

June 26, 2018

Mr. Michael Railey
Rubicon Design Group, LLC
1610 Montclair Avenue, Suite B
Reno, Nevada 89509

Re: Update of Fiscal Impact Analysis of Proposed Wingfield Commons Development

Dear Mr. Railey:

Per your request, I updated the fiscal impact analysis of the proposed Wingfield Commons project originally conducted in February 2018. The update includes the following changes:

1. Reduction of single-family residential units from 530 units to 450 units.
2. Shortening of development period from 12 years (2018-2029) to seven years (2019-2025) and starting the analysis in 2019 instead of 2018.
3. Reduction of length of roads dedicated by the project to the City of Sparks for maintenance from 18,200 linear feet to 5,300 linear feet.

These updates impact both the General and Road Funds considered in the fiscal impact analysis. Table 1 below shows a summary of estimated impacts of Wingfield Commons project on the City of Sparks General Fund from the original February 2018 report and the June 2018 update. The table shows General Fund surplus, over the 20-year analysis period, is expected to increase from \$0.85 million in the original report to \$1.45 million in the June 2018.

This is due to the changes in inflation and buildout periods between the two reports, as well as reduction in the number of residential units. Additionally, the original analysis included a 3% contingency amount estimate, whereas the June 2018 report does not include a contingency cost estimate as this is not an actual cost to the City.

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Table 1. Comparison of General Fund Impacts

February 2018 Report					June 2018 Update				
Year	Total Project Revenue	Total Project Costs	Annual Revenue Surplus	Cumulative Revenue Surplus	Year	Total Project Revenue	Total Project Costs	Annual Revenue Surplus	Cumulative Revenue Surplus
2018	\$ 2,048	\$ -	\$ 2,048	\$ 2,048	2019	\$ 2,048	\$ -	\$ 2,048	\$ 2,048
2019	16,044	5,683	10,362	12,410	2020	22,928	5,683	17,245	19,293
2020	60,907	50,150	10,757	23,166	2021	85,338	58,918	26,420	45,713
2021	135,274	119,173	16,101	39,267	2022	211,341	172,648	38,693	84,405
2022	213,398	187,953	25,445	64,712	2023	343,731	286,666	57,065	141,471
2023	295,430	265,163	30,267	94,978	2024	478,263	407,316	70,947	212,418
2024	381,528	342,233	39,295	134,273	2025	600,139	528,303	71,836	284,254
2025	471,855	428,369	43,486	177,759	2026	684,466	612,467	72,000	356,254
2026	566,579	514,479	52,100	229,859	2027	705,000	630,384	74,616	430,870
2027	665,875	610,335	55,541	285,400	2028	726,150	648,834	77,317	508,187
2028	763,543	706,295	57,248	342,647	2029	747,935	667,831	80,103	588,290
2029	851,405	801,912	49,493	392,140	2030	770,373	687,394	82,979	671,269
2030	899,216	849,580	49,636	441,776	2031	793,484	707,538	85,946	757,215
2031	926,192	874,548	51,644	493,420	2032	817,289	728,281	89,008	846,223
2032	953,978	900,259	53,719	547,139	2033	841,807	749,639	92,168	938,391
2033	982,597	926,733	55,864	603,003	2034	867,061	771,633	95,428	1,033,819
2034	1,012,075	953,995	58,080	661,083	2035	893,073	794,281	98,793	1,132,612
2035	1,042,437	982,067	60,370	721,453	2036	919,865	817,601	102,264	1,234,876
2036	1,073,710	1,010,974	62,737	784,190	2037	947,461	841,614	105,847	1,340,723
2037	1,105,922	1,040,739	65,183	849,373	2038	975,885	866,341	109,544	1,450,267
Total	\$ 12,420,013	\$ 11,570,641	\$ 849,373		Total	\$ 12,433,639	\$ 10,983,372	\$ 1,450,267	

Table 2. Comparison of Road Fund Impacts

February 2018 Report					June 2018 Update				
Year	Total Project Revenue	Total Project Costs	Annual Revenue Surplus	Cumulative Revenue Surplus	Year	Total Project Revenue	Total Project Costs	Annual Revenue Surplus	Cumulative Revenue Surplus
2018	\$ -	\$ -	\$ -	\$ -	2019	\$ -	\$ -	\$ -	\$ -
2019	-	-	-	-	2020	-	-	-	-
2020	3,516	-	3,516	3,516	2021	3,622	-	3,622	3,622
2021	11,771	493,665	(481,895)	(478,378)	2022	17,719	163,145	(145,426)	(141,804)
2022	20,517	494,346	(473,828)	(952,207)	2023	32,659	164,156	(131,496)	(273,300)
2023	29,778	494,660	(464,882)	(1,417,089)	2024	48,480	164,184	(115,704)	(389,004)
2024	39,576	495,387	(455,812)	(1,872,901)	2025	65,221	164,213	(98,993)	(487,997)
2025	49,935	495,735	(445,800)	(2,318,701)	2026	78,723	164,243	(85,520)	(573,517)
2026	60,879	496,512	(435,633)	(2,754,333)	2027	81,085	164,274	(83,189)	(656,706)
2027	72,436	496,894	(424,458)	(3,178,791)	2028	83,518	164,305	(80,787)	(737,493)
2028	84,631	497,724	(413,093)	(3,591,884)	2029	86,023	164,336	(78,313)	(815,806)
2029	97,493	498,143	(400,650)	(3,992,534)	2030	88,604	164,369	(75,765)	(891,571)
2030	104,356	499,029	(394,673)	(4,387,207)	2031	91,262	164,401	(73,139)	(964,710)
2031	107,486	499,142	(391,656)	(4,778,863)	2032	94,000	164,435	(70,435)	(1,035,145)
2032	110,711	499,257	(388,546)	(5,167,409)	2033	96,820	164,469	(67,649)	(1,102,795)
2033	114,032	499,375	(385,342)	(5,552,751)	2034	99,724	164,504	(64,780)	(1,167,574)
2034	117,453	499,494	(382,041)	(5,934,793)	2035	102,716	164,540	(61,824)	(1,229,398)
2035	120,977	499,617	(378,640)	(6,313,433)	2036	105,798	164,576	(58,778)	(1,288,176)
2036	124,606	499,741	(375,135)	(6,688,568)	2037	108,972	164,613	(55,642)	(1,343,818)
2037	128,344	499,869	(371,524)	(7,060,092)	2038	112,241	164,651	(52,410)	(1,396,228)
Total	\$ 1,398,496	\$ 8,458,589	\$ (7,060,092)		Total	\$ 1,397,186	\$ 2,793,414	\$ (1,396,228)	

Mr. Michael Railey

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Table 2 shows the comparison of the impacts of Wingfield Commons project on the City's Road Fund over the 20-year analysis period. The February 2018 report found a deficit for the Road Fund of \$7.1 million over the 20-year analysis period. Reducing the number of length of streets dedicated to the City for maintenance (June 2018 update) decreases the deficit for the Fund to \$1.4 million.

The developer proposes to dedicate only approximately 5,300 linear feet of streets to the City for maintenance, with the remaining streets proposed to be privately maintained. If all project-related streets are privately maintained, the Road Fund will not incur any additional costs associated with the project, resulting in a Road Fund surplus over the 20-year analysis period of \$1.4 million. This is also expected to reduce some General Fund costs, though the exact reduction is difficult to estimate.

The above analysis shows that the Wingfield Commons project is expected to have a **positive fiscal impact** on the City of Sparks, as the projected General Fund surplus is expected to exceed the estimated deficit in the Road Fund.

Updated Appendices 1-9 of the fiscal impact analysis are attached. No changes to methodology or other inputs (other than discussed above) were made in the June 2018 update. Please see the original February 2018 report for methodology, assumptions, and other information.

Please contact me with any questions or concerns.

Sincerely,



Eugenia Larmore, PhD, MBA, CMA, CVA, MAFF

**APPENDIX 1
BUILDOUT ASSUMPTIONS**

<u>YEAR</u>	<u>USE TYPE</u>	<u>SQUARE FEET BUILT</u>	<u># OF UNITS BUILT</u>	<u>ADDED LAND VALUE</u>	<u>ADDED IMPROVEMENTS VALUE</u>	<u>CONSTRUCTION MATERIALS COST</u>
2019	Single Story SF	-	-	\$ 669,180	\$ -	\$ -
	Two Story SF	-	-	669,180	-	-
Subtotal		-	-	1,338,360	-	-
2020	Single Story SF	21,600	12	2,509,425	1,927,653	963,827
	Two Story SF	31,200	12	2,509,425	2,526,924	1,263,462
Subtotal		52,800	24	5,018,850	4,454,577	2,227,288
2021	Single Story SF	81,000	45	2,509,425	7,373,273	3,686,637
	Two Story SF	117,000	45	2,509,425	9,665,482	4,832,741
Subtotal		198,000	90	5,018,850	17,038,756	8,519,378
2022	Single Story SF	81,000	45	2,509,425	7,520,739	3,760,369
	Two Story SF	117,000	45	2,509,425	9,858,792	4,929,396
Subtotal		198,000	90	5,018,850	17,379,531	8,689,765
2023	Single Story SF	81,000	45	2,509,425	7,671,153	3,835,577
	Two Story SF	117,000	45	2,509,425	10,055,968	5,027,984
Subtotal		198,000	90	5,018,850	17,727,121	8,863,561
2024	Single Story SF	81,000	45	1,840,245	7,824,576	3,912,288
	Two Story SF	117,000	45	1,840,245	10,257,087	5,128,544
Subtotal		198,000	90	3,680,490	18,081,664	9,040,832
2025	Single Story SF	59,400	33	-	5,852,783	2,926,392
	Two Story SF	85,800	33	-	7,672,301	3,836,151
Subtotal		145,200	66	-	13,525,085	6,762,542
TOTAL		990,000	450	\$ 25,094,250	\$ 88,206,733	\$ 44,103,366

APPENDIX 1, ASSUMPTIONS:

1. The following land and building costs represent the Developer's best estimate in 2018. Analysis adds land value in the year before construction and improvement value in the year of construction.

	<u># of Units</u>	<u>Total Square Feet</u>	<u>Projected Sales Price/Unit</u>	<u>Land Value/Unit</u>	<u>Improv. Value/Unit</u>
Single Story SF	225	405,000	\$ 340,000	\$ 55,765	\$ 154,400
Two Story SF	225	585,000	400,000	55,765	202,400
	450	990,000			

Source: Number of units, square footage, improvement value per unit, and projected sales price from Developer. Land value based on data for homes in nearby developments. Source: Washoe County Assessor's website. Improvement values are inflated 2% annually.

2. Construction Materials Cost is estimated at **50%** of Building Cost. Source: Discussions with contractors.

**APPENDIX 2
CITY OF SPARKS
ESTIMATED NUMBER OF RESIDENTS**

<u>YEAR</u>	<u>USE TYPE</u>	<u># OF UNITS BUILT</u>	<u>CUMUL. # OF OCCUPIED UNITS</u>	<u>CUMUL. NO. OF RESIDENTS</u>	<u>% OF SPARKS POPULATION</u>
2019	Single Story SF	-	-	-	0.00%
	Two Story SF	-	-	-	0.00%
Subtotal		-	-	-	0.00%
2020	Single Story SF	12	-	-	0.00%
	Two Story SF	12	-	-	0.00%
Subtotal		24	-	-	0.00%
2021	Single Story SF	45	12	31	0.03%
	Two Story SF	45	12	31	0.03%
Subtotal		90	23	61	0.07%
2022	Single Story SF	45	55	145	0.15%
	Two Story SF	45	55	145	0.15%
Subtotal		90	110	290	0.31%
2023	Single Story SF	45	98	259	0.28%
	Two Story SF	45	98	259	0.28%
Subtotal		90	197	519	0.55%
2024	Single Story SF	45	142	374	0.40%
	Two Story SF	45	142	374	0.40%
Subtotal		90	284	747	0.80%
2025	Single Story SF	33	185	488	0.52%
	Two Story SF	33	185	488	0.52%
Subtotal		66	371	976	1.04%
2026	Single Story SF	-	217	572	0.61%
	Two Story SF	-	217	572	0.61%
Subtotal		-	434	1,144	1.22%
TOTAL		450			

APPENDIX 2, ASSUMPTIONS:

- Number of residential units and square feet of buildings from Appendix 1.
- Occupied single-family units are estimated using a vacancy rate of 3.5% to account for household movement and other timing issues. Households are assumed to be occupied a year after construction. Source: Center for Regional Studies, University of Nevada, Reno, based on data from the American Community Survey.
- Residents are estimated using a ratio of **2.63** residents per occupied household/unit.
Source: "Comparative Housing Characteristics." 2016 American Community Survey 1-Year Estimates, US Census Bureau. Data for Sparks, NV.
- City of Sparks FY 2016-17 population is estimated at **93,581** Source: City of Sparks Budget, FY 2017-18.
This is used to estimate the percent of existing population generated by the project.

**APPENDIX 3
CITY OF SPARKS
ESTIMATED REAL PROPERTY TAX REVENUE**

YEAR	USE TYPE	ADDED TAX. LAND VALUE (\$)	ADDED TAX. IMPROVEMENT VALUE (\$)	CUMULATIVE TOTAL TAX. VALUE (\$)	CUMULATIVE ASSESSED VALUE (\$)	GENERAL FUND REVENUE	AB 104 REVENUE
2019	Single Story SF	\$ 304,180	\$ -	\$ 304,180	\$ 106,463	\$ 1,022	\$ 2
	Two Story SF	304,180	-	304,180	106,463	1,022	2
Subtotal		608,360	-	608,360	212,926	2,044	4
2020	Single Story SF	2,144,425	1,811,695	2,457,730	860,206	8,256	18
	Two Story SF	2,144,425	2,410,965	2,457,730	860,206	8,256	18
Subtotal		4,288,850	4,222,660	4,915,461	1,720,411	16,513	35
2021	Single Story SF	2,509,425	7,373,273	6,906,933	2,417,426	23,202	49
	Two Story SF	2,509,425	9,665,482	7,524,181	2,633,463	25,276	54
Subtotal		5,018,850	17,038,756	14,431,114	5,050,890	48,478	103
2022	Single Story SF	2,509,425	7,520,739	17,218,037	6,026,313	57,841	123
	Two Story SF	2,509,425	9,858,792	20,214,779	7,075,173	67,908	144
Subtotal		5,018,850	17,379,531	37,432,816	13,101,486	125,748	267
2023	Single Story SF	2,509,425	7,671,153	27,990,364	9,796,627	94,028	200
	Two Story SF	2,509,425	10,055,968	33,485,203	11,719,821	112,487	239
Subtotal		5,018,850	17,727,121	61,475,567	21,516,448	206,515	438
2024	Single Story SF	1,840,245	7,824,576	38,571,608	13,500,063	129,574	275
	Two Story SF	1,840,245	10,257,087	46,687,651	16,340,678	156,838	333
Subtotal		3,680,490	18,081,664	85,259,259	29,840,741	286,411	608
2025	Single Story SF	-	5,852,783	47,788,070	16,725,825	160,534	341
	Two Story SF	-	7,672,301	58,653,080	20,528,578	197,033	418
Subtotal		-	13,525,085	106,441,150	37,254,403	357,568	759
2026	Single Story SF	-	-	55,250,079	19,337,528	185,602	394
	Two Story SF	-	-	68,315,143	23,910,300	229,491	487
Subtotal		-	-	123,565,222	43,247,828	415,093	881
2027	Single Story SF	-	-	56,907,581	19,917,653	191,170	406
	Two Story SF	-	-	70,364,597	24,627,609	236,376	502
Subtotal		-	-	127,272,179	44,545,263	427,545	908
2028	Single Story SF	-	-	58,614,809	20,515,183	196,905	418
	Two Story SF	-	-	72,475,535	25,366,437	243,467	517
Subtotal		-	-	131,090,344	45,881,620	440,372	935
2029	Single Story SF	-	-	60,373,253	21,130,639	202,812	431
	Two Story SF	-	-	74,649,801	26,127,431	250,771	532
Subtotal		-	-	135,023,054	47,258,069	453,583	963
2030	Single Story SF	-	-	62,184,450	21,764,558	208,896	443
	Two Story SF	-	-	76,889,296	26,911,253	258,294	548
Subtotal		-	-	139,073,746	48,675,811	467,190	992
2031	Single Story SF	-	-	64,049,984	22,417,494	215,163	457
	Two Story SF	-	-	79,195,974	27,718,591	266,043	565
Subtotal		-	-	143,245,958	50,136,085	481,206	1,021
2032	Single Story SF	-	-	65,971,484	23,090,019	221,618	470
	Two Story SF	-	-	81,571,854	28,550,149	274,024	582
Subtotal		-	-	147,543,337	51,640,168	495,642	1,052
2033	Single Story SF	-	-	67,950,628	23,782,720	228,267	485
	Two Story SF	-	-	84,019,009	29,406,653	282,245	599
Subtotal		-	-	151,969,637	53,189,373	510,512	1,084
2034	Single Story SF	-	-	69,989,147	24,496,201	235,115	499
	Two Story SF	-	-	86,539,580	30,288,853	290,712	617
Subtotal		-	-	156,528,726	54,785,054	525,827	1,116

**APPENDIX 3
CITY OF SPARKS
ESTIMATED REAL PROPERTY TAX REVENUE**

<u>YEAR</u>	<u>USE TYPE</u>	<u>ADDED TAX. LAND VALUE (\$)</u>	<u>ADDED TAX. IMPROVEMENT VALUE (\$)</u>	<u>CUMULATIVE TOTAL TAX. VALUE (\$)</u>	<u>CUMULATIVE ASSESSED VALUE (\$)</u>	<u>GENERAL FUND REVENUE</u>	<u>AB 104 REVENUE</u>
2035	Single Story SF	-	-	72,088,821	25,231,087	242,168	514
	Two Story SF	-	-	89,135,767	31,197,518	299,434	636
Subtotal		-	-	161,224,588	56,428,606	541,602	1,150
2036	Single Story SF	-	-	74,251,486	25,988,020	249,433	529
	Two Story SF	-	-	91,809,840	32,133,444	308,417	655
Subtotal		-	-	166,061,326	58,121,464	557,850	1,184
2037	Single Story SF	-	-	76,479,030	26,767,661	256,916	545
	Two Story SF	-	-	94,564,135	33,097,447	317,669	674
Subtotal		-	-	171,043,166	59,865,108	574,585	1,220
2038	Single Story SF	-	-	78,773,401	27,570,690	264,623	562
	Two Story SF	-	-	97,401,059	34,090,371	327,199	695
Subtotal		-	-	176,174,461	61,661,061	591,823	1,256
TOTAL		\$ 23,634,250	\$ 87,974,816			\$ 7,526,107	\$ 15,976

APPENDIX 3, ASSUMPTIONS:

1. The project is currently located in the City of Sparks, generating property tax revenue for the City. The analysis subtracts existing taxable value of project parcels from amounts estimated in this analysis to arrive at incremental property tax revenue generated by project development. Existing project values are as follows:

<u>Parcel Number</u>	<u>Taxable Land Value</u>	<u>Taxable Improv. Value</u>	<u>Acres</u>
084-550-02	\$ 1,290,000	\$ 29,148	60.0
084-550-07	85,000	117,769	2.5
084-550-08	85,000	85,000	2.5
	\$ 1,460,000	\$ 231,917	65.0

Source: Washoe County Assessor's website.

2. Taxable value of land and improvements is estimated in Appendix 1.

3. Land and improvement taxable values are inflated by **3.0%** annually, the maximum allowed increase for owner-occupied properties.

4. Property tax calculation: Taxable Value X 35% = Assessed Value; Assessed Value/100 X Tax Rate = Property Tax Revenue.

Analysis assumes improvements will generate property tax revenue in the year after improvements are made to account for work-in-progress.

Land values will generate property tax in the year developed.

5. City of Sparks General Fund operating tax rate is assumed to remain constant at FY 2017-18 rate of **\$ 0.9598** per \$100 of value.

Source: City of Sparks Budget, FY 2017-18.

6. City of Sparks is expected to receive **7.49%** of property tax revenue generated by the AB 104 property tax rate of

\$ 0.0272 Source: Nevada Department of Taxation. "Local Gov't Tax Act Distribution." Three-year average FY 2014-15, FY 2015-16, and 2016-17.

**APPENDIX 4
CITY OF SPARKS
ESTIMATED SALES TAX REVENUE**

<u>YEAR</u>	<u>USE TYPE</u>	<u>CONSTR. MATERIALS COST</u>	<u>HOUSEHOLD EXPENDITURES</u>	<u>TOTAL TAXABLE SALES</u>	<u>CCRT SALES TAX REVENUE</u>	<u>AB 104 SALES TAX REVENUE</u>
2019	Single Story SF	\$ -	\$ -	\$ -	\$ -	\$ -
	Two Story SF	-	-	-	-	-
Subtotal		-	-	-	-	-
2020	Single Story SF	963,827	-	963,827	2,584	177
	Two Story SF	1,263,462	-	1,263,462	3,387	232
Subtotal		2,227,288	-	2,227,288	5,970	410
2021	Single Story SF	3,686,637	250,503	3,937,139	10,554	724
	Two Story SF	4,832,741	253,543	5,086,284	13,634	936
Subtotal		8,519,378	504,046	9,023,423	24,188	1,660
2022	Single Story SF	3,760,369	1,225,584	4,985,953	13,365	917
	Two Story SF	4,929,396	1,240,459	6,169,855	16,539	1,135
Subtotal		8,689,765	2,466,043	11,155,808	29,904	2,052
2023	Single Story SF	3,835,577	2,258,944	6,094,521	16,337	1,121
	Two Story SF	5,027,984	2,286,362	7,314,346	19,607	1,346
Subtotal		8,863,561	4,545,306	13,408,867	35,944	2,467
2024	Single Story SF	3,912,288	3,353,204	7,265,492	19,476	1,337
	Two Story SF	5,128,544	3,393,902	8,522,446	22,845	1,568
Subtotal		9,040,832	6,747,106	15,787,938	42,321	2,905
2025	Single Story SF	2,926,392	4,511,085	7,437,477	19,937	1,368
	Two Story SF	3,836,151	4,565,837	8,401,988	22,522	1,546
Subtotal		6,762,542	9,076,923	15,839,465	42,459	2,914
2026	Single Story SF	-	5,445,021	5,445,021	14,596	1,002
	Two Story SF	-	5,511,108	5,511,108	14,773	1,014
Subtotal		-	10,956,129	10,956,129	29,369	2,016
2027	Single Story SF	-	5,608,372	5,608,372	15,034	1,032
	Two Story SF	-	5,676,441	5,676,441	15,216	1,044
Subtotal		-	11,284,813	11,284,813	30,250	2,076
2028	Single Story SF	-	5,776,623	5,776,623	15,485	1,063
	Two Story SF	-	5,846,735	5,846,735	15,673	1,076
Subtotal		-	11,623,358	11,623,358	31,157	2,138
2029	Single Story SF	-	5,949,922	5,949,922	15,949	1,095
	Two Story SF	-	6,022,137	6,022,137	16,143	1,108
Subtotal		-	11,972,058	11,972,058	32,092	2,203
2030	Single Story SF	-	6,128,419	6,128,419	16,428	1,128
	Two Story SF	-	6,202,801	6,202,801	16,627	1,141
Subtotal		-	12,331,220	12,331,220	33,055	2,269
2031	Single Story SF	-	6,312,272	6,312,272	16,921	1,161
	Two Story SF	-	6,388,885	6,388,885	17,126	1,175
Subtotal		-	12,701,157	12,701,157	34,047	2,337
2032	Single Story SF	-	6,501,640	6,501,640	17,428	1,196
	Two Story SF	-	6,580,551	6,580,551	17,640	1,211
Subtotal		-	13,082,191	13,082,191	35,068	2,407
2033	Single Story SF	-	6,696,689	6,696,689	17,951	1,232
	Two Story SF	-	6,777,968	6,777,968	18,169	1,247
Subtotal		-	13,474,657	13,474,657	36,120	2,479
2034	Single Story SF	-	6,897,590	6,897,590	18,490	1,269
	Two Story SF	-	6,981,307	6,981,307	18,714	1,284
Subtotal		-	13,878,897	13,878,897	37,204	2,553

**APPENDIX 4
CITY OF SPARKS
ESTIMATED SALES TAX REVENUE**

<u>YEAR</u>	<u>USE TYPE</u>	<u>CONSTR. MATERIALS COST</u>	<u>HOUSEHOLD EXPENDITURES</u>	<u>TOTAL TAXABLE SALES</u>	<u>CCRT SALES TAX REVENUE</u>	<u>AB 104 SALES TAX REVENUE</u>
2035	Single Story SF	-	7,104,518	7,104,518	19,044	1,307
	Two Story SF	-	7,190,746	7,190,746	19,275	1,323
Subtotal		-	14,295,264	14,295,264	38,320	2,630
2036	Single Story SF	-	7,317,653	7,317,653	19,616	1,346
	Two Story SF	-	7,406,468	7,406,468	19,854	1,363
Subtotal		-	14,724,122	14,724,122	39,469	2,709
2037	Single Story SF	-	7,537,183	7,537,183	20,204	1,387
	Two Story SF	-	7,628,662	7,628,662	20,449	1,404
Subtotal		-	15,165,845	15,165,845	40,653	2,790
2038	Single Story SF	-	7,763,298	7,763,298	20,810	1,428
	Two Story SF	-	7,857,522	7,857,522	21,063	1,446
Subtotal		-	15,620,821	15,620,821	41,873	2,874
TOTAL		\$ 44,103,366	\$ 194,449,953	\$ 238,553,320	\$ 639,463	\$ 43,889

APPENDIX 4, ASSUMPTIONS:

- Construction Materials Cost is estimated in Appendix 1.
- Household Taxable Sales-estimated based on the number of occupied households, estimated household income, and expenditure information. Household incomes and percent of income spent on taxable items are estimated as follows, based on projected sales price for each village shown in Appendix 1:

	% Spent on Taxable	
	Household Income	Items
Single Story SF	\$ 69,782	27.5%
Two Story SF	\$ 80,813	24.1%

Affordability calculator created by EEC and Center for Regional Studies, UNR. Percent of household income spent on taxable items from Consumer Expenditure Survey, 2016, Bureau of Labor Statistics, data by corresponding household income range. Estimates are inflated 3% annually.

- Relevant tax rates for the City of Sparks are as follows:

	0.500%	Basic City County Relief Tax (BCCRT)
	1.750%	Supplemental City County Relief Tax (SCCRT)
	0.250%	Fair Share (AB 104)

Distribution of BCCRT and SCCRT sales tax revenue to the City of Sparks is calculated at **12.13%** of all Washoe County CCRT revenue.

Source: Distribution based on average percentage share of Washoe County C-Tax distribution from FY 2014-15 to FY 2016-17. Data from Nevada Department of Taxation. "Consolidated Tax Distribution: Revenue Summary by County."

Distribution of AB 104 sales tax revenue to the City of Sparks is calculated at **7.49%** of all Washoe County AB 104 revenue.

Source: Distribution based on average percentage share of Washoe County AB104 distribution from FY 2014-15 to FY 2016-17. Data from Nevada Department of Taxation. "Local Government Tax Act Distribution."

- A State administrative fee of **1.75%** of all sales tax revenue is subtracted for State uses. Source: AB 552.

**APPENDIX 5
CITY OF SPARKS
ESTIMATED PERMIT AND IMPACT FEE REVENUE**

YEAR	USE TYPE	ESTIMATED BUILDING VALUATION	PRINCIPAL AMOUNT	BUILDING PERMIT REVENUE	PLAN REVIEW REVENUE	CURRENT PLANNING REVENUE	FIRE INSPEC./ PLAN REVIEW REVENUE	REGIONAL ROAD REVENUE	SEWER CONNECT. REVENUE	RESIDENTIAL PARK TAX REVENUE	IMPACT FEE SERVICE AREA #1				TOTAL
											SANITARY SEWER	FLOOD CONTROL	REGIONAL PARKS/REC	FIRE STATION	
2019	Single Story SF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Two Story SF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	Single Story SF	1,927,653	16,000	15,296	6,400	1,680	7,040	47,064	73,296	12,000	3,564	7,116	9,336	4,080	24,096
	Two Story SF	2,526,924	19,356	18,504	7,742	1,680	8,517	47,064	73,296	12,000	3,564	7,116	9,336	4,080	24,096
	Subtotal	4,454,577	35,356	33,800	14,142	3,360	15,556	94,127	146,591	24,000	7,128	14,232	18,672	8,160	48,192
2021	Single Story SF	7,373,273	60,809	58,133	24,324	6,300	26,756	176,488	274,859	45,000	13,365	26,685	35,010	15,300	90,360
	Two Story SF	9,665,482	73,645	70,405	29,458	6,300	32,404	176,488	274,859	45,000	13,365	26,685	35,010	15,300	90,360
	Subtotal	17,038,756	134,455	128,539	53,782	12,600	59,160	352,976	549,717	90,000	26,730	53,370	70,020	30,600	180,720
2022	Single Story SF	7,520,739	61,635	58,923	24,654	6,300	27,119	176,488	274,859	45,000	13,365	26,685	35,010	15,300	90,360
	Two Story SF	9,858,792	74,728	71,440	29,891	6,300	32,880	176,488	274,859	45,000	13,365	26,685	35,010	15,300	90,360
	Subtotal	17,379,531	136,363	130,363	54,545	12,600	60,000	352,976	549,717	90,000	26,730	53,370	70,020	30,600	180,720
2023	Single Story SF	7,671,153	62,477	59,728	24,991	6,300	27,490	176,488	274,859	45,000	13,365	26,685	35,010	15,300	90,360
	Two Story SF	10,055,968	75,832	72,496	30,333	6,300	33,366	176,488	274,859	45,000	13,365	26,685	35,010	15,300	90,360
	Subtotal	17,727,121	138,309	132,224	55,324	12,600	60,856	352,976	549,717	90,000	26,730	53,370	70,020	30,600	180,720
2024	Single Story SF	7,824,576	63,336	60,550	25,335	6,300	27,868	176,488	274,859	45,000	13,365	26,685	35,010	15,300	90,360
	Two Story SF	10,257,087	76,958	73,572	30,783	6,300	33,862	176,488	274,859	45,000	13,365	26,685	35,010	15,300	90,360
	Subtotal	18,081,664	140,295	134,122	56,118	12,600	61,730	352,976	549,717	90,000	26,730	53,370	70,020	30,600	180,720
2025	Single Story SF	5,852,783	47,089	45,017	18,836	4,620	20,719	129,425	201,563	33,000	9,801	19,569	25,674	11,220	66,264
	Two Story SF	7,672,301	57,279	54,758	22,911	4,620	25,203	129,425	201,563	33,000	9,801	19,569	25,674	11,220	66,264
	Subtotal	13,525,085	104,368	99,776	41,747	9,240	45,922	258,849	403,126	66,000	19,602	39,138	51,348	22,440	132,528
TOTAL		\$ 88,206,733	\$ 689,145	\$ 658,823	\$ 275,658	\$ 63,000	\$ 303,224	\$ 1,764,882	\$ 2,748,587	\$ 450,000	\$ 133,650	\$ 266,850	\$ 350,100	\$ 153,000	\$ 903,600

APPENDIX 5, ASSUMPTIONS:

- Building valuation is estimated in Appendix 1. It should be noted that permit fees associated with some residential uses are likely underestimated as construction values provided by the Client and used to estimate permit revenues for the project are lower than those provided by the 2012 International Building Code.
- Principal amount for the calculation of building permit and plan check fee revenue is estimated at follows, principal amount and resulting fees are estimated in the year prior to construction:
 \$ **993.75** for the first \$100,000.01 of Building Permit Valuation, plus \$ **5.60** for each additional \$1,000 thereafter through a value of \$500,000.
 Source: "City of Sparks Permit Fees." Revised December 22, 2017.
- Building Permit fee revenue is estimated at **95.60%** of principal amount.
 Building Plan Review fee revenue is estimated at **40.00%** of principal amount, conservatively assuming all units are single family repeats.
 Current Planning Plan Review fee revenue is estimated at \$ **140.00** per building, conservatively assuming all units are single family repeats.
 Fire Prevention Inspection fee revenue is estimated at **22.00%** of the principal amount.
 Fire Prevention Plan review fee revenue is estimated at **22.00%** of the principal amount.
 Analysis conservatively assumes all single family homes are repeat units. Source: "City of Sparks Permit Fees." Revised December 22, 2017. Revenue for mechanical, plumbing, and electrical permit fees is not estimated as the construction det required for these estimates are unknown.
- Regional Road Impact fee (RRIF) revenue is estimated at:
 Single Family \$ **3,921.96** per dwelling unit.

**APPENDIX 5
CITY OF SPARKS
ESTIMATED PERMIT AND IMPACT FEE REVENUE**

<u>YEAR</u>	<u>USE TYPE</u>	<u>ESTIMATED BUILDING VALUATION</u>	<u>PRINCIPAL AMOUNT</u>	<u>BUILDING PERMIT REVENUE</u>	<u>PLAN REVIEW REVENUE</u>	<u>CURRENT PLANNING REVENUE</u>	<u>FIRE INSPEC./ PLAN REVIEW REVENUE</u>	<u>REGIONAL ROAD REVENUE</u>	<u>SEWER CONNECT. REVENUE</u>	<u>RESIDENTIAL PARK TAX REVENUE</u>	<u>IMPACT FEE SERVICE AREA #1</u>				<u>TOTAL</u>
											<u>SANITARY SEWER</u>	<u>FLOOD CONTROL</u>	<u>REGIONAL PARKS/REC</u>	<u>FIRE STATION</u>	

Source: "Regional Road Impact Fee (RRIF)." Regional Transportation Commission. 5th Edition, March 20, 2017. Data for North Service Area.

5. Sewer Connection fee revenue is estimated at **\$ 6,107.97** per residential unit. Source: "City of Sparks Permit Fees." Revised December 22, 2017.
6. Residential construction tax for neighborhood parks revenue is estimated at the lesser of 1% of building permit valuation or \$1,000 per residential unit. Given an estimated Added Improvements Value shown in Appendix 1, 1% of building perm valuation will result in the following values per unit:

Single Story SF \$ 1,544
Two Story SF \$ 2,024

The alternative of \$1,000 per unit is the lesser of the two options and is used in this calculation of residential tax revenue. Source: Sparks Municipal Code 15.12.0040.

7. The Project is located adjacent to the Impact Fees Service Area Number 1. Should the project be added to the Area, the following fees will apply to the project:

	<u>Unit of Measure</u>	<u>Sanitary Sewer</u>	<u>Flood Control</u>	<u>Regional Parks/Rec</u>	<u>Fire Station</u>
Single Family Dwelling		\$ 297.00	\$ 593.00	\$ 778.00	\$ 340.00

Source: "City of Sparks Permit Fees." Revised December 22, 2017.

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	Base Year <u>FY 16-17</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>1ST 10-YEAR SUBTOTAL</u>
GENERAL FUND												
<u>REVENUE</u>												
<u>Taxes</u>												
Ad Valorem ¹	Appendix 3	\$ 2,044	\$ 16,513	\$ 48,478	\$ 125,748	\$ 206,515	\$ 286,411	\$ 357,568	\$ 415,093	\$ 427,545	\$ 440,372	\$ 2,326,287
Subtotal		\$ 2,044	\$ 16,513	\$ 48,478	\$ 125,748	\$ 206,515	\$ 286,411	\$ 357,568	\$ 415,093	\$ 427,545	\$ 440,372	\$ 2,326,287
<u>Licenses and Permits</u>												
Business Licenses ³	\$ 5,878,303	\$ -	\$ -	\$ 4,314	\$ 21,106	\$ 38,901	\$ 57,745	\$ 77,685	\$ 93,768	\$ 96,581	\$ 99,478	\$ 489,577
Liquor Licenses ³	252,674	-	-	185	907	1,672	2,482	3,339	4,031	4,151	4,276	21,044
City Gaming Licenses ²	554,193	-	-	-	-	-	-	-	-	-	-	-
Franchise Fees ³	4,416,852	-	-	3,241	15,858	29,229	43,389	58,371	70,455	72,569	74,746	367,859
Nonbusiness Licenses and Permits ⁵	53,249	-	-	39	191	352	523	704	849	875	901	4,435
Subtotal	\$ 11,155,271	\$ -	\$ -	\$ 7,780	\$ 38,062	\$ 70,155	\$ 104,139	\$ 140,098	\$ 169,103	\$ 174,176	\$ 179,402	\$ 882,915
<u>Intergovernmental Revenue</u>												
Consolidated Tax-CCRT Revenue ⁴	Appendix 4	\$ -	\$ 5,970	\$ 24,188	\$ 29,904	\$ 35,944	\$ 42,321	\$ 42,459	\$ 29,369	\$ 30,250	\$ 31,157	\$ 271,562
Consolidated Tax-Other Revenue ⁵	\$ 3,643,715	-	-	2,674	13,082	24,113	35,794	48,153	58,123	59,866	61,662	303,468
State Distributive Fund-Sales Tax ⁴	Appendix 4	-	410	1,660	2,052	2,467	2,905	2,914	2,016	2,076	2,138	18,639
State Distributive Fund-Other ⁶	Appendix 3	4	35	103	267	438	608	759	881	908	935	4,938
County Gaming Licenses ²	389,292	-	-	-	-	-	-	-	-	-	-	-
Other Intergovernmental Revenue ⁷	551,354	-	-	-	-	-	-	-	-	-	-	-
Subtotal		\$ 4	\$ 6,415	\$ 28,625	\$ 45,306	\$ 62,962	\$ 81,627	\$ 94,286	\$ 90,388	\$ 93,100	\$ 95,893	\$ 598,607
<u>Charges for Services</u>												
Building and Zoning Fees ⁷	\$ 27,305	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other ⁸	2,646,746	-	-	-	-	-	-	-	-	-	-	-
Subtotal	\$ 2,674,051	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Fines and Forfeits</u>												
Fines ³	\$ 619,500	\$ -	\$ -	\$ 455	\$ 2,224	\$ 4,100	\$ 6,086	\$ 8,187	\$ 9,882	\$ 10,178	\$ 10,484	\$ 51,595
<u>Miscellaneous</u>												
Miscellaneous ⁷	\$ 153,669	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
REVENUE TOTAL		\$ 2,048	\$ 22,928	\$ 85,338	\$ 211,341	\$ 343,731	\$ 478,263	\$ 600,139	\$ 684,466	\$ 705,000	\$ 726,150	\$ 3,859,405

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	<u>Base Year FY 16-17</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>1ST 10-YEAR SUBTOTAL</u>
EXPENDITURES												
General Government												
Legislative ⁹	\$ 438,791	\$ -	\$ 41	\$ 355	\$ 1,172	\$ 1,991	\$ 2,858	\$ 3,727	\$ 4,332	\$ 4,461	\$ 4,593	\$ 23,531
Mayor ⁹	109,556	-	10	89	293	497	714	931	1,082	1,114	1,147	5,875
Management Services ⁹	5,966,619	-	555	4,827	15,938	27,077	38,864	50,684	58,906	60,657	62,459	319,966
Legal ⁹	1,617,935	-	151	1,309	4,322	7,342	10,538	13,744	15,973	16,448	16,937	86,763
Financial Services ⁹	3,044,757	-	283	2,463	8,133	13,817	19,832	25,864	30,060	30,953	31,873	163,278
Community Services ⁹	1,032,879	-	96	836	2,759	4,687	6,728	8,774	10,197	10,500	10,812	55,389
General Government Total	\$ 12,210,537	\$ -	\$ 1,136	\$ 9,878	\$ 32,616	\$ 55,412	\$ 79,534	\$ 103,723	\$ 120,550	\$ 124,133	\$ 127,821	\$ 654,803
Judicial												
Judicial ¹⁰	\$ 2,123,457	\$ -	\$ -	\$ 1,558	\$ 7,624	\$ 14,052	\$ 20,860	\$ 28,063	\$ 33,872	\$ 34,889	\$ 35,935	\$ 176,853
Judicial Total	\$ -	\$ -	\$ 1,558	\$ 7,624	\$ 14,052	\$ 20,860	\$ 28,063	\$ 33,872	\$ 34,889	\$ 35,935	\$ 176,853	
Public Safety												
Police												
Police ¹¹	Appendix 7	\$ -	\$ -	\$ 22,090	\$ 71,012	\$ 122,810	\$ 177,610	\$ 235,545	\$ 282,208	\$ 290,252	\$ 298,534	\$ 1,500,059
Fire												
Fire ¹²	Appendix 8	\$ -	\$ 4,522	\$ 22,122	\$ 40,775	\$ 60,527	\$ 81,427	\$ 98,285	\$ 101,233	\$ 104,270	\$ 107,398	\$ 620,558
Community Services												
Community Services ¹⁰	\$ 1,277,098	\$ -	\$ -	\$ 937	\$ 4,585	\$ 8,451	\$ 12,545	\$ 16,877	\$ 20,372	\$ 20,983	\$ 21,612	\$ 106,364
Public Safety Total	\$ -	\$ 4,522	\$ 45,149	\$ 116,372	\$ 191,788	\$ 271,582	\$ 350,707	\$ 403,812	\$ 415,505	\$ 427,544	\$ 2,226,981	
Public Works												
Community Services ¹³	\$ 1,480,919	\$ -	\$ -	\$ -	\$ 4,967	\$ 5,116	\$ 5,269	\$ 5,427	\$ 5,590	\$ 5,758	\$ 5,931	\$ 38,057
Public Works Total	\$ -	\$ -	\$ -	\$ 4,967	\$ 5,116	\$ 5,269	\$ 5,427	\$ 5,590	\$ 5,758	\$ 5,931	\$ 38,057	
Culture and Recreation												
Community Services ¹⁰	\$ 2,883,027	\$ -	\$ -	\$ 2,116	\$ 10,351	\$ 19,079	\$ 28,321	\$ 38,101	\$ 45,989	\$ 47,368	\$ 48,789	\$ 240,114
Culture and Recreation Total	\$ -	\$ -	\$ 2,116	\$ 10,351	\$ 19,079	\$ 28,321	\$ 38,101	\$ 45,989	\$ 47,368	\$ 48,789	\$ 240,114	

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	Base Year FY 16-17	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	1ST 10-YEAR SUBTOTAL
Community Support												
Management Services ⁹	\$ 268,707	\$ -	\$ 25	\$ 217	\$ 718	\$ 1,219	\$ 1,750	\$ 2,283	\$ 2,653	\$ 2,732	\$ 2,813	\$ 14,410
Community Support Total	\$ -	\$ 25	\$ 217	\$ 718	\$ 1,219	\$ 1,750	\$ 2,283	\$ 2,653	\$ 2,732	\$ 2,813	\$ 14,410	
EXPENDITURES SUBTOTAL	\$ -	\$ 5,683	\$ 58,918	\$ 172,648	\$ 286,666	\$ 407,316	\$ 528,303	\$ 612,467	\$ 630,384	\$ 648,834	\$ 3,351,218	
CONTINGENCY	0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EXPENDITURES TOTAL	\$ -	\$ 5,683	\$ 58,918	\$ 172,648	\$ 286,666	\$ 407,316	\$ 528,303	\$ 612,467	\$ 630,384	\$ 648,834	\$ 3,351,218	
GENERAL FUND SURPLUS/(DEFICIT)	\$ 2,048	\$ 17,245	\$ 26,420	\$ 38,693	\$ 57,065	\$ 70,947	\$ 71,836	\$ 72,000	\$ 74,616	\$ 77,317	\$ 508,187	
ROAD FUND												
REVENUE												
<u>Licenses and Permits</u>												
Licenses and Permits ^{5,14}	\$ 2,476,550	\$ -	\$ -	\$ 1,817	\$ 8,892	\$ 16,389	\$ 24,328	\$ 32,729	\$ 39,505	\$ 40,690	\$ 41,911	\$ 206,261
Subtotal	\$ -	\$ -	\$ 1,817	\$ 8,892	\$ 16,389	\$ 24,328	\$ 32,729	\$ 39,505	\$ 40,690	\$ 41,911	\$ 206,261	
<u>Intergovernmental Revenues</u>												
County Gasoline Tax ³	\$ 665,250	\$ -	\$ -	\$ 488	\$ 2,389	\$ 4,402	\$ 6,535	\$ 8,792	\$ 10,612	\$ 10,930	\$ 11,258	\$ 55,406
State Gasoline Tax ³	1,793,365	-	-	1,316	6,439	11,868	17,617	23,700	28,607	29,465	30,349	149,361
Subtotal	2,458,615	\$ -	\$ -	\$ 1,804	\$ 8,827	\$ 16,270	\$ 24,152	\$ 32,492	\$ 39,219	\$ 40,395	\$ 41,607	\$ 204,767
<u>Miscellaneous</u>												
Interest Earned ⁷	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
REVENUE TOTAL	\$ -	\$ -	\$ 3,622	\$ 17,719	\$ 32,659	\$ 48,480	\$ 65,221	\$ 78,723	\$ 81,085	\$ 83,518	\$ 411,027	
EXPENDITURES												
Public Works ¹⁵	Appendix 9	\$ -	\$ -	\$ -	\$ 163,145	\$ 164,156	\$ 164,184	\$ 164,213	\$ 164,243	\$ 164,274	\$ 164,305	\$ 1,148,520
EXPENDITURES SUBTOTAL	\$ -	\$ -	\$ -	\$ 163,145	\$ 164,156	\$ 164,184	\$ 164,213	\$ 164,243	\$ 164,274	\$ 164,305	\$ 1,148,520	
CONTINGENCY	0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EXPENDITURES TOTAL	\$ -	\$ -	\$ -	\$ 163,145	\$ 164,156	\$ 164,184	\$ 164,213	\$ 164,243	\$ 164,274	\$ 164,305	\$ 1,148,520	
ROAD FUND SURPLUS/(DEFICIT)	\$ -	\$ -	\$ 3,622	\$ (145,426)	\$ (131,496)	\$ (115,704)	\$ (98,993)	\$ (85,520)	\$ (83,189)	\$ (80,787)	\$ (737,493)	

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>2038</u>	<u>10-YEAR SUBTOTAL</u>	<u>20-YEAR TOTAL</u>
GENERAL FUND												
<u>REVENUE</u>												
<u>Taxes</u>												
Ad Valorem ¹	\$ 453,583	\$ 467,190	\$ 481,206	\$ 495,642	\$ 510,512	\$ 525,827	\$ 541,602	\$ 557,850	\$ 574,585	\$ 591,823	\$ 5,199,820	\$ 7,526,107
Subtotal	\$ 453,583	\$ 467,190	\$ 481,206	\$ 495,642	\$ 510,512	\$ 525,827	\$ 541,602	\$ 557,850	\$ 574,585	\$ 591,823	\$ 5,199,820	\$ 7,526,107
<u>Licenses and Permits</u>												
Business Licenses ³	\$ 102,463	\$ 105,537	\$ 108,703	\$ 111,964	\$ 115,323	\$ 118,782	\$ 122,346	\$ 126,016	\$ 129,797	\$ 133,690	\$ 1,174,619	\$ 1,664,196
Liquor Licenses ³	4,404	4,536	4,672	4,813	4,957	5,106	5,259	5,417	5,579	5,747	50,490	71,534
City Gaming Licenses ²	-	-	-	-	-	-	-	-	-	-	-	-
Franchise Fees ³	76,989	79,298	81,677	84,128	86,651	89,251	91,928	94,686	97,527	100,453	882,588	1,250,447
Nonbusiness Licenses and Permits ⁵	928	956	985	1,014	1,045	1,076	1,108	1,142	1,176	1,211	10,640	15,075
Subtotal	\$ 184,784	\$ 190,327	\$ 196,037	\$ 201,918	\$ 207,976	\$ 214,215	\$ 220,641	\$ 227,261	\$ 234,078	\$ 241,101	\$ 2,118,338	\$ 3,001,253
<u>Intergovernmental Revenue</u>												
Consolidated Tax-CCRT Revenue ⁴	\$ 32,092	\$ 33,055	\$ 34,047	\$ 35,068	\$ 36,120	\$ 37,204	\$ 38,320	\$ 39,469	\$ 40,653	\$ 41,873	\$ 367,900	\$ 639,463
Consolidated Tax-Other Revenue ⁵	63,512	65,418	67,380	69,402	71,484	73,628	75,837	78,112	80,455	82,869	728,097	1,031,566
State Distributive Fund-Sales Tax ⁴	2,203	2,269	2,337	2,407	2,479	2,553	2,630	2,709	2,790	2,874	25,251	43,889
State Distributive Fund-Other ⁶	963	992	1,021	1,052	1,084	1,116	1,150	1,184	1,220	1,256	11,038	15,976
County Gaming Licenses ²	-	-	-	-	-	-	-	-	-	-	-	-
Other Intergovernmental Revenue ⁷	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	\$ 98,770	\$ 101,733	\$ 104,785	\$ 107,929	\$ 111,166	\$ 114,501	\$ 117,936	\$ 121,475	\$ 125,119	\$ 128,872	\$ 1,132,286	\$ 1,730,894
<u>Charges for Services</u>												
Building and Zoning Fees ⁷	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other ⁸	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Fines and Forfeits</u>												
Fines ³	\$ 10,798	\$ 11,122	\$ 11,456	\$ 11,800	\$ 12,154	\$ 12,518	\$ 12,894	\$ 13,281	\$ 13,679	\$ 14,089	\$ 123,790	\$ 175,386
<u>Miscellaneous</u>												
Miscellaneous ⁷	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
REVENUE TOTAL	\$ 747,935	\$ 770,373	\$ 793,484	\$ 817,289	\$ 841,807	\$ 867,061	\$ 893,073	\$ 919,865	\$ 947,461	\$ 975,885	\$ 8,574,234	\$ 12,433,639

APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS

	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>2038</u>	<u>10-YEAR SUBTOTAL</u>	<u>20-YEAR TOTAL</u>
<u>EXPENDITURES</u>												
General Government												
Legislative ⁹	\$ 4,730	\$ 4,870	\$ 5,015	\$ 5,164	\$ 5,318	\$ 5,476	\$ 5,638	\$ 5,806	\$ 5,978	\$ 6,156	\$ 54,151	\$ 77,682
Mayor ⁹	1,181	1,216	1,252	1,289	1,328	1,367	1,408	1,450	1,493	1,537	13,520	19,395
Management Services ⁹	64,315	66,226	68,194	70,221	72,308	74,456	76,669	78,947	81,293	83,709	736,339	1,056,305
Legal ⁹	17,440	17,958	18,492	19,041	19,607	20,190	20,790	21,408	22,044	22,699	199,669	286,432
Financial Services ⁹	32,820	33,795	34,800	35,834	36,898	37,995	39,124	40,287	41,484	42,717	375,753	539,031
Community Services ⁹	11,134	11,464	11,805	12,156	12,517	12,889	13,272	13,667	14,073	14,491	127,467	182,857
General Government Total	\$ 131,620	\$ 135,531	\$ 139,558	\$ 143,705	\$ 147,976	\$ 152,373	\$ 156,901	\$ 161,563	\$ 166,364	\$ 171,308	\$ 1,506,899	\$ 2,161,702
Judicial												
Judicial ¹⁰	\$ 37,013	\$ 38,124	\$ 39,267	\$ 40,445	\$ 41,659	\$ 42,908	\$ 44,196	\$ 45,522	\$ 46,887	\$ 48,294	\$ 424,315	\$ 601,168
Judicial Total	\$ 37,013	\$ 38,124	\$ 39,267	\$ 40,445	\$ 41,659	\$ 42,908	\$ 44,196	\$ 45,522	\$ 46,887	\$ 48,294	\$ 424,315	\$ 601,168
Public Safety												
<u>Police</u>												
Police ¹¹	\$ 307,060	\$ 315,838	\$ 324,874	\$ 334,177	\$ 343,755	\$ 353,615	\$ 363,766	\$ 374,216	\$ 384,975	\$ 396,051	\$ 3,498,327	\$ 4,998,387
<u>Fire</u>												
Fire ¹²	\$ 110,620	\$ 113,939	\$ 117,357	\$ 120,878	\$ 124,504	\$ 128,239	\$ 132,086	\$ 136,049	\$ 140,130	\$ 144,334	\$ 1,268,137	\$ 1,888,695
<u>Community Services</u>												
Community Services ¹⁰	\$ 22,261	\$ 22,928	\$ 23,616	\$ 24,325	\$ 25,055	\$ 25,806	\$ 26,580	\$ 27,378	\$ 28,199	\$ 29,045	\$ 255,193	\$ 361,557
Public Safety Total	\$ 439,941	\$ 452,705	\$ 465,847	\$ 479,380	\$ 493,313	\$ 507,660	\$ 522,433	\$ 537,643	\$ 553,305	\$ 569,431	\$ 5,021,657	\$ 7,248,638
Public Works												
Community Services ¹³	\$ 6,108	\$ 6,292	\$ 6,480	\$ 6,675	\$ 6,875	\$ 7,081	\$ 7,294	\$ 7,513	\$ 7,738	\$ 7,970	\$ 70,026	\$ 108,084
Public Works Total	\$ 6,108	\$ 6,292	\$ 6,480	\$ 6,675	\$ 6,875	\$ 7,081	\$ 7,294	\$ 7,513	\$ 7,738	\$ 7,970	\$ 70,026	\$ 108,084
Culture and Recreation												
Community Services ¹⁰	\$ 50,253	\$ 51,761	\$ 53,313	\$ 54,913	\$ 56,560	\$ 58,257	\$ 60,005	\$ 61,805	\$ 63,659	\$ 65,569	\$ 576,095	\$ 816,209
Culture and Recreation Total	\$ 50,253	\$ 51,761	\$ 53,313	\$ 54,913	\$ 56,560	\$ 58,257	\$ 60,005	\$ 61,805	\$ 63,659	\$ 65,569	\$ 576,095	\$ 816,209

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>2038</u>	<u>10-YEAR SUBTOTAL</u>	<u>20-YEAR TOTAL</u>
Community Support												
Management Services ⁹	\$ 2,896	\$ 2,983	\$ 3,071	\$ 3,162	\$ 3,256	\$ 3,353	\$ 3,453	\$ 3,555	\$ 3,661	\$ 3,770	\$ 33,161	\$ 47,571
Community Support Total	\$ 2,896	\$ 2,983	\$ 3,071	\$ 3,162	\$ 3,256	\$ 3,353	\$ 3,453	\$ 3,555	\$ 3,661	\$ 3,770	\$ 33,161	\$ 47,571
EXPENDITURES SUBTOTAL	\$ 667,831	\$ 687,394	\$ 707,538	\$ 728,281	\$ 749,639	\$ 771,633	\$ 794,281	\$ 817,601	\$ 841,614	\$ 866,341	\$ 7,632,154	\$ 10,983,372
CONTINGENCY	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EXPENDITURES TOTAL	\$ 667,831	\$ 687,394	\$ 707,538	\$ 728,281	\$ 749,639	\$ 771,633	\$ 794,281	\$ 817,601	\$ 841,614	\$ 866,341	\$ 7,632,154	\$ 10,983,372
GENERAL FUND SURPLUS/(DEFICIT)	\$ 80,103	\$ 82,979	\$ 85,946	\$ 89,008	\$ 92,168	\$ 95,428	\$ 98,793	\$ 102,264	\$ 105,847	\$ 109,544	\$ 942,080	\$ 1,450,267
ROAD FUND												
REVENUE												
<u>Licenses and Permits</u>												
Licenses and Permits ^{3,14}	\$ 43,168	\$ 44,463	\$ 45,797	\$ 47,171	\$ 48,586	\$ 50,043	\$ 51,545	\$ 53,091	\$ 54,684	\$ 56,324	\$ 494,871	\$ 701,132
Subtotal	\$ 43,168	\$ 44,463	\$ 45,797	\$ 47,171	\$ 48,586	\$ 50,043	\$ 51,545	\$ 53,091	\$ 54,684	\$ 56,324	\$ 494,871	\$ 701,132
<u>Intergovernmental Revenues</u>												
County Gasoline Tax ³	\$ 11,596	\$ 11,944	\$ 12,302	\$ 12,671	\$ 13,051	\$ 13,443	\$ 13,846	\$ 14,261	\$ 14,689	\$ 15,130	\$ 132,932	\$ 188,338
State Gasoline Tax ³	31,260	32,197	33,163	34,158	35,183	36,238	37,325	38,445	39,599	40,787	358,355	507,716
Subtotal	\$ 42,855	\$ 44,141	\$ 45,465	\$ 46,829	\$ 48,234	\$ 49,681	\$ 51,171	\$ 52,707	\$ 54,288	\$ 55,916	\$ 491,287	\$ 696,054
<u>Miscellaneous</u>												
Interest Earned ⁷	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
REVENUE TOTAL	\$ 86,023	\$ 88,604	\$ 91,262	\$ 94,000	\$ 96,820	\$ 99,724	\$ 102,716	\$ 105,798	\$ 108,972	\$ 112,241	\$ 986,159	\$ 1,397,186
EXPENDITURES												
Public Works ¹⁵	\$ 164,336	\$ 164,369	\$ 164,401	\$ 164,435	\$ 164,469	\$ 164,504	\$ 164,540	\$ 164,576	\$ 164,613	\$ 164,651	\$ 1,644,894	\$ 2,793,414
EXPENDITURES SUBTOTAL	\$ 164,336	\$ 164,369	\$ 164,401	\$ 164,435	\$ 164,469	\$ 164,504	\$ 164,540	\$ 164,576	\$ 164,613	\$ 164,651	\$ 1,644,894	\$ 2,793,414
CONTINGENCY	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EXPENDITURES TOTAL	\$ 164,336	\$ 164,369	\$ 164,401	\$ 164,435	\$ 164,469	\$ 164,504	\$ 164,540	\$ 164,576	\$ 164,613	\$ 164,651	\$ 1,644,894	\$ 2,793,414
ROAD FUND SURPLUS/(DEFICIT)	\$ (78,313)	\$ (75,764)	\$ (73,139)	\$ (70,435)	\$ (67,649)	\$ (64,779)	\$ (61,823)	\$ (58,778)	\$ (55,641)	\$ (52,410)	\$ (658,735)	\$ (1,396,228)

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

APPENDIX 6, ASSUMPTIONS:

Unless otherwise indicated, the analysis uses Estimated Current Year Ending 6/30/2017 (Fiscal Year 2016-2017) revenue and expenditure data from the City of Sparks Budget, FY 2017-18.

- 1 See Appendix 3 for calculations.
- 2 The analysis is conservative in not estimating the increase in some Sparks business-related revenues resulting from new residents of the development, though this increase is expected to occur.
- 3 ACM: Revenues are calculated based on estimated FY 2016-17 City of Sparks estimated per capita revenues inflated **3%** annually and applied to the estimated annual population of the Project. Per capita revenue is calculated by dividing FY 2016-17 revenue for each source by City of Sparks FY 2016-17 population of **93,581** Source: City of Sparks Budget FY 2017-18.
- 4 See Appendix 4 for calculations.
- 5 In addition to CCRT revenue, Consolidated tax for the City includes revenue from Real Property Transfer Tax, GST (MVPT), Cigarette and Liquor taxes. A per capita methodology as explained in footnote 3 is applied to estimate this revenue. Total Washoe County revenues from liquor, cigarette and GST (analysis conservatively does not include RPTT as it is not a recurring revenue) sources totaled **\$ 30,048,968** in FY 2016-2017. City of Sparks is estimated to receive **12.13%** of all County C-tax revenue. As a result, the City's portion of GST revenue is estimated at **\$ 3,643,715** and the ACM is applied to this amount.
Source: Nevada Department of Taxation. "Consolidated Tax Distribution." City of Sparks portion of C-tax revenue is based on a three-year average data for FY 2014-15 to FY 2016-17.
- 6 In addition to sales tax revenue, AB 104 revenue for the City includes revenue from property, gaming, and RPTT taxes and interest. Analysis is conservative in not estimating gaming, RPTT, and interest revenue. Property tax revenue is estimated in Appendix 3.
- 7 Though the project may generate revenue for the City from these sources, the amount is difficult to estimate and/or expected to be minimal.
- 8 Charges for services for the City include inter-department and inter-fund transfers, which, though impacted, may be difficult to estimate. Some charges for services revenue, such as false alarms may be generated by the project, but again are difficult to estimate.
- 9 Administrative service (indirect) costs assumed to be impacted by the project are calculated at **25.7%** of direct service costs.
Source: Average percent indirect costs of direct costs for FY 2016-17. Source: City of Sparks Budget, FY 2017-18.
- 10 ACM: Expenditures are calculated based on estimated FY 2016-17 City of Sparks budget per capita costs inflated **3%** annually and applied to estimated annual population of the Project. Per capita costs are calculated by dividing FY 2016-17 costs for each source by City of Sparks FY 2016-17 population of **93,581** Source: City of Sparks Budget FY 2017-18.
- 11 See Appendix 7 for calculations and assumptions.
- 12 See Appendix 8 for calculations and assumptions.
- 13 Expenditures for the Public Works source include Public Works administrative and facility maintenance costs. Costs associated with these services are estimated by dividing total expenditures for this source of **\$ 1,480,919** by the total square feet of City of Sparks streets of **67,541,767** and applying to the number of square feet added by the development of **195,400** inflated 3% annually. Source: Expenditures from City of Sparks budget FY 2017-18, City of Sparks streets inventory from City of Sparks Community Services Department.
- 14 Revenue estimates in 2018 are reduced by the one-time shift of some franchise revenues from the Road Fund to the Park & Recreation Project Fund.
- 15 See Appendix 9 for calculation and assumptions.

**APPENDIX 7
CITY OF SPARKS
POLICE DEPARTMENT COST PROJECTIONS**

<u>YEAR</u>	<u>CUMUL. NEW RESIDENTIAL POPULATION</u>	<u>OFFICERS REQUIRED</u>	<u>CIVILIANS REQUIRED</u>	<u>SALARY/ BENEFITS</u>	<u>SERVICES/ SUPPLIES</u>	<u>NEW/REPLACE. VEHICLE PURCHASE</u>	<u>ANNUALIZED VEHICLE COSTS</u>	<u>TOTAL COST</u>
2019	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -
2020	-	-	-	-	-	-	-	-
2021	61	0.09	0.03	12,150	426	-	9,514	22,090
2022	290	0.43	0.14	59,416	2,082	-	9,514	71,012
2023	519	0.78	0.26	109,460	3,836	-	9,514	122,810
2024	747	1.12	0.37	162,404	5,692	-	9,514	177,610
2025	976	1.46	0.49	218,378	7,653	28,600	9,514	235,545
2026	1,144	1.72	0.57	263,461	9,233	-	9,514	282,208
2027	1,144	1.72	0.57	271,233	9,506	-	9,514	290,252
2028	1,144	1.72	0.57	279,234	9,786	-	9,514	298,534
2029	1,144	1.72	0.57	287,472	10,075	-	9,514	307,060
2030	1,144	1.72	0.57	295,952	10,372	66,149	9,514	315,838
2031	1,144	1.72	0.57	304,683	10,678	-	9,514	324,874
2032	1,144	1.72	0.57	313,671	10,993	-	9,514	334,177
2033	1,144	1.72	0.57	322,924	11,317	-	9,514	343,755
2034	1,144	1.72	0.57	332,450	11,651	-	9,514	353,615
2035	1,144	1.72	0.57	342,257.54	11,995	76,499	9,514	363,766
2036	1,144	1.72	0.57	352,354	12,349	-	9,514	374,216
2037	1,144	1.72	0.57	362,749	12,713	-	9,514	384,975
2038	1,144	1.72	0.57	373,450	13,088	-	9,514	396,051
TOTAL				\$ 4,663,697	\$ 163,443	\$ 171,247	\$ 171,247	\$ 4,998,387

APPENDIX 7, ASSUMPTIONS:

- Population estimates are shown in Appendix 2 of the report.
- Uniformed officer positions are estimated at **1.5** positions per 1,000 population.
For non-uniformed positions, a ratio of **0.5** positions for every three uniformed positions, is used. Source: City of Sparks Police Department.
- The following City of Sparks salary information is used to estimate operating costs, inflated **3%** annually.

	<u>Salary Range</u>		
<u>FY 2017-18</u>	<u>Low</u>	<u>High</u>	<u>Average</u>
Police Officer \$	51,730	\$ 67,371	\$ 59,550
Sergeant	73,112	87,734	80,423
Crime Analyst	55,245	70,512	62,878
Records Technician	45,510	57,990	51,750
Police Office Assistant	34,070	43,368	38,719
GT/IT Support Specialist	44,866	57,179	51,022
Dispatcher	43,368	55,245	49,306
Weighted Average Officers \$	\$ 54,402	\$ 69,917	\$ 62,160
Weighted Average Civilians \$	\$ 40,351	\$ 51,396	\$ 45,873

Source: "Online Jobs Page." City of Sparks Human Resources.

- Benefits costs are calculated at **57.1%** of salaries.
Services/Supplies costs calculated at **3.5%** of salaries and benefits.
Source: Three-year average FY 2015-16 through FY 2017-18 from City of Sparks Budget FY 2017-18.
- One police vehicle is added for every 3 uniformed positions. The 2017 cost of a fully-equipped vehicle is **\$70,000** inflated 3% annually. Life of vehicle is 5 years and the analysis includes vehicle replacement costs with no salvage value. Source: City of Sparks Police Department.

**APPENDIX 8
CITY OF SPARKS
FIRE DEPARTMENT COST PROJECTIONS**

<u>YEAR</u>	<u>CUMUL. # OF UNITS</u>	<u>PROJECT CFS*</u>	<u>ESTIMATED COST/CFS</u>	<u>TOTAL EXPENSES</u>
2019	0	0.00	\$ 1,518	\$ -
2020	24	2.89	1,563	4,522
2021	114	13.74	1,610	22,122
2022	204	24.59	1,658	40,775
2023	294	35.44	1,708	60,527
2024	384	46.28	1,759	81,427
2025	450	54.24	1,812	98,285
2026	450	54.24	1,866	101,233
2027	450	54.24	1,922	104,270
2028	450	54.24	1,980	107,398
2029	450	54.24	2,039	110,620
2030	450	54.24	2,101	113,939
2031	450	54.24	2,164	117,357
2032	450	54.24	2,229	120,878
2033	450	54.24	2,295	124,504
2034	450	54.24	2,364	128,239
2035	450	54.24	2,435	132,086
2036	450	54.24	2,508	136,049
2037	450	54.24	2,584	140,130
2038	450	54.24	2,661	144,334
TOTAL			\$	1,888,695

*CFS-calls for service.

APPENDIX 8, ASSUMPTIONS:

- Number of residential units from Appendix 1. Analysis includes all units, not just occupied units, for Fire Department impacts.
- Residential calls for service are estimated using average cfs per unit data for single-family residential properties between FY 2011-12 and FY 2015-16, estimated at **0.12** cfs. Source: City of Sparks Fire Department and Washoe County Assessor's Office parcel data for number of single-family units.
- Costs to provide services to the development are estimated at **\$ 1,430.44** per call for service. This is estimated using total fire expenditures between FY 2011-12 and FY 2015-16 divided by total calls for service during this period. This includes costs for Administration, Emergency Services, and Training and Safety. Estimated costs are inflated 3% annually.

**APPENDIX 9
CITY OF SPARKS
STREET MAINTENANCE COST PROJECTIONS**

<u>YEAR</u>	<u>ADDED SQUARE FEET</u>	<u>ADDED LINEAR FEET</u>	<u>MAINTENANCE</u>					<u>REPAIR</u>			<u>TOTAL ANNUALIZED COST</u>	<u>TOTAL MAINT. COST</u>	
			<u>SEWER CLEANING COST</u>	<u>CATCH BASIN COST</u>	<u>STREET SWEEP COST</u>	<u>STREET STRIPING COST</u>	<u>TOTAL COST</u>	<u>SLURRY/ CRACK SEAL COST</u>	<u>3 INCH OVERLAY COST</u>	<u>ROAD REHAB COST</u>			
2019	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2020	-	-	-	-	-	-	-	-	-	-	-	-	-
2021	-	-	-	-	-	-	-	-	-	-	-	-	-
2022	195,400	5,300	-	-	421	-	421	-	-	-	-	162,724	163,145
2023	-	-	702	7	430	293	1,432	-	-	-	-	162,724	164,156
2024	-	-	716	7	438	298	1,460	-	-	-	-	162,724	164,184
2025	-	-	731	8	447	304	1,489	-	-	-	-	162,724	164,213
2026	-	-	745	8	456	310	1,519	-	-	-	-	162,724	164,243
2027	-	-	760	8	465	317	1,550	86,403	-	-	-	162,724	164,274
2028	-	-	775	8	474	323	1,581	-	-	-	-	162,724	164,305
2029	-	-	791	8	484	329	1,612	-	-	-	-	162,724	164,336
2030	-	-	807	8	493	336	1,645	-	-	-	-	162,724	164,369
2031	-	-	823	9	503	343	1,677	-	-	-	-	162,724	164,401
2032	-	-	839	9	513	350	1,711	-	1,030,273	-	-	162,724	164,435
2033	-	-	856	9	524	357	1,745	-	-	-	-	162,724	164,469
2034	-	-	873	9	534	364	1,780	-	-	-	-	162,724	164,504
2035	-	-	891	9	545	371	1,816	-	-	-	-	162,724	164,540
2036	-	-	908	9	556	378	1,852	-	-	-	-	162,724	164,576
2037	-	-	927	10	567	386	1,889	105,325	-	-	-	162,724	164,613
2038	-	-	945	10	578	394	1,927	-	-	2,032,479	-	162,724	164,651
TOTAL	195,400	5,300	\$ 13,088	\$ 136	\$ 8,428	\$ 5,454	\$ 27,106	\$ 191,727	\$ 1,030,273	\$ 2,032,479	\$ -	\$ 2,766,308	\$ 2,793,414

APPENDIX 9, ASSUMPTIONS:

1. The development is projected to construct approximately **5,300** linear feet or **195,400** square feet of streets to be dedicated to the City for maintenance in the year shown above.

**APPENDIX 9
CITY OF SPARKS
STREET MAINTENANCE COST PROJECTIONS**

2. The following street maintenance costs are used to estimate the impact of the development's streets on the City:

Item	Frequency	Cost		
Slurry/Crack Seal	Year 5 and 15	\$0.37	per square foot	
3 Inch Overlay	10 years	\$4.00	per square foot	
Road Rehabilitation	20 years	\$7.00	per square foot	
Sewer Cleaning	1.5 years	\$0.18	per linear foot	Note: 2/3 of the cost is added annually
Catch Basin Cleaning	1.75 years	\$11.56	per mile	Note: 3/5 of the cost is added annually
Street Sweeping	30 days	\$32.30	per mile	Note: cost is multiplied by 12 annually
Striping	1 year	\$0.05	per linear foot	

Costs are inflated 2% annually. Source: City of Sparks Community Services Department. Estimated repair (extraordinary maintenance) costs are annualized by taking the total estimated costs over the 20-year period and dividing by 20 years.

WINGFIELD COMMONS

Fiscal Impact Analysis

FEBRUARY 2018

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WINGFIELD COMMONS

FISCAL IMPACT ANALYSIS

FEBRUARY 2018

EXECUTIVE SUMMARY

Ekay Economic Consultants, Inc. (EEC) of Reno, Nevada was retained to conduct a fiscal impact analysis of the proposed Wingfield Commons project on the City of Sparks. The project includes 65 acres of land currently located in the City of Sparks. The project will include 530 single-family residential units built over a 12-year period. The following are the findings of the analysis:

General Fund

- The project is estimated to generate \$12.4 million in revenue for the City of Sparks General Fund over the 20-year analysis period (2018-2037). This includes real property tax, sales tax, and other revenue sources.
- The project is estimated to generate \$11.6 million in City of Sparks General Fund expenditures over the 20-year analysis period. This includes all General Fund expenditure sources (police, fire, judicial, etc.), as well as a 3% contingency amount.
- The project is estimated to have a cumulative positive impact (revenue surplus) on the City of Sparks General Fund of \$0.8 million over the 20-year analysis period.

Street/Road Fund

- The project is estimated to generate \$1.4 million in revenue for the City of Sparks Road Fund over the 20-year analysis period. The fund receives revenue primarily from fuel taxes, as well as franchise fees.
- The project is estimated to generate \$8.5 million in expenditures for the City of Sparks Road Fund. This includes all maintenance and repair costs associated with streets added to the City by the project.

Executive Summary

Wingfield Commons- Fiscal Impact Analysis

- The project is estimated to result in a deficit of \$7.1 million for the City of Sparks Road Fund over the 20-year analysis period. The deficit is due to a disconnect between limited sources of revenue available for this fund and high costs associated with street maintenance and repair. This disconnect applies not only to this project, but to all new and existing streets within the City as the existing Road Fund revenue structure is insufficient to meet street maintenance costs.

Other Impacts

- In addition to General and Road Fund impacts, the project is estimated to generate \$7.4 million in various development-related fees.
 - This includes \$0.8 million in building permit, \$0.3 million in plan review, \$0.1 million in current planning, \$0.4 million in fire inspection and plan review, \$2.1 million in region road impact, \$0.5 million in residential park tax, and \$3.2 million in sewer connection revenue.
- Additionally, the project will be located in the Impact Fee Service Area #1 (IFSA1), generating \$1.1 million in revenue to be spent in the IFSA1, including \$0.2 million in sanitary sewer, \$0.3 million in flood control, \$0.4 million in regional park/recreation, and \$0.2 million in fire station revenue.

WINGFIELD COMMONS FISCAL IMPACT ANALYSIS

FEBRUARY 2018

Ekay Economic Consultants, Inc. (EEC) of Reno, Nevada was retained to conduct a fiscal impact analysis of the proposed Wingfield Commons project on the City of Sparks. The project includes 65 acres of land currently located in the City of Sparks. Adjacent parcels, totaling 15 acres may also be included in the project. However, these parcels are currently located in the unincorporated area of Washoe County and will need to be annexed to the City. As a result, the analysis includes the fiscal impact of only the 65 acres currently located in the City of Sparks. The project will include 530 single-family residential units built over a 12-year period.

METHODOLOGY

Buildout assumptions for the development provide the foundation on which the fiscal impact analysis is based. These assumptions are presented in Appendix 1 and represent information provided by the developer based on past experience and existing market data.

The buildout spans twelve years; the analysis includes a 20-year period to show the long-term impact of the project (2018-2037). Appendix 1 shows annually the number of residential units and square feet constructed; land and improvement taxable values; and construction materials costs. It should be noted that information in Appendix 1 is based on the best information available to the developer as of the date of the report and may change as the project moves through the approval process and begins development. This fiscal impact analysis may be revised if such changes occur.

Methodology

Wingfield Commons- Fiscal Impact Analysis

Buildout assumptions shown in Appendix 1 are used to estimate revenue and costs generated by the development for the City of Sparks. Appendices at the end of this report present revenue and cost projections on an annual basis over the analysis period. Assumptions used in developing these estimates are presented at the end of each appendix. Those appendices are:

- Appendix 1: Buildout Assumptions
- Appendix 2: City of Sparks Estimated Number of Residents
- Appendix 3: City of Sparks Estimated Real Property Tax Revenue
- Appendix 4: City of Sparks Estimated Sales Tax Revenue
- Appendix 5: City of Sparks Estimated Permit and Impact Fee Revenue
- Appendix 6: City of Sparks Comparison of Estimated Revenue to Estimated Costs
- Appendix 7: City of Sparks Police Department Cost Projections
- Appendix 8: City of Sparks Fire Department Cost Projections
- Appendix 9: City of Sparks Street Maintenance Cost Projections

The following important assumptions were made in this analysis:

1. The analysis estimates 1,347 residents will reside at the project at full buildout. Due to low single-family home vacancy rates in the Reno-Sparks area, all residents of the project are estimated to be new residents of the City of Sparks, whether due to development residents moving to Sparks from outside the City or moving from existing Sparks homes, as these homes are expected to become occupied by new residents to the area. This is a conservative assumption that overestimates costs over revenues, as a high percentage of revenues are not estimated using a per capita methodology. The analysis does include an adjustment for housing vacancy as shown in Appendix 2.
2. The fiscal impact analysis for the City of Sparks includes all revenue and expenditure sources for the General and Road Funds. This is because the General Fund is expected to provide the majority of services to the project and receive the majority of its

Methodology

Wingfield Commons- Fiscal Impact Analysis

revenue. The Road Fund analysis is included, as the project will add new streets to the City of Sparks inventory, resulting in new costs for the City.

The Development Services Fund is omitted even though it will collect permit/fee revenue and will provide building inspection services to the development. Revenue and costs for this fund, and other similar funds, are accounted for in an Enterprise or Proprietary Funds which are required to break-even, minimizing any fiscal impact on the City. However, various building permit, plan review and impact fee revenue is estimated in Appendix 5 to show the impact of project construction on these revenue sources.

3. Fiscal impact revenue and cost estimates are made using three methodologies. The main methodology (direct methodology) utilizes existing tax rates, service levels, national service standards and information from department representatives to estimate direct costs associated with the project. This methodology is used to estimate expenditures associated with law enforcement, fire, and street maintenance costs, as well as revenues from sales, property tax, and impact fee sources.

If detailed information required for this type of analysis is not available or the impact on the revenue or expenditure source is expected to be directly related to population changes, the ACM (average cost method) is used to estimate costs and revenues associated with the project. This method uses per capita revenue and expenditure amounts applied to the estimated residential population of the project.

Indirect administrative costs, such as costs associated with providing services (human resources, finance, legal, etc.) to the direct service departments are estimated as percent of additional direct services (law enforcement, fire, etc.), the third methodology used in the analysis. Appendix 6 provides detailed assumptions and calculations for each of the three methods.

4. Costs and revenues estimated using the direct method are founded on methodology developed based on conversations with local government representatives. Costs

Methodology

Wingfield Commons- Fiscal Impact Analysis

associated with City of Sparks Fire, Police, and Community Services Departments are estimated using information provided by department representatives for this and/or past projects.

5. It is our understanding that the closest fire station to the Project is Station 5- 6490 Vista Blvd is located less than a 5 minute drive away from the Project (less than 1 mile), according to Google Maps. The analysis assumes services to the development will be provided by the existing fire station. Fire costs associated with the project are estimated in Appendix 8.

The Impact Fee Service Area #1 (IFSA1) collects impact fees from developments in this area; one of the fees is for the purposes of constructing a fire station. The project will contribute an estimated \$0.2 million in revenue for the IFSA1 fire station fund. Impact fee revenue is estimated in Appendix 5.

6. Police costs are estimated using a national staffing ratio of 1.5 uniformed officers per 1,000 population, as provided by the Sparks Police Department. Non-uniformed positions are also estimated, as well as vehicle costs associated with uniformed positions for the project. Police costs associated with the project are estimated in Appendix 7.
7. Information for the ACM and the indirect cost analyses was obtained from the fiscal year (FY) 2017-18 budget documents for City of Sparks. FY 2016-17 is used as the base year for the analysis, as this is the latest year for which non-budgeted, actual data is available.
8. Additional information for revenue and cost estimate methodology, sources of data, calculations, and findings is provided in the appendices attached to this report.

FINDINGS

The findings of the fiscal impact analysis are presented below with summaries for estimated revenue and costs for each fund.

Findings

Wingfield Commons- Fiscal Impact Analysis

Table 1 summarizes the estimated impact of the project on the City of Sparks General Fund over the 20-year analysis period. Detailed information on City of Sparks revenues and costs by line item, by year, as well as methodology for estimating these costs and revenues is found in Appendix 6. The table shows the project is estimated to result in a revenue surplus for the City of Sparks General Fund in the amount of \$0.8 million over the 20-year analysis period.

Table 1. Summary of Estimated City of Sparks General Fund Impacts, 20-Year Total

Estimated Revenue	
Taxes	\$ 7,481,801
Licenses and Permits	3,004,068
Intergovernmental	1,758,594
Charges for Services	-
Fines and Forfeits	175,550
Miscellaneous	-
TOTAL	\$ 12,420,013
Estimated Expenditures	
General Government	\$ 2,212,718
Judicial	601,732
Public Safety	7,271,419
Public Works	282,095
Culture & Recreation	816,974
Community Support	48,693
Contingency	337,009
TOTAL	\$ 11,570,641
Estimated Revenue Surplus/(Deficit)	
Revenue Surplus/(Deficit)	\$ 849,373

Table 2 shows the estimated impact of the project on the City of Sparks General Fund over the analysis period (2018-2037), by year. The table shows all years of the analysis show a positive fiscal impact on the City's General Fund.

Table 3 shows the 20-year estimated impact of the project on the Road Fund. Detailed information for these cost and revenue calculations can also be found in Appendix 6. The table shows the project is estimated to result in a revenue deficit for the City of Sparks Road Fund in the amount of \$7.1 million over the analysis period.

Findings

Wingfield Commons- Fiscal Impact Analysis

Table 2. Summary of Estimated City of Sparks General Fund Impacts, by Year

Year	Total Project Revenue	Total Project Costs	Annual Revenue Surplus	Cumulative Revenue Surplus
2018	\$ 2,048	\$ -	\$ 2,048	\$ 2,048
2019	16,044	5,683	10,362	12,410
2020	60,907	50,150	10,757	23,166
2021	135,274	119,173	16,101	39,267
2022	213,398	187,953	25,445	64,712
2023	295,430	265,163	30,267	94,978
2024	381,528	342,233	39,295	134,273
2025	471,855	428,369	43,486	177,759
2026	566,579	514,479	52,100	229,859
2027	665,875	610,335	55,541	285,400
2028	763,543	706,295	57,248	342,647
2029	851,405	801,912	49,493	392,140
2030	899,216	849,580	49,636	441,776
2031	926,192	874,548	51,644	493,420
2032	953,978	900,259	53,719	547,139
2033	982,597	926,733	55,864	603,003
2034	1,012,075	953,995	58,080	661,083
2035	1,042,437	982,067	60,370	721,453
2036	1,073,710	1,010,974	62,737	784,190
2037	1,105,922	1,040,739	65,183	849,373
Total	\$ 12,420,013	\$ 11,570,641	\$ 849,373	

Table 3. Summary of Estimated City of Sparks Road Fund Impacts, 20-Year Total

Estimated Revenue	
Licenses and Permits	\$ 701,789
Intergovernmental	696,707
Miscellaneous	-
Total Revenue	\$ 1,398,496
Estimated Expenditures	
Expenditures	\$ 8,458,589
Contingency	-
Cumulative Surplus/(Deficit)	
Surplus/(Deficit)	\$ (7,060,092)

Findings

Wingfield Commons- Fiscal Impact Analysis

Table 4 shows the estimated impact of the project on the City of Sparks Road Fund over the analysis period (2018-2037), by year. It should be noted that major road maintenance costs are expected by the Public Works department to occur 5-, 10-, 15-, and 20-years after road construction and dedication. These costs are annualized in the analysis and shown in the table below. However, these costs will not actually occur annually, but rather in five-year increments, with the largest expenditure occurring starting 20 years after initial road construction and dedication. Road rehabilitation costs will occur outside of the 20-year analysis period but are included in the analysis to show the long-term impact of the project.

Table 4. Summary of Estimated City of Sparks Road Fund Impacts, by Year

Year	Total Project Revenue	Total Project Costs	Annual Revenue Surplus	Cumulative Revenue Surplus
2018	\$ -	\$ -	\$ -	\$ -
2019	-	-	-	-
2020	3,516	-	3,516	3,516
2021	11,771	493,665	(481,895)	(478,378)
2022	20,517	494,346	(473,828)	(952,207)
2023	29,778	494,660	(464,882)	(1,417,089)
2024	39,576	495,387	(455,812)	(1,872,901)
2025	49,935	495,735	(445,800)	(2,318,701)
2026	60,879	496,512	(435,633)	(2,754,333)
2027	72,436	496,894	(424,458)	(3,178,791)
2028	84,631	497,724	(413,093)	(3,591,884)
2029	97,493	498,143	(400,650)	(3,992,534)
2030	104,356	499,029	(394,673)	(4,387,207)
2031	107,486	499,142	(391,656)	(4,778,863)
2032	110,711	499,257	(388,546)	(5,167,409)
2033	114,032	499,375	(385,342)	(5,552,751)
2034	117,453	499,494	(382,041)	(5,934,793)
2035	120,977	499,617	(378,640)	(6,313,433)
2036	124,606	499,741	(375,135)	(6,688,568)
2037	128,344	499,869	(371,524)	(7,060,092)
Total	\$ 1,398,496	\$ 8,458,589	\$ (7,060,092)	

Findings

Wingfield Commons- Fiscal Impact Analysis

Table 4 shows a revenue deficit generated by the project for the City of Sparks Road Fund. One of the Fund's revenue sources, franchise fees, was reduced in FY 2017-18, resulting in lower revenues for the Fund. This is proposed to be a single-year reduction.

Furthermore, road maintenance costs used to estimate Road Fund expenditures associated with the project were provided by the City of Sparks Community Services Department. These estimates result in an annualized road maintenance cost of \$143,217 per mile of new roads added by the project, including routine and repair/rehabilitation costs. City of Sparks currently maintains 650 miles of roads. Using its historical road fund expenditures, road maintenance costs for the City were estimated at \$7,090 per mile in FY 2013-14 increasing to \$12,141 per mile in FY 2016-17, before dropping to \$7,025 per mile in FY 2017-18. The Capital Improvements Plan for the City estimates future Road Fund costs of \$2.2 million in FY 2018-19, \$1.9 million in FY 2019-20, \$2.2 million in FY 2020-21, and \$2.2 million in FY 2021-22. These are costs to maintain the City's 650 miles of streets.¹ This is compared to annual costs of almost \$500,000 in road maintenance costs added by the project's 3.5 miles.

Project-related street maintenance costs, estimated using the methodology provided by City staff, are significantly higher than the City's existing expenditures for road maintenance, resulting in a Road Fund deficit in this analysis. City of Sparks existing revenue sources for the Road Fund are insufficient to cover the desired level of road maintenance services; alternative revenue sources for the Fund are needed. *This disconnect between desired Road Fund actual and desired maintenance costs and Fund revenues applies not only to this project, but to all new projects adding public streets to the City.*

In addition to General and Road Fund impacts, the project is estimated to generate \$7.4 million in various development-related fees. This includes \$0.8 million in building permit, \$0.3 million in plan review, \$0.1 million in current planning, \$0.4 million in fire inspection

¹ "City Manager's FY18 Budget Recommendations," City of Sparks.

Findings

Wingfield Commons- Fiscal Impact Analysis

and plan review, \$2.1 million in region road impact, \$0.5 million in residential park tax, and \$3.2 million in sewer connection revenue.

Additionally, the project will be located in the Impact Fee Service Area #1 (IFSA1), generating \$1.1 million in revenue to be spent in the IFSA1, including \$0.2 million in sanitary sewer, \$0.3 million in flood control, \$0.4 million in regional park/recreation, and \$0.2 million in fire station revenue.

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Limiting Conditions & Disclosures

Wingfield Commons- Fiscal Impact Analysis

LIMITING CONDITIONS & DISCLOSURES

In the preparation of this report, EEC asserts:

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APPENDICES

APPENDIX I BUILDOUT ASSUMPTIONS						
YEAR	USE TYPE	SQUARE FEET BUILT	# OF UNITS BUILT	ADDED LAND VALUE	ADDED IMPROVEMENTS VALUE	CONSTRUCTION MATERIALS COST
2018	Single Story SF	-	-	\$ 669,180	\$ -	\$ -
	Two Story SF	-	-	669,180	-	-
Subtotal		-	-	1,338,360	-	-
2019	Single Story SF	21,600	12	1,505,655	1,889,856	944,928
	Two Story SF	31,200	12	1,505,655	2,477,376	1,238,688
Subtotal		52,800	24	3,011,310	4,367,232	2,183,616
2020	Single Story SF	48,600	27	1,505,655	4,337,220	2,168,610
	Two Story SF	70,200	27	1,505,655	5,685,578	2,842,789
Subtotal		118,800	54	3,011,310	10,022,797	5,011,399
2021	Single Story SF	48,600	27	1,505,655	4,423,964	2,211,982
	Two Story SF	70,200	27	1,505,655	5,799,289	2,899,645
Subtotal		118,800	54	3,011,310	10,223,253	5,111,627
2022	Single Story SF	48,600	27	1,505,655	4,512,443	2,256,222
	Two Story SF	70,200	27	1,505,655	5,915,275	2,957,638
Subtotal		118,800	54	3,011,310	10,427,718	5,213,859
2023	Single Story SF	48,600	27	1,505,655	4,602,692	2,301,346
	Two Story SF	70,200	27	1,505,655	6,033,581	3,016,790
Subtotal		118,800	54	3,011,310	10,636,273	5,318,136
2024	Single Story SF	48,600	27	1,505,655	4,694,746	2,347,373
	Two Story SF	70,200	27	1,505,655	6,154,252	3,077,126
Subtotal		118,800	54	3,011,310	10,848,998	5,424,499
2025	Single Story SF	48,600	27	1,505,655	4,788,641	2,394,320
	Two Story SF	70,200	27	1,505,655	6,277,337	3,138,669
Subtotal		118,800	54	3,011,310	11,065,978	5,532,989
2026	Single Story SF	48,600	27	1,505,655	4,884,414	2,442,207
	Two Story SF	70,200	27	1,505,655	6,402,884	3,201,442
Subtotal		118,800	54	3,011,310	11,287,298	5,643,649
2027	Single Story SF	48,600	27	1,505,655	4,982,102	2,491,051
	Two Story SF	70,200	27	1,505,655	6,530,942	3,265,471
Subtotal		118,800	54	3,011,310	11,513,044	5,756,522
2028	Single Story SF	48,600	27	557,650	5,081,744	2,540,872
	Two Story SF	70,200	27	557,650	6,661,561	3,330,780
Subtotal		118,800	54	1,115,300	11,743,305	5,871,652
2029	Single Story SF	18,000	10	-	1,919,770	959,885
	Two Story SF	26,000	10	-	2,516,590	1,258,295
Subtotal		44,000	20	-	4,436,360	2,218,180
TOTAL		1,166,000	530	\$ 29,555,450	\$ 106,572,256	\$ 53,286,128

APPENDIX 1, ASSUMPTIONS:

1. The following land and building costs represent the Developer's best estimate in 2018. Analysis adds land value in the year before construction and improvement value in the year of construction.

	# of Units	Total Square Feet	Projected Sales Price/Unit	Land Value/Unit	Improv. Value/Unit
Single Story SF	265	477,000	\$ 340,000	\$ 55,765	\$ 154,400
Two Story SF	265	689,000	400,000	55,765	202,400
	530	1,166,000			

Source: Number of units, square footage, improvement value per unit, and projected sales price from Developer. Land value based on data for homes in nearby developments. Source: Washoe County Assessor's website. Improvement values are inflated 2% annually.

2. Construction Materials Cost is estimated at 50% of Building Cost. Source: Discussions with contractors.

APPENDIX 2 CITY OF SPARKS ESTIMATED NUMBER OF RESIDENTS					
YEAR	USE TYPE	# OF UNITS BUILT	CUMUL. # OF OCCUPIED UNITS	CUMUL. NO. OF RESIDENTS	% OF SPARKS POPULATION
2018	Single Story SF	-	-	-	0.00%
	Two Story SF	-	-	-	0.00%
Subtotal		-	-	-	0.00%
2019	Single Story SF	12	-	-	0.00%
	Two Story SF	12	-	-	0.00%
Subtotal		24	-	-	0.00%
2020	Single Story SF	27	12	31	0.03%
	Two Story SF	27	12	31	0.03%
Subtotal		54	23	61	0.07%
2021	Single Story SF	27	38	99	0.11%
	Two Story SF	27	38	99	0.11%
Subtotal		54	75	198	0.21%
2022	Single Story SF	27	64	168	0.18%
	Two Story SF	27	64	168	0.18%
Subtotal		54	127	336	0.36%
2023	Single Story SF	27	90	236	0.25%
	Two Story SF	27	90	236	0.25%
Subtotal		54	179	473	0.51%
2024	Single Story SF	27	116	305	0.33%
	Two Story SF	27	116	305	0.33%
Subtotal		54	232	610	0.65%
2025	Single Story SF	27	142	374	0.40%
	Two Story SF	27	142	374	0.40%
Subtotal		54	284	747	0.80%
2026	Single Story SF	27	168	442	0.47%
	Two Story SF	27	168	442	0.47%
Subtotal		54	336	885	0.95%
2027	Single Story SF	27	194	511	0.55%
	Two Story SF	27	194	511	0.55%
Subtotal		54	388	1,022	1.09%
2028	Single Story SF	27	220	580	0.62%
	Two Story SF	27	220	580	0.62%
Subtotal		54	440	1,159	1.24%
2029	Single Story SF	10	246	648	0.69%
	Two Story SF	10	246	648	0.69%
Subtotal		20	492	1,297	1.39%
2030	Single Story SF	-	256	674	0.72%
	Two Story SF	-	256	674	0.72%
Subtotal		-	511	1,347	1.44%
TOTAL		530			

APPENDIX 2, ASSUMPTIONS:

1. Number of residential units and square feet of buildings from Appendix 1.
2. Occupied single-family units are estimated using a vacancy rate of 3.5% to account for household movement and other timing issues. Households are assumed to be occupied a year after construction. Source: Center for Regional Studies, University of Nevada, Reno, based on data from the American Community Survey.
3. Residents are estimated using a ratio of **2.63** residents per occupied household/unit. Source: "Comparative Housing Characteristics." 2016 American Community Survey 1-Year Estimates, US Census Bureau. Data for Sparks, NV.
4. City of Sparks FY 2016-17 population is estimated at **93,581** Source: City of Sparks Budget, FY 2017-18. This is used to estimate the percent of existing population generated by the project.

APPENDIX 3
CITY OF SPARKS
ESTIMATED REAL PROPERTY TAX REVENUE

YEAR	USE TYPE	ADDED TAX. LAND VALUE (\$)	ADDED TAX. IMPROVEMENT VALUE (\$)	CUMULATIVE TOTAL TAX. VALUE (\$)	CUMULATIVE ASSESSED VALUE (\$)	GENERAL FUND REVENUE	AB 104 REVENUE
2018	Single Story SF	\$ 304,180	\$ -	\$ 304,180	\$ 106,463	\$ 1,022	\$ 2
	Two Story SF	304,180	-	304,180	106,463	1,022	2
Subtotal		608,360	-	608,360	212,926	2,044	4
2019	Single Story SF	1,140,655	1,773,898	1,453,960	508,886	4,884	10
	Two Story SF	1,140,655	2,361,418	1,453,960	508,886	4,884	10
Subtotal		2,281,310	4,135,315	2,907,921	1,017,772	9,769	21
2020	Single Story SF	1,505,655	4,337,220	4,830,349	1,690,622	16,227	34
	Two Story SF	1,505,655	5,685,578	5,435,494	1,902,423	18,259	39
Subtotal		3,011,310	10,022,797	10,265,843	3,593,045	34,486	73
2021	Single Story SF	1,505,655	4,423,964	10,948,250	3,831,888	36,778	78
	Two Story SF	1,505,655	5,799,289	12,960,359	4,536,126	43,538	92
Subtotal		3,011,310	10,223,253	23,908,610	8,368,013	80,316	170
2022	Single Story SF	1,505,655	4,512,443	17,339,036	6,068,662	58,247	124
	Two Story SF	1,505,655	5,915,275	20,828,093	7,289,833	69,968	149
Subtotal		3,011,310	10,427,718	38,167,129	13,358,495	128,215	272
2023	Single Story SF	1,505,655	4,602,692	24,012,678	8,404,437	80,666	171
	Two Story SF	1,505,655	6,033,581	29,051,325	10,167,964	97,592	207
Subtotal		3,011,310	10,636,273	53,064,003	18,572,401	178,258	378
2024	Single Story SF	1,505,655	4,694,746	30,979,486	10,842,820	104,069	221
	Two Story SF	1,505,655	6,154,252	37,643,108	13,175,088	126,454	268
Subtotal		3,011,310	10,848,998	68,622,594	24,017,908	230,524	489
2025	Single Story SF	1,505,655	4,788,641	38,250,114	13,387,540	128,494	273
	Two Story SF	1,505,655	6,277,337	46,616,936	16,315,927	156,600	332
Subtotal		3,011,310	11,065,978	84,867,050	29,703,467	285,094	605
2026	Single Story SF	1,505,655	4,884,414	45,835,573	16,042,450	153,975	327
	Two Story SF	1,505,655	6,402,884	55,986,756	19,595,365	188,076	399
Subtotal		3,011,310	11,287,298	101,822,329	35,637,815	342,052	726
2027	Single Story SF	1,505,655	4,982,102	53,747,241	18,811,534	180,553	383
	Two Story SF	1,505,655	6,530,942	65,766,985	23,018,445	220,931	469
Subtotal		3,011,310	11,513,044	119,514,226	41,829,979	401,484	852
2028	Single Story SF	557,650	5,081,744	61,048,873	21,367,106	205,081	435
	Two Story SF	557,650	6,661,561	75,024,514	26,258,580	252,030	535
Subtotal		1,115,300	11,743,305	136,073,387	47,625,686	457,111	970
2029	Single Story SF	-	1,919,770	68,114,535	23,840,087	228,817	486
	Two Story SF	-	2,516,590	84,136,657	29,447,830	282,640	600
Subtotal		-	4,436,360	152,251,193	53,287,917	511,457	1,086
2030	Single Story SF	-	-	72,135,334	25,247,367	242,324	514
	Two Story SF	-	-	89,252,844	31,238,496	299,827	636
Subtotal		-	-	161,388,179	56,485,863	542,151	1,151
2031	Single Story SF	-	-	74,299,395	26,004,788	249,594	530
	Two Story SF	-	-	91,930,430	32,175,650	308,822	656
Subtotal		-	-	166,229,824	58,180,438	558,416	1,185
2032	Single Story SF	-	-	76,528,376	26,784,932	257,082	546
	Two Story SF	-	-	94,688,343	33,140,920	318,087	675
Subtotal		-	-	171,216,719	59,925,852	575,168	1,221
2033	Single Story SF	-	-	78,824,228	27,588,480	264,794	562
	Two Story SF	-	-	97,528,993	34,135,148	327,629	695
Subtotal		-	-	176,353,221	61,723,627	592,423	1,258

APPENDIX 3 CITY OF SPARKS ESTIMATED REAL PROPERTY TAX REVENUE							
YEAR	USE TYPE	ADDED TAX. LAND VALUE (\$)	ADDED TAX. IMPROVEMENT VALUE (\$)	CUMULATIVE TOTAL TAX. VALUE (\$)	CUMULATIVE ASSESSED VALUE (\$)	GENERAL FUND REVENUE	AB 104 REVENUE
2034	Single Story SF	-	-	81,188,954	28,416,134	272,738	579
	Two Story SF	-	-	100,454,863	35,159,202	337,458	716
Subtotal		-	-	181,643,817	63,575,336	610,196	1,295
2035	Single Story SF	-	-	83,624,623	29,268,618	280,920	596
	Two Story SF	-	-	103,468,509	36,213,978	347,582	738
Subtotal		-	-	187,093,132	65,482,596	628,502	1,334
2036	Single Story SF	-	-	86,133,362	30,146,677	289,348	614
	Two Story SF	-	-	106,572,564	37,300,397	358,009	760
Subtotal		-	-	192,705,926	67,447,074	647,357	1,374
2037	Single Story SF	-	-	88,717,363	31,051,077	298,028	633
	Two Story SF	-	-	109,769,741	38,419,409	368,749	783
Subtotal		-	-	198,487,103	69,470,486	666,778	1,415
TOTAL		\$ 28,095,450	\$ 106,340,339			\$ 7,481,801	\$ 15,882

APPENDIX 3, ASSUMPTIONS:

1. The project is currently located in the City of Sparks, generating property tax revenue for the City. The analysis subtracts existing taxable value of project parcels from amounts estimated in this analysis to arrive at incremental property tax revenue generated by project development. Existing project values are as follows:

Parcel Number	Taxable Land Value	Taxable Improv. Value	Acres
084-550-02	\$ 1,290,000	\$ 29,148	60.0
084-550-07	85,000	117,769	2.5
084-550-08	85,000	85,000	2.5
	\$ 1,460,000	\$ 231,917	65.0

Source: Washoe County Assessor's website.

2. Taxable value of land and improvements is estimated in Appendix 1.

3. Land and improvement taxable values are inflated by **3.0%** annually, the maximum allowed increase for owner-occupied properties.

4. Property tax calculation: Taxable Value X 35% = Assessed Value; Assessed Value/100 X Tax Rate = Property Tax Revenue.

Analysis assumes improvements will generate property tax revenue in the year after improvements are made to account for work-in-progress.

Land values will generate property tax in the year developed.

5. City of Sparks General Fund operating tax rate is assumed to remain constant at FY 2017-18 rate of **\$ 0.9598** per \$100 of value. Source: City of Sparks Budget, FY 2017-18.

6. City of Sparks is expected to receive **7.49%** of property tax revenue generated by the AB 104 property tax rate of **\$ 0.0272** Source: Nevada Department of Taxation. "Local Gov't Tax Act Distribution." Three-year average FY 2014-15, FY 2015-16, and 2016-17.

**APPENDIX 4
CITY OF SPARKS
ESTIMATED SALES TAX REVENUE**

<u>YEAR</u>	<u>USE TYPE</u>	<u>CONSTR. MATERIALS COST</u>	<u>HOUSEHOLD EXPENDITURES</u>	<u>TOTAL TAXABLE SALES</u>	<u>CCRT SALES TAX REVENUE</u>	<u>AB 104 SALES TAX REVENUE</u>
2018	Single Story SF Two Story SF	\$ - -	\$ - -	\$ - -	\$ - -	\$ - -
Subtotal		-	-	-	-	-
2019	Single Story SF Two Story SF	944,928 1,238,688	- -	944,928 1,238,688	2,533 3,320	174 228
Subtotal		2,183,616	-	2,183,616	5,853	402
2020	Single Story SF Two Story SF	2,168,610 2,842,789	243,206 246,158	2,411,816 3,088,947	6,465 8,280	444 568
Subtotal		5,011,399	489,365	5,500,763	14,745	1,012
2021	Single Story SF Two Story SF	2,211,982 2,899,645	814,133 824,015	3,026,115 3,723,659	8,112 9,982	557 685
Subtotal		5,111,627	1,638,148	6,749,775	18,093	1,242
2022	Single Story SF Two Story SF	2,256,222 2,957,638	1,419,097 1,436,321	3,675,319 4,393,958	9,852 11,778	676 808
Subtotal		5,213,859	2,855,418	8,069,277	21,630	1,485
2023	Single Story SF Two Story SF	2,301,346 3,016,790	2,059,626 2,084,624	4,360,972 5,101,414	11,690 13,675	802 939
Subtotal		5,318,136	4,144,250	9,462,386	25,365	1,741
2024	Single Story SF Two Story SF	2,347,373 3,077,126	2,737,309 2,770,532	5,084,682 5,847,658	13,630 15,675	935 1,076
Subtotal		5,424,499	5,507,841	10,932,341	29,305	2,011
2025	Single Story SF Two Story SF	2,394,320 3,138,669	3,453,800 3,495,719	5,848,120 6,634,388	15,676 17,784	1,076 1,221
Subtotal		5,532,989	6,949,519	12,482,508	33,460	2,297
2026	Single Story SF Two Story SF	2,442,207 3,201,442	4,210,816 4,261,924	6,653,023 7,463,366	17,834 20,006	1,224 1,373
Subtotal		5,643,649	8,472,740	14,116,389	37,840	2,597
2027	Single Story SF Two Story SF	2,491,051 3,265,471	5,010,145 5,070,954	7,501,196 8,336,425	20,108 22,347	1,380 1,534
Subtotal		5,756,522	10,081,100	15,837,622	42,454	2,914
2028	Single Story SF Two Story SF	2,540,872 3,330,780	5,853,645 5,924,691	8,394,517 9,255,471	22,502 24,810	1,544 1,703
Subtotal		5,871,652	11,778,336	17,649,988	47,312	3,247
2029	Single Story SF Two Story SF	959,885 1,258,295	6,743,245 6,825,088	7,703,129 8,083,383	20,649 21,668	1,417 1,487
Subtotal		2,218,180	13,568,333	15,786,512	42,317	2,904
2030	Single Story SF Two Story SF	- -	7,217,916 7,305,521	7,217,916 7,305,521	19,348 19,583	1,328 1,344
Subtotal		-	14,523,437	14,523,437	38,931	2,672
2031	Single Story SF Two Story SF	- -	7,434,454 7,524,686	7,434,454 7,524,686	19,929 20,171	1,368 1,384
Subtotal		-	14,959,140	14,959,140	40,099	2,752
2032	Single Story SF Two Story SF	- -	7,657,487 7,750,427	7,657,487 7,750,427	20,527 20,776	1,409 1,426
Subtotal		-	15,407,914	15,407,914	41,302	2,835
2033	Single Story SF Two Story SF	- -	7,887,212 7,982,940	7,887,212 7,982,940	21,142 21,399	1,451 1,469
Subtotal		-	15,870,152	15,870,152	42,541	2,920

**APPENDIX 4
CITY OF SPARKS
ESTIMATED SALES TAX REVENUE**

<u>YEAR</u>	<u>USE TYPE</u>	<u>CONSTR. MATERIALS COST</u>	<u>HOUSEHOLD EXPENDITURES</u>	<u>TOTAL TAXABLE SALES</u>	<u>CCRT SALES TAX REVENUE</u>	<u>AB 104 SALES TAX REVENUE</u>
2034	Single Story SF	-	8,123,828	8,123,828	21,777	1,495
	Two Story SF	-	8,222,428	8,222,428	22,041	1,513
Subtotal		-	16,346,256	16,346,256	43,818	3,007
2035	Single Story SF	-	8,367,543	8,367,543	22,430	1,539
	Two Story SF	-	8,469,101	8,469,101	22,702	1,558
Subtotal		-	16,836,644	16,836,644	45,132	3,098
2036	Single Story SF	-	8,618,569	8,618,569	23,103	1,586
	Two Story SF	-	8,723,174	8,723,174	23,383	1,605
Subtotal		-	17,341,743	17,341,743	46,486	3,191
2037	Single Story SF	-	8,877,126	8,877,126	23,796	1,633
	Two Story SF	-	8,984,869	8,984,869	24,085	1,653
Subtotal		-	17,861,995	17,861,995	47,881	3,286
TOTAL		\$ 53,286,128	\$ 194,632,330	\$ 247,918,458	\$ 664,567	\$ 45,612

APPENDIX 4, ASSUMPTIONS:

- Construction Materials Cost is estimated in Appendix 1.
- Household Taxable Sales-estimated based on the number of occupied households, estimated household income, and expenditure information. Household incomes and percent of income spent on taxable items are estimated as follows, based on projected sales price for each village shown in Appendix 1:

	% Spent on Taxable	
	Household Income	Items
Single Story SF	\$ 69,782	27.5%
Two Story SF	\$ 80,813	24.1%

Affordability calculator created by EEC and Center for Regional Studies, UNR. Percent of household income spent on taxable items from Consumer Expenditure Survey, 2016, Bureau of Labor Statistics, data by corresponding household income range. Estimates are inflated 3% annually.

- Relevant tax rates for the City of Sparks are as follows:

0.500%	Basic City County Relief Tax (BCCRT)
1.750%	Supplemental City County Relief Tax (SCCRT)
0.250%	Fair Share (AB 104)

Distribution of BCCRT and SCCRT sales tax revenue to the City of Sparks is calculated at **12.13%** of all Washoe County CCRT revenue.

Source: Distribution based on average percentage share of Washoe County C-Tax distribution from FY 2014-15 to FY 2016-17. Data from Nevada

Department of Taxation. "Consolidated Tax Distribution: Revenue Summary by County."

Distribution of AB 104 sales tax revenue to the City of Sparks is calculated at **7.49%** of all Washoe County AB 104 revenue.

Source: Distribution based on average percentage share of Washoe County AB104 distribution from FY 2014-15 to FY 2016-17. Data from Nevada

Department of Taxation. "Local Government Tax Act Distribution."

- A State administrative fee of **1.75%** of all sales tax revenue is subtracted for State uses. Source: AB 552.

**APPENDIX 5
CITY OF SPARKS
ESTIMATED PERMIT AND IMPACT FEE REVENUE**

YEAR	USE TYPE	ESTIMATED BUILDING VALUATION	PRINCIPAL AMOUNT	BUILDING PERMIT REVENUE	PLAN REVIEW REVENUE	CURRENT FIRE INSPEC./ PLANNING REVIEW REVENUE	REGIONAL ROAD REVENUE	SEWER CONNECT. REVENUE	RESIDENTIAL PARK TAX REVENUE	IMPACT FEE SERVICE AREA #1				TOTAL	
										SANITARY SEWER	FLOOD CONTROL	REGIONAL PARKS/REC	FIRE STATION		
2018	Single Story SF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Two Story SF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	Single Story SF	1,889,856	15,788	15,094	6,315	1,680	6,947	73,296	12,000	3,564	7,116	9,336	4,080	24,096	
	Two Story SF	2,477,376	19,078	18,239	7,631	1,680	8,394	73,296	12,000	3,564	7,116	9,336	4,080	24,096	
	Subtotal	4,367,232	34,866	33,332	13,947	3,360	15,341	146,591	24,000	7,128	14,232	18,672	8,160	48,192	
2020	Single Story SF	4,337,220	36,000	34,416	14,400	3,780	15,840	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Two Story SF	5,685,578	43,550	41,634	17,420	3,780	19,162	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Subtotal	10,022,797	79,550	76,050	31,820	7,560	35,002	329,830	54,000	16,038	32,022	42,012	18,360	108,432	
2021	Single Story SF	4,423,964	36,485	34,880	14,594	3,780	16,054	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Two Story SF	5,799,289	44,187	42,243	17,675	3,780	19,442	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Subtotal	10,223,253	80,673	77,123	32,269	7,560	35,496	329,830	54,000	16,038	32,022	42,012	18,360	108,432	
2022	Single Story SF	4,512,443	36,981	35,354	14,792	3,780	16,272	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Two Story SF	5,915,275	44,837	42,864	17,935	3,780	19,728	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Subtotal	10,427,718	81,818	78,218	32,727	7,560	36,000	329,830	54,000	16,038	32,022	42,012	18,360	108,432	
2023	Single Story SF	4,602,692	37,486	35,837	14,995	3,780	16,494	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Two Story SF	6,033,581	45,499	43,497	18,200	3,780	20,020	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Subtotal	10,636,273	82,986	79,334	33,194	7,560	36,514	329,830	54,000	16,038	32,022	42,012	18,360	108,432	
2024	Single Story SF	4,694,746	38,002	36,330	15,201	3,780	16,721	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Two Story SF	6,154,252	46,175	44,143	18,470	3,780	20,317	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Subtotal	10,848,998	84,177	80,473	33,671	7,560	37,038	329,830	54,000	16,038	32,022	42,012	18,360	108,432	
2025	Single Story SF	4,788,641	38,528	36,832	15,411	3,780	16,952	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Two Story SF	6,277,337	46,864	44,802	18,746	3,780	20,620	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Subtotal	11,065,978	85,392	81,635	34,157	7,560	37,572	329,830	54,000	16,038	32,022	42,012	18,360	108,432	
2026	Single Story SF	4,884,414	39,064	37,345	15,626	3,780	17,188	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Two Story SF	6,402,884	47,567	45,474	19,027	3,780	20,930	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Subtotal	11,287,298	86,631	82,820	34,653	7,560	38,118	329,830	54,000	16,038	32,022	42,012	18,360	108,432	
2027	Single Story SF	4,982,102	39,611	37,868	15,844	3,780	17,429	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Two Story SF	6,530,942	48,285	46,160	19,314	3,780	21,245	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Subtotal	11,513,044	87,896	84,028	35,158	7,560	38,674	329,830	54,000	16,038	32,022	42,012	18,360	108,432	
2028	Single Story SF	5,081,744	40,169	38,402	16,068	3,780	17,674	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Two Story SF	6,661,561	49,016	46,859	19,606	3,780	21,567	164,915	27,000	8,019	16,011	21,006	9,180	54,216	
	Subtotal	11,743,305	89,185	85,261	35,674	7,560	39,241	329,830	54,000	16,038	32,022	42,012	18,360	108,432	

**APPENDIX 5
CITY OF SPARKS
ESTIMATED PERMIT AND IMPACT FEE REVENUE**

YEAR	USE TYPE	ESTIMATED BUILDING VALUATION	PRINCIPAL AMOUNT	BUILDING PERMIT REVENUE	PLAN REVIEW REVENUE	CURRENT FIRE INSPEC/ PLANNING PLAN REVIEW REVENUE	REGIONAL ROAD REVENUE	SEWER CONNECT. REVENUE	RESIDENTIAL PARK TAX REVENUE	IMPACT FEE SERVICE AREA #1					
										SANITARY SEWER REVENUE	FLOOD CONTROL REVENUE	REGIONAL PARKS/REC REVENUE	FIRE STATION TOTAL		
2029	Single Story SF	1,919,770	15,088	14,424	6,035	1,400	6,639	39,220	61,080	10,000	2,970	5,930	7,780	3,400	20,080
	Two Story SF	2,516,590	18,430	17,619	7,372	1,400	8,109	39,220	61,080	10,000	2,970	5,930	7,780	3,400	20,080
	Subtotal	4,436,360	33,519	32,044	13,407	2,800	14,748	78,439	122,159	20,000	5,940	11,860	15,560	6,800	40,160
	TOTAL	\$ 106,572,256	\$ 826,692	\$ 790,318	\$ 330,677	\$ 74,200	\$ 363,745	\$ 2,078,639	\$ 3,237,224	\$ 530,000	\$ 157,410	\$ 314,290	\$ 412,340	\$ 180,200	\$ 1,064,240

APPENDIX 5, ASSUMPTIONS:

- Building valuation is estimated in Appendix 1. It should be noted that permit fees associated with some residential uses are likely underestimated as construction values provided by the Client and used to estimate permit revenues for the project are lower than those provided by the 2012 International Building Code.
- Principal amount for the calculation of building permit and plan check fee revenue is estimated at follows, principal amount and resulting fees are estimated in the year prior to construction:
 \$ 993,75 for the first \$100,000.01 of Building Permit Valuation, plus \$ 5.60 for each additional \$1,000 thereafter through a value of \$500,000.
 Source: "City of Sparks Permit Fees." Revised December 22, 2017.
- Building Permit fee revenue is estimated at 95.60% of principal amount.
 Building Plan Review fee revenue is estimated at 40.00% of principal amount, conservatively assuming all units are single family repeats.
 Current Planning Plan Review fee revenue is estimated at \$ 140.00 per building, conservatively assuming all units are single family repeats.
 Fire Prevention Inspection fee revenue is estimated at 22.00% of the principal amount.
 Fire Prevention Plan review fee revenue is estimated at 22.00% of the principal amount.
 Analysis conservatively assumes all single family homes are repeat units. Source: "City of Sparks Permit Fees." Revised December 22, 2017. Revenue for mechanical, plumbing, and electrical permit fees is not estimated as the construction del required for these estimates are unknown.
- Regional Road Impact fee (RRIF) revenue is estimated at:
 Single Family \$ 3,921.96 per dwelling unit.
 Source: "Regional Road Impact Fee (RRIF)." Regional Transportation Commission. 5th Edition, March 20, 2017. Data for North Service Area.
 Sewer Connection fee revenue is estimated at \$ 6,107.97 per residential unit. Source: "City of Sparks Permit Fees." Revised December 22, 2017.
- Residential construction tax for neighborhood parks revenue is estimated at the lesser of 1% of building permit valuation or \$1,000 per residential unit. Given an estimated Added Improvements Value shown in Appendix 1, 1% of building perm valuation will result in the following values per unit:

Single Story SF	\$ 1,544	Sanitary Sewer	\$ 297.00	Flood Control	\$ 593.00	Regional Parks/Rec	\$ 778.00	Fire Station	\$ 340.00
Two Story SF	\$ 2,024	Sewer	\$ 297.00	Control	\$ 593.00	Parks/Rec	\$ 778.00	Fire Station	\$ 340.00

 Source: "City of Sparks Permit Fees." Revised December 22, 2017.
- The Project is located adjacent to the Impact Fees Service Area Number 1. Should the project be added to the Area, the following fees will apply to the project:
 The alternative of \$1,000 per unit is the lesser of the two options and is used in this calculation of residential tax revenue. Source: Sparks Municipal Code 15.12.0040.
 Single Family Dwelling \$ 297.00 \$ 297.00 \$ 593.00 \$ 778.00 \$ 340.00
 Source: "City of Sparks Permit Fees." Revised December 22, 2017.

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

Base Year FY 16-17	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	1ST 10-YEAR SUBTOTAL
GENERAL FUND											
REVENUE											
<u>Taxes</u>											
Ad Valorem ¹	\$ 2,044	\$ 9,769	\$ 34,486	\$ 80,316	\$ 128,215	\$ 178,258	\$ 230,524	\$ 285,094	\$ 342,052	\$ 401,484	\$ 1,692,241
Subtotal	\$ 2,044	\$ 9,769	\$ 34,486	\$ 80,316	\$ 128,215	\$ 178,258	\$ 230,524	\$ 285,094	\$ 342,052	\$ 401,484	\$ 1,692,241
<u>Licenses and Permits</u>											
Business Licenses ³	\$ 5,878,303	\$ -	\$ 4,188	\$ 14,020	\$ 24,438	\$ 35,468	\$ 47,139	\$ 59,477	\$ 72,514	\$ 86,279	\$ 343,524
Liquor Licenses ³	252,674	-	180	603	1,050	1,525	2,026	2,557	3,117	3,709	14,766
City Gaming Licenses ²	554,193	-	-	-	-	-	-	-	-	-	-
Franchise Fees ³	4,416,852	-	3,147	10,534	18,362	26,650	35,419	44,690	54,486	64,828	258,117
Nonbusiness Licenses and Permits ³	53,249	-	38	127	221	321	427	539	657	782	3,112
Subtotal	\$ 11,155,271	\$ -	\$ 7,553	\$ 25,284	\$ 44,072	\$ 63,965	\$ 85,011	\$ 107,263	\$ 130,773	\$ 155,598	\$ 619,519
<u>Intergovernmental Revenue</u>											
Consolidated Tax-CRRT Revenue ⁴	\$ -	\$ 5,853	\$ 14,745	\$ 18,093	\$ 21,630	\$ 25,365	\$ 29,305	\$ 33,460	\$ 37,840	\$ 42,454	\$ 228,747
Consolidated Tax-Other Revenue ⁵	\$ 3,643,715	-	2,596	8,690	15,148	21,985	29,219	36,868	44,948	53,481	212,936
State Distributive Fund-Sales Tax ⁴	-	402	1,012	1,242	1,485	1,741	2,011	2,297	2,597	2,914	15,700
State Distributive Fund-Other ⁶	4	21	73	170	272	378	489	605	726	852	3,592
County Gaming Licenses ²	389,292	-	-	-	-	-	-	-	-	-	-
Other Intergovernmental Revenue ⁷	551,354	-	-	-	-	-	-	-	-	-	-
Subtotal	\$ 4	\$ 6,276	\$ 18,427	\$ 28,196	\$ 38,535	\$ 49,469	\$ 61,025	\$ 73,230	\$ 86,112	\$ 99,701	\$ 460,975
<u>Charges for Services</u>											
Building and Zoning Fees ⁷	\$ 27,305	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other ⁸	2,646,746	-	-	-	-	-	-	-	-	-	-
Subtotal	\$ 2,674,051	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Fines and Forfeits</u>											
Fines ³	\$ 619,500	\$ -	\$ 441	\$ 1,478	\$ 2,575	\$ 3,738	\$ 4,968	\$ 6,268	\$ 7,642	\$ 9,093	\$ 36,203
<u>Miscellaneous</u>											
Miscellaneous ⁷	\$ 153,669	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
REVENUE TOTAL	\$ 2,048	\$ 16,044	\$ 60,907	\$ 135,274	\$ 213,398	\$ 295,430	\$ 381,528	\$ 471,855	\$ 566,579	\$ 665,875	\$ 2,808,938

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	Base Year FY 16-17	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	1ST 10-YEAR SUBTOTAL
EXPENDITURES												
General Government												
Legislative ⁹	\$ 438,791	\$ -	\$ 40	\$ 283	\$ 765	\$ 1,245	\$ 1,783	\$ 2,321	\$ 2,922	\$ 3,522	\$ 4,191	\$ 17,072
Mayor ⁹	109,556	-	10	71	191	311	445	579	729	879	1,046	4,262
Management Services ⁹	5,966,619	-	539	3,854	10,401	16,925	24,248	31,558	39,728	47,896	56,988	232,137
Legal ⁹	1,617,935	-	146	1,045	2,820	4,589	6,575	8,557	10,773	12,988	15,453	62,947
Financial Services ⁹	3,044,757	-	275	1,967	5,308	8,637	12,374	16,104	20,273	24,441	29,081	118,459
Community Services ⁹	1,032,879	-	93	667	1,800	2,930	4,198	5,463	6,877	8,291	9,865	40,185
General Government Total	\$ 12,210,537	\$ -	\$ 1,103	\$ 7,887	\$ 21,285	\$ 34,636	\$ 49,623	\$ 64,583	\$ 81,303	\$ 98,018	\$ 116,624	\$ 475,063
Judicial												
Judicial ¹⁰	\$ 2,123,457	\$ -	\$ -	\$ 1,513	\$ 5,065	\$ 8,828	\$ 12,813	\$ 17,028	\$ 21,485	\$ 26,195	\$ 31,167	\$ 124,093
Judicial Total	\$ -	\$ -	\$ -	\$ 1,513	\$ 5,065	\$ 8,828	\$ 12,813	\$ 17,028	\$ 21,485	\$ 26,195	\$ 31,167	\$ 124,093
Public Safety												
Police												
Police ¹¹	Appendix 7	\$ -	\$ -	\$ 21,457	\$ 50,113	\$ 80,450	\$ 112,540	\$ 146,462	\$ 182,296	\$ 220,124	\$ 260,034	\$ 1,073,477
Fire												
Fire ¹²	Appendix 8	\$ -	\$ 4,390	\$ 14,695	\$ 25,615	\$ 37,177	\$ 49,409	\$ 62,342	\$ 76,007	\$ 90,435	\$ 105,660	\$ 465,731
Community Services												
Community Services ¹⁰	\$ 1,277,098	\$ -	\$ -	\$ 910	\$ 3,046	\$ 5,309	\$ 7,706	\$ 10,241	\$ 12,922	\$ 15,754	\$ 18,745	\$ 74,633
Public Safety Total	\$ -	\$ 4,390	\$ 37,062	\$ 78,774	\$ 122,936	\$ 169,655	\$ 219,046	\$ 271,225	\$ 326,313	\$ 384,439	\$ 1,613,841	
Public Works												
Community Services												
Community Services ¹³	\$ 1,480,919	\$ -	\$ -	\$ -	\$ 3,234	\$ 3,331	\$ 6,861	\$ 7,067	\$ 10,919	\$ 11,247	\$ 15,445	\$ 58,104
Public Works Total	\$ -	\$ -	\$ -	\$ -	\$ 3,234	\$ 3,331	\$ 6,861	\$ 7,067	\$ 10,919	\$ 11,247	\$ 15,445	\$ 58,104
Culture and Recreation												
Community Services												
Community Services ¹⁰	\$ 2,883,027	\$ -	\$ -	\$ 2,054	\$ 6,876	\$ 11,986	\$ 17,396	\$ 23,119	\$ 29,171	\$ 35,565	\$ 42,316	\$ 168,482
Culture and Recreation Total	\$ -	\$ -	\$ 2,054	\$ 6,876	\$ 11,986	\$ 17,396	\$ 23,119	\$ 29,171	\$ 35,565	\$ 42,316	\$ 168,482	

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

Base Year FY 16-17	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	1ST 10-YEAR SUBTOTAL	
Community Support												
Management Services ⁹	\$ 268,707	\$ -	\$ 24	\$ 174	\$ 468	\$ 762	\$ 1,092	\$ 1,421	\$ 1,789	\$ 2,157	\$ 2,566	\$ 10,454
Community Support Total	\$ -	\$ -	\$ 24	\$ 174	\$ 468	\$ 762	\$ 1,092	\$ 1,421	\$ 1,789	\$ 2,157	\$ 2,566	\$ 10,454
EXPENDITURES SUBTOTAL	\$ -	\$ 5,517	\$ 48,690	\$ 115,702	\$ 182,478	\$ 257,440	\$ 332,265	\$ 415,892	\$ 499,494	\$ 592,558	\$ 2,450,037	
CONTINGENCY	3%	\$ -	\$ 166	\$ 1,461	\$ 3,471	\$ 5,474	\$ 7,723	\$ 9,968	\$ 12,477	\$ 14,985	\$ 17,777	\$ 73,501
EXPENDITURES TOTAL	\$ -	\$ 5,683	\$ 50,150	\$ 119,173	\$ 187,953	\$ 265,163	\$ 342,233	\$ 428,369	\$ 514,479	\$ 610,335	\$ 2,523,538	
GENERAL FUND SURPLUS/(DEFICIT)	\$ 2,048	\$ 10,362	\$ 10,757	\$ 16,101	\$ 25,445	\$ 30,267	\$ 39,295	\$ 43,486	\$ 52,100	\$ 55,541	\$ 285,400	
ROAD FUND												
REVENUE												
Licenses and Permits												
Licenses and Permits ^{1,14}	\$ 2,476,550	\$ -	\$ -	\$ 1,765	\$ 5,907	\$ 10,296	\$ 14,943	\$ 19,860	\$ 25,058	\$ 30,550	\$ 36,350	\$ 144,728
Subtotal	\$ -	\$ -	\$ -	\$ 1,765	\$ 5,907	\$ 10,296	\$ 14,943	\$ 19,860	\$ 25,058	\$ 30,550	\$ 36,350	\$ 144,728
Intergovernmental Revenues												
County Gasoline Tax ³	\$ 665,250	\$ -	\$ 474	\$ 1,587	\$ 2,766	\$ 4,014	\$ 5,335	\$ 6,731	\$ 8,206	\$ 9,764	\$ 38,877	
State Gasoline Tax ³	1,793,365	-	1,278	4,277	7,456	10,821	14,381	18,145	22,123	26,322	104,803	
Subtotal	2,458,615	-	1,752	5,864	10,221	14,835	19,716	24,877	30,329	36,086	143,680	
Miscellaneous												
Interest Earned ⁷	\$ 5,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
REVENUE TOTAL	\$ -	\$ -	\$ 3,516	\$ 11,771	\$ 20,517	\$ 29,778	\$ 39,576	\$ 49,935	\$ 60,879	\$ 72,436	\$ 288,407	
EXPENDITURES												
Public Works ¹⁵	Appendix 9	\$ -	\$ -	\$ 493,665	\$ 494,346	\$ 494,660	\$ 495,387	\$ 495,735	\$ 496,512	\$ 496,894	\$ 3,467,198	
EXPENDITURES SUBTOTAL	\$ -	\$ -	\$ -	\$ 493,665	\$ 494,346	\$ 494,660	\$ 495,387	\$ 495,735	\$ 496,512	\$ 496,894	\$ 3,467,198	
CONTINGENCY	0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EXPENDITURES TOTAL	\$ -	\$ -	\$ -	\$ 493,665	\$ 494,346	\$ 494,660	\$ 495,387	\$ 495,735	\$ 496,512	\$ 496,894	\$ 3,467,198	
ROAD FUND SURPLUS/(DEFICIT)	\$ -	\$ -	\$ 3,516	\$ (481,895)	\$ (473,828)	\$ (464,882)	\$ (455,812)	\$ (445,800)	\$ (435,633)	\$ (424,458)	\$ (3,178,791)	

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	10-YEAR SUBTOTAL	20-YEAR TOTAL
GENERAL FUND												
REVENUE												
<u>Taxes</u>												
Ad Valorem ¹	\$ 457,111	\$ 511,457	\$ 542,151	\$ 558,416	\$ 575,168	\$ 592,423	\$ 610,196	\$ 628,502	\$ 647,357	\$ 666,778	\$ 5,789,560	\$ 7,481,801
Subtotal	\$ 457,111	\$ 511,457	\$ 542,151	\$ 558,416	\$ 575,168	\$ 592,423	\$ 610,196	\$ 628,502	\$ 647,357	\$ 666,778	\$ 5,789,560	\$ 7,481,801
<u>Licenses and Permits</u>												
Business Licenses ³	\$ 100,805	\$ 116,124	\$ 124,299	\$ 128,028	\$ 131,868	\$ 135,824	\$ 139,899	\$ 144,096	\$ 148,419	\$ 152,872	\$ 1,322,233	\$ 1,665,757
Liquor Licenses ³	4,333	4,992	5,343	5,503	5,668	5,838	6,013	6,194	6,380	6,571	56,835	71,601
City Gaming Licenses ²	-	-	-	-	-	-	-	-	-	-	-	-
Franchise Fees ³	75,743	87,254	93,396	96,198	99,084	102,056	105,118	108,271	111,519	114,865	993,503	1,251,620
Nonbusiness Licenses and Permits ⁴	913	1,052	1,126	1,160	1,195	1,230	1,267	1,305	1,344	1,385	11,978	15,089
Subtotal	\$ 181,794	\$ 209,421	\$ 224,163	\$ 230,888	\$ 237,815	\$ 244,949	\$ 252,298	\$ 259,866	\$ 267,662	\$ 275,692	\$ 2,384,549	\$ 3,004,068
<u>Intergovernmental Revenue</u>												
Consolidated Tax-CCRT Revenue ⁴	\$ 47,312	\$ 42,317	\$ 38,931	\$ 40,099	\$ 41,302	\$ 42,541	\$ 43,818	\$ 45,132	\$ 46,486	\$ 47,881	\$ 435,820	\$ 664,567
Consolidated Tax-Other Revenue ⁵	62,485	71,981	77,047	79,359	81,740	84,192	86,718	89,319	91,999	94,759	819,597	1,032,533
State Distributive Fund-Sales Tax ⁴	3,247	2,904	2,672	2,752	2,835	2,920	3,007	3,098	3,191	3,286	29,912	45,612
State Distributive Fund-Other ⁶	970	1,086	1,151	1,185	1,221	1,258	1,295	1,334	1,374	1,415	12,290	15,882
County Gaming Licenses ²	-	-	-	-	-	-	-	-	-	-	-	-
Other Intergovernmental Revenue ⁷	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	\$ 114,015	\$ 118,288	\$ 119,802	\$ 123,396	\$ 127,098	\$ 130,911	\$ 134,838	\$ 138,883	\$ 143,049	\$ 147,341	\$ 1,297,619	\$ 1,758,594
<u>Charges for Services</u>												
Building and Zoning Fees ⁷	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other ⁸	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Fines and Forfeits</u>												
Fines ³	\$ 10,624	\$ 12,238	\$ 13,100	\$ 13,493	\$ 13,897	\$ 14,314	\$ 14,744	\$ 15,186	\$ 15,642	\$ 16,111	\$ 139,347	\$ 175,550
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous ⁷	-	-	-	-	-	-	-	-	-	-	-	-
REVENUE TOTAL	\$ 763,543	\$ 851,405	\$ 899,216	\$ 926,192	\$ 953,978	\$ 982,597	\$ 1,012,075	\$ 1,042,437	\$ 1,073,710	\$ 1,105,922	\$ 9,611,075	\$ 12,420,013

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>10-YEAR SUBTOTAL</u>	<u>20-YEAR TOTAL</u>
EXPENDITURES												
General Government												
Legislative ⁹	\$ 4,860	\$ 5,527	\$ 5,860	\$ 6,034	\$ 6,213	\$ 6,398	\$ 6,588	\$ 6,784	\$ 6,986	\$ 7,193	\$ 62,443	\$ 79,515
Mayor ⁹	1,214	1,380	1,463	1,507	1,551	1,597	1,645	1,694	1,744	1,796	15,591	19,853
Management Services ⁹	66,090	75,159	79,681	82,049	84,487	86,999	89,584	92,247	94,989	97,812	849,097	1,081,234
Legal ⁹	17,921	20,380	21,607	22,249	22,910	23,591	24,292	25,014	25,758	26,523	230,245	293,192
Financial Services ⁹	33,726	38,354	40,661	41,869	43,114	44,395	45,715	47,074	48,473	49,913	433,293	551,752
Community Services ⁹	11,441	13,011	13,793	14,203	14,626	15,060	15,508	15,969	16,443	16,932	146,987	187,172
General Government Total	\$ 135,251	\$ 153,811	\$ 163,064	\$ 167,911	\$ 172,901	\$ 178,040	\$ 183,332	\$ 188,781	\$ 194,392	\$ 200,170	\$ 1,737,656	\$ 2,212,718
Judicial												
Judicial ¹⁰	\$ 36,414	\$ 41,948	\$ 44,901	\$ 46,248	\$ 47,636	\$ 49,065	\$ 50,537	\$ 52,053	\$ 53,614	\$ 55,223	\$ 477,639	\$ 601,732
Judicial Total	\$ 36,414	\$ 41,948	\$ 44,901	\$ 46,248	\$ 47,636	\$ 49,065	\$ 50,537	\$ 52,053	\$ 53,614	\$ 55,223	\$ 477,639	\$ 601,732
Public Safety												
Police												
Police ¹¹	\$ 302,115	\$ 346,460	\$ 370,023	\$ 380,666	\$ 391,623	\$ 402,903	\$ 414,516	\$ 426,472	\$ 438,780	\$ 451,451	\$ 3,925,007	\$ 4,998,484
Fire												
Fire ¹²	\$ 121,718	\$ 130,286	\$ 134,195	\$ 138,220	\$ 142,367	\$ 146,638	\$ 151,037	\$ 155,568	\$ 160,235	\$ 165,042	\$ 1,445,307	\$ 1,911,039
Community Services												
Community Services ¹⁰	\$ 21,900	\$ 25,229	\$ 27,005	\$ 27,815	\$ 28,649	\$ 29,509	\$ 30,394	\$ 31,306	\$ 32,245	\$ 33,212	\$ 287,263	\$ 361,896
Public Safety Total	\$ 445,733	\$ 501,975	\$ 531,222	\$ 546,701	\$ 562,639	\$ 579,050	\$ 595,947	\$ 613,346	\$ 631,260	\$ 649,706	\$ 5,657,578	\$ 7,271,419
Public Works												
Community Services ¹³	\$ 15,909	\$ 20,482	\$ 21,097	\$ 21,730	\$ 22,382	\$ 23,053	\$ 23,745	\$ 24,457	\$ 25,191	\$ 25,946	\$ 223,991	\$ 282,095
Public Works Total	\$ 15,909	\$ 20,482	\$ 21,097	\$ 21,730	\$ 22,382	\$ 23,053	\$ 23,745	\$ 24,457	\$ 25,191	\$ 25,946	\$ 223,991	\$ 282,095
Culture and Recreation												
Community Services ¹⁰	\$ 49,440	\$ 56,953	\$ 60,963	\$ 62,791	\$ 64,675	\$ 66,615	\$ 68,614	\$ 70,672	\$ 72,792	\$ 74,976	\$ 648,492	\$ 816,974
Culture and Recreation Total	\$ 49,440	\$ 56,953	\$ 60,963	\$ 62,791	\$ 64,675	\$ 66,615	\$ 68,614	\$ 70,672	\$ 72,792	\$ 74,976	\$ 648,492	\$ 816,974
Community Support												

**APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS**

	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>10-YEAR SUBTOTAL</u>	<u>20-YEAR TOTAL</u>
Management Services ⁹	\$ 2,976	\$ 3,385	\$ 3,588	\$ 3,695	\$ 3,805	\$ 3,918	\$ 4,034	\$ 4,154	\$ 4,278	\$ 4,405	\$ 38,239	\$ 48,693
Community Support Total	\$ 2,976	\$ 3,385	\$ 3,588	\$ 3,695	\$ 3,805	\$ 3,918	\$ 4,034	\$ 4,154	\$ 4,278	\$ 4,405	\$ 38,239	\$ 48,693
EXPENDITURES SUBTOTAL	\$ 685,724	\$ 778,555	\$ 824,835	\$ 849,076	\$ 874,038	\$ 899,741	\$ 926,209	\$ 953,463	\$ 981,528	\$ 1,010,426	\$ 8,783,595	\$ 11,233,632
CONTINGENCY	\$ 20,572	\$ 23,357	\$ 24,745	\$ 25,472	\$ 26,221	\$ 26,992	\$ 27,786	\$ 28,604	\$ 29,446	\$ 30,313	\$ 263,508	\$ 337,009
EXPENDITURES TOTAL	\$ 706,295	\$ 801,912	\$ 849,580	\$ 874,548	\$ 900,259	\$ 926,733	\$ 953,995	\$ 982,067	\$ 1,010,974	\$ 1,040,739	\$ 9,047,103	\$ 11,570,641
GENERAL FUND SURPLUS/(DEFICIT)	\$ 57,248	\$ 49,493	\$ 49,636	\$ 51,644	\$ 53,719	\$ 55,864	\$ 58,080	\$ 60,370	\$ 62,737	\$ 65,183	\$ 563,973	\$ 849,373
ROAD FUND												
REVENUE												
Licenses and Permits												
Licenses and Permits ^{11,14}	\$ 42,469	\$ 48,924	\$ 52,367	\$ 53,938	\$ 55,557	\$ 57,223	\$ 58,940	\$ 60,708	\$ 62,529	\$ 64,405	\$ 557,062	\$ 701,789
Subtotal	\$ 42,469	\$ 48,924	\$ 52,367	\$ 53,938	\$ 55,557	\$ 57,223	\$ 58,940	\$ 60,708	\$ 62,529	\$ 64,405	\$ 557,062	\$ 701,789
Intergovernmental Revenues												
County Gasoline Tax ³	\$ 11,408	\$ 13,142	\$ 14,067	\$ 14,489	\$ 14,924	\$ 15,371	\$ 15,832	\$ 16,307	\$ 16,797	\$ 17,301	\$ 149,638	\$ 188,514
State Gasoline Tax ³	30,754	35,427	37,921	39,059	40,231	41,438	42,681	43,961	45,280	46,638	403,390	508,193
Subtotal	\$ 42,162	\$ 48,569	\$ 51,988	\$ 53,548	\$ 55,154	\$ 56,809	\$ 58,513	\$ 60,269	\$ 62,077	\$ 63,939	\$ 553,027	\$ 696,707
Miscellaneous												
Interest Earned ⁷	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
REVENUE TOTAL	\$ 84,631	\$ 97,493	\$ 104,356	\$ 107,486	\$ 110,711	\$ 114,032	\$ 117,453	\$ 120,977	\$ 124,606	\$ 128,344	\$ 1,110,089	\$ 1,398,496
EXPENDITURES												
Public Works ¹⁵	\$ 497,724	\$ 498,143	\$ 499,029	\$ 499,142	\$ 499,257	\$ 499,375	\$ 499,494	\$ 499,617	\$ 499,741	\$ 499,869	\$ 4,991,390	\$ 8,458,589
EXPENDITURES SUBTOTAL	\$ 497,724	\$ 498,143	\$ 499,029	\$ 499,142	\$ 499,257	\$ 499,375	\$ 499,494	\$ 499,617	\$ 499,741	\$ 499,869	\$ 4,991,390	\$ 8,458,589
CONTINGENCY	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EXPENDITURES TOTAL	\$ 497,724	\$ 498,143	\$ 499,029	\$ 499,142	\$ 499,257	\$ 499,375	\$ 499,494	\$ 499,617	\$ 499,741	\$ 499,869	\$ 4,991,390	\$ 8,458,589
ROAD FUND SURPLUS/(DEFICIT)	\$ (413,092)	\$ (400,650)	\$ (394,673)	\$ (391,655)	\$ (388,546)	\$ (385,342)	\$ (382,041)	\$ (378,639)	\$ (375,135)	\$ (371,524)	\$ (3,881,301)	\$ (7,060,092)

APPENDIX 6
CITY OF SPARKS
COMPARISON OF ESTIMATED REVENUE TO ESTIMATED COSTS

APPENDIX 6. ASSUMPTIONS:

Unless otherwise indicated, the analysis uses Estimated Current Year Ending 6/30/2017 (Fiscal Year 2016-2017) revenue and expenditure data from the City of Sparks Budget, FY 2017-18.

- 1 See Appendix 3 for calculations.
- 2 The analysis is conservative in not estimating the increase in some Sparks business-related revenues resulting from new residents of the development, though this increase is expected to occur.
- 3 ACM: Revenues are calculated based on estimated FY 2016-17 City of Sparks estimated per capita revenues inflated 3% annually and applied to the estimated annual population of the Project. Per capita revenue is calculated by dividing FY 2016-17 revenue for each source by City of Sparks FY 2016-17 population of **93,581** Source: City of Sparks Budget FY 2017-18.
- 4 See Appendix 4 for calculations.
- 5 In addition to CCRT revenue, Consolidated tax for the City includes revenue from Real Property Transfer Tax, GST (MVPT), Cigarette and Liquor taxes. A per capita methodology as explained in footnote 3 is applied to estimate this revenue. Total Washoe County revenues from liquor, cigarette and GST (analysis conservatively does not include RPTT as it is not a recurring revenue) sources totaled \$ **30,048,968** in FY 2016-2017. City of Sparks is estimated to receive **12.13%** of all County C-tax revenue. As a result, the City's portion of GST revenue is estimated at \$ **3,643,715** and the ACM is applied to this amount.
- 6 Source: Nevada Department of Taxation. "Consolidated Tax Distribution." City of Sparks portion of C-tax revenue is based on a three-year average data for FY 2014-15 to FY 2016-17. In addition to sales tax revenue, AB 104 revenue for the City includes revenue from property, gaming, and RPTT taxes and interest. Analysis is conservative in not estimating gaming, RPTT, and interest revenue. Property tax revenue is estimated in Appendix 3.
- 7 Though the project may generate revenue for the City from these sources, the amount is difficult to estimate and/or expected to be minimal.
- 8 Charges for services for the City include inter-department and inter-fund transfers, which, though impacted, may be difficult to estimate. Some charges for services revenue, such as false alarms may be generated by the project, but again are difficult to estimate.
- 9 Administrative service (indirect) costs assumed to be impacted by the project are calculated at **25.7%** of direct service costs.
Source: Average percent indirect costs of direct costs for FY 2016-17. Source: City of Sparks Budget, FY 2017-18.
- 10 ACM: Expenditures are calculated based on estimated FY 2016-17 City of Sparks budget per capita costs inflated **3%** annually and applied to estimated annual population of the Project. Per capita costs are calculated by dividing FY 2016-17 costs for each source by City of Sparks FY 2016-17 population of **93,581** Source: City of Sparks Budget FY 2017-18.
- 11 See Appendix 7 for calculations and assumptions.
- 12 See Appendix 8 for calculations and assumptions.
- 13 Expenditures for the Public Works source include Public Works administrative and facility maintenance costs. Costs associated with these services are estimated by dividing total expenditures for this source of \$ **1,480,919** by the total square feet of City of Sparks streets of **67,541,767** and applying to the number of square feet added by the development of **655,200** inflated 3% annually. Source: Expenditures from City of Sparks streets inventory from City of Sparks Community Services Department.
- 14 Revenue estimates in 2018 are reduced by the one-time shift of some franchise revenues from the Road Fund to the Park & Recreation Project Fund.
- 15 See Appendix 9 for calculation and assumptions.

**APPENDIX 7
CITY OF SPARKS
POLICE DEPARTMENT COST PROJECTIONS**

<u>YEAR</u>	<u>CUMUL. NEW RESIDENTIAL POPULATION</u>	<u>OFFICERS REQUIRED</u>	<u>CIVILIANS REQUIRED</u>	<u>SALARY/BENEFITS</u>	<u>SERVICES/SUPPLIES</u>	<u>NEW/REPLACE. VEHICLE PURCHASE</u>	<u>ANNUALIZED VEHICLE COSTS</u>	<u>TOTAL COST</u>
2018	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -
2019	-	-	-	-	-	-	-	-
2020	61	0.09	0.03	11,802	414	-	9,241	21,457
2021	198	0.30	0.10	39,488	1,384	-	9,241	50,113
2022	336	0.50	0.17	68,797	2,411	-	9,241	80,450
2023	473	0.71	0.24	99,802	3,498	-	9,241	112,540
2024	610	0.92	0.31	132,575	4,646	27,780	9,241	146,462
2025	747	1.12	0.37	167,195	5,859	-	9,241	182,296
2026	885	1.33	0.44	203,743	7,140	-	9,241	220,124
2027	1,022	1.53	0.51	242,301	8,492	-	9,241	260,034
2028	1,159	1.74	0.58	282,957	9,916	-	9,241	302,115
2029	1,297	1.94	0.65	325,801	11,418	64,253	9,241	346,460
2030	1,347	2.02	0.67	348,566	12,216	-	9,241	370,023
2031	1,347	2.02	0.67	358,848	12,576	-	9,241	380,666
2032	1,347	2.02	0.67	369,434	12,947	-	9,241	391,623
2033	1,347	2.02	0.67	380,333	13,329	-	9,241	402,903
2034	1,347	2.02	0.67	391,552.52	13,722	74,307	9,241	414,516
2035	1,347	2.02	0.67	403,103	14,127	-	9,241	426,472
2036	1,347	2.02	0.67	414,995	14,544	-	9,241	438,780
2037	1,347	2.02	0.67	427,237	14,973	-	9,241	451,451
TOTAL				\$ 4,668,531	\$ 163,612	\$ 166,340	\$ 166,340	\$ 4,998,484

APPENDIX 7, ASSUMPTIONS:

- Population estimates are shown in Appendix 2 of the report.
- Uniformed officer positions are estimated at **1.5** positions per 1,000 population.
For non-uniformed positions, a ratio of **0.5** positions for every three uniformed positions, is used. Source: City of Sparks Police Department.
- The following City of Sparks salary information is used to estimate operating costs, inflated **3%** annually.

	<u>Salary Range</u>		
	<u>Low</u>	<u>High</u>	<u>Average</u>
<u>FY 2017-18</u>			
Police Officer	\$ 51,730	\$ 67,371	\$ 59,550
Sergeant	73,112	87,734	80,423
Crime Analyst	55,245	70,512	62,878
Records Technician	45,510	57,990	51,750
Police Office Assistant	34,070	43,368	38,719
GT/IT Support Specialist	44,866	57,179	51,022
Dispatcher	43,368	55,245	49,306
Weighted Average Officers	\$ 54,402	\$ 69,917	\$ 62,160
Weighted Average Civilians	\$ 40,351	\$ 51,396	\$ 45,873

 Source: "Online Jobs Page." City of Sparks Human Resources.
- Benefits costs are calculated at **57.1%** of salaries.
Services/Supplies costs calculated at **3.5%** of salaries and benefits.
Source: Three-year average FY 2015-16 through FY 2017-18 from City of Sparks Budget FY 2017-18.
- One police vehicle is added for every 3 uniformed positions. The 2017 cost of a fully-equipped vehicle is **\$70,000** inflated 3% annually. Life of vehicle is 5 years and the analysis includes vehicle replacement costs with no salvage value. Source: City of Sparks Police Department.

**APPENDIX 8
CITY OF SPARKS
FIRE DEPARTMENT COST PROJECTIONS**

<u>YEAR</u>	<u>CUMUL. # OF UNITS</u>	<u>PROJECT CFS*</u>	<u>ESTIMATED COST/CFS</u>	<u>TOTAL EXPENSES</u>
2018	0	0.00	\$ 1,473	\$ -
2019	24	2.89	1,518	4,390
2020	78	9.40	1,563	14,695
2021	132	15.91	1,610	25,615
2022	186	22.42	1,658	37,177
2023	240	28.93	1,708	49,409
2024	294	35.44	1,759	62,342
2025	348	41.95	1,812	76,007
2026	402	48.45	1,866	90,435
2027	456	54.96	1,922	105,660
2028	510	61.47	1,980	121,718
2029	530	63.88	2,039	130,286
2030	530	63.88	2,101	134,195
2031	530	63.88	2,164	138,220
2032	530	63.88	2,229	142,367
2033	530	63.88	2,295	146,638
2034	530	63.88	2,364	151,037
2035	530	63.88	2,435	155,568
2036	530	63.88	2,508	160,235
2037	530	63.88	2,584	165,042
TOTAL				\$ 1,911,039

*CFS-calls for service.

APPENDIX 8, ASSUMPTIONS:

- Number of residential units from Appendix 1. Analysis includes all units, not just occupied units, for Fire Department impacts.
- Residential calls for service are estimated using average cfs per unit data for single-family residential properties between FY 2011-12 and FY 2015-16, estimated at **0.12** cfs. Source: City of Sparks Fire Department and Washoe County Assessor's Office parcel data for number of single-family units.
- Costs to provide services to the development are estimated at **\$ 1,430.44** per call for service. This is estimated using total fire expenditures between FY 2011-12 and FY 2015-16 divided by total calls for service during this period. This includes costs for Administration, Emergency Services, and Training and Safety. Estimated costs are inflated 3% annually.

**APPENDIX 9
CITY OF SPARKS
STREET MAINTENANCE COST PROJECTIONS**

YEAR	ADDED SQUARE FEET	ADDED LINEAR FEET	MAINTENANCE					REPAIR					TOTAL MAINT. COST		
			SEWER CLEANING COST	CATCH BASIN COST	STREET SWEEP COST	STREET STRIPING COST	TOTAL COST	SLURRY/CRACK SEAL COST	3 INCH OVERLAY COST	ROAD REHAB COST	TOTAL ANNUALIZED COST				
2018	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2021	131,040	3,640	-	-	284	-	284	-	-	284	-	-	-	493,382	493,665
2022	-	-	473	5	289	197	964	-	-	964	-	-	-	493,382	494,346
2023	131,040	3,640	482	5	590	201	1,278	-	-	1,278	-	-	-	493,382	494,660
2024	-	-	984	10	602	410	2,006	-	-	2,006	-	-	-	493,382	495,387
2025	131,040	3,640	1,003	10	921	418	2,353	-	-	2,353	-	-	-	493,382	495,735
2026	-	-	1,535	16	939	640	3,130	-	-	3,130	56,808	-	-	493,382	496,512
2027	131,040	3,640	1,566	16	1,277	653	3,512	-	-	3,512	-	-	-	493,382	496,894
2028	-	-	2,130	22	1,303	887	4,342	-	-	4,342	59,103	-	-	493,382	497,724
2029	131,040	3,640	2,172	23	1,661	905	4,761	-	-	4,761	-	-	-	493,382	498,143
2030	-	-	2,770	29	1,694	1,154	5,647	-	-	5,647	61,490	-	-	493,382	499,029
2031	-	-	2,825	29	1,728	1,177	5,760	-	-	5,760	-	677,379	-	493,382	499,142
2032	-	-	2,882	30	1,763	1,201	5,875	-	-	5,875	63,975	-	-	493,382	499,257
2033	-	-	2,939	31	1,798	1,225	5,993	-	-	5,993	-	704,745	-	493,382	499,375
2034	-	-	2,998	31	1,834	1,249	6,113	-	-	6,113	66,559	-	-	493,382	499,494
2035	-	-	3,058	32	1,871	1,274	6,235	-	-	6,235	-	733,217	-	493,382	499,617
2036	-	-	3,119	33	1,908	1,300	6,360	-	-	6,360	-	-	-	493,382	499,741
2037	-	-	3,182	33	1,946	1,326	6,487	-	-	6,487	-	762,839	6,681,519	493,382	499,869
TOTAL	655,200	18,200	\$ 34,119	\$ 356	\$ 22,409	\$ 14,216	\$ 71,101	\$ 307,935	\$ 2,878,179	\$ 6,681,519	\$ 8,387,487	\$ 8,458,589			

APPENDIX 9, ASSUMPTIONS:

- The development is projected to construct approximately 18,200 linear feet of 655,200 square feet of streets to be dedicated to the City for maintenance in the year shown above.

**APPENDIX 9
CITY OF SPARKS
STREET MAINTENANCE COST PROJECTIONS**

2. The following street maintenance costs are used to estimate the impact of the development's streets on the City:

Item	Frequency	Cost	
Slurry/Crack Seal	Year 5 and 15	\$0.37	per square foot
3 Inch Overlay	10 years	\$4.00	per square foot
Road Rehabilitation	20 years	\$7.00	per square foot
Sewer Cleaning	1.5 years	\$0.18	per linear foot
Catch Basin Cleaning	1.75 years	\$11.56	per mile
Street Sweeping	30 days	\$32.30	per mile
Striping	1 year	\$0.05	per linear foot

Note: 2/3 of the cost is added annually

Note: 3/5 of the cost is added annually

Note: cost is multiplied by 12 annually

Costs are inflated 2% annually. Source: City of Sparks Community Services Department. Estimated repair (extraordinary maintenance) costs are annualized by taking the total estimated costs over the 20-year period and dividing by 20 years.

WINGFIELD COMMONS

TRAFFIC STUDY

JULY 2018



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WINGFIELD COMMONS

TRAFFIC STUDY

EXECUTIVE SUMMARY

The proposed Wingfield Commons development is located in the City of Sparks, Nevada. The project site is located directly east of the Golden Eagle Regional Park (GERP) generally south of Vista Boulevard and east of Homerun Drive. The project site is currently undeveloped land except for a few dwelling units that will be removed. The purpose of this study is to address the project's impact upon the adjacent street network. The Vista Boulevard/Homerun Drive/Scorpius Drive, Homerun Drive/Touchdown Drive, and Touchdown Drive/Project Access intersections have been identified for weekday and Saturday AM and PM peak hour capacity analysis for the existing (without GERP event), existing (with GERP event), existing plus project (without GERP event), existing plus project (with GERP event), 2040 base (with GERP event), and 2040 base plus project (with GERP event) scenarios.

The proposed Wingfield Commons development will consist of the construction of 450 single family dwelling units. Project access will be provided from a new proposed access roadway intersecting Touchdown Drive. Wingfield Commons is anticipated to generate 4,248 average daily trips, 333 AM peak hour trips, and 446 PM peak hour trips on a typical weekday and 4,293 average daily trips, 170 AM peak hour trips, and 419 PM peak hour trips on a typical Saturday.

Traffic generated by the Wingfield Commons development will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that any required signing, striping, or traffic control improvements comply with City of Sparks requirements.

It is recommended that the Vista Boulevard/Homerun Drive/Scorpius Drive intersection be improved to include one exclusive left turn lane, one shared left turn-through lane, and one exclusive right turn lane at the south approach.

It is recommended that the existing right turn lane at the west approach of the Vista Boulevard/Homerun Drive/Scorpius Drive intersection be lengthened to provide a minimum of 465 feet of storage/deceleration length with a 180 foot taper in order to serve traffic volumes generated by a major event at the Golden Eagle Regional Park.

It is recommended that the traffic control at the Homerun Drive/Touchdown Drive intersection be modified to include stop sign control at the south and east approaches while the left turn and through movements at the north approach flow free. In addition, it is recommended that an exclusive left turn lane be provided at the north approach.

It is recommended that the Touchdown Drive/Project Access intersection be designed as a three-leg intersection with stop sign control at the east approach and contain an exclusive left turn lane at the north approach.

It is recommended that the project access roadway and the internal residential streets be designed to conform to City of Sparks standards.

It is recommended that connections be made from the proposed subdivision to the existing pedestrian/bicycle network within the Golden Eagle Regional Park.

It is recommended that the project developers provide a traffic circulation plan that discourages or prevents Golden Eagle Regional Park traffic from utilizing the project access road and internal residential streets.

INTRODUCTION

STUDY AREA

The proposed Wingfield Commons development is located in the City of Sparks, Nevada. The project site is located directly east of the Golden Eagle Regional Park (GERP) generally south of Vista Boulevard and east of Homerun Drive. Figure 1 shows the approximate location of the site. The purpose of this study is to address the project's impact upon the adjacent street network. The Vista Boulevard/Homerun Drive/Scorpius Drive, Homerun Drive/Touchdown Drive, and Touchdown Drive/Project Access intersections have been identified for weekday and Saturday AM and PM peak hour capacity analysis for the existing (without GERP event), existing (with GERP event), existing plus project (without GERP event), existing plus project (with GERP event), 2040 base (with GERP event), and 2040 base plus project (with GERP event) scenarios.

EXISTING AND PROPOSED LAND USES

The project site is currently undeveloped land except for a few single family home that will be removed. Adjacent properties generally include the Golden Eagle Regional Park to the west and undeveloped land to the north, south, and east. The proposed Wingfield Commons development will consist of the construction of 450 single family dwelling units. Project access will be provided from a new proposed access road intersecting Touchdown Drive.

EXISTING AND PROPOSED ROADWAYS AND INTERSECTIONS

Vista Boulevard is a four-lane roadway with two through lanes in each direction in the vicinity of the site. The speed limit is posted for 35 miles per hour. Roadway improvements include curb, gutter, and bike lanes on both sides of the street, a sidewalk on the north side of the street, and a raised center median with openings at major intersections.

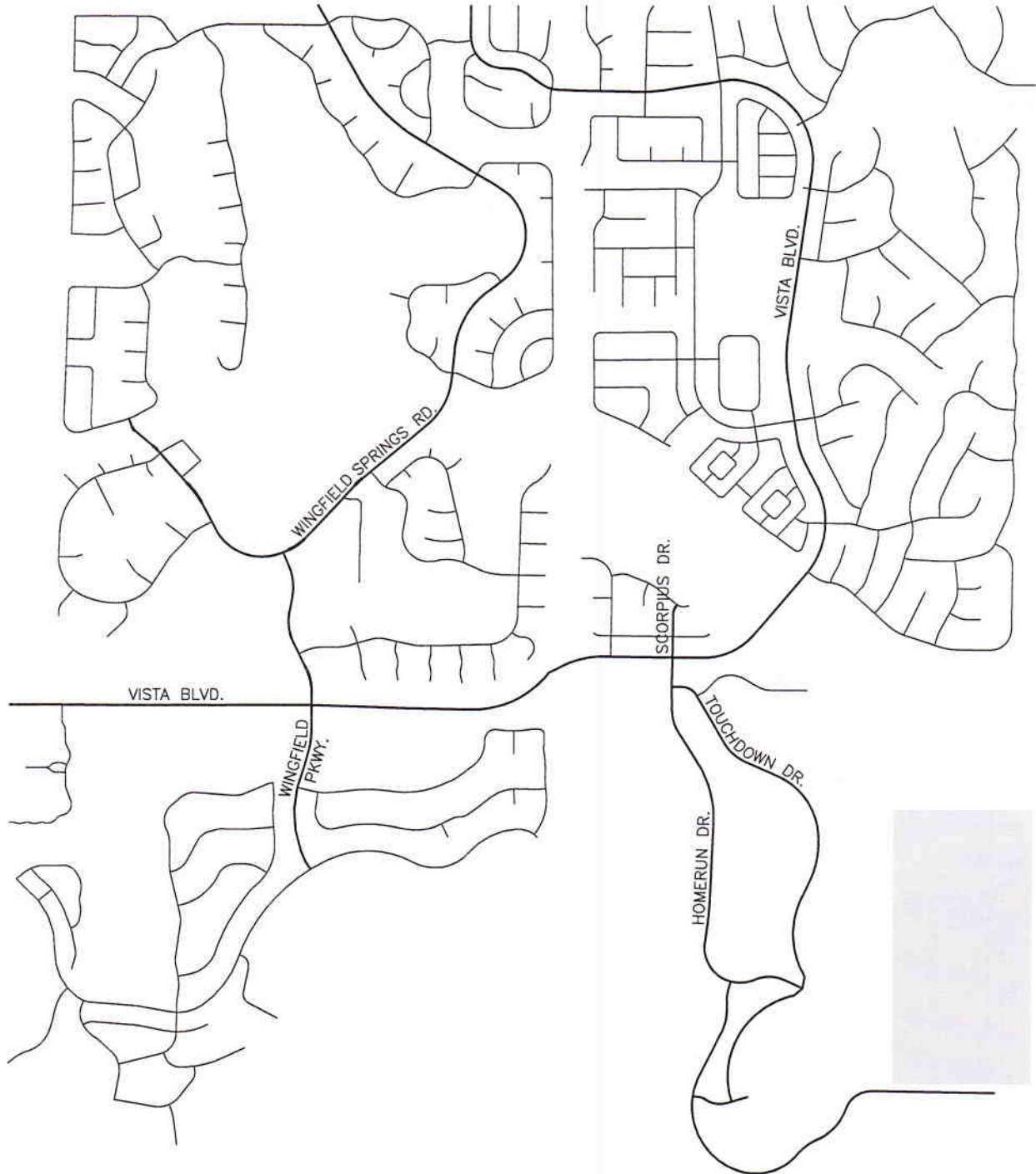
Homerun Drive is a two-lane roadway with one through lane in each direction south of Vista Boulevard. The speed limit is posted for 25 miles per hour. Roadway improvements include paved and graded shoulders with white striped edgelines and a yellow striped centerline. Homerun Drive aligns with Scorpius Drive at the Vista Boulevard intersection.

Scorpius Drive is a two-lane roadway with one through lane in each direction north of Vista Boulevard. The speed limit is not posted but assumed to be 25 miles per hour. Roadway improvements include curb, gutter, and sidewalk on both sides of the street. Scorpius Drive aligns with Homerun Drive at the Vista Boulevard intersection.

Touchdown Drive is a two-lane roadway with one through lane in each direction southeast of Homerun Drive. The speed limit is posted for 15 miles per hour. Roadway improvements include paved and graded shoulders with white striped edgelines and a yellow striped centerline.

LEGEND

PROJECT SITE



WINGFIELD COMMONS
VICINITY MAP
FIGURE 1

The Vista Boulevard/Homerun Drive/Scorpius Drive intersection is a signalized four-leg intersection with protected phasing for the eastbound and westbound left turn movements. The north approach contains one shared left turn-through-right turn lane. The south approach contains one left turn lane and one shared through-right turn lane. The east approach contains one left turn lane, one through lane, and one shared through-right turn lane. The west approach contains one left turn lane, two through lanes, and one right turn lane.

The Homerun Drive/Touchdown Drive intersection is an unsignalized three-leg intersections with stop control at the east approach. The intersection contains one shared left turn-through lane at the north approach, one shared through-right turn lane at the south approach, and one shared left turn-right turn lane at the east approach.

The Touchdown Drive/Project Access intersection does not exist but will be constructed as an unsignalized three-leg intersections with stop control at the east approach. At a minimum, the intersection will be analyzed with one shared left turn-through lane at the north approach, one shared through-right turn lane at the south approach, and one shared left turn-right turn lane at the east approach. This new intersection will be located south of an existing access intersection that will be removed.

TRIP GENERATION

In order to assess the magnitude of traffic impacts of the proposed project on the key intersections, trip generation rates and peak hours had to be determined. Trip generation was calculated based on rates obtained from the *10th Edition of ITE Trip Generation (2017)* for Land Use 210: Single Family Detached Housing. Trips generated by the project were calculated for the weekday peak hours occurring between 7:00 and 9:00 AM and 4:00 and 6:00 PM, which correspond to the peak hours of adjacent street traffic, and the Saturday peak hour of generator which is assumed to correspond to the afternoon peak hour of the Golden Eagle Regional Park. *ITE Trip Generation* does not contain rates for a Saturday AM peak hour. Existing counts on Vista Boulevard indicate that Saturday AM peak hour traffic volumes are approximately 51% of weekday AM peak hour traffic volumes. The AM peak hour trip generation for Saturday was therefore assumed to be 51% of the weekday AM peak hour trip generation. Table 1 shows a summary of the average daily traffic (ADT) volumes and peak hour volumes generated by the project for a weekday and Saturday. The trip generation worksheets are included in the Appendix.

LAND USE	ADT	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single Family Detached Housing (450 D.U.)							
Weekday	4,248	83	250	333	281	165	446
Saturday	4,293	42	128	170	226	193	419

TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of the project trips to the key intersections was based on existing peak hour traffic patterns and the locations of attractions and productions in the area. The anticipated trip distribution is shown on Figure 2. The peak hour project trips shown in Table 1 were subsequently assigned to the key intersections based on the trip distribution. Figure 3 shows the project trip assignment at the key intersections during the weekday and Saturday AM and PM peak hours.

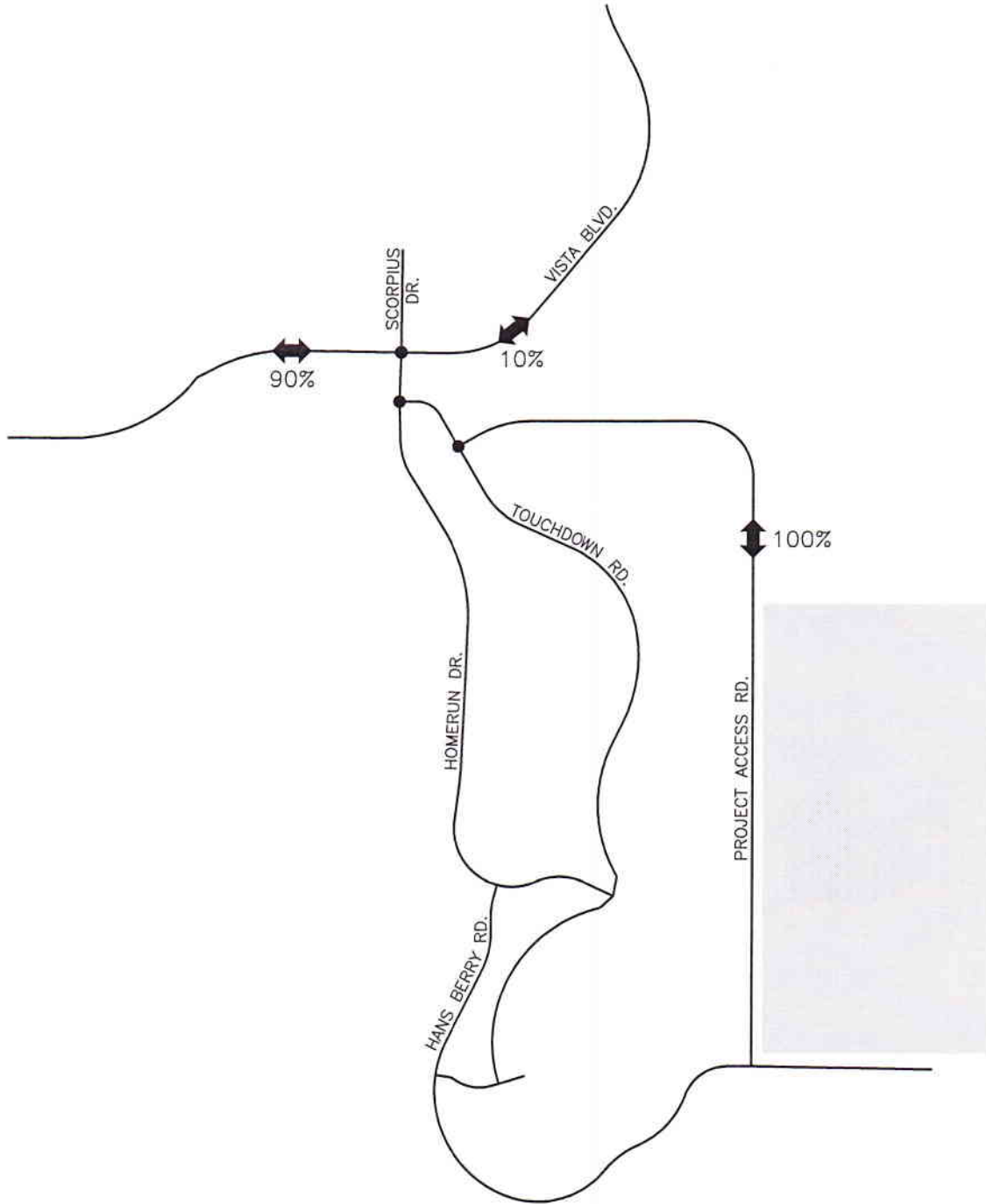
EXISTING AND PROJECTED TRAFFIC VOLUMES

Figure 4A shows the existing peak hour volumes at the key intersections for the weekday AM, weekday PM, Saturday AM, and Saturday PM peak hour scenarios. The existing volumes were obtained from counts taken in February of 2018. The counts were adjusted to 100% of the annual average based on the requirement of City of Sparks staff. A major sporting event was not being held at the Golden Eagle Regional Park when the counts were conducted. Figure 4B shows the existing peak hour volumes (with GERP event) at the key intersections. The weekday AM and PM peak hour volumes were obtained by supplementing the existing volumes shown on Figure 4A with peak ingress and egress traffic volumes generated by a major event at the Golden Eagle Regional Park. The major event traffic volumes were obtained from City of Sparks Parks and Recreation staff. The Saturday AM and PM peak hour traffic volumes were obtained from counts conducted on April 28, 2018 and May 19, 2018 during GERP events identified by City of Sparks staff that included simultaneous baseball/softball/soccer games with high field utilization.

Figure 5A shows the existing plus project volumes at the key intersections for the weekday and Saturday AM and PM peak hours. The existing plus project volumes were obtained by adding the trip assignment volumes shown on Figure 3 to the existing volumes shown on Figure 4A. Again, these volumes do not include a major event at the Golden Eagle Regional Park. Figure 5B shows the existing plus project peak hour volumes (with GERP event) for the weekday and Saturday AM and PM peak hours. The existing plus project volumes (with GERP event) were obtained by adding the trip assignment volumes shown on Figure 3 to the existing traffic volumes (with GERP event) shown on Figure 4B. These volumes include a major event at the Golden Eagle Regional Park.

Figure 6 shows the 2040 base traffic volumes (with GERP event) for the weekday and Saturday AM and PM peak hours. The 2040 base traffic volumes were obtained by applying a 0.5% average annual growth rate to the existing Vista Boulevard traffic volumes. A 0.2% average annual growth rate was calculated based on 2015 and 2040 average daily traffic volumes obtained from the Regional Transportation Commission's traffic forecasting model. However, the 0.5% average annual growth rate was used in order to ensure conservative results. The 2040 base traffic volumes include a major event at the Golden Eagle Regional Park. Figure 7 shows the 2040 base plus project traffic volumes (with GERP event) for the weekday and Saturday AM and PM peak hours. The 2040 base plus project traffic volumes were obtained by adding the trip assignment volumes shown on Figure 3 to the 2040 base traffic volumes shown on Figure 6. The 2040 base plus project volumes include a major event at the Golden Eagle Regional Park.

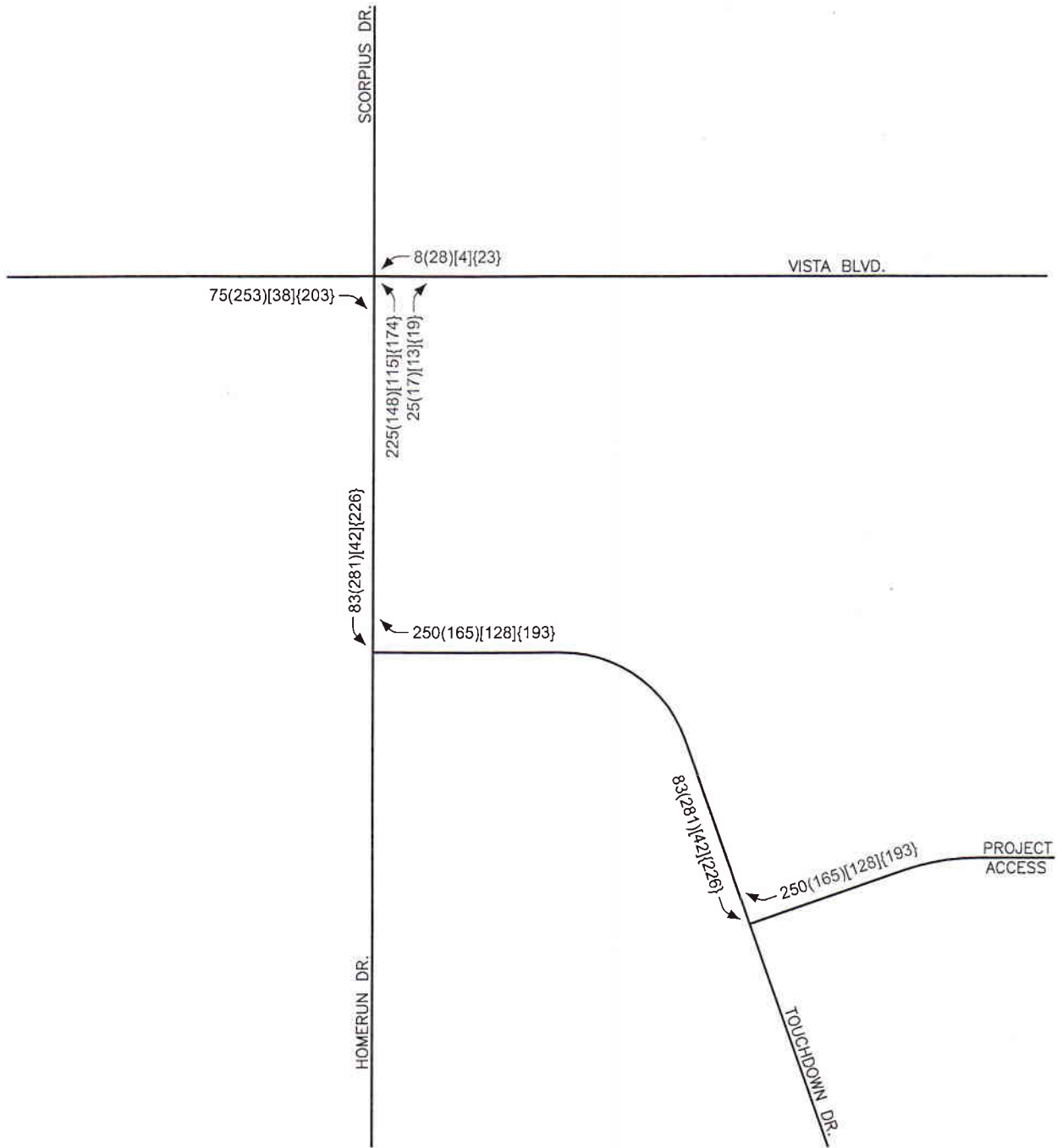
LEGEND
● KEY INTERSECTIONS



WINGFIELD COMMONS
TRIP DISTRIBUTION
FIGURE 2

LEGEND

- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [-] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR

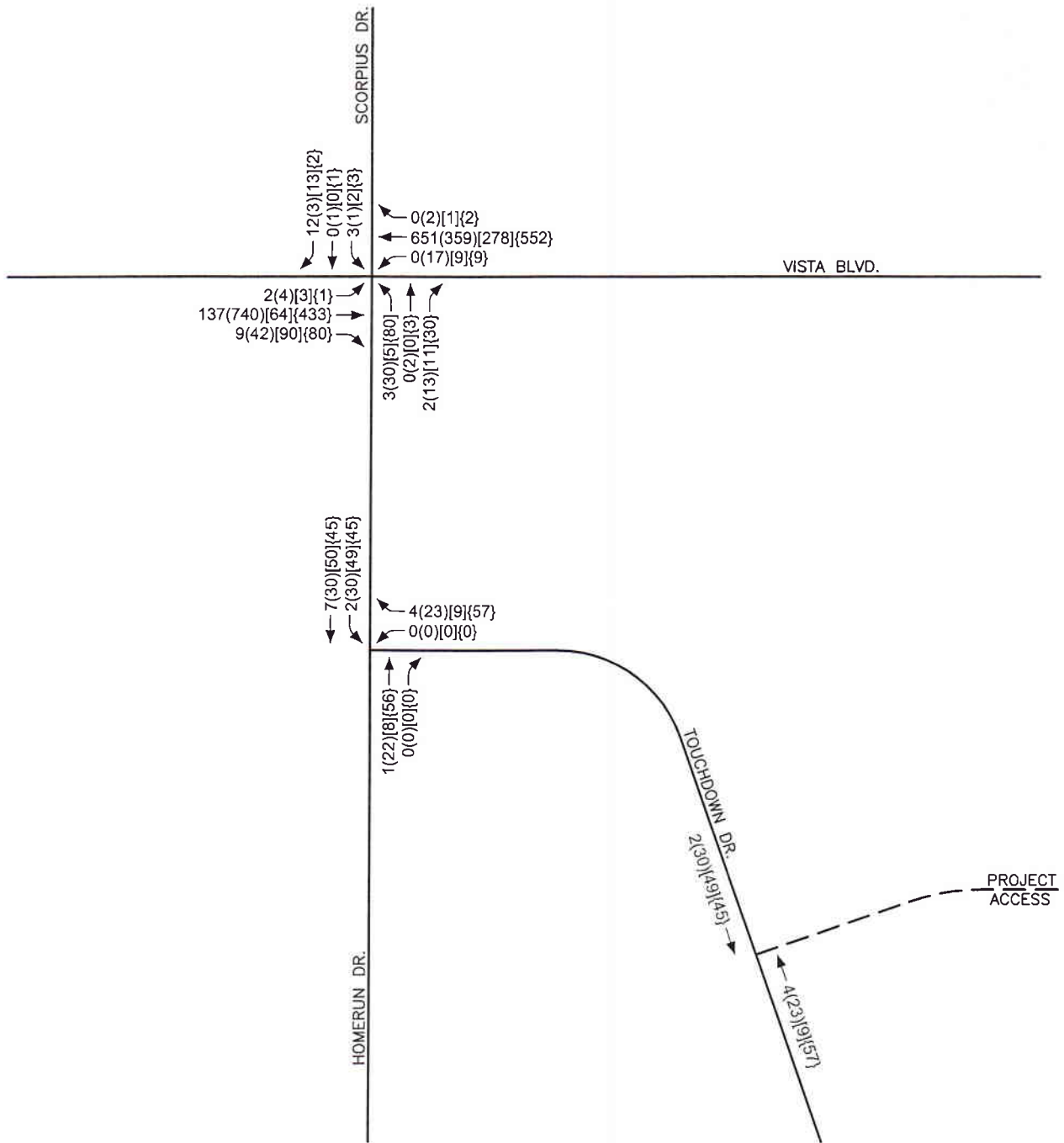


WINGFIELD COMMONS
TRIP ASSIGNMENT
FIGURE 3



LEGEND

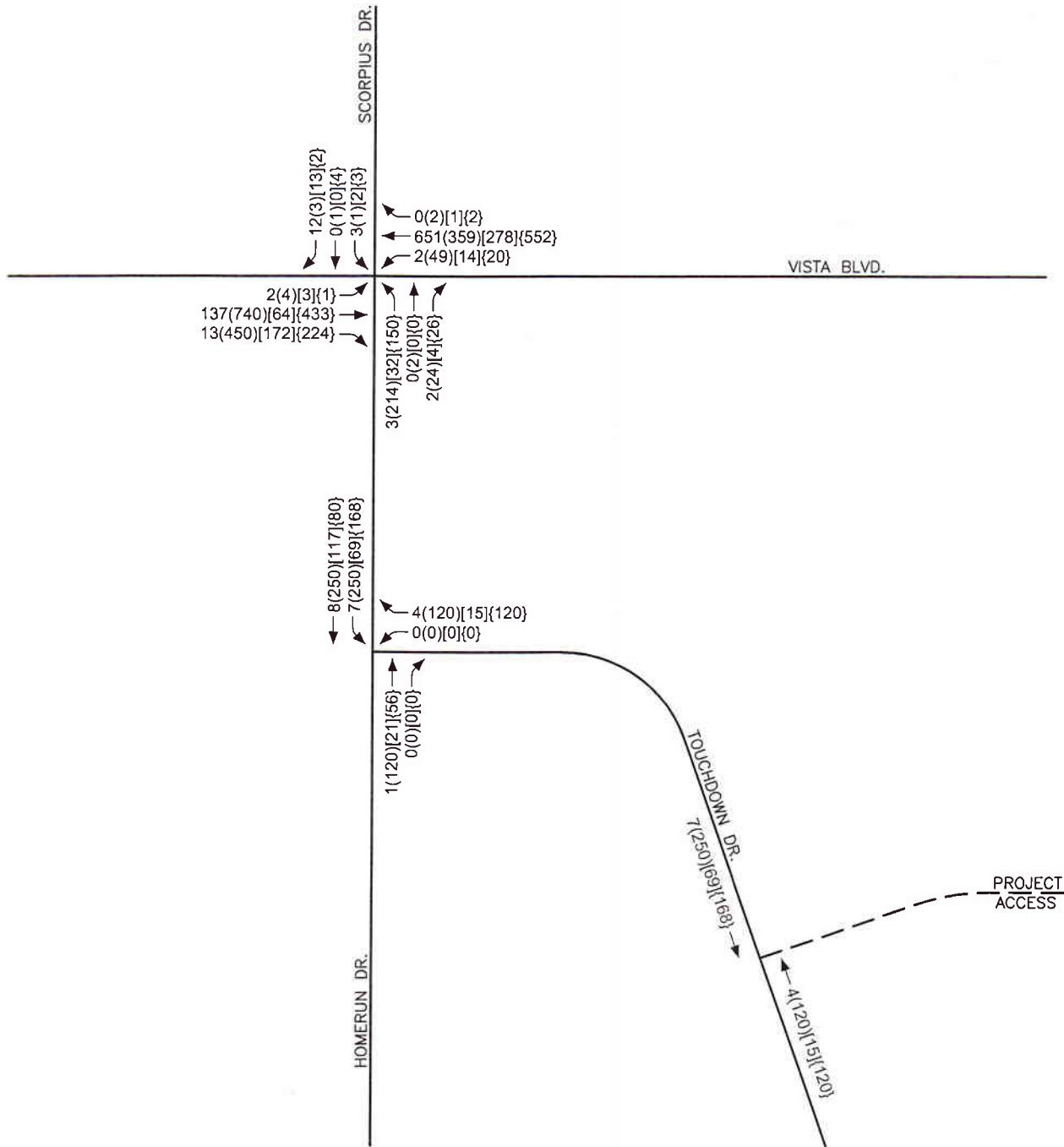
- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [-] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR



WINGFIELD COMMONS
EXISTING TRAFFIC VOLUMES
FIGURE 4A

LEGEND

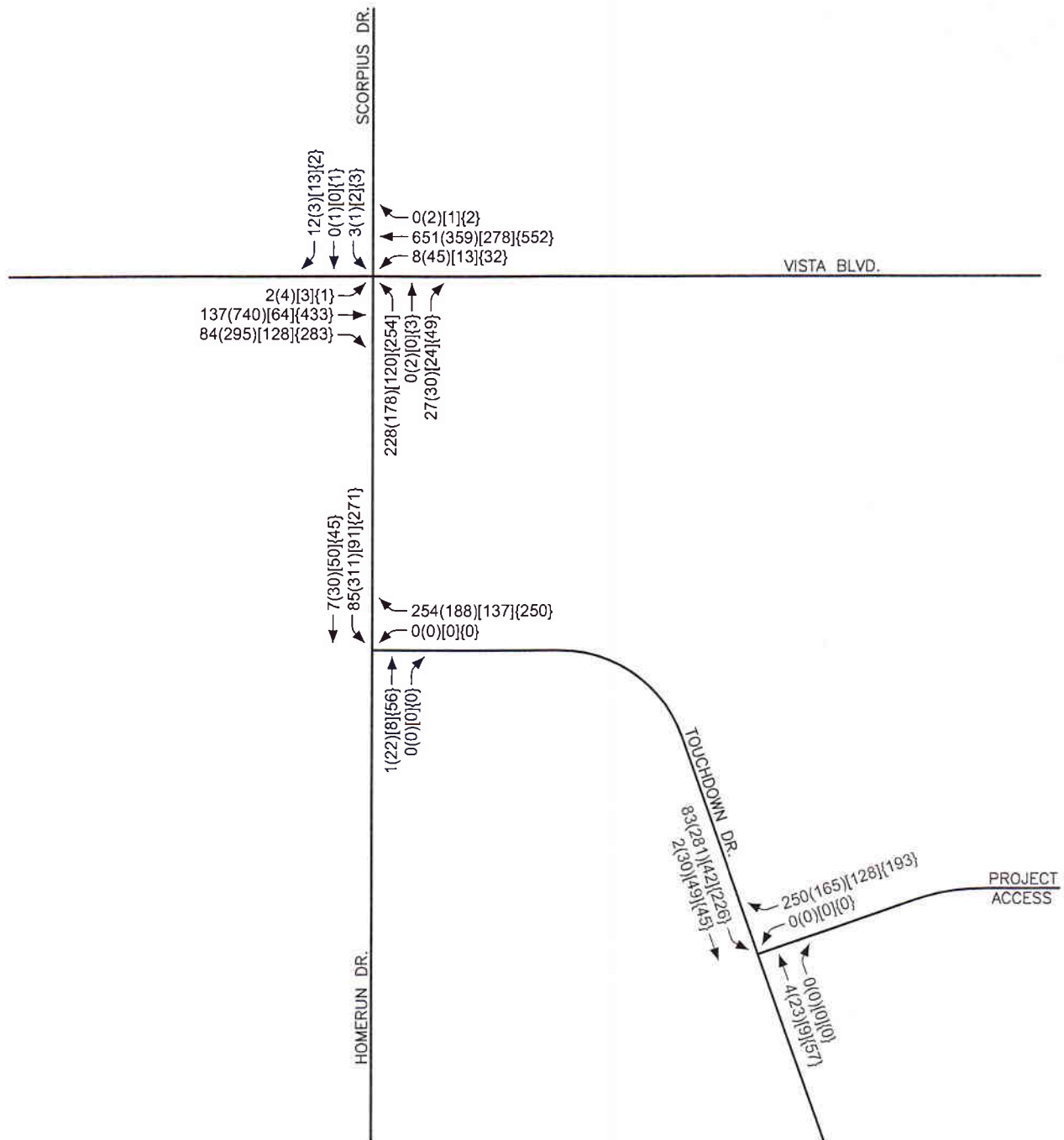
- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [-] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR



WINGFIELD COMMONS
EXISTING TRAFFIC VOLUMES (W/EVENT)
FIGURE 4B

LEGEND

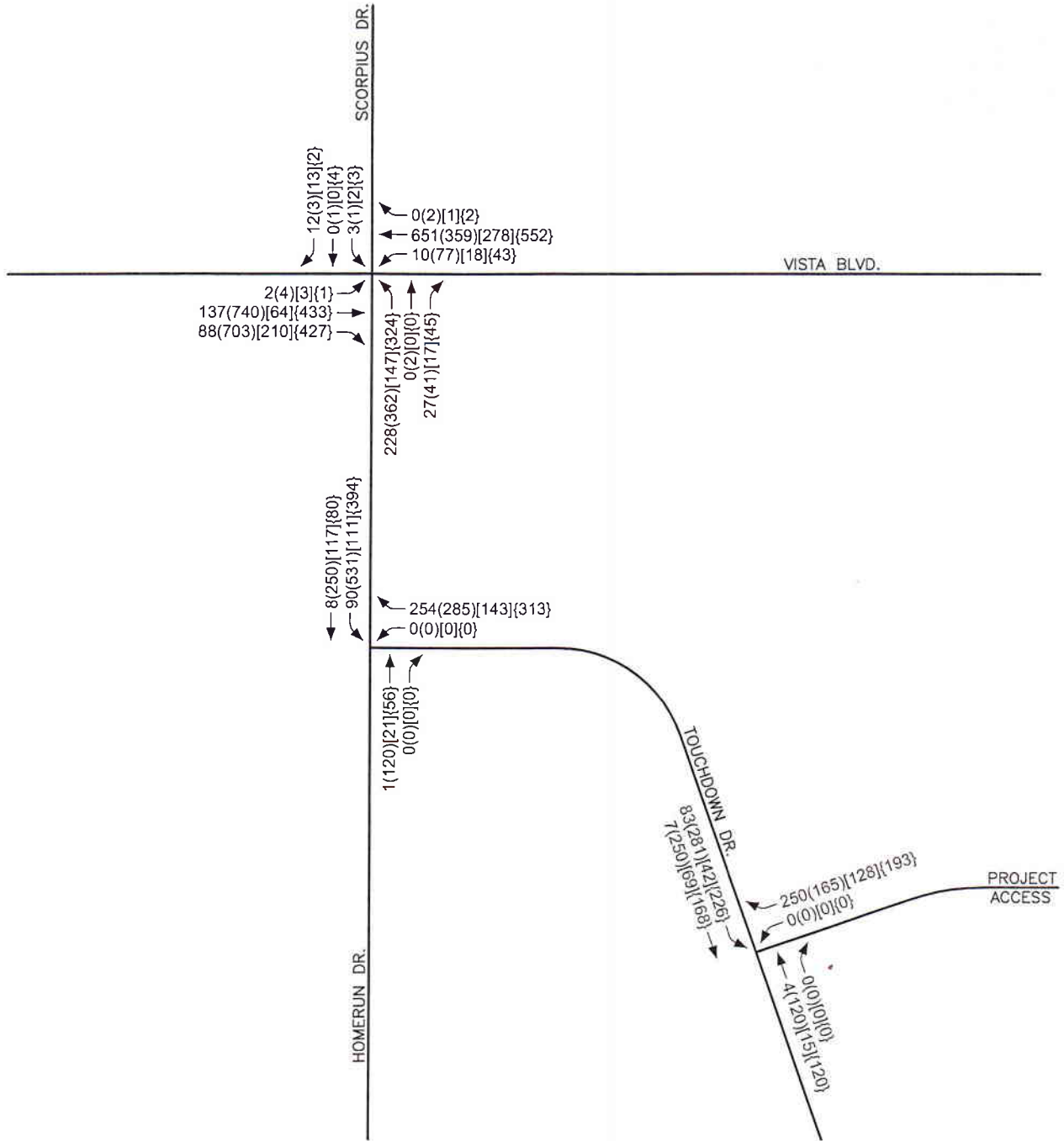
- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [-] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR



WINGFIELD COMMONS
EXISTING PLUS PROJECT TRAFFIC VOLUMES
FIGURE 5A

LEGEND

- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [-] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR

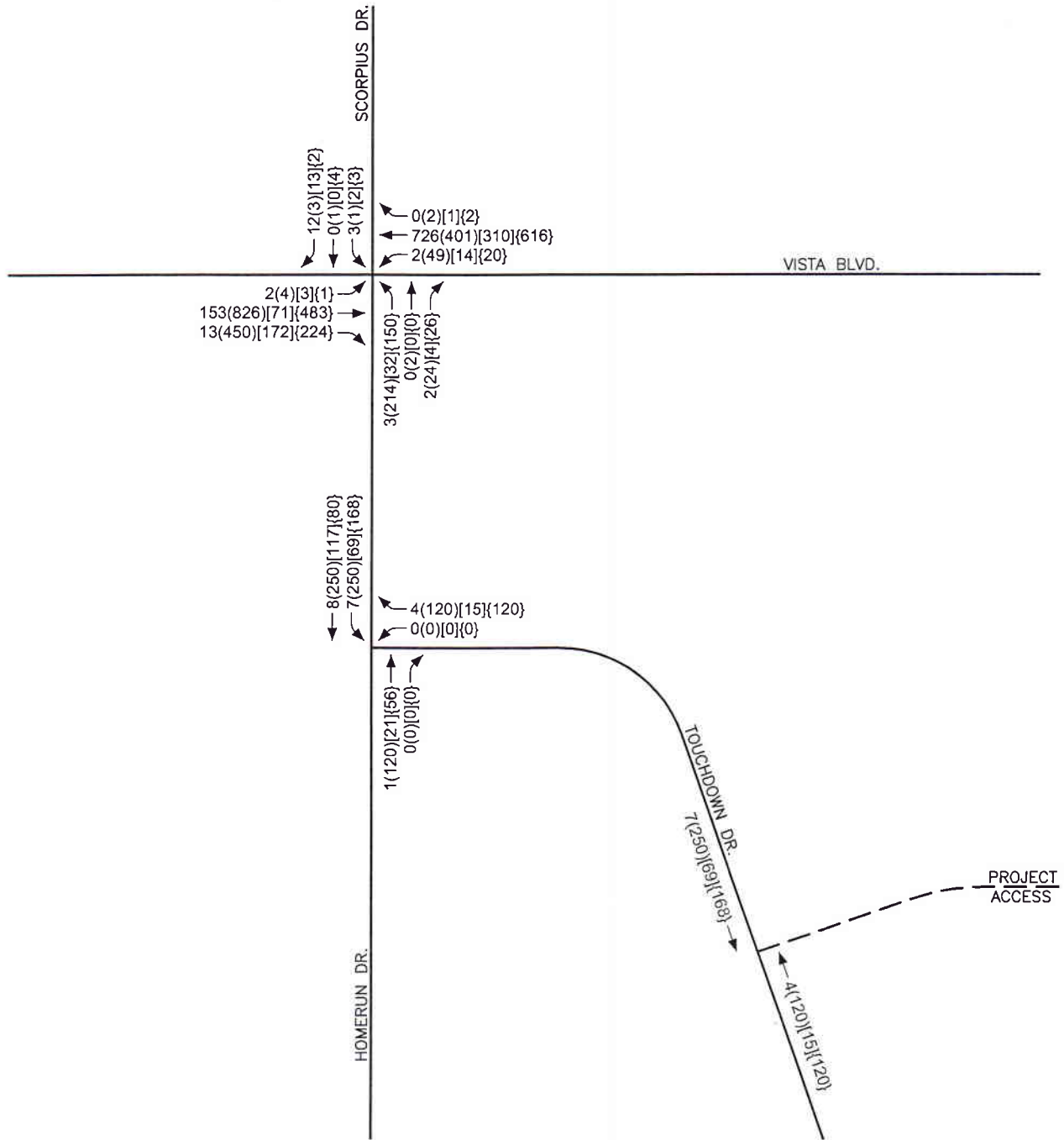


WINGFIELD COMMONS

EXISTING PLUS PROJECT TRAFFIC VOLUMES (W/EVENT)
FIGURE 5B

LEGEND

- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [-] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR



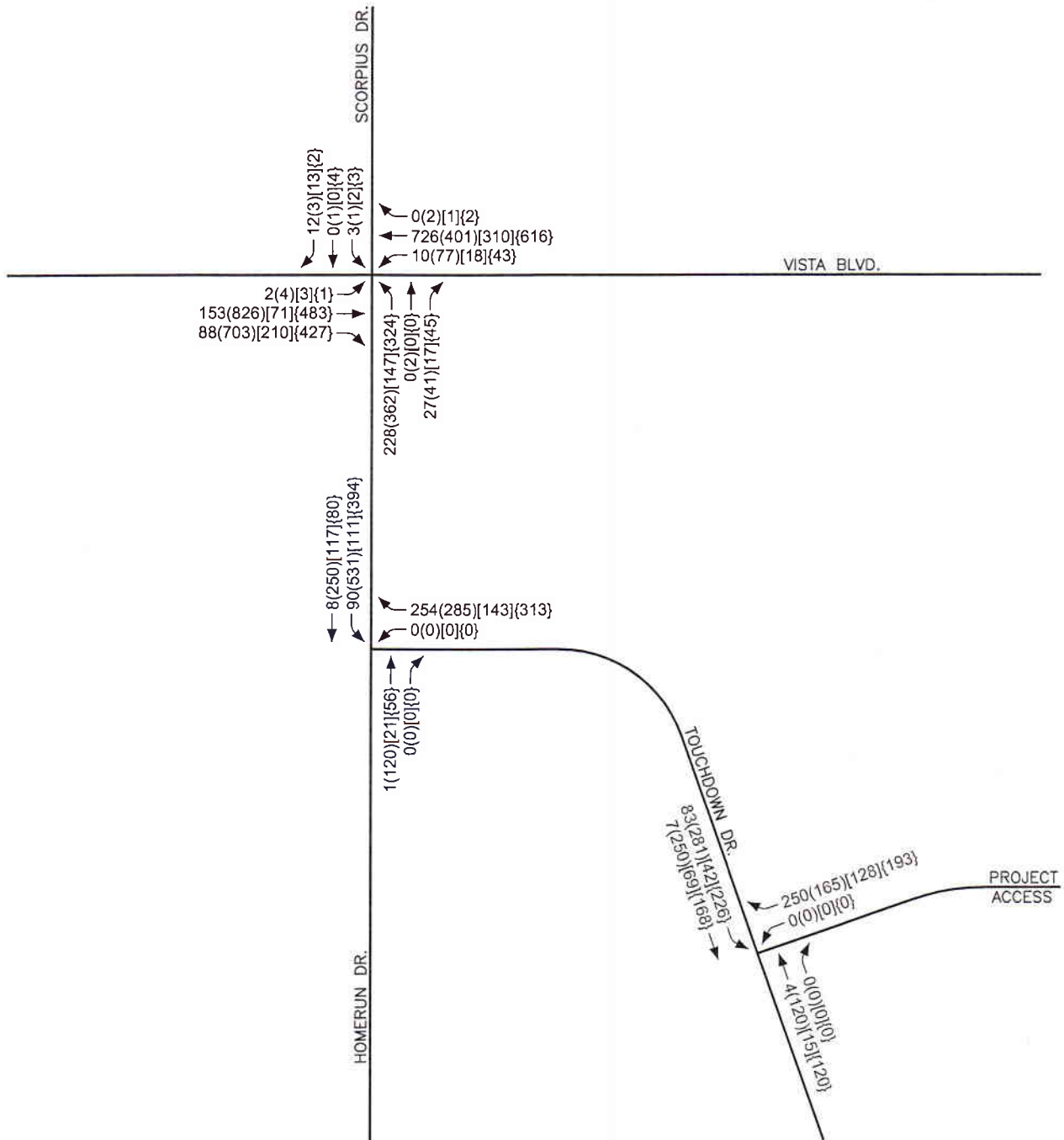
WINGFIELD COMMONS

2040 BASE TRAFFIC VOLUMES (W/EVENT)

FIGURE 6

LEGEND

- WEEKDAY AM PEAK HOUR
- (-) WEEKDAY PM PEAK HOUR
- [-] SATURDAY AM PEAK HOUR
- { - } SATURDAY PM PEAK HOUR



WINGFIELD COMMONS

**2040 BASE PLUS PROJECT TRAFFIC VOLUMES (W/EVENT)
FIGURE 7**

INTERSECTION CAPACITY ANALYSIS

The key intersections were analyzed for capacity based on procedures presented in the *Highway Capacity Manual (6th Edition)*, prepared by the Transportation Research Board, for unsignalized and signalized intersections using the latest version of the Synchro computer software.

The result of capacity analysis is a level of service (LOS) rating for signalized intersections or minor movements at a two-way stop controlled intersection. Level of service is a qualitative measure of traffic operating conditions where a letter grade “A” through “F”, corresponding to progressively worsening traffic operation, is assigned to the intersection or minor movement.

The *Highway Capacity Manual* defines level of service for stop controlled intersections in terms of computed or measured control delay for each minor movement. Level of service is not defined for the intersection as a whole. The level of service criteria for unsignalized intersections is shown in Table 2.

LEVEL OF SERVICE	DELAY RANGE (SEC/VEH)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Level of service for signalized intersections is stated in terms of the average control delay per vehicle for a peak 15 minute analysis period. The level of service criteria for signalized intersections is shown in Table 3.

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Table 4A shows a summary of the level of service and delay results at the key intersections for the existing and existing plus project scenarios with no GERP event. The intersection capacity worksheets are included in the Appendix.

TABLE 4A INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS EXISTING AND EXISTING PLUS PROJECT SCENARIOS (NO GERP EVENT)								
INTERSECTION	EXISTING				EXISTING PLUS PROJECT			
	WEEK AM	WEEK PM	SAT. AM	SAT. PM	WEEK AM	WEEK PM	SAT. AM	SAT. PM
Vista/Homerun/Scorpius Signalized w/Existing Lanes	A8.6	B10.1	A8.8	B10.1	B14.4	B13.3	B11.5	B15.1
Homerun/Touchdown Stop at East Leg WB Left-Right SB Left	A8.3 A7.2	A8.5 A7.3	A8.4 A7.3	A8.8 A7.4	A9.5 A7.4	A9.3 A7.9	A8.9 A7.4	B10.0 A7.9
Touchdown/Project Access Stop at East Leg WB Left-Right SB Left	N/A N/A	N/A N/A	N/A N/A	N/A N/A	A9.5 A7.4	A9.8 A7.9	A8.9 A7.3	A9.6 A7.8

Table 4B shows a summary of the level of service and delay results at the key intersections for the existing and existing plus project scenarios with a GERP event. The intersection capacity worksheets are included in the Appendix.

TABLE 4B INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS EXISTING AND EXISTING PLUS PROJECT SCENARIOS (WITH GERP EVENT)								
INTERSECTION	EXISTING				EXISTING PLUS PROJECT			
	WEEK AM	WEEK PM	SAT. AM	SAT. PM	WEEK AM	WEEK PM	SAT. AM	SAT. PM
Vista/Homerun/Scorpius Signalized w/Existing Lanes	A9.5	B15.0	B10.2	B12.2	B14.4	D41.3	B13.4	B18.4
Homerun/Touchdown Stop at East Leg WB Left-Right SB Left	A8.3 A7.2	A9.6 A8.1	A8.5 A7.4	A9.1 A7.7	A9.5 A7.4	B11.0 A9.2	A9.0 A7.5	B10.5 A8.3
Touchdown/Project Access Stop at East Leg WB Left-Right SB Left	N/A N/A	N/A N/A	N/A N/A	N/A N/A	A9.5 A7.4	A9.9 A8.2	A8.9 A7.3	B10.1 A8.0

Table 4C shows a summary of the level of service and delay results at the key intersections for the 2040 base and 2040 base plus project scenarios with a GERP event. The intersection capacity worksheets are included in the Appendix.

TABLE 4C INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS 2040 BASE AND 2040 BASE PLUS PROJECT SCENARIOS (WITH GERP EVENT)								
INTERSECTION	2040 BASE				2040 BASE PLUS PROJECT			
	WEEK AM	WEEK PM	SAT. AM	SAT. PM	WEEK AM	WEEK PM	SAT. AM	SAT. PM
Vista/Homerun/Scorpius Signalized w/Existing Lanes	A9.9	B15.2	A9.9	B12.5	B14.9	D41.1	B13.1	B18.9
Homerun/Touchdown Stop at East Leg WB Left-Right SB Left	A8.3 A7.2	A9.6 A8.1	A8.5 A7.4	A9.1 A7.7	A9.5 A7.4	B11.0 A9.2	A9.0 A7.5	B10.5 A8.3
Touchdown/Project Access Stop at East Leg WB Left-Right SB Left	N/A N/A	N/A N/A	N/A N/A	N/A N/A	A9.5 A7.4	A9.9 A8.2	A8.9 A7.3	B10.1 A8.0

Vista Boulevard/Homerun Drive/Scorpius Drive Intersection

The Vista Boulevard/Homerun Drive/Scorpius Drive intersection was analyzed for capacity as a signalized four-leg intersection for all scenarios. The intersection currently operates at LOS B or better during the weekday and Saturday AM and PM peak hours with no GERP event. For the existing plus project traffic volumes (no GERP event) the intersection operates at LOS B during the weekday and Saturday AM and PM peak hours. With a GERP event, the intersection currently operates at LOS B or better during the weekday and Saturday AM and PM peak hours. For the existing plus project traffic volumes (with GERP event) the intersection operates at LOS B during the weekday AM and Saturday AM and PM peak hours and LOS D during the weekday PM peak hour. For the 2040 base traffic volumes (with GERP Event) the intersection operates at LOS B or better during the weekday and Saturday AM and PM peak hours. For the 2040 base plus project traffic volumes (with GERP event) the intersection operates at LOS B during the weekday AM and Saturday AM and PM peak hours and LOS D during the weekday PM peak hour. The intersection was analyzed with the existing approach lanes and signal phasing for all scenarios. The existing intersection meets policy LOS D or better operation for all scenarios.

Homerun Drive/Touchdown Drive Intersection

The Homerun Drive/Touchdown Drive intersection was analyzed as an unsignalized three-leg intersection with stop control at the east approach for all scenarios. The intersection minor movements currently operate at LOS A during the weekday and Saturday AM and PM peak hours with no GERP event. For the existing plus project traffic volumes (no GERP event) the intersection minor movements operate at LOS B or better during the weekday and Saturday AM and PM peak hours. With a GERP event, the intersection minor movements currently operate at LOS A during the weekday and Saturday AM and PM peak hours. For the existing plus project traffic volumes (with GERP event) the intersection minor movements operate at LOS B or better during the weekday and Saturday AM and PM peak hours. For the 2040 base traffic volumes (with GERP Event) the intersection minor movements operate at LOS A during the weekday and Saturday AM and PM peak hours. For the 2040 base plus project traffic volumes (with GERP event) the intersection minor movements operate at LOS B or better during the weekday and Saturday AM and PM peak hours. The intersection was analyzed with the existing approach lanes and traffic control for all scenarios. In summary, the existing intersection minor movements operate at acceptable LOS B or better for all scenarios and peak hours.

Touchdown Drive/Project Access Intersection

The Touchdown Drive/Project Access intersection was analyzed as an unsignalized three-leg intersection with stop control at the east approach for the “with project” scenarios. For the existing plus project traffic volumes (no GERP event) the intersection minor movements operate at LOS A during the weekday and Saturday AM and PM peak hours. For the existing plus project traffic volumes (with GERP event) the minor movements operate at LOS B or better during the weekday and Saturday AM and PM peak hours. For the 2040 base plus project traffic volumes (with GERP event) the intersection minor movements operate at LOS B or better during the weekday and Saturday AM and PM peak hours. The intersection was analyzed with single lanes at all approaches. However, it is recommended that an exclusive left turn lane be provided at the north approach. The left turn lane should be designed to maximize storage length. The proposed intersection minor movements operate at acceptable LOS B or better for all scenarios and peak hours.

QUEUING ANALYSIS

As previously discussed, the existing Vista Boulevard/Homerun Drive/Scorpius Drive intersection, the existing Homerun Drive/Touchdown Drive intersection, and the proposed Touchdown Drive/Project Access intersection are anticipated to operate at acceptable levels of service for all study scenarios and peak hours. However, the spacing of the Vista Boulevard/Homerun Drive and Homerun Drive/Touchdown Drive intersections could potentially result in queuing and storage conflicts on Homerun Drive. Approximately 210 feet of storage length is currently available from the stop bar at the south approach of the Vista Boulevard/Homerun Drive intersection to the north side of the Homerun Drive/Touchdown Drive intersection.

Queue lengths were subsequently reviewed at the south approach of the signalized Vista Boulevard/Homerun Drive intersection. The capacity analysis results show 95th percentile queue lengths of less than 125 feet for the weekday and Saturday AM peak hours for the existing plus project (with and with GERP event) and 2040 base plus project (with GERP event) scenarios. These queue lengths can easily be accommodated within the ± 210 feet available storage area on Homerun Drive with no impacts anticipated at the Homerun Drive/Touchdown Drive intersection. However, 95th percentile queue lengths of approximately 225 feet for the weekday PM peak hour and 200 feet for the Saturday PM peak hour are anticipated for the existing plus project (with GERP event) and the 2040 base plus project (with GERP event) scenarios. These weekday and Saturday PM peak hour queue lengths could exceed the ± 210 feet available storage length on Homerun Drive resulting in potential impacts at the Homerun Drive/Touchdown Drive intersection. If the queue length extends south past Touchdown Drive then the southbound left turn movement at the Homerun Drive/Touchdown Drive intersection could potentially be blocked which in turn could result in the left turn queue extending northward onto Vista Boulevard.

In order to prevent potential blockage of the Homerun Drive/Touchdown Drive intersection it is recommended that the Vista Boulevard/Homerun Drive intersection be improved to include an additional left turn lane at the south approach and the Homerun Drive/Touchdown Drive intersection be modified to include stop sign control at both the east and south approaches. "Do Not Block Intersection" pavement markings and appropriate signage are also suggested to inform motorists of the modified intersection operation. The south approach of the Homerun Drive/Touchdown Drive intersection is projected to serve the lowest volume of the three approaches based on the project buildout traffic volumes. In addition, it is recommended that the Homerun Drive/Touchdown Drive intersection be improved to include an exclusive left turn lane at the north approach. This left turn lane should be designed to maximize storage length.

Queuing was also reviewed for the existing right turn lane at the west approach of the Vista Boulevard/Homerun Drive intersection. The right turn lane currently contains approximately 125 feet of combined storage/deceleration length with a 180 foot taper. The capacity analysis results indicate 95th percentile queue lengths of approximately 100 feet or less for the eastbound right turn movement based on the existing plus project traffic volumes on a weekend and Saturday that do not include a GERP event. In addition to queue length, a desirable deceleration length of 115 feet is also needed based on the 35 mile per hour speed limit on Vista Boulevard for a total lane length of 215 feet. In summary, the right turn lane should contain a minimum of 215 feet of storage and deceleration length with a 180 foot taper in order to serve existing plus project traffic volumes during non-GERP events.

For GERP events, the Highway Capacity, Synchro, and SimTraffic results indicate an average 95th percentile queue length of ± 350 feet for the weekday PM peak hour. Again, a desirable deceleration length of 115 feet is also needed based on the 35 mile per hour speed limit on Vista Boulevard which results in a total length of 465 feet. The right turn lane should therefore be modified to contain a minimum of 465 feet of storage/deceleration length with a 180 foot taper in order to serve existing plus project and 2040 base plus project traffic volumes during a GERP event.

It is suggested that the modification of the Homerun Drive/Touchdown Drive intersection to include stop sign control at the south approach occur prior to construction of the first dwelling unit. It is suggested that the additional left turn lane at the south approach and the modified right turn lane at the west approach of the Vista Boulevard/Homerun Drive intersection and the additional left turn lane at the north approach of the Homerun Drive/Touchdown Drive intersection be installed prior to the construction of the 75th dwelling unit.

TRAFFIC CRASH REVIEW

Traffic crash data at the Vista Boulevard/Homerun Drive/Scorpius Drive and Homerun Drive/Touchdown Drive intersections was requested from NDOT Traffic Safety Engineering. Crash data was available for the Vista Boulevard/Homerun Drive/Scorpius Drive intersection for the study period from September 1, 2014 to September 1, 2017. A total of 6 crashes occurred at the Vista Boulevard/Homerun Drive/Scorpius Drive intersection during the three-year period with no fatalities reported. The crash type was 3 non-collisions, 2 rear-end collisions, and 1 sideswipe meeting collision. NDOT Traffic Safety Engineering reported that no crash data exists for the Homerun Drive/Touchdown Drive intersection.

SITE PLAN REVIEW

A copy of the preliminary site plan for the proposed Wingfield Commons development is included with this submittal. The site plan indicates that project access will be provided from a proposed access roadway that intersects Touchdown Drive. The access roadway will start at Touchdown Drive, extend easterly and then southerly along the east boundary of the Golden Eagle Regional Park, before terminating at Hans Berry Road. Various residential streets intersecting the project access road will provide access to the individual lots. The site plan indicates that an emergency access gate will be constructed at the north approach of the Hans Berry Road/Project Access intersection. It is recommended that the project access roadway and the internal residential streets be designed to conform to City of Sparks standards.

A shared pedestrian/bicycle path exists within the Golden Eagle Regional Park. This path connects with the existing sidewalk infrastructure at the signalized Vista Boulevard/Homerun Drive/Scorpius Drive intersection. It is recommended that the proposed subdivision provide a connection to the existing pedestrian/bicycle path within the Golden Eagle Regional Park. In addition, it is recommended that the project developers provide a traffic circulation plan that discourages or prevents Golden Eagle Regional Park traffic from utilizing the project access road and internal residential streets.

RECOMMENDATIONS

Traffic generated by the Wingfield Commons development will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that any required signing, striping, or traffic control improvements comply with City of Sparks requirements.

It is recommended that the Vista Boulevard/Homerun Drive/Scorpius Drive intersection be improved to include one exclusive left turn lane, one shared left turn-through lane, and one exclusive right turn lane at the south approach.

It is recommended that the existing right turn lane at the west approach of the Vista Boulevard/Homerun Drive/Scorpius Drive intersection be lengthened to provide a minimum of 465 feet of storage/deceleration length with a 180 foot taper in order to serve traffic volumes generated by a major event at the Golden Eagle Regional Park.

It is recommended that the traffic control at the Homerun Drive/Touchdown Drive intersection be modified to include stop sign control at the south and east approaches while the left turn and through movements at the north approach flow free. In addition, it is recommended that an exclusive left turn lane be provided at the north approach.

It is recommended that the Touchdown Drive/Project Access intersection be designed as a three-leg intersection with stop sign control at the east approach and contain an exclusive left turn lane at the north approach.

It is recommended that the project access roadway and the internal residential streets be designed to conform to City of Sparks standards.

It is recommended that connections be made from the proposed subdivision to the existing pedestrian/bicycle network within the Golden Eagle Regional Park.

It is recommended that the project developers provide a traffic circulation plan that discourages or prevents Golden Eagle Regional Park traffic from utilizing the project access road and internal residential streets.

APPENDIX

Single-Family Detached Housing (210)

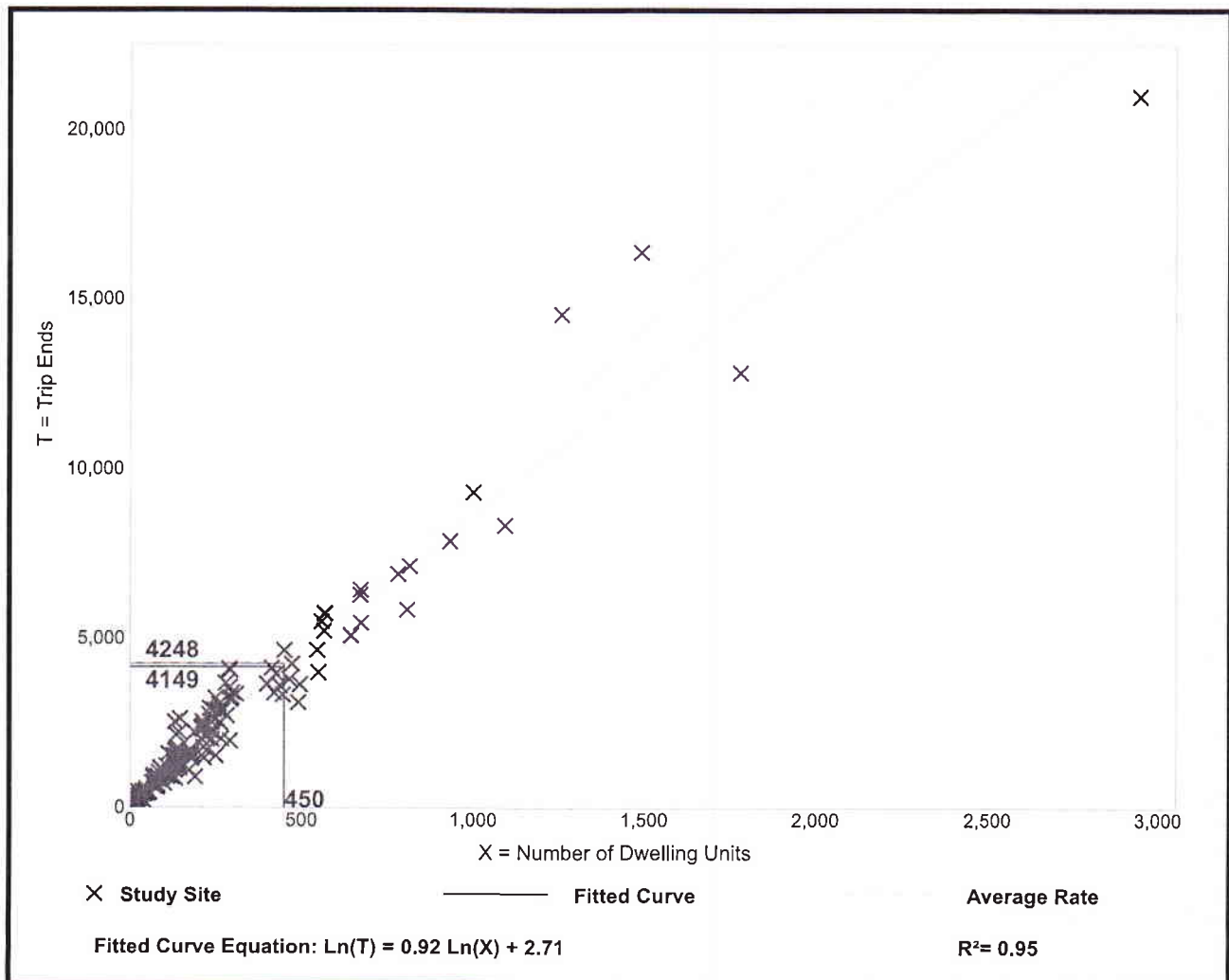
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 159
Avg. Num. of Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.

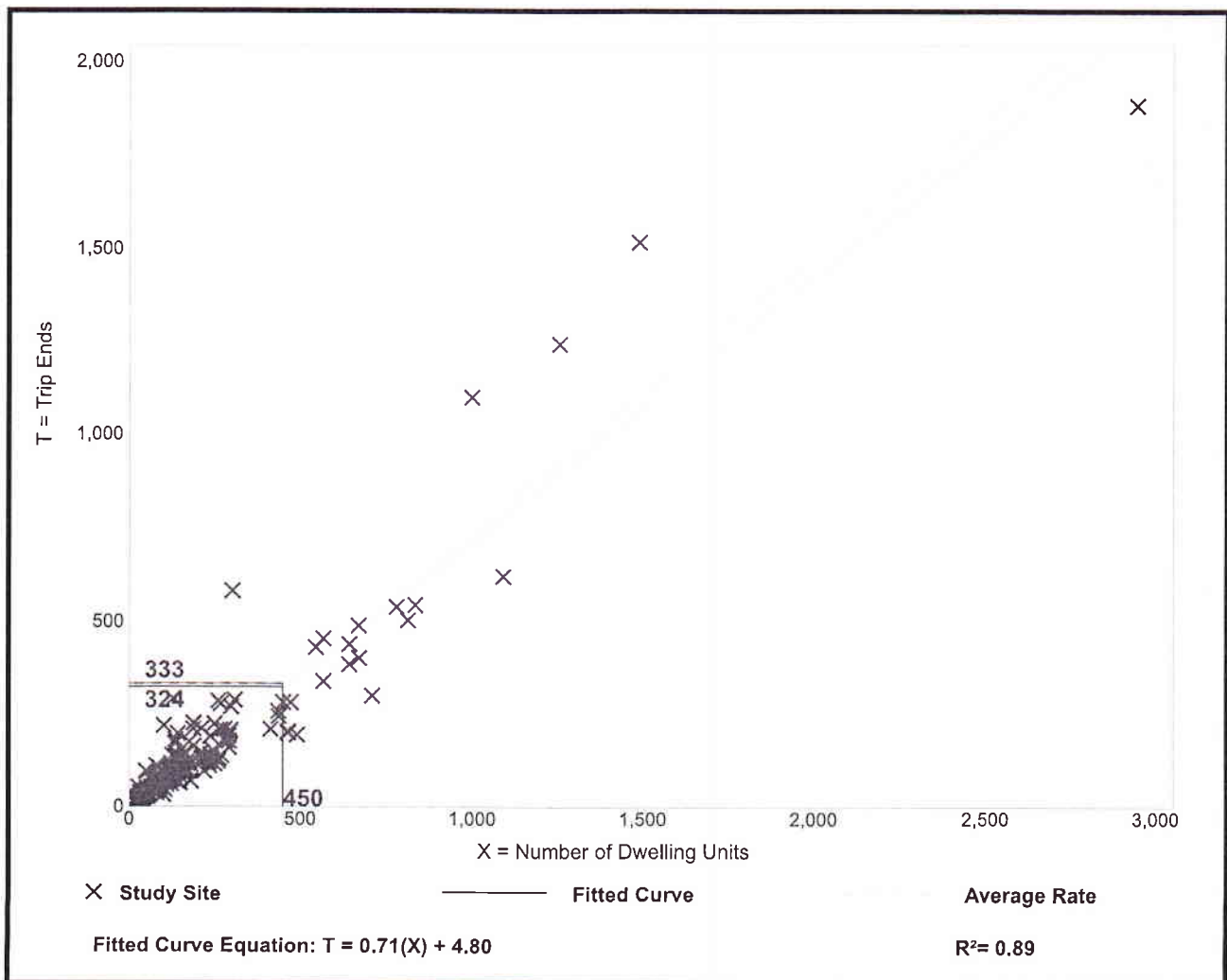
Setting/Location: General Urban/Suburban

Number of Studies: 173
 Avg. Num. of Dwelling Units: 219
 Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 190

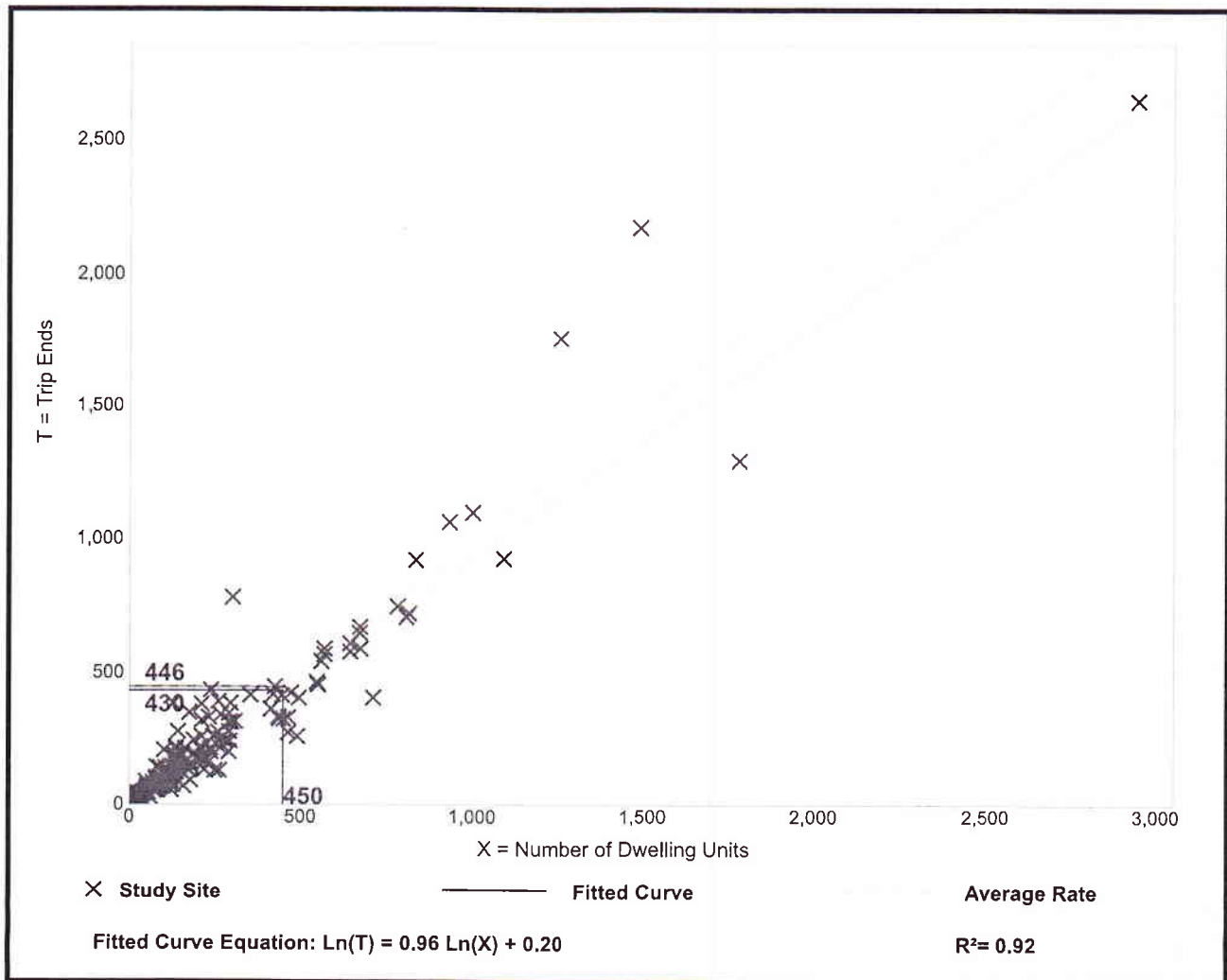
Avg. Num. of Dwelling Units: 242

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



Single-Family Detached Housing (210)

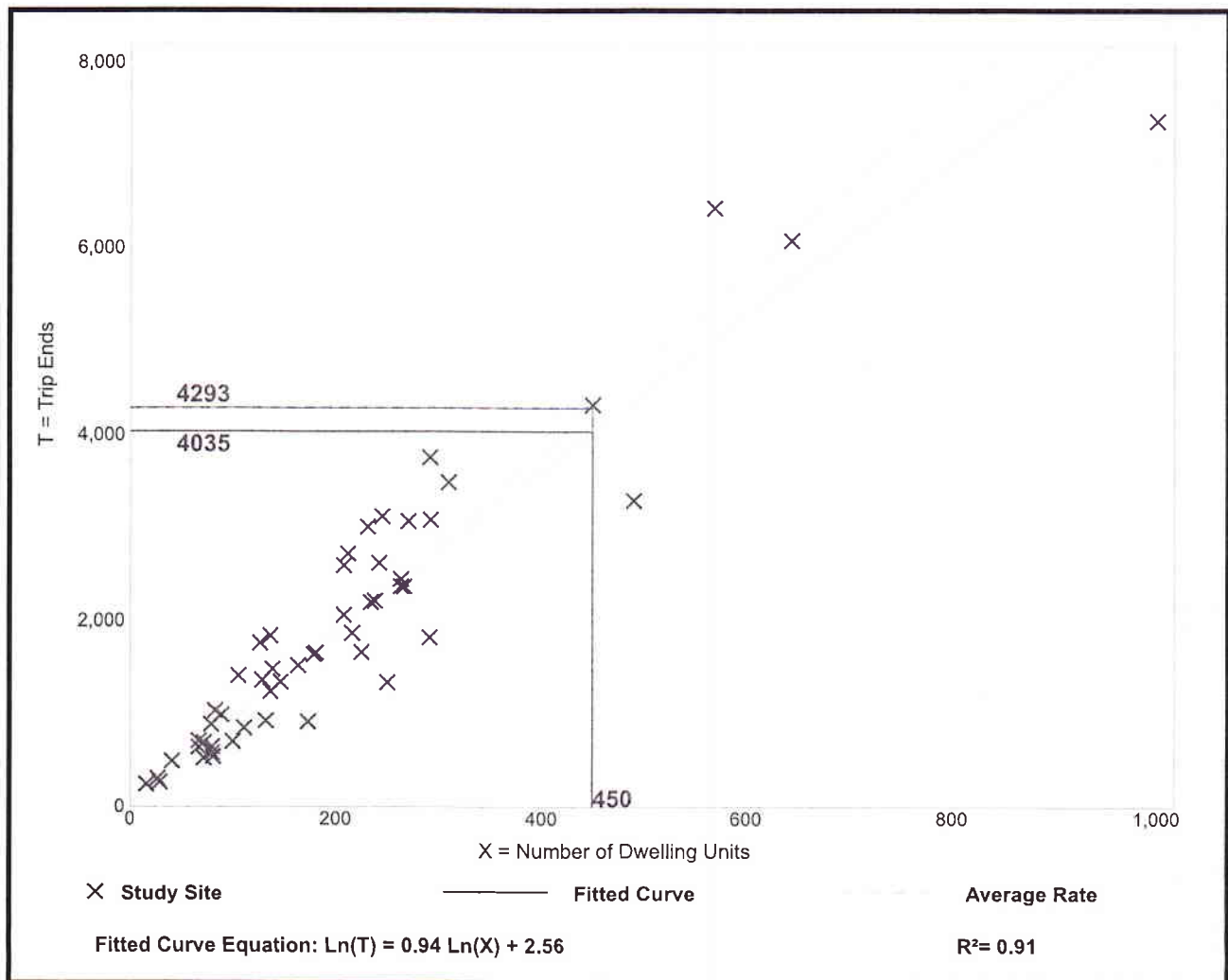
Vehicle Trip Ends vs: Dwelling Units
On a: Saturday

Setting/Location: General Urban/Suburban
Number of Studies: 52
Avg. Num. of Dwelling Units: 207
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.54	5.32 - 15.25	2.17

Data Plot and Equation



Single-Family Detached Housing (210)

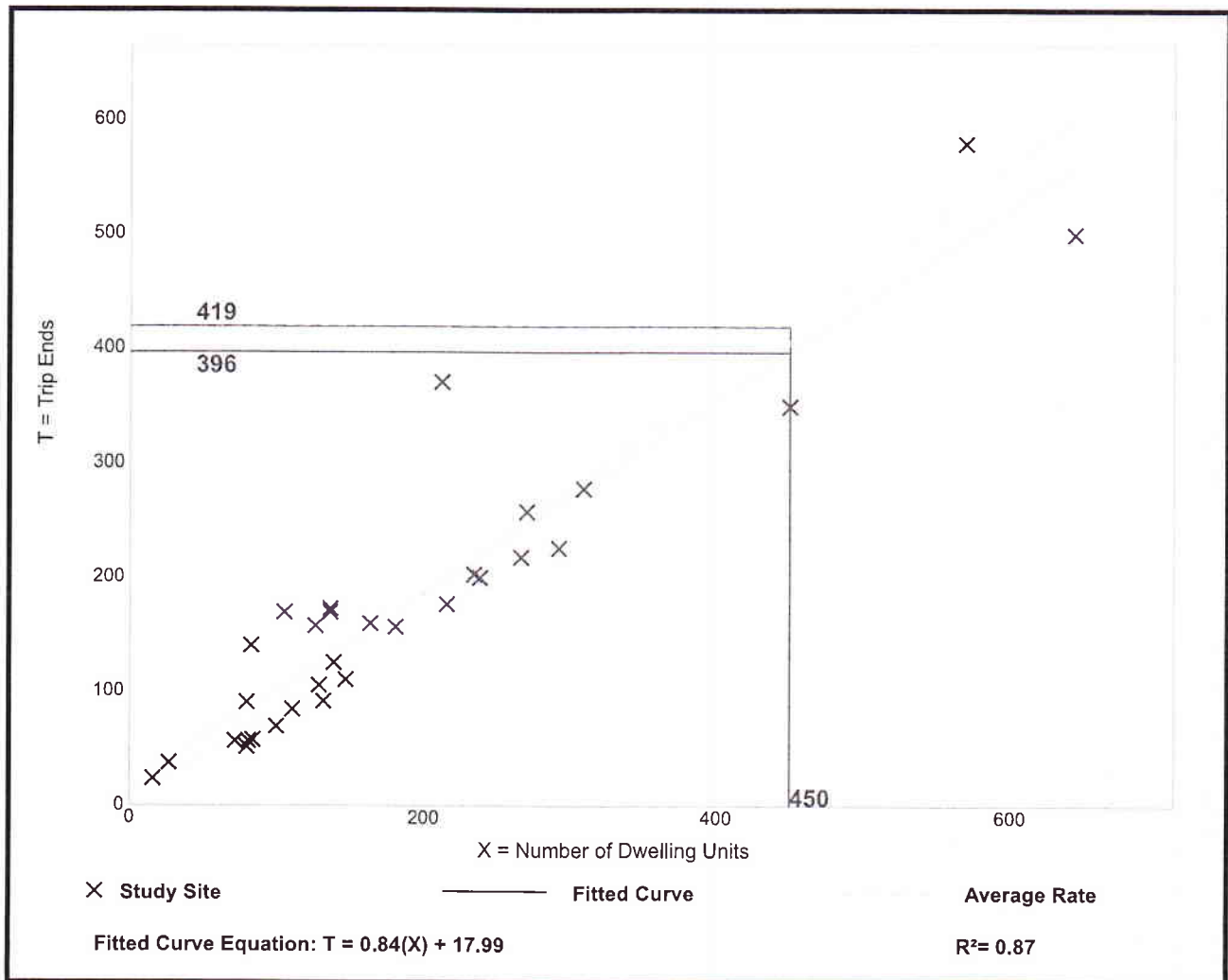
Vehicle Trip Ends vs: Dwelling Units
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 31
Avg. Num. of Dwelling Units: 188
Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.93	0.64 - 1.75	0.26

Data Plot and Equation



HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista





















07/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	137	9	0	651	0	3	0	2	3	0	12
Future Volume (veh/h)	2	137	9	0	651	0	3	0	2	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	152	10	0	723	0	3	0	2	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	2369	1057	4	1579	0	319	0	176	111	17	144
Arrive On Green	0.11	0.67	0.67	0.00	0.44	0.00	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	146	152	1292
Grp Volume(v), veh/h	2	152	10	0	723	0	3	0	2	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1591	0	0
Q Serve(g_s), s	0.0	0.7	0.1	0.0	6.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.7	0.1	0.0	6.4	0.0	0.1	0.0	0.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	198	2369	1057	4	1579	0	319	0	176	272	0	0
V/C Ratio(X)	0.01	0.06	0.01	0.00	0.46	0.00	0.01	0.00	0.01	0.06	0.00	0.00
Avail Cap(c_a), veh/h	198	2369	1057	198	1579	0	786	0	704	788	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	2.6	2.5	0.0	8.7	0.0	17.8	0.0	17.8	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.2	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	2.7	2.5	0.0	9.7	0.0	17.8	0.0	17.8	18.0	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	B	A	B	B	A	A
Approach Vol, veh/h		164			723			5			16	
Approach Delay, s/veh		2.8			9.7			17.8			18.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	0.0	35.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		2.1	0.0	2.7		2.4	2.0	8.4				
Green Ext Time (p_c), s		0.0	0.0	0.8		0.0	0.0	3.7				
Intersection Summary												
HCM 6th Ctrl Delay			8.6									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista

07/23/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	740	42	17	359	2	30	2	13	1	1	3
Future Volume (veh/h)	4	740	42	17	359	2	30	2	13	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	822	47	19	399	2	33	2	14	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	1579	704	198	1611	8	318	22	157	112	57	110
Arrive On Green	0.11	0.44	0.44	0.11	0.44	0.44	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3626	18	1412	202	1414	144	513	986
Grp Volume(v), veh/h	4	822	47	19	195	206	33	0	16	5	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1616	1644	0	0
Q Serve(g_s), s	0.1	7.5	0.8	0.4	3.1	3.1	0.8	0.0	0.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	7.5	0.8	0.4	3.1	3.1	0.9	0.0	0.4	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.88	0.20		0.60
Lane Grp Cap(c), veh/h	198	1579	704	198	790	830	318	0	180	279	0	0
V/C Ratio(X)	0.02	0.52	0.07	0.10	0.25	0.25	0.10	0.00	0.09	0.02	0.00	0.00
Avail Cap(c_a), veh/h	198	1579	704	198	790	830	789	0	718	809	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	9.0	7.2	18.0	7.8	7.8	18.2	0.0	18.0	17.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.2	0.2	0.2	0.7	0.7	0.1	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	4.2	0.4	0.3	1.8	1.9	0.5	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	10.3	7.3	18.2	8.6	8.5	18.3	0.0	18.2	17.9	0.0	0.0
LnGrp LOS	B	B	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		873			420			49			5	
Approach Delay, s/veh		10.1			9.0			18.3			17.9	
Approach LOS		B			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	25.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		2.9	2.4	9.5		2.1	2.1	5.1				
Green Ext Time (p_c), s		0.1	0.0	4.1		0.0	0.0	1.9				
Intersection Summary												
HCM 6th Ctrl Delay			10.1									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista






















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	60	90	9	278	1	5	0	11	2	0	13
Future Volume (veh/h)	3	60	90	9	278	1	5	0	11	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	67	100	10	309	1	6	0	12	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	1579	704	198	1615	5	319	0	176	100	12	154
Arrive On Green	0.11	0.44	0.44	0.11	0.44	0.44	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1400	0	1585	94	105	1390
Grp Volume(v), veh/h	3	67	100	10	151	159	6	0	12	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1589	0	0
Q Serve(g_s), s	0.1	0.5	1.7	0.2	2.3	2.3	0.0	0.0	0.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.5	1.7	0.2	2.3	2.3	0.1	0.0	0.3	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	198	1579	704	198	790	830	319	0	176	267	0	0
V/C Ratio(X)	0.02	0.04	0.14	0.05	0.19	0.19	0.02	0.00	0.07	0.06	0.00	0.00
Avail Cap(c_a), veh/h	198	1579	704	198	790	830	785	0	704	786	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	7.1	7.4	17.9	7.6	7.6	17.8	0.0	17.9	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.4	0.1	0.5	0.5	0.0	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	0.9	0.2	1.3	1.4	0.1	0.0	0.2	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	7.1	7.8	18.0	8.1	8.1	17.9	0.0	18.1	18.0	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		170			320			18			16	
Approach Delay, s/veh		7.7			8.4			18.0			18.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	25.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		2.3	2.2	3.7		2.4	2.1	4.3				
Green Ext Time (p_c), s		0.0	0.0	0.6		0.0	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay			8.8									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista





















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	433	80	9	552	2	80	3	30	3	1	2
Future Volume (veh/h)	1	433	80	9	552	2	80	3	30	3	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	481	89	10	613	2	89	3	33	3	1	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	1579	704	198	1615	5	318	15	164	176	62	59
Arrive On Green	0.11	0.44	0.44	0.11	0.44	0.44	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1414	134	1472	505	556	530
Grp Volume(v), veh/h	1	481	89	10	300	315	89	0	36	6	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1414	0	1605	1591	0	0
Q Serve(g_s), s	0.0	3.9	1.5	0.2	5.1	5.1	2.5	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.9	1.5	0.2	5.1	5.1	2.6	0.0	0.9	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.92	0.50		0.33
Lane Grp Cap(c), veh/h	198	1579	704	198	790	830	318	0	178	297	0	0
V/C Ratio(X)	0.01	0.30	0.13	0.05	0.38	0.38	0.28	0.00	0.20	0.02	0.00	0.00
Avail Cap(c_a), veh/h	198	1579	704	198	790	830	789	0	714	799	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	8.0	7.4	17.9	8.4	8.4	18.9	0.0	18.2	17.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.4	0.1	1.4	1.3	0.5	0.0	0.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.1	0.8	0.2	3.0	3.2	1.5	0.0	0.6	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	8.5	7.7	18.0	9.7	9.7	19.4	0.0	18.7	17.9	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		571			625			125			6	
Approach Delay, s/veh		8.4			9.8			19.2			17.9	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	25.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		4.6	2.2	5.9		2.1	2.0	7.1				
Green Ext Time (p_c), s		0.3	0.0	2.9		0.0	0.0	2.9				
Intersection Summary												
HCM 6th Ctrl Delay			10.1									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista

























07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	137	84	8	651	0	228	0	27	3	0	12
Future Volume (veh/h)	2	137	84	8	651	0	228	0	27	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	152	93	9	723	0	253	0	30	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	1306	583	182	1306	0	464	0	355	117	37	289
Arrive On Green	0.10	0.37	0.37	0.10	0.37	0.00	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	134	164	1292
Grp Volume(v), veh/h	2	152	93	9	723	0	253	0	30	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1590	0	0
Q Serve(g_s), s	0.0	1.4	1.9	0.2	7.9	0.0	7.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.4	1.9	0.2	7.9	0.0	8.2	0.0	0.7	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	182	1306	583	182	1306	0	464	0	355	444	0	0
V/C Ratio(X)	0.01	0.12	0.16	0.05	0.55	0.00	0.55	0.00	0.08	0.04	0.00	0.00
Avail Cap(c_a), veh/h	182	1306	583	182	1306	0	779	0	712	791	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.8	10.2	10.4	19.8	12.3	0.0	17.9	0.0	15.0	14.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.6	0.1	1.7	0.0	1.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.8	1.1	0.2	5.0	0.0	4.6	0.0	0.5	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	10.4	11.0	20.0	14.0	0.0	18.9	0.0	15.1	14.9	0.0	0.0
LnGrp LOS	B	B	B	B	B	A	B	A	B	B	A	A
Approach Vol, veh/h		247			732			283				16
Approach Delay, s/veh		10.7			14.1			18.5				14.9
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.0	10.0	23.0		16.0	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		10.2	2.2	3.9		2.4	2.0	9.9				
Green Ext Time (p_c), s		0.7	0.0	0.9		0.0	0.0	3.0				
Intersection Summary												
HCM 6th Ctrl Delay			14.4									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	740	295	45	359	2	178	2	30	1	1	3
Future Volume (veh/h)	4	740	295	45	359	2	178	2	30	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	822	245	50	399	2	198	2	33	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	1449	646	182	1478	7	408	17	278	114	96	182
Arrive On Green	0.10	0.41	0.41	0.10	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1781	3554	1585	1781	3626	18	1412	91	1508	139	518	986
Grp Volume(v), veh/h	4	822	245	50	195	206	198	0	35	5	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1599	1643	0	0
Q Serve(g_s), s	0.1	8.7	5.3	1.3	3.6	3.6	6.4	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	8.7	5.3	1.3	3.6	3.6	6.5	0.0	0.9	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.94	0.20		0.60
Lane Grp Cap(c), veh/h	182	1449	646	182	724	761	408	0	295	391	0	0
V/C Ratio(X)	0.02	0.57	0.38	0.28	0.27	0.27	0.48	0.00	0.12	0.01	0.00	0.00
Avail Cap(c_a), veh/h	182	1449	646	218	724	761	723	0	652	745	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.8	11.2	10.2	20.4	9.7	9.7	18.9	0.0	16.7	16.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.6	1.7	0.8	0.9	0.9	0.9	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	5.4	3.1	0.9	2.3	2.4	3.7	0.0	0.6	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.9	12.8	11.9	21.2	10.6	10.5	19.8	0.0	16.8	16.4	0.0	0.0
LnGrp LOS	B	B	B	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		1071			451			233			5	
Approach Delay, s/veh		12.6			11.7			19.4			16.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.1	10.0	25.0		14.1	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	6.0	19.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+11), s		8.5	3.3	10.7		2.1	2.1	5.6				
Green Ext Time (p_c), s		0.6	0.0	4.0		0.0	0.0	1.9				
Intersection Summary												
HCM 6th Ctrl Delay			13.3									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	64	128	13	278	1	120	0	24	2	0	13
Future Volume (veh/h)	3	64	128	13	278	1	120	0	24	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	71	114	14	309	1	133	0	27	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	196	1487	663	196	1521	5	359	0	223	100	17	196
Arrive On Green	0.11	0.42	0.42	0.11	0.42	0.42	0.14	0.00	0.14	0.14	0.00	0.14
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1400	0	1585	77	122	1393
Grp Volume(v), veh/h	3	71	114	14	151	159	133	0	27	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1593	0	0
Q Serve(g_s), s	0.1	0.5	2.0	0.3	2.5	2.5	3.6	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.5	2.0	0.3	2.5	2.5	4.0	0.0	0.7	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	196	1487	663	196	744	782	359	0	223	314	0	0
V/C Ratio(X)	0.02	0.05	0.17	0.07	0.20	0.20	0.37	0.00	0.12	0.05	0.00	0.00
Avail Cap(c_a), veh/h	196	1487	663	196	744	782	809	0	733	814	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.0	7.8	8.3	18.1	8.4	8.4	18.4	0.0	17.0	16.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.6	0.2	0.6	0.6	0.6	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	1.1	0.2	1.5	1.5	2.3	0.0	0.4	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	7.9	8.8	18.3	9.0	9.0	19.1	0.0	17.3	17.0	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		188			324			160			16	
Approach Delay, s/veh		8.6			9.4			18.8			17.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.4	10.0	24.0		11.4	10.0	24.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		21.0	5.0	19.0		21.0	5.0	19.0				
Max Q Clear Time (g_c+I1), s		6.0	2.3	4.0		2.4	2.1	4.5				
Green Ext Time (p_c), s		0.4	0.0	0.6		0.0	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay			11.5									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	433	283	32	552	2	254	3	49	3	1	2
Future Volume (veh/h)	1	433	283	32	552	2	254	3	49	3	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	481	247	36	613	2	282	3	54	3	1	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	1271	567	177	1300	4	490	21	371	261	97	125
Arrive On Green	0.10	0.36	0.36	0.10	0.36	0.36	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1414	84	1514	626	397	512
Grp Volume(v), veh/h	1	481	247	36	300	315	282	0	57	6	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1414	0	1598	1535	0	0
Q Serve(g_s), s	0.0	5.1	6.0	0.9	6.6	6.6	9.3	0.0	1.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	5.1	6.0	0.9	6.6	6.6	9.4	0.0	1.4	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.95	0.50		0.33
Lane Grp Cap(c), veh/h	177	1271	567	177	636	668	490	0	391	483	0	0
V/C Ratio(X)	0.01	0.38	0.44	0.20	0.47	0.47	0.58	0.00	0.15	0.01	0.00	0.00
Avail Cap(c_a), veh/h	177	1271	567	177	636	668	762	0	699	770	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.4	12.0	12.3	20.8	12.5	12.5	17.9	0.0	14.9	14.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	2.4	0.6	2.5	2.4	1.1	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	3.2	3.8	0.7	4.6	4.8	5.3	0.0	0.9	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	12.9	14.7	21.4	15.0	14.9	19.0	0.0	15.0	14.4	0.0	0.0
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		729			651			339			6	
Approach Delay, s/veh		13.5			15.3			18.3			14.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.3	10.0	23.0		17.3	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		11.4	2.9	8.0		2.1	2.0	8.6				
Green Ext Time (p_c), s		0.9	0.0	2.9		0.0	0.0	2.5				
Intersection Summary												
HCM 6th Ctrl Delay			15.1									
HCM 6th LOS			B									

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	4	1	0	2	7
Future Vol, veh/h	0	4	1	0	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	1	0	2	8

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	13	1	0	0	1
Stage 1	1	-	-	-	-
Stage 2	12	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	1006	1084	-	-	1622
Stage 1	1022	-	-	-	-
Stage 2	1011	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1005	1084	-	-	1622
Mov Cap-2 Maneuver	1005	-	-	-	-
Stage 1	1021	-	-	-	-
Stage 2	1011	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.3	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1084	1622
HCM Lane V/C Ratio	-	-	0.004	0.001
HCM Control Delay (s)	-	-	8.3	7.2
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	23	22	0	30	30
Future Vol, veh/h	0	23	22	0	30	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	26	24	0	33	33

Major/Minor	Minor1	Major1	Major2	Major2	Major2
Conflicting Flow All	123	24	0	0	24
Stage 1	24	-	-	-	-
Stage 2	99	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	872	1052	-	-	1591
Stage 1	999	-	-	-	-
Stage 2	925	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	854	1052	-	-	1591
Mov Cap-2 Maneuver	854	-	-	-	-
Stage 1	978	-	-	-	-
Stage 2	925	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1052	1591
HCM Lane V/C Ratio	-	-	0.024	0.021
HCM Control Delay (s)	-	-	8.5	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	9	8	0	49	50
Future Vol, veh/h	0	9	8	0	49	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	9	0	54	56

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	173	9	0	0	9
Stage 1	9	-	-	-	-
Stage 2	164	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	817	1073	-	-	1611
Stage 1	1014	-	-	-	-
Stage 2	865	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	788	1073	-	-	1611
Mov Cap-2 Maneuver	788	-	-	-	-
Stage 1	979	-	-	-	-
Stage 2	865	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.4	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1073	1611
HCM Lane V/C Ratio	-	-	0.009	0.034
HCM Control Delay (s)	-	-	8.4	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	57	56	0	45	45
Future Vol, veh/h	0	57	56	0	45	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	63	62	0	50	50

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	212	62	0	0	62
Stage 1	62	-	-	-	-
Stage 2	150	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	776	1003	-	-	1541
Stage 1	961	-	-	-	-
Stage 2	878	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	750	1003	-	-	1541
Mov Cap-2 Maneuver	750	-	-	-	-
Stage 1	929	-	-	-	-
Stage 2	878	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1541
HCM Lane V/C Ratio	-	-	0.063	0.032
HCM Control Delay (s)	-	-	8.8	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	8.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	254	1	0	85	7
Future Vol, veh/h	0	254	1	0	85	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	282	1	0	94	8

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	197	1	0	0	1
Stage 1	1	-	-	-	-
Stage 2	196	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	792	1084	-	-	1622
Stage 1	1022	-	-	-	-
Stage 2	837	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	746	1084	-	-	1622
Mov Cap-2 Maneuver	746	-	-	-	-
Stage 1	963	-	-	-	-
Stage 2	837	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1084	1622
HCM Lane V/C Ratio	-	-	0.26	0.058
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	7.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	188	22	0	311	30
Future Vol, veh/h	0	188	22	0	311	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	209	24	0	346	33

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	749	24	0	0	24
Stage 1	24	-	-	-	-
Stage 2	725	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	379	1052	-	-	1591
Stage 1	999	-	-	-	-
Stage 2	479	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	295	1052	-	-	1591
Mov Cap-2 Maneuver	295	-	-	-	-
Stage 1	777	-	-	-	-
Stage 2	479	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	7.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1052	1591
HCM Lane V/C Ratio	-	-	0.199	0.217
HCM Control Delay (s)	-	-	9.3	7.9
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.8

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	6.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	137	8	0	91	50
Future Vol, veh/h	0	137	8	0	91	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	152	9	0	101	56

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	267	9	0	0	9
Stage 1	9	-	-	-	-
Stage 2	258	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	722	1073	-	-	1611
Stage 1	1014	-	-	-	-
Stage 2	785	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	675	1073	-	-	1611
Mov Cap-2 Maneuver	675	-	-	-	-
Stage 1	948	-	-	-	-
Stage 2	785	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	4.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1073	1611
HCM Lane V/C Ratio	-	-	0.142	0.063
HCM Control Delay (s)	-	-	8.9	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	7.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	250	56	0	271	45
Future Vol, veh/h	0	250	56	0	271	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	278	62	0	301	50

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	714	62	0	0	62
Stage 1	62	-	-	-	-
Stage 2	652	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	398	1003	-	-	1541
Stage 1	961	-	-	-	-
Stage 2	518	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	318	1003	-	-	1541
Mov Cap-2 Maneuver	318	-	-	-	-
Stage 1	768	-	-	-	-
Stage 2	518	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	6.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1541
HCM Lane V/C Ratio	-	-	0.277	0.195
HCM Control Delay (s)	-	-	10	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.1	0.7

HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection

Int Delay, s/veh 8.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	250	4	0	83	2
Future Vol, veh/h	0	250	4	0	83	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	278	4	0	92	2

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	190	4	0	0	4
Stage 1	4	-	-	-	-
Stage 2	186	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	799	1080	-	-	1618
Stage 1	1019	-	-	-	-
Stage 2	846	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	753	1080	-	-	1618
Mov Cap-2 Maneuver	753	-	-	-	-
Stage 1	961	-	-	-	-
Stage 2	846	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	7.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1080	1618
HCM Lane V/C Ratio	-	-	0.257	0.057
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	8.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	281	21	0	315	28
Future Vol, veh/h	0	281	21	0	315	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	312	23	0	350	31

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	754	23	0	0	23
Stage 1	23	-	-	-	-
Stage 2	731	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	377	1054	-	-	1592
Stage 1	1000	-	-	-	-
Stage 2	476	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	293	1054	-	-	1592
Mov Cap-2 Maneuver	293	-	-	-	-
Stage 1	776	-	-	-	-
Stage 2	476	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	7.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1592
HCM Lane V/C Ratio	-	-	0.296	0.22
HCM Control Delay (s)	-	-	9.8	7.9
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1.2	0.8

HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection

Int Delay, s/veh 6.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		Y			Y
Traffic Vol, veh/h	0	128	9	0	42	49
Future Vol, veh/h	0	128	9	0	42	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	10	0	47	54

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	158	10	0	0	10
Stage 1	10	-	-	-	-
Stage 2	148	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	833	1071	-	-	1610
Stage 1	1013	-	-	-	-
Stage 2	880	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	808	1071	-	-	1610
Mov Cap-2 Maneuver	808	-	-	-	-
Stage 1	983	-	-	-	-
Stage 2	880	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1071	1610
HCM Lane V/C Ratio	-	-	0.133	0.029
HCM Control Delay (s)	-	-	8.9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	6.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	193	57	0	226	45
Future Vol, veh/h	0	193	57	0	226	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	214	63	0	251	50

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	615	63	0	0	63
Stage 1	63	-	-	-	-
Stage 2	552	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	455	1002	-	-	1540
Stage 1	960	-	-	-	-
Stage 2	577	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	379	1002	-	-	1540
Mov Cap-2 Maneuver	379	-	-	-	-
Stage 1	799	-	-	-	-
Stage 2	577	-	-	-	-





















Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	6.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1002	1540
HCM Lane V/C Ratio	-	-	0.214	0.163
HCM Control Delay (s)	-	-	9.6	7.8
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.6

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	137	13	2	651	0	3	0	2	3	0	12
Future Volume (veh/h)	2	137	13	2	651	0	3	0	2	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	152	14	2	723	0	3	0	2	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	1579	704	198	1579	0	319	0	176	111	17	144
Arrive On Green	0.11	0.44	0.44	0.11	0.44	0.00	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	146	152	1292
Grp Volume(v), veh/h	2	152	14	2	723	0	3	0	2	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1591	0	0
Q Serve(g_s), s	0.0	1.1	0.2	0.0	6.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.1	0.2	0.0	6.4	0.0	0.1	0.0	0.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	198	1579	704	198	1579	0	319	0	176	272	0	0
V/C Ratio(X)	0.01	0.10	0.02	0.01	0.46	0.00	0.01	0.00	0.01	0.06	0.00	0.00
Avail Cap(c_a), veh/h	198	1579	704	198	1579	0	786	0	704	788	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	7.3	7.0	17.8	8.7	0.0	17.8	0.0	17.8	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.6	0.1	0.0	3.5	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	7.4	7.1	17.8	9.7	0.0	17.8	0.0	17.8	18.0	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		168			725			5			16	
Approach Delay, s/veh		7.5			9.7			17.8			18.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	25.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		2.1	2.0	3.1		2.4	2.0	8.4				
Green Ext Time (p_c), s		0.0	0.0	0.8		0.0	0.0	3.7				
Intersection Summary												
HCM 6th Ctrl Delay			9.5									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista

























07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	740	450	49	359	2	214	2	24	1	1	3
Future Volume (veh/h)	4	740	450	49	359	2	214	2	24	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	822	389	54	399	2	238	2	27	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	1402	626	176	1431	7	441	23	314	117	106	207
Arrive On Green	0.10	0.39	0.39	0.10	0.39	0.39	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1781	3554	1585	1781	3626	18	1412	110	1491	152	504	984
Grp Volume(v), veh/h	4	822	389	54	195	206	238	0	29	5	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1602	1639	0	0
Q Serve(g_s), s	0.1	9.2	10.0	1.4	3.8	3.8	7.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	9.2	10.0	1.4	3.8	3.8	8.1	0.0	0.7	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.93	0.20		0.60
Lane Grp Cap(c), veh/h	176	1402	626	176	701	737	441	0	338	431	0	0
V/C Ratio(X)	0.02	0.59	0.62	0.31	0.28	0.28	0.54	0.00	0.09	0.01	0.00	0.00
Avail Cap(c_a), veh/h	176	1402	626	211	701	737	700	0	632	723	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.6	12.1	12.3	21.2	10.4	10.4	19.0	0.0	16.1	15.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.8	4.6	1.0	1.0	0.9	1.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	5.8	6.5	1.0	2.5	2.6	4.6	0.0	0.5	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	13.9	16.9	22.2	11.4	11.4	20.0	0.0	16.2	15.8	0.0	0.0
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		1215			455			267			5	
Approach Delay, s/veh		14.9			12.7			19.6			15.8	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.7	10.0	25.0		15.7	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	6.0	19.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		10.1	3.4	12.0		2.1	2.1	5.8				
Green Ext Time (p_c), s		0.6	0.0	3.8		0.0	0.0	1.9				
Intersection Summary												
HCM 6th Ctrl Delay			15.0									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	64	172	14	278	1	32	0	4	2	0	13
Future Volume (veh/h)	3	64	172	14	278	1	32	0	4	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	71	-31	16	309	1	36	0	4	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	1663	742	189	1701	6	306	0	169	96	11	148
Arrive On Green	0.11	0.47	0.00	0.11	0.47	0.47	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1400	0	1585	94	104	1391
Grp Volume(v), veh/h	3	71	-31	16	151	159	36	0	4	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1589	0	0
Q Serve(g_s), s	0.1	0.5	0.0	0.4	2.3	2.3	0.6	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.5	0.0	0.4	2.3	2.3	1.0	0.0	0.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	189	1663	742	189	832	874	306	0	169	255	0	0
V/C Ratio(X)	0.02	0.04	-0.04	0.08	0.18	0.18	0.12	0.00	0.02	0.06	0.00	0.00
Avail Cap(c_a), veh/h	189	1663	742	189	832	874	693	0	607	687	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.8	6.8	0.0	18.9	7.3	7.3	19.2	0.0	18.8	19.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.5	0.5	0.2	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	0.0	0.3	1.3	1.4	0.6	0.0	0.1	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	6.8	0.0	19.1	7.7	7.7	19.4	0.0	18.9	19.1	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		43			326			40			16	
Approach Delay, s/veh		12.6			8.3			19.3			19.1	
Approach LOS		B			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	27.0		10.0	10.0	27.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		18.0	5.0	22.0		18.0	5.0	22.0				
Max Q Clear Time (g_c+I1), s		3.0	2.4	2.5		2.4	2.1	4.3				
Green Ext Time (p_c), s		0.1	0.0	0.3		0.0	0.0	1.5				
Intersection Summary												
HCM 6th Ctrl Delay			10.2									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	433	224	20	552	2	150	0	26	3	4	2
Future Volume (veh/h)	1	433	224	20	552	2	150	0	26	3	4	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	481	166	22	613	2	167	0	29	3	4	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	1404	626	195	1435	5	394	0	263	158	166	62
Arrive On Green	0.11	0.39	0.39	0.11	0.39	0.39	0.17	0.00	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1410	0	1585	315	1000	376
Grp Volume(v), veh/h	1	481	166	22	300	315	167	0	29	9	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1410	0	1585	1691	0	0
Q Serve(g_s), s	0.0	4.3	3.2	0.5	5.6	5.6	4.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.3	3.2	0.5	5.6	5.6	5.0	0.0	0.7	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.33		0.22
Lane Grp Cap(c), veh/h	195	1404	626	195	702	738	394	0	263	386	0	0
V/C Ratio(X)	0.01	0.34	0.27	0.11	0.43	0.43	0.42	0.00	0.11	0.02	0.00	0.00
Avail Cap(c_a), veh/h	195	1404	626	195	702	738	840	0	765	898	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.1	9.6	9.3	18.3	10.0	10.0	17.9	0.0	16.1	15.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	1.0	0.3	1.9	1.8	0.7	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.5	1.8	0.4	3.6	3.8	2.8	0.0	0.4	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	10.3	10.4	18.5	11.9	11.8	18.7	0.0	16.3	15.9	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		648			637			196			9	
Approach Delay, s/veh		10.3			12.1			18.3			15.9	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.6	10.0	23.0		12.6	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		7.0	2.5	6.3		2.2	2.0	7.6				
Green Ext Time (p_c), s		0.5	0.0	2.9		0.0	0.0	2.6				
Intersection Summary												
HCM 6th Ctri Delay			12.2									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary





















3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	137	88	10	651	0	228	0	27	3	0	12
Future Volume (veh/h)	2	137	88	10	651	0	228	0	27	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	152	87	11	723	0	253	0	30	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	1306	583	182	1306	0	464	0	355	117	37	289
Arrive On Green	0.10	0.37	0.37	0.10	0.37	0.00	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	134	164	1292
Grp Volume(v), veh/h	2	152	87	11	723	0	253	0	30	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1590	0	0
Q Serve(g_s), s	0.0	1.4	1.8	0.3	7.9	0.0	7.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.4	1.8	0.3	7.9	0.0	8.2	0.0	0.7	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	182	1306	583	182	1306	0	464	0	355	444	0	0
V/C Ratio(X)	0.01	0.12	0.15	0.06	0.55	0.00	0.55	0.00	0.08	0.04	0.00	0.00
Avail Cap(c_a), veh/h	182	1306	583	182	1306	0	779	0	712	791	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.8	10.2	10.4	19.9	12.3	0.0	17.9	0.0	15.0	14.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.5	0.1	1.7	0.0	1.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.8	1.1	0.2	5.0	0.0	4.6	0.0	0.5	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	10.4	10.9	20.0	14.0	0.0	18.9	0.0	15.1	14.9	0.0	0.0
LnGrp LOS	B	B	B	C	B	A	B	A	B	B	A	A
Approach Vol, veh/h		241			734			283			16	
Approach Delay, s/veh		10.7			14.1			18.5			14.9	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.0	10.0	23.0		16.0	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		10.2	2.3	3.8		2.4	2.0	9.9				
Green Ext Time (p_c), s		0.7	0.0	0.9		0.0	0.0	3.0				
Intersection Summary												
HCM 6th Ctrl Delay			14.4									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
 3: Homerun/Scorpius & Vista

























07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	740	703	77	359	2	362	2	41	1	1	3
Future Volume (veh/h)	4	740	703	77	359	2	362	2	41	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	822	587	86	399	2	402	2	46	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	1146	511	160	1169	6	581	21	488	139	145	311
Arrive On Green	0.09	0.32	0.32	0.09	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1781	3554	1585	1781	3626	18	1412	66	1529	194	455	973
Grp Volume(v), veh/h	4	822	587	86	195	206	402	0	48	5	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1595	1622	0	0
Q Serve(g_s), s	0.1	11.4	18.0	2.6	4.7	4.7	15.0	0.0	1.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	11.4	18.0	2.6	4.7	4.7	15.1	0.0	1.2	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.96	0.20		0.60
Lane Grp Cap(c), veh/h	160	1146	511	160	573	602	581	0	510	596	0	0
V/C Ratio(X)	0.03	0.72	1.15	0.54	0.34	0.34	0.69	0.00	0.09	0.01	0.00	0.00
Avail Cap(c_a), veh/h	160	1146	511	160	573	602	686	0	628	713	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.2	16.7	18.9	24.3	14.4	14.4	18.0	0.0	13.3	13.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	3.9	87.7	3.6	1.6	1.5	2.4	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	8.1	27.2	2.1	3.4	3.5	8.4	0.0	0.7	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	20.6	106.7	27.9	16.0	15.9	20.4	0.0	13.4	13.0	0.0	0.0
LnGrp LOS	C	C	F	C	B	B	C	A	B	B	A	A
Approach Vol, veh/h		1413			487			450			5	
Approach Delay, s/veh		56.3			18.1			19.7			13.0	
Approach LOS		E			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.8	10.0	23.0		22.8	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		17.1	4.6	20.0		2.1	2.1	6.7				
Green Ext Time (p_c), s		0.8	0.0	0.0		0.0	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			41.3									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	64	210	18	278	1	147	0	17	2	0	13
Future Volume (veh/h)	3	64	210	18	278	1	147	0	17	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	71	11	20	309	1	163	0	19	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	1701	759	164	1739	6	350	0	243	84	21	214
Arrive On Green	0.09	0.48	0.48	0.09	0.48	0.48	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1400	0	1585	65	135	1397
Grp Volume(v), veh/h	3	71	11	20	151	159	163	0	19	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1597	0	0
Q Serve(g_s), s	0.1	0.6	0.2	0.6	2.6	2.6	5.5	0.0	0.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.6	0.2	0.6	2.6	2.6	5.9	0.0	0.6	0.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	164	1701	759	164	851	894	350	0	243	319	0	0
V/C Ratio(X)	0.02	0.04	0.01	0.12	0.18	0.18	0.47	0.00	0.08	0.05	0.00	0.00
Avail Cap(c_a), veh/h	164	1701	759	164	851	894	625	0	554	626	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	7.5	7.4	22.6	8.1	8.1	21.9	0.0	19.7	19.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.5	0.4	1.0	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.3	0.1	0.4	1.6	1.7	3.5	0.0	0.4	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	7.6	7.5	23.0	8.5	8.5	22.9	0.0	19.9	19.7	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	C	A	B	B	A	A
Approach Vol, veh/h		85			330			182			16	
Approach Delay, s/veh		8.1			9.4			22.6			19.7	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.3	10.0	31.0		13.3	10.0	31.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		19.0	5.0	26.0		19.0	5.0	26.0				
Max Q Clear Time (g_c+I1), s		7.9	2.6	2.6		2.5	2.1	4.6				
Green Ext Time (p_c), s		0.4	0.0	0.4		0.0	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			13.4									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista

07/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	433	427	43	552	2	324	0	45	3	4	2
Future Volume (veh/h)	1	433	427	43	552	2	324	0	45	3	4	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	481	363	48	613	2	360	0	50	3	4	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	1176	524	164	1202	4	559	0	478	211	264	111
Arrive On Green	0.09	0.33	0.33	0.09	0.33	0.33	0.30	0.00	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	1781	3633	12	1410	0	1585	409	874	366
Grp Volume(v), veh/h	1	481	363	48	300	315	360	0	50	9	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1410	0	1585	1649	0	0
Q Serve(g_s), s	0.0	5.7	10.8	1.4	7.4	7.4	12.8	0.0	1.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	5.7	10.8	1.4	7.4	7.4	13.0	0.0	1.2	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.33		0.22
Lane Grp Cap(c), veh/h	164	1176	524	164	588	618	559	0	478	586	0	0
V/C Ratio(X)	0.01	0.41	0.69	0.29	0.51	0.51	0.64	0.00	0.10	0.02	0.00	0.00
Avail Cap(c_a), veh/h	164	1176	524	164	588	618	1222	0	1224	1339	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	14.1	15.8	23.1	14.7	14.7	17.8	0.0	13.7	13.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	7.3	1.0	3.1	3.0	1.3	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	3.8	7.8	1.0	5.5	5.7	7.2	0.0	0.8	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	15.1	23.1	24.0	17.8	17.6	19.0	0.0	13.8	13.3	0.0	0.0
LnGrp LOS	C	B	C	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		845			663			410				9
Approach Delay, s/veh		18.6			18.2			18.4				13.3
Approach LOS		B			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.4	10.0	23.0		21.4	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		42.0	5.0	18.0		42.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		15.0	3.4	12.8		2.2	2.0	9.4				
Green Ext Time (p_c), s		1.4	0.0	2.1		0.0	0.0	2.3				
Intersection Summary												
HCM 6th Ctrl Delay			18.4									
HCM 6th LOS			B									

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection

Int Delay, s/veh 4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations	↘		↗			↖
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Traffic Vol, veh/h	0	4	1	0	7	8
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Future Vol, veh/h	0	4	1	0	7	8
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Conflicting Peds, #/hr	0	0	0	0	0	0
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Sign Control	Stop	Stop	Free	Free	Free	Free
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RT Channelized	-	None	-	None	-	None
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Storage Length	0	-	-	-	-	-
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Veh in Median Storage, #	0	-	0	-	-	0
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Grade, %	0	-	0	-	-	0
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Peak Hour Factor	90	90	90	90	90	90
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Heavy Vehicles, %	2	2	2	2	2	2
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Mvmt Flow	0	4	1	0	8	9
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Major/Minor	Minor1	Major1	Major2	Major3	Major4
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Conflicting Flow All	26	1	0	0	1
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Stage 1	1	-	-	-	-
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Stage 2	25	-	-	-	-
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Critical Hdwy	6.42	6.22	-	-	4.12
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Critical Hdwy Stg 1	5.42	-	-	-	-
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Critical Hdwy Stg 2	5.42	-	-	-	-
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Follow-up Hdwy	3.518	3.318	-	-	2.218
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Pot Cap-1 Maneuver	989	1084	-	-	1622
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Stage 1	1022	-	-	-	-
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Stage 2	998	-	-	-	-
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Platoon blocked, %			-	-	-
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Mov Cap-1 Maneuver	984	1084	-	-	1622
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Mov Cap-2 Maneuver	984	-	-	-	-
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Stage 1	1017	-	-	-	-
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Stage 2	998	-	-	-	-
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Approach	WB	NB	SB
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HCM Control Delay, s	8.3	0	3.4
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HCM LOS	A		
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Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
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Capacity (veh/h)	-	-	1084	1622
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HCM Lane V/C Ratio	-	-	0.004	0.005
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HCM Control Delay (s)	-	-	8.3	7.2
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HCM Lane LOS	-	-	A	A
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HCM 95th %tile Q(veh)	-	-	0	0
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HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	120	120	0	250	250
Future Vol, veh/h	0	120	120	0	250	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	133	0	278	278

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	967	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	834	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	282	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	426	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	218	916	-	-	1452
Mov Cap-2 Maneuver	218	-	-	-	-
Stage 1	691	-	-	-	-
Stage 2	426	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.146	0.191
HCM Control Delay (s)	-	-	9.6	8.1
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.7

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	2.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	15	21	0	69	117
Future Vol, veh/h	0	15	21	0	69	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	23	0	77	130

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	307	23	0	0	23
Stage 1	23	-	-	-	-
Stage 2	284	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	685	1054	-	-	1592
Stage 1	1000	-	-	-	-
Stage 2	764	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	649	1054	-	-	1592
Mov Cap-2 Maneuver	649	-	-	-	-
Stage 1	948	-	-	-	-
Stage 2	764	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1592
HCM Lane V/C Ratio	-	-	0.016	0.048
HCM Control Delay (s)	-	-	8.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0.2

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	5.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑			↓
Traffic Vol, veh/h	0	120	56	0	168	80
Future Vol, veh/h	0	120	56	0	168	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	62	0	187	89

Major/Minor	Minor1	Major1	Major2	Major2	Major2
Conflicting Flow All	525	62	0	0	62
Stage 1	62	-	-	-	-
Stage 2	463	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	513	1003	-	-	1541
Stage 1	961	-	-	-	-
Stage 2	634	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	447	1003	-	-	1541
Mov Cap-2 Maneuver	447	-	-	-	-
Stage 1	838	-	-	-	-
Stage 2	634	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	5.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1541
HCM Lane V/C Ratio	-	-	0.133	0.121
HCM Control Delay (s)	-	-	9.1	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.4

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	8.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	254	1	0	90	8
Future Vol, veh/h	0	254	1	0	90	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	282	1	0	100	9

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	210	1	0	0	1
Stage 1	1	-	-	-	-
Stage 2	209	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	778	1084	-	-	1622
Stage 1	1022	-	-	-	-
Stage 2	826	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	730	1084	-	-	1622
Mov Cap-2 Maneuver	730	-	-	-	-
Stage 1	959	-	-	-	-
Stage 2	826	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1084	1622
HCM Lane V/C Ratio	-	-	0.26	0.062
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection

Int Delay, s/veh 6.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	285	120	0	531	250
Future Vol, veh/h	0	285	120	0	531	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	317	133	0	590	278

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1591	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	1458	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	118	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	214	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	61	916	-	-	1452
Mov Cap-2 Maneuver	61	-	-	-	-
Stage 1	464	-	-	-	-
Stage 2	214	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	6.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.346	0.406
HCM Control Delay (s)	-	-	11	9.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.6	2

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	5.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	143	21	0	111	117
Future Vol, veh/h	0	143	21	0	111	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	159	23	0	123	130

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	399	23	0	0	23
Stage 1	23	-	-	-	-
Stage 2	376	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	607	1054	-	-	1592
Stage 1	1000	-	-	-	-
Stage 2	694	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	557	1054	-	-	1592
Mov Cap-2 Maneuver	557	-	-	-	-
Stage 1	917	-	-	-	-
Stage 2	694	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1592
HCM Lane V/C Ratio	-	-	0.151	0.077
HCM Control Delay (s)	-	-	9	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.3

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection

Int Delay, s/veh 7.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations	↔		↔			↔
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Traffic Vol, veh/h	0	313	56	0	394	80
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Future Vol, veh/h	0	313	56	0	394	80
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Conflicting Peds, #/hr	0	0	0	0	0	0
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Sign Control	Stop	Stop	Free	Free	Free	Free
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RT Channelized	-	None	-	None	-	None
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Storage Length	0	-	-	-	-	-
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Veh in Median Storage, #	0	-	0	-	-	0
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Grade, %	0	-	0	-	-	0
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Peak Hour Factor	90	90	90	90	90	90
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Heavy Vehicles, %	2	2	2	2	2	2
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Mvmt Flow	0	348	62	0	438	89
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Major/Minor	Minor1	Major1	Major2
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Conflicting Flow All	1027	62	0
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Stage 1	62	-	-
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Stage 2	965	-	-
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Critical Hdwy	6.42	6.22	-
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Critical Hdwy Stg 1	5.42	-	-
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Critical Hdwy Stg 2	5.42	-	-
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Follow-up Hdwy	3.518	3.318	-
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Pot Cap-1 Maneuver	260	1003	-
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Stage 1	961	-	-
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Stage 2	370	-	-
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Platoon blocked, %			
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Mov Cap-1 Maneuver	182	1003	-
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Mov Cap-2 Maneuver	182	-	-
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Stage 1	674	-	-
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Stage 2	370	-	-
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Approach	WB	NB	SB
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HCM Control Delay, s	10.5	0	6.9
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HCM LOS	B		
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Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
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Capacity (veh/h)	-	-	1003	1541
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HCM Lane V/C Ratio	-	-	0.347	0.284
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HCM Control Delay (s)	-	-	10.5	8.3
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HCM Lane LOS	-	-	B	A
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HCM 95th %tile Q(veh)	-	-	1.6	1.2
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HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection

Int Delay, s/veh 8.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	0	250	4	0	83	7
Future Vol, veh/h	0	250	4	0	83	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	278	4	0	92	8

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	196	4	0	0	4
Stage 1	4	-	-	-	-
Stage 2	192	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	793	1080	-	-	1618
Stage 1	1019	-	-	-	-
Stage 2	841	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	748	1080	-	-	1618
Mov Cap-2 Maneuver	748	-	-	-	-
Stage 1	961	-	-	-	-
Stage 2	841	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1080	1618
HCM Lane V/C Ratio	-	-	0.257	0.057
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection

Int Delay, s/veh 4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations						
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Traffic Vol, veh/h	0	165	120	0	281	250
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Future Vol, veh/h	0	165	120	0	281	250
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Conflicting Peds, #/hr	0	0	0	0	0	0
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Sign Control	Stop	Stop	Free	Free	Free	Free
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RT Channelized	-	None	-	None	-	None
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Storage Length	0	-	-	-	-	-
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Veh in Median Storage, #	0	-	0	-	-	0
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Grade, %	0	-	0	-	-	0
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Peak Hour Factor	90	90	90	90	90	90
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Heavy Vehicles, %	2	2	2	2	2	2
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Mvmt Flow	0	183	133	0	312	278
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Major/Minor	Minor1	Major1	Major2
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Conflicting Flow All	1035	133	0
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Stage 1	133	-	-
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Stage 2	902	-	-
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Critical Hdwy	6.42	6.22	-
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Critical Hdwy Stg 1	5.42	-	-
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Critical Hdwy Stg 2	5.42	-	-
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Follow-up Hdwy	3.518	3.318	-
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Pot Cap-1 Maneuver	257	916	-
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Stage 1	893	-	-
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Stage 2	396	-	-
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Platoon blocked, %			-
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Mov Cap-1 Maneuver	192	916	-
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Mov Cap-2 Maneuver	192	-	-
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Stage 1	666	-	-
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Stage 2	396	-	-
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Approach	WB	NB	SB
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HCM Control Delay, s	9.9	0	4.3
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HCM LOS	A		
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Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
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Capacity (veh/h)	-	-	916	1452
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HCM Lane V/C Ratio	-	-	0.2	0.215
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HCM Control Delay (s)	-	-	9.9	8.2
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HCM Lane LOS	-	-	A	A
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HCM 95th %tile Q(veh)	-	-	0.7	0.8
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HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	5.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	128	15	0	42	69
Future Vol, veh/h	0	128	15	0	42	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	17	0	47	77

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	188	17	0	0	17
Stage 1	17	-	-	-	-
Stage 2	171	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	801	1062	-	-	1600
Stage 1	1006	-	-	-	-
Stage 2	859	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	776	1062	-	-	1600
Mov Cap-2 Maneuver	776	-	-	-	-
Stage 1	975	-	-	-	-
Stage 2	859	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1062	1600
HCM Lane V/C Ratio	-	-	0.134	0.029
HCM Control Delay (s)	-	-	8.9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	193	120	0	226	168
Future Vol, veh/h	0	193	120	0	226	168
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	214	133	0	251	187

Major/Minor	Minor1	Major1	Major2	Major2	Major2
Conflicting Flow All	822	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	689	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	344	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	498	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	278	916	-	-	1452
Mov Cap-2 Maneuver	278	-	-	-	-
Stage 1	721	-	-	-	-
Stage 2	498	-	-	-	-





















Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	4.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.234	0.173
HCM Control Delay (s)	-	-	10.1	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.9	0.6

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	153	13	2	726	0	3	0	2	3	0	12
Future Volume (veh/h)	2	153	13	2	726	0	3	0	2	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	170	14	2	807	0	3	0	2	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	1579	704	198	1579	0	319	0	176	111	17	144
Arrive On Green	0.11	0.44	0.44	0.11	0.44	0.00	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	146	152	1292
Grp Volume(v), veh/h	2	170	14	2	807	0	3	0	2	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1591	0	0
Q Serve(g_s), s	0.0	1.3	0.2	0.0	7.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.3	0.2	0.0	7.3	0.0	0.1	0.0	0.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	198	1579	704	198	1579	0	319	0	176	272	0	0
V/C Ratio(X)	0.01	0.11	0.02	0.01	0.51	0.00	0.01	0.00	0.01	0.06	0.00	0.00
Avail Cap(c_a), veh/h	198	1579	704	198	1579	0	786	0	704	788	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	7.3	7.0	17.8	9.0	0.0	17.8	0.0	17.8	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	1.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.7	0.1	0.0	4.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	7.4	7.1	17.8	10.2	0.0	17.8	0.0	17.8	18.0	0.0	0.0
LnGrp LOS	B	A	A	B	B	A	B	A	B	B	A	A
Approach Vol, veh/h		186			809			5			16	
Approach Delay, s/veh		7.5			10.2			17.8			18.0	
Approach LOS		A			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	25.0		10.0	10.0	25.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		20.0	5.0	20.0		20.0	5.0	20.0				
Max Q Clear Time (g_c+I1), s		2.1	2.0	3.3		2.4	2.0	9.3				
Green Ext Time (p_c), s		0.0	0.0	0.9		0.0	0.0	4.0				
Intersection Summary												
HCM 6th Ctr Delay			9.9									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	826	450	49	401	2	214	2	24	1	1	3
Future Volume (veh/h)	4	826	450	49	401	2	214	2	24	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	918	417	54	446	2	238	2	27	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	1475	658	168	1506	7	430	23	309	113	104	204
Arrive On Green	0.09	0.42	0.42	0.09	0.42	0.42	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1781	3554	1585	1781	3628	16	1412	110	1491	154	501	983
Grp Volume(v), veh/h	4	918	417	54	218	230	238	0	29	5	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1602	1639	0	0
Q Serve(g_s), s	0.1	10.8	11.1	1.5	4.3	4.3	8.3	0.0	0.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	10.8	11.1	1.5	4.3	4.3	8.5	0.0	0.8	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.93	0.20		0.60
Lane Grp Cap(c), veh/h	168	1475	658	168	738	775	430	0	332	421	0	0
V/C Ratio(X)	0.02	0.62	0.63	0.32	0.30	0.30	0.55	0.00	0.09	0.01	0.00	0.00
Avail Cap(c_a), veh/h	168	1475	658	168	738	775	617	0	544	631	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.8	12.2	12.3	22.4	10.3	10.3	20.0	0.0	17.0	16.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	2.0	4.6	1.1	1.0	1.0	1.1	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	6.8	7.1	1.1	2.8	3.0	4.9	0.0	0.5	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	14.2	16.9	23.5	11.4	11.3	21.1	0.0	17.1	16.7	0.0	0.0
LnGrp LOS	C	B	B	C	B	B	C	A	B	B	A	A
Approach Vol, veh/h		1339			502			267			5	
Approach Delay, s/veh		15.1			12.6			20.7			16.7	
Approach LOS		B			B			C			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.0	10.0	27.0		16.0	10.0	27.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		18.0	5.0	22.0		18.0	5.0	22.0				
Max Q Clear Time (g_c+11), s		10.5	3.5	13.1		2.1	2.1	6.3				
Green Ext Time (p_c), s		0.5	0.0	5.0		0.0	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay				15.2								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista





















07/20/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	71	172	14	310	1	32	0	4	2	0	13
Future Volume (veh/h)	3	71	172	14	310	1	32	0	4	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	79	-26	16	344	1	36	0	4	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	1663	742	189	1701	5	306	0	169	96	11	148
Arrive On Green	0.11	0.47	0.00	0.11	0.47	0.47	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3635	11	1400	0	1585	94	104	1391
Grp Volume(v), veh/h	3	79	-26	16	168	177	36	0	4	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1589	0	0
Q Serve(g_s), s	0.1	0.6	0.0	0.4	2.6	2.6	0.6	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.6	0.0	0.4	2.6	2.6	1.0	0.0	0.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	189	1663	742	189	832	875	306	0	169	255	0	0
V/C Ratio(X)	0.02	0.05	-0.04	0.08	0.20	0.20	0.12	0.00	0.02	0.06	0.00	0.00
Avail Cap(c_a), veh/h	189	1663	742	189	832	875	693	0	607	687	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.8	6.8	0.0	18.9	7.3	7.3	19.2	0.0	18.8	19.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.2	0.5	0.5	0.2	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	0.0	0.3	1.5	1.6	0.6	0.0	0.1	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	6.9	0.0	19.1	7.9	7.9	19.4	0.0	18.9	19.1	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		56			361			40			16	
Approach Delay, s/veh		10.7			8.4			19.3			19.1	
Approach LOS		B			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.0	10.0	27.0		10.0	10.0	27.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		18.0	5.0	22.0		18.0	5.0	22.0				
Max Q Clear Time (g_c+I1), s		3.0	2.4	2.6		2.4	2.1	4.6				
Green Ext Time (p_c), s		0.1	0.0	0.3		0.0	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			9.9									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	483	224	20	616	2	150	0	26	3	4	2
Future Volume (veh/h)	1	483	224	20	616	2	150	0	26	3	4	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	537	166	22	684	2	167	0	29	3	4	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	1404	626	195	1436	4	394	0	263	158	166	62
Arrive On Green	0.11	0.39	0.39	0.11	0.39	0.39	0.17	0.00	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	3554	1585	1781	3635	11	1410	0	1585	315	1000	376
Grp Volume(v), veh/h	1	537	166	22	334	352	167	0	29	9	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1410	0	1585	1691	0	0
Q Serve(g_s), s	0.0	4.9	3.2	0.5	6.4	6.4	4.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.9	3.2	0.5	6.4	6.4	5.0	0.0	0.7	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.33		0.22
Lane Grp Cap(c), veh/h	195	1404	626	195	702	738	394	0	263	386	0	0
V/C Ratio(X)	0.01	0.38	0.27	0.11	0.48	0.48	0.42	0.00	0.11	0.02	0.00	0.00
Avail Cap(c_a), veh/h	195	1404	626	195	702	738	840	0	765	898	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.1	9.8	9.3	18.3	10.3	10.3	17.9	0.0	16.1	15.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	1.0	0.3	2.3	2.2	0.7	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.9	1.8	0.4	4.2	4.4	2.8	0.0	0.4	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	10.6	10.4	18.5	12.6	12.5	18.7	0.0	16.3	15.9	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		704			708			196			9	
Approach Delay, s/veh		10.6			12.7			18.3			15.9	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.6	10.0	23.0		12.6	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		7.0	2.5	6.9		2.2	2.0	8.4				
Green Ext Time (p_c), s		0.5	0.0	3.1		0.0	0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista





















07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	153	88	10	726	0	228	0	27	3	0	12
Future Volume (veh/h)	2	153	88	10	726	0	228	0	27	3	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	170	87	11	807	0	253	0	30	3	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	1306	583	182	1306	0	464	0	355	117	37	289
Arrive On Green	0.10	0.37	0.37	0.10	0.37	0.00	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	1401	0	1585	134	164	1292
Grp Volume(v), veh/h	2	170	87	11	807	0	253	0	30	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1401	0	1585	1590	0	0
Q Serve(g_s), s	0.0	1.6	1.8	0.3	9.1	0.0	7.9	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.6	1.8	0.3	9.1	0.0	8.2	0.0	0.7	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.19		0.81
Lane Grp Cap(c), veh/h	182	1306	583	182	1306	0	464	0	355	444	0	0
V/C Ratio(X)	0.01	0.13	0.15	0.06	0.62	0.00	0.55	0.00	0.08	0.04	0.00	0.00
Avail Cap(c_a), veh/h	182	1306	583	182	1306	0	779	0	712	791	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.8	10.3	10.4	19.9	12.7	0.0	17.9	0.0	15.0	14.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.5	0.1	2.2	0.0	1.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.9	1.1	0.2	5.9	0.0	4.6	0.0	0.5	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	10.5	10.9	20.0	14.9	0.0	18.9	0.0	15.1	14.9	0.0	0.0
LnGrp LOS	B	B	B	C	B	A	B	A	B	B	A	A
Approach Vol, veh/h		259			818			283			16	
Approach Delay, s/veh		10.7			14.9			18.5			14.9	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.0	10.0	23.0		16.0	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		10.2	2.3	3.8		2.4	2.0	11.1				
Green Ext Time (p_c), s		0.7	0.0	1.0		0.0	0.0	3.0				
Intersection Summary												
HCM 6th Ctrl Delay				14.9								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista

























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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	826	703	77	401	2	362	2	41	1	1	3
Future Volume (veh/h)	4	826	703	77	401	2	362	2	41	1	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	918	587	86	446	2	402	2	46	1	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	1146	511	160	1169	5	581	21	488	139	145	311
Arrive On Green	0.09	0.32	0.32	0.09	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1781	3554	1585	1781	3628	16	1412	66	1529	194	455	973
Grp Volume(v), veh/h	4	918	587	86	218	230	402	0	48	5	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1867	1412	0	1595	1622	0	0
Q Serve(g_s), s	0.1	13.2	18.0	2.6	5.3	5.3	15.0	0.0	1.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	13.2	18.0	2.6	5.3	5.3	15.1	0.0	1.2	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.96	0.20		0.60
Lane Grp Cap(c), veh/h	160	1146	511	160	573	602	581	0	510	596	0	0
V/C Ratio(X)	0.03	0.80	1.15	0.54	0.38	0.38	0.69	0.00	0.09	0.01	0.00	0.00
Avail Cap(c_a), veh/h	160	1146	511	160	573	602	686	0	628	713	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.2	17.3	18.9	24.3	14.6	14.6	18.0	0.0	13.3	13.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	5.9	87.7	3.6	1.9	1.8	2.4	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	9.4	27.2	2.1	3.9	4.0	8.4	0.0	0.7	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	23.2	106.7	27.9	16.5	16.5	20.4	0.0	13.4	13.0	0.0	0.0
LnGrp LOS	C	C	F	C	B	B	C	A	B	B	A	A
Approach Vol, veh/h		1509			534			450			5	
Approach Delay, s/veh		55.7			18.3			19.7			13.0	
Approach LOS		E			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.8	10.0	23.0		22.8	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		22.0	5.0	18.0		22.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		17.1	4.6	20.0		2.1	2.1	7.3				
Green Ext Time (p_c), s		0.8	0.0	0.0		0.0	0.0	1.9				
Intersection Summary												
HCM 6th Ctrl Delay			41.1									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista

























07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	71	210	18	310	1	147	0	17	2	0	13
Future Volume (veh/h)	3	71	210	18	310	1	147	0	17	2	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	79	16	20	344	1	163	0	19	2	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	1701	759	164	1740	5	350	0	243	84	21	214
Arrive On Green	0.09	0.48	0.48	0.09	0.48	0.48	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3554	1585	1781	3635	11	1400	0	1585	65	135	1397
Grp Volume(v), veh/h	3	79	16	20	168	177	163	0	19	16	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1400	0	1585	1597	0	0
Q Serve(g_s), s	0.1	0.6	0.3	0.6	3.0	3.0	5.5	0.0	0.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.6	0.3	0.6	3.0	3.0	5.9	0.0	0.6	0.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.12		0.87
Lane Grp Cap(c), veh/h	164	1701	759	164	851	894	350	0	243	319	0	0
V/C Ratio(X)	0.02	0.05	0.02	0.12	0.20	0.20	0.47	0.00	0.08	0.05	0.00	0.00
Avail Cap(c_a), veh/h	164	1701	759	164	851	894	625	0	554	626	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	7.5	7.5	22.6	8.2	8.2	21.9	0.0	19.7	19.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.3	0.5	0.5	1.0	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.4	0.2	0.4	1.8	1.9	3.5	0.0	0.4	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	7.6	7.5	23.0	8.7	8.6	22.9	0.0	19.9	19.7	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	C	A	B	B	A	A
Approach Vol, veh/h		98			365			182			16	
Approach Delay, s/veh		8.0			9.4			22.6			19.7	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.3	10.0	31.0		13.3	10.0	31.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		19.0	5.0	26.0		19.0	5.0	26.0				
Max Q Clear Time (g_c+I1), s		7.9	2.6	2.6		2.5	2.1	5.0				
Green Ext Time (p_c), s		0.4	0.0	0.4		0.0	0.0	1.8				
Intersection Summary												
HCM 6th Ctrl Delay			13.1									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: Homerun/Scorpius & Vista

07/20/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	483	427	43	616	2	324	0	45	3	4	2
Future Volume (veh/h)	1	483	427	43	616	2	324	0	45	3	4	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	537	368	48	684	2	360	0	50	3	4	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	1176	524	164	1202	4	559	0	478	211	264	111
Arrive On Green	0.09	0.33	0.33	0.09	0.33	0.33	0.30	0.00	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	1781	3635	11	1410	0	1585	409	874	366
Grp Volume(v), veh/h	1	537	368	48	334	352	360	0	50	9	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1868	1410	0	1585	1649	0	0
Q Serve(g_s), s	0.0	6.5	11.0	1.4	8.4	8.4	12.8	0.0	1.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.5	11.0	1.4	8.4	8.4	13.0	0.0	1.2	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.33		0.22
Lane Grp Cap(c), veh/h	164	1176	524	164	588	618	559	0	478	586	0	0
V/C Ratio(X)	0.01	0.46	0.70	0.29	0.57	0.57	0.64	0.00	0.10	0.02	0.00	0.00
Avail Cap(c_a), veh/h	164	1176	524	164	588	618	1222	0	1224	1339	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	14.4	15.9	23.1	15.0	15.0	17.8	0.0	13.7	13.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	7.6	1.0	4.0	3.8	1.3	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	4.4	7.9	1.0	6.4	6.6	7.2	0.0	0.8	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	15.6	23.5	24.0	19.0	18.8	19.0	0.0	13.8	13.3	0.0	0.0
LnGrp LOS	C	B	C	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		906			734			410			9	
Approach Delay, s/veh		18.8			19.2			18.4			13.3	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.4	10.0	23.0		21.4	10.0	23.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		42.0	5.0	18.0		42.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		15.0	3.4	13.0		2.2	2.0	10.4				
Green Ext Time (p_c), s		1.4	0.0	2.2		0.0	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay			18.9									
HCM 6th LOS			B									

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	4	1	0	7	8
Future Vol, veh/h	0	4	1	0	7	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	1	0	8	9

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	26	1	0	0	1
Stage 1	1	-	-	-	-
Stage 2	25	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	989	1084	-	-	1622
Stage 1	1022	-	-	-	-
Stage 2	998	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	984	1084	-	-	1622
Mov Cap-2 Maneuver	984	-	-	-	-
Stage 1	1017	-	-	-	-
Stage 2	998	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.3	0	3.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1084	1622
HCM Lane V/C Ratio	-	-	0.004	0.005
HCM Control Delay (s)	-	-	8.3	7.2
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	120	120	0	250	250
Future Vol, veh/h	0	120	120	0	250	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	133	0	278	278

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	967	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	834	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	282	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	426	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	218	916	-	-	1452
Mov Cap-2 Maneuver	218	-	-	-	-
Stage 1	691	-	-	-	-
Stage 2	426	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.146	0.191
HCM Control Delay (s)	-	-	9.6	8.1
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.7

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	2.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T		L	
Traffic Vol, veh/h	0	15	21	0	69	117
Future Vol, veh/h	0	15	21	0	69	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	23	0	77	130

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	307	23	0	0	23
Stage 1	23	-	-	-	-
Stage 2	284	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	685	1054	-	-	1592
Stage 1	1000	-	-	-	-
Stage 2	764	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	649	1054	-	-	1592
Mov Cap-2 Maneuver	649	-	-	-	-
Stage 1	948	-	-	-	-
Stage 2	764	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1592
HCM Lane V/C Ratio	-	-	0.016	0.048
HCM Control Delay (s)	-	-	8.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0.2

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	5.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	120	56	0	168	80
Future Vol, veh/h	0	120	56	0	168	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	62	0	187	89

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	525	62	0
Stage 1	62	-	-
Stage 2	463	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	513	1003	1541
Stage 1	961	-	-
Stage 2	634	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	447	1003	1541
Mov Cap-2 Maneuver	447	-	-
Stage 1	838	-	-
Stage 2	634	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	5.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1541
HCM Lane V/C Ratio	-	-	0.133	0.121
HCM Control Delay (s)	-	-	9.1	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.4

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	8.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘		↗			↖
Traffic Vol, veh/h	0	254	1	0	90	8
Future Vol, veh/h	0	254	1	0	90	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	282	1	0	100	9

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	210	1	0	0	1
Stage 1	1	-	-	-	-
Stage 2	209	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	778	1084	-	-	1622
Stage 1	1022	-	-	-	-
Stage 2	826	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	730	1084	-	-	1622
Mov Cap-2 Maneuver	730	-	-	-	-
Stage 1	959	-	-	-	-
Stage 2	826	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1084	1622
HCM Lane V/C Ratio	-	-	0.26	0.062
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection

Int Delay, s/veh 6.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	285	120	0	531	250
Future Vol, veh/h	0	285	120	0	531	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	317	133	0	590	278

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1591	133	0 133 0
Stage 1	133	-	- - -
Stage 2	1458	-	- - -
Critical Hdwy	6.42	6.22	- - 4.12 -
Critical Hdwy Stg 1	5.42	-	- - - -
Critical Hdwy Stg 2	5.42	-	- - - -
Follow-up Hdwy	3.518	3.318	- - 2.218 -
Pot Cap-1 Maneuver	118	916	- - 1452 -
Stage 1	893	-	- - - -
Stage 2	214	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	61	916	- - 1452 -
Mov Cap-2 Maneuver	61	-	- - - -
Stage 1	464	-	- - - -
Stage 2	214	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	11	0	6.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 916	1452	-
HCM Lane V/C Ratio	-	- 0.346	0.406	-
HCM Control Delay (s)	-	- 11	9.2	0
HCM Lane LOS	-	- B	A	A
HCM 95th %tile Q(veh)	-	- 1.6	2	-

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	5.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	143	21	0	111	117
Future Vol, veh/h	0	143	21	0	111	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	159	23	0	123	130

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	399	23	0	0	23	0
Stage 1	23	-	-	-	-	-
Stage 2	376	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	607	1054	-	-	1592	-
Stage 1	1000	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	557	1054	-	-	1592	-
Mov Cap-2 Maneuver	557	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	694	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1592
HCM Lane V/C Ratio	-	-	0.151	0.077
HCM Control Delay (s)	-	-	9	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.3

HCM 6th TWSC
6: Touchdown & Homerun

07/20/2018

Intersection						
Int Delay, s/veh	7.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	313	56	0	394	80
Future Vol, veh/h	0	313	56	0	394	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	348	62	0	438	89

Major/Minor	Minor1	Major1	Major2	Major2	Major2
Conflicting Flow All	1027	62	0	0	62
Stage 1	62	-	-	-	-
Stage 2	965	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	260	1003	-	-	1541
Stage 1	961	-	-	-	-
Stage 2	370	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	182	1003	-	-	1541
Mov Cap-2 Maneuver	182	-	-	-	-
Stage 1	674	-	-	-	-
Stage 2	370	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	6.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	1541
HCM Lane V/C Ratio	-	-	0.347	0.284
HCM Control Delay (s)	-	-	10.5	8.3
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.6	1.2

HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	8.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	0	250	4	0	83	7
Future Vol, veh/h	0	250	4	0	83	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	278	4	0	92	8

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	196	4	0	0	4
Stage 1	4	-	-	-	-
Stage 2	192	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	793	1080	-	-	1618
Stage 1	1019	-	-	-	-
Stage 2	841	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	748	1080	-	-	1618
Mov Cap-2 Maneuver	748	-	-	-	-
Stage 1	961	-	-	-	-
Stage 2	841	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1080	1618
HCM Lane V/C Ratio	-	-	0.257	0.057
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	4.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	165	120	0	281	250
Future Vol, veh/h	0	165	120	0	281	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	183	133	0	312	278

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1035	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	902	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	257	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	396	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	192	916	-	-	1452
Mov Cap-2 Maneuver	192	-	-	-	-
Stage 1	666	-	-	-	-
Stage 2	396	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	4.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.2	0.215
HCM Control Delay (s)	-	-	9.9	8.2
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.8

HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	5.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	128	15	0	42	69
Future Vol, veh/h	0	128	15	0	42	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	17	0	47	77

Major/Minor	Minor1	Major1	Major2	Major2	Major2
Conflicting Flow All	188	17	0	0	17
Stage 1	17	-	-	-	-
Stage 2	171	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	801	1062	-	-	1600
Stage 1	1006	-	-	-	-
Stage 2	859	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	776	1062	-	-	1600
Mov Cap-2 Maneuver	776	-	-	-	-
Stage 1	975	-	-	-	-
Stage 2	859	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1062	1600
HCM Lane V/C Ratio	-	-	0.134	0.029
HCM Control Delay (s)	-	-	8.9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

HCM 6th TWSC
7: Touchdown & Access

07/20/2018

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖		↗			↖
Traffic Vol, veh/h	0	193	120	0	226	168
Future Vol, veh/h	0	193	120	0	226	168
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	214	133	0	251	187

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	822	133	0	0	133
Stage 1	133	-	-	-	-
Stage 2	689	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	344	916	-	-	1452
Stage 1	893	-	-	-	-
Stage 2	498	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	278	916	-	-	1452
Mov Cap-2 Maneuver	278	-	-	-	-
Stage 1	721	-	-	-	-
Stage 2	498	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	4.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1452
HCM Lane V/C Ratio	-	-	0.234	0.173
HCM Control Delay (s)	-	-	10.1	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.9	0.6