

# FEASIBILITY REPORT

---

## **ARMSTRONG BOULEVARD AND RELOCATED SUNWOOD DRIVE INTERSECTION IMPROVEMENTS CITY OF RAMSEY, MINNESOTA**

**December 8, 2011**

### **PREPARED BY**

**WSB & Associates, Inc.  
701 Xenia Avenue South, Suite 300  
Minneapolis, MN 55416**

## 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.

---

Anthony Heppelmann, PE

Date: December 8, 2011

Lic. No.

Quality Assurance/Quality Control

---

Derek Schmidt, PE

Date: December 8, 2011

Lic. No.

# TABLE OF CONTENTS

---

**TITLE SHEET**

**LETTER OF TRANSMITTAL**

**CERTIFICATION SHEET**

**TABLE OF CONTENTS**

<b>1. EXECUTIVE SUMMARY .....</b>	<b>1</b>
1.1 Street and Intersection Reconstruction .....	1
1.2 Storm Sewer Improvements .....	1
1.3 Trail Construction.....	1
1.4 Sanitary Sewer Adjustments.....	1
1.5 Water Main Extension .....	1
<b>2. INTRODUCTION .....</b>	<b>2</b>
2.1 Authorization .....	2
2.2 Scope .....	2
2.3 Data Available .....	2
2.4 Project Location.....	2
2.5 Project History .....	2
<b>3. EXISTING CONDITIONS .....</b>	<b>4</b>
3.1 Street.....	4
3.2 Trail .....	4
3.3 Storm Sewer .....	4
3.4 Sanitary Sewer.....	4
3.5 Water Main.....	4
3.6 Private Utilities.....	4
3.7 Right-of-way.....	5
<b>4. PROPOSED IMPROVEMENTS .....</b>	<b>6</b>
4.1 Street.....	6
4.2 Trail .....	6
4.3 Storm Sewer .....	6
4.4 Sanitary Sewer.....	6
4.5 Water main .....	7
4.6 Private Utilities.....	7
4.7 Right-of-way.....	7
4.8 Permits and Approvals.....	7
<b>5. FINANCING .....</b>	<b>8</b>
5.1 Opinion of Probable Cost .....	8
5.2 Temporary versus Permanent Construction .....	8
5.3 Funding.....	8
<b>6. PROJECT SCHEDULE.....</b>	<b>9</b>
<b>7. FEASIBILITY AND RECOMMENDATION .....</b>	<b>10</b>
<b>Appendix A</b>	
Figures	
<b>Appendix B</b>	
Opinion of Probable Cost	

## **1. EXECUTIVE SUMMARY**

This project has been entitled the Armstrong Boulevard and Relocated Sunwood Drive Intersection improvements. This project was initiated to accommodate the relocation of Sunwood Drive which is required by the recommended plan for the improvement of the intersection of TH 10 and Armstrong Boulevard to a grade separated interchange including a grade separation of Armstrong Boulevard over the BNSF railroad. The project proposes the following improvements:

### **1.1 Street and Intersection Reconstruction**

It is proposed to reconstruct Armstrong Boulevard to a four-lane divided roadway with one left-turn and one right-turn lane in the northbound direction and one left-turn and one right-turn lane in the southbound direction. The total project length on Armstrong Boulevard is approximately 1100 feet. The project would also reconstruct approximately 350 feet of 147<sup>th</sup> Avenue west of Armstrong Boulevard in order to realign 147<sup>th</sup> Avenue with the relocated Sunwood Drive. It is proposed that the intersection of relocated Sunwood Drive and Armstrong Boulevard would be signalized. The proposed project is shown in *Figure 2* in *Appendix A* of this report. The improvements are consistent with the long-term interchange layout for the TH 10 and Armstrong Boulevard intersection. The preferred TH 10 and Armstrong Boulevard interchange layout is shown in *Figure 3* in *Appendix A* of this report.

### **1.2 Storm Sewer Improvements**

Storm sewer improvements are proposed to carry the runoff from the reconstructed roadway to an existing storm water pond located on the east side of Armstrong Boulevard north of the relocated Sunwood Drive.

### **1.3 Trail Construction**

An 8-foot trail on the east of Armstrong Boulevard between the relocated Sunwood Drive and Bunker Lake Road is proposed. This trail would tie into trails on Bunker Lake Boulevard and on the west side of Armstrong Boulevard north of Bunker Lake Boulevard. It would also connect to a new trail on relocated Sunwood Drive.

### **1.4 Sanitary Sewer Adjustments**

The project will require the adjustment of three sanitary sewer manholes to accommodate the raised grade on Armstrong Boulevard

### **1.5 Water Main Extension**

It is proposed to extend the 12-inch water main at relocated Sunwood Drive from the east side of Armstrong Boulevard to the west side of Armstrong Boulevard and continue the water main to the end of construction on 147<sup>th</sup> Avenue.

The total estimated project cost is approximately \$1.725 million dollars. Funding for the project will be determined for the final feasibility study.

It is proposed that the project be constructed in 2012.

## **2. INTRODUCTION**

### **2.1 Authorization**

The City Council of Ramsey, Minnesota at its July 26, 2011, meeting authorized the preparation of a feasibility report for the improvement of the intersection of Armstrong Boulevard and a realigned Sunwood Drive.

### **2.2 Scope**

This feasibility study covers the segment of Armstrong Boulevard from 150 feet south of 146<sup>th</sup> Avenue NW (existing Sunwood Drive intersection with Armstrong Boulevard) to 450 feet south of Bunker Lake Boulevard. The total length of the project on Armstrong Boulevard is approximately 1100 feet. Also included in the project is approximately 350 feet of 147<sup>th</sup> Avenue to the west of Armstrong Boulevard. The proposed project consists of widening Armstrong Boulevard to a four-lane divided roadway with right- and left-turn lanes through the intersection with the realigned Sunwood Drive. The proposed project would also realign and widen 147<sup>th</sup> Avenue to match the realigned Sunwood Drive. The Sunwood Drive realignment is being developed as a separate project. However, the design of the two projects is being coordinated.

### **2.3 Data Available**

In preparing this report, all or portions of the following sources of information were utilized.

- Mapping from the Armstrong Boulevard and Bunker Lake Boulevard Project
- Survey from the Armstrong Boulevard and Bunker Lake Boulevard Project
- Geotechnical Data from the Armstrong Boulevard and Bunker Lake Boulevard Project
- Bunker Lake Boulevard and Armstrong Boulevard Record Drawings
- TH 10 and CSAH 83 Interchange Layout
- Armstrong Boulevard and Bunker Lake Boulevard Storm Water Plans
- Armstrong Boulevard and Bunker Lake Boulevard Sanitary Sewer Plans
- Armstrong Boulevard and Bunker Lake Boulevard Water Main Plans

### **2.4 Project Location**

The project is located at the intersection of 147<sup>th</sup> Avenue and Armstrong Boulevard in the City of Ramsey, Minnesota. The project location is shown on *Figure 1* in the *Appendix A* of this report.

### **2.5 Project History**

This project was initiated to accommodate the relocation of Sunwood Drive which is required by the recommended plan for the improvement of the intersection of TH 10 and Armstrong Boulevard to a grade separated interchange including a grade separation of Armstrong Boulevard over the BNSF railroad. The City of Ramsey and Anoka County have recognized the need to upgrade Armstrong Boulevard from the intersection with TH 10 to north of Bunker Lake Boulevard in order to serve traffic from future development

of the COR . A preferred plan for this interchange has been identified by the study participants and a layout has been submitted to MnDOT for staff approval. See *Figure 3* in *Appendix A* of this report. A draft Federal Environmental Assessment is also being prepared to allow the use of federal funds for the interchange improvements if they should become available. A complete funding package has not yet been identified for the interchange at TH 10 and Armstrong Boulevard.

The preferred plan for the Armstrong Boulevard and TH 10 Interchange will require the relocation of Sunwood Drive at Armstrong Boulevard because of the future grade difference between the future Armstrong Boulevard and the existing Sunwood Drive. The proposed new location for the intersection of Sunwood Drive and Armstrong Boulevard is across from 147<sup>th</sup> Avenue at the approximate location of the previously proposed Ramsey Parkway. The relocation of Sunwood Drive is being undertaken as a separate project. The purpose of the Armstrong Boulevard improvements is to construct the intersection of Armstrong Boulevard and relocated Sunwood Drive in its future location and configuration consistent with the preferred interchange design for TH 10 and Armstrong Boulevard.

The intersection of Armstrong Boulevard and Bunker Lake Boulevard was improved to a four-lane divided with right- and left-turn lanes in 2011, consistent with the long-term plans for this area. This project would continue the improvements on Armstrong Boulevard to the south through the intersection with the relocated Sunwood Drive. The vertical and horizontal alignment as well as the through and turn lanes on Armstrong Boulevard will be constructed in their future permanent location and configuration through the Sunwood Drive intersection. That is, the Sunwood and Armstrong Boulevard intersection will be constructed so that additional reconstruction in the intersection is not required when the TH 10 and Armstrong Boulevard interchange is constructed.

### **3. EXISTING CONDITIONS**

#### **3.1 Street**

The affected area of Armstrong Boulevard is currently a two-lane rural roadway with drainage ditches on both sides of the roadway. The project includes the southerly transition area on Armstrong Boulevard from the previous project at Armstrong Boulevard and Bunker Lake Boulevard. 147<sup>th</sup> Avenue is currently a 40-foot city street with curb and gutter.

There is currently no street to the east of Armstrong Boulevard at 147<sup>th</sup> Avenue where the relocated Sunwood Drive is proposed.

#### **3.2 Trail**

There is an existing trail on the east side of Armstrong Boulevard extending from Bunker Lake Boulevard to the north to Alpine Drive. There is also a trail along the north side of Bunker Lake Boulevard east and west of Armstrong Boulevard. There is currently not a trail along Armstrong Boulevard within the project limits.

#### **3.3 Storm Sewer**

A storm water pond was constructed on the east side of Armstrong Boulevard south of Bunker Lake Boulevard to handle storm water runoff from Armstrong Boulevard and adjacent parcels. This storm water pond was sized to handle additional storm water runoff from a four lane Armstrong Boulevard between existing Sunwood Drive and Bunker Lake Boulevard.

#### **3.4 Sanitary Sewer**

A 24-inch sanitary sewer main was constructed on the west side of Armstrong Boulevard between the existing Sunwood Drive and the Ramsey Fire station as part of the Armstrong Boulevard and Bunker Lake Boulevard intersection reconstruction. See *Figure 4* in *Appendix A*.

#### **3.5 Water Main**

There is no water main located in the Armstrong Boulevard right-of-way within the project limits. A 24-inch water main was extended to the south side of Bunker Lake Boulevard on the east side of Armstrong Boulevard as part of the Bunker Lake Boulevard and Armstrong Boulevard project consistent with the Cities Comprehensive Water plan. See *Figure 4* in *Appendix A*.

#### **3.6 Private Utilities**

There is gas, telephone, and electric utilities located in the Armstrong Boulevard right-of-way within the project limits. These utilities were all relocated to the east side of Armstrong Boulevard north of 147<sup>th</sup> Avenue for the Armstrong Boulevard and Bunker Lake Boulevard intersection improvements. See *Figure 5* in *Appendix A*.

### **3.7 Right-of-way**

The existing right-of-way width on Armstrong Boulevard within the project limits is 120 feet south of 147<sup>th</sup> Avenue and 130 feet north of 147<sup>th</sup> Avenue.

DRAFT

## **4. PROPOSED IMPROVEMENTS**

### **4.1 Street**

It is proposed to reconstruct Armstrong Boulevard to a four lane divided roadway with one left-turn and one right-turn lane in the northbound direction and one left-turn and one right-turn lane in the southbound direction. See *Figure 2* in *Appendix A*. All lanes would be 12 feet in width with a 1.5 foot curb and gutter on the inside median and a 2-foot curb and gutter on the outside lanes. See *Figure 7* for existing and proposed cross sections. At the north end, the project will match into the recently reconstructed section of Armstrong Boulevard. The improvements are consistent with the long term interchange layout for the TH 10 and Armstrong Boulevard intersection. The project would also reconstruct approximately 350 feet of 147<sup>th</sup> Avenue west of Armstrong Boulevard in order to realign 147<sup>th</sup> Avenue with the relocated Sunwood Drive.

### **4.2 Trail**

An eight (8) foot trail will be constructed on the east side of Armstrong Boulevard starting at the relocated Sunwood Drive and extending north to the intersection of Armstrong Boulevard and Bunker Lake Boulevard. See *Figure 2* in *Appendix A*.

### **4.3 Storm Sewer**

Most of the drainage from Armstrong Boulevard and 147<sup>th</sup> Avenue will be picked up and carried to the recently constructed pond on the east side of Armstrong Boulevard and south of Bunker Lake Boulevard. The proposed Armstrong Boulevard will have curb and gutter on both sides of Armstrong Boulevard to approximately 25 feet south of the intersection with 147<sup>th</sup> Avenue. South of this point will be temporary construction with a rural section. The storm water runoff from the urban section will be picked up by a line of catch basins just south of the 147<sup>th</sup> Avenue and Armstrong Boulevard intersection and a second line of catch basins near the tie in point with the Armstrong Boulevard and Bunker Lake Boulevard project (approximately station 40+25). The drainage from the temporary rural section of Armstrong Boulevard south of 147<sup>th</sup> Avenue will be picked up in ditches and carried to the drainage system at 147<sup>th</sup> Avenue. Water from 147<sup>th</sup> Avenue will be picked up at the intersection and by catch basins located at the westerly terminus of the 147<sup>th</sup> Avenue reconstruction. There is a small section at the southerly terminus of the Armstrong improvements that will drain to the existing pond by Coborn's as it does today. See *Figure 6* in *Appendix A*.

### **4.4 Sanitary Sewer**

The existing sanitary sewer along Armstrong Boulevard will remain in place. Additional fill will be placed over the existing sanitary sewer line on Armstrong Boulevard to accommodate the raised grade needed on Armstrong Boulevard. The in-place sanitary sewer pipe is designed to handle the additional fill from this interim project. However, it is likely that some modification of the sanitary sewer line near 146<sup>th</sup> Avenue will be required with the future interchange project. The extent of the modifications will depend on whether a right-turn lane to old Sunwood Drive is provided from the interchange. The least costly option would be to relocate the southerly 300 feet of this line to the east side of the road in the future when the interchange is built. There are currently three man

holes to the sanitary sewer line within the project limits that will have to be adjusted to accommodate the change in grade on Armstrong Boulevard.

#### **4.5 Water main**

A 12-inch water main crossing of Armstrong Boulevard is proposed at Sunwood Drive and 147<sup>th</sup> Avenue to provide future water service to the west side of Armstrong Boulevard. This 12-inch water main would be extended to the west end of the proposed construction on 147<sup>th</sup> Avenue.

#### **4.6 Private Utilities**

In general, the private utilities can remain in their existing location. Some minor adjustments may be required to accommodate the storm sewer and water main installations.

#### **4.7 Right-of-way**

Permanent right-of-way or easement will be required from five different parcels as shown on *Figure 8* in *Appendix A*. The City of Ramsey currently owns the property on the east side of Armstrong Boulevard where right-of-way is needed. The acquisition of the land on the west side of Armstrong Boulevard and south of 147<sup>th</sup> Avenue is addressed in the feasibility study for the relocated Sunwood Drive. Permanent easements are required from two properties north of 147<sup>th</sup> Avenue. In addition a temporary easement is required from the parcel adjacent to 147<sup>th</sup> Avenue to reconstruct the driveway. The estimated cost of these permanent and temporary easements based on the costs from the Bunker Lake Boulevard and Armstrong Boulevard project is \$ssss .

#### **4.8 Permits and Approvals**

The following permits and approvals will be needed for this project:

- NPDES Permit
- Lower Rum River WMO Permit
- Anoka County Plan Approval
- State Aid Plan Approval
- Department of Health Permit for Water Main

## 5. FINANCING

### 5.1 Opinion of Probable Cost

A detailed breakdown of the Cost Opinion for the proposed project is included in *Appendix B* of this report. The opinion of cost is based on estimated prices and incorporates the construction cost experience for the Armstrong Boulevard and Bunker Lake Boulevard project in 2011. The opinion of probable cost includes a 10% contingency and administrative costs of 21% for engineering, legal, financing, and other administrative costs. The project costs are summarized below.

**Armstrong Boulevard and Sunwood Drive  
City of Ramsey, Minnesota  
Opinion of Probable Cost**

Street/Intersection Improvements	\$1,460,038
Trail	\$ 14,128
Storm Sewer Improvements	\$ 168,484
Water Main	\$ 107,066
<b>Total Proposed Improvements</b>	<b>\$1,749,715</b>

The above costs do not include the cost of right-of-way acquisition.

### 5.2 Temporary versus Permanent Construction

All construction from 25 feet south of relocated Sunwood Drive to the north project limits would be permanent construction. This would include all of the trail and storm sewer improvements and most of the street/intersection improvements. The only temporary construction anticipated with this project is the pavement, signing and striping in the transition area south of Sunwood Drive. The additional fill needed south of relocated Sunwood Drive is fill that would be needed for the Interchange project in the future.

### 5.3 Funding

The funding plan for the project will be provided as part of the final feasibility study.

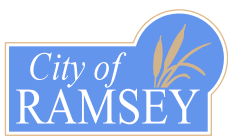
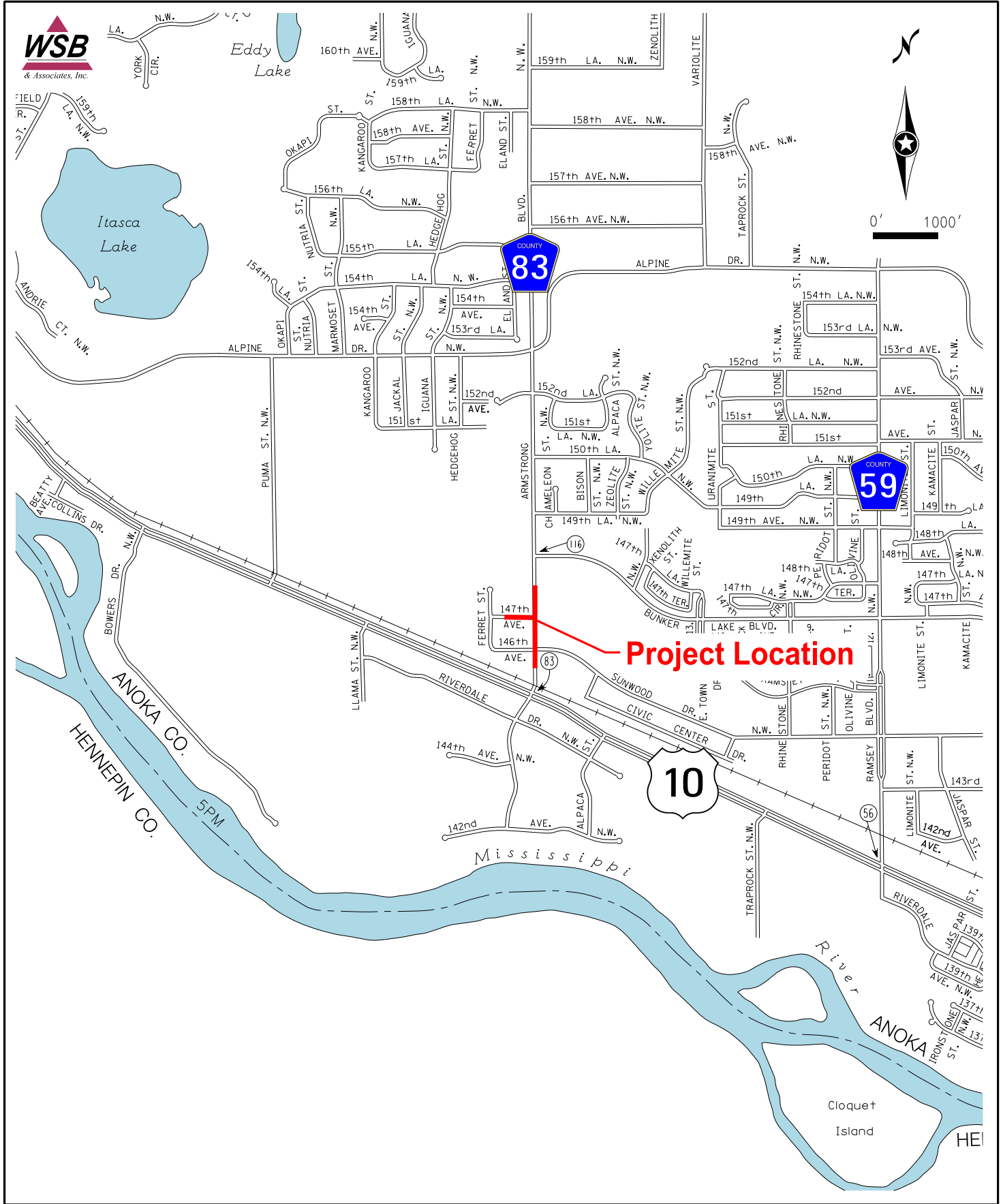
## 6. PROJECT SCHEDULE

<b>Task</b>	<b>Completion Date</b>
Order Feasibility Study	July 26 <sup>th</sup> , 2011
Accept Feasibility Study and Order Plans and Specifications	January 10, 2012
Approve Plans, Specifications and Order Advertisement for Bids	April, 2012
Receive Bids	May, 2012
Begin Construction	June, 2012
Substantial Completion	September, 2012
Final Completion	November, 2012

## **7. FEASIBILITY AND RECOMMENDATION**

Based on our analysis and the data presented, the proposed project is feasible as a permanent improvement that will not require reconstruction when the interchange at TH 10 and Armstrong Boulevard is constructed.

DRAFT

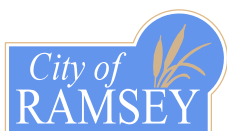
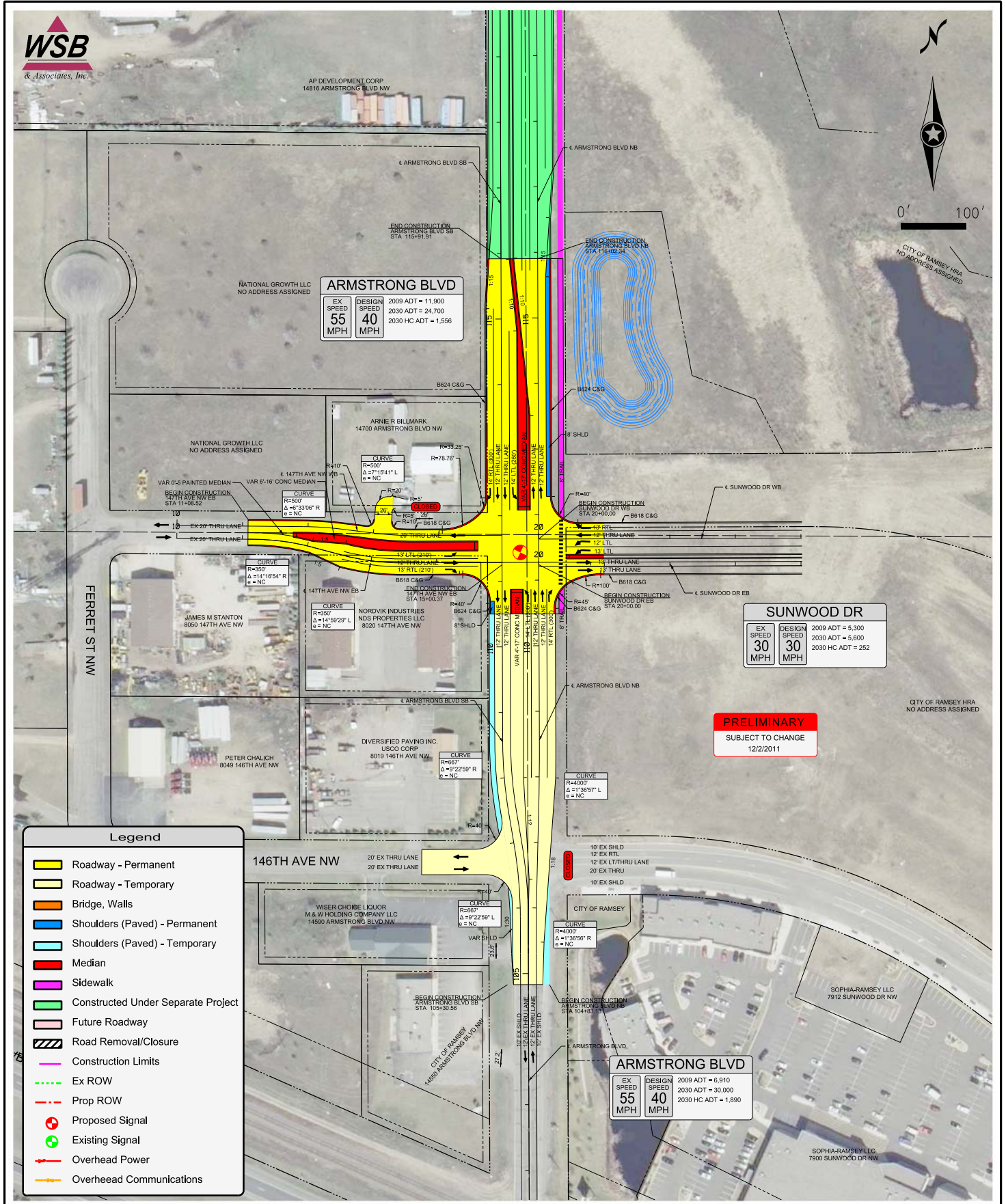


# Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

# Project Location Map

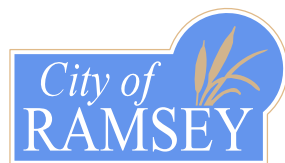
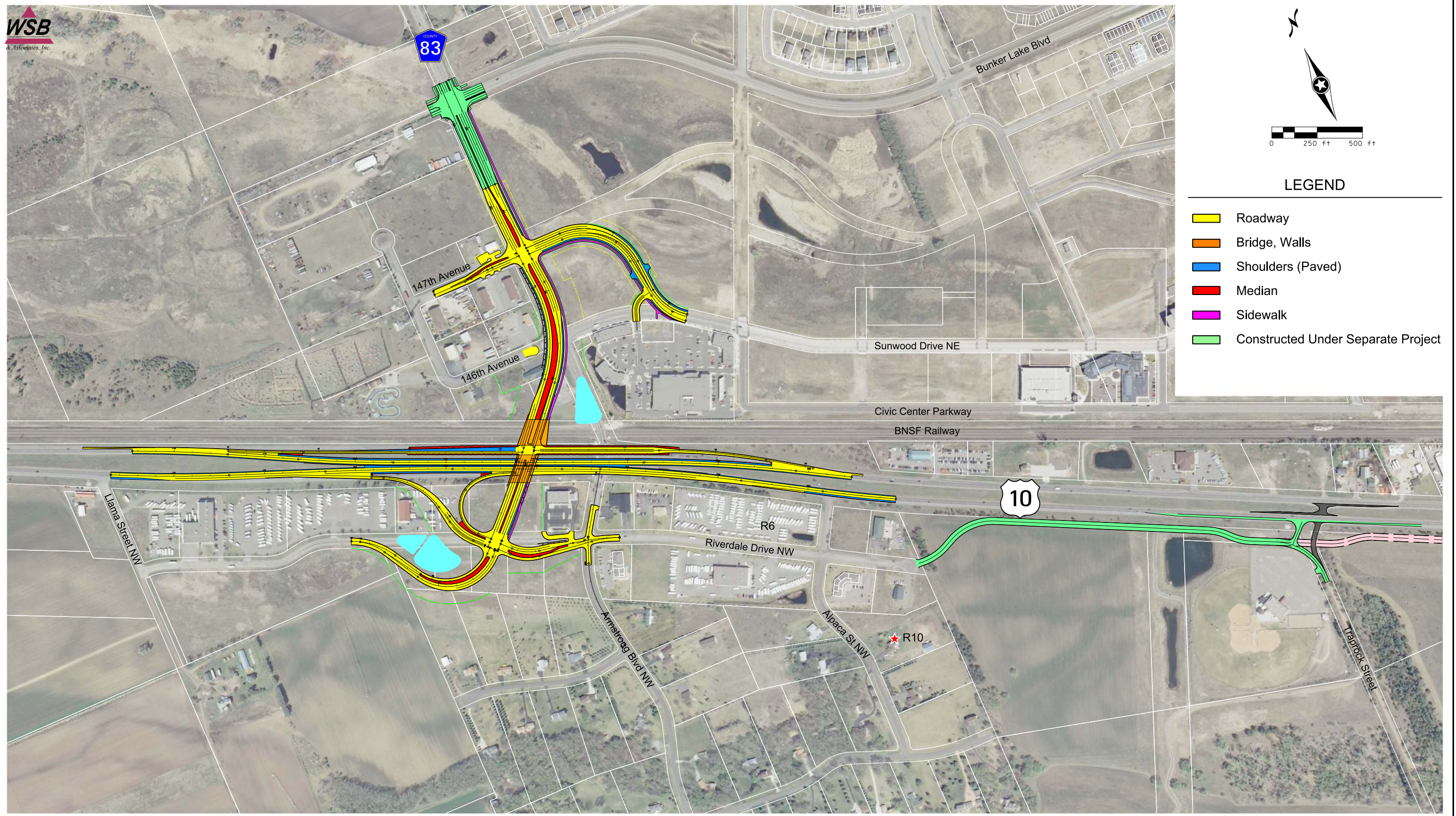
Figure 1



# Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

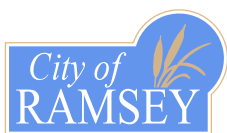
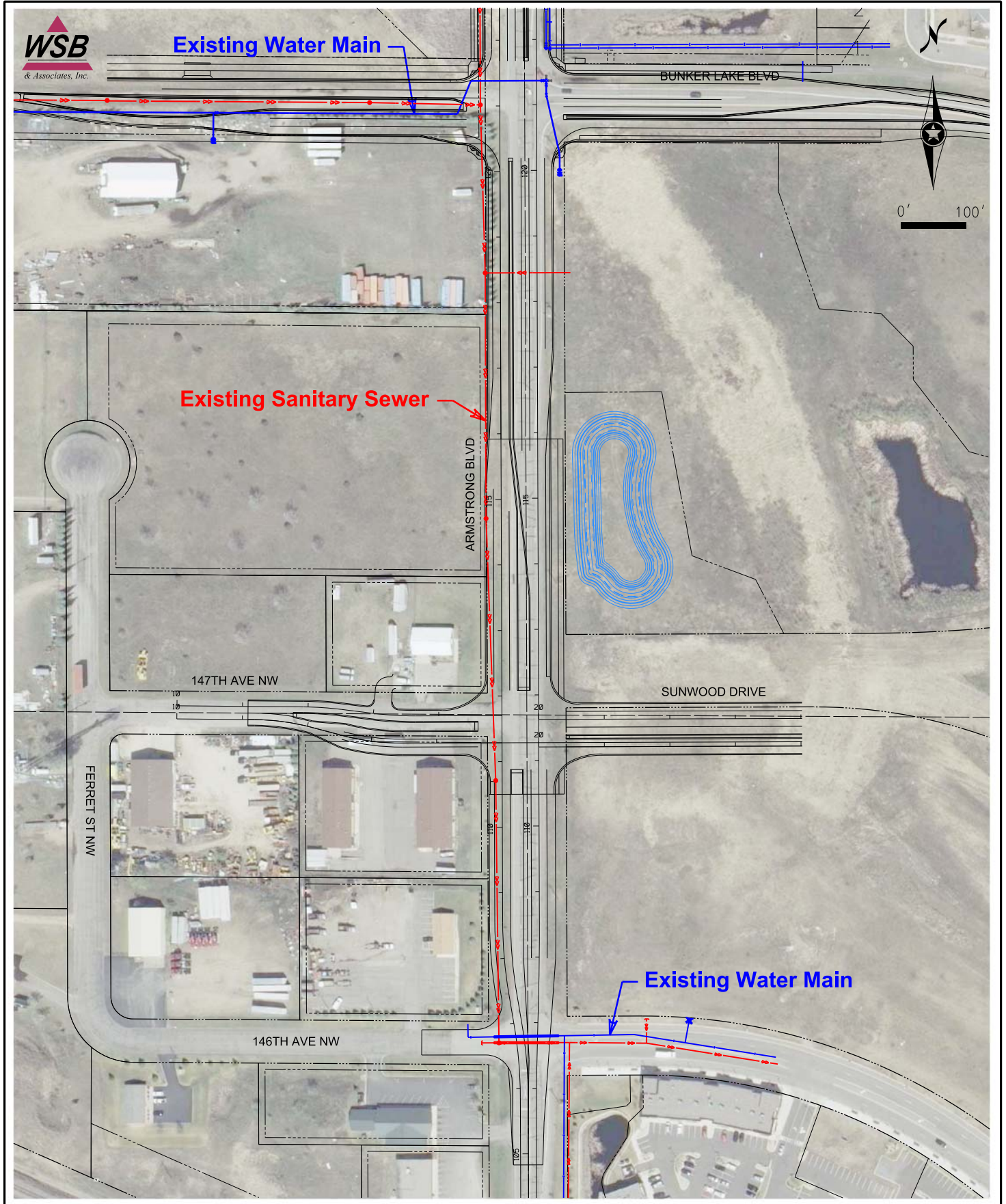
**Project Layout**  
 Figure 2



# Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

Interchange Layout  
Figure 3

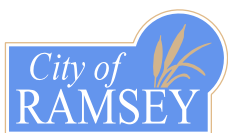
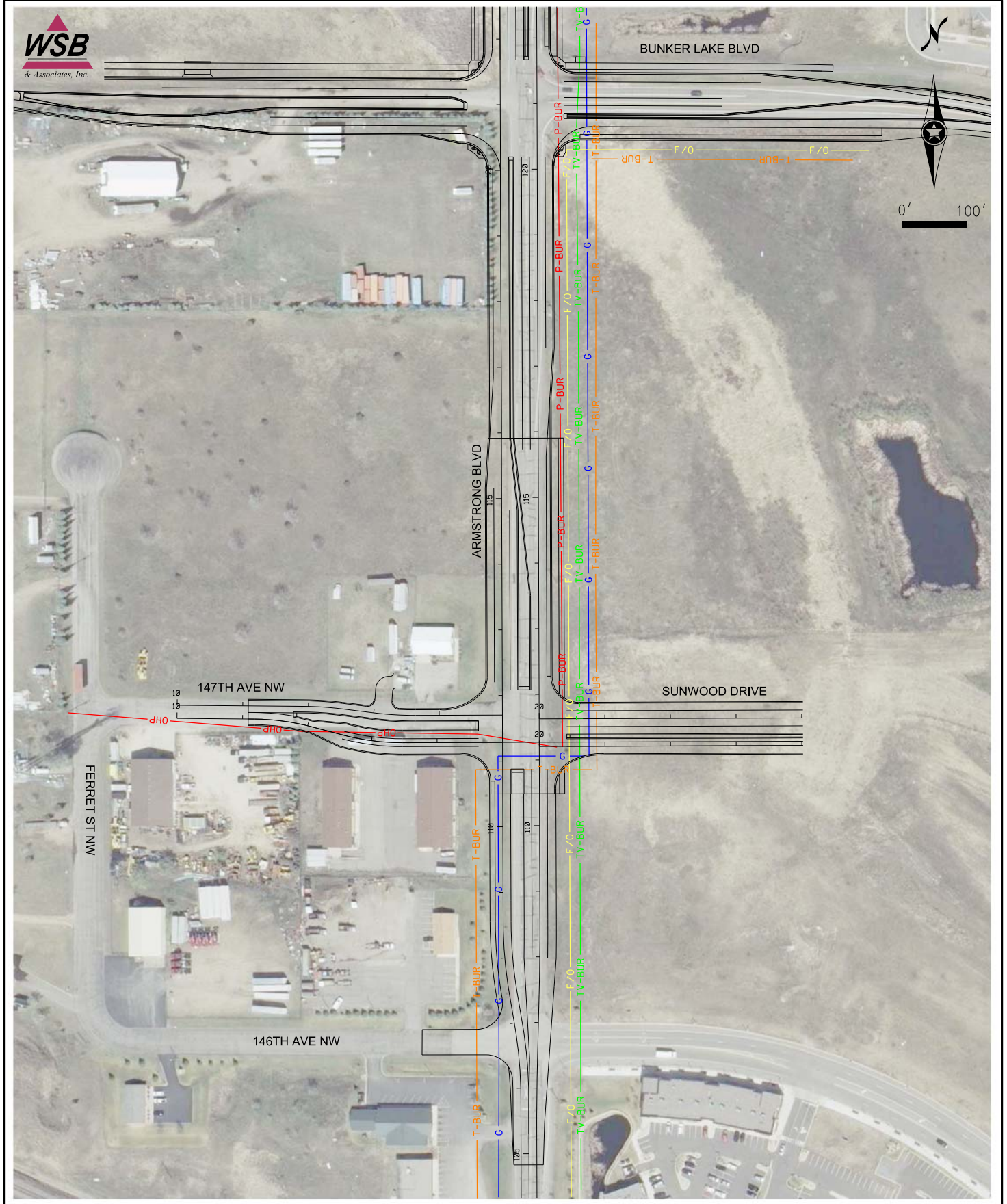


# Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

## Public Utilities

Figure 4

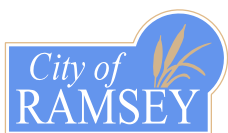
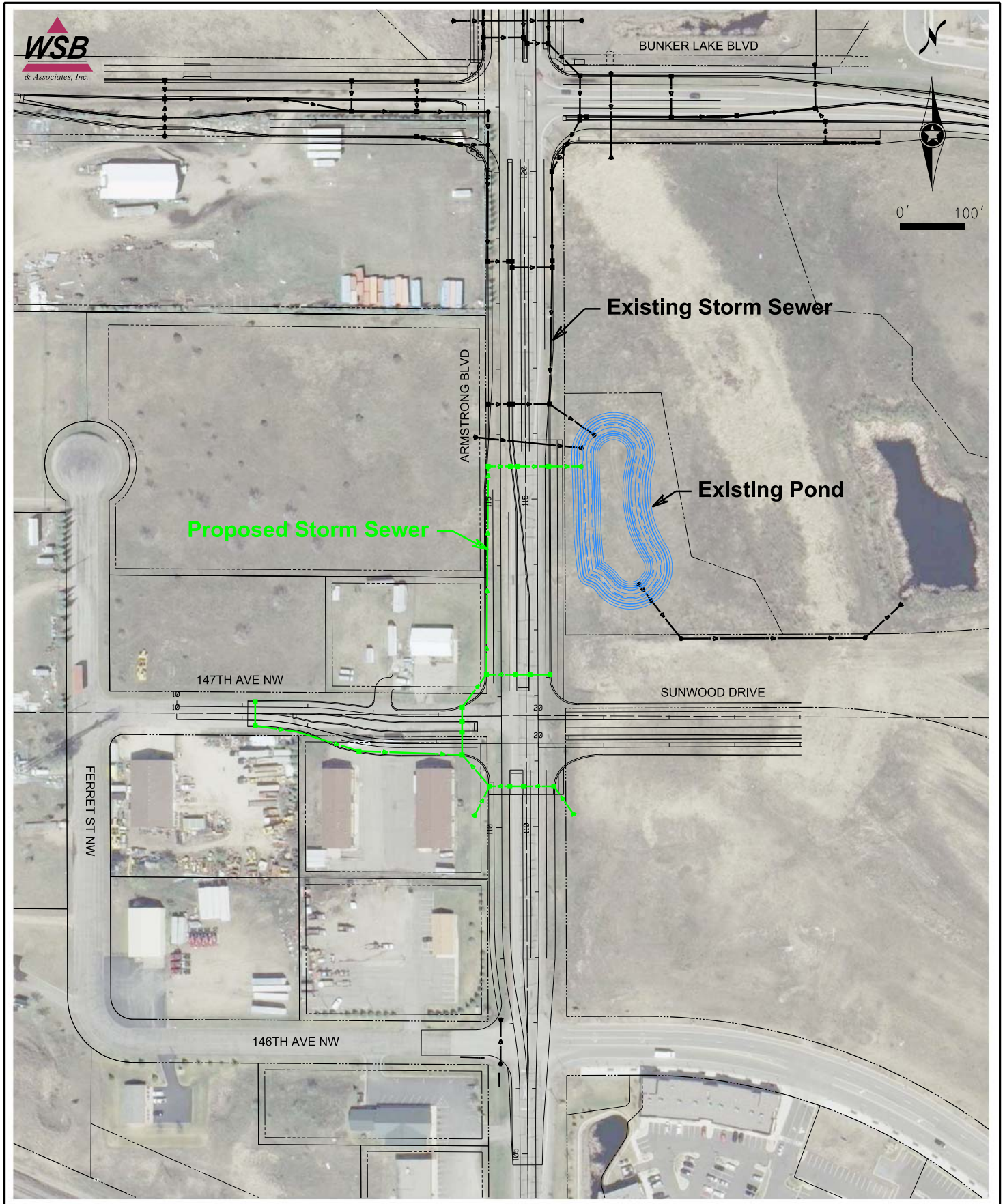


# Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

## Private Utilities

Figure 5

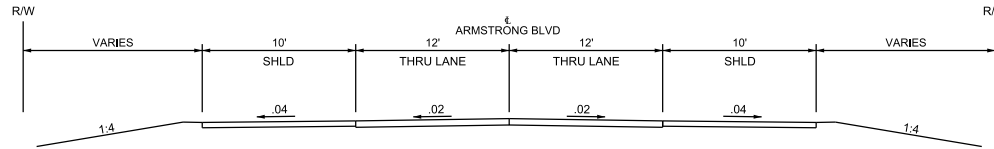


# Armstrong Blvd at Sunwood Drive

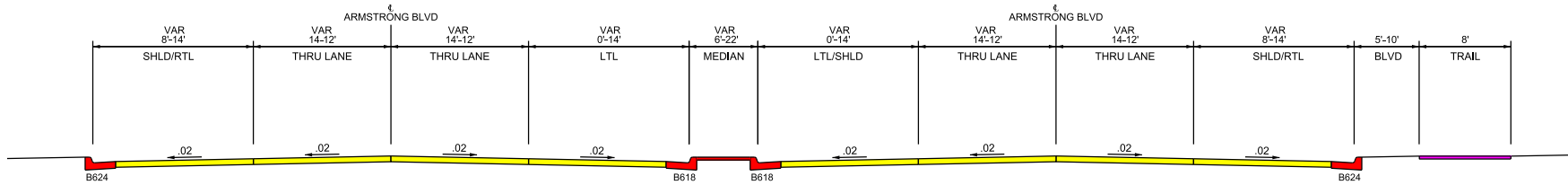
City of Ramsey, Minnesota

# Storm Sewer Plan

Figure 6

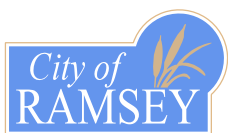
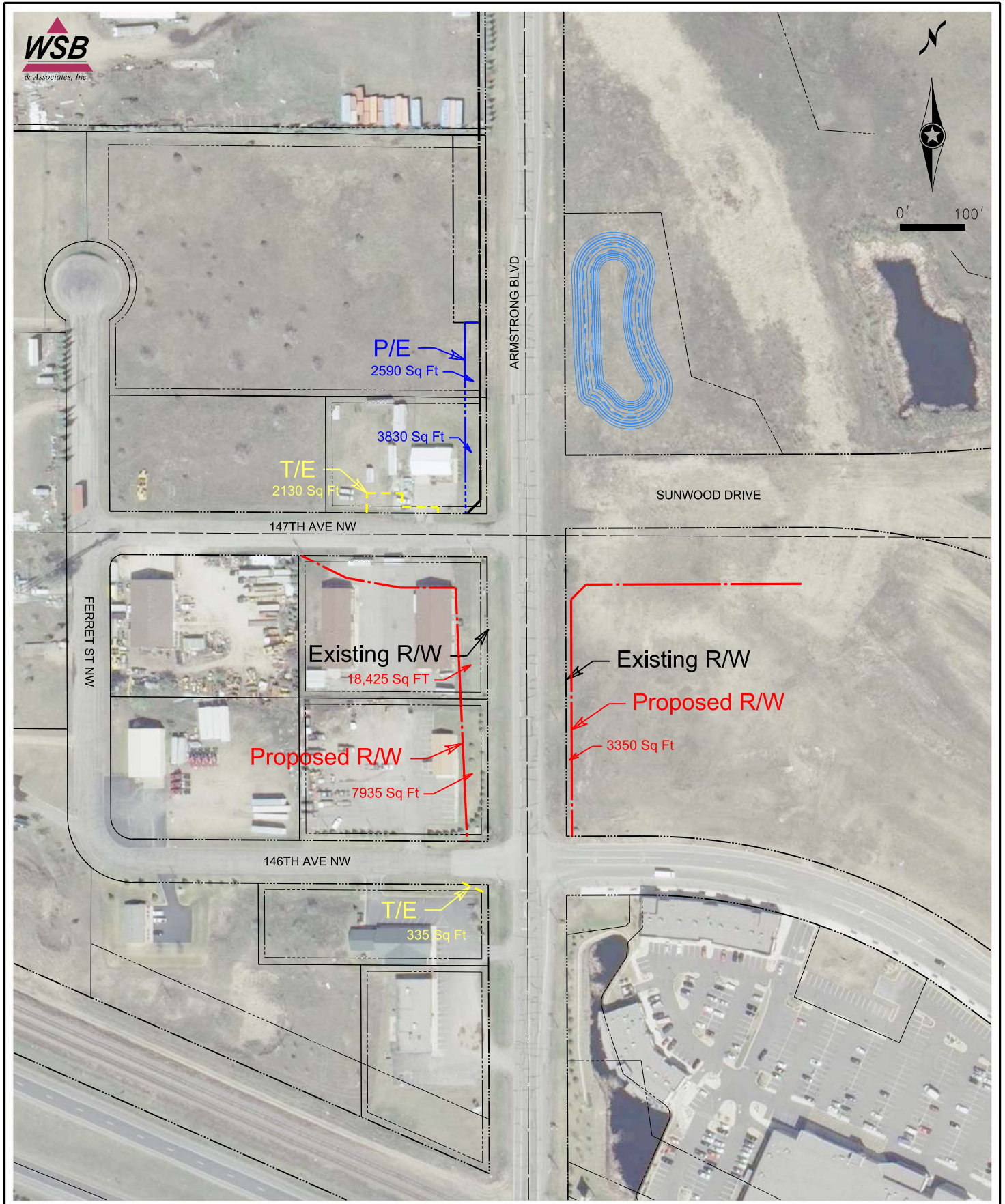


Existing Armstrong Blvd



Proposed Armstrong Blvd





# Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

## Right-of-Way Map

Figure 8

**OPINION OF PROBABLE COST  
CSAH 83 (ARMSTRONG BLVD) AT SUNWOOD DR**

WSB Project: CSAH 83 at Sunwood Dr

Project Location: Ramsey, MN

WSB Project No: 01973-010

ITEM NUMBER	DESCRIPTION	UNIT	Unit Price	PROJECT TOTAL	
				ESTIMATED QUANTITY	Estimated Cost
<b>Surface Improvements</b>					
2021.501	MOBILIZATION	LUMP SUM	\$75,000.00	1	\$75,000.00
2031.501	FIELD OFFICE TYPE D-MODIFIED	EACH	\$16,000.00	1	\$16,000.00
2104.501	REMOVE SEWER PIPE (STORM)	LIN FT	\$8.00	200	\$1,600.00
2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	\$3.00	5150	\$15,450.00
2104.509	REMOVE SIGN TYPE C	EACH	\$40.00	16	\$640.00
2104.513	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	\$2.75	345	\$948.75
2105.522	SELECT GRANULAR BORROW (CV)	CU YD	\$11.60	5123	\$59,426.80
2105.526	SELECT TOPSOIL BORROW (LV)	CU YD	\$16.00	931	\$14,896.00
2106.607	EXCAVATION - COMMON (P)	CU YD	\$4.50	2612	\$11,754.00
2106.607	EXCAVATION - SUBGRADE (P)	CU YD	\$6.00	5123	\$30,738.00
2106.607	COMMON EMBANKMENT (CV) (P)	CU YD	\$4.50	18080	\$81,360.00
2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	\$120.00	40	\$4,800.00
2130.501	WATER	M GALLONS	\$26.00	100	\$2,600.00
2211.503	AGGREGATE BASE (CV) CLASS 5	CU YD	\$22.00	2907	\$63,954.00
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (3,C)	TON	\$65.00	2255	\$146,575.00
2360.502	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,B)	TON	\$63.00	1510	\$95,130.00
2521.501	4" CONCRETE WALK	SQ FT	\$3.50	8335	\$29,172.50
2531.501	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	\$11.40	645	\$7,353.00
2531.501	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	\$14.00	1075	\$15,050.00
2531.618	TRUNCATED DOMES	SQ FT	\$60.00	32	\$1,920.00
2545.509	Lighting	LUMP SUM	\$10,000.00	1	\$10,000.00
2563.601	TRAFFIC CONTROL	LUMP SUM	\$75,000.00	1	\$75,000.00
2564.531	SIGN PANELS TYPE C	SQ FT	\$40.00	156.5	\$6,260.00
2564.537	INSTALL SIGN TYPE SPECIAL	EACH	\$130.00	2	\$260.00
2565.511	TRAFFIC CONTROL SIGNAL SYSTEM A	SIG SYS	\$275,000.00	1	\$275,000.00
2565.601	EMERGENCY VEHICLE PREEMPTION SYS A	LUMP SUM	\$5,200.00	1	\$5,200.00
2565.601	TRAFFIC CONTROL INTERCONNECTION	LUMP SUM	\$12,000.00	1	\$12,000.00
2575.523	EROSION CONTROL BLANKETS CATEGORY 3	SQ YD	\$2.00	7206.1	\$14,412.20
2575.501	SEEDING	ACRE	\$300.00	1.49	\$447.00
2575.505	SODDING TYPE LAWN	SQ YD	\$2.66	920	\$2,447.20
2575.523	EROSION CONTROL BLANKETS CATEGORY 3	SQ YD	\$2.00	3581.6	\$7,163.20
2582.501	PAVT MSSG (LT ARROW) POLY PREF-GR IN	EACH	\$450.00	8	\$3,600.00
2582.501	PAVT MSSG (RT ARROW) POLY PREF-GR IN	EACH	\$450.00	7	\$3,150.00
2582.502	4" SOLID LINE WHITE-EPOXY	LIN FT	\$0.35	2745	\$960.75
2582.502	4" BROKEN LINE WHITE-EPOXY	LIN FT	\$0.30	420	\$126.00
2582.502	24" STOP LINE WHITE-EPOXY	LIN FT	\$7.00	195	\$1,365.00
2582.502	4" DOUBLE SOLID LINE YELLOW-EPOXY	LIN FT	\$0.70	855	\$598.50
2582.503	CROSSWALK MARKING- POLY PREFORM (GR IN)	SQ FT	\$15.00	306	\$4,590.00
<b>Total Street Improvements</b>					<b>\$1,096,947.90</b>
plus 10% Contingencies					\$109,694.79
<b>Total Street Improvement Construction Cost</b>					<b>\$1,206,642.69</b>
plus 21%Admin, Legal Etc					\$253,394.96
<b>Total Street Improvement Cost</b>					<b>\$1,460,037.65</b>

**OPINION OF PROBABLE COST  
CSAH 83 (ARMSTRONG BLVD) AT SUNWOOD DR**

WSB Project: CSAH 83 at Sunwood Dr

Project Location: Ramsey, MN

WSB Project No: 01973-010

ITEM NUMBER	DESCRIPTION	UNIT	Unit Price	PROJECT TOTAL	
				ESTIMATED QUANTITY	Estimated Cost
	<b>Trail Improvements</b>				
2521.501	4" CONCRETE WALK	SQ FT	\$3.25	3266	\$10,614.50
	plus 10% Contingencies				\$1,061.45
	<b>Total Trail Improvement Construction Cost</b>				<b>\$11,675.95</b>
	plus 21%Admin, Legal Etc				\$2,451.95
	<b>Total Trail Improvement Cost</b>				<b>\$14,127.90</b>

**OPINION OF PROBABLE COST  
CSAH 83 (ARMSTRONG BLVD) AT SUNWOOD DR**

WSB Project: CSAH 83 at Sunwood Dr

Project Location: Ramsey, MN

WSB Project No: 01973-010

ITEM NUMBER	DESCRIPTION	UNIT	Unit Price	PROJECT TOTAL	
				ESTIMATED QUANTITY	Estimated Cost
	<b>Storm Sewer Improvements</b>				
2501.515	24" RC PIPE APRON	EACH	\$625.00	3	\$1,875.00
2501.602	TRASH GUARD FOR 24" PIPE APRON	EACH	\$350.00	3	\$1,050.00
2503.541	15" RC PIPE SEWER DESIGN 3006 CL V	LIN FT	\$27.00	564	\$15,228.00
2503.541	18" RC PIPE SEWER DESIGN 3006 CL III	LIN FT	\$28.00	297	\$8,316.00
2503.541	21" RC PIPE SEWER DESIGN 3006 CL III	LIN FT	\$32.00	188	\$6,016.00
2503.541	24" RC PIPE SEWER DESIGN 3006 CL III	LIN FT	\$38.00	650	\$24,700.00
2506.501	CONST DRAINAGE STRUCTURE DESIGN SD-48	LIN FT	\$325.00	108	\$35,100.00
2506.501	CONST DRAINAGE STRUCTURE DES 48-4020	LIN FT	\$400.00	22	\$8,800.00
2506.516	CASTING ASSEMBLY	EACH	\$900.00	24	\$21,600.00
2506.522	ADJUST FRAME & RING CASTING	EACH	\$275.00	3	\$825.00
2511.515	GEOTEXTILE FILTER TYPE IV	SQ YD	\$3.00	25	\$75.00
2511.607	RANDOM RIPRAP CLASS III SPECIAL	CU YD	\$150.00	20	\$3,000.00
	<b>Total Storm Sewer Improvements</b>				<b>\$126,585.00</b>
	plus 10% Contingencies				\$12,658.50
	<b>Total Storm Sewer Construction Cost</b>				<b>\$139,243.50</b>
	plus 21%Admin, Legal Etc				\$29,241.14
	<b>Total Storm Sewer Improvement Cost</b>				<b>\$168,484.64</b>

**OPINION OF PROBABLE COST  
CSAH 83 (ARMSTRONG BLVD) AT SUNWOOD DR**

WSB Project: CSAH 83 at Sunwood Dr

Project Location: Ramsey, MN

WSB Project No: 01973-010

ITEM NUMBER	DESCRIPTION	UNIT	Unit Price	PROJECT TOTAL	
				ESTIMATED QUANTITY	Estimated Cost
<b>WATER MAIN IMPROVEMENTS</b>					
2504.602	CONNECT TO EXISTING WATER MAIN	EACH	\$850.00	1	\$850.00
2504.602	HYDRANT	EACH	\$3,300.00	2	\$6,600.00
2504.602	ADJUST VALVE BOX-WATER	EACH	\$250.00	4	\$1,000.00
2504.602	6" GATE VALVE AND BOX	EACH	\$1,200.00	2	\$2,400.00
2504.602	12" GATE VALVE AND BOX	EACH	\$2,500.00	2	\$5,000.00
2504.603	6" WATER MAIN-DUCT IRON CL 52	LIN FT	\$45.00	60	\$2,700.00
2504.603	12" WATER MAIN-DUCT IRON RESTRND JT	LIN FT	\$62.00	145	\$8,990.00
2504.603	12" WATER MAIN-DUCT IRON CL 52	LIN FT	\$50.00	550	\$27,500.00
2504.603	24" STEEL CASING PIPE	LIN FT	\$140.00	145	\$20,300.00
2504.608	DUCTILE IRON FITTINGS	POUND	\$3.00	1700	\$5,100.00
<b>Total Storm Sewer Improvements</b>					<b>\$80,440.00</b>
plus 10% Contingencies					\$8,044.00
<b>Total Storm Sewer Construction Cost</b>					<b>\$88,484.00</b>
plus 21%Admin, Legal Etc					\$18,581.64
<b>Total Water Main Cost</b>					<b>\$107,065.64</b>

Grand Total

\$1,749,715.83