December 24, 2024

Dakota Martonen
City of Billings Public Works Department
2224 Montana Avenue
Billings, MT 59101

Reference: High Sierra Subdivision, 22nd Filing
Project No. 82061.157

Dear Dakota:

The purpose of this letter is to provide a traffic impact study (TIS) update for High Sierra Subdivision in support of the upcoming plat submittal for the 22nd Filing. Traffic impacts were originally analyzed for this part of the subdivision masterplan via the *High Sierra Subdivision (5th-12th Filings) Traffic Impact Study* (June 2008). Through this update, we will provide a comparison of the current filing layout, lot count, and projected traffic generation characteristics to the original study, provide updated volumes and capacity calculations for a nearby intersection, and update the recommended intersection contribution percentages for use in the subdivision improvements agreement (SIA).

This project proposes creation of a major subdivision plat for the 22nd Filing (74 single-family residential lots) of High Sierra Subdivision. Figure 1 (attached) illustrates the proposed layout of the 22nd Filing. The filing is located west of Modera Avenue, north of Matador Avenue, and north and east of Largo Circle. Access is proposed via High Sierra Boulevard, Vesca Way, and Madrid Drive. It should be noted that although the original TIS projected only a total of 12 filings for the entire development, previous filings have been much smaller than originally projected. As a result, much of the subdivision is still yet to be developed and there will likely be additional future filings beyond the filing in this TIS update.

At the request of the City of Billings, traffic data was collected at the intersection of Alkali Creek Road and Inner Belt Loop/Skyway Drive on Wednesday, July 31, 2024, using Miovision Scout video-based systems. The weekday AM and PM peak hour periods were found to occur from 7:15 to 8:15 AM and 5:00 to 6:00 PM, respectively. Detailed traffic count data worksheets are included in the attachments.

The results of the capacity calculations at the Alkali Creek Road/Inner Belt Loop/Skyway Drive intersection showed that all approaches currently operate at LOS B or better in both the AM and PM peak hours with minimal 95th percentile queueing. A detailed capacity summary table and capacity calculation worksheets can be found in the attachments.

The trip generation calculations in the original TIS for High Sierra Subdivision modeled Land Use Code 210 - Single-Family Detached Housing (1,366 total dwelling units). Reductions for alternate modes of travel were not made and internal capture and pass-

by trips were not calculated since the subdivision was only planned to have residential land use components.

Table 1 below presents the trip generation calculations for the 22nd Filing calculated through this study update. The Single-Family Detached Housing (Land Use Code 210) category was used to calculate trip generation with dwelling units as the independent variable. No reductions were made for internal capture (IC) or pass-by trips. Given the close proximity of Billings Skyview High School to the subdivision, it is likely that a percentage of trips could be attributed to bicycle or pedestrian traffic. The nearest MET Transit bus routes are also adjacent to the school, so transit access is convenient. However, since it would be difficult to estimate an accurate percentage of alternate mode trips, and for the purposes of being consistent with previous TIS updates for this subdivision, alternate mode trips were considered to be negligible for this study.

Table 1: Trip Generation, Mode, and Classification

Land Use	Independent Variable		Average Weekday			AM Peak Hour			PM Peak Hour		
	Intensity	Units	total	enter	exit	total	enter	exit	total	enter	exit
Single-Family Detached Housing[1]	74	Dwelling Units	698	349	349	52	13	39	70	44	26
Total New Trips			**698**	**349**	**349**	**52**	**13**	**39**	**70**	**44**	**26**

(1) Single-Family Attached Housing - Land Use 210* Units = Dwelling Units

Average Weekday: Average Rate = 9.43 (50% entering/50% exiting)

Peak Hour of the Adjacent Street, One Hour between 7 and 9 AM: Average Rate = 0.70 (25% entering/75% exiting)

Peak Hour of the Adjacent Street, One Hour between 4 and 6 PM: Average Rate = 0.94 (63% entering/37% exiting)

**Trip Generation, 11th Edition*, Institute of Transportation Engineers, 2021

***Trip Generation Handbook, 3rd Edition*, Institute of Transportation Engineers, 2017

The previously platted 5th through 12th, 14th through 16th (there will be no 13th Filing), and 17th through 21st Filings contain 676 single-family dwelling unit lots.

The 5th through 16th Filings are currently constructed. The 17th-19th and 21st Filings are expected to be occupied in 1.5 years while the 20th Filing is expected to be occupied in 3 years. With the addition of the 22nd Filing (expected to be built out in approximately 6 years), the total number of single-family dwelling unit lots in High Sierra Subdivision will be 750, which equates to approximately 55 percent of what is proposed in the masterplan and what was analyzed via the original TIS. The approved filings have generally followed the original layout, so it is expected that the final number of dwelling units will be approximately in line with what was originally proposed. Therefore, based on discussions with the City, additional analysis is not required to determine if anticipated impacts would differ from those identified in that original study.

The original High Sierra TIS recommended improvements at 3 off-site intersections for the purposes of mitigating transportation impacts and provided total proportionate cost share contribution percentage figures based on full buildout of the overall masterplan. The original calculation worksheets that show the total contribution percentages for each intersection are attached. Subsequent TIS updates have then calculated updated, by-filing contribution percentages for those same intersections

on a fractional basis relative to the original percentages that were determined for the overall masterplan. The 74 lots proposed in the 22nd Filing represent a 5.42 percent share of the original proposed lot total. Applying this percentage to the original total contribution percentages, the proportional lot share percentage for the 22nd Filing is as follows:

- Wicks Lane/Gleneagles Boulevard – 1.64 percent
- Wick Lane/Fantan Street – 1.83 percent
- Wicks Lane/St. Andrews Drive – 1.45 percent

In addition to the 3 off-site intersections included in the original High Sierra TIS, 3 additional City intersections with collector and arterial classifications have become operational within the limits of the High Sierra development and are impacted by future development filings. A distribution for trips at these intersections was calculated based on the *Inner Belt Loop Corridor Study* completed in November of 2020 and inspection of new traffic patterns. Through this analysis it was assumed that 30 percent of trips will utilize Inner Belt Loop. Figure 2 in the attachments presents the trip distribution scheme and traffic assignment for the 3 additional intersections for the High Sierra 22nd Filing. For the purposes of mitigating transportation impacts, proportionate cost share contribution percentages were determined for the 22nd Filing based on the new distribution and calculated site trips and are as follows:

- Skyway Drive/Alkali Creek Road – 1.08 percent
- Annandale Road/Gleneagles Boulevard – 0.17 percent
- Annandale Road/St. Andrews Drive – 0.18 percent

Please feel free to call me at 406-922-4306 or jstaszcuk@sanbell.com if you have any questions or would like to discuss this further.

Sincerely,

Joey Staszcuk, PE, PTOE, RSP1
Senior Engineer | Community Transportation Studio Manager

SJW/ars/SG

Enc.
22nd Filing Layout
Trip Distribution & Traffic Assignment Figure
Traffic Count Data Worksheets
Capacity Summary Table
Capacity Calculation Worksheets
Contribution Worksheets

P:82061_157_High_Sierra_Sub_22nd_Prelim_Plat

EXHIBIT A

CONCEPTUAL LAYOUT

FOR

PROPOSED HIGH SIERRA SUBDIVISION, 22ND FILING

PREPARED FOR : HIGH SIERRA II, INC

PREPARED BY : sanbell

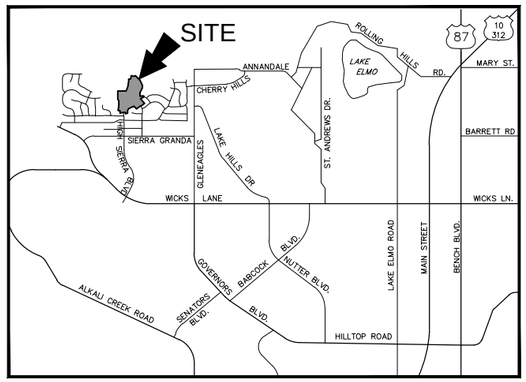
SEPTEMBER, 2024

BILLINGS, MONTANA

NORTH

125 0 125 250

SCALE:1" = 250'



VICINITY MAP

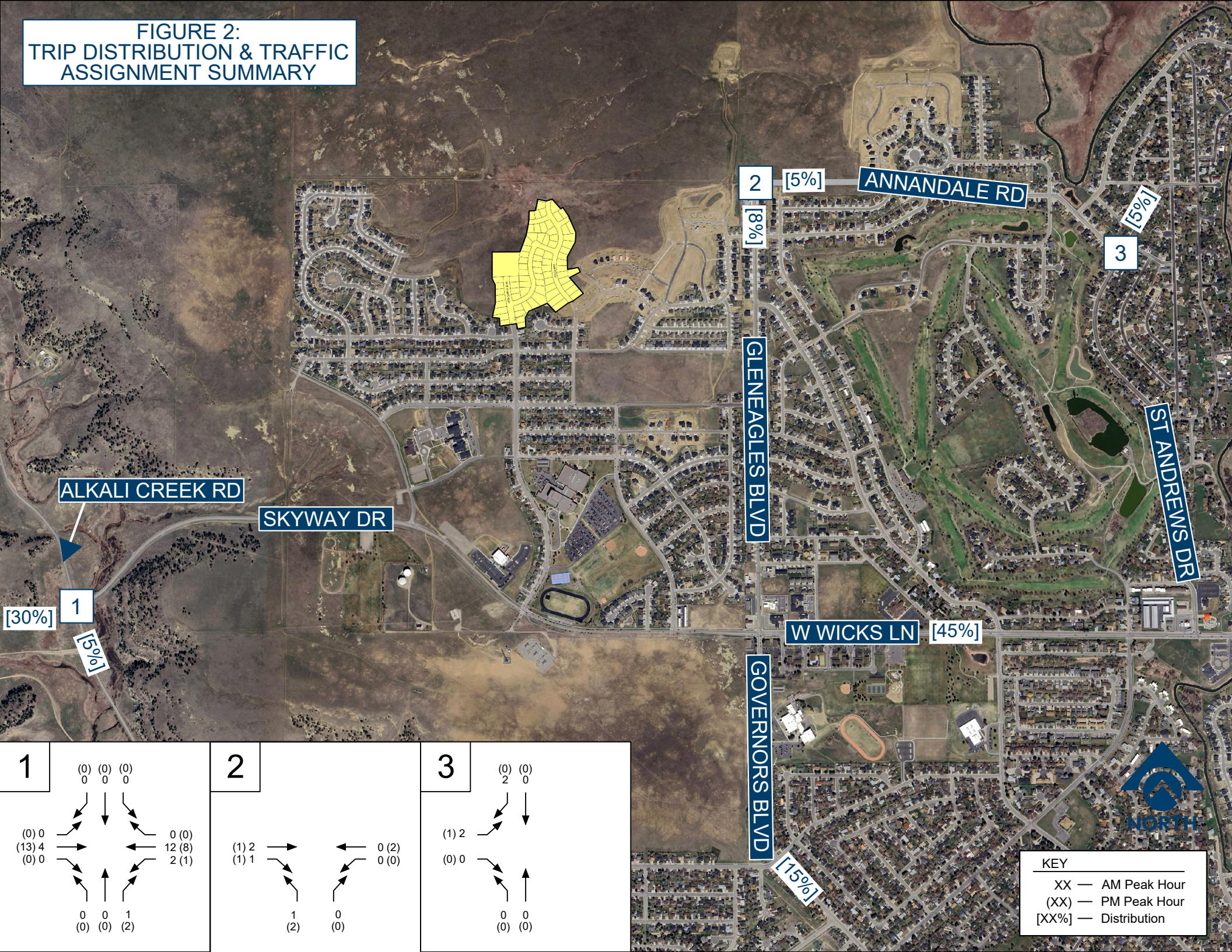
NOT TO SCALE

NOTES:

1. EXISTING AND PROPOSED ZONING IS N3
2. ALL INTERNAL STREETS (EXCLUDING HIGH SIERRA BLVD) SHALL BE BUILT TO CITY OF BILLINGS STANDARDS 34' BACK TO BACK IN A 56' WIDE R.O.W. HIGH SIERRA BLVD SHALL BE 49' BACK TO BACK IN A 74' WIDE R.O.W.
3. ALL STREETS WILL CONTAIN 8" WATER MAIN EXCEPT FOR A 12" WATER MAIN IN HIGH SIERRA BLVD, MADRID DRIVE AND VESCA WAY (NORTH OF MADRID DRIVE).
4. SANITARY SEWER WILL BE PROVIDED VIA GRAVITY SANITARY SEWER SYSTEM.
5. STORM DRAIN HAS BEEN MASTER PLANNED AND THIS FILING WILL INCLUDE OF STORMWATER PIPING, INLETS, TEMPORARY DRAINAGE SWALES AND EXPANSION OF PERMANENT STORMWATER DETENTION FACILITY IN ACCORDANCE WITH THE MASTER PLAN.
6. EXISTING GRADE WITHIN SUBDIVISION IS APPROXIMATELY 2–5% TO THE NORTH AND EAST.
7. PARKLAND DEDICATION WILL BE MET WITH A CASH IN LIEU CONTRIBUTION.
8. A TRAFFIC IMPACT UPDATE LETTER WILL BE PROVIDED WITH PRELIMINARY PLAT SUBMITTAL.
9. IT IS ANTICIPATED THAT PRIVATE UTILITIES AND EASEMENTS WILL BE TYPICALLY LOCATED ALONG FRONT LOT LINES IN 8' WIDE EASEMENTS. THIS WILL BE CONFIRMED WITH THE PRIVATE UTILITY COMPANIES.

82061_157_BOUNDARY_BASE_072224.DWG

FIGURE 2:
TRIP DISTRIBUTION & TRAFFIC ASSIGNMENT SUMMARY



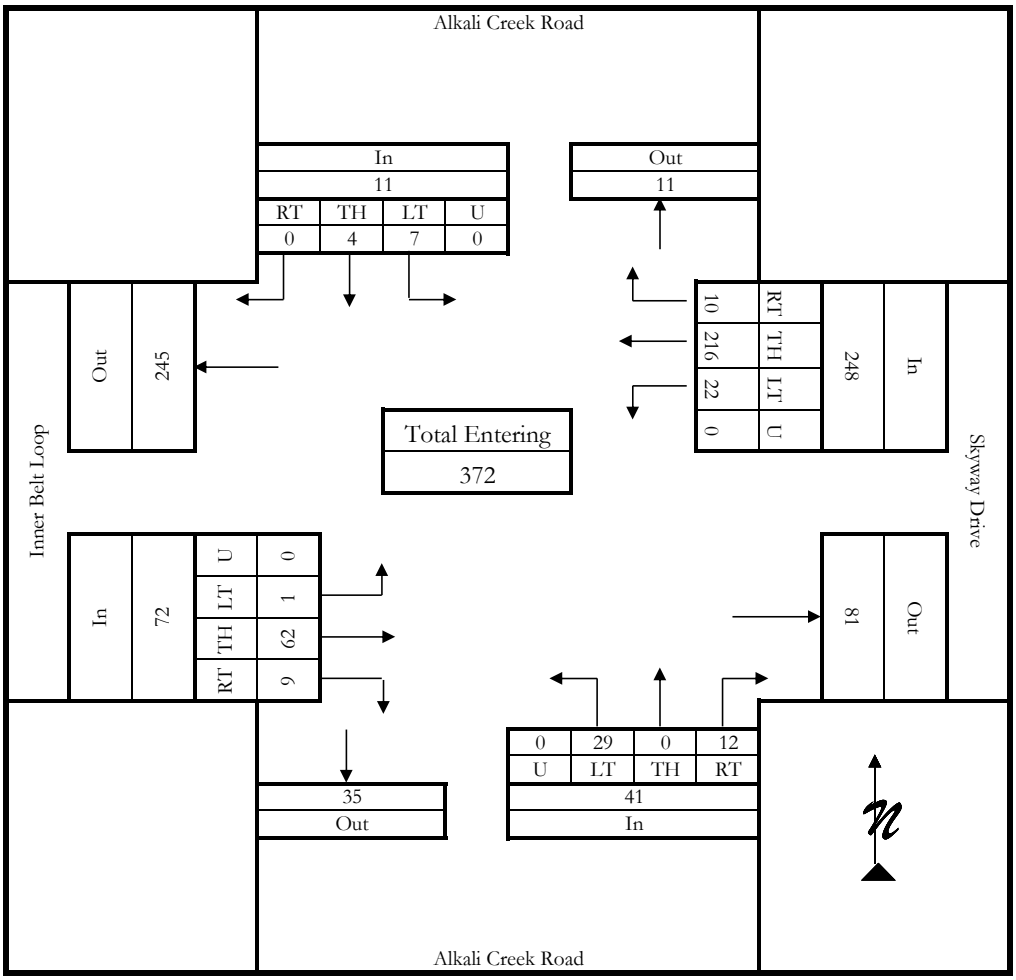
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Gannon Chamberlain	Intersection:	Alkali Creek Road/Skyway Drive/IBL
Agency/Company:	Sanderson Stewart		
Date Performed:	Wednesday, July 31, 2024	Jurisdiction:	Billings, MT / MDT
Count Time Period:	AM Peak Hour (7:15 - 8:15 AM)		
Project Number:	24180	Project Description:	High Sierra 22nd Filing Update
North/South Street:	Alkali Creek Road	East/West Street:	Skyway Drive/Inner Belt Loop

Vehicle Volumes and Adjustments

	Alkali Creek Road Southbound					Alkali Creek Road Northbound					Inner Belt Loop Eastbound					Skyway Drive Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
Factor	0.97	0.97	0.97	0.97		0.97	0.97	0.97	0.97		0.97	0.97	0.97	0.97		0.97	0.97	0.97	0.97		
7:15 AM	0	0	0	0	0	2	0	7	0	9	4	16	0	0	20	2	54	5	0	61	90
7:30 AM	0	2	3	0	5	1	0	8	0	9	3	16	1	0	20	5	77	9	0	91	125
7:45 AM	0	1	3	0	4	8	0	7	0	15	2	17	0	0	19	2	40	4	0	46	84
8:00 AM	0	1	1	0	2	1	0	7	0	8	0	13	0	0	13	1	45	4	0	50	73
Grand Total	0	4	7	0	11	12	0	29	0	41	9	62	1	0	72	10	216	22	0	248	372
Medium Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	2.4	0.0	4.8	0.0	0.0	4.2	0.0	1.9	0.0	0.0	1.6	
Heavy Truck %	0.0	25.0	0.0	0.0	9.1	0.0	0.0	3.4	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Truck %	0.0	25.0	0.0	0.0	9.1	0.0	0.0	6.9	0.0	4.9	0.0	4.8	0.0	0.0	4.2	0.0	1.9	0.0	0.0	1.6	
Total %	0.0	1.1	1.9	0.0	3.0	3.2	0.0	7.8	0.0	11.0	2.4	16.7	0.3	0.0	19.4	2.7	58.1	5.9	0.0	66.7	100.0
PHF	0.55	0.55	0.55			1.00	1.00	1.00			0.89	0.89	0.89			0.68	0.68	0.68			0.74



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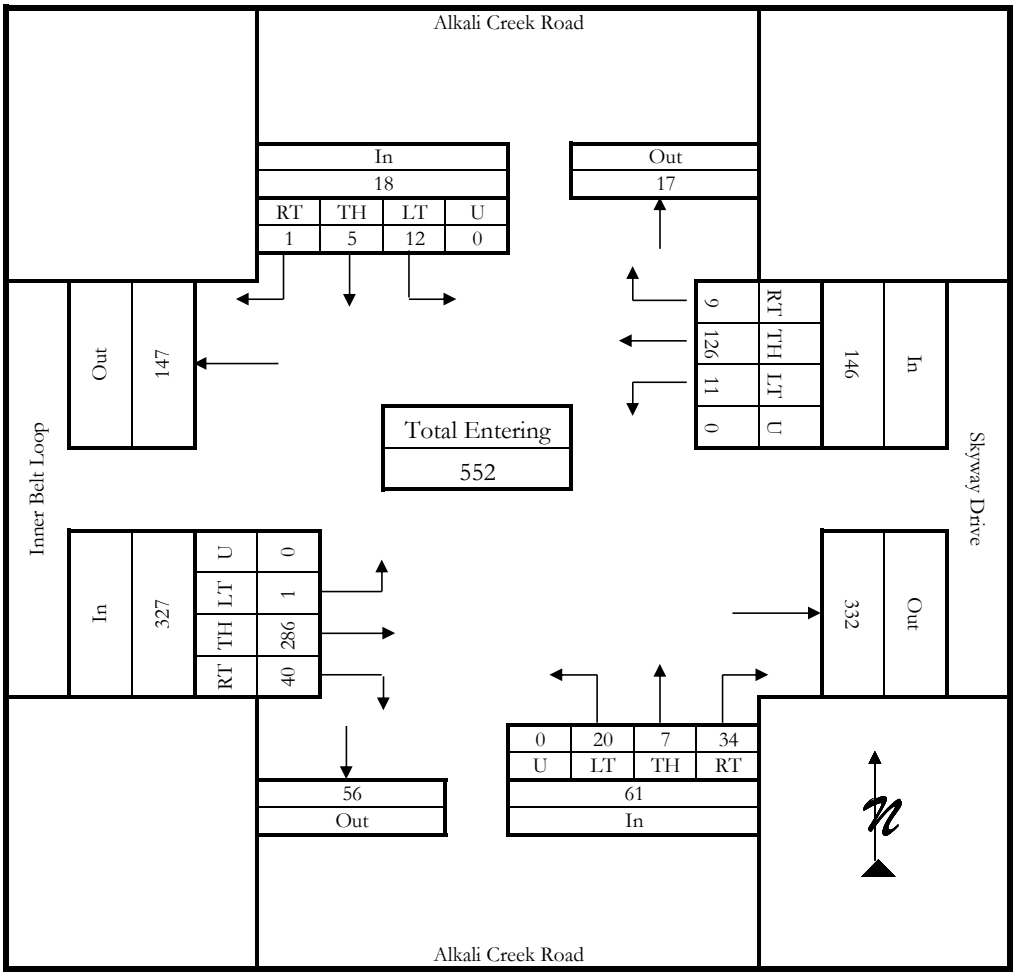
Vehicle Volumes and Adjustments

	Alkali Creek Road Southbound					Alkali Creek Road Northbound					Inner Belt Loop Eastbound					Skyway Drive Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
Factor	0.97	0.97	0.97	0.97		0.97	0.97	0.97	0.97		0.97	0.97	0.97	0.97		0.97	0.97	0.97	0.97		
5:00 PM	0	1	3	0	4	8	1	3	0	12	9	61	0	0	70	3	39	3	0	45	131
5:15 PM	0	3	2	0	5	10	2	8	0	20	12	81	0	0	93	2	27	3	0	32	150
5:30 PM	0	0	6	0	6	4	3	2	0	9	11	67	1	0	79	3	29	2	0	34	128
5:45 PM	1	1	1	0	3	12	1	7	0	20	8	77	0	0	85	1	31	3	0	35	143
Grand Total	1	5	12	0	18	34	7	20	0	61	40	286	1	0	327	9	126	11	0	146	552
Medium Truck %	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	1.6	2.5	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	
Heavy Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Truck %	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	1.6	2.5	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	
Total %	0.2	0.9	2.2	0.0	3.3	6.2	1.3	3.6	0.0	11.1	7.2	51.8	0.2	0.0	59.2	1.6	22.8	2.0	0.0	26.4	100.0
PHF	0.90	0.90	0.90			0.76	0.76	0.76			0.88	0.88	0.88			1.00	1.00	1.00			0.92



Intersection	Approach	Existing (2024)					
		AM Peak			PM Peak		
		Avg Delay (s/veh)	LOS	95th % Queue (veh)	Avg Delay (s/veh)	LOS	95th % Queue (veh)
Intersection Control		*Two-Way Stop-Control (NB/SB)*					
Alkali Creek Road & Inner Belt Loop/Skyway Drive	NB	10.6	B	1	11.6	B	1
	SB	11.2	B	1	12.8	B	1
	EB	0.1	A	0	0.0	A	0
	WB	0.7	A	1	0.6	A	1
	Intersection	2.0	A	--	1.9	A	--

Intersection Level Of Service Report
Intersection 1: Alkali Creek Road & Inner Belt Loop/Skyway Drive

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name	Alkali Creek Road			Alkali Creek Road			Inner Belt Loop			Skyway Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Alkali Creek Road			Alkali Creek Road			Inner Belt Loop			Skyway Drive		
Base Volume Input [veh/h]	29	0	12	7	4	0	1	62	9	22	216	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	0	12	7	4	0	1	62	9	22	216	10
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	0	3	2	1	0	0	16	2	6	54	3
Total Analysis Volume [veh/h]	29	0	12	7	4	0	1	62	9	22	216	10
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	11.30	11.62	8.95	11.15	11.40	9.51	7.68	0.00	0.00	7.38	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.19	0.19	0.19	0.06	0.06	0.06	0.00	0.00	0.00	0.04	0.04	0.04
95th-Percentile Queue Length [ft/ln]	4.78	4.78	4.78	1.43	1.43	1.43	0.04	0.04	0.04	0.94	0.94	0.94
d_A, Approach Delay [s/veh]	10.61			11.24			0.11			0.65		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.96											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 1: Alkali Creek Road & Inner Belt Loop/Skyway Drive

Control Type:	Two-way stop	Delay (sec / veh):	13.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	Alkali Creek Road			Alkali Creek Road			Inner Belt Loop			Skyway Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Alkali Creek Road			Alkali Creek Road			Inner Belt Loop			Skyway Drive		
Base Volume Input [veh/h]	20	7	34	12	5	1	1	286	40	11	126	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	7	34	12	5	1	1	286	40	11	126	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	2	9	3	1	0	0	72	10	3	32	2
Total Analysis Volume [veh/h]	20	7	34	12	5	1	1	286	40	11	126	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	12.90	13.02	10.57	13.10	12.80	9.21	7.49	0.00	0.00	7.93	0.00	0.00
Movement LOS	B	B	B	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.33	0.33	0.33	0.12	0.12	0.12	0.00	0.00	0.00	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	8.37	8.37	8.37	2.92	2.92	2.92	0.04	0.04	0.04	0.47	0.47	0.47
d_A, Approach Delay [s/veh]	11.62			12.80			0.02			0.60		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.87											
Intersection LOS	B											

Intersection: Fantan St & Wicks Ln

Approach		AM Peak		PM Peak		
		Mvmt Vol.	Lane Vol.	Mvmt Vol.	Lane Vol.	Number of Lanes
NB	T	0	0	0	0	0
	L	0	0	2	0	0
SB	T	0	0	0	0	0
	L	109	109	63	63	1
EB	T	275	275	158	158	1
	L	0	0	0	0	1
WB	T	93	93	270	270	1
	L	0	0	0	0	0
Critical Lane Sum Increase:			384	333		
Critical Lane Sum:			1140	1140		
Peak Hour %:			33.68%	29.21%		
Highest %:			33.68%			

<--- 1200 for 4-leg intersection,
1140 for 3-leg intersection

Intersection: Gleneagle Blvd & Wicks Ln

Approach		AM Peak		PM Peak		
		Mvmt Vol.	Lane Vol.	Mvmt Vol.	Lane Vol.	Number of Lanes
NB	T	54	54	149	149	1
	L	60	60	185	185	1
SB	T	130	130	75	75	1
	L	95	95	54	54	1
EB	T	173	173	100	100	1
	L	0	0	0	0	1
WB	T	69	35	192	96	2
	L	0	0	0	0	1
Critical Lane Sum Increase:			363	360		
Critical Lane Sum:			1200	1200		
Peak Hour %:			30.25%	30.00%		
Highest %:			30.25%			

<--- 1200 for 4-leg intersection,
1140 for 3-leg intersection

Intersection: St. Andrews Dr & Wicks Ln

Approach		AM Peak		PM Peak		
		Mvmt Vol.	Lane Vol.	Mvmt Vol.	Lane Vol.	Number of Lanes
NB	T	0	0	0	0	0
	L	0	0	0	0	0
SB	T	0	0	0	0	0
	L	37	37	21	21	1
EB	T	268	268	154	154	1
	L	0	0	0	0	0
WB	T	89	89	263	263	1
	L	0	0	0	0	1
Critical Lane Sum Increase:			305	284		
Critical Lane Sum:			1140	1140		
Peak Hour %:			26.75%	24.91%		
Highest %:			26.75%			

<--- 1200 for 4-leg intersection,
1140 for 3-leg intersection

Intersection: Skyway Drive & Alkali Creek Road - 22nd Filing

Approach		AM Peak		PM Peak		
		Mvmt Vol.	Lane Vol.	Mvmt Vol.	Lane Vol.	Number of Lanes
NB	T	0	0		0	1
	L	0	0	0	0	1
SB	T	0	0		0	1
	L	0	0	0	0	1
EB	T	4	4	13	13	1
	L	0	0	0	0	1
WB	T	12	12	8	8	1
	L	2	2	1	0	1
Critical Lane Sum Increase:			12	13		
Critical Lane Sum:			1200	1200		<--- 1200 for 4-leg intersection,
Peak Hour %:			1.00%	1.08%		1140 for 3-leg intersection
Highest %:			1.08%			

Intersection: Gleneagles & Annandale - 22nd Filing

Approach		AM Peak		PM Peak		
		Mvmt Vol.	Lane Vol.	Mvmt Vol.	Lane Vol.	Number of Lanes
NB	T	0	0	0	0	1
	L	1	0	2	0	1
SB	T	0	0	0	0	0
	L	0	0	0	0	0
EB	T	2	2	1	1	1
	L	0	0	0	0	0
WB	T	0	0	2	2	1
	L	0	0	0	0	1
Critical Lane Sum Increase:			2	2		
Critical Lane Sum:			1200	1200		<--- 1200 for 4-leg intersection,
Peak Hour %:			0.17%	0.17%		1140 for 3-leg intersection
Highest %:			0.17%			

Intersection: St. Andrews & Annandale - 22nd Filing

Approach		AM Peak		PM Peak		
		Mvmt Vol.	Lane Vol.	Mvmt Vol.	Lane Vol.	Number of Lanes
NB	T	0	0	0	0	0
	L	0	0	0	0	1
SB	T	0	0	0	0	1
	L	0	0	0	0	1
EB	T	0	0	0	0	1
	L	2	2	1	1	1
WB	T	0	0	0	0	0
	L	0	0	0	0	0
Critical Lane Sum Increase:			2	1		
Critical Lane Sum:			1140	1140		<--- 1200 for 4-leg intersection,
Peak Hour %:			0.18%	0.09%		1140 for 3-leg intersection
Highest %:			0.18%			