

MEMORANDUM

To: City of Ramsey & Anoka County

From: Jacob Rojer, P.E., PTOE

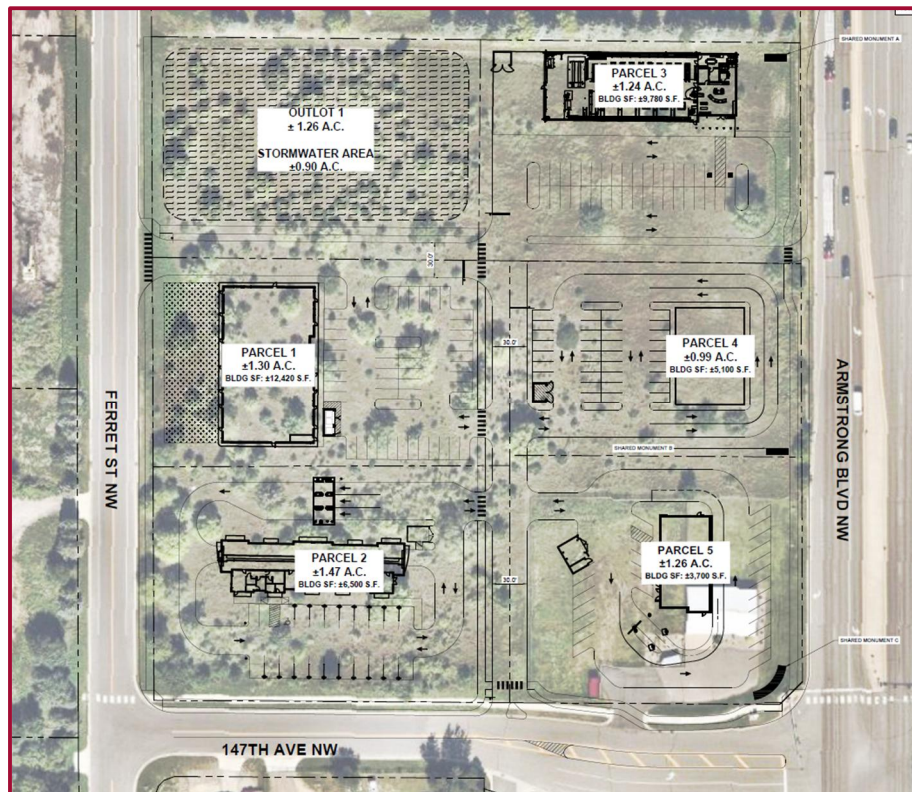
Date: September 29, 2025

Subject: All Day Retail Development at 147th Avenue & Armstrong Boulevard – Traffic Analysis

INTRODUCTION

All Day Retail (developer) is proposing a retail development located on the vacant lot northwest of 147th Avenue NW & Armstrong Boulevard NW in Ramsey, MN. The proposed development is anticipated to include a fast-food restaurant with a drive-through, a carwash, a daycare center, a vehicle tire service shop, and additional space for general retail development. All Day Retail is seeking to provide a right-in to the site from Armstrong Boulevard (Anoka County Road 83). This right-in access is planned to be a shared access point and will serve all the parcels on the site in the future while benefiting local residents and businesses. This memorandum will review the trip generation, capacity analysis, and access review of the proposed right-in. The proposed site is shown in Figure 1 below.

Figure 1 – Site Plan



EXISTING TRAFFIC CONDITIONS

A turning movement count at the intersection of Armstrong Boulevard & 147th Avenue/Sunwood Drive from April 8, 2025, was utilized for the analysis. The intersection had an AM peak hour of 7:00 AM to 8:00 AM and a PM peak hour of 4:30 PM to 5:30 PM. Existing (2025) peak hour turning movement counts are shown in Exhibit 1. One year of background growth at a 1% growth rate was applied to the existing traffic counts to adjust the counts to the analyzed opening year of 2026.

TRIP GENERATION

The trip generation of the proposed 147th & Armstrong development was calculated based on data from the Institute of Transportation Engineers' *Trip Generation Manual, 12th Edition* using high-end estimates of the floor area of the buildings. The trip generation estimates for the proposed development are given below in Table 1. The proposed development is anticipated to generate 417 trips during the AM peak hour (233 entering and 184 exiting) and 511 during the PM peak hour (247 entering and 264 exiting). To be conservative, it is assumed that all site trips are primary site trips (i.e., no pass-by trips) and all trips would be new site trips (no multi-use reduction).

Table 1 – Proposed Development Trip Generation

Land Use Description	Intensity / Units	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
LUC 941 - Quick Lubrication Vehicle Shop	9.8 kSF	682	43	14	57	36	49	85
LUC 565 - Day Care Center	11 kSF	432	63	57	120	56	62	122
LUC 948 – Automated Car Wash	6.5 kSF	1,648	53	44	97	78	81	78
LUC 822 - Strip Retail Plaza	5.1 kSF	278	11	9	20	16	16	34
LUC 934 - Fast Food Restaurant with Drive-Through	3.7 kSF	1,658	63	60	123	61	56	122
New Site Trips		4,698	233	184	417	247	264	511

TRIP DISTRIBUTION

Based on review of existing travel patterns, roadway characteristics, and professional judgement, the following distribution was determined for trips entering and exiting the proposed development:

- 35% to/from the southeast on US-10
- 25% to/from the north on Armstrong Boulevard
- 20% to/from the east on Bunker Lake Boulevard
- 10% to/from the northwest on US-10
- 5% to/from the east on Sunwood Drive
- 5% to/from the west on Bunker Lake Boulevard

The full distribution of traffic to/from the proposed development with the proposed right-in access is shown in Exhibit 2, the site trips with the proposed right-in access are shown in Exhibit 3, and the 2026 Build with right-in traffic volumes are shown in Exhibit 4. Based on the distributions and volumes

outlined in the exhibits, it is anticipated that the right-in from Armstrong Boulevard would serve around 70 vehicles in the peak hour.

The full distribution of traffic to/from the proposed development without the proposed right-in access are shown in Exhibit 5, the site trips without the proposed right-in access are shown in Exhibit 6, and the 2026 Build no right-in traffic volumes are shown in Exhibit 7.

CAPACITY ANALYSIS

Capacity analysis was conducted for the Build (2026) conditions with and without the proposed right-in access point to determine the impact of the including the access for the proposed development. Analysis was conducted using microsimulation software SimTraffic within Synchro 12 to model the delay and queueing experienced at the study intersections in each scenario.

The Build (2026) No Right-in conditions capacity analysis results are shown below. All movements at the intersection of Armstrong Boulevard & 147th Avenue are anticipated to operate at LOS D or better during the AM and PM peak hours. The intersection operates at LOS B overall in the AM peak hour and LOS C in the PM peak hour. Results are included below in Table 2; detailed SimTraffic reports are included as an attachment.

Table 2: Build (2026) No Right-in conditions Capacity Analysis

Intersection	Control	Approach	Operations by Movement (delay sec/veh)							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall	Left	Through	Right	Overall
Armstrong Boulevard & 147 th Avenue	Signal	EB	D (36)	D (44)	A (9)	B (19)	C (34)	D (46)	A (10)	C (22)
		WB	D (36)	D (37)	A (5)		D (37)	D (38)	A (9)	
		NB	D (37)	B (16)	A (7)		D (45)	C (201)	A (8)	
		SB	D (37)	B (15)	A (5)		D (40)	B (19)	A (5)	

Analysis of the Build (2026) With Right-in conditions capacity analysis indicated that the addition of the right-in only access point has minimal impact on the delays at the intersection of Armstrong Boulevard & 147th Avenue. Additionally, the right-in access point would have minimal delay. Overall, the addition of a right-in access point is not anticipated to have an adverse impact on the traffic operations of the adjacent roadway network. Results are included below in Table 3; detailed SimTraffic reports are included as an attachment.

Table 3: Build (2026) with Right-in conditions Capacity Analysis

Intersection	Control	Approach	Operations by Movement (delay sec/veh)							
			AM Peak Hour				PM Peak Hour			
			Left	Through	Right	Overall	Left	Through	Right	Overall
Armstrong Boulevard & 147 th Avenue	Signal	EB	D (34)	D (45)	A (10)	B (18)	D (35)	D (41)	A (9)	C (22)
		WB	D (35)	D (39)	A (5)		D (39)	D (39)	A (9)	
		NB	D (37)	B (16)	A (6)		D (44)	C (21)	A (8)	
		SB	D (36)	B (13)	A (3)		D (42)	C (20)	A (3)	
Armstrong Blvd & East Access	(Right-in only)	SBR	A (2)				A (2)			

RIGHT-IN ACCESS REVIEW

The proposed right-in-only access point would be located approximately 450’ south of Bunker Lake Boulevard and approximately 400’ north of 147th Avenue. Armstrong Boulevard is a minor arterial roadway and has a posted speed limit of 55 mph.

The addition of a right-in entrance along southbound Armstrong Boulevard would require a dedicated southbound right-turn lane. The southbound right turn bay at Armstrong Boulevard & 147th Avenue is approximately 165’ in length. Based on the proximity of the proposed right-in access to Bunker Lake Boulevard, a turn lane of this length would be possible at the proposed right-in access point.

The installation of a right-in only access point would be consistent with the spacing of nearby intersections along the Armstrong Boulevard corridor. Approximately a ¼ mile north of the site, a right-in/right-out access is provided to 150th Place NW, less than 400’ from a full-access intersection to the north. In addition, a right-in access was recently approved on the east side of Armstrong Boulevard for the retail development at a similar intersection spacing as the proposed right-in for the All Day Retail site.

Allowing the right-in access point to the All Day Retail site would also separate some of the retail traffic from the future industrial traffic that will be developed on the west side of Ferris Street.

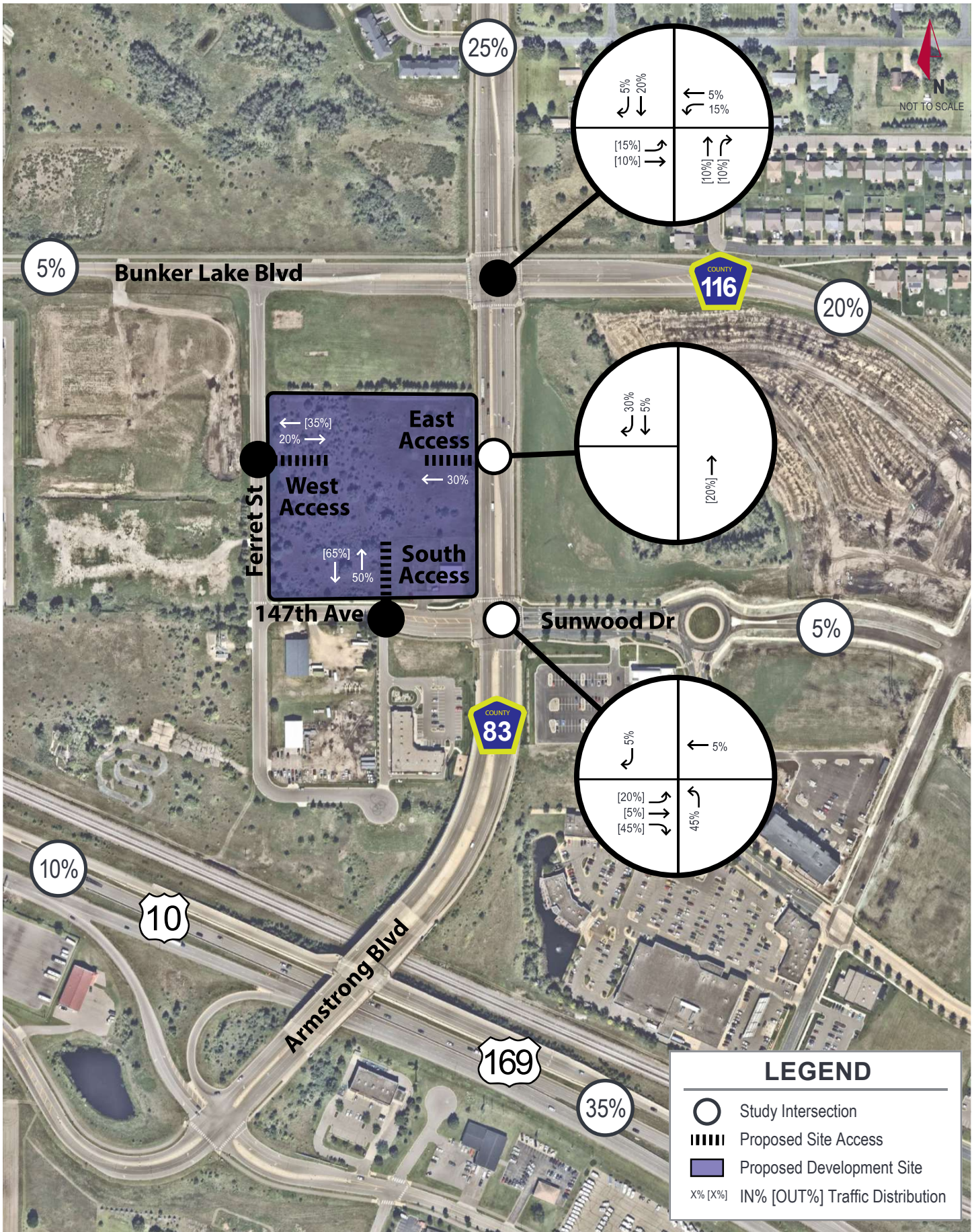
CONCLUSIONS

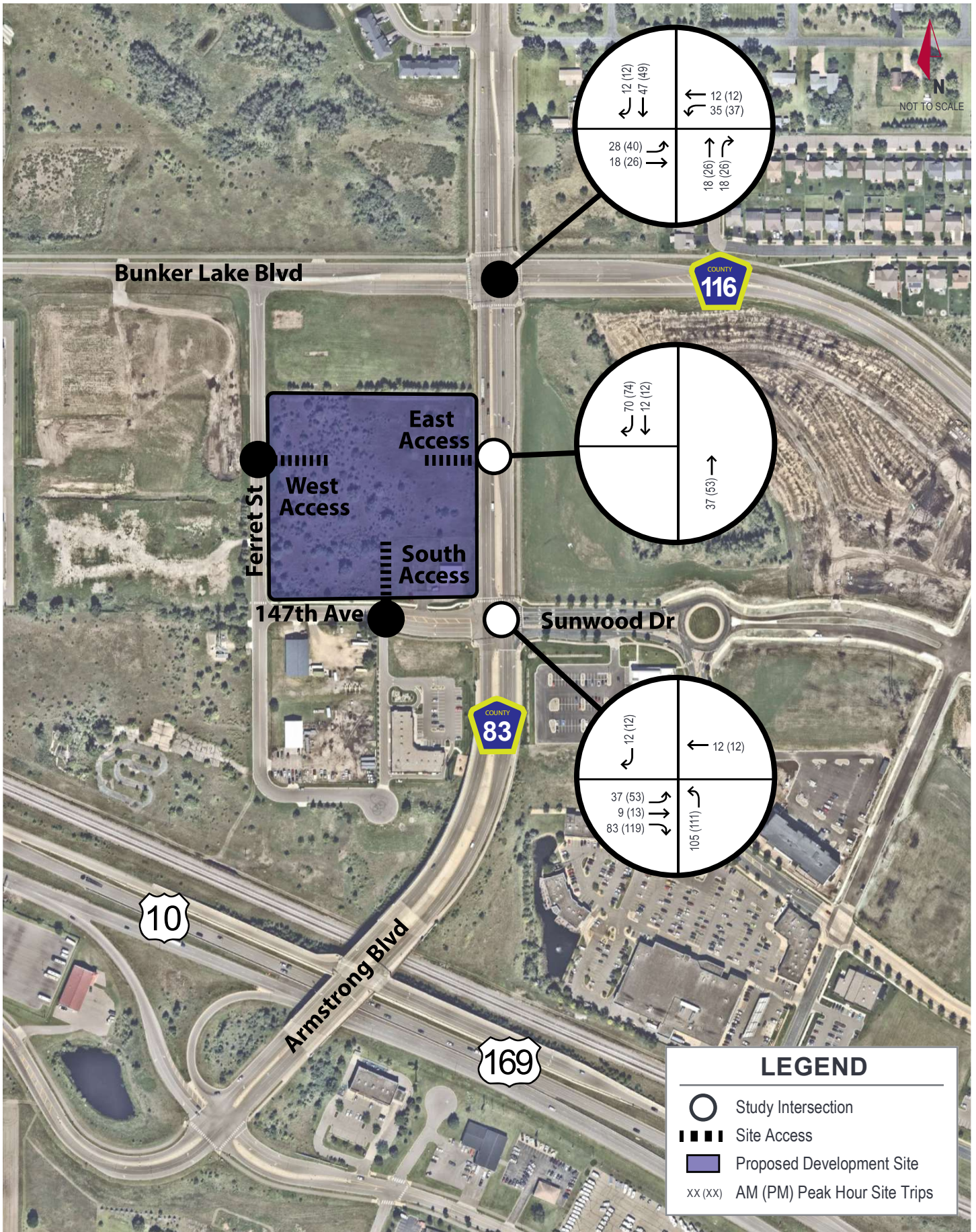
It is anticipated that the proposed All Day Retail site will generate 4,698 daily trips, 417 AM peak hour trips, and 511 PM peak hour trips. The proposed right-in access on Armstrong Boulevard is anticipated to serve approximately 70 vehicles in the peak hour.

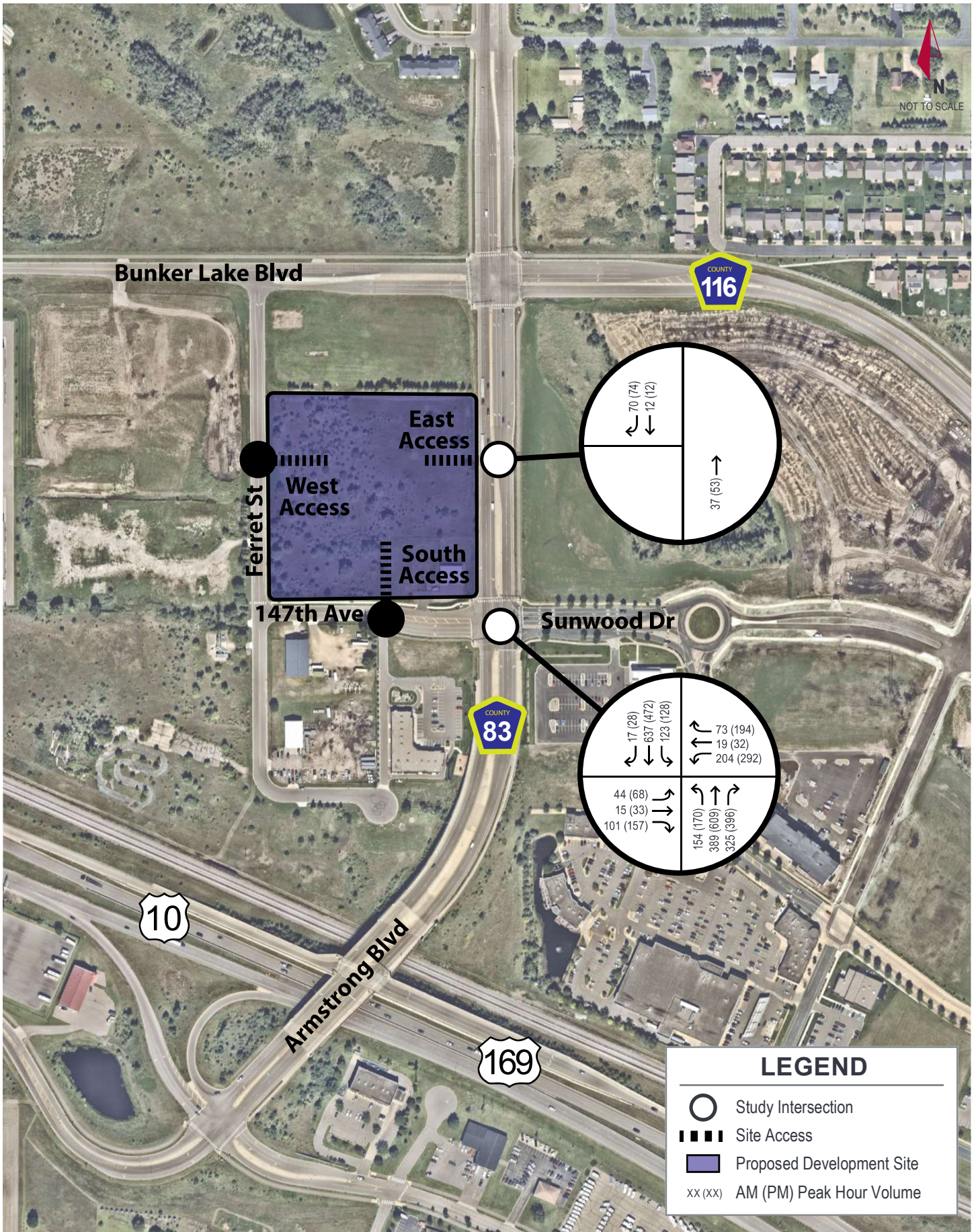
The analysis of the proposed right-in-only access point for the All Day Retail development demonstrates that the addition of the right-in is feasible and would have minimal operational impact to the Armstrong Boulevard corridor or adjacent intersections. While providing more convenient access to the retail parcels that is consistent with other right-in access in the area. It is recommended that a right turn lane is built at the access to minimize impacts to through vehicles on Armstrong Boulevard.

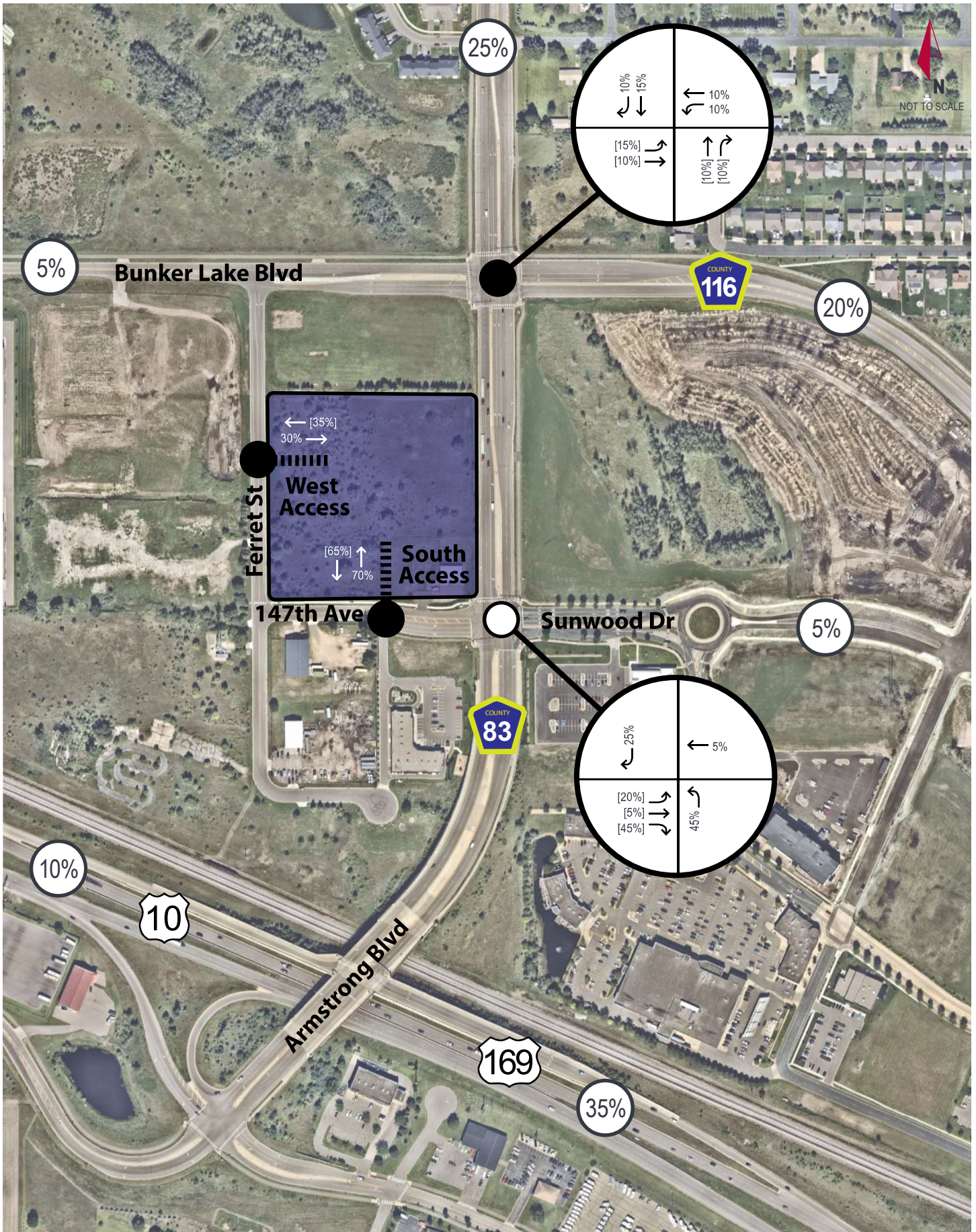
ATTACHMENTS**Exhibits****Proposed Site Plan****SimTraffic Analysis Results**

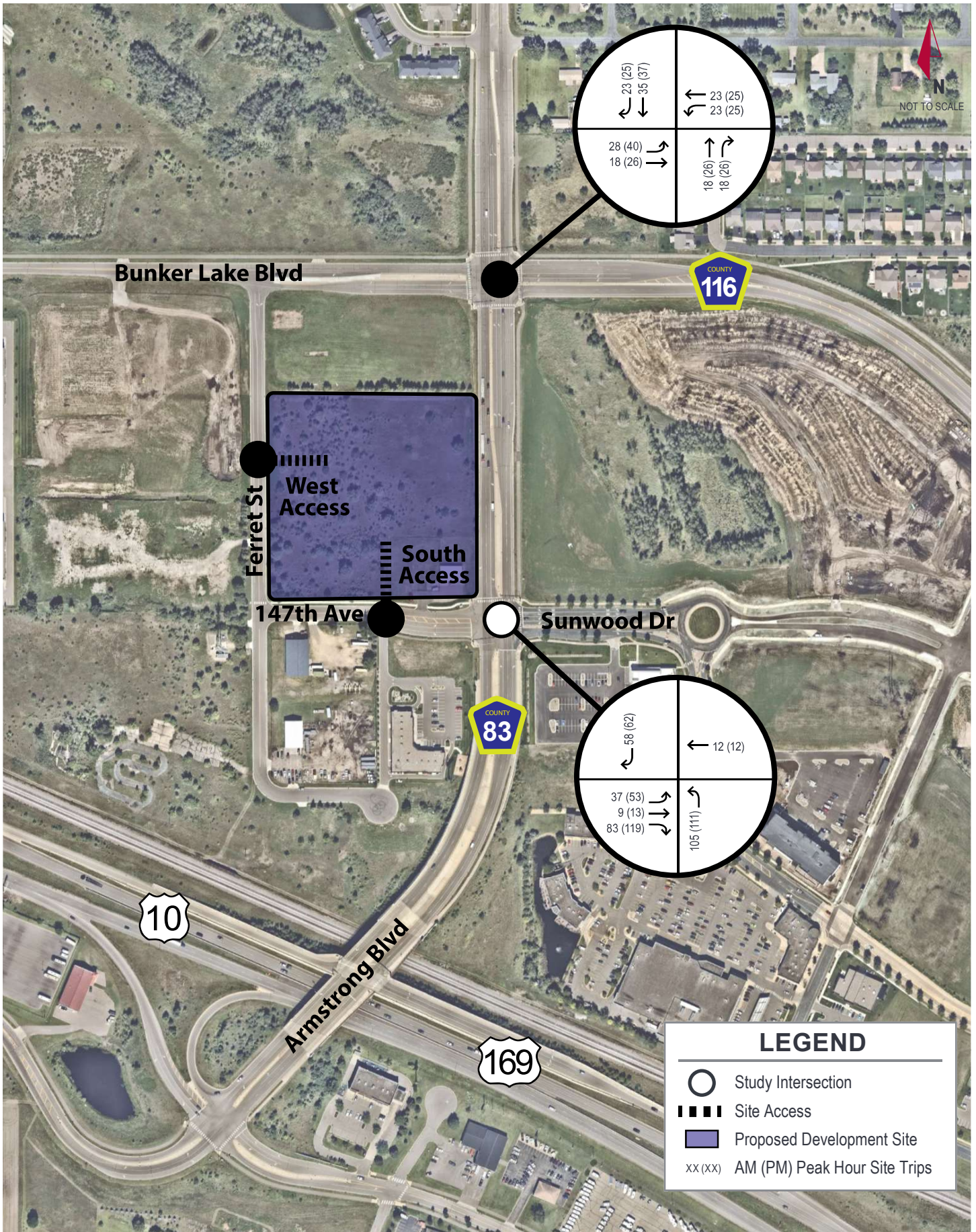


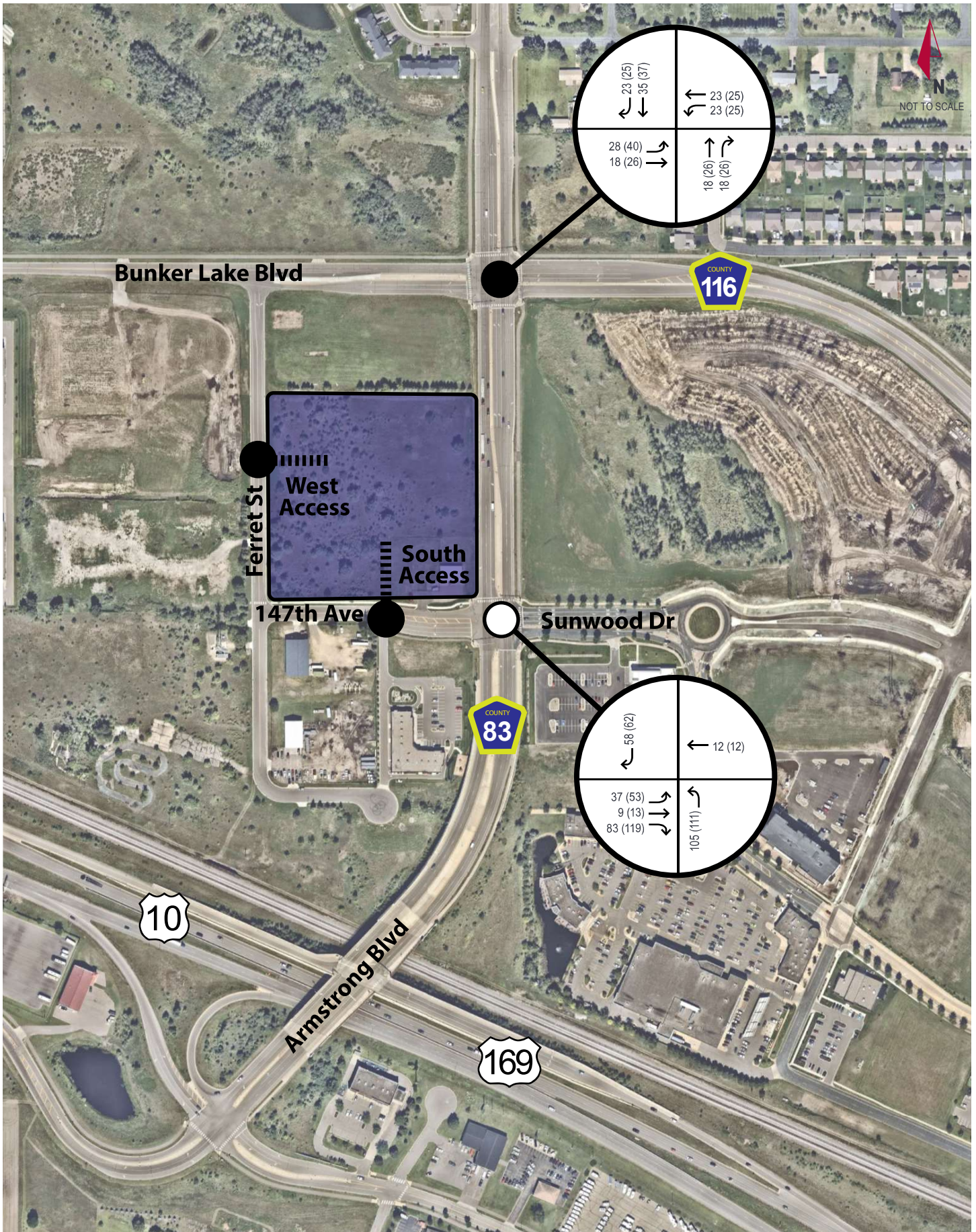


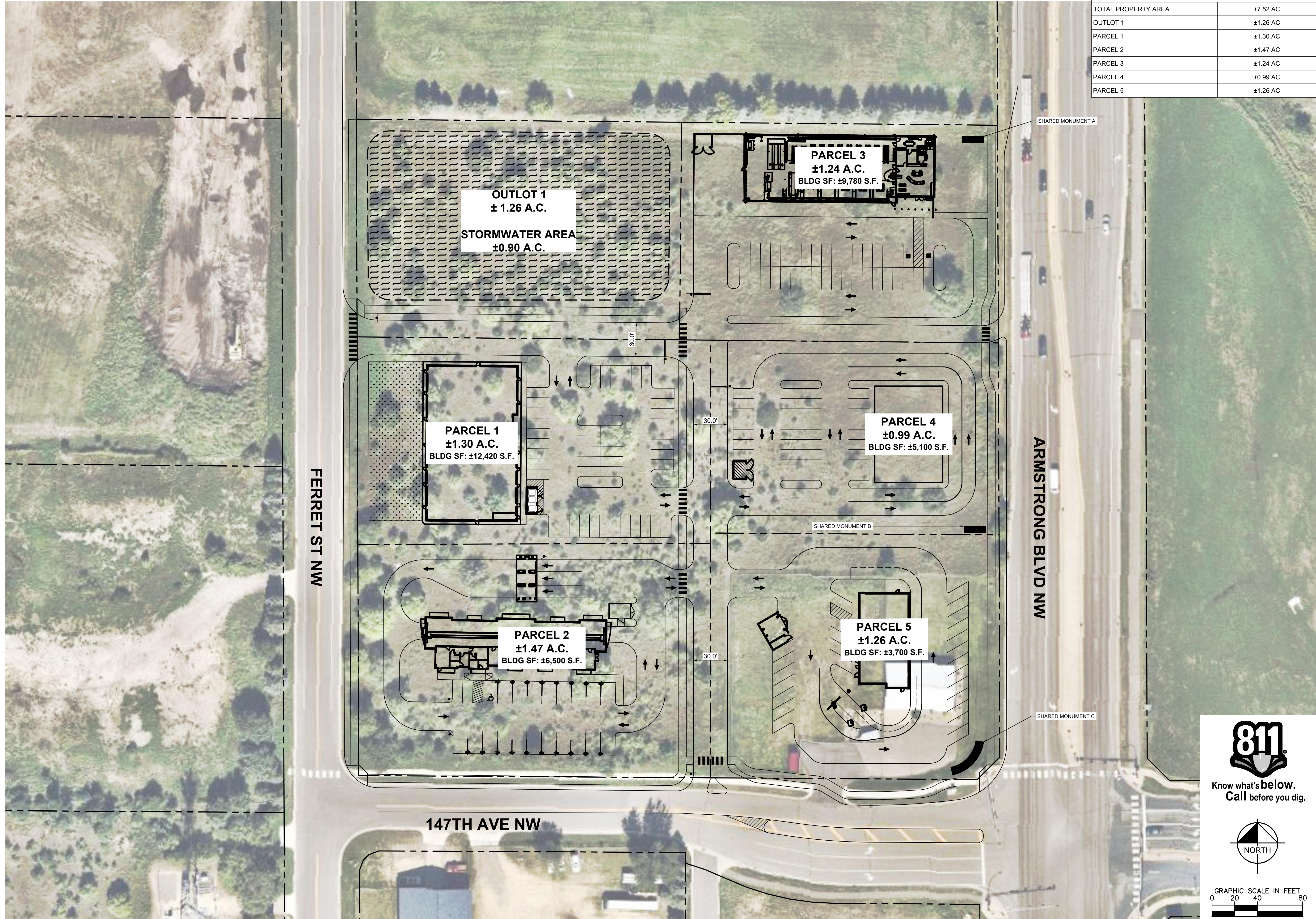












PROPERTY SUMMARY	
TOTAL PROPERTY AREA	±7.52 AC
OUTLOT 1	±1.26 AC
PARCEL 1	±1.30 AC
PARCEL 2	±1.47 AC
PARCEL 3	±1.24 AC
PARCEL 4	±0.99 AC
PARCEL 5	±1.26 AC

811
Know what's below.
Call before you dig.

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

No.	REVISIONS	DATE	BY

Kimley»Horn

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11995 SINGLETREE LN, SUITE 225, EDEN PRAIRIE, MN 55344
PHONE: 612-315-1272
WWW.KIMLEY-HORN.COM

KHA PROJECT	12345678
DATE	09/29/2025
SCALE	AS SHOWN
DESIGNED BY	CGM
DRAWN BY	JMU
CHECKED BY	BMW

SUBDIVISION PLAN

ALL DAY RETAIL SUBDIVISION PLAN
PREPARED FOR
ALL DAY RETAIL

RAMSEY MN

SHEET NUMBER
EX-01

1: Armstrong Blvd & 147th Ave/Sunwood Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	3.6	2.6	0.6	2.6	0.1	0.0	0.1
Total Del/Veh (s)	36.4	44.3	9.2	36.1	36.8	5.2	36.6	15.6	6.7	36.9	14.7	5.1

1: Armstrong Blvd & 147th Ave/Sunwood Dr Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	18.5

Total Zone Performance

Denied Del/Veh (s)	1.6
Total Del/Veh (s)	1122.4

Queuing and Blocking Report
 Build (2026) No Right-in - AM Peak

09/16/2025

Intersection: 1: Armstrong Blvd & 147th Ave/Sunwood Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	T	R	L	T	T	R	L
Maximum Queue (ft)	78	47	67	162	179	60	70	166	174	132	129	165
Average Queue (ft)	29	12	32	32	93	16	24	88	77	52	54	81
95th Queue (ft)	67	36	61	101	157	44	50	147	140	101	100	145
Link Distance (ft)		206			792	792			1234	1234		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200		200	280			280	300			300	350
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: Armstrong Blvd & 147th Ave/Sunwood Dr

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	150	127	45
Average Queue (ft)	71	67	12
95th Queue (ft)	121	115	34
Link Distance (ft)	821	821	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			165
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

1: Armstrong Blvd & 147th Ave/Sunwood Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.5	3.3	2.6	0.7	2.6	0.2	0.0	0.1
Total Del/Veh (s)	34.4	45.5	9.8	36.8	37.6	8.6	45.2	20.9	8.2	39.7	19.1	4.7

1: Armstrong Blvd & 147th Ave/Sunwood Dr Performance by movement

Movement	All
Denied Del/Veh (s)	1.0
Total Del/Veh (s)	21.6

Total Zone Performance

Denied Del/Veh (s)	1.6
Total Del/Veh (s)	1087.2

Queuing and Blocking Report
 Build (2026) No Right-in - PM Peak

09/16/2025

Intersection: 1: Armstrong Blvd & 147th Ave/Sunwood Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	T	R	L	T	T	R	L
Maximum Queue (ft)	104	68	125	175	221	77	125	207	227	188	154	184
Average Queue (ft)	47	21	48	70	131	22	50	102	123	98	73	79
95th Queue (ft)	91	53	92	163	201	53	96	183	198	176	130	140
Link Distance (ft)		206			792	792			1234	1234		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200		200	280			280	300			300	350
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: Armstrong Blvd & 147th Ave/Sunwood Dr

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	135	136	59
Average Queue (ft)	78	71	15
95th Queue (ft)	123	119	39
Link Distance (ft)	821	821	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			165
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Zone Summary

Zone wide Queuing Penalty: 0

1: Armstrong Blvd & 147th Ave/Sunwood Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.2	3.6	2.6	0.6	2.7	0.0	0.0	0.0
Total Del/Veh (s)	33.7	44.9	9.7	35.0	38.5	5.1	36.8	15.8	6.3	35.9	13.3	2.7

1: Armstrong Blvd & 147th Ave/Sunwood Dr Performance by movement

Movement	All
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	18.0

4: Armstrong Blvd & East Access Performance by movement

Movement	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	2.5	2.5	1.8	2.5

Total Zone Performance

Denied Del/Veh (s)	1.6
Total Del/Veh (s)	974.5

Queuing and Blocking Report
 Build (2026) with Right-in - AM Peak

09/16/2025

Intersection: 1: Armstrong Blvd & 147th Ave/Sunwood Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	T	R	L	T	T	R	L
Maximum Queue (ft)	89	48	83	137	179	48	62	183	165	133	123	155
Average Queue (ft)	30	10	33	37	93	13	24	87	79	55	56	74
95th Queue (ft)	67	33	66	100	159	38	49	148	141	110	101	131
Link Distance (ft)		212			798	798			1234	1234		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200		200	280			280	300			300	350
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: Armstrong Blvd & 147th Ave/Sunwood Dr

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	175	164	23
Average Queue (ft)	75	71	4
95th Queue (ft)	132	132	16
Link Distance (ft)	357	357	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			165
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 4: Armstrong Blvd & East Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 0

1: Armstrong Blvd & 147th Ave/Sunwood Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.4	3.3	2.6	0.7	2.6	0.0	0.0	0.0
Total Del/Veh (s)	35.0	41.1	9.1	38.7	38.6	9.1	43.9	21.3	7.8	42.3	20.1	3.2

1: Armstrong Blvd & 147th Ave/Sunwood Dr Performance by movement

Movement	All
Denied Del/Veh (s)	1.0
Total Del/Veh (s)	22.4

4: Armstrong Blvd & East Access Performance by movement

Movement	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.0	1.9	1.5	2.5

Total Zone Performance

Denied Del/Veh (s)	1.6
Total Del/Veh (s)	1008.6

Queuing and Blocking Report
 Build (2026) with Right-in - PM Peak

09/16/2025

Intersection: 1: Armstrong Blvd & 147th Ave/Sunwood Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	T	R	L	T	T	R	L
Maximum Queue (ft)	107	77	95	192	241	66	130	202	232	187	172	156
Average Queue (ft)	43	20	40	69	133	21	53	101	129	108	68	81
95th Queue (ft)	86	51	72	163	208	52	99	172	209	181	128	143
Link Distance (ft)		212			798	798			1234	1234		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200		200	280			280	300			300	350
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: Armstrong Blvd & 147th Ave/Sunwood Dr

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	162	157	43
Average Queue (ft)	85	79	8
95th Queue (ft)	139	135	28
Link Distance (ft)	357	357	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			165
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Intersection: 4: Armstrong Blvd & East Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 0