narrower roadway widths. These taper sections will then be removed as the next phase of improvements is completed. Costs were included in each phase for these tapering roadway sections.

Right Turn Lane Additions

Right turn lanes will be required at each access off of Bunker Lake Boulevard and Puma Street. The actual access locations will be dependent upon the type of land use and internal site characteristics. We included allowances for the right turn lanes in each phase for budgeting purposes.

Landscaping

The improvements considered with this report include a very utilitarian landscaping approach to 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.

Right of Way and Easements

We assumed that required rights of way would be dedicated as a portion of the development process and no costs are included in the project costs for acquisitions.

VIII. COST CONSIDERATIONS

Costs were developed based upon phased implementation. The phasing is as depicted on the figures in Appendix A. All costs presented in the following pages are 2017 costs, with no allowance for inflation.

Phases 1A, 1B and 2

<u>Improvement Type</u>	<u>Phase 1A</u>	<u>Phase 1B</u>	<u>Phase 2</u>
Roadway	\$ 795,000	\$ 940,000	\$ 675,000
Roadway Transitions	\$ 66,000	\$ 78,000	\$ 56,000
Right Turn Lanes	\$ 132,000	\$ 156,000	\$ 112,000
Trails/Sidewalks	\$ 106,000	\$ 125,000	\$ 90,000
Storm Water Management	\$ 0	\$ 48,000	\$ 16,000
Street Lighting	\$ 76,000	\$ 90,000	\$ 65,000
Trunk Water	\$ 154,000	\$ 182,000	\$ 131,000
Trunk Sanitary Sewer	\$ 179,000	\$ 545,000	\$ 179,000
Total Costs/Phase	\$ 1,508,000	\$ 2,164,000	\$ 1,324,000
Total Costs less Public Utilities	\$ 1,175,000	\$ 1,437,000	\$ 1,014,000

Future Phases

<u>Improvement Type</u>	<u>Future East</u>	<u>Additional Area</u>
Roadway	\$ 628,000	\$ 580,000
Roadway Transitions	\$ 62,000	\$ 58,000
Right Turn Lanes	\$ 52,000	\$ 48,000
Trails/Sidewalks	\$ 115,000	\$ 106,000
Storm Water Management	\$ 0	\$ 0
Street Lighting	\$ 75,000	\$ 69,000
Trunk Water	\$ 19,000	\$ 0
Trunk Sanitary Sewer	\$ 11,000	\$ 0
Total Costs/Phase	\$ 962,000	\$ 861,000
Total Costs less Public Utilities	\$ 932,000	\$ 861,000

Total Cost all Phases **\$ 6,819,000**

Total Cost all Phases less Public Utilities **\$ 5,419,000**

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.

The roadway transition costs are allotments for phase transitions associated with tapering pavements sections to match in-place sections where required, and subsequent removals of the transition areas.

The right turn lane costs depicted in the tables include a 150 ft turn lane with 1:10 taper sections.

Street lighting costs are based upon recent installations within the City of Ramsey.

For storm water management, costs were included for manholes, catch basins, and pipe within the street sections and included in the roadway costs. For Phases 1B and 2, ponding costs were included for excavation related activities. We assumed a ponding area would be acquired through the platting process, and ponding within a development site would be expanded to include volume for roadway drainage.

The Phase 1A limits are based upon the area that can be served by a gravity sanitary sewer system. The Phase 1B sanitary sewer costs include a lift station and forcemain.

IX. 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 developer. For our analysis, we assumed the following items would be constructed through the public process:

- Bunker Lake Boulevard and Puma Street, including storm water conveyance systems,
- Trunk Water Facilities,
- Trunk Sanitary Sewer Facilities,
- Trails, and
- Street Lighting.

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 to install:

- 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,
- Storm Water Ponding, 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.

Figure 9 depicts the parcels considered for this report and also provides additional information related to each parcel. Similar information is presented in the following table:

Identification Number	Zoning Classification	Gross Area less NWI Area (Acres)	Adjusted Frontage (Ft)
<u>Phase 1A</u>			
1	B-2 Business District	20.307	1,358
2	B-2 Business District	10.843	1,002
4	R-2 Medium Density Residential	9.231	120
5	R-2 Medium Density Residential	19.691	399
Phase 1A Totals		60.072	2,879
<u>Phase 1B</u>			
6	B-2 Business District	27.116	1,141
7	R-2 Medium Density Residential	16.022	928
Phase 1B Totals		43.138	2,069
<u>Phase 2</u>			
8	R-1 Low Density Residential	28.338	683
9	R-1 Low Density Residential	4.107	419
10	R-2 Medium Density Residential	35.285	1,289
Phase 2 Totals		67.730	2,391
<u>Future</u>			
11	B-2 Business District	24.801	1,343
12	B-2 Business District	23.324	1,345
13	B-2 Business District	11.529	0
Future Phase Totals		59.654	2,688
<u>Additional Area</u>			
14	COR	7.507	1,263
15	R-1 MUSA	7.878	1,261
Additional Area Totals		15.385	2,524
Totals all Phases		245.979	12,551

Note: The table above includes a column for Gross Area – NWI Area. This represents the total area of the parcel based on GIS mapping, less the wetland area per the National Wetland Inventory (NWI) GIS mapping.

The zoning classifications listed in the table above are based on anticipated future zoning for the study area. Gross areas and frontages are based on GIS information and will most likely be refined during subsequent phases of project development.

A portion of the improvements will be paid by the City either through utility funds or other means. A list of assumptions is as follows:

- All trunk water and sanitary sewer system costs will be paid for through the City utility funds,
- Storm water management costs are related to ponding and are considered integral to roadway construction,
- Assessments will be made to benefitting properties as each phase is constructed,
- Two standard methods of assessments were analyzed including: Frontage and Area.
- The City’s existing assessment policy very closely matches the Frontage method, and
- Gross acreage (less NWI Wetland acreage) was used in lieu of net developable acreage in the calculations below.
- Lot 3 was not considered in the assessments as the lot is zoned residential. The resultant assessment amounts are considered negligible related to the entire Business Park area.
- Lots 14 and 15 abut Armstrong Boulevard, a County roadway, and will access off of Bunker Lake Boulevard. Lots 1 and 4 abut a portion of the Puma Street right of way that is anticipated to be vacated. Lots 8, 9 and 10 abut Alpine Drive, but access will be limited to Puma Street.

The table below depicts a distribution based on all costs being assessed to the benefitting properties. We have assumed for this analysis the costs would be assessed to properties benefitting from each phase of construction. For instance, properties directly benefitting from Phase 1 improvements would be assessed for Phase 1 costs at the time of Phase 1 improvements.

Calculations were based on the areas and front footages, along with the costs per phase as developed earlier within this report. Trunk sanitary sewer and trunk watermain were considered City costs and were not included in the calculations. While this study focuses primarily on Phases 1 – 3, the future phase and the area of additional consideration were included for comparison. A summary of the unit costs used in the calculations is presented below:

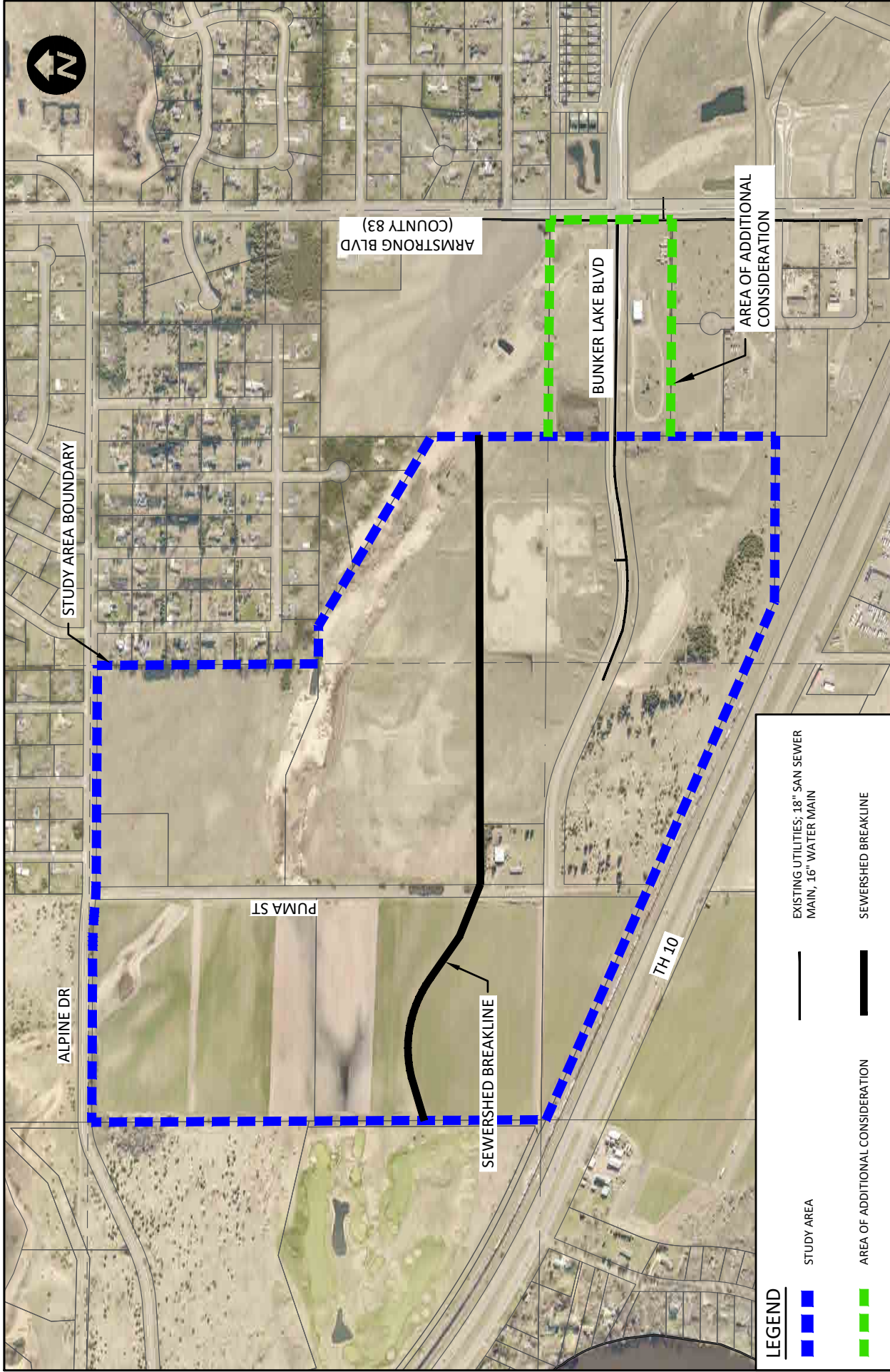
Phase	Frontage Method (Cost/FF)	Area Method (Cost/Acre)
1A	\$ 408.13	\$ 19,559.86
1B	\$ 694.54	\$ 33,311.70
2	\$ 424.09	\$ 14,971.21
Future	\$ 346.73	\$ 15,623.43
Additional Area	\$ 341.13	\$ 55,963.60

Based on the above cost distribution, the potential assessments per lot per phase is depicted below:

Identification Number	Frontage Method	Area Method
<u>Phase 1A</u>		
1	\$ 554,200	\$ 397,200
2	\$ 409,000	\$ 212,100
4	\$ 49,000	\$ 180,500
5	\$ 162,800	\$ 385,200
Phase 1A Totals	\$ 1,175,000	\$ 1,175,000
<u>Phase 1B</u>		
6	\$ 792,500	\$ 903,300
7	\$ 644,500	\$ 533,700
Phase 1B Totals	\$ 1,437,000	\$ 1,437,000
<u>Phase 2</u>		
8	\$ 289,700	\$ 424,300
9	\$ 177,700	\$ 61,500
10	\$ 546,700	\$ 528,300
Phase 2 Totals	\$ 1,014,000	\$ 1,014,000
<u>Future Phase</u>		
11	\$ 465,700	\$ 387,500
12	\$ 466,400	\$ 364,400
13	\$ 0	\$ 180,100
Future Phase Totals	\$ 932,000	\$ 932,000
<u>Additional Area</u>		
14	\$ 430,800	\$ 420,100
15	\$ 430,200	\$ 440,900
Additional Area Totals	\$ 861,000	\$ 861,000
Total all Phases	\$ 5,419,000	\$ 5,419,000


The information presented in this section of the report is intended to allow for discussions with property owners and developers to be initiated. Refinement of the amounts presented is anticipated based on those discussions.

Appendix A: Figures



LEGEND

- ▬▬▬ STUDY AREA
- ▬▬▬ AREA OF ADDITIONAL CONSIDERATION
- ▬ SEWERSHED BREAKLINE
- ▬▬▬ EXISTING UTILITIES: 18" SAN SEWER MAIN, 16" WATER MAIN



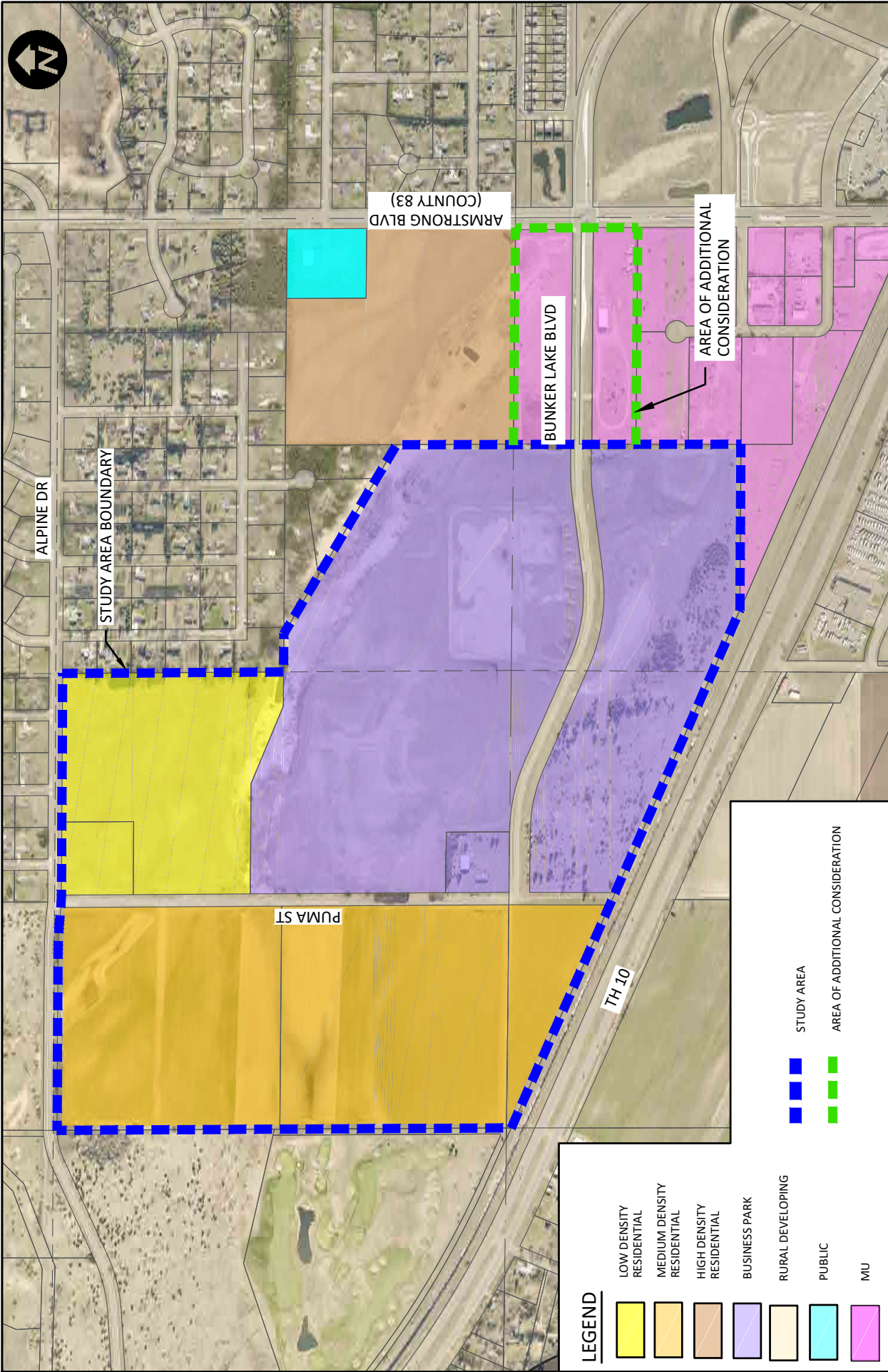
FUTURE BUSINESS PARK
 FEBRUARY 2017 UPDATE
 CITY OF RAMSEY, MINNESOTA
 LOCATION & EXISTING CONDITIONS

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FIGURE 1




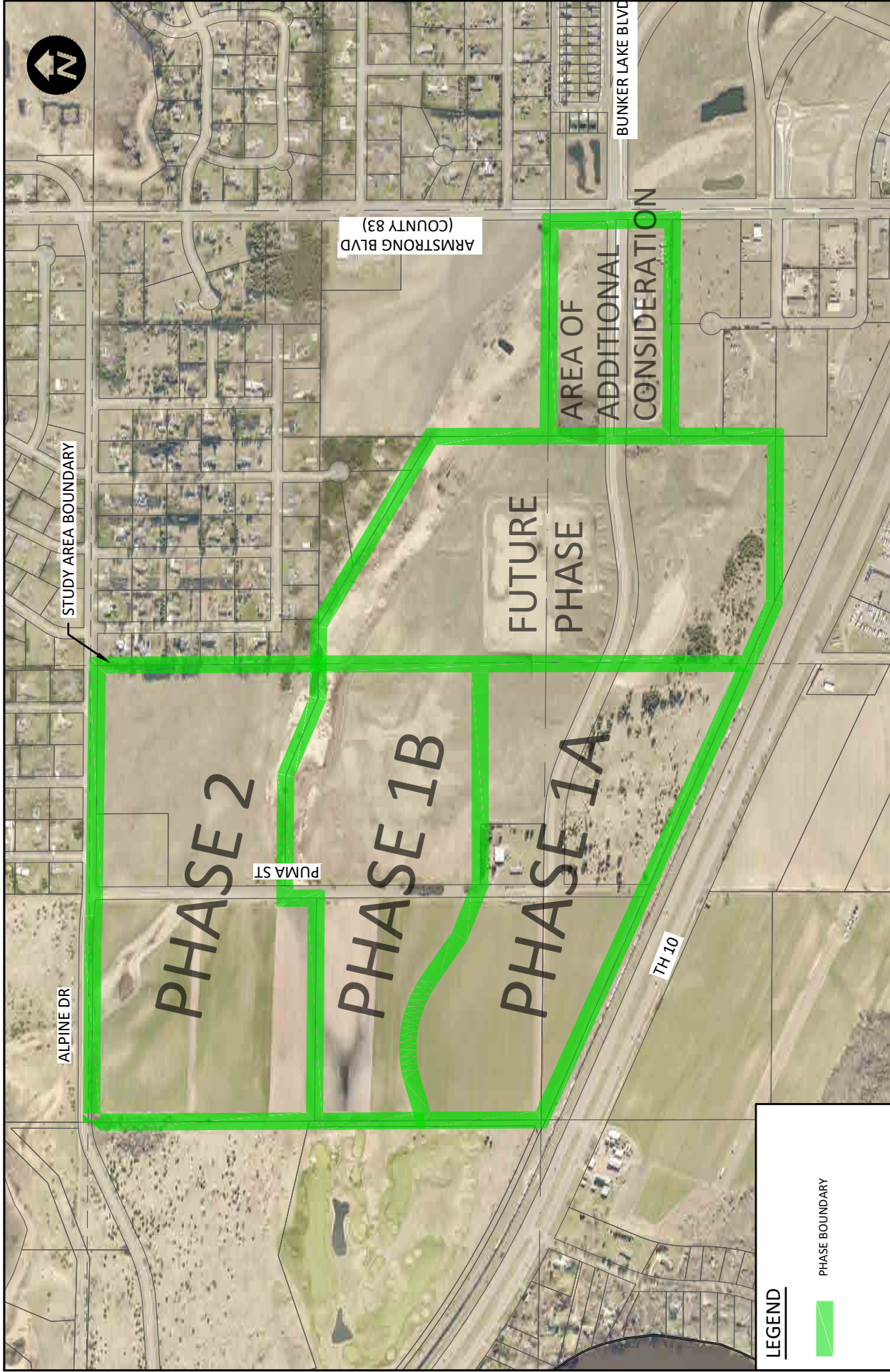
LEGEND

- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- BUSINESS PARK
- RURAL DEVELOPING
- PUBLIC
- MU
- STUDY AREA
- AREA OF ADDITIONAL CONSIDERATION


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 PROJECTED LAND USE MAP

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LEGEND

PHASE BOUNDARY

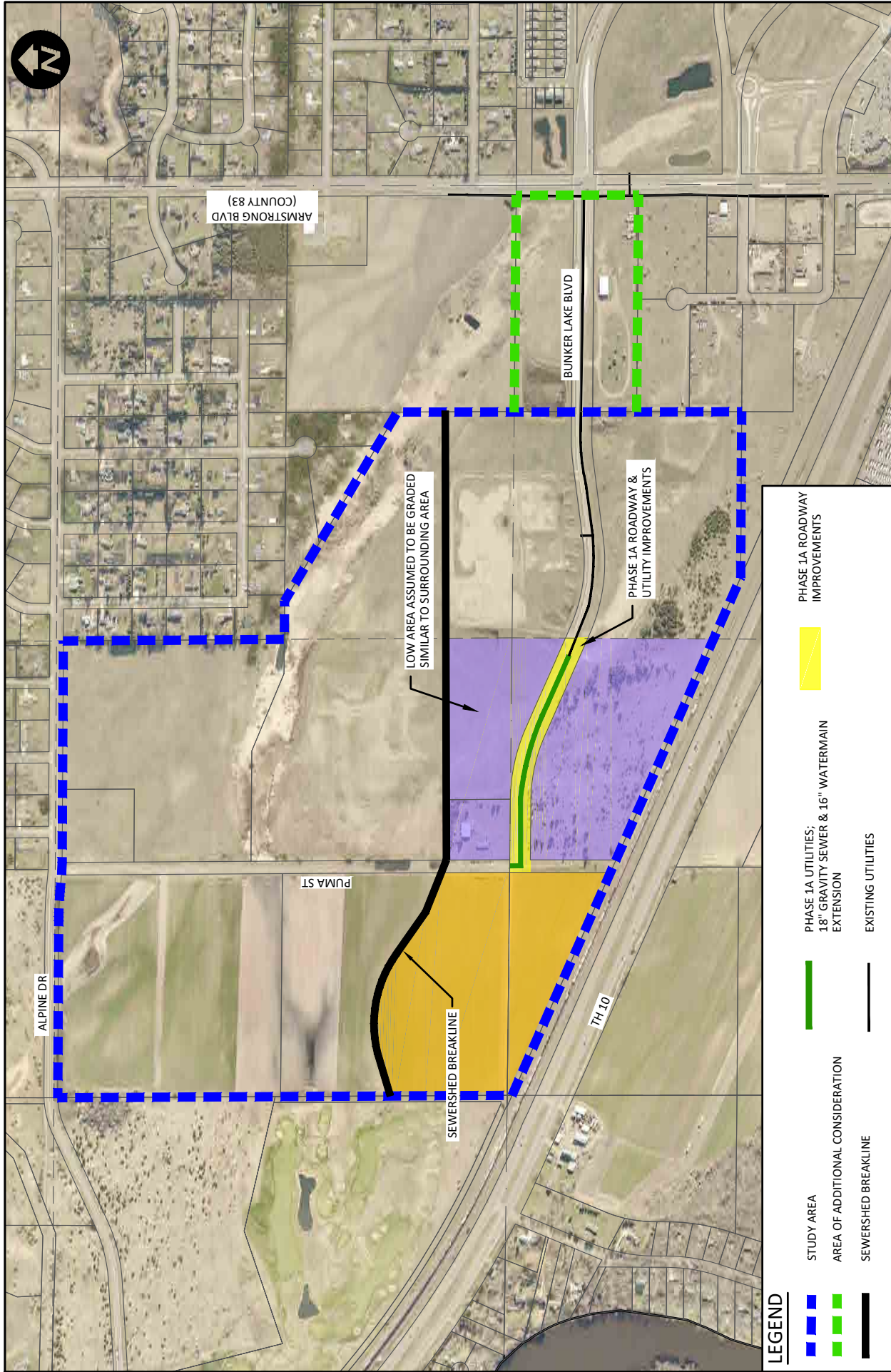


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 PHASING MAP

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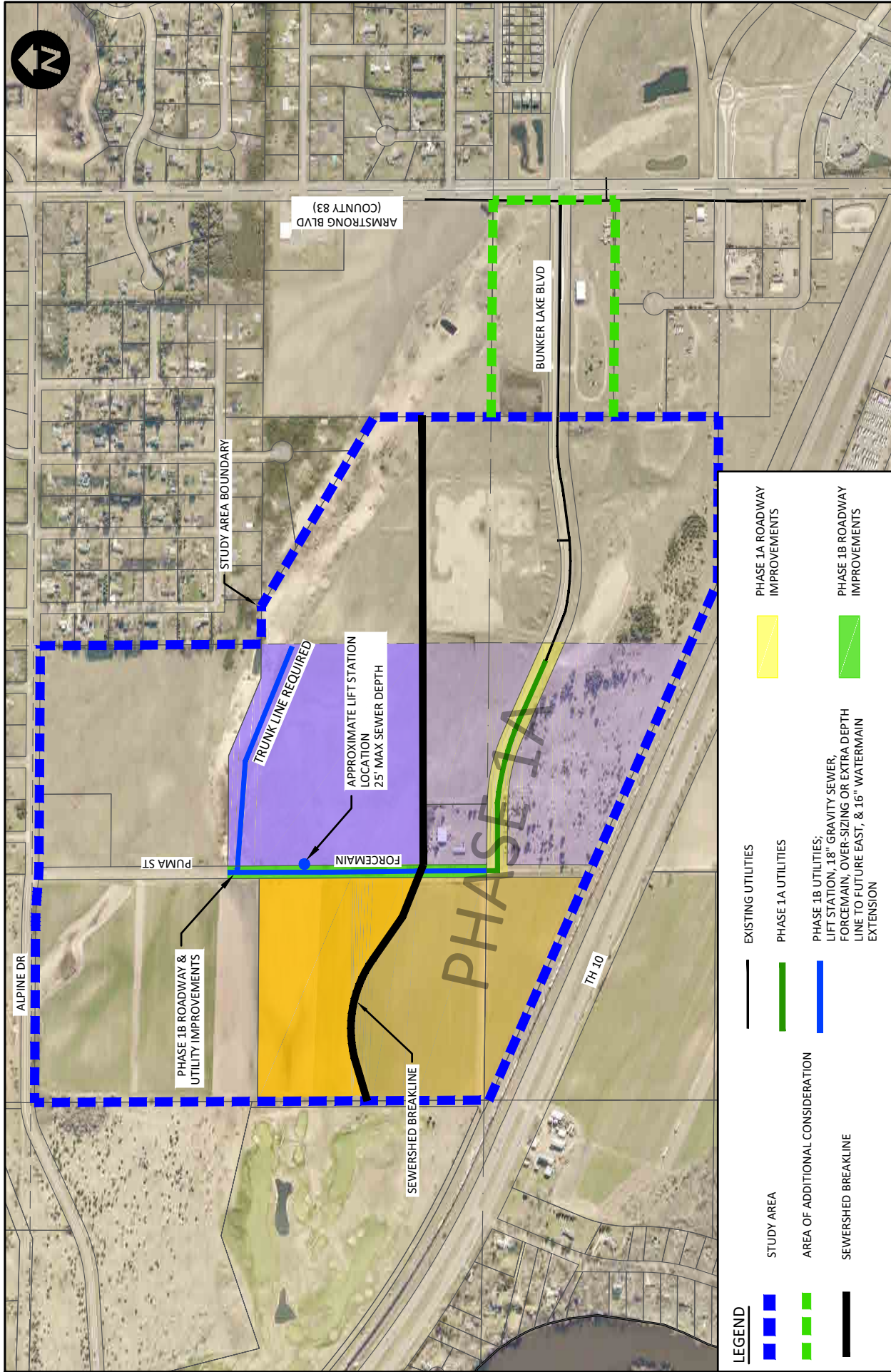


FUTURE BUSINESS PARK
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 PHASE 1A IMPROVEMENTS




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LEGEND

- STUDY AREA
- AREA OF ADDITIONAL CONSIDERATION
- SEWERSHED BREAKLINE
- EXISTING UTILITIES
- PHASE 1A UTILITIES
- PHASE 1B UTILITIES; LIFT STATION, 18" GRAVITY SEWER, FORCEMAIN, OVER-SIZING OR EXTRA DEPTH LINE TO FUTURE EAST, & 16" WATERMAIN EXTENSION
- PHASE 1A ROADWAY IMPROVEMENTS
- PHASE 1B ROADWAY IMPROVEMENTS



CITY OF RAMSEY

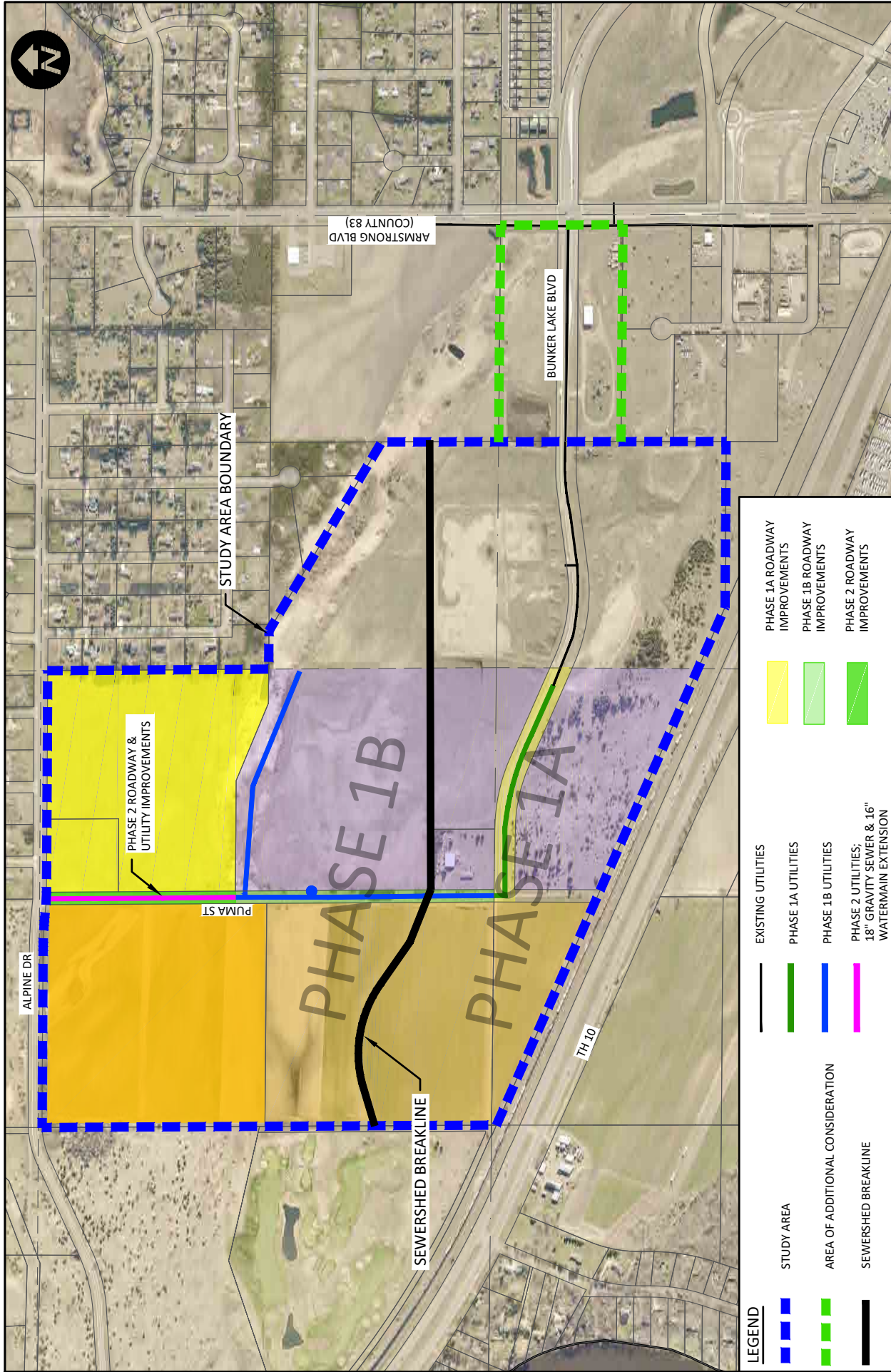
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 FEBRUARY 2017 UPDATE
 CITY OF RAMSEY, MINNESOTA
 PHASE 1B IMPROVEMENTS

FIGURE 5



LEGEND


	STUDY AREA		EXISTING UTILITIES
	AREA OF ADDITIONAL CONSIDERATION		PHASE 1A UTILITIES
	SEWERSHED BREAKLINE		PHASE 1B UTILITIES
			PHASE 2 UTILITIES; 18" GRAVITY SEWER & 16" WATERMAIN EXTENSION
			PHASE 1A ROADWAY IMPROVEMENTS
			PHASE 1B ROADWAY IMPROVEMENTS
			PHASE 2 ROADWAY IMPROVEMENTS



CITY OF RAMSEY

FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
PHASE 2 IMPROVEMENTS

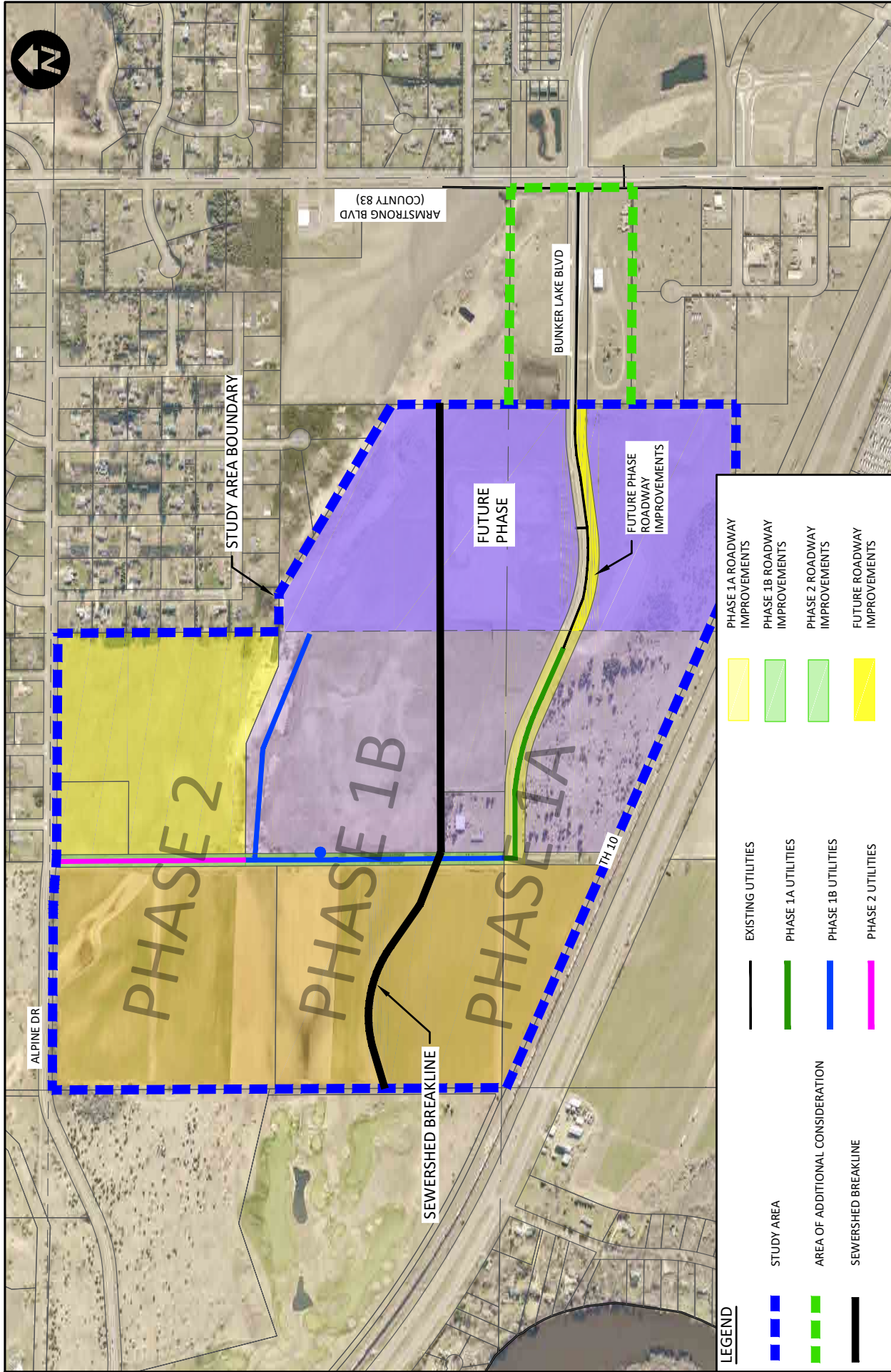
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FIGURE 6




LEGEND

	STUDY AREA		EXISTING UTILITIES		PHASE 1A ROADWAY IMPROVEMENTS
	AREA OF ADDITIONAL CONSIDERATION		PHASE 1A UTILITIES		PHASE 1B ROADWAY IMPROVEMENTS
	SEWERSHED BREAKLINE		PHASE 1B UTILITIES		PHASE 2 ROADWAY IMPROVEMENTS
			PHASE 2 UTILITIES		FUTURE ROADWAY IMPROVEMENTS

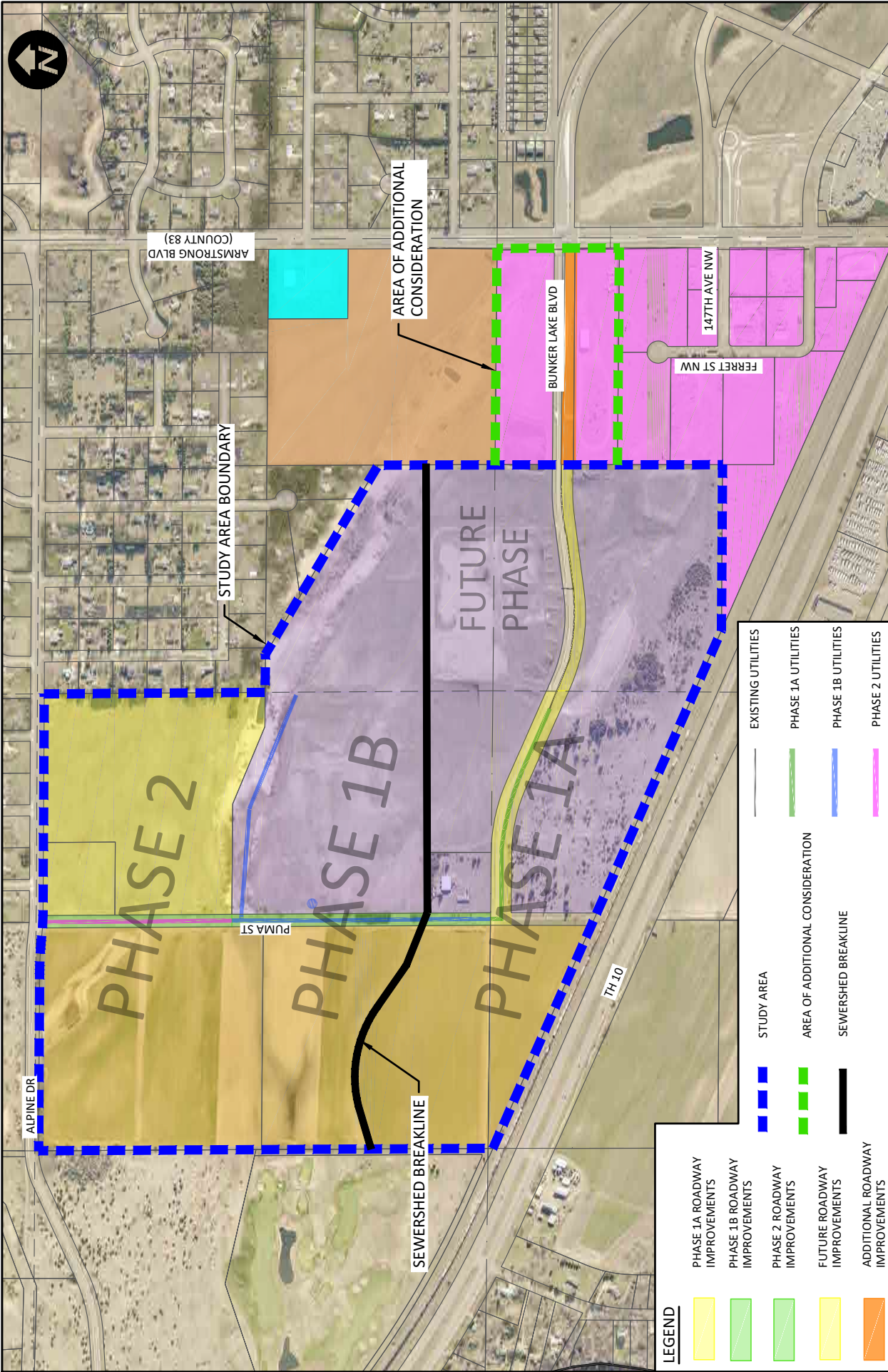

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FIGURE 7




LEGEND

	PHASE 1A ROADWAY IMPROVEMENTS		STUDY AREA		EXISTING UTILITIES
	PHASE 1B ROADWAY IMPROVEMENTS		AREA OF ADDITIONAL CONSIDERATION		PHASE 1A UTILITIES
	PHASE 2 ROADWAY IMPROVEMENTS		SEWERSHED BREAKLINE		PHASE 1B UTILITIES
	FUTURE ROADWAY IMPROVEMENTS		ADDITIONAL ROADWAY IMPROVEMENTS		PHASE 2 UTILITIES

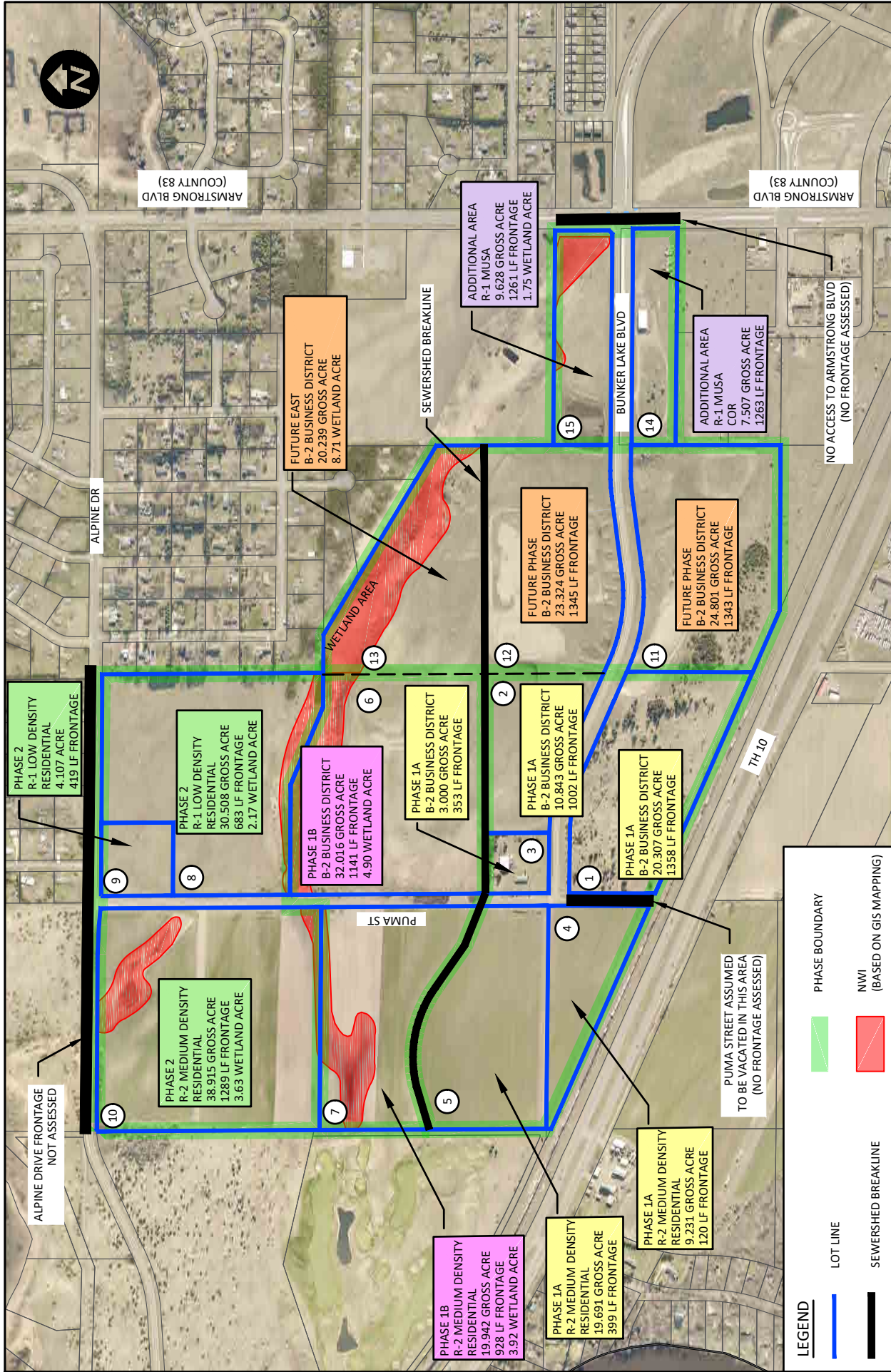


**FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
AREA OF ADDITIONAL CONSIDERATION**

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City of RAMSEY

FUTURE BUSINESS PARK
 FEBRUARY 2017 UPDATE
 CITY OF RAMSEY, MINNESOTA
 ASSESSMENT MAP

FIGURE 9

LEGEND

	LOT LINE		PHASE BOUNDARY
	SEWERSHED BREAKLINE		NWI (BASED ON GIS MAPPING)

Appendix B: Traffic Study



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TRAFFIC MEMORANDUM

Date: January 27, 2017
To: City of Ramsey
From: Bryan Nemeth, P.E., PTOE
Subject: Supplemental Traffic Memorandum
Traffic Impact Study for Future Business Park: October 21, 2015
City of Ramsey, MN
Project No.: R16.109828

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

By: _____
Bryan T. Nemeth, P.E., PTOE
License No. 43354

Date: January 27, 2017

I. Introduction

This traffic memorandum provides an update to the Traffic Impact Study for Future Business Park, October 21, 2015, in Ramsey, MN. The update includes analysis of a revised Proposed Future Land Use plan for the area.

The revised analysis results in an increase of approximately 18,100 trips per day into and out of the area at 2040 Full Build. This is an overall reduction in trips compared to the previous land use alternatives proposed.

The analysis evaluates the mitigation needs Bunker Lake Blvd west of Armstrong Boulevard (CSAH 83) and Puma Street south of Alpine Drive. This includes the intersection of Armstrong Blvd (CSAH 83) at Bunker Lake Blvd (CSAH 116).

II. Recommendations

A. Intersection and roadway improvements along Bunker Lake Blvd (west of Armstrong Blvd) and Puma St. (south of Alpine Dr.) are revised as follows.

1. Short Term

a) Armstrong Blvd & Bunker Lake Blvd: Stripe the southbound left with dual left turn lanes. No other roadway improvements needed in the short term. Signal timing updates recommended.

(1) Plan for eastbound dual right turn lanes or free-right turn lane and two eastbound thru lanes in the future (See Long Term Recommendations).

b) Bunker Lake Blvd (west of Armstrong Blvd)

(1) COR area:

(a) With COR access to Bunker Lake Blvd: 4-lane divided roadway to full access intersection. Full access 775 ft. from Armstrong Blvd. Right-in/right-out access at least 475 ft. from Armstrong Blvd. Continuous median to full access.

(b) Without COR access to Bunker Lake Blvd: 4-lane Divided to full access intersection. Full access 540 ft. from Armstrong Blvd. Right-in/right-out access at least 475 ft. from Armstrong Blvd. Continuous median to full access.

(2) COR to Llama St. Alignment: 3-lane undivided roadway, right turn lanes into development roadways. Primary intersection spacing of 1/8 mile.

(3) Llama St. Alignment to Puma St.: 3-lane undivided roadway, right turn lanes into development roadways where development trips anticipated to be over 100 per day. Primary intersection spacing of 1/8 mile.

c) Puma St.: Potentially remain a 2-lane undivided roadway. Left turn lanes into Business Park accesses. Right turn lanes provided where development trips anticipated to be over 100 per day.

d) Bunker Lake Blvd & Puma St.: Single lane roundabout or all-way stop

control. Southbound left turn lane and westbound right turn lane recommended with all-way stop control.

2. Mid-Term

a) Armstrong Blvd & Alpine Dr.: Single lane roundabout. Intersection control evaluation study should be completed to verify.

b) Alpine Dr. & Puma St.: Add eastbound right turn lane. Add a northbound turn lane to separate left and right turns. Add a westbound left turn lane when needed. This need to be based on delay and crash experience, especially if there is trip redistribution due to congestion on Armstrong Blvd.

3. Long-Term

a) Armstrong Blvd & Bunker Lake Blvd: Dual eastbound right turn lanes or free right turn lane. Dual right turn lanes are recommended over the free right due to pedestrian accessibility crossing a heavy free-right and the bridge design of Armstrong Blvd.

b) Plan for two eastbound thru lanes in the future. The two eastbound thru lanes are not necessarily due to traffic volumes but are recommended to give more green time to conflicting movements, specifically the westbound left. Additionally, the high eastbound right turn volumes may result in trip reassignment to use Bunker Lake Blvd and access Highway 10 at Ramsey Blvd instead of Armstrong Blvd. This may also result in more trips using Alpine Dr. to access Highway 10 for trips to and from the west.

III. Analysis

The traffic analysis updates consider a change in land uses within the Future Business Park area as shown on the attached Armstrong West: Proposed Future Land Uses map.

A. Forecasts

The background trip forecasts are consistent with the previous analysis. The trip forecasts to and from each area are included at the end of this memorandum. Forecasts were developed using trip rates from the ITE Trip Generation Manual, consistent with the previous analysis. The additional trips due to the development result in the forecasted trips as shown on the attached map.

B. Traffic Analysis Results

1. 2040 Full Build with Existing Lanes

Table 1: Design Year (2040) with Existing Lanes

Traffic Control Scenario	Peak Hour	Intersection Delay*- LOS		Maximum Delay-LOS**	Limiting Movement ***	Max Approach Queue			
						Direction	Average Queue (ft)	Max Queue (ft) ****	
Design Year 2040 Alternative 2									
TH 10/169 South Ramp & CSAH 83 (Armstrong Blvd) <i>Signal</i>	AM	13	B	24	C	EBL	EBL	105	174
	PM	12	B	22	C	EBL	EBL	98	148
TH 10/169 North Ramp & CSAH 83 (Armstrong Blvd) <i>Signal</i>	AM	63	E	143	F	WBR	WBT/R	468	1152
	PM	71	E	124	F	WBR	WBT/R	595	1560
CSAH 83 (Armstrong Blvd & 147th Avenue) <i>Signal</i>	AM	55	D	131	F	NBL	NBT	759	1327
	PM	52	D	87	F	NBL	NBT	660	1252
CSAH 83 (Armstrong Blvd) & CSAH 116 (Bunker Lake Blvd) <i>Signal (assumed double SBL & double WBL were stripped)</i>	AM	69	E	184	F	NBL	NBT	784	1086
	PM	100	F	227	F	NBL	NBT	733	1109
CSAH 83 (Armstrong Blvd) & Alpine Drive NW <i>TWSC</i>	AM	5	A	20	C	EBT	EBL/T	45	114
	PM	9	A	46	E	EBL	NBL/T	68	167
Alpine Drive NW & Puma Street NW <i>TWSC</i>	AM	2	A	7	A	NBL	NBL/R	31	54
	PM	3	A	9	A	NBL	NBL/T	51	86
Puma Street NW & Bunker Lake Blvd <i>Option 1: AWSC</i>	AM	3	A	9	A	NBT	SBL/T/R	50	75
	PM	4	A	7	A	WBR	WBT/R	56	86
Puma Street NW & Bunker Lake Blvd <i>Option 2: 3 Legged intersection (with curve)</i>	AM	0	A	3	A	EBR	EB L/R	4	18
	PM	0	A	2	A	EBL	EBL/R	7	24
Puma Street NW & Bunker Lake Blvd <i>Option 3: Roundabout</i>	AM	2	A	5	A	NBT	SBL/T/R	16	51
	PM	2	A	4	A	SBT	SBL/T/R	4	23

*Delay in seconds per vehicle

**Maximum delay and LOS on any approach and/or movement

***Limiting Movement is the highest delay movement.

****Max Queue refers to the 95% Queue (Passenger car stored length = 25 ft, Heavy vehicle stored length = 45 ft)

Analysis indicates that there are anticipated to be capacity concerns along Armstrong Blvd from Highway 10 to Bunker Lake Blvd. Mitigation is necessary at the intersection of Armstrong Blvd at Bunker Lake Blvd.

2. 2040 Full Build with Mitigation

Table 2: Design Year (2040) with Mitigation

Traffic Control Scenario	Peak Hour	Intersection Delay*- LOS		Maximum Delay-LOS**	Limiting Movement ***	Max Approach Queue			
						Direction	Average Queue (ft)	Max Queue (ft) ****	
Design Year 2040 Alternative 2									
TH 10/169 South Ramp & CSAH 83 (Armstrong Blvd) <i>Signal</i>	AM	11	B	22	C	EBL	EBL	95	147
	PM	12	B	23	C	EBL	SBR	47	171
TH 10/169 North Ramp & CSAH 83 (Armstrong Blvd) <i>Signal</i>	AM	21	C	53	D	SBT	SBT	382	727
	PM	49	D	141	F	SBT	SBT	809	1272
CSAH 83 (Armstrong Blvd & 147th Avenue) <i>Signal</i>	AM	12	B	33	C	SBL	NBT	199	376
	PM	56	E	111	F	SBT	SBT	664	1232
CSAH 83 (Armstrong Blvd) & CSAH 116 (Bunker Lake Blvd) <i>Signal (Added double EB thru, free right)</i>	AM	38	D	84	F	NBL	NBT	353	868
	PM	50	D	139	F	WBL	WBT	401	915
CSAH 83 (Armstrong Blvd) & Alpine Drive NW <i>TWSC (Added EB/WB RT lane)</i>	AM	5	A	26	D	WBL	EBR	61	110
	PM	10	B	88	F	EBT	NBL/T	77	171
Alpine Drive NW & Puma Street NW <i>TWSC</i>	AM	2	A	6	A	WBL	NBL/R	33	56
	PM	3	A	9	A	NBL	NBL/T	48	80
Puma Street NW & Bunker Lake Blvd <i>Option 1: AWSC</i>	AM	3	A	9	A	WBL	SBL/T/R	50	78
	PM	4	A	8	A	WBL	WBL/T/R	57	83
Puma Street NW & Bunker Lake Blvd <i>Option 2: 3 Legged intersection (with curve)</i>	AM	0	A	3	A	EBL	EBL/R	4	18
	PM	0	A	5	A	EBL	EBL/R	6	24
Puma Street NW & Bunker Lake Blvd <i>Option 3: Roundabout</i>	AM	2	A	5	A	NBT	SBL/T/R	11	37
	PM	2	A	4	A	EBT	SBL/T/R	3	21

*Delay in seconds per vehicle

**Maximum delay and LOS on any approach and/or movement

***Limiting Movement is the highest delay movement.

****Max Queue refers to the 95% Queue (Passenger car stored length = 25 ft, Heavy vehicle stored length = 45 ft)

Analysis indicates

Mitigation includes the lanes and traffic control indicated in the recommendations but also includes a third southbound lane along Armstrong Blvd from Bunker Lake Blvd to the Highway 10 North Ramp terminal. Additional review of the bridge design indicates that a third lane would not be feasible without substantial revisions to the bridge structure over the railroad. Based on this, two eastbound through lanes are recommended at the intersection of Armstrong Blvd and Bunker Lake Blvd to provide an alternative route if needed. The analysis below also considers an eastbound free right into the third lane. This is recommended to be a dual right turn when or if needed based on traffic redistribution in the area.

The resulting queues are shown below for each movement at the intersection of Armstrong Blvd and Bunker Lake Blvd. Dual eastbound right turn lanes would be anticipated to have similar average queues and shorter max queues. The max queues are anticipated to be less if there is traffic redistribution based on congestion.

Table 3: Design Year (2040) Armstrong Blvd & Bunker Lake with Proposed Lanes

Traffic Control Scenario	Peak Hour	Delay-LOS**		Max Approach Queue	
				Average Queue (ft)	Max Queue (ft)****
CSAH 83 (Armstrong Blvd) & CSAH 116 (Bunker Lake Blvd)					
<i>EBL</i>	AM	41	D	64	122
	PM	37	D	106	191
<i>EBR</i>	AM	3	A		
	PM	47	D	390	916
<i>WBL</i>	AM	45	D	134	215
	PM	131	F	401	915
<i>NBL</i>	AM	84	F	305	412
	PM	52	D	207	307
<i>SBL</i>	AM	31	C	95	145
	PM	46	D	81	128

*Delay in seconds per vehicle

**Maximum delay and LOS on any approach and/or movement

***Limiting Movement is the highest delay movement.

****MaxQueue refers to the 95% Queue (Passenger car stored length = 25 ft, Heavy vehicle stored length = 45 ft)

C. Special Considerations

1. The trips from specific developments to Puma and Bunker Lake Blvd have not been analyzed. Trips to and from specific developments should be assigned to appropriate roadways based on the development roadway design. This is especially important for trip assignment at the intersection of Bunker Lake Blvd and Puma St.
2. Mitigation for intersections outside of the area due to development in the area have not been completed.



**Armstrong West
Proposed Future Land Uses**

Section QQ

Section Only

AUAR Boundary

Future Land Use

Business Park

COR

High Density Residential

Low Density Residential

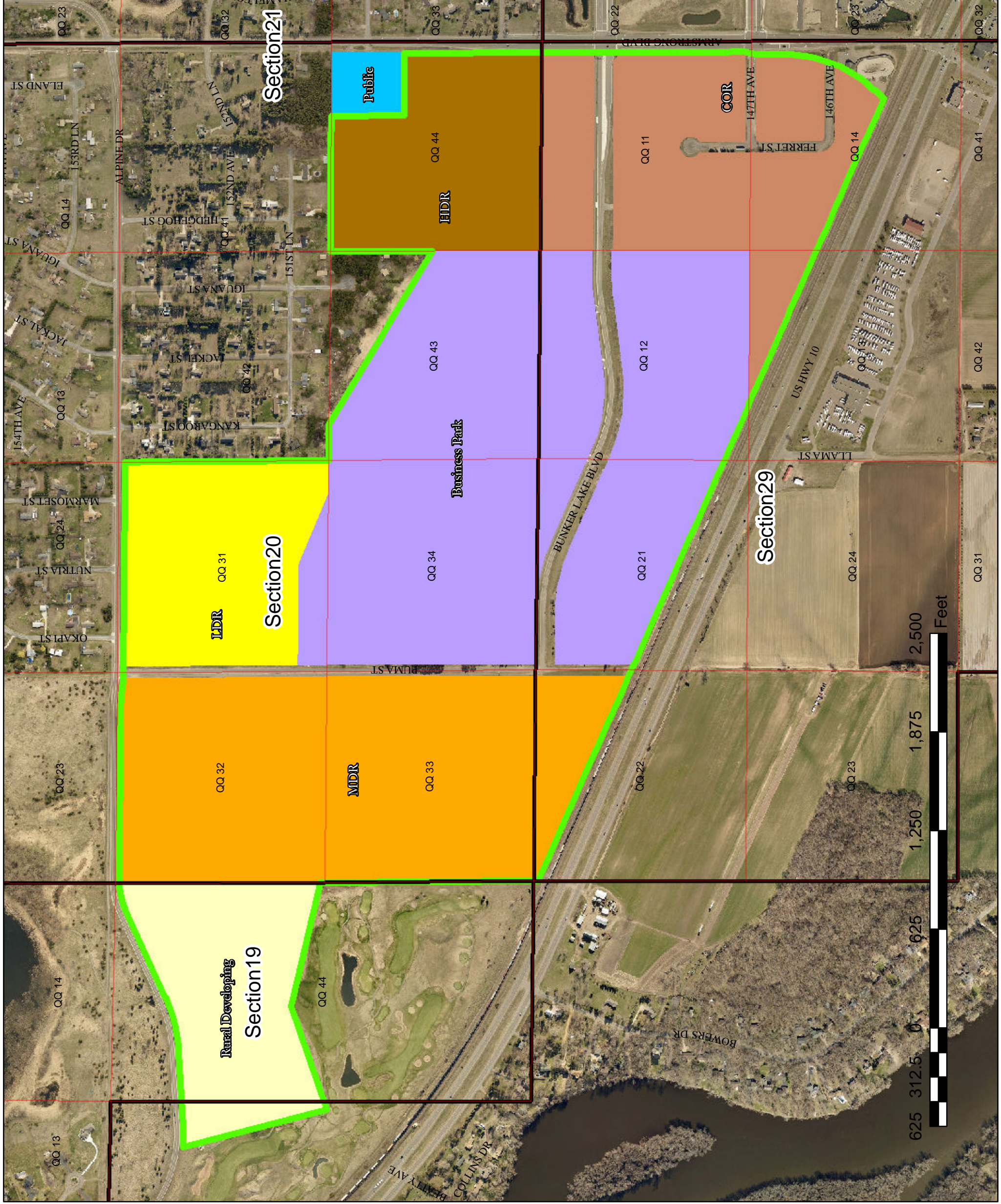
Medium Density Residential

Public/Quasi-Public

Rural Developing



This is not an approved land use plan. This is a working document only, based on current feedback and concepts (both public and privately developed concepts).



Ramsey EDA Traffic Assumptions
 Alternative 2: Business Park (January 2017 Update)

B-2	Business Park	Based on Acres		134.54 Acres	ITE Code	130	Internal-to-Internal Reduction				Pass-by		New Trips			
		Average Rate	#	% enter	% exit	entering	exiting	entering	exiting	entering	exiting	entering	exiting			
		8.55	1151	83	17	955	196	10%	860	177	0%	0	0	860	177	
		AM	4.42	595	50	50	298	298	10%	268	268	0%	0	0	268	268
		Afternoon	8.84	1190	21	79	250	940	10%	225	847	0%	0	0	225	847
PM	63.11	8491	50	50	4246	4246	15%	3609	3609	0%	0	0	3609	3609		
Weekday																

B-2	Retail/Commercial	Based on Square Feet		74.4 K ft ²	ITE Code	X	Internal-to-Internal Reduction				Pass-by		New Trips			
		Average Rate	#	% enter	% exit	entering	exiting	entering	exiting	entering	exiting	entering	exiting			
		7.41	552	53	47	293	259	20%	235	208	46%	109	96	126	112	
		AM	5.46	407	50	50	204	204	20%	163	163	40%	66	66	97	97
		Afternoon	10.91	813	51	49	415	398	20%	332	319	39%	130	125	202	194
PM	124.59	9275	50	50	4638	4638	30%	3247	3247	39%	1267	1267	1980	1980		
Weekday																

R-1	Single Family Detached Housing	Based on Dwelling Units		104 units	ITE Code	210	34.62 Acres				New Trips	
		rate	#	% enter	% exit	entering	exiting	3 Units per Acre				
		0.75	83	25	75	21	62					
		AM	0.51	53	31	69	16	37				
		Afternoon	1.01	109	63	37	69	40				
PM	9.57	1078	50	50	539	539						
Weekday												

R-2	Residential Townhouse	Based on Dwelling Units		527 units	ITE Code	230	87.79 Acres				New Trips	
		Average Rate	#	% enter	% exit	entering	exiting	3 to 7 Units per Acre				
		0.44	196	17	83	33	163	Assume 6 Units per Acre				
		AM	0.26	138	31	69	43	95				
		Afternoon	0.52	235	67	33	157	78				
PM	5.81	2732	50	50	1366	1366						
Weekday												

R-3	Low Rise Apartment	Based on Dwelling Units		525 units	ITE Code	221	43.74 Acres				New Trips	
		Average Rate	#	% enter	% exit	entering	exiting	7 to 15 Units per Acre				
		0.46	215	21	79	45	170	Assume 12 Units per Acre				
		AM	0.29	153	31	69	47	106				
		Afternoon	0.58	291	65	35	189	102				
PM	6.59	3076	50	50	1538	1538						
Weekday												

Rural Developing	Assumed trips		ITE Code	x	New Trips			
	entering	exiting						
	5	20						
	AM	20	5					
	Afternoon							
PM								
Weekday								

Total	Pass-by		New Trips		
	entering	exiting	entering	exiting	
	AM	109	96	1090	704
	Afternoon	66	66	472	602
	PM	130	125	862	1266
Weekday	1267	1267	9032	9032	

West of Commercial Area	Pass-by		New Trips	
	entering	exiting	entering	exiting
	AM		919	422
	Afternoon		327	400
	PM		471	970
Weekday		5514	5514	