Treasure Hill Traffic Study Addendum #7

July 26, 2017

Submitted To:

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EXECUTIVE SUMMARY

This study addresses the traffic impacts associated with the proposed Treasure Hill development located in Park City, Utah. The proposed land use consists of a mixed-use development that includes hotel, condominiums, employee housing, and limited commercial.

At full buildout, the Treasure Hill site is expected to generate 145 AM peak hour trips and 199 PM peak hour trips. The AM peak hour is between the hours of 8 AM and 10 AM. The PM peak hour is between the hours of 3 PM and 6 PM. These times were selected because the peak traffic days coincide with day skier traffic to Park City Mountain Resort ("Resort" or "PCMR").

This study analyzes project traffic impacts at the following intersections:

- Park Ave / Deer Valley
- Empire Ave / Silver King
- Empire Ave / Shadow Ridge
- Empire Ave / Manor Way
- Empire Ave / Crescent Tram
- Lowell Ave / Shadow Ridge
- Lowell Ave / Manor Way
- Project access One / Lowell Ave
- Lowell Ave / North Star
- Park Ave / 15th Street
- Park Ave / 14th Street
- Park Ave / 8th Street
- Empire Ave / 14th Street
- Lowell Ave / Silver King
- Project access Two / Empire Ave

The Treasure Hill site will be accessed by the Empire Avenue and Lowell Avenue roadway loop. For this study, it was estimated that 50% of the traffic would enter and exit from Lowell Avenue and 50% from Empire Avenue.

Existing Conditions

The intersection of Empire Ave / Silver King currently operates at a level of service ("LOS") LOS C in the AM peak hour and LOS F in the PM peak hour. The remaining intersections operate an acceptable LOS in both the AM and PM peak hours.

Future Conditions Without Project

In the year 2037, without considering the proposed development, the intersections are projected to operate at an acceptable LOS during both the AM and PM peak hours except for the Empire Ave / Silver King and the Lowell Ave / Silver King intersection during the PM peak hour. The delays experienced at the Lowell Ave / Silver King intersection are the result of vehicles queuing from the Empire Ave / Silver King intersection. The Park Ave / Deer Valley intersection operates at an LOS of D which is an acceptable LOS. There are minor traffic signal timing efforts that can be implemented to improve the LOS for each of the turning movements at the Park Ave / Deer Valley intersection.

For traffic operations to improve at the Empire Ave / Silver King intersection, installation of a traffic signal or a roundabout is required. For a traffic signal to operate efficiently and safely, separate turn lanes in the

northbound and southbound direction are necessary. The Lowell Ave / Silver King intersection delays are resolved with the improvement at the Empire Ave / Silver King intersection.

Future Conditions With Project

With the implementation of the above mitigation/improvement measures, with the Treasure Hill Project built as proposed, all the intersections will operate at an acceptable LOS during both the AM and PM peak hours.

Conclusion

As reflected in the Original Report, the Six Addenda and this addendum, the roadway network can facilitate the traffic needs for existing and future traffic, including the traffic anticipated from the Treasure Hill project. Implementing the improvements at the Empire Ave / Silver King and Park Ave / Deer Valley intersections, which will ultimately be necessary regardless of the impact of the Treasure Hill development, will allow the intersections and roadways in the study area, including the Treasure Hill development, to operate at an acceptable level of service in the future.

While the intersections and roadways can operate at an acceptable level of service with the Treasure Hill development by implementing the proposed traffic improvement measures, nonetheless, it is important to implement the TDM strategies as well. These strategies include:

- Installation of the cabriolet system.
- Installation of beginner and intermediate ski runs that connect with the remainder of the Resort.
- Implementation of the mixed-use development that includes employee housing and commercial on site.
- During the busy winter season and special events, employees not living on site will be directed and incentivized to use public transportation to access the site.
- During the busy winter season, other busy times, and special events, implementation of shuttle service to and from the airport.
- During the construction phase of the project, directing construction workers who do not need to access the construction site with vehicles to park off site at the Richardson Flats, or similar park and ride lots, and shuttle them to the site.

INTRODUCTION

The purpose of this addendum is to update the Original Studies to take into account traffic conditions in 2017 as well as to determine the potential impacts upon traffic conditions due to the completion of the proposed Treasure Hill development in Park City, Utah. The development is proposed to consist of 60,323 gross square feet (sq-ft) of commercial space that includes 16, 127 sq-ft of meeting space. The development will also have 122,225 net sq-ft of hotel space (202 rooms), 45,153 net sq-ft or 18 units of three story condominiums, 6,369 net sq-ft or 3 units of two story condominiums, 220,164 net sq-ft or 82 units of one story condominiums, and 6,669 gross sq. ft. of employee housing dormitory style.

Figure 1 depicts the site plan and **Figure 2** a vicinity map along with the study intersections. The intersections under study and analysis scenarios were determined with PCMC staff.

This addendum will address:

- 2017 traffic conditions in the study area.
- Future 2037 traffic conditions in the study area, also known as background.
- Future 2037 traffic conditions in the study with additional traffic from the proposed Treasure Hill development.
- Operational capacity of the intersections in the study area in winter conditions
- Proposed TDM strategies to mitigate the increase of traffic generated by the proposed Treasure Hill development.
- Proposed traffic mitigation measures to maintain appropriate traffic operations at the intersections for each traffic condition.
- Proposed monitoring program to evaluate traffic conditions after the Treasure Hill development is constructed and occupied.
- Treasure Hill parking analysis.

Study Area

In collaboration with Park City Municipal Corporation (“PCMC”), the study area was modified for the 2017 traffic conditions and additional intersections were included that expanded the original study area. The following intersections were analyzed for traffic operations in the latest study at the PCMC’s direction. The study area intersections are also highlighted in **Figure 2**.

- Park Ave / Deer Valley
- Empire Ave / Silver King
- Empire Ave / Shadow Ridge
- Empire Ave / Manor Way
- Empire Ave / Crescent Tram
- Lowell Ave / Shadow Ridge
- Lowell Ave / Manor Way
- Project access One / Lowell Ave
- Lowell Ave / North Star
- Park Ave / 15th Street
- Park Ave / 14th Street
- Park Ave / 8th Street
- Empire Ave / 14th Street
- Lowell Ave / Silver King
- Project access Two / Empire Ave

Figure 1
Project Site Plan

4828-4602-7335 v2
4828-4602-7335 v3

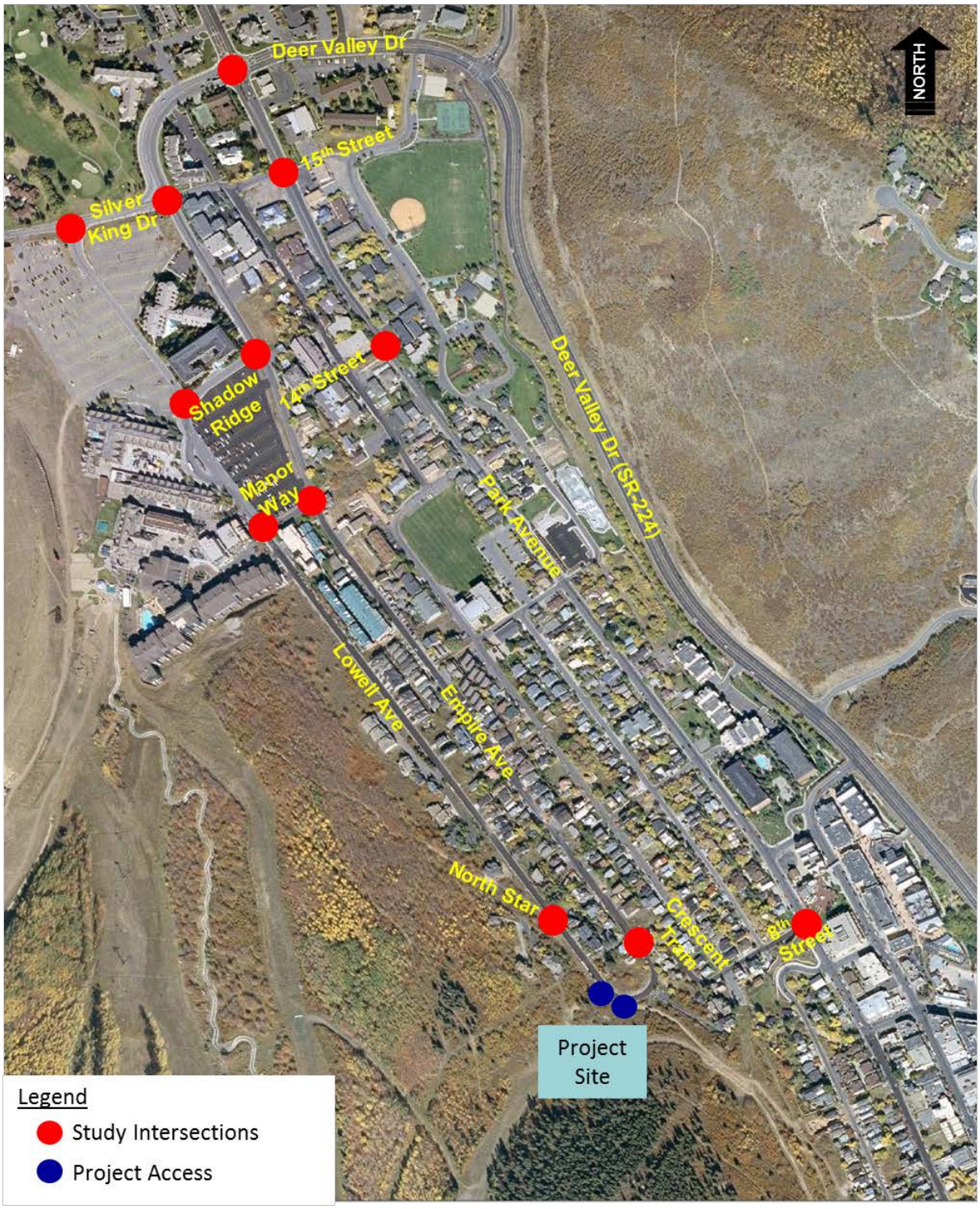

Figure 2
Project Location & Study Intersections

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EXISTING (2017) TRAFFIC VOLUMES

Traffic counts at the intersections under study, as listed above, were collected to establish a baseline of existing conditions and allow for analysis of traffic operation in the area. For this addendum to reflect similar baseline conditions as the Original Studies, the volumes were gathered on Saturday, February 18, 2017, over President's Day Weekend. At the intersections, AM peak period traffic counts were recorded from 8:00 AM until 10:00 AM and PM peak period traffic counts were recorded from 3:00 PM to 6:00 PM. These hours were obtained from the Original Report and the Six Addenda, and they reflect the peak operating hours for the proposed Treasure Hill development and the largest volume of traffic on the roadways.

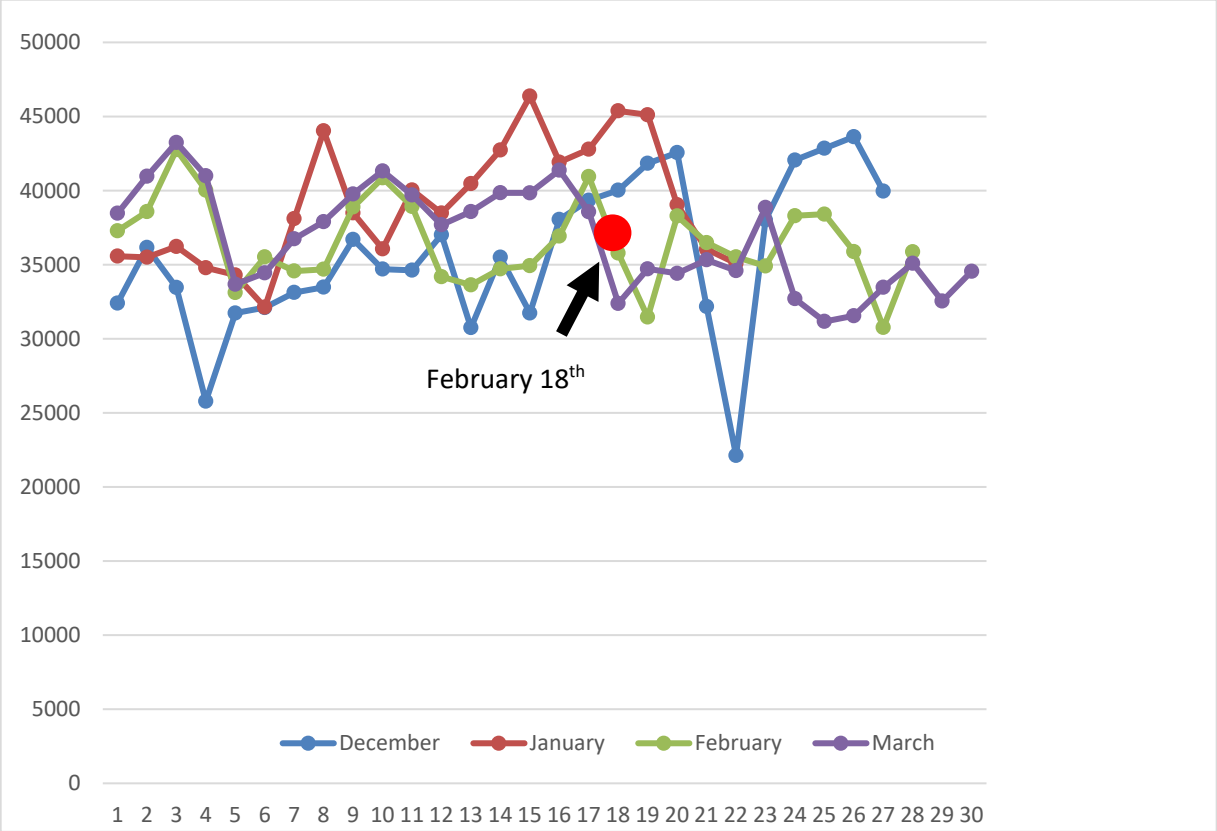
Table 1 below summarizes the data gathered from President's Day Weekend 2017 compared to what was estimated in the Original Report in 2004 and what was gathered over President's Day Weekend 2005. A detail of the traffic counts for February 18, 2017, can be found in the Appendix.

Table 1 Existing Traffic Count Summary

Intersection	*Estimated Traffic From Original Report*		*Actual Counts February 19th 2005*		*Actual Counts February 18th 2017*	
	AM	*PM*	*AM*	*PM*	*AM*	*PM*
Park Ave / Deer Valley	2392	3868	2302	3503	2438	3069
Empire Ave / Silver King	624	1003	314	438	1545	1418
Empire Ave / Shadow Ridge	431	694	188	303	927	937
Empire Ave / Manor Way	277	435	120	190	471	641
Empire Ave / Crescent Tram	84	140	37	123	53	95
Lowell Ave / Shadow Ridge	201	230	82	101	535	396
Lowell Ave / Manor Way	170	637	74	139	416	579
Lowell Ave / North Star	96	197	21	41	27	48
Park Ave / 15th Street	NA	NA	NA	NA	470	975
Park Ave / 14th Street	NA	NA	NA	NA	454	946
Park Ave / 8th Street	NA	NA	NA	NA	276	611
Empire Ave / 14th Street	NA	NA	NA	NA	573	765
Lowell Ave / Silver King	NA	NA	NA	NA	816	641
Note: The numbers depict the total volume at the intersection during one peak hour.						

Saturday, February 18th was selected because President's Day weekend represents one of the busiest ski times and therefore a representative winter day for traffic conditions in Park City. To verify the traffic counts gathered for the study area information was gathered from a Utah Department of Transportation (UDOT) traffic counter on SR-224. The traffic counter is located 0.1 miles north of Canyons Resort Drive. **Table 2** depicts the daily two-way traffic volumes gathered from December 2016 through March of 2017, a typical ski season in Park City.

Table 2 SR-224 Traffic Count Summary – Winter 2017



After analyzing the data gathered from the UDOT traffic counter it was determined that February 18th was identified as the 43rd percentile during the 2016 to 2017 winter ski season. A further analysis of the data found that by increasing the traffic volumes actually counted on February 18 by 12.8% the traffic volumes would reflect the 85th percentile winter ski day. Therefore, to accurately depict a busy day of traffic during the winter ski season, the traffic volumes collected at all the intersections in the study area were increased by 12.8%.

Table 3 Existing Traffic with Factored Increase

Intersection	***Actual Counts* February 18th 2017**		***12.8% Factored Counts* February 18th 2017**	
	AM	***PM***	***AM***	***PM***
Park Ave / Deer Valley	2438	3069	2756	3467
Empire Ave / Silver King Dr.	1545	1418	1748	1605
Empire Ave / Shadow Ridge	927	937	1048	1057
Empire Ave / Manor Way	471	641	534	726
Empire Ave / Crescent Tram	54	95	64	107
Lowell Ave / Shadow Ridge	535	396	609	447
Lowell Ave / Manor Way	471	579	472	653
Lowell Ave / North Star	29	48	35	57
Park Ave / 15th Street	470	975	530	1104
Park Ave / 14th Street	454	946	517	1073
Park Ave / 8th Street	276	611	314	693
Empire Ave / 14th Street	573	765	649	867
Lowell Ave / Silver King	712	559	816	641
Note: The numbers depict the total volume at the intersection during one peak hour.				

As detailed in **Table 1,** most of the intersections have seen growth in overall traffic in the study area over the past twelve years except for the PM peak at the Park Ave / Deer Valley intersection. Since the traffic counts in 2005, various TDM strategies/improvements have been implemented that could have had an impact on the time and methods utilized by skiers when leaving the Resort. **Figure 3** depicts the existing traffic volumes, intersection geometry, and the traffic control measures currently used for each of the study intersections.

It is important to note that the traffic volumes between intersections in Figure 3 may not balance. This is due to vehicles leaving the roadway network to access parking areas or vehicles leaving the parking areas to access the roadway network. This happens the most in between Shadow Ridge Road and Manor Way because this is where the main parking for PCMR is located.

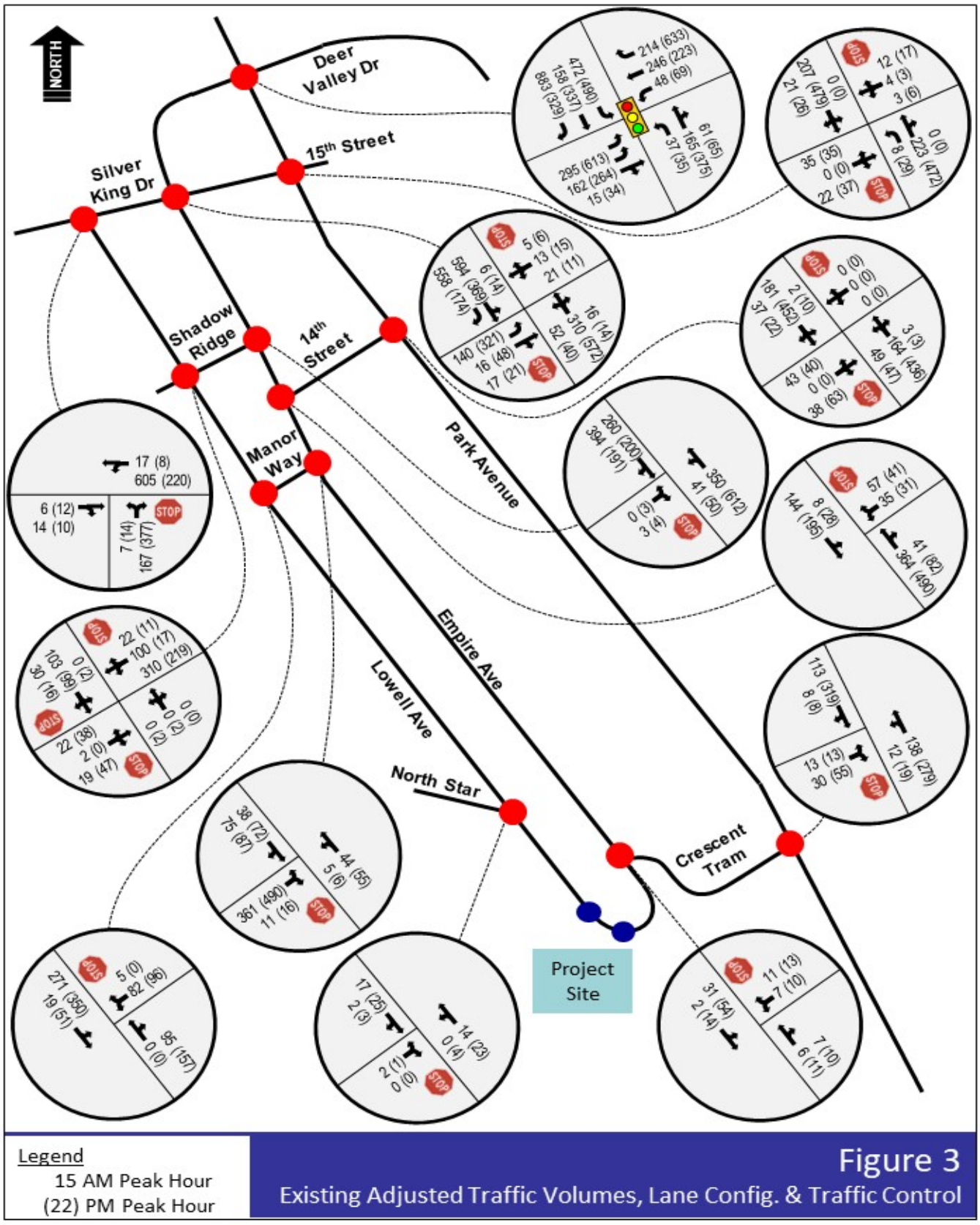


Figure 3
Existing Adjusted Traffic Volumes, Lane Config. & Traffic Control

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FUTURE (2037) TRAFFIC VOLUMES

The purpose of the future 2037 background conditions analysis is to evaluate the intersections under study during the AM and PM peak travel period, utilizing the projected 2037 traffic volumes. This analysis provides a baseline condition for the year 2037, which can be used to determine future project impacts.

Summit County, with the support of PCMC and the Utah Department of Transportation, has created a traffic model to analyze future traffic conditions throughout Summit County, including Park City. As part of that model, future traffic volumes are created based on demographics associated with land use plans approved by PCMC and Summit County. The land use plans provide the best estimate of future population along with the associated traffic. **Table 4** depicts the anticipated traffic volumes for Summit County and Park City.

Table 4 Anticipated Population Growth

	2015	2037	Growth
Resident Population Summit County	41,133	60,138	46.2%
Resident Population Park City	7,309	9,197	25.8%

Along with population, vehicle miles traveled ("VMT") is factored into the traffic model. Historically VMTs in Park CIty and Summit County have grown at a greater rate than population. However, Park City and Summit County are implementing TDM strategies to reduce the number of single occupancy vehicles and reduce the VMTs throughout the City and the County. Nonetheless and to be conservative, the population growth of 25.8% expected for Park City was applied to the existing traffic volumes to determine future traffic volumes in the study area. The 25.8% figure reflects a growth of approximately 1.1% per year of traffic growth.

Table 5 Existing vs. Future Traffic Volume Summary

Intersection	***12.8% Factored Counts February 18th 2017***		***Future Traffic Volumes 2037***	
	AM	***PM***	***AM***	***PM***
Park Ave / Deer Valley	2756	3467	3472	4367
Empire Ave / Silver King Dr.	1748	1605	2206	2024
Empire Ave / Shadow Ridge	1048	1057	1321	1336
Empire Ave / Manor Way	534	726	675	917
Empire Ave / Crescent Tram	64	107	82	143
Lowell Ave / Shadow Ridge	609	447	768	575
Lowell Ave / Manor Way	472	653	675	825
Lowell Ave / North Star	35	57	46	74
Park Ave / 15th Street	530	1104	679	1393
Park Ave / 14th Street	517	1073	654	1354
Park Ave / 8th Street	314	693	399	875
Empire Ave / 14th Street	649	867	820	1094
Lowell Ave / Silver King	816	641	1030	750
Note: The numbers depict the total volume at the intersection during one peak hour.				

In connection with the evaluation of future traffic volumes, PCMC staff requested MPE, Inc., the Conditional Use Permit applicant, to consider a cumulative 20-year forecast that includes entitled projects which reflect the approved Park City Master Plan. In discussions with staff, there are two entitled developments that will have a direct effect on the roadways and intersections in the study area.

On April 2, 2015, PCMC retained a consultant to complete a traffic model on Lowell Avenue that included details regarding the one of the entitled properties in the Park City Master Plan. From that study:

> *"*The Bamberger property is a large piece of land to the west of Lowell Avenue and to the south of the current PCMR (Resort) base area. For the analysis, it was assumed that development of the Bamberger property would not resemble the typical Old Town street and parcel layout originally platted for the property. Approximately 60 percent of the 20-acre Bamberger property is now zoned as Open Space with only the corner of the property near the PCMR base being zoned for development. Thus, it was assumed that the number of residential units that were originally platted for the entire property would be developed as equivalent resort-type development in the Resort Commercial zoned area near the existing PCMR base. Access to Bamberger property development was assumed to be located on Lowell Avenue adjacent to the PCMR base area."

Triton Engineering contacted a representative of the Bamberger property and was informed that the owner is currently preparing to propose a development that will include 27 (twenty-seven) single-family homes, 25 (twenty-five) condominiums, 7 (seven) townhomes, and 18 (eighteen) 900 sq. ft., 2 bedroom units for employee housing.

While no imminent development plans are known for the PCMR main base area, there is a Development Agreement between PCMC and the Resort that entitles PCMR to 491.78 maximum unit equivalents in this area. The specific details of what is defined as a unit equivalent are set forth in the Development Agreement. The ITE Trip Generation Manual, 9th Edition was used to estimate the number of peak hour trips that are expected to be generated by the PCMR potential development. Because the exact development is unknown now for the PCMR, development variety of mixed land uses that equaled 491.78 equivalent units or less was assumed. A trip reduction factor was also applied to the PCMR trip generation as was applied for Treasure Hill due to the mixed land use and ski access opportunities.

In the same Development Agreement between PCMC and PCMR there is also the potential of 600 new parking stalls. In the Development Agreement, it was assumed 160 stalls would be occupied by employees thus creating 440 net new skier parking spaces. It is assumed that 50% of those stalls would enter or leave the parking lot during the AM and PM peak hour thus creating an additional 220 vehicles in the study area during the AM and PM peak hour.

The projected traffic volumes for the combination of both developments ranged between 448 to 583 during the AM peak hour and 595 to 944 during the PM peak hour. The range of trips is dependent upon the type of development that is proposed at the Resort and how much trip reduction can be applied. (Methodologies for trip generation and trip reductions are detailed in the Project Traffic Volumes). From **Table 5** on the Park Ave / Deer Valley intersection, it is anticipated there will be an additional 716

vehicles in the AM peak hour and 895 vehicles in the PM peak based on background growth in the area. The anticipated trips generated from the Bamberger and Resort developments fall well within the anticipated range of growth except for the PM peak, therefore the future volumes in the study area are dependent upon the potential development in the area. With the speculative nature of the development at PCMR it was determined to apply the volumes in **Table 5** and depicted in **Figure 4** to be used to evaluate the study intersections for the baseline condition 2037 without the proposed Treasure Hill development.

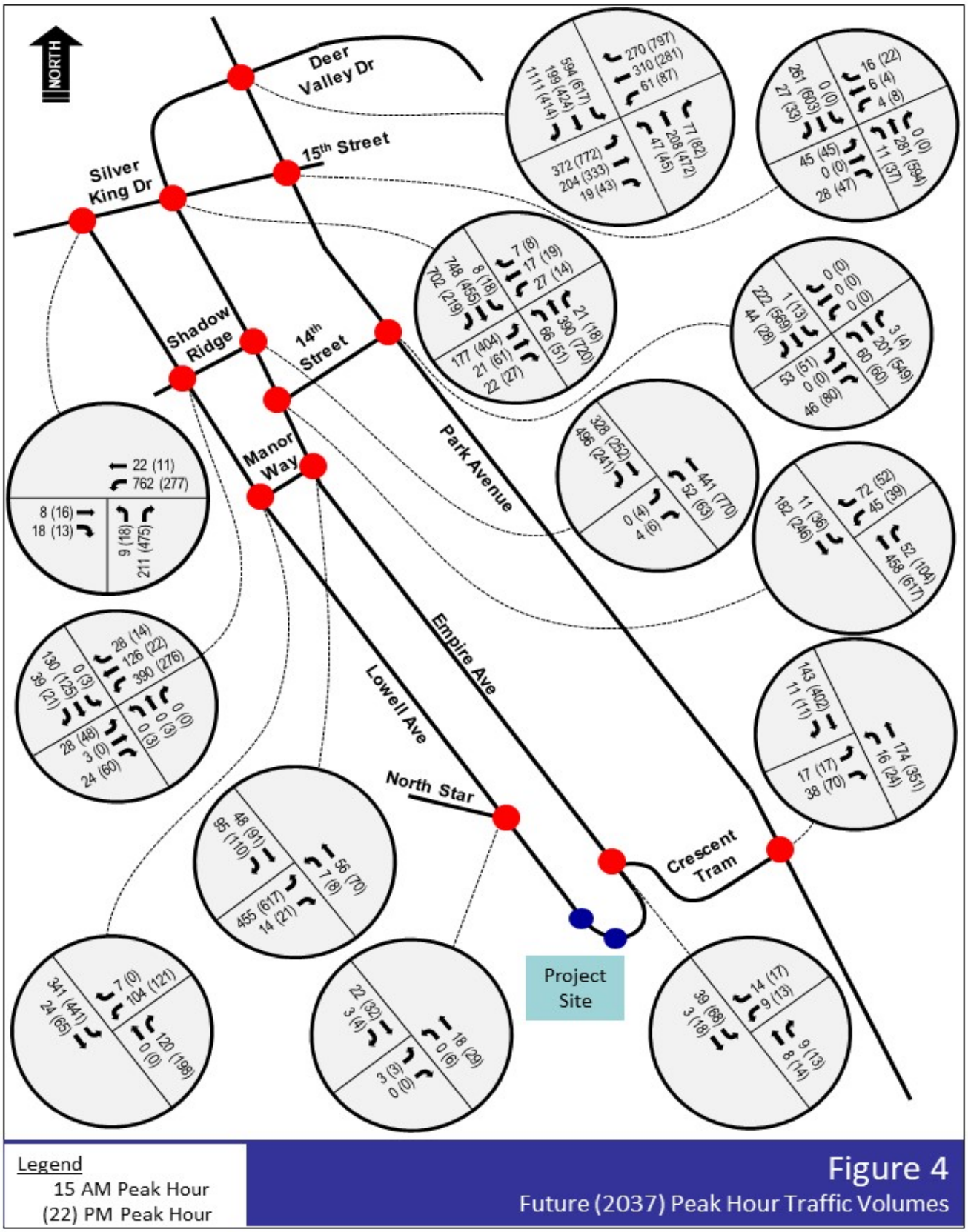

Figure 4
Future (2037) Peak Hour Traffic Volumes

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PROJECT TRAFFIC VOLUMES

The ITE Trip Generation Manual, 9th Edition, was used to estimate the number of AM and PM peak hour trips that are expected to be generated by the Treasure Hill development. To calculate the anticipated trips from each element of the Treasure Hill development, the following land uses were applied;

- For the proposed hotel, ITE Land Use 330 was utilized, and it was assumed the hotel was 85% occupied. This occupancy rate was based on a recent study completed at the Canyons resort area ("The Canyons") that is also a mixed-use development that connects to the same ski resort as the proposed Treasure Hill development. The ITE Trip Generation manual states: "Resort hotels are similar to hotels (Land Use 310) in that they provide sleeping accommodations, restaurants, cocktail lounges, retail shops and guest services. The primary difference is that resort hotels cater to the tourist and vacation industry, often providing a wide variety of recreational facilities/programs (golf courses, tennis courts, beach access, or other amenities) rather than convention and meeting business." The layout and design of the meeting space and a portion of the commercial for the proposed development were therefore included in the hotel trip generation rates because they fit the description above as support commercial to the hotel space and other housing amenities. However, a portion of the commercial, 17,470 sq-ft, is not as integrated with the hotel building and therefore, to be conservative, this portion of the commercial space is anticipated to spur trips to the Treasure Hill development as discussed below. A layout of the hotel, commercial and meeting space can be found in the Appendix.
- The employee housing element of the proposed development is dormitory type housing with an average size of 250 square feet (sq-ft). 6669 sq-ft of proposed employee housing space results in approximately 25 units. There is not a dormitory land use in ITE, so ITE Land Use 220, Apartments, was selected to represent this land use type/intensity. Since this housing is exclusively for on-site employees, it is not expected to contribute to peak hour traffic volumes.
- For the proposed condominiums/townhouses, ITE Land Use 230 dwelling unit alternative was utilized. The ITE Trip Generation manual states: "Both condominiums and townhouses are included in this land use." It was assumed that a portion of the condominium or townhouses would be used as rental properties. The ITE Trip Generation Manual makes no distinction between condominiums or townhouses that are owner occupied and those that are used for nightly rental. Therefore, ITE Land Use 230 was applied.
- As noted above, to be conservative, we have assumed that a portion of the commercial space (17,470 sq-ft) may spur trips to the Treasure Hill development. To calculate those trips, ITE Land Use 826, Specialty Retail Center, and ITE Land Use 931, Quality Restaurant were selected by applying the sq-ft of usable building area from the Trip Generation Manual. 8,735 sq-ft was applied towards Specialty Retail Center Land Use and 8,735 sq-ft was also applied towards the Quality Restaurant Land Use.

Table 6 provides the results of the trip generation for each of the individual land uses.

Table 6 Land Use Specific Trip Generation

Land Use (ITE Reference)	Independent Variable	Size	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Resort Hotel (330)	Occupied Rooms	172 units	55	45	100	92	69	162
Employee Housing (220)	Dwelling Units	6,669 sq-ft or 30 units	5	11	16	18	12	30
Condominium/Townhouse (230)	Dwelling Units	103 units	10	42	52	45	26	71
Specialty Retail Center (826) &Quality Restaurant (931)	1000 Square Feet	17,470 sq-ft	27	29	56	64	45	109
Total			111	139	250	209	144	353

Trip Reduction

The independent variable used to calculate the trip generation for Resort Hotel was “Occupied Rooms”. As reported by Canyons in their annual report, the hotel occupancy rate for the 2016 to 2017 ski season was found to be 85%. There is a total of 202 hotel rooms planned for Treasure Hill, therefore the total number of occupied rooms used for this study was 172 (85% of 202 total rooms). This was applied in the initial calculation; therefore, no trip reduction was applied.

A reduction to trip generation arises from the internal capture rate that accounts for trips between various land uses located within the same development. These trips use only internal roads, and therefore do not represent new trips external to the site. The layout of the Treasure Hill development is specifically designed to create this benefit. Internal interaction among the various land uses reduces the total number of external trips traveling to and from the project site. ITE outlines a method for estimating the expected amount of internal reduction. For the Treasure Hill development, the following internal capture rates were considered.

- Trips between Specialty Restaurant and Condominium/Townhomes
- Trips between Quality Restaurant and Specialty Retail Center.
- Trips between Specialty Retail Center and Condominium/Townhomes.

Using the method outlined by ITE, the total number of trips generated by Condominiums/Townhomes, Specialty Retail Center and Quality Restaurant were reduced by 11% in the am peak hour and 22% in the pm peak hour. The appendix contains the ITE worksheet used to calculate the reduction.

Ski runs will be constructed to allow visitors to access PCMR directly from Treasure Hill. These ski runs will reduce the number of trips to the Treasure Hill development because visitors will not need to access the local street network to gain access to PCMR. The Park City Chamber of Commerce Convention and Visitors Bureau reports that the average length of stay for visitors is 6.7 nights. The average days that visitors ski and snowboard when they visit is 5.8 (See Appendix). By dividing the average number of days skied (5.8) by the average length of stay (6.7) it was determined that 86.7% of the time visitors will be skiing. It is assumed that 50% of the visitors will ski at PCMR and 50% will ski at Deer Valley, Snow Basin or at a ski resorts in the cottonwood canyons. Therefore, a trip reduction rate of 43.3% (86.7% X 50%) was applied to both the hotel and condominium/townhouses.

While this study is focused on winter conditions, there will be trails that provide a similar benefit other times of the year. **Figure 5** below reflects the proposed ski runs and trails.

The final trip reduction specific to the Treasure Hill development is the cabriolet that will connect Treasure Hill development to amenities on Main Street. The gondola will traverse between Main Street and Treasure with a one-way capacity of approximately 2,500 passengers per hour and a transit time of approximately one minute. The hours of operation will start before the AM peak hour and extend beyond the PM peak hour. With the focus on trip reduction during the peak hours and the existing traffic congestion at a portion of the intersections in the study area, it is reasonable to estimate that many people departing or arriving from the hotel or residences during the peak hour will use the cabriolet. The cabriolet will provide convenient access to Main Street for shopping and restaurants. On Main Street and Park Avenue there is convenient opportunity to use the Park City Transit System and therefore residents, guests and employees are anticipated to use this alternate method of transportation.

Because of the many variables involved with accurately predicting an appropriate trip reduction for the cabriolet, it was assumed that the cabriolet would reduce trip generation by 10% for all land uses.

An additional trip reduction could have been achieved due to pass-by trips, which account for trips to and from the development by motorists already traveling on the adjacent streets and from adjacent neighborhoods within the study area. These trips do not represent new trips to the external roads. It is anticipated that adjacent neighborhood visitors and residents may use the ski facilities, amenities and the cabriolet at the Treasure Hill development, thus reducing overall traffic on the surrounding roadways. Although we anticipate some reduction due to pass-by trips, we chose not to apply it to the predicted trip generation in order to represent a more conservative condition as it relates to overall traffic impacts.

Another potential for trip reduction results from individuals choosing to walk or bike to the surrounding amenities. While it is, anticipated people will sometimes choose these alternative methods of travel, once again to be conservative, no trip reductions were applied for these alternatives.

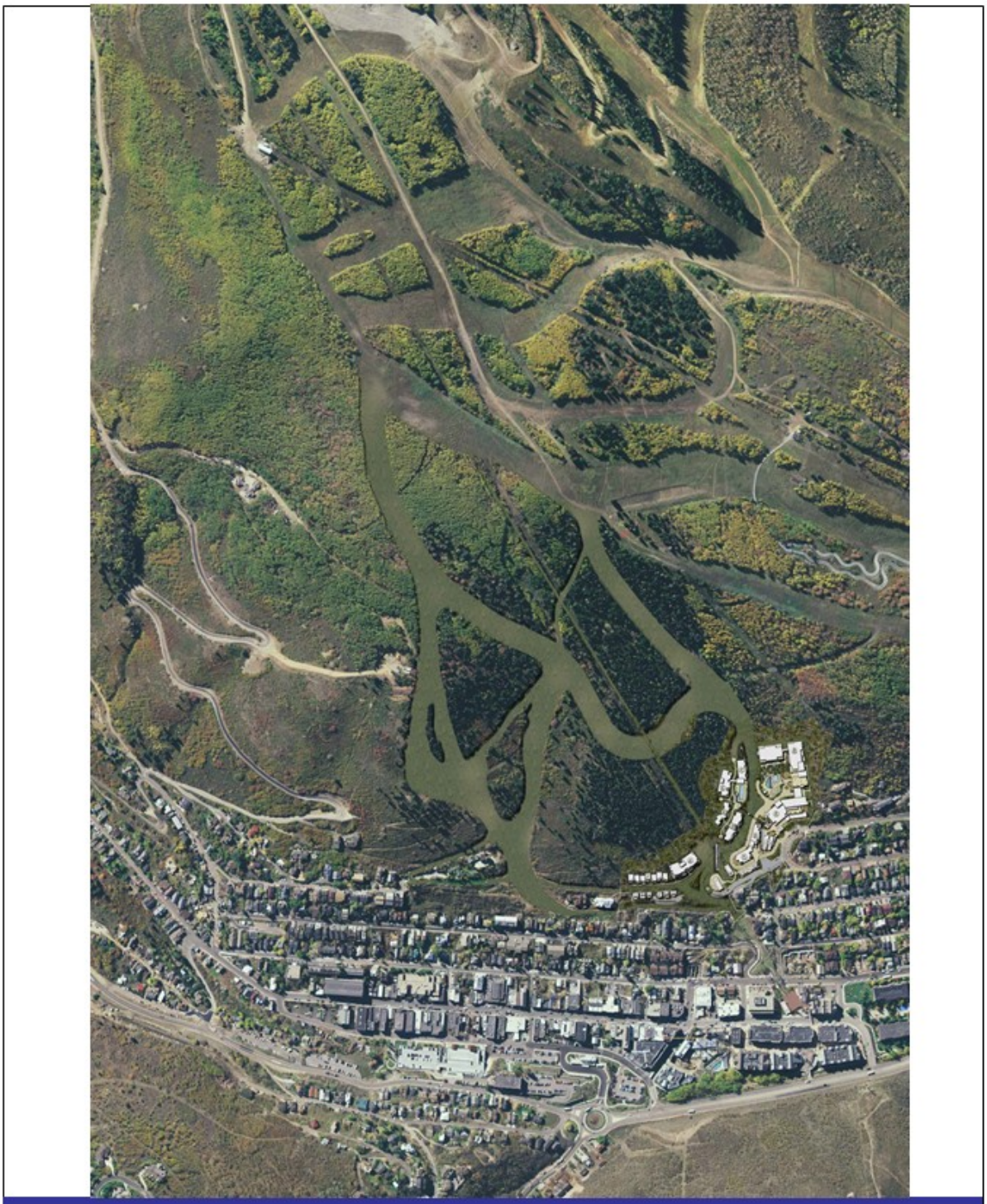

Figure 5
Ski and Trail Concept Plans

Table 7 provides the results of the trip generation traffic volumes after all the trip reductions have been applied.

Table 7 Trip Generation after Trip Reduction

Land Use (ITE Reference)	Independent Variable	Size	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Resort Hotel (330)	Occupied Rooms	172 units	22	18	42	29	22	51
Employee Housing (220)	Dwelling Units	6,669 sq-ft or 30 units	0	0	0	0	0	0
Condominium/Townhouse (230)	Dwelling Units	103 units	5	20	25	19	11	30
Specialty Retail Center (826) &Quality Restaurant (931)	1000 Square Feet	17,470 sq-ft	20	22	42	43	29	72
Total			47	60	107	92	63	153

Trip Distribution & Assignment

Project Trip Distribution is the assignment of traffic generated by the Treasure Hill development to the various intersections and roadways throughout the study area. To determine the distribution of the Treasure Hill generated traffic, three main elements were taken into consideration: major traffic corridors, traffic count data, and the natural flow of traffic in the area. A benefit of the project location is the ability for travelers to enter the project site either from Lowell Avenue or from Empire Avenue, aided by modern technologies that provide the fastest route to enter the project. In any event, for sake of analysis, it was assumed that 50% of the traffic will enter using the Access Point 1 (Lowell) and the remaining 50% will enter using the Access Point 2 (lower/Empire Loop) and that vehicles leaving the project will do likewise, albeit in the opposite direction.

Figure 6 shows the project trip distribution during AM and PM peak hours for the access points and the study area intersections. **Figure 7** displays the project trip traffic volumes during the AM and PM peak hours based on the trip distribution in **Figure 5** combined with the trip generation traffic volumes from **Table 7**.

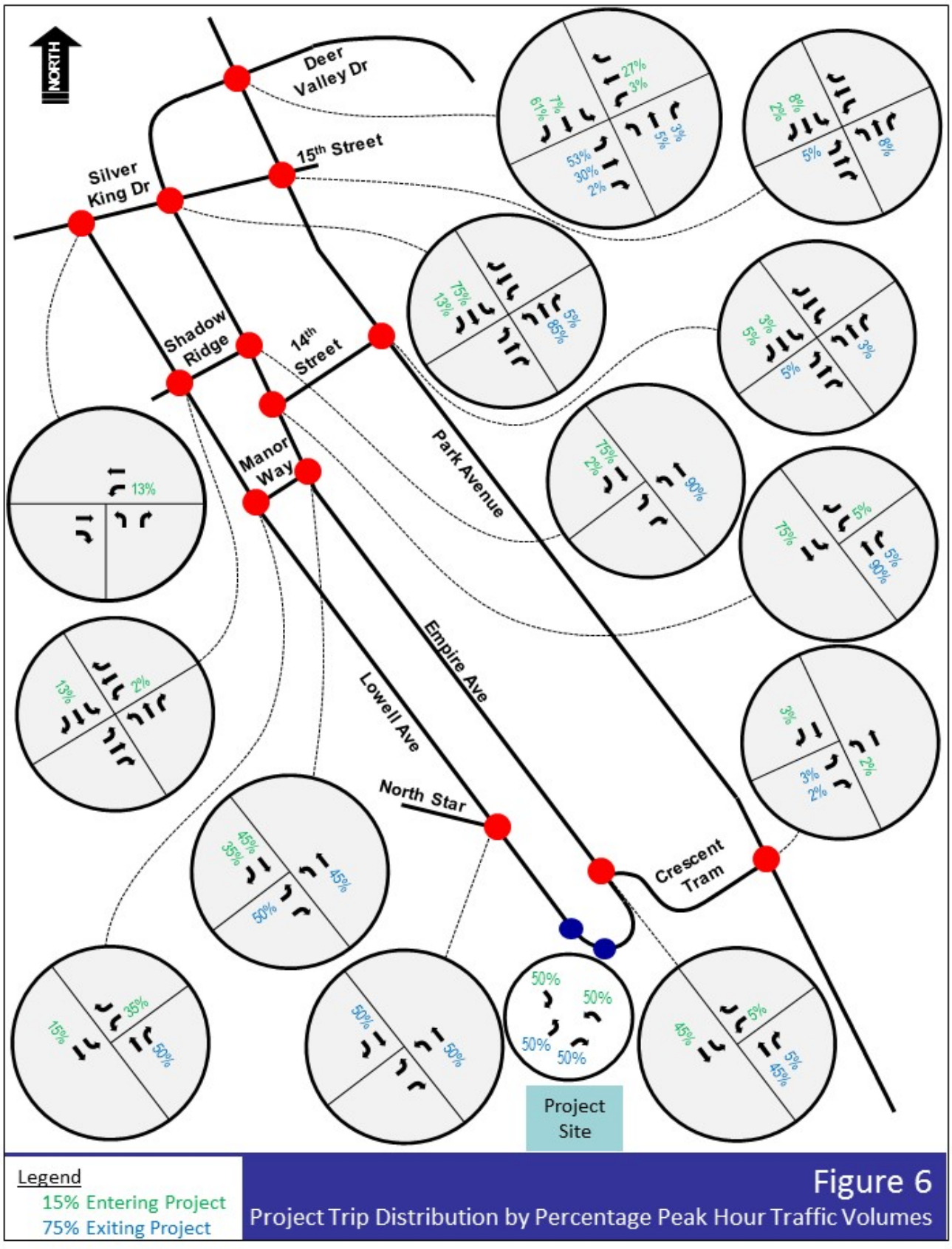

Figure 6
Project Trip Distribution by Percentage Peak Hour Traffic Volumes

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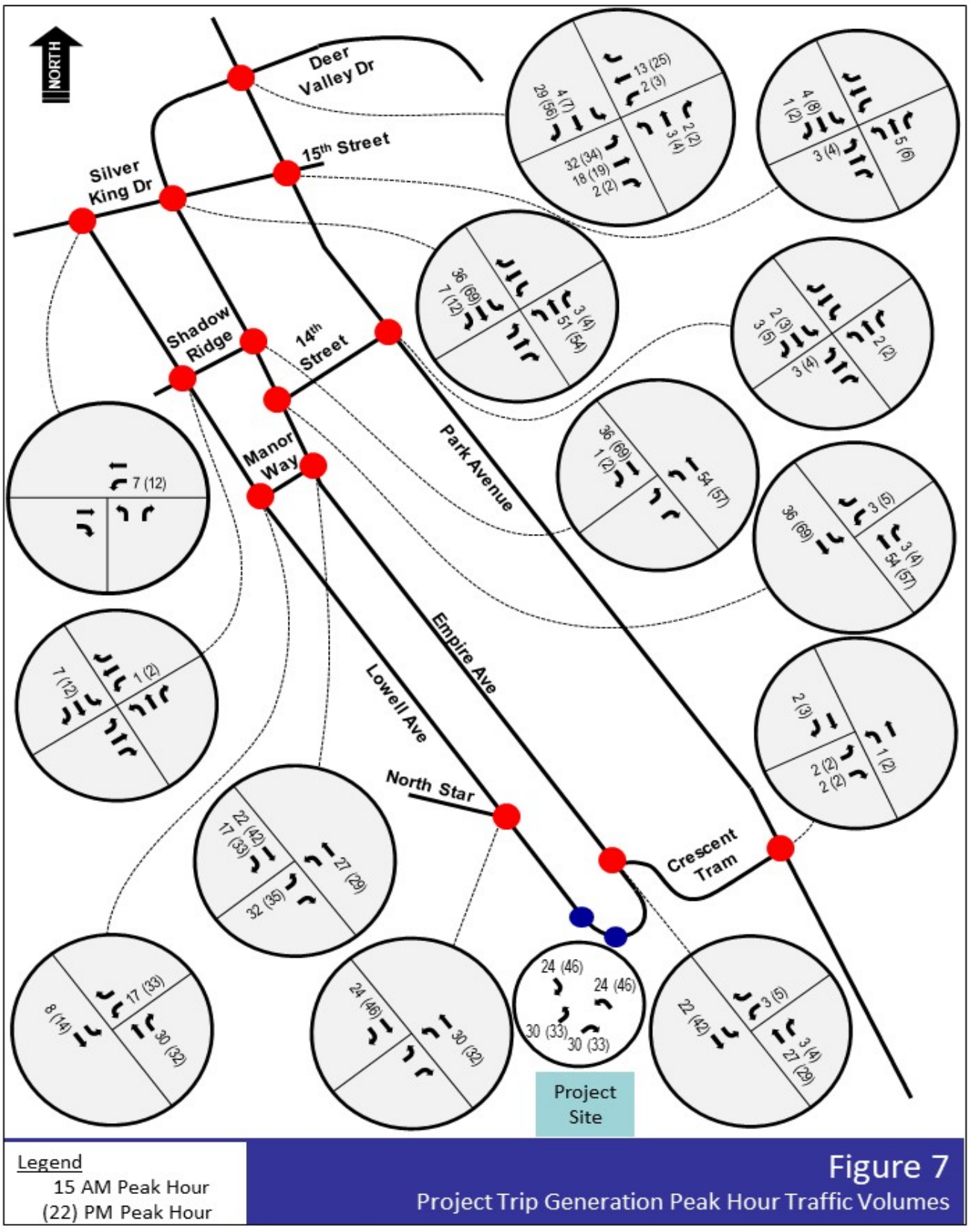

Figure 7
Project Trip Generation Peak Hour Traffic Volumes

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FUTURE (2037) PLUS PROJECT TRAFFIC VOLUMES

The projected-generated traffic was added to the future traffic volumes to obtain the future plus project traffic volumes at the site driveways and study intersections. **Figure 8** shows the existing plus project traffic volumes.

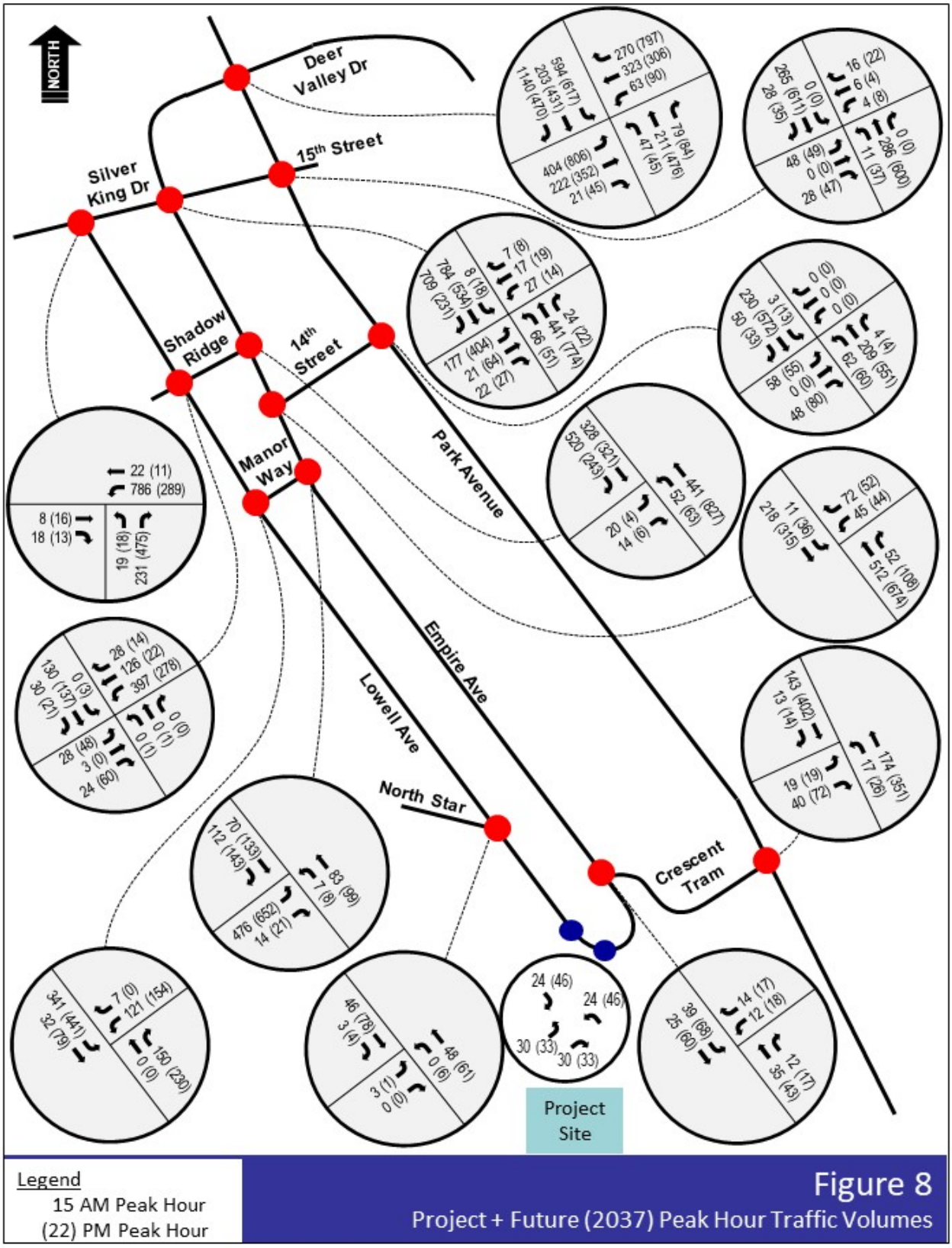

Figure 8
Project + Future (2037) Peak Hour Traffic Volumes

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TRAFFIC ANALYSIS

Methodology

Traffic operations for the study area for existing and future traffic conditions were included. The Highway Capacity Manual 2010 ("HCM 2010") and Transportation Research Board methodology was applied to remain consistent with customary practice in the traffic engineering industry and professional standards. LOS from HCM is a qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or pedestrians. A LOS definition generally describes these conditions in terms of factors such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. There are six levels of service describing these conditions, ranging from A to F, which have been standardized by the Transportation Research Board. LOS A represents a free-flowing traffic condition where motorists are affected very little by other motorists; a high degree of freedom to select desired speeds and the level of comfort and convenience to the motorist is excellent. LOS F is characterized by congested flow conditions with stoppages; the amount of traffic approaching a point exceeds the amount that can pass that point. **Table 8** provides a description of each LOS letter designation and an accompanying average delay per vehicle for unsignalized and signalized intersections.

All the traffic analysis used Synchro/SimTraffic Software, which follow the Highway Capacity Manual (HCM) 2010 methodology, to evaluate study intersections and obtain the LOS listed in **Table 8**. Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. These results serve as a base for the analysis. Detailed traffic operations outputs are included in the Appendix.

The traffic analysis for all of the intersections in the study area are evaluated for the AM and PM peak hour. The AM and PM peak hour is defined by a one-hour period when the traffic volumes were the highest at each intersection in the study area.

Table 8 Level of Service Descriptions

LOS	Description of Delay	Unsignalized Intersections Average Delay (1)	Signalized Intersections Average Delay (2)	Graphical Representation of Delay
A	Free Flow	0 to 10	0 than 10	
B	Stable Flow (slight delays)	10 to 15	10 to 20	
C	Stable Flow (acceptable delays)	15 to 25	20 to 35	
D	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)	25 to 35	35 to 55	
E	Unstable flow (intolerable delay)	35 to 50	55 to 80	
F	Forced flow (congested and queues fail to clear)	Greater than 50	Greater than 80	

Notes:

(1) Worst approach LOS and delay measured (seconds/vehicle).

(2) Overall intersection LOS and average delay (seconds/vehicle) for all approaches.

Existing Levels of Service

Table 9 shows the level of service and corresponding delay (sec/veh) at each of the study intersections for the existing traffic conditions with the factored increase in traffic volumes.

Table 9 Existing Levels of Service

		Worst Approach[1]		Overall Intersection[2]
Intersection	Control	LOS AM / PM	Approach AM / PM	LOS AM / PM
Park Ave / Deer Valley	Signal			C (32.5) / D (50.9)
Empire Ave / Silver King Dr	Stop	E (36.6) / F (137.5)	EB / EB	
Empire Ave / Shadow Ridge	Stop	A (9.4) / A (6.8)	NB / EB	
Empire Ave / Manor Way	Stop	A (5.5) / A (7.3)	EB / EB	
Empire Ave / Crescent Tram	Stop	A (4.1) / A (4.4)	WB / WB	
Empire Ave / 14 Street	Stop	A (9.2) / B (11.4)	WB / WB	
Lowell Ave / Silver King	Stop	C (22.0) / F (122.0)	NB / NB	
Lowell Ave / Manor Way	Stop	A (6.0) / A (7.7)	SB / SB	
Lowell Ave / North Star	Stop	A (4.7) / A (3.6)	EB / EB	
Lowell Ave / Shadow Ridge	Stop	A (6.7) / A (5.8)	WB / WB	
Park Ave / 15th	Stop	A (9.1) / C (15.5)	WB / WB	
Park Ave / 14th Street	Stop	A (6.7) / B (12.7)	EB / EB	
Park Ave / 8th	Stop	A (5.1) / A (8.2)	EB / EB	

Notes:

(1) The level of service and delay for worst approach is shown for stop-controlled intersections only.

(2) The overall intersection level of service is shown for signalized intersections only

As shown in **Table 9**, all the intersections currently operate at an acceptable LOS during both the AM and PM peak hours except for the Empire Ave / Silver King and Lowell Ave / Silver King intersections.

Future (2037) Levels of Service

Table 10 shows the level of service and corresponding delay (sec/veh) at each of the study intersections for the future traffic conditions without the Treasure Hill development.

Table 10 Future Levels of Service

Intersection	Control	Worst Approach[1] LOS AM / PM	Worst Approach[1] Approach AM / PM	Overall Intersection[2] LOS AM / PM
Park Ave / Deer Valley	Signal			F (133.8) / F (117.5)
Empire Ave / Silver King	Stop	F (147.1) / F (175.6)	EB / EB	
Empire Ave / Shadow Ridge	Stop	B (13.0) / C (19.8)	NB / EB	
Empire Ave / Manor Way	Stop	A (6.5) / A (9.4)	EB / EB	
Empire Ave / Crescent Tram	Stop	A (4.0) / A (4.5)	WB / WB	
Empire Ave / 14 Street	Stop	B (12.5) / C (18.0)	WB / WB	
Lowell Ave / Silver King	Stop	F (100.8) / F (195.4)	NB / NB	
Lowell Ave / Manor Way	Stop	A (6.4) / B (10.7)	SB / SB	
Lowell Ave / North Star	Stop	A (3.6) / A (4.7)	EB / EB	
Lowell Ave / Shadow Ridge	Stop	A (7.4) / A (6.9)	WB / WB	
Park Ave / 15th	Stop	A (8.3) / C (17.0)	WB / EB	
Park Ave / 14th Street	Stop	A (8.1) / C (18.8)	EB / EB	
Park Ave / Crescent Tram	Stop	A (5.0) / A (8.4)	EB / EB	

Notes:

(1) The level of service and delay for worst approach is shown for stop-controlled intersections only.

(2) The overall intersection level of service is shown for signalized intersections only

As shown in **Table 10**, the intersections are expected to operate at an acceptable LOS during both the AM and PM peak hours except for the Park Ave / Deer Valley, Empire Ave / Silver King and the Lowell Ave / Silver King intersections. The delays experienced at the Lowell Ave / Silver King intersection result from vehicles queuing from the Empire Ave / Silver King intersection.

Future Levels of Service Without Project

With the intersections in the study area operating in the future at undesirable levels of service even without considering the impact of the Treasure Hill project, expected mitigation/improvement measures were applied and analyzed. **Table 11** shows the level of service and corresponding delay (sec/veh) at specific intersections for the future traffic conditions without the Treasure Hill development, but with expected mitigation/improvement measures applied.

Table 11 Future Mitigated Levels of Service

		Worst Approach[1]		Overall Intersection[2]
Intersection	Control	LOS AM / PM	Approach AM / PM	LOS
Park Ave / Deer Valley	Signal			C (29.1) / E (68.9)
Empire Ave / Silver King	Roundabout or Signal			A (8.4) / C (20.0)
Lowell Ave / Silver King	Stop	D (28.0) / B (12.5)	NB / NB	

Notes:

(1) The level of service and delay for worst approach is shown for stop-controlled intersections only.

(2) The overall intersection level of service is shown for signalized intersections only

As shown in **Table 11**, to improve the traffic operations for the Empire Ave / Silver King intersection, installation of a traffic signal or a roundabout is required. For a traffic signal to operate efficiently and safely, separate turn lanes in the northbound and southbound direction are necessary.

The Lowell Ave / Silver King intersection delays are resolved with the improvement at the Empire Ave / Silver King intersection.

To maintain acceptable levels of operation at the Park Ave / Deer Valley intersection it requires the following improvements.

- An additional southbound left turn lane and providing free right turn movements from Park Avenue (SR-224) onto Empire Avenue.

While a LOS of E is not the target additional improvements could have significant impact on the existing vertical buildings around this intersection. For most times of the year the LOS will be D or better. Instead of additional physical roadway improvements one way to handle these traffic bottlenecks is with human traffic control as often provided for major sporting events.

Future Levels of Service With Project

Table 12 shows the level of service and corresponding delay (sec/veh) at each of the study intersections for the future traffic conditions, with the Treasure Hill development applying the same mitigation/improvement measures applied in the future conditions, as applied in **Table 11**.

Table 12 Future Plus Project Levels of Service

Intersection	Control	Worst Approach[1] LOS AM / PM	Worst Approach[1] Approach AM / PM	Overall Intersection[2] LOS AM / PM
Park Ave / Deer Valley	Signal			C (29.1) / E (75.7)
Empire Ave. / Silver King	Signal			B (10.8) / C (20.4)
Empire Ave / Shadow Ridge	Stop	D (33.9) / C (23.0)	EB / EB	
Empire Ave / Manor Way	Stop	A (7.4) / C (15.1)	EB / EB	
Empire Ave / Crescent Tram	Stop	A (3.9) / A (4.5)	WB / WB	
Empire Ave / 14 Street	Stop	C (15.7) / C (21.6)	WB / WB	
Lowell Ave / Silver King	Stop	D (34.6) / B (11.2)	NB / NB	
Lowell Ave / Manor Way	Stop	A (7.0) / C (23.4)	SB / SB	
Lowell Ave / North Star	Stop	A (3.9) / A (6.0)	EB / EB	
Lowell Ave / Shadow Ridge	Stop	A (7.4) / A (6.8)	WB / WB	
Park Ave / 15th	Stop	B (10.1) / D (29.7)	WB / WB	
Park Ave / 14th Street	Stop	A (8.2) / C (22.6)	EB / EB	
Park Ave / 8th	Stop	A (5.7) / A (9.5)	EB / EB	
Access 1 / Empire Ave	Stop	A (4.1) / A (2.6)	NB / NB	
Access 2 / Lowell Ave	Stop	A (3.9) / A (3.8)	EB / EB	

Notes:

(1) The level of service and delay for worst approach is shown for stop-controlled intersections only.

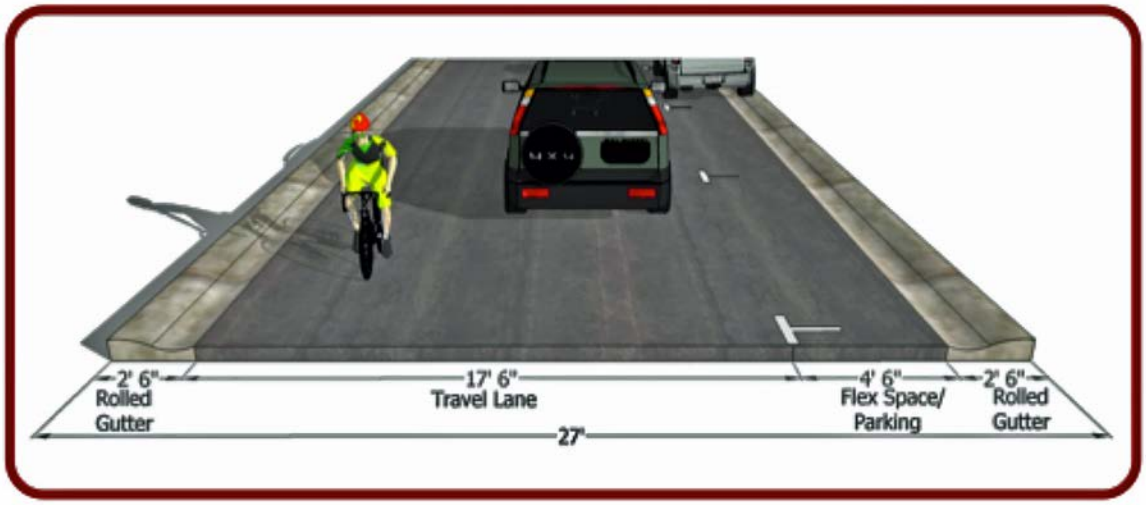
(2) The overall intersection level of service is shown for signalized intersections only

As shown in **Table 12**, with the implementation of the mitigation/improvement measures applied in **Table 11**, in the future, all the intersections will operate at an acceptable LOS during both the AM and PM peak hours with the Treasure Hill Project.

Operational Capacity During Winter Conditions

PCMC has designed and is presently constructing improvements along Lowell Avenue from Manor Way to the curve heading down to Empire Avenue. During the planning phase of the project, a traffic model was created and a memorandum of the results of that study were issued on April 2, 2015. The traffic model examined future traffic volumes on Lowell Avenue using the travel demand model developed for the Park City Transportation Master Plan update in 2011. The traffic model included existing conditions

and build out conditions for Treasure Hill Project and the Bamberger property. The conclusion of the study was that even with the addition of the Treasure Hill Project and potential Bamberger property development Lowell Avenue can facilitate the existing and future traffic needs with the "Local Road – Old Town" typical section depicted below.



From the presentation of the Treasure Hill original traffic study to Planning Commission, public comments received throughout this process, and in discussions with the staff, concerns have been expressed about the capacity of the street networks during winter conditions. While the City has chosen to construct Lowell Avenue according to the "Local Road-Old Town" typical section based on the April 2015 study, it is not clear whether the study or its recommended design of Lowell Avenue addressed all the concerns that have been mentioned throughout the Treasure Hill traffic analysis process. The elements that influence the capacity of the roadways within the study area during the winter include;

- Quantity of snow,
- Duration of snow events,
- How the streets are plowed and maintained,
- Where and how individuals elect to park,
- How diligent PCMC enforces its parking regulations,
- Service delivery needs (garbage pickup, express mail delivery, etc.), and
- Pedestrian usage.

These elements currently exist and are accommodated with a variety of practices. It has been mentioned by the citizens in the area how the roadways in the winter effectively operate as one lane roads. Also during winter conditions many times the streets are plowed and parking maintained to accommodate one lane of travel. Therefore, a traffic analysis was conducted applying a one-way road system. This system would apply a southbound direction of traffic along Lowell Avenue and northbound direction of traffic along Empire Avenue. It was assumed all the cross streets still accommodate two-way traffic. With a one-way traffic circulation, it would allow for a reduced 12-foot travel lane, 7.5 feet of parking on one side, and still provide room for pedestrian use and snow storage within the "Local Road-Old Town" typical section. The analysis was conducted for future conditions with the Treasure Hill project. **Table 13** summarizes the results of that analysis.

Table 13 One-Way Traffic Operations (Operational Capacity During Winter Conditions)

		Worst Approach[1]		Overall Intersection[2]
Intersection	Control	LOS AM / PM	Approach AM / PM	LOS AM / PM
Park Ave / Deer Valley	Signal			D (36.9) / E (61.9)
Empire Ave. / Silver King	Signal			A (7.3) / A (7.9)
Empire Ave / Shadow Ridge	Stop	A (1.9) / A (1.8)	EB / EB	
Empire Ave / Manor Way	Stop	A (6.7) / A (8.9)	EB / EB	
Empire Ave / Crescent Tram	Stop	A (2.7) / A (2.8)	WB / WB	
Empire Ave / 14 Street	Stop	A (4.1) / A (4.4)	WB / WB	
Lowell Ave / Silver King	Stop	A (8.2) / A (5.6)	WB / WB	
Lowell Ave / Manor Way	Stop	A (6.5) / A (8.6)	SB / SB	
Lowell Ave / North Star	Stop	A (1.8) / A (3.3)	EB / EB	
Lowell Ave / Shadow Ridge	Stop	A (6.6) / A (8.6)	EB / SB	
Park Ave / 15th	Stop	A (8.5) / C (22.5)	WB / WB	
Park Ave / 14th Street	Stop	A (7.6) / C (24.4)	EB / EB	
Park Ave / 8th	Stop	A (4.9) / B (10.1)	EB / EB	
Access 1 / Empire Ave	Stop	A (2.4) / A (2.4)	NB / NB	
Access 2 / Lowell Ave	Stop	A (.1) / A (.4)	SB / SB	

Notes:

(1) The level of service and delay for worst approach is shown for stop-controlled intersections only.

(2) The overall intersection level of service is shown for signalized intersections only

As shown in **Table 13**, with the implementation of the one-way traffic scenario described above, all intersections will continue to operate at an acceptable LOS in both the AM and PM peak hour. Most intersections, including the intersection of Empire Ave / Silver King will operate and a better level of service. The intersection of Park Ave / Deer Valley Drive will continue to operate at essentially the same level of service. This is because most traffic at this intersection will not be affected by the one-way traffic.

With the proposed one-way traffic operations, the following information should be considered.

- Emergency vehicle response – During emergency situations, emergency vehicles are not required to adhere to one-way traffic requirements.
- Out of direction travel for residents and visitors – one-way traffic operation is only proposed for the winter ski season when snow plow operations struggle to keep two-way travel lanes available.
- Out of direction travel time for residents and visitors - it is estimated that the out of direction travel time for some residents could be up to 30 seconds. However, based on current operations there is more than 30 seconds lost when there are two-way traffic conflicts.

TRAFFIC DEMAND MANAGEMENT

The Treasure Hill project has been assisting with various Traffic Demand Management (TDM) strategies and will continue to implement TDM strategies that will improve traffic operations.

- Sweeney Land Company, co-owner of the Treasure Hill Parcel, conveyed at no cost to PCMC the land that enabled the "loop" connection for the Lowell and Empire roadways.
- The various Sweeney entities were instrumental in the creation of the Town Lift System, including its original approval and construction, connections to Upper Old Town (Upper Norfolk, King Road, and Sampson), conveyance to the City at no charge of portions of the Crescent Walkway and Lower Norfolk Avenue, and providing the opportunity for the Main Street Bridge.
- MPE (the CUP applicant) provided funds for the study of Lowell Avenue to create a roadway that will accommodate the existing traffic volumes and future traffic volumes.
- MPE provided funds for the design and construction of Lowell Avenue to create a roadway that will accommodate the existing traffic volumes and future traffic volumes, particularly construction traffic.
- Applying a mixed-use development that will create between 107 to 154 vehicle trips in the peak hours instead of single family homes on approximately 4 miles of new city streets connecting to Upper Old Town and possibly beyond that would likely generate more vehicle trips in the peak hours.
- The construction of the cabriolet is a significant TDM strategy that provides a transportation system that removes vehicles on the roadway, while creating the ability for visitors and residents of the development to access Main Street. While only a 10% reduction in vehicles (12 cars in the morning and 17 cars in the evening) it is assumed for the cabriolet, it will have a greater impact when combined with the ski resort operations. This provides also the ability for employees who use the Park City Transit system to arrive on site by using the cabriolet.
- Another TDM commitment is the construction of ski runs for beginner and intermediate skiers that will provide an all-ability-levels connection to the Resort. The same ski run terrain will provide trail connections during the summer months of the year. This reduces the likelihood of visitors and residents staying at the Treasure Hill project of driving to the resort main base area or other resorts in the area.
- Another TDM strategy is the inclusion of employee housing dedicated for Treasure Hill on-site.
- The addition of on-site commercial elements also provides a reduction in trips. Recent studies have found there are significant trip reductions for trips between various land uses located within the same development (hotel, employee housing, residential and commercial).
- For employees not living in on-site employee housing, during the winter ski season and other special events like Sundance Film Festival, the Treasure Hill development will direct and

incentivize such employees to use public transportation and/or the cabriolet to access the site to reduce the traffic load on the intersections.

- Another TDM strategy that will be implemented during the winter ski season (including the Sundance Film Festival) and other busy times is the use of a shuttle that will pick up visitors from the airport and deliver them to the Treasure Hill development. This shuttle system might be specific to Treasure Hill or in combination with existing private transportation services.
- During the construction phase of the project, some construction workers will park at the Richardson Flats park and ride lot (or other park and ride lots) and be shuttled to the site, or they will use the Park City transit system with the combination of the cabriolet, when it is complete, to get to the site. Flexibility regarding this strategy is necessary to accommodate the many aspects of construction.

TRAFFIC MITIGATION

The Treasure Hill project shall implement the following items to mitigate traffic on the roadways.

- With a clustered mixed-use development, the result is 110 plus acres of open space instead of additional miles of roadways that the city would have to maintain.
- The Treasure Hill project will provide a cabriolet system that will connect the project to Main Street. The cabriolet will traverse between Main Street and Treasure Hill with a one-way capacity of approximately 2500 passengers per hour.
- The hours of operation of the cabriolet will start around 6:45 am and extend until 10 pm during the winter ski months and summer. During the spring and the fall season, the cabriolet will be out of operation at times to accommodate maintenance needs. Treasure Hill will adjust these hours in cooperation with PCMC city-wide TDM strategies.
- Treasure Hill will construct ski runs for beginner and intermediate skiers with convenient connections to the Resort. The same ski run terrain will provide trail connections during the summer months of the year. This will reduce trips by not only visitors and residents of the development by nearby neighbors as well.
- Treasure Hill will have dedicated employee housing on-site.
- For employees not living in on-site, during the winter ski season and other times when hotel occupancy exceeds 70% and other special events like Sundance Film Festival, the Treasure Hill development will direct, use monetary incentives and other mechanisms, as necessary, to encourage employees to use public transportation and / or the cabriolet to access the site.
- To decrease the impact of vehicles during the peak hour the Treasure Hill development will utilize work shifts that begin and end outside the AM and PM peak hour of travel.
- During the winter ski season, other busy times, and special events like Sundance Film Festival, Treasure Hill will implement a shuttle system that will pick up visitors from the airport and deliver them to the Treasure Hill development. This shuttle system might be specific to Treasure Hill or in combination with existing private transportation services.
- Treasure Hill will require all parking related to Treasure Hill to be on site.
- During the construction phase of the project employees that do not require a vehicle to perform their trade will be shuttled to the site or to the cabriolet when it is operational.
- Treasure Hill development will pay for its portion of the improvements at Park Ave / Deer Valley and Empire Ave / Silver King intersection improvements as may be implemented by any special improvement district or similar entity.

MONITORING PROGRAM

After the Treasure Hill project is constructed a monitoring program will be employed to evaluate and verify TDM strategies. The TDM strategies and traffic mitigation measures will be evaluated one year after completion and then three more times, at three-year intervals. This will provide a total of four evaluations spanning a ten-year period after construction is complete.

PARKING ANALYSIS

As part of this addendum, a parking generation study was completed to estimate parking demand that the Treasure Hill development will be expected to create. Forecasts of vehicle parking demand for the proposed development were calculated using the 4th edition of *Parking Generation*, published by the Institute of Transportation Engineers ("ITE"). Land use codes that matched the codes defined above in the updated traffic impact analysis were used to estimate the parking generation by the facility, one exception being Specialty Retail Center which is not currently a use category in *Parking Generation*. For this use, Land use code 820, Shopping Center was substituted.

Table 14 Parking Generation

Land Use (ITE Reference)	Size or Units	Weekday Parking Generation	Weekend Parking Generation
Hotel	122,225 sq-ft or 202 units	129	182
Employee Housing	6,669 sq-ft or 30 units	36	32
Condominium/Townhouse	103 units	142	88
Commercial	17,470 sq-ft	178	184
Total		485	486

Details on how each land use was applied in this analysis include:

- Land Use 310: Hotel, Urban – Actual parking generation data was available for the weekday and Saturday peak period. Therefore, the Saturday rate was applied for the weekend rates. As noted above in the traffic analysis section of this addendum, it was assumed that a portion of the commercial space is complementary to the hotel and therefore it was also included in the hotel parking generation analysis.
- Land Use 221: Low/Mid-Rise Apartment, Urban (used for employee housing) – This land use was chosen as best representing the parking generation for the employee housing. As noted in the traffic analysis section, it was assumed that 6,669 sq-ft, with units of 250 sq-ft of space (dormitory style) would approximate the parking generation of one urban low/mid-rise apartment, resulting in 30 units for analysis purposes. The weekday urban peak period and Saturday urban peak period from *Parking Generation* were used.

- Land Use 230: Residential Condominium/Townhouse, Suburban and Urban – Actual parking generation data was available for the weekday (suburban) and Saturday (urban) peak period. Therefore, the Saturday rate was applied for the weekend rates.
- Land Use 820: Shopping Center & Land Use 931: Quality Restaurant (used for the commercial) – As with the trip generation analysis, half of the commercial building space was applied using the shopping center Parking Generation land use and the other half was applied using the Quality Restaurant land use. Actual parking generation data was available for the weekday, Saturday and Sunday peak period. The highest value for the Saturday and Sunday peak period was applied to determine the parking generation for the weekend rates.

As with the updated traffic impact analysis, the raw estimated parking demand was calculated assuming no interaction or internal sharing of trips by the different land uses. This is unlikely, considering the mixed-use nature of the development and the high probability of shared trips between the different land uses. In the traffic impact analysis, a reduction was made to the calculated trips to account for the trips that are made internal to the development. In addition, trips were further reduced to account for the addition of on-site employee housing. Similarly, a portion of the parking demand is expected to be shared among the different land uses.

However, the reduction in parking demand due to shared land use is not expected to be as high as the reduction in vehicle trips. In some instances, the reduction in vehicle trips does not correlate to a similar reduction in parking demand. Some examples of this could include patrons of the hotel who access Main Street via the cabriolet and employees who live on-site and walk to work, Main Street, etc. In both examples, there is justification for reducing the number of vehicle trips. However, the demand for parking still exists since, in both cases, the patron and employee still have a car parked in the project. The mitigating factors that allow for parking reduction (compared to the raw numbers) is the internal capture rate because of the proposed mixed-use development. For the reasons stated above, however, the reduction in parking generation is expected to be somewhat less.

The assumed reductions for each of the land uses are as described below:

- Residential Uses (Condominium/Townhouse and Employee Housing) – While vehicle trips for these land uses are greatly reduced by the ability to ride the cabriolet, the reduction in parking demand is expected to be modest. For purposes of this study, a 10% reduction was assumed.
- Hotel/Resort Commercial – The 20% reduction applied in the trip reduction was also applied in the parking generation analysis. As noted above, the commercial space integrated with the hotel is intended primarily for the use of hotel patrons. However, realistically, some parking will be used by visitors to the hotel/commercial. Nonetheless, no parking generation was applied for the commercial space that is integrated with the hotel. A portion of the parking will be needed for managers, employees living off-site, and service needs, but the manual accounts for this in the hotel parking generation.

The reduced parking generation is shown in **Table 15**.

Table 15 Reduced Parking Generation

Land Use (ITE Reference)	Size or Units	Weekday Parking Generation	Weekend Parking Generation
Hotel	122,225 sq-ft or 202 units	129	182
Employee Housing	6,669 sq-ft or 30 units	32	29
Condominium/Townhouse	103 units	128	79
Commercial	17,470 sq-ft	142	147
Total		432	437

It is anticipated the Treasure Hill development will require on a typical weekend approximately 437 parking stalls and on a typical weekday, 432 stalls.

ORIGINAL STUDY AND ADDENDUMS ONE THROUGH SIX

This study is intended to address the original study and subsequent addendums. Below is a summary of the original study and subsequent addendums and their relevance because of Addendum #7.

Original Traffic Impact Analysis – July 2004

Addendum #7 updates the original study and provides the best understanding of the traffic conditions in the study area and therefore replaces the original traffic impact analysis.

Addendum #1, Wayfinding Sign Study – Summer 2004

This study identified locations where wayfinding signs could be placed to direct motorists to Treasure and reduce unnecessary out of direction travel. The information provided in this addendum is still valid.

Addendum #2, Winter Traffic Counts – April 2005

Addendum #7 provides the most recent winter condition traffic counts and therefore replaces addendum #2.

Addendum #3, Lowell Ave Sidewalk Improvements – January 2008

Addendum #3a (update to Addendum #3) Walkability Study Update – June 2009

The purpose of addendum #3 and #3a was two-fold: present a walkability study and revisions to that study. There are elements addendum #3 and #3a that are still recommended.

- Install signs and paint crosswalks in eight (8) locations in the Park City Mountain Resort Area. These installations will help increase the safety of pedestrians using the area and their locations have the least amount of impact on vehicle traffic. Because of the current pedestrian habits of walking these roads freely, once the crosswalks are established it may be necessary for the City to enforce the crossing restrictions in order to realize safer traffic and pedestrian interaction.

- There are currently two (2) locations where sidewalk/stair improvements are warranted to provide adequate access for future growth. These improvements were understood to possibly be scheduled for completion by others but, in any event, the Treasure Hill development will complete the improvements. They are from Woodside to Treasure Hill on 6th Street and Woodside Avenue to Treasure Hill on 8th Street.

Since the walkability study was completed PCMC has completed improvements on Empire Avenue and currently making improvements along Lowell Ave. These improvements did not include designated sidewalks.

Addendum #4, Refined Land Use and Trip Generation – April 2009

Addendum #7 provides the best understanding of the traffic conditions and therefore replaces addendum #4.

Addendum #5, Parking Generation Study – June 2009

Addendum #7 provides the best understanding of the parking conditions and therefore replaces addendum #5.

Addendum #6, Intersection Operations Limiting Development Traffic on Empire Ave – June 2009

Addendum #7 provides the best understanding of the traffic conditions and therefore replaces addendum #6.

SUMMARY AND CONCLUSIONS

As reflected in the Original Report, the Six Addenda and this addendum, the roadway network can facilitate the traffic needs for existing and future traffic, including the traffic anticipated from the Treasure Hill development. Implementing the improvements at the Empire Ave / Silver King and Park Ave / Deer Valley intersections, which will ultimately be necessary regardless of the impact of the Treasure Hill development, will allow the intersections and roadways in the study area, including the Treasure Hill development, to operate at an acceptable level of service in the future.

While the intersections and roadways can operate at an acceptable level of service with the Treasure Hill development by implementing the proposed traffic improvement measures, nonetheless, it is important to implement the TDM strategies as well. These strategies include:

- Installation of the cabriolet system.

- Installation of beginner and intermediate ski runs that connect with the remainder of the Resort.
- Implementation of the mixed-use development that includes employee housing and commercial on site.
- During the busy winter season and special events, employees not living on site will be directed and incentivized to use public transportation to access the site.
- During the busy winter season, other busy times, and special events, implementation of shuttle service to and from the airport.
- During the construction phase of the project, directing construction workers who do not need to access the construction site with vehicles to park off site at the Richardson Flats, or similar park and ride lots, and shuttle them to the site.

Appendix

Appendix A – Existing Count Documentation

Appendix B – Trip Generation and Trip Reduction

Appendix C – Existing traffic Analysis

Appendix D – Future Traffic Analysis without Project

Appendix E – Future Traffic Analysis with Project

Appendix F – One Way Traffic Analysis

Appendix A – Existing Count Documentation

Utah Department of Transportation

Neg Dir, Monthly Hourly Volume for February 2017

Site Names: -0605, 0224-008.920-
County: Summit
Funct. Class: Rural Principal Arterial - Other
Location: SR 224 0.1 mile N of Canyons Resort Drive, Park City MP 8.920 FC 02

Seasonal Factor Group: 605
Daily Factor Group: 605
Axle Factor Group: 605
Growth Factor Group: 605

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Total
Wed, 01	82	46	20	30	30	124	492	1608	1951	1534	1239	1245	1194	1197	1226	1201	1222	1271	1050	743	585	462	424	247	19,223
Thu, 02	180	109	44	40	33	120	521	1619	1983	1615	1238	1286	1262	1200	1236	1265	1257	1296	1189	719	617	540	428	332	20,129
Fri, 03	228	165	27	27	56	147	532	1671	2176	1728	1392	1318	1454	1349	1369	1303	1369	1315	1333	1186	737	556	535	311	22,284
Sat, 04	170	157	51	39	57	142	382	1019	1939	1502	1378	1287	1357	1252	1389	1347	1171	1315	1285	1037	592	505	422	289	20,084
Sun, 05	158	113	56	40	65	150	373	955	1729	1595	1311	1309	1175	1045	1157	1127	1045	700	482	390	325	457	221	130	16,108
Mon, 06	73	37	37	41	54	173	516	1557	1881	1579	1132	871	1230	1026	1188	1211	1275	1191	904	640	470	360	245	110	17,801
Tue, 07	70	44	21	19	61	201	541	1524	1809	1517	1036	1041	1081	1039	1104	1129	1150	1189	969	640	468	404	283	157	17,497
Wed, 08	94	36	22	30	51	172	511	1574	1973	1634	1149	1203	1221	1184	1214	1159	1243	1209	1038	711	598	548	376	226	19,176
Thu, 09	161	90	27	32	48	126	511	1636	1907	1613	1178	1262	1167	1140	1297	1317	1344	1392	1205	817	679	591	389	225	20,154
Fri, 10	158	140	44	48	61	123	532	1676	1702	1411	1287	1293	1402	1297	1437	1409	1369	1359	1271	853	705	635	562	351	21,125
Sat, 11	226	144	59	54	77	202	366	1047	1785	1220	1325	1191	1213	1172	1352	1339	1206	1311	1066	823	772	515	446	357	19,268
Sun, 12	162	92	56	45	62	150	364	955	1627	1652	1323	1227	1239	1179	1219	1161	1068	1145	828	590	485	340	230	136	17,335
Mon, 13	79	49	25	28	45	180	522	1509	1655	1531	1218	1082	1126	1099	1100	1195	1206	1100	950	630	487	425	302	159	17,702
Tue, 14	74	41	24	26	51	132	541	1572	1901	1552	1266	1223	1145	1134	1170	1209	1156	1152	1038	755	577	429	312	160	18,640
Wed, 15	103	41	20	17	40	128	491	1499	1886	1574	1193	1157	1212	1132	1155	1182	1166	1141	979	737	598	479	431	243	18,604
Thu, 16	135	70	21	18	35	118	515	1553	1897	1635	1327	1260	1198	1231	1237	1340	1297	1295	1084	828	829	611	533	278	20,345
Fri, 17	269	117	38	37	42	134	509	1667	2201	1681	1347	1352	1385	1259	1369	1267	1211	1187	1099	890	714	698	549	364	21,386
Sat, 18	278	137	106	33	52	131	425	1079	1537	1150	1089	1138	1133	1177	1306	1243	1266	1247	1011	846	740	538	462	292	18,416
Sun, 19	174	110	52	36	46	119	336	957	1337	1028	932	1009	1003	1087	1060	1156	1074	1180	890	658	520	426	315	175	15,680
Mon, 20	106	61	36	50	95	183	552	1390	2069	1739	1431	1261	1263	1241	1242	1212	1182	1071	863	635	498	405	280	160	19,025
Tue, 21	67	46	23	37	68	170	534	1345	1958	1504	1164	1219	1222	1098	1241	1256	1153	1178	937	753	536	422	291	185	18,407
Wed, 22	95	48	30	48	74	186	483	1241	2161	1684	1137	1126	1114	1025	1174	1085	1139	1009	885	723	600	460	349	273	18,149
Thu, 23	218	150	69	59	69	152	439	1000	1893	1874	1118	1055	1058	946	1063	1082	1121	1060	934	688	654	550	419	323	17,994
Fri, 24	155	140	50	33	42	164	401	958	1783	1231	1232	1625	1506	1236	1205	1233	1232	1199	1121	887	723	587	506	328	19,577
Sat, 25	212	126	64	35	52	156	475	1126	1911	1605	1381	1257	1262	1138	1235	1296	1183	1118	1097	855	661	552	407	266	19,470
Sun, 26	185	124	67	39	79	132	440	891	1734	1597	1328	1252	1276	1123	1164	1172	1120	1057	806	569	470	340	306	161	17,432
Mon, 27	80	48	33	48	71	164	443	1340	1882	1376	963	904	934	957	835	1043	1015	910	813	575	461	317	243	138	15,593
Tue, 28	75	39	28	25	53	179	537	1462	2016	1697	1189	1037	1226	1076	1132	1108	1163	1089	958	593	537	407	306	154	18,086

Utah Department of Transportation

Pos Dir, Monthly Hourly Volume for February 2017

Site Names: -0605, 0224-008.920-
County: Summit
Funct. Class: Rural Principal Arterial - Other
Location: SR 224 0.1 mile N of Canyons Resort Drive, Park City MP 8.920 FC 02

Seasonal Factor Group: 605
Daily Factor Group: 605
Axle Factor Group: 605
Growth Factor Group: 605

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Total
Wed, 01	122	74	33	20	41	85	214	540	753	794	825	972	1192	1392	1545	1794	1865	1790	1237	739	566	538	576	354	18,061
Thu, 02	182	158	94	37	29	92	198	568	729	816	823	1073	1200	1271	1421	1609	1827	1685	1223	838	788	747	532	507	18,447
Fri, 03	178	187	67	20	36	125	208	532	771	826	898	1139	1317	1420	1571	1716	2032	1877	1297	904	701	918	1150	581	20,471
Sat, 04	336	211	159	44	43	108	225	360	476	755	892	1083	1200	1357	1362	1896	1964	1672	1223	944	845	1172	980	632	19,939
Sun, 05	317	232	164	87	108	170	308	437	554	799	959	1102	1189	1367	1548	1949	1725	1070	737	463	559	589	350	223	17,006
Mon, 06	102	75	51	30	77	165	352	672	809	888	958	1033	1178	1210	1407	1578	1793	1871	1181	790	500	426	331	240	17,717
Tue, 07	136	91	52	11	41	119	261	605	765	764	851	1059	1153	1224	1364	1577	1702	1679	1205	767	561	411	400	271	17,069
Wed, 08	124	64	37	14	43	106	242	574	787	754	873	997	1085	1075	1183	1289	1309	1208	987	850	588	558	437	327	15,511
Thu, 09	180	173	58	25	39	92	212	571	791	846	848	1103	1215	1288	1459	1619	1765	1839	1265	923	738	809	479	397	18,734
Fri, 10	185	153	70	23	47	98	226	578	830	895	1037	1294	1421	1430	1405	1684	1729	1712	1176	933	781	801	643	578	19,729
Sat, 11	292	262	134	83	46	123	236	394	552	805	930	1055	1285	1382	1476	1899	2057	1743	1278	950	721	707	680	569	19,659
Sun, 12	294	209	121	63	79	128	265	440	532	811	921	983	1181	1233	1494	1618	1407	1323	1137	778	674	463	383	312	16,849
Mon, 13	138	68	58	36	64	146	272	624	848	821	859	972	1121	1254	1559	1190	963	1197	1203	869	567	403	393	301	15,926
Tue, 14	131	83	24	15	38	109	262	575	838	871	849	998	1217	1225	1426	1218	1066	1156	1129	821	615	568	495	345	16,074
Wed, 15	129	86	26	21	33	104	268	557	843	763	800	1050	1152	1315	1393	1495	1226	1151	1119	861	643	550	442	300	16,327
Thu, 16	154	94	39	16	30	81	199	580	789	796	827	1038	1253	1315	1439	1316	1160	1022	1092	863	742	655	654	426	16,580
Fri, 17	359	139	54	30	36	100	230	538	800	838	975	1214	1268	1309	1480	1661	1885	1776	1273	891	723	689	708	581	19,557
Sat, 18	320	247	106	50	43	92	170	327	518	758	894	1091	1039	1137	1118	1486	1706	1539	1263	849	675	727	661	543	17,359
Sun, 19	283	261	131	51	40	83	169	380	535	662	873	900	932	1031	1198	1242	1523	1421	1130	754	693	615	486	383	15,776
Mon, 20	152	113	79	46	81	173	326	538	690	841	1010	1141	1416	1487	1517	1830	2013	1929	1212	777	579	522	462	323	19,257
Tue, 21	116	71	38	30	79	140	297	524	778	872	986	1182	1334	1328	1324	1492	1840	1843	1096	713	553	532	442	467	18,077
Wed, 22	150	74	44	30	55	109	252	508	709	720	820	1117	1340	1235	1247	1539	1742	1778	1202	726	558	561	472	379	17,367
Thu, 23	187	118	87	43	51	118	223	351	474	585	771	1012	1205	1189	1288	1502	1825	1729	1250	788	577	581	521	437	16,912
Fri, 24	191	143	77	38	35	106	241	460	619	630	720	974	1178	1241	1324	1689	2025	1937	1384	965	760	775	680	531	18,723
Sat, 25	313	181	102	49	51	140	291	388	600	851	935	1189	1271	1325	1393	1733	1802	1533	1238	886	626	670	808	560	18,935
Sun, 26	403	229	168	76	60	141	289	462	632	761	912	1071	1155	1357	1493	1941	2012	1620	1076	763	605	468	444	310	18,448
Mon, 27	132	82	56	45	57	137	273	540	725	610	683	769	887	1021	1339	1356	1586	1486	1113	723	518	400	343	283	15,164
Tue, 28	112	57	36	21	47	125	273	637	803	772	831	1119	1302	1340	1501	1605	1789	1618	1094	719	710	519	373	379	17,782

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Park Ave***
E-W STREET: ***Empire Ave / Deer Valley Dr***

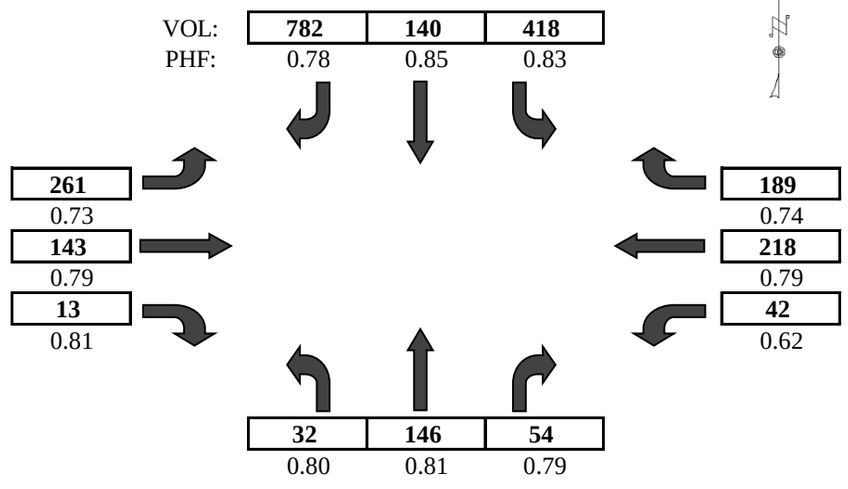
PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**2,438**
PHF:	**0.91**
PEAK HOUR:	
FROM:	TO:
8:15 AM	**9:15 AM**

PEAK HOUR VOLUMES



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	6	19	2	30	27	3	121	25	154	4	34	41	466
8:15 AM	8:30 AM	9	35	15	54	30	3	126	31	220	5	58	31	617
8:30 AM	8:45 AM	6	27	9	56	37	3	110	41	252	12	55	44	652
8:45 AM	9:00 AM	7	45	17	90	45	4	95	33	185	17	69	64	671
9:00 AM	9:15 AM	10	39	13	61	31	3	87	35	125	8	36	50	498
9:15 AM	9:30 AM	8	29	14	44	39	10	83	38	96	10	52	72	495
9:30 AM	9:45 AM	5	45	11	57	23	6	77	31	98	8	45	49	455
9:45 AM	10:00 AM	9	27	11	62	21	4	105	43	86	11	30	77	486
Included HV (trucks + buses):		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	28	126	43	230	139	13	452	130	811	38	216	180	2,406
8:15 AM	9:15 AM	32	146	54	261	143	13	418	140	782	42	218	189	2,438
8:30 AM	9:30 AM	31	140	53	251	152	20	375	147	658	47	212	230	2,316
8:45 AM	9:45 AM	30	158	55	252	138	23	342	137	504	43	202	235	2,119
9:00 AM	10:00 AM	32	140	49	224	114	23	352	147	405	37	163	248	1,934

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Park Ave***
E-W STREET: ***Empire Ave / Deer Valley Dr***

PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

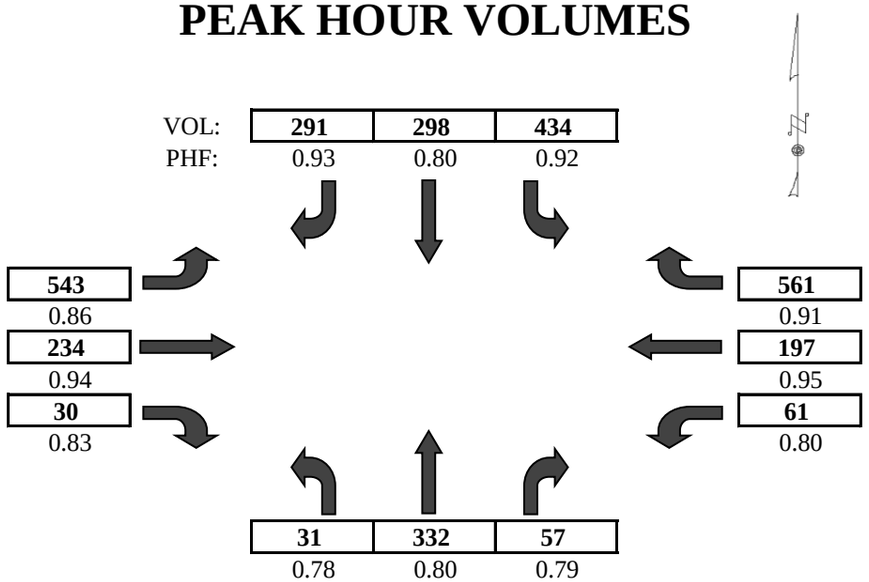
COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**3,069**
PHF:	**0.98**
PEAK HOUR:	
FROM:	TO:
4:00 PM	**5:00 PM**

Empire Ave / Deer Valley Dr

PEAK HOUR VOLUMES



Park Ave

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	8	73	10	130	59	5	118	75	76	8	52	131	745
4:15 PM	4:30 PM	7	64	17	157	62	8	108	67	78	16	48	151	783
4:30 PM	4:45 PM	10	91	18	150	62	9	96	63	67	19	46	125	756
4:45 PM	5:00 PM	6	104	12	106	51	8	112	93	70	18	51	154	785
5:00 PM	5:15 PM	10	85	10	124	50	6	104	85	70	10	38	141	733
5:15 PM	5:30 PM	8	80	17	111	55	9	130	91	70	14	36	139	760
5:30 PM	5:45 PM	4	111	17	85	50	11	114	85	49	14	28	125	693
5:45 PM	6:00 PM	7	85	4	86	28	10	109	67	66	15	40	149	666
	Included HV (trucks + buses):													5,921
		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	31	332	57	543	234	30	434	298	291	61	197	561	3,069
4:15 PM	5:15 PM	33	344	57	537	225	31	420	308	285	63	183	571	3,057
4:30 PM	5:30 PM	34	360	57	491	218	32	442	332	277	61	171	559	3,034
4:45 PM	5:45 PM	28	380	56	426	206	34	460	354	259	56	153	559	2,971
5:00 PM	6:00 PM	29	361	48	406	183	36	457	328	255	53	142	554	2,852

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Park Ave***
E-W STREET: ***Silver King Dr / 15th Street***

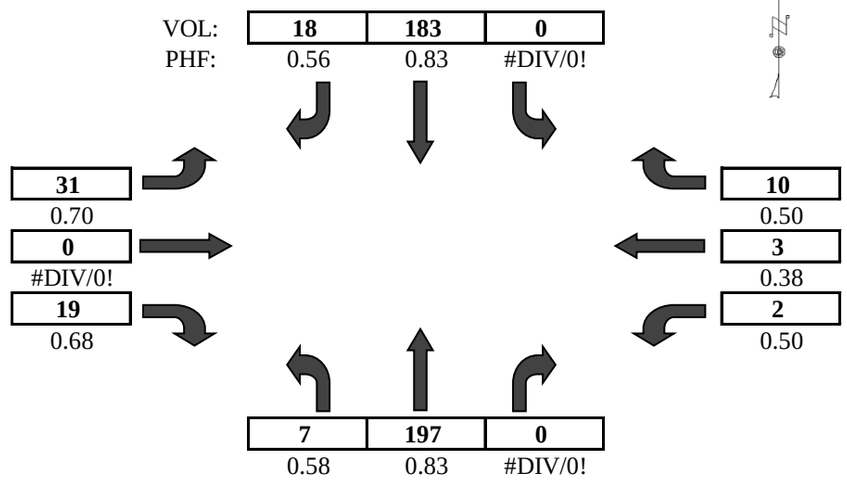
PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**470**
PHF:	**0.90**
PEAK HOUR:	
FROM:	TO:
8:45 AM	**9:45 AM**

PEAK HOUR VOLUMES



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	2	31	0	3	0	2	0	31	1	1	1	1	73
8:15 AM	8:30 AM	3	47	0	7	0	5	0	33	6	0	0	2	103
8:30 AM	8:45 AM	3	39	0	3	0	4	0	48	10	0	0	2	109
8:45 AM	9:00 AM	3	59	0	11	0	3	0	44	8	1	0	2	131
9:00 AM	9:15 AM	1	53	0	9	0	7	0	41	4	0	2	0	117
9:15 AM	9:30 AM	2	34	0	6	0	6	0	55	4	0	0	3	110
9:30 AM	9:45 AM	1	51	0	5	0	3	0	43	2	1	1	5	112
9:45 AM	10:00 AM	2	48	0	2	0	6	0	48	2	0	0	3	111
Included HV (trucks + buses):		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	11	176	0	24	0	14	0	156	25	2	1	7	416
8:15 AM	9:15 AM	10	198	0	30	0	19	0	166	28	1	2	6	460
8:30 AM	9:30 AM	9	185	0	29	0	20	0	188	26	1	2	7	467
8:45 AM	9:45 AM	7	197	0	31	0	19	0	183	18	2	3	10	470
9:00 AM	10:00 AM	6	186	0	22	0	22	0	187	12	1	3	11	450

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Park Ave***
E-W STREET: ***Silver King Dr / 15th Street***

PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

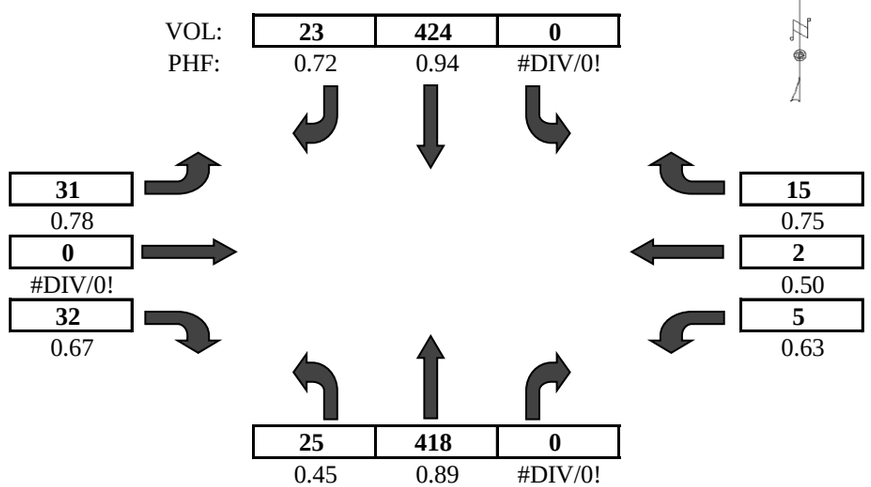
COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**975**
PHF:	**0.97**
PEAK HOUR:	
FROM:	TO:
4:45 PM	**5:45 PM**

Silver King Dr / 15th Street

PEAK HOUR VOLUMES



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	2	81	0	14	0	5	0	87	2	0	0	3	194
4:15 PM	4:30 PM	5	96	0	4	0	7	0	72	11	1	0	6	202
4:30 PM	4:45 PM	3	96	0	15	0	8	0	87	7	0	2	5	223
4:45 PM	5:00 PM	4	106	0	7	0	6	0	113	7	2	0	2	247
5:00 PM	5:15 PM	14	96	0	7	0	12	0	104	5	2	1	5	246
5:15 PM	5:30 PM	5	117	0	10	0	6	0	102	8	0	0	4	252
5:30 PM	5:45 PM	2	99	0	7	0	8	0	105	3	1	1	4	230
5:45 PM	6:00 PM	7	85	0	4	0	9	0	87	6	2	1	5	206
	Included HV (trucks + buses):													1,800
		0%	0%	#DIV/0!	0%	#DIV/0!	0%	#DIV/0!	0%	0%	0%	0%	0%	100%

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	14	379	0	40	0	26	0	359	27	3	2	16	866
4:15 PM	5:15 PM	26	394	0	33	0	33	0	376	30	5	3	18	918
4:30 PM	5:30 PM	26	415	0	39	0	32	0	406	27	4	3	16	968
4:45 PM	5:45 PM	25	418	0	31	0	32	0	424	23	5	2	15	975
5:00 PM	6:00 PM	28	397	0	28	0	35	0	398	22	5	3	18	934

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Park Ave***
E-W STREET: ***14th Street / Private Access***

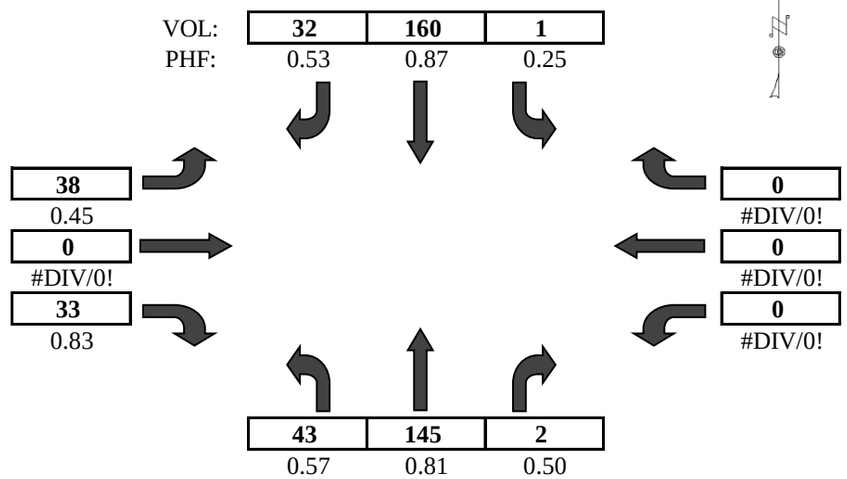
PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**454**
PHF:	**0.83**
PEAK HOUR:	
FROM:	TO:
8:30 AM	**9:30 AM**

PEAK HOUR VOLUMES



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	3	26	0	4	0	5	0	27	6	0	0	0	71
8:15 AM	8:30 AM	11	33	0	4	0	6	0	26	2	0	0	0	82
8:30 AM	8:45 AM	12	35	0	7	0	8	1	31	15	0	0	0	109
8:45 AM	9:00 AM	19	36	1	21	0	9	0	41	10	0	0	0	137
9:00 AM	9:15 AM	6	45	1	7	0	6	0	42	3	0	0	0	110
9:15 AM	9:30 AM	6	29	0	3	0	10	0	46	4	0	0	0	98
9:30 AM	9:45 AM	2	48	0	2	0	4	0	43	4	0	0	0	103
9:45 AM	10:00 AM	8	45	0	6	0	12	0	47	2	0	0	0	120
Included HV (trucks + buses):		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	45	130	1	36	0	28	1	125	33	0	0	0	399
8:15 AM	9:15 AM	48	149	2	39	0	29	1	140	30	0	0	0	438
8:30 AM	9:30 AM	43	145	2	38	0	33	1	160	32	0	0	0	454
8:45 AM	9:45 AM	33	158	2	33	0	29	0	172	21	0	0	0	448
9:00 AM	10:00 AM	22	167	1	18	0	32	0	178	13	0	0	0	431

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Park Ave***
E-W STREET: ***14th Street / Private Access***

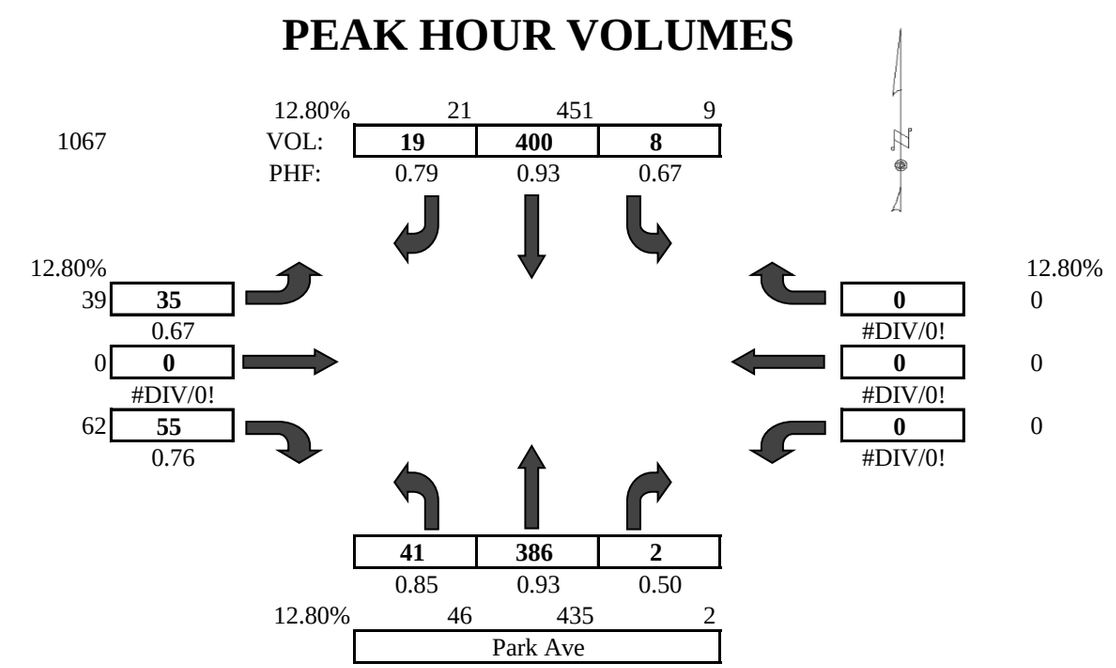
PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUMES

PEAK HOUR VOLUM	**946**
PHF:	**0.94**
PEAK HOUR:	
FROM:	TO:
4:45 PM	**5:45 PM**



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	5	77	0	2	0	10	1	84	4	0	0	0	183
4:15 PM	4:30 PM	15	90	0	8	0	22	0	66	4	0	0	0	205
4:30 PM	4:45 PM	7	81	0	10	0	14	2	82	9	0	0	0	205
4:45 PM	5:00 PM	12	99	1	6	0	18	2	108	6	0	0	0	252
5:00 PM	5:15 PM	11	94	0	9	0	14	1	98	4	0	0	0	231
5:15 PM	5:30 PM	9	104	1	13	0	14	2	86	4	0	0	0	233
5:30 PM	5:45 PM	9	89	0	7	0	9	3	108	5	0	0	0	230
5:45 PM	6:00 PM	10	82	0	5	0	10	1	91	1	0	0	0	200
	Included HV (trucks + buses):													1,739
		0%	0%	0%	0%	#DIV/0!	0%	0%	0%	0%	#DIV/0!	#DIV/0!	#DIV/0!	100%

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	39	347	1	26	0	64	5	340	23	0	0	0	845
4:15 PM	5:15 PM	45	364	1	33	0	68	5	354	23	0	0	0	893
4:30 PM	5:30 PM	39	378	2	38	0	60	7	374	23	0	0	0	921
4:45 PM	5:45 PM	41	386	2	35	0	55	8	400	19	0	0	0	946
5:00 PM	6:00 PM	39	369	1	34	0	47	7	383	14	0	0	0	894

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Park Ave***
E-W STREET: ***Crescent Tram***

PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

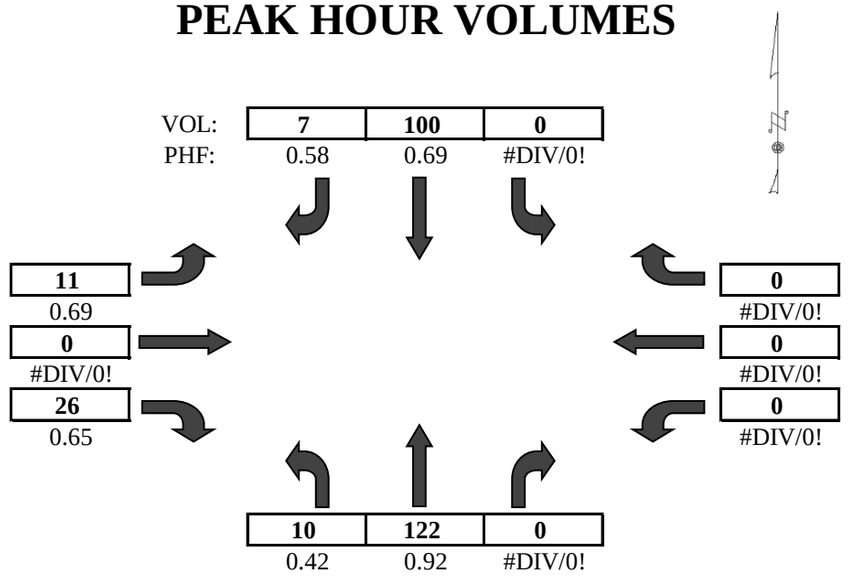
COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUME	**276**
PHF:	**0.87**
PEAK HOUR:	
FROM: TO:	
9:00 AM **10:00 AM**	

Crescent Tram

PEAK HOUR VOLUMES



Park Ave

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	1	28	0	1	0	1	0	16	3	0	0	0	50
8:15 AM	8:30 AM	2	24	0	2	0	1	0	20	4	0	0	0	53
8:30 AM	8:45 AM	5	35	0	2	0	4	0	18	3	0	0	0	67
8:45 AM	9:00 AM	2	32	0	3	0	4	0	23	1	0	0	0	65
9:00 AM	9:15 AM	6	33	0	3	0	5	0	23	1	0	0	0	71
9:15 AM	9:30 AM	4	26	0	4	0	10	0	26	0	0	0	0	70
9:30 AM	9:45 AM	0	33	0	1	0	4	0	15	3	0	0	0	56
9:45 AM	10:00 AM	0	30	0	3	0	7	0	36	3	0	0	0	79
	Included HV (trucks + buses):	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	10	119	0	8	0	10	0	77	11	0	0	0	235
8:15 AM	9:15 AM	15	124	0	10	0	14	0	84	9	0	0	0	256
8:30 AM	9:30 AM	17	126	0	12	0	23	0	90	5	0	0	0	273
8:45 AM	9:45 AM	12	124	0	11	0	23	0	87	5	0	0	0	262
9:00 AM	10:00 AM	10	122	0	11	0	26	0	100	7	0	0	0	276

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Park Ave***
E-W STREET: ***Crescent Tram***

PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

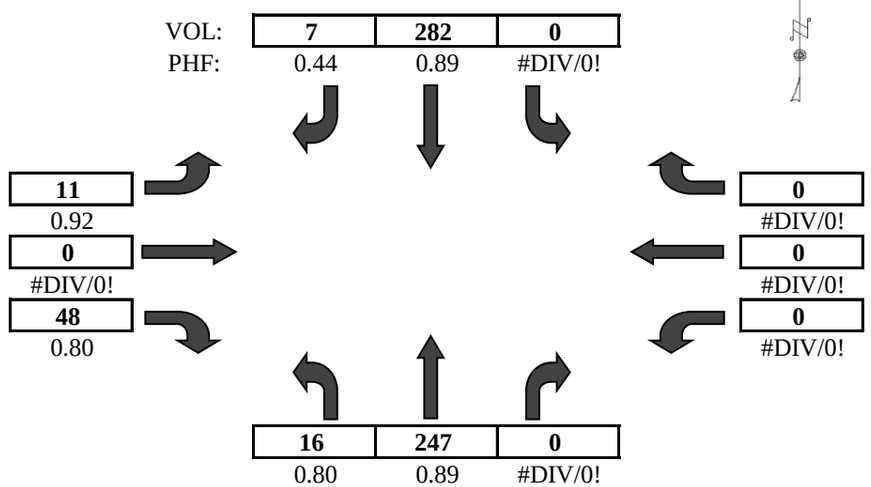
COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**611**
PHF:	**0.90**
PEAK HOUR:	
FROM: TO:	
4:45 PM **5:45 PM**	

Crescent Tram

PEAK HOUR VOLUMES



Park Ave

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	5	41	0	3	0	5	0	52	6	0	0	0	112
4:15 PM	4:30 PM	4	59	0	4	0	6	0	54	6	0	0	0	133
4:30 PM	4:45 PM	4	62	0	3	0	8	0	61	4	0	0	0	142
4:45 PM	5:00 PM	5	58	0	3	0	7	0	73	4	0	0	0	150
5:00 PM	5:15 PM	4	69	0	3	0	13	0	79	1	0	0	0	169
5:15 PM	5:30 PM	3	57	0	3	0	13	0	59	2	0	0	0	137
5:30 PM	5:45 PM	4	63	0	2	0	15	0	71	0	0	0	0	155
5:45 PM	6:00 PM	3	51	0	2	0	13	0	60	1	0	0	0	130
Included HV (trucks + buses):														1,128
		0%	0%	#DIV/0!	0%	#DIV/0!	0%	#DIV/0!	0%	0%	#DIV/0!	#DIV/0!	#DIV/0!	100%

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	18	220	0	13	0	26	0	240	20	0	0	0	537
4:15 PM	5:15 PM	17	248	0	13	0	34	0	267	15	0	0	0	594
4:30 PM	5:30 PM	16	246	0	12	0	41	0	272	11	0	0	0	598
4:45 PM	5:45 PM	16	247	0	11	0	48	0	282	7	0	0	0	611
5:00 PM	6:00 PM	14	240	0	10	0	54	0	269	4	0	0	0	591

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Empire Ave***
E-W STREET: ***Silver King Dr / 15th Street***

PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

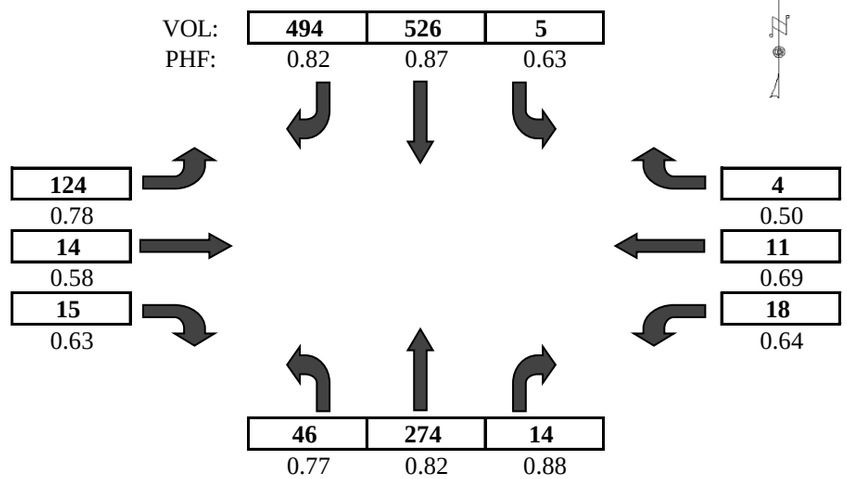
COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**1,545**
PHF:	**0.90**
PEAK HOUR:	
FROM:	TO:
8:15 AM	**9:15 AM**

Silver King Dr / 15th Street

PEAK HOUR VOLUMES



Empire Ave

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	6	49	2	10	2	3	0	111	83	2	2	0	270
8:15 AM	8:30 AM	9	65	4	20	2	4	2	149	135	2	4	2	398
8:30 AM	8:45 AM	15	62	3	33	3	4	0	151	150	4	4	0	429
8:45 AM	9:00 AM	11	84	4	40	6	6	1	140	121	7	3	0	423
9:00 AM	9:15 AM	11	63	3	31	3	1	2	86	88	5	0	2	295
9:15 AM	9:30 AM	11	65	4	22	4	5	1	69	84	5	3	0	273
9:30 AM	9:45 AM	9	75	0	21	4	4	1	92	61	1	2	0	270
9:45 AM	10:00 AM	14	56	3	26	3	4	0	74	47	1	2	0	230
Included HV (trucks + buses):		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	41	260	13	103	13	17	3	551	489	15	13	2	1,520
8:15 AM	9:15 AM	46	274	14	124	14	15	5	526	494	18	11	4	1,545
8:30 AM	9:30 AM	48	274	14	126	16	16	4	446	443	21	10	2	1,420
8:45 AM	9:45 AM	42	287	11	114	17	16	5	387	354	18	8	2	1,261
9:00 AM	10:00 AM	45	259	10	100	14	14	4	321	280	12	7	2	1,068

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Empire Ave***
E-W STREET: ***Silver King Dr / 15th Street***

PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

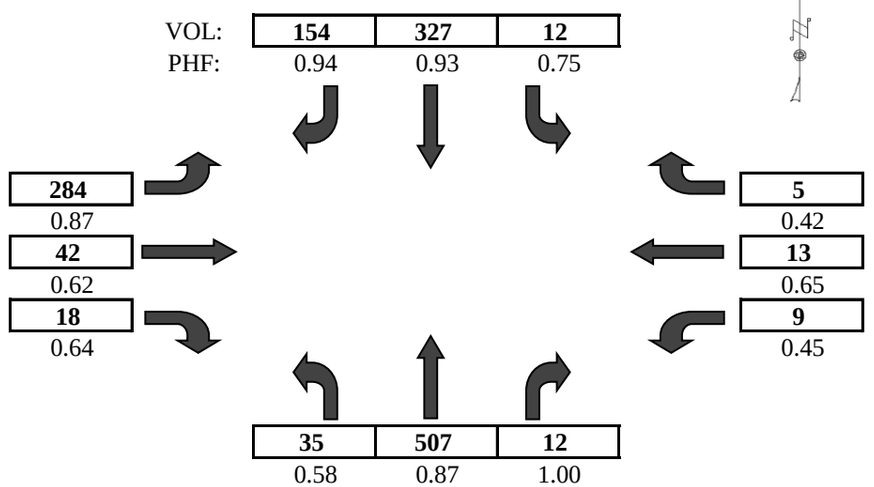
COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**1,418**
PHF:	**0.94**
PEAK HOUR:	
FROM:	TO:
4:00 PM	**5:00 PM**

Silver King Dr / 15th Street

PEAK HOUR VOLUMES



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	9	123	3	77	13	2	4	83	41	1	1	1	358
4:15 PM	4:30 PM	3	124	3	82	6	7	3	88	39	2	5	0	362
4:30 PM	4:45 PM	15	145	3	64	17	3	4	79	40	1	5	3	379
4:45 PM	5:00 PM	8	115	3	61	6	6	1	77	34	5	2	1	319
5:00 PM	5:15 PM	10	120	7	45	6	5	4	79	35	5	4	1	321
5:15 PM	5:30 PM	8	95	0	51	8	8	3	84	26	6	0	0	289
5:30 PM	5:45 PM	4	99	1	41	6	9	3	52	28	2	0	1	246
5:45 PM	6:00 PM	3	77	4	36	7	4	2	68	33	4	6	1	245
	Included HV (trucks + buses):													2,519
		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	35	507	12	284	42	18	12	327	154	9	13	5	1,418
4:15 PM	5:15 PM	36	504	16	252	35	21	12	323	148	13	16	5	1,381
4:30 PM	5:30 PM	41	475	13	221	37	22	12	319	135	17	11	5	1,308
4:45 PM	5:45 PM	30	429	11	198	26	28	11	292	123	18	6	3	1,175
5:00 PM	6:00 PM	25	391	12	173	27	26	12	283	122	17	10	3	1,101

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Empire Ave***
E-W STREET: ***Shadow Ridge***

PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

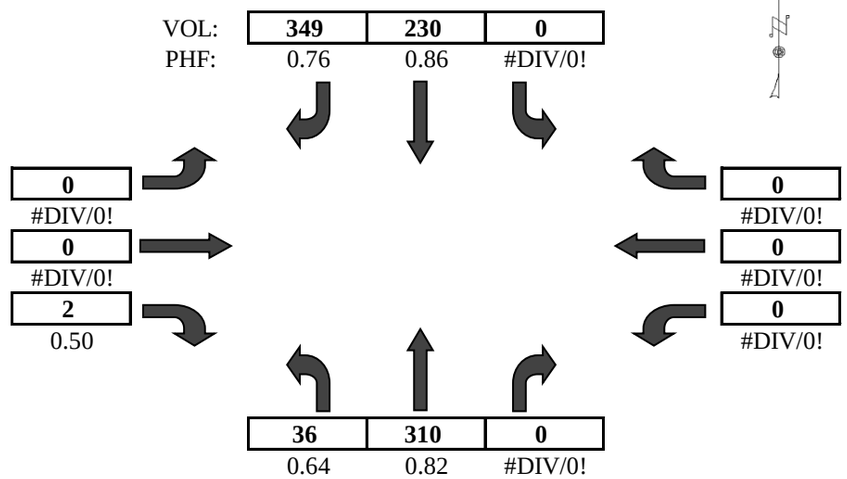
GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**927**
PHF:	**0.90**
PEAK HOUR:	
FROM:	TO:
8:00 AM	**9:00 AM**

Shadow Ridge

Empire Ave

PEAK HOUR VOLUMES



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	5	56	0	0	0	0	0	56	59	0	0	0	176
8:15 AM	8:30 AM	8	79	0	0	0	1	0	67	81	0	0	0	236
8:30 AM	8:45 AM	9	80	0	0	0	1	0	52	115	0	0	0	257
8:45 AM	9:00 AM	14	95	0	0	0	0	0	55	94	0	0	0	258
9:00 AM	9:15 AM	8	74	0	0	0	0	0	36	54	0	0	0	172
9:15 AM	9:30 AM	8	76	0	0	0	0	0	28	43	0	0	0	155
9:30 AM	9:45 AM	4	76	0	0	0	0	0	51	42	0	0	0	173
9:45 AM	10:00 AM	13	74	0	0	0	0	0	29	47	0	0	0	163
Included HV (trucks + buses):		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	36	310	0	0	0	2	0	230	349	0	0	0	927
8:15 AM	9:15 AM	39	328	0	0	0	2	0	210	344	0	0	0	923
8:30 AM	9:30 AM	39	325	0	0	0	1	0	171	306	0	0	0	842
8:45 AM	9:45 AM	34	321	0	0	0	0	0	170	233	0	0	0	758
9:00 AM	10:00 AM	33	300	0	0	0	0	0	144	186	0	0	0	663

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Empire Ave***
E-W STREET: ***Shadow Ridge***

PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

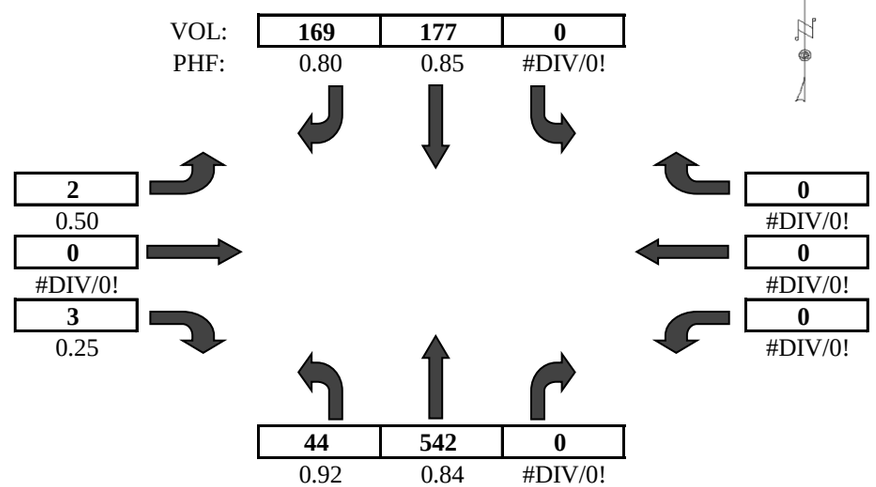
COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**937**
PHF:	**0.92**
PEAK HOUR:	
FROM: TO:	
4:15 PM **5:15 PM**	

Shadow Ridge

PEAK HOUR VOLUMES



Empire Ave

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	8	127	0	0	0	0	0	34	48	0	0	0	217
4:15 PM	4:30 PM	9	135	0	1	0	0	0	52	53	0	0	0	250
4:30 PM	4:45 PM	11	161	0	1	0	3	0	33	47	0	0	0	256
4:45 PM	5:00 PM	12	120	0	0	0	0	0	44	31	0	0	0	207
5:00 PM	5:15 PM	12	126	0	0	0	0	0	48	38	0	0	0	224
5:15 PM	5:30 PM	6	94	0	1	0	0	0	53	45	0	0	0	199
5:30 PM	5:45 PM	8	91	0	0	0	0	0	29	32	0	0	0	160
5:45 PM	6:00 PM	10	82	0	0	0	0	0	43	32	0	0	0	167
	Included HV (trucks + buses):													1,680
		0%	0%	#DIV/0!	0%	#DIV/0!	0%	#DIV/0!	0%	0%	#DIV/0!	#DIV/0!	#DIV/0!	100%

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	40	543	0	2	0	3	0	163	179	0	0	0	930
4:15 PM	5:15 PM	44	542	0	2	0	3	0	177	169	0	0	0	937
4:30 PM	5:30 PM	41	501	0	2	0	3	0	178	161	0	0	0	886
4:45 PM	5:45 PM	38	431	0	1	0	0	0	174	146	0	0	0	790
5:00 PM	6:00 PM	36	393	0	1	0	0	0	173	147	0	0	0	750

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Empire Ave***
E-W STREET: ***14th Street***

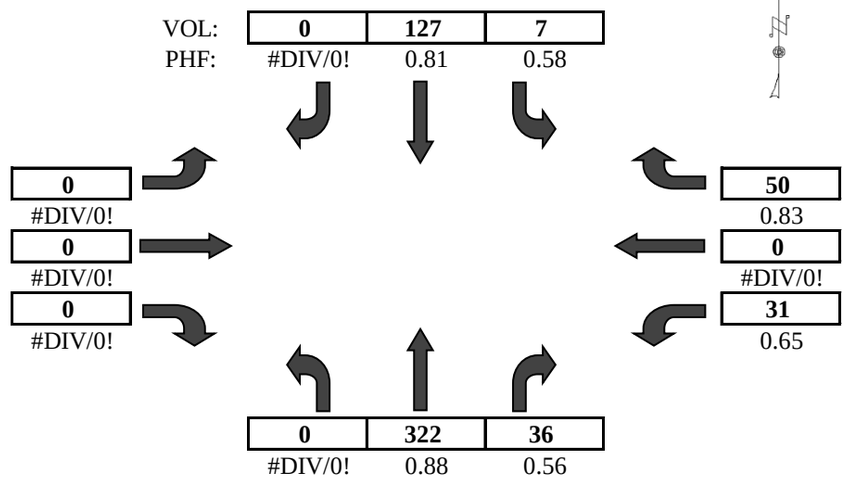
PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**573**
PHF:	**0.86**
PEAK HOUR:	
FROM:	TO:
8:15 AM	**9:15 AM**

PEAK HOUR VOLUMES



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	0	57	4	0	0	0	2	29	0	3	0	4	99
8:15 AM	8:30 AM	0	85	5	0	0	0	1	39	0	5	0	15	150
8:30 AM	8:45 AM	0	73	10	0	0	0	1	27	0	10	0	13	134
8:45 AM	9:00 AM	0	91	16	0	0	0	3	30	0	12	0	15	167
9:00 AM	9:15 AM	0	73	5	0	0	0	2	31	0	4	0	7	122
9:15 AM	9:30 AM	0	71	8	0	0	0	2	24	0	2	0	5	112
9:30 AM	9:45 AM	0	73	5	0	0	0	0	47	0	6	0	2	133
9:45 AM	10:00 AM	0	79	16	0	0	0	2	24	0	3	0	5	129
Included HV (trucks + buses):		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	0	306	35	0	0	0	7	125	0	30	0	47	550
8:15 AM	9:15 AM	0	322	36	0	0	0	7	127	0	31	0	50	573
8:30 AM	9:30 AM	0	308	39	0	0	0	8	112	0	28	0	40	535
8:45 AM	9:45 AM	0	308	34	0	0	0	7	132	0	24	0	29	534
9:00 AM	10:00 AM	0	296	34	0	0	0	6	126	0	15	0	19	496

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Empire Ave***
E-W STREET: ***14th Street***

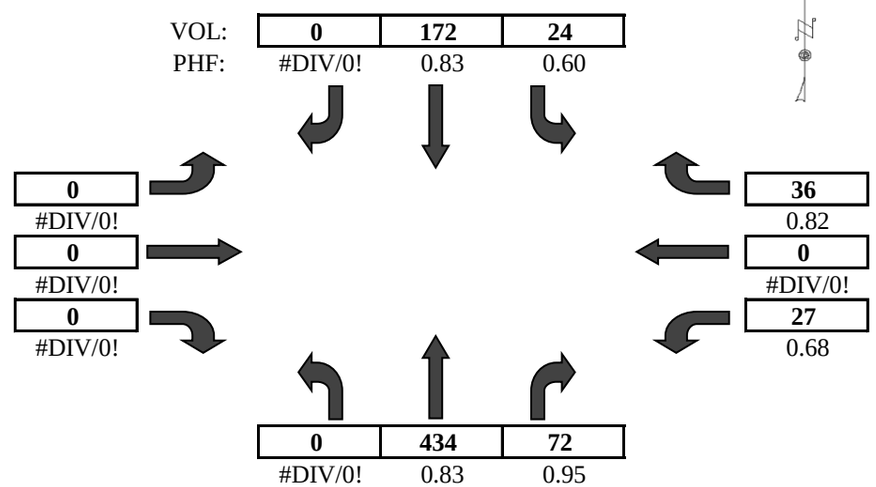
PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**765**
PHF:	**0.93**
PEAK HOUR:	
FROM: TO:	
4:15 PM **5:15 PM**	

PEAK HOUR VOLUMES



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	0	97	10	0	0	0	3	34	0	5	0	2	151
4:15 PM	4:30 PM	0	101	19	0	0	0	10	52	0	6	0	8	196
4:30 PM	4:45 PM	0	131	19	0	0	0	5	36	0	6	0	8	205
4:45 PM	5:00 PM	0	95	19	0	0	0	6	36	0	10	0	11	177
5:00 PM	5:15 PM	0	107	15	0	0	0	3	48	0	5	0	9	187
5:15 PM	5:30 PM	0	79	13	0	0	0	10	38	0	4	0	5	149
5:30 PM	5:45 PM	0	79	7	0	0	0	5	25	0	2	0	8	126
5:45 PM	6:00 PM	0	76	6	0	0	0	5	37	0	4	0	7	135
	Included HV (trucks + buses):													1,326
		#DIV/0!	0%	0%	#DIV/0!	#DIV/0!	#DIV/0!	0%	0%	#DIV/0!	0%	#DIV/0!	0%	100%

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	0	424	67	0	0	0	24	158	0	27	0	29	729
4:15 PM	5:15 PM	0	434	72	0	0	0	24	172	0	27	0	36	765
4:30 PM	5:30 PM	0	412	66	0	0	0	24	158	0	25	0	33	718
4:45 PM	5:45 PM	0	360	54	0	0	0	24	147	0	21	0	33	639
5:00 PM	6:00 PM	0	341	41	0	0	0	23	148	0	15	0	29	597

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Empire Ave***
E-W STREET: ***Manor Way***

PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

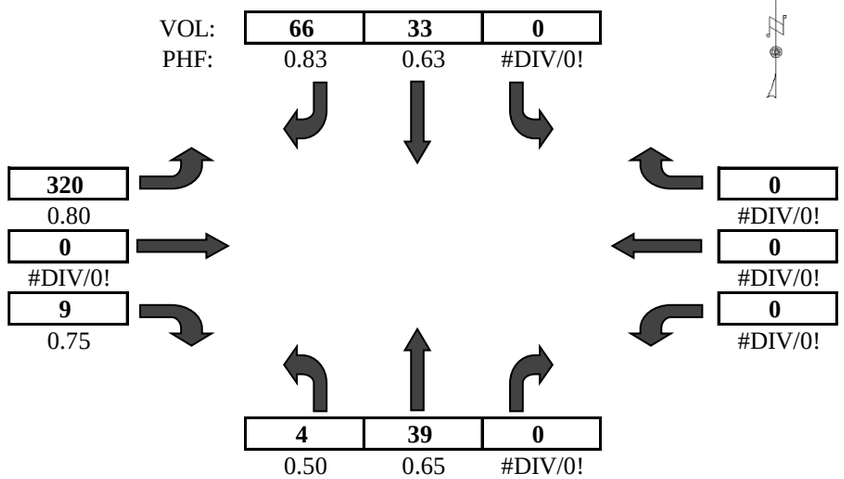
COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**471**
PHF:	**0.87**
PEAK HOUR:	
FROM:	TO:
8:15 AM	**9:15 AM**

Manor Way

PEAK HOUR VOLUMES



Empire Ave

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	0	5	0	50	0	1	0	2	14	0	0	0	72
8:15 AM	8:30 AM	0	15	0	75	0	1	0	13	17	0	0	0	121
8:30 AM	8:45 AM	0	11	0	75	0	2	0	4	19	0	0	0	111
8:45 AM	9:00 AM	2	6	0	100	0	3	0	4	20	0	0	0	135
9:00 AM	9:15 AM	2	7	0	70	0	3	0	12	10	0	0	0	104
9:15 AM	9:30 AM	1	9	0	60	0	4	0	5	13	0	0	0	92
9:30 AM	9:45 AM	0	7	0	68	0	2	0	10	25	0	0	0	112
9:45 AM	10:00 AM	0	17	0	75	0	2	0	6	10	0	0	0	110
Included HV (trucks + buses):		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	2	37	0	300	0	7	0	23	70	0	0	0	439
8:15 AM	9:15 AM	4	39	0	320	0	9	0	33	66	0	0	0	471
8:30 AM	9:30 AM	5	33	0	305	0	12	0	25	62	0	0	0	442
8:45 AM	9:45 AM	5	29	0	298	0	12	0	31	68	0	0	0	443
9:00 AM	10:00 AM	3	40	0	273	0	11	0	33	58	0	0	0	418

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Empire Ave***
E-W STREET: ***Manor Way***

PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

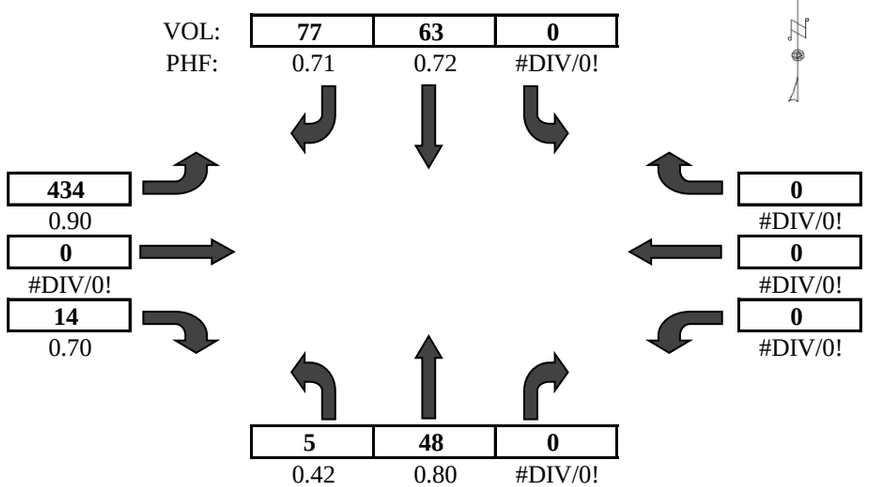
COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**641**
PHF:	**0.95**
PEAK HOUR:	
FROM: TO:	
4:15 PM **5:15 PM**	

Manor Way

PEAK HOUR VOLUMES



Empire Ave

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	2	13	0	90	0	4	0	8	12	0	0	0	129
4:15 PM	4:30 PM	2	9	0	115	0	3	0	13	27	0	0	0	169
4:30 PM	4:45 PM	0	15	0	121	0	2	0	13	12	0	0	0	163
4:45 PM	5:00 PM	3	9	0	97	0	4	0	15	19	0	0	0	147
5:00 PM	5:15 PM	0	15	0	101	0	5	0	22	19	0	0	0	162
5:15 PM	5:30 PM	0	10	0	84	0	7	0	21	16	0	0	0	138
5:30 PM	5:45 PM	0	14	0	64	0	4	0	16	9	0	0	0	107
5:45 PM	6:00 PM	0	16	0	65	0	5	0	17	20	0	0	0	123
	Included HV (trucks + buses):													1,138
		0%	0%	#DIV/0!	0%	#DIV/0!	0%	#DIV/0!	0%	0%	#DIV/0!	#DIV/0!	#DIV/0!	100%

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	7	46	0	423	0	13	0	49	70	0	0	0	608
4:15 PM	5:15 PM	5	48	0	434	0	14	0	63	77	0	0	0	641
4:30 PM	5:30 PM	3	49	0	403	0	18	0	71	66	0	0	0	610
4:45 PM	5:45 PM	3	48	0	346	0	20	0	74	63	0	0	0	554
5:00 PM	6:00 PM	0	55	0	314	0	21	0	76	64	0	0	0	530

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Empire Ave***
E-W STREET: ***Crescent Tram / Private Access***

PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

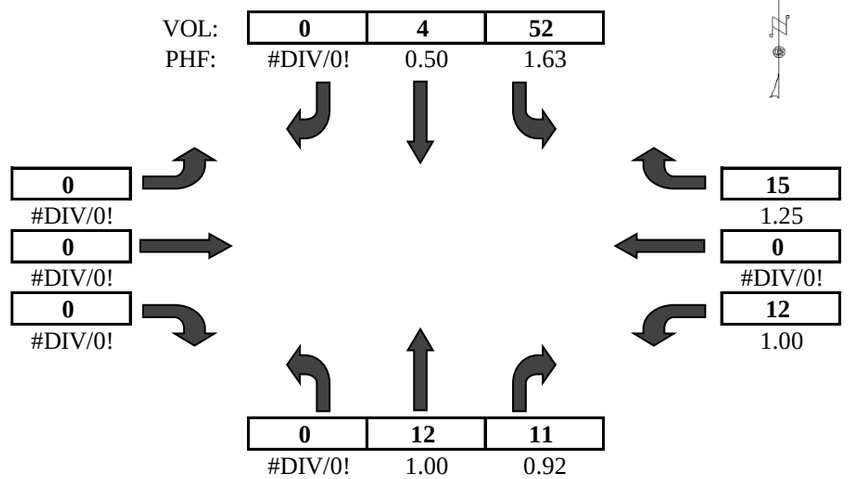
COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**53**
PHF:	**0.78**
PEAK HOUR:	
FROM:	TO:
5:45 PM	**7:45 PM**

Crescent Tram / Private Access

PEAK HOUR VOLUMES



Empire Ave

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	0	1	1	0	0	0	1	0	1	0	0	2	6
8:15 AM	8:30 AM	0	1	0	0	0	0	2	0	2	0	0	3	8
8:30 AM	8:45 AM	0	1	0	0	0	0	2	1	0	0	0	5	9
8:45 AM	9:00 AM	0	1	3	0	0	0	5	0	0	0	0	3	12
9:00 AM	9:15 AM	0	0	0	0	0	0	8	0	0	2	0	2	12
9:15 AM	9:30 AM	0	3	2	0	0	0	8	0	0	3	0	1	17
9:30 AM	9:45 AM	0	1	1	0	0	0	5	1	0	1	0	3	12
9:45 AM	10:00 AM	0	3	2	0	0	0	5	2	0	0	0	0	12
Included HV (trucks + buses):		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	0	4	4	0	0	0	10	1	3	0	0	13	35
8:15 AM	9:15 AM	0	3	3	0	0	0	17	1	2	2	0	13	41
8:30 AM	9:30 AM	0	5	5	0	0	0	23	1	0	5	0	11	50
8:45 AM	9:45 AM	0	5	6	0	0	0	26	1	0	6	0	9	53
9:00 AM	10:00 AM	0	7	5	0	0	0	26	3	0	6	0	6	53

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Empire Ave***
E-W STREET: ***Crescent Tram / Private Access***

PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

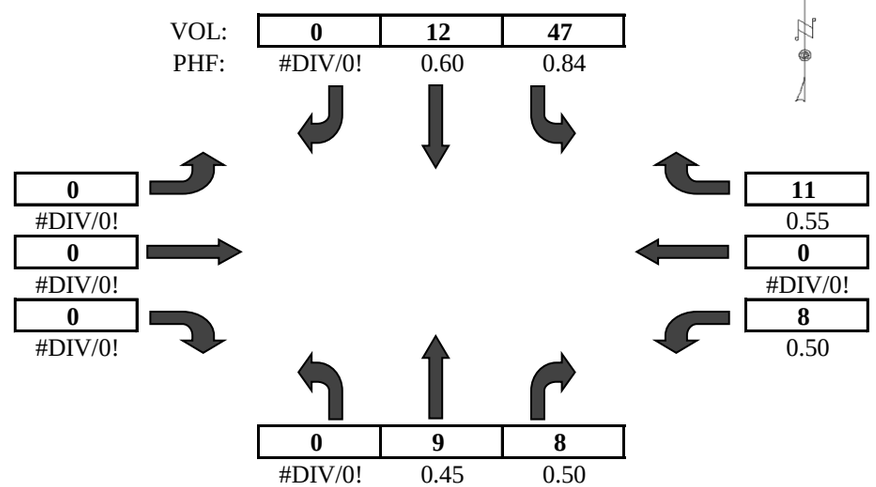
COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**95**
PHF:	**0.82**
PEAK HOUR:	
FROM:	TO:
5:00 PM	**6:00 PM**

Crescent Tram / Private Access

PEAK HOUR VOLUMES



Empire Ave

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	0	1	1	0	0	0	5	2	0	1	0	6	16
4:15 PM	4:30 PM	0	0	3	0	0	0	9	2	0	0	0	7	21
4:30 PM	4:45 PM	0	1	2	0	0	0	6	5	0	0	0	3	17
4:45 PM	5:00 PM	0	3	3	0	0	0	7	1	0	2	0	2	18
5:00 PM	5:15 PM	0	5	1	0	0	0	11	4	0	1	0	5	27
5:15 PM	5:30 PM	0	0	4	0	0	0	14	5	0	4	0	2	29
5:30 PM	5:45 PM	0	2	1	0	0	0	12	1	0	2	0	2	20
5:45 PM	6:00 PM	0	2	2	0	0	0	10	2	0	1	0	2	19
	Included HV (trucks + buses):													167
		#DIV/0!	0%	0%	#DIV/0!	#DIV/0!	#DIV/0!	0%	0%	#DIV/0!	0%	#DIV/0!	0%	100%

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	0	5	9	0	0	0	27	10	0	3	0	18	72
4:15 PM	5:15 PM	0	9	9	0	0	0	33	12	0	3	0	17	83
4:30 PM	5:30 PM	0	9	10	0	0	0	38	15	0	7	0	12	91
4:45 PM	5:45 PM	0	10	9	0	0	0	44	11	0	9	0	11	94
5:00 PM	6:00 PM	0	9	8	0	0	0	47	12	0	8	0	11	95

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Lowell Avenue***
E-W STREET: ***Shadow Ridge***

PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

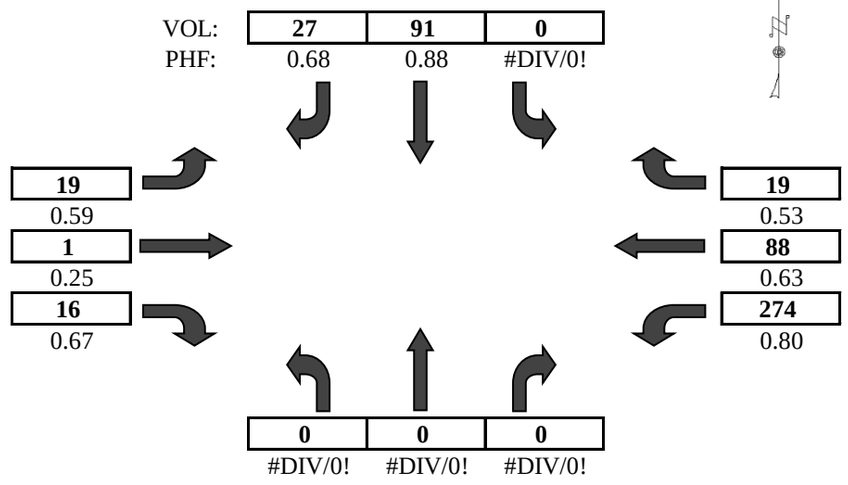
COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**535**
PHF:	**0.79**
PEAK HOUR:	
FROM:	TO:
8:00 AM	**9:00 AM**

Shadow Ridge

PEAK HOUR VOLUMES



Lowell Avenue

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	0	0	0	2	0	2	0	23	7	50	9	6	99
8:15 AM	8:30 AM	0	0	0	3	0	3	0	26	5	66	13	3	119
8:30 AM	8:45 AM	0	0	0	8	1	5	0	24	10	86	35	1	170
8:45 AM	9:00 AM	0	0	0	6	0	6	0	18	5	72	31	9	147
9:00 AM	9:15 AM	0	0	0	7	0	2	0	19	3	43	15	8	97
9:15 AM	9:30 AM	0	0	0	1	0	4	0	18	5	36	7	6	77
9:30 AM	9:45 AM	0	0	0	2	0	5	0	14	6	38	9	7	81
9:45 AM	10:00 AM	0	2	0	5	2	2	0	11	1	45	11	4	83
Included HV (trucks + buses):		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	0	0	0	19	1	16	0	91	27	274	88	19	535
8:15 AM	9:15 AM	0	0	0	24	1	16	0	87	23	267	94	21	533
8:30 AM	9:30 AM	0	0	0	22	1	17	0	79	23	237	88	24	491
8:45 AM	9:45 AM	0	0	0	16	0	17	0	69	19	189	62	30	402
9:00 AM	10:00 AM	0	2	0	15	2	13	0	62	15	162	42	25	338

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Lowell Avenue***
E-W STREET: ***Shadow Ridge***

PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

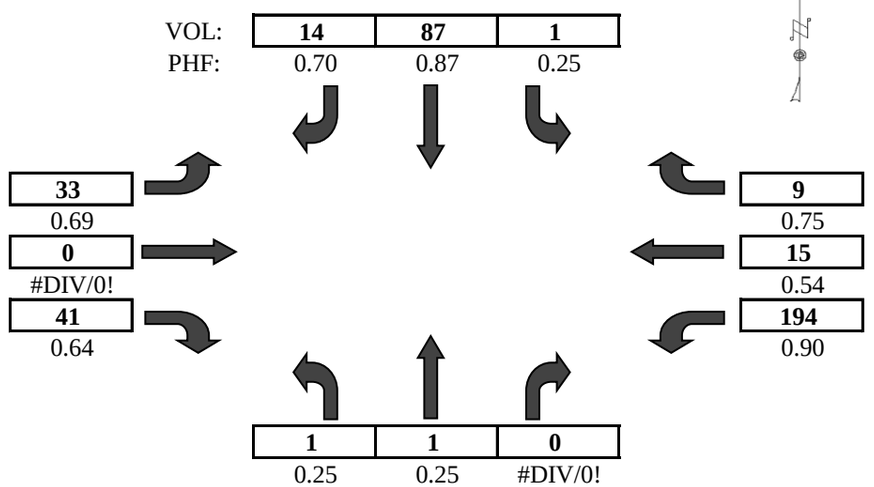
COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**396**
PHF:	**0.93**
PEAK HOUR:	
FROM: TO:	
4:00 PM **5:00 PM**	

Shadow Ridge

PEAK HOUR VOLUMES



Lowell Avenue

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	0	0	0	7	0	10	0	21	4	49	7	3	101
4:15 PM	4:30 PM	0	0	0	4	0	16	1	24	5	52	3	2	107
4:30 PM	4:45 PM	1	0	0	10	0	9	0	25	2	54	3	1	105
4:45 PM	5:00 PM	0	1	0	12	0	6	0	17	3	39	2	3	83
5:00 PM	5:15 PM	0	2	2	7	0	8	0	26	0	43	3	5	96
5:15 PM	5:30 PM	0	9	1	7	0	1	1	15	2	36	7	1	80
5:30 PM	5:45 PM	0	7	0	3	0	5	0	15	2	34	3	3	72
5:45 PM	6:00 PM	1	1	1	6	0	2	1	13	4	39	1	2	71
	Included HV (trucks + buses):													715
		0%	0%	0%	0%	#DIV/0!	0%	0%	0%	0%	0%	0%	0%	100%

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	1	1	0	33	0	41	1	87	14	194	15	9	396
4:15 PM	5:15 PM	1	3	2	33	0	39	1	92	10	188	11	11	391
4:30 PM	5:30 PM	1	12	3	36	0	24	1	83	7	172	15	10	364
4:45 PM	5:45 PM	0	19	3	29	0	20	1	73	7	152	15	12	331
5:00 PM	6:00 PM	1	19	4	23	0	16	2	69	8	152	14	11	319

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Lowell Avenue***
E-W STREET: ***Manor Way***

PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

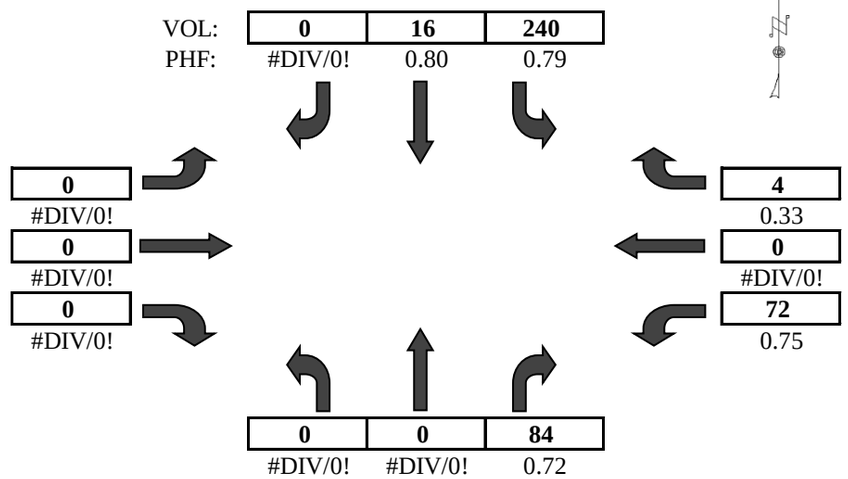
COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**416**
PHF:	**0.78**
PEAK HOUR:	
FROM:	TO:
8:15 AM	**9:15 AM**

Manor Way

PEAK HOUR VOLUMES



Lowell Avenue

COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	0	0	21	0	0	0	32	6	0	11	0	1	71
8:15 AM	8:30 AM	0	0	22	0	0	0	52	4	0	20	0	3	101
8:30 AM	8:45 AM	0	0	15	0	0	0	59	3	0	16	0	0	93
8:45 AM	9:00 AM	0	0	29	0	0	0	76	5	0	24	0	0	134
9:00 AM	9:15 AM	0	0	18	0	0	0	53	4	0	12	0	1	88
9:15 AM	9:30 AM	0	0	14	0	0	0	51	5	0	11	0	0	81
9:30 AM	9:45 AM	0	0	17	0	0	0	53	6	0	18	0	1	95
9:45 AM	10:00 AM	0	0	29	0	0	0	49	8	0	13	0	0	99
Included HV (trucks + buses):		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	0	0	87	0	0	0	219	18	0	71	0	4	399
8:15 AM	9:15 AM	0	0	84	0	0	0	240	16	0	72	0	4	416
8:30 AM	9:30 AM	0	0	76	0	0	0	239	17	0	63	0	1	396
8:45 AM	9:45 AM	0	0	78	0	0	0	233	20	0	65	0	2	398
9:00 AM	10:00 AM	0	0	78	0	0	0	206	23	0	54	0	2	363

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Lowell Avenue***
E-W STREET: ***Manor Way***

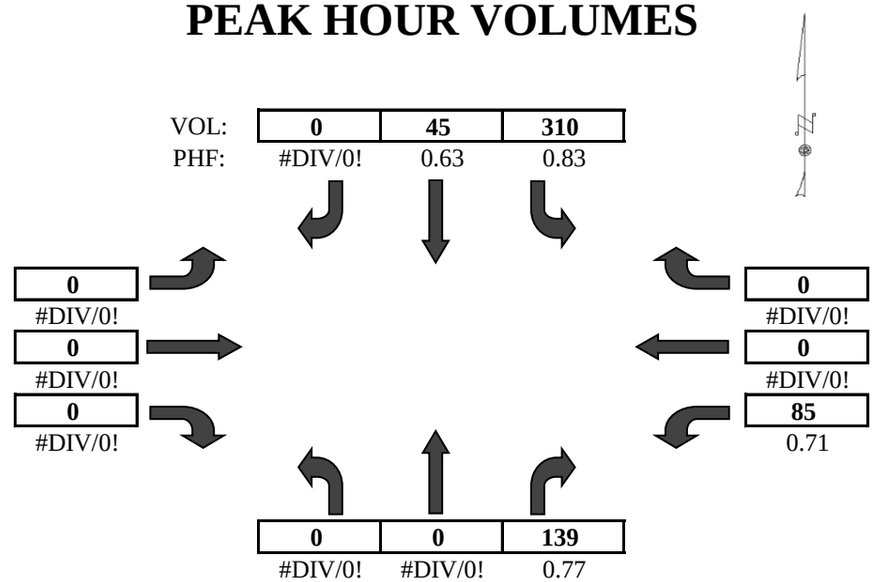
PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**579**
PHF:	**0.92**
PEAK HOUR:	
FROM: TO:	
4:15 PM **5:15 PM**	

PEAK HOUR VOLUMES



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	0	0	26	0	0	0	68	9	0	12	0	0	115
4:15 PM	4:30 PM	0	0	34	0	0	0	82	11	0	30	0	0	157
4:30 PM	4:45 PM	0	0	31	0	0	0	93	5	0	12	0	0	141
4:45 PM	5:00 PM	0	0	29	0	0	0	71	11	0	24	0	0	135
5:00 PM	5:15 PM	0	0	45	0	0	0	64	18	0	19	0	0	146
5:15 PM	5:30 PM	0	0	35	0	0	0	61	9	0	15	0	1	121
5:30 PM	5:45 PM	0	0	24	0	0	0	39	13	0	8	0	0	84
5:45 PM	6:00 PM	0	0	25	0	0	0	44	5	0	19	0	0	93
	Included HV (trucks + buses):													992
		#DIV/0!	#DIV/0!	0%	#DIV/0!	#DIV/0!	#DIV/0!	0%	0%	#DIV/0!	0%	#DIV/0!	0%	100%

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	0	0	120	0	0	0	314	36	0	78	0	0	548
4:15 PM	5:15 PM	0	0	139	0	0	0	310	45	0	85	0	0	579
4:30 PM	5:30 PM	0	0	140	0	0	0	289	43	0	70	0	1	543
4:45 PM	5:45 PM	0	0	133	0	0	0	235	51	0	66	0	1	486
5:00 PM	6:00 PM	0	0	129	0	0	0	208	45	0	61	0	1	444

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION
N-S STREET: ***Lowell Avenue***
E-W STREET: ***North Star***

PROJECT NO.: ***16-001***
COUNT DATE: ***February 28, 2017***
NOTES:

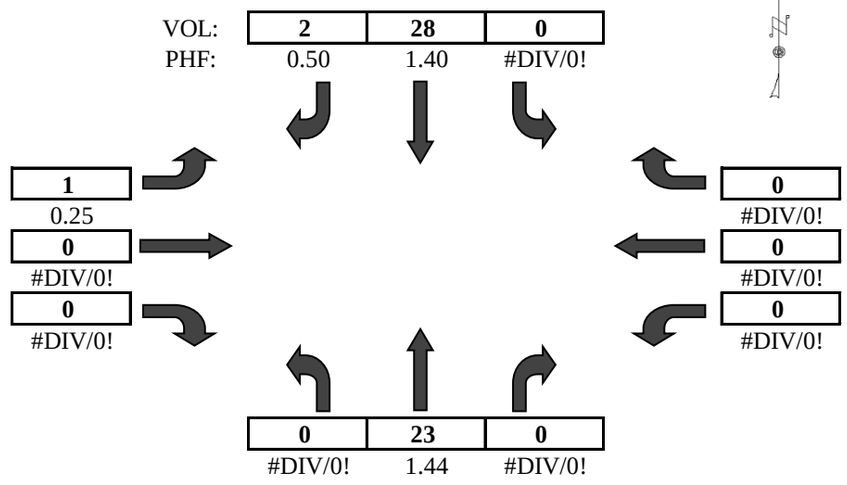
COUNT TIME
FROM: ***8:00 AM***
TO: ***10:00 AM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**27**
PHF:	**0.75**
PEAK HOUR:	
FROM:	TO:
5:45 PM	**7:45 PM**

North Star

PEAK HOUR VOLUMES



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	8:15 AM	1	0	0	0	0	0	0	2	0	0	0	0	3
8:15 AM	8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
8:30 AM	8:45 AM	0	1	0	0	0	0	0	1	0	0	0	0	2
8:45 AM	9:00 AM	0	1	0	1	0	0	0	3	0	0	0	0	5
9:00 AM	9:15 AM	0	2	0	0	0	0	0	1	1	0	0	0	4
9:15 AM	9:30 AM	0	4	0	0	0	0	0	5	0	0	0	0	9
9:30 AM	9:45 AM	0	4	0	0	0	0	0	5	0	0	0	0	9
9:45 AM	10:00 AM	0	2	0	0	0	0	0	3	0	0	0	0	5
Included HV (trucks + buses):		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	

HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
8:00 AM	9:00 AM	1	2	0	1	0	1	0	6	0	0	0	0	11
8:15 AM	9:15 AM	0	4	0	1	0	1	0	5	1	0	0	0	12
8:30 AM	9:30 AM	0	8	0	1	0	0	0	10	1	0	0	0	20
8:45 AM	9:45 AM	0	11	0	1	0	0	0	14	1	0	0	0	27
9:00 AM	10:00 AM	0	12	0	0	0	0	0	14	1	0	0	0	27

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TURNING MOVEMENT COUNT SUMMARY

INTERSECTION:
N-S STREET: ***Lowell Avenue***
E-W STREET: ***North Star***

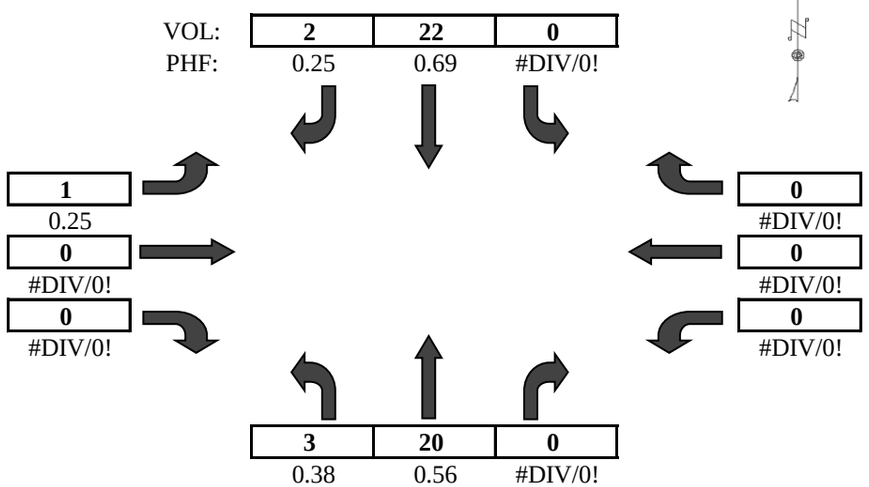
PROJECT NO.: ***16-001***
COUNT DATE: ***August 20, 2013***
NOTES:

COUNT TIME:
FROM: ***4:00 PM***
TO: ***6:00 PM***

GROWTH FACTOR: ***1.00***

PEAK HOUR VOLUM	**48**
PHF:	**0.71**
PEAK HOUR:	
FROM: TO:	
4:45 PM **5:45 PM**	

PEAK HOUR VOLUMES



COUNT DATA INPUT:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	4:15 PM	0	3	0	2	0	0	0	2	0	0	0	0	7
4:15 PM	4:30 PM	0	2	0	1	0	0	0	3	1	0	0	0	7
4:30 PM	4:45 PM	0	5	0	0	0	0	0	2	0	0	0	0	7
4:45 PM	5:00 PM	0	4	0	0	0	0	0	8	0	0	0	0	12
5:00 PM	5:15 PM	1	3	0	0	0	0	0	5	2	0	0	0	11
5:15 PM	5:30 PM	2	9	0	0	0	0	0	6	0	0	0	0	17
5:30 PM	5:45 PM	0	4	0	1	0	0	0	3	0	0	0	0	8
5:45 PM	6:00 PM	0	4	0	0	0	0	0	2	0	0	0	0	6
	Included HV (trucks + buses):													75
		0%	0%	#DIV/0!	0%	#DIV/0!	#DIV/0!	#DIV/0!	0%	0%	#DIV/0!	#DIV/0!	#DIV/0!	100%

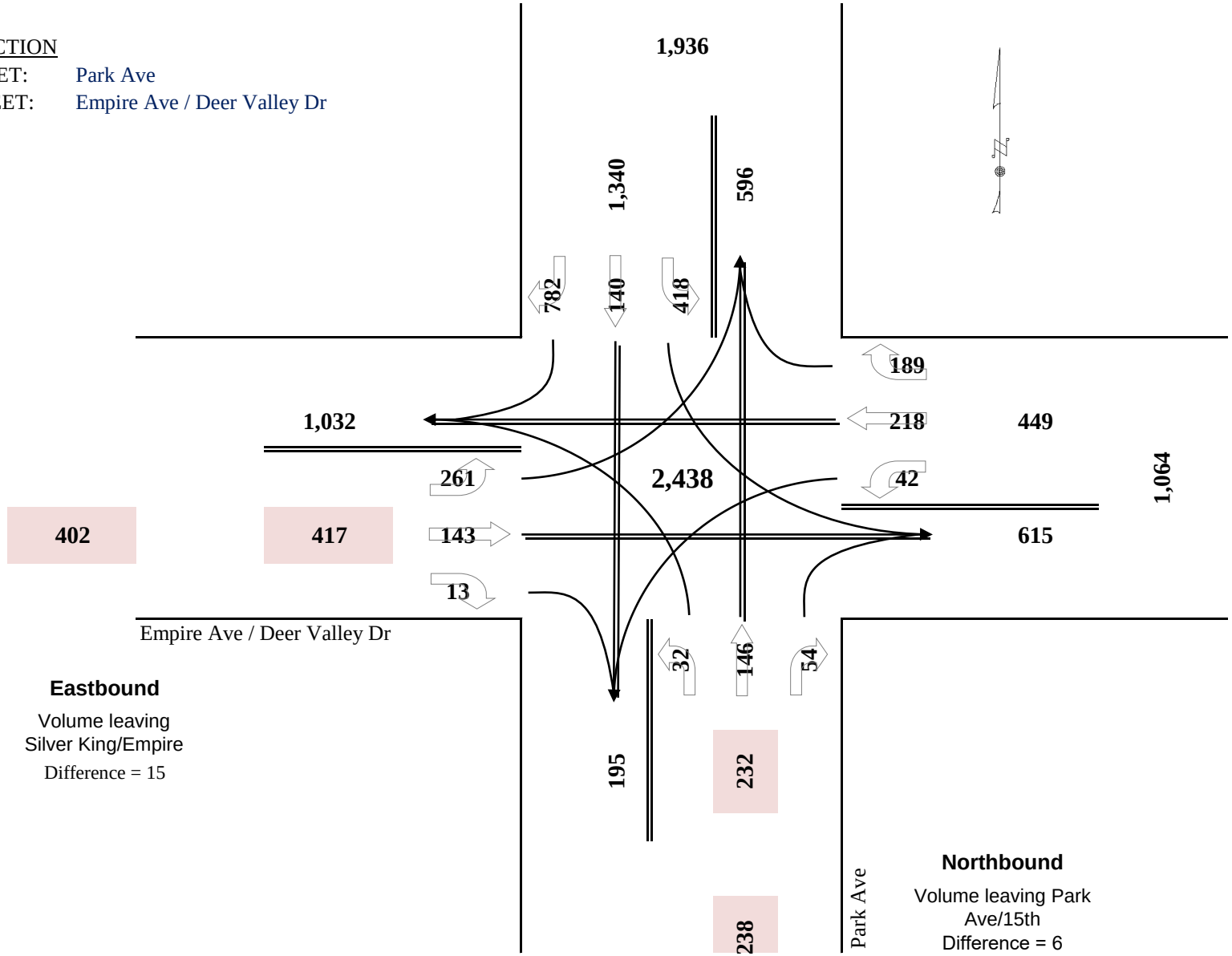
HOURLY TOTALS:

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	VOLUMES
4:00 PM	5:00 PM	0	14	0	3	0	0	0	15	1	0	0	0	33
4:15 PM	5:15 PM	1	14	0	1	0	0	0	18	3	0	0	0	37
4:30 PM	5:30 PM	3	21	0	0	0	0	0	21	2	0	0	0	47
4:45 PM	5:45 PM	3	20	0	1	0	0	0	22	2	0	0	0	48
5:00 PM	6:00 PM	3	20	0	1	0	0	0	16	2	0	0	0	42

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

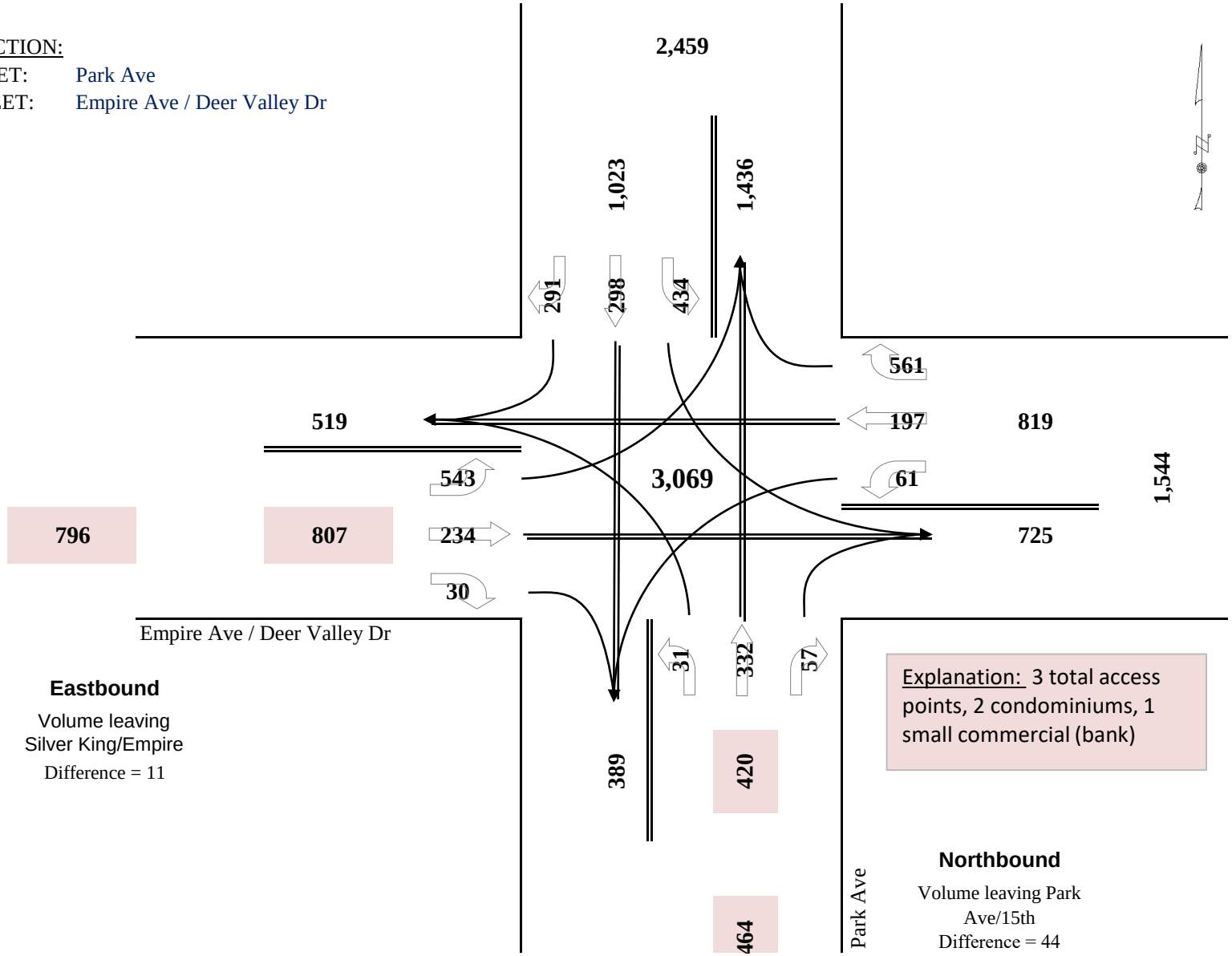
AM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION
N-S STREET: Park Ave
E-W STREET: Empire Ave / Deer Valley Dr



PM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION:
N-S STREET: Park Ave
E-W STREET: Empire Ave / Deer Valley Dr



Eastbound

Volume leaving
Silver King/Empire
Difference = 11

Explanation: 3 total access points, 2 condominiums, 1 small commercial (bank)

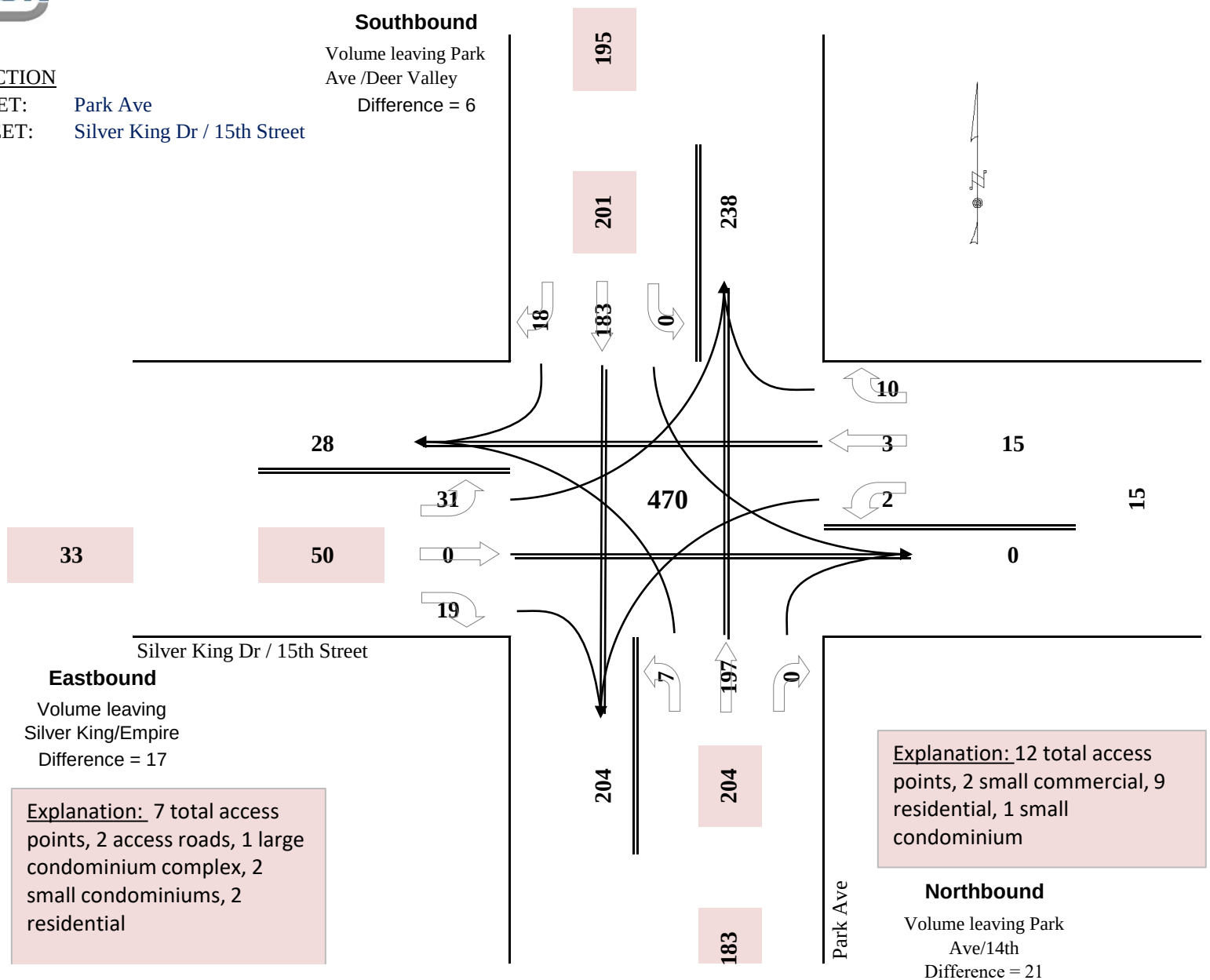
Northbound

Volume leaving Park Ave/15th
Difference = 44

AM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION
N-S STREET: Park Ave
E-W STREET: Silver King Dr / 15th Street

Southbound
Volume leaving Park Ave /Deer Valley
Difference = 6



Eastbound
Volume leaving Silver King/Empire
Difference = 17

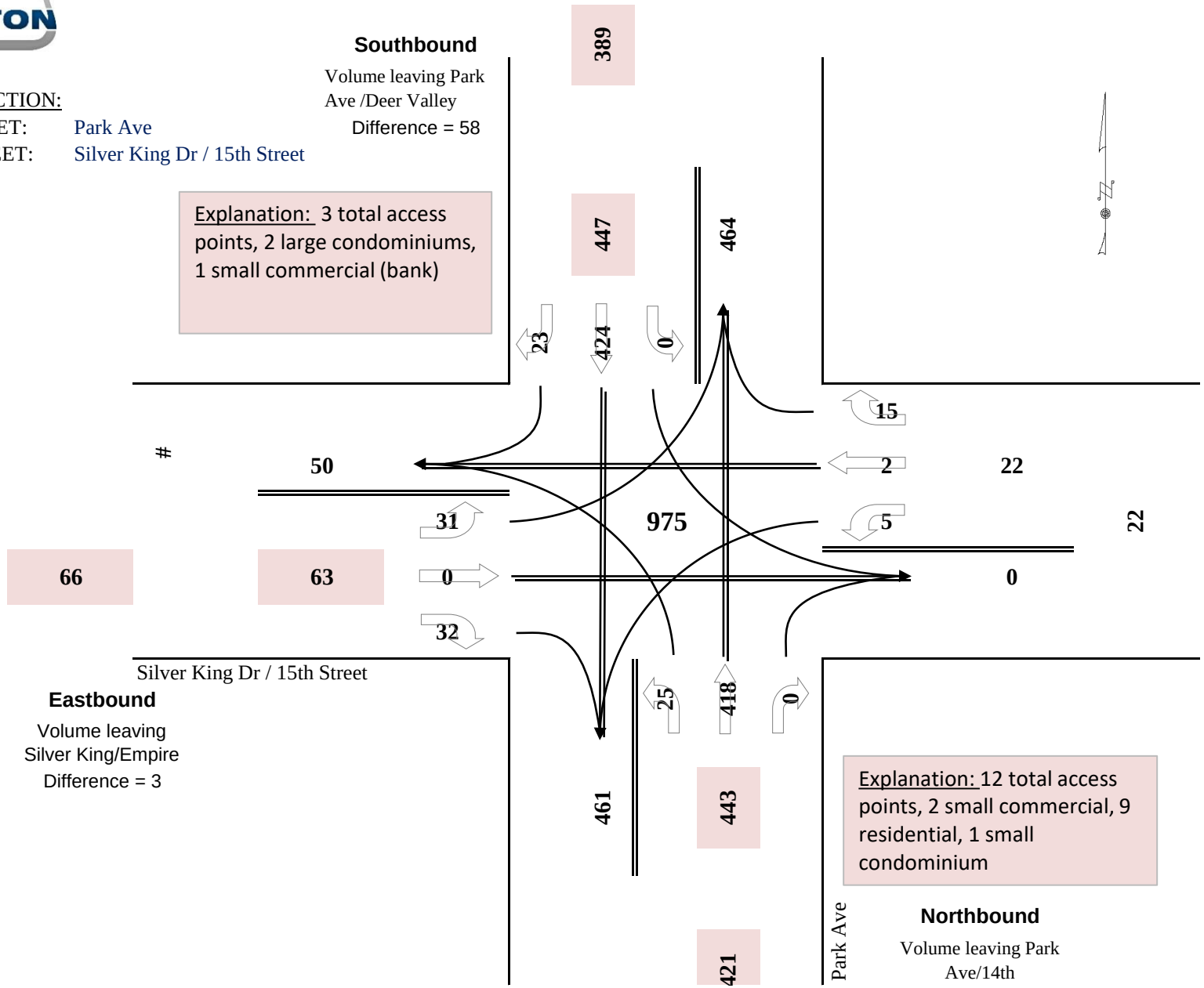
Explanation: 7 total access points, 2 access roads, 1 large condominium complex, 2 small condominiums, 2 residential

Explanation: 12 total access points, 2 small commercial, 9 residential, 1 small condominium

Northbound
Volume leaving Park Ave/14th
Difference = 21

PM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION:
N-S STREET: Park Ave
E-W STREET: Silver King Dr / 15th Street

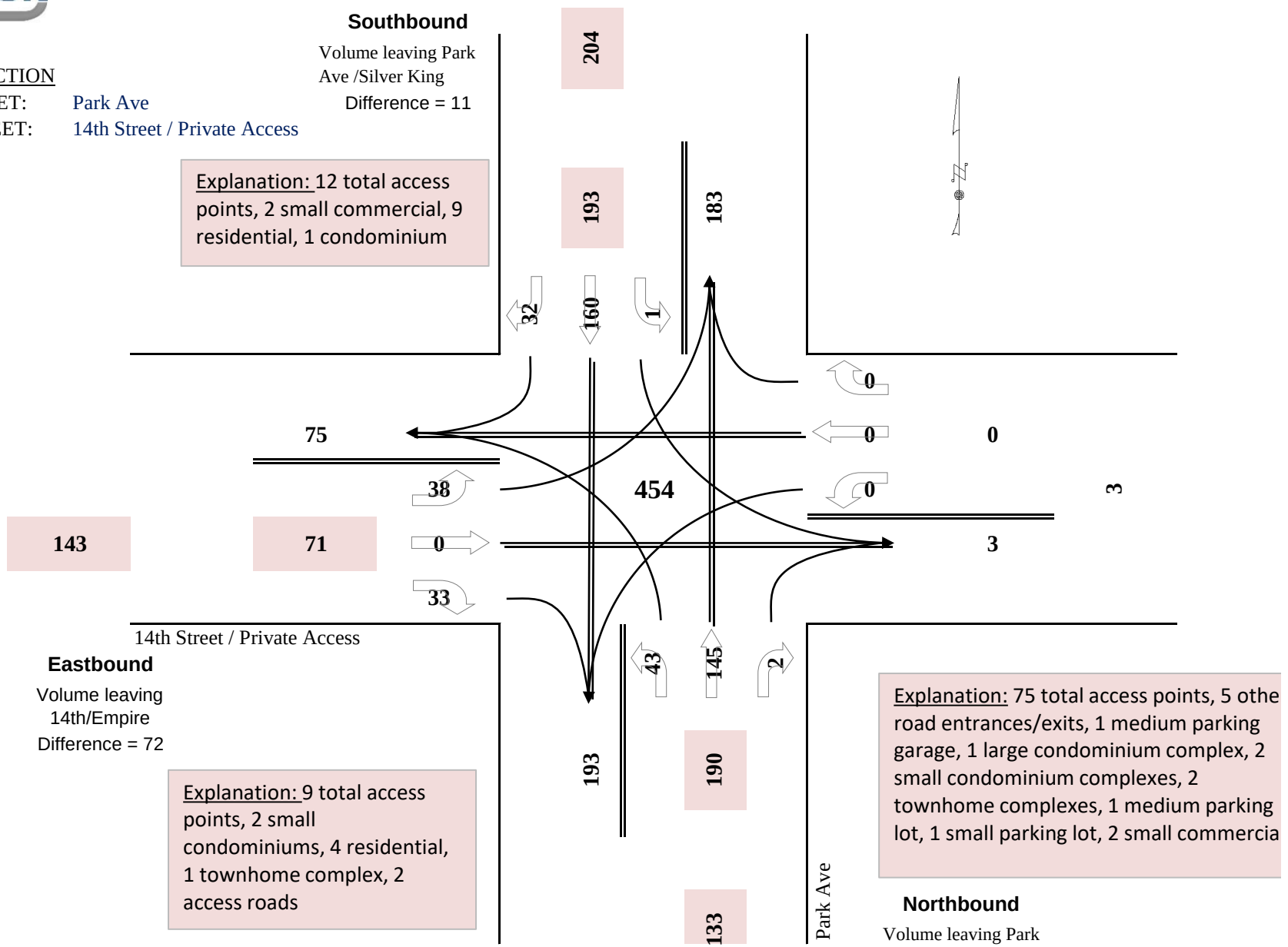


AM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION
N-S STREET: Park Ave
E-W STREET: 14th Street / Private Access

Southbound
Volume leaving Park Ave /Silver King
Difference = 11

Explanation: 12 total access points, 2 small commercial, 9 residential, 1 condominium



Eastbound
Volume leaving 14th/Empire
Difference = 72

Explanation: 9 total access points, 2 small condominiums, 4 residential, 1 townhome complex, 2 access roads

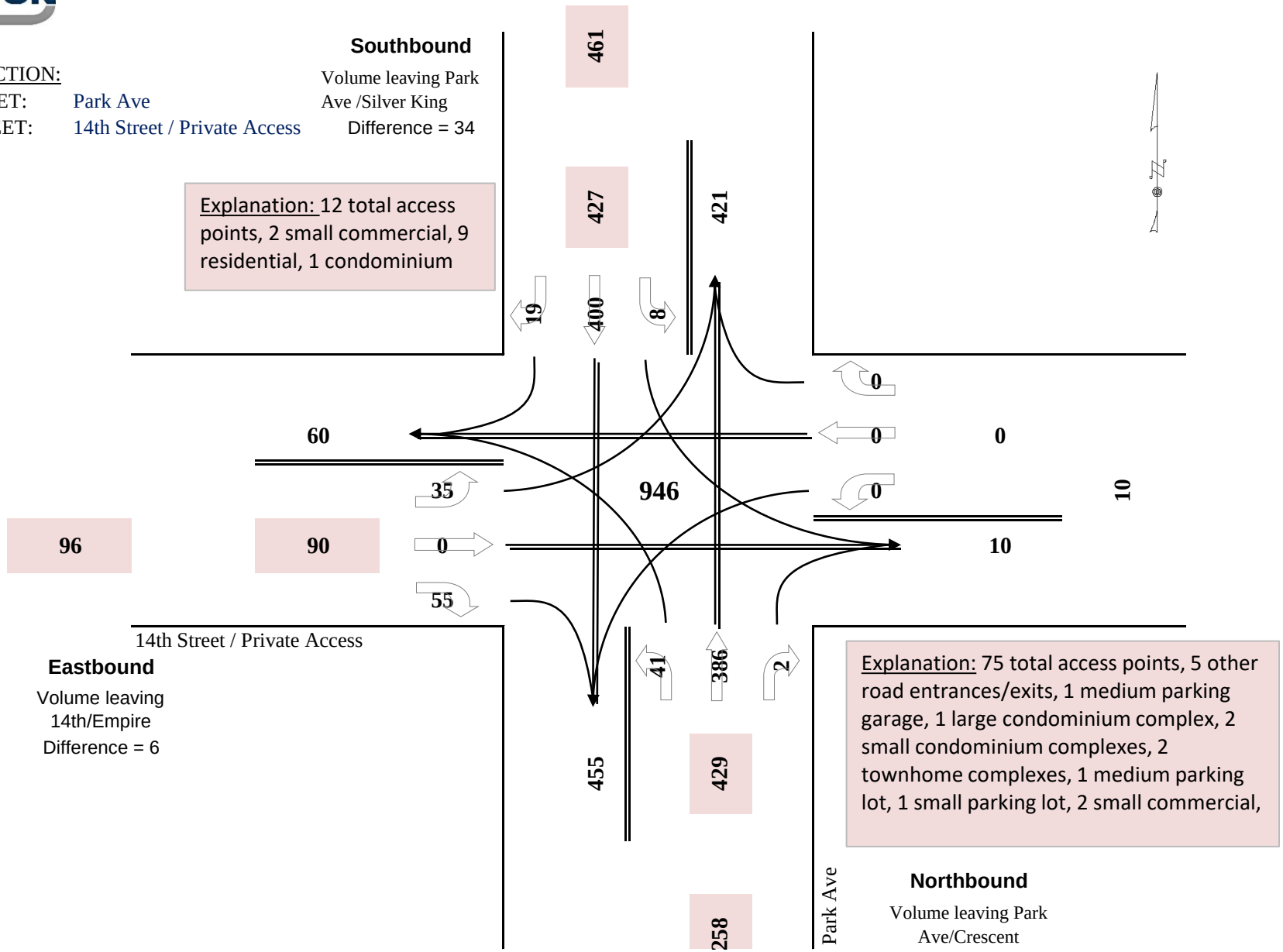
Explanation: 75 total access points, 5 othe road entrances/exits, 1 medium parking garage, 1 large condominium complex, 2 small condominium complexes, 2 townhome complexes, 1 medium parking lot, 1 small parking lot, 2 small commercia

Northbound
Volume leaving Park Ave/Crescent
Difference = 57

PM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION:
N-S STREET: Park Ave
E-W STREET: 14th Street / Private Access

Southbound
Volume leaving Park Ave /Silver King
Difference = 34



Explanation: 12 total access points, 2 small commercial, 9 residential, 1 condominium

Eastbound
Volume leaving 14th/Empire
Difference = 6

Explanation: 75 total access points, 5 other road entrances/exits, 1 medium parking garage, 1 large condominium complex, 2 small condominium complexes, 2 townhome complexes, 1 medium parking lot, 1 small parking lot, 2 small commercial,

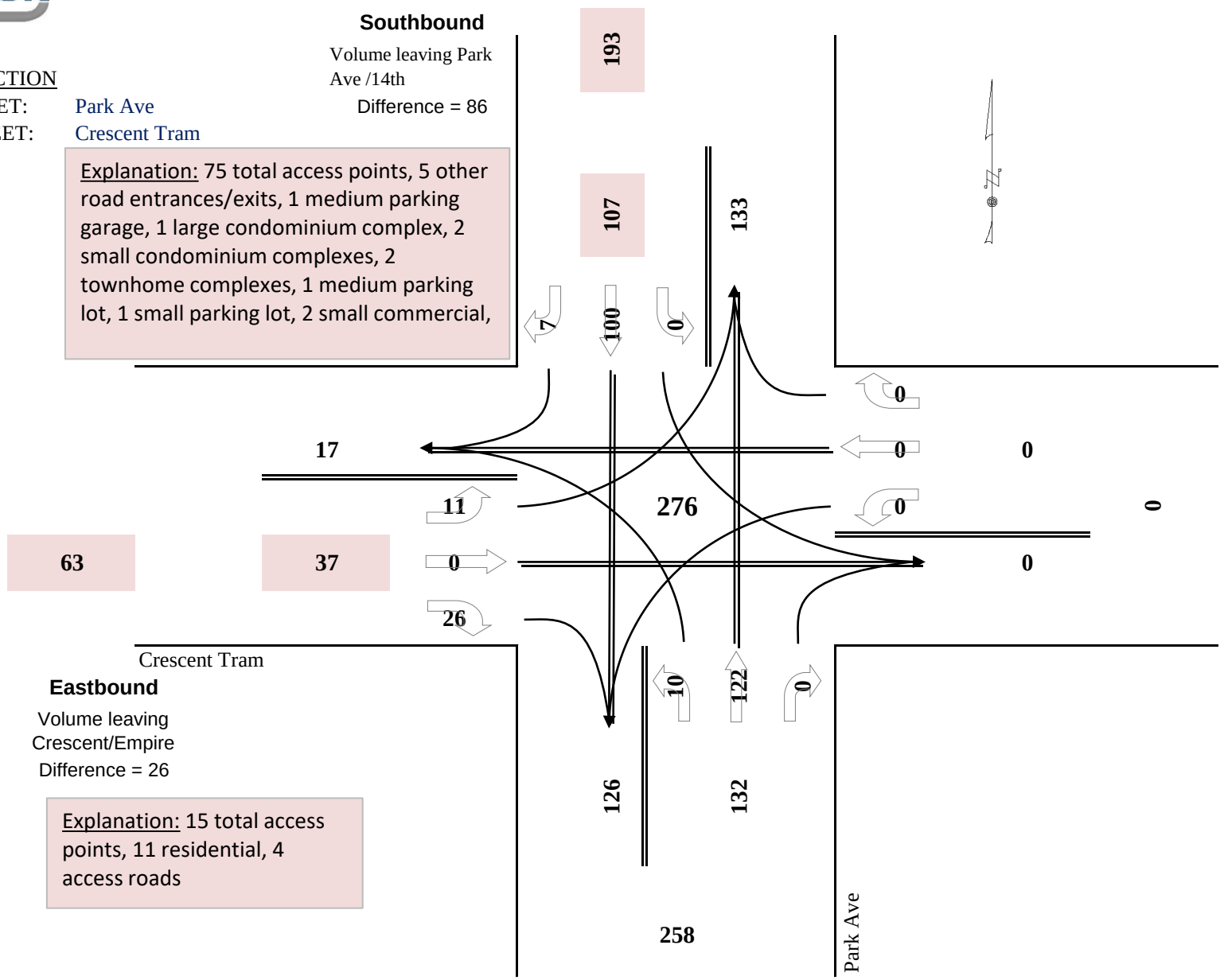
Northbound
Volume leaving Park Ave/Crescent
Difference = 171

AM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION
N-S STREET: Park Ave
E-W STREET: Crescent Tram

Southbound
Volume leaving Park Ave /14th
Difference = 86

Explanation: 75 total access points, 5 other road entrances/exits, 1 medium parking garage, 1 large condominium complex, 2 small condominium complexes, 2 townhome complexes, 1 medium parking lot, 1 small parking lot, 2 small commercial,



Eastbound
Volume leaving Crescent/Empire
Difference = 26

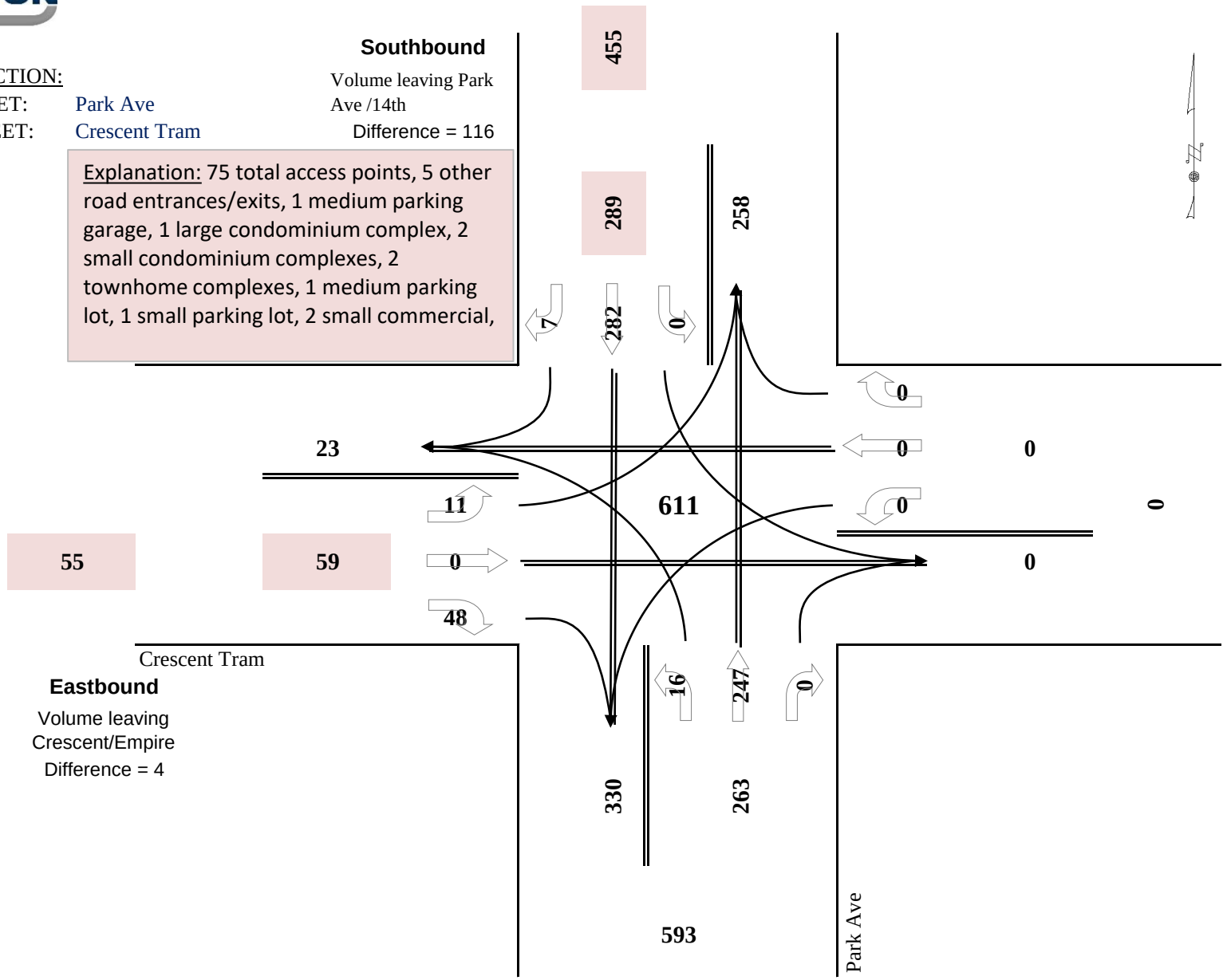
Explanation: 15 total access points, 11 residential, 4 access roads

PM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION:
N-S STREET: Park Ave
E-W STREET: Crescent Tram

Southbound
Volume leaving Park Ave /14th
Difference = 116

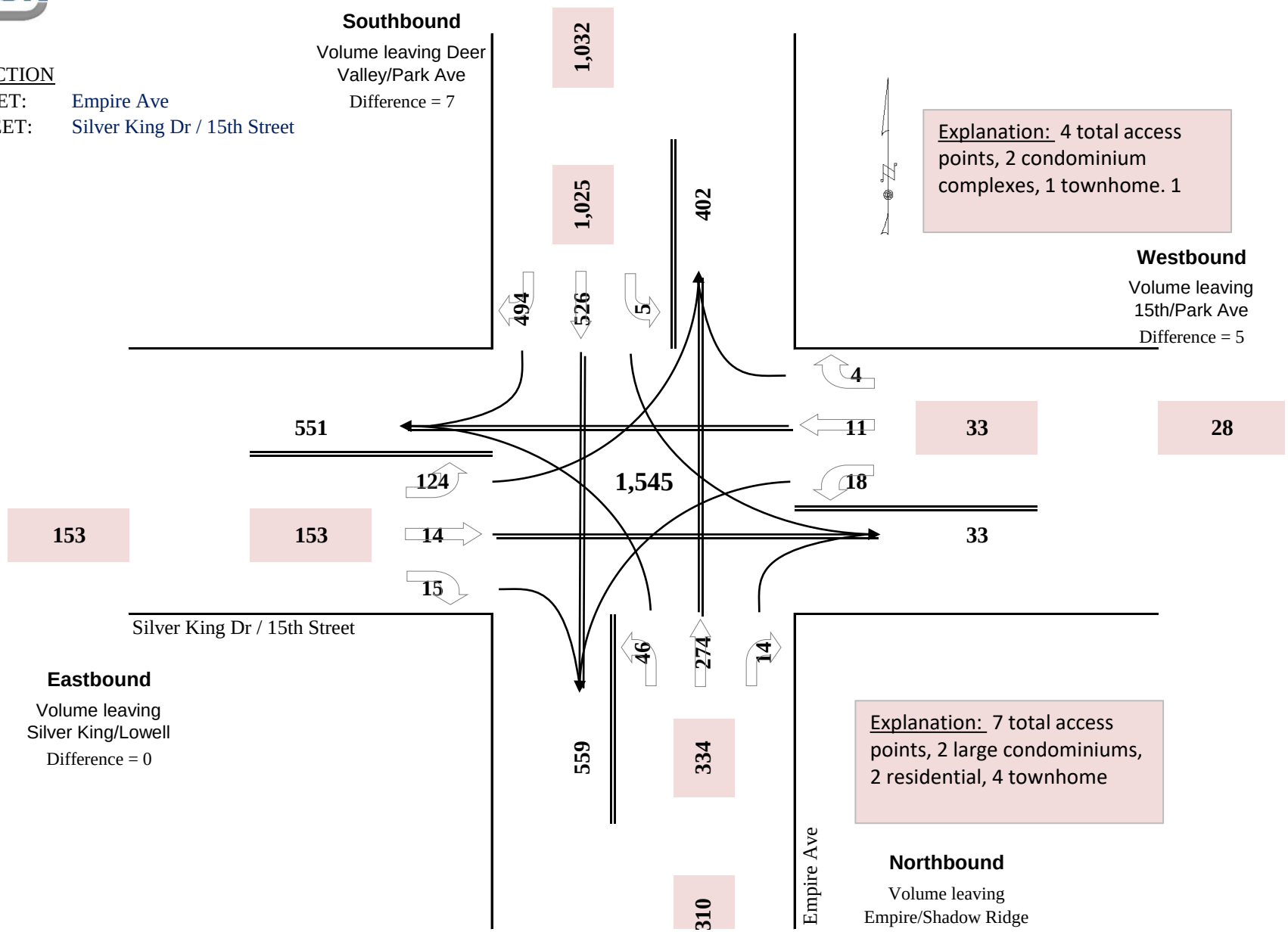
Explanation: 75 total access points, 5 other road entrances/exits, 1 medium parking garage, 1 large condominium complex, 2 small condominium complexes, 2 townhome complexes, 1 medium parking lot, 1 small parking lot, 2 small commercial,



Eastbound
Volume leaving Crescent/Empire
Difference = 4

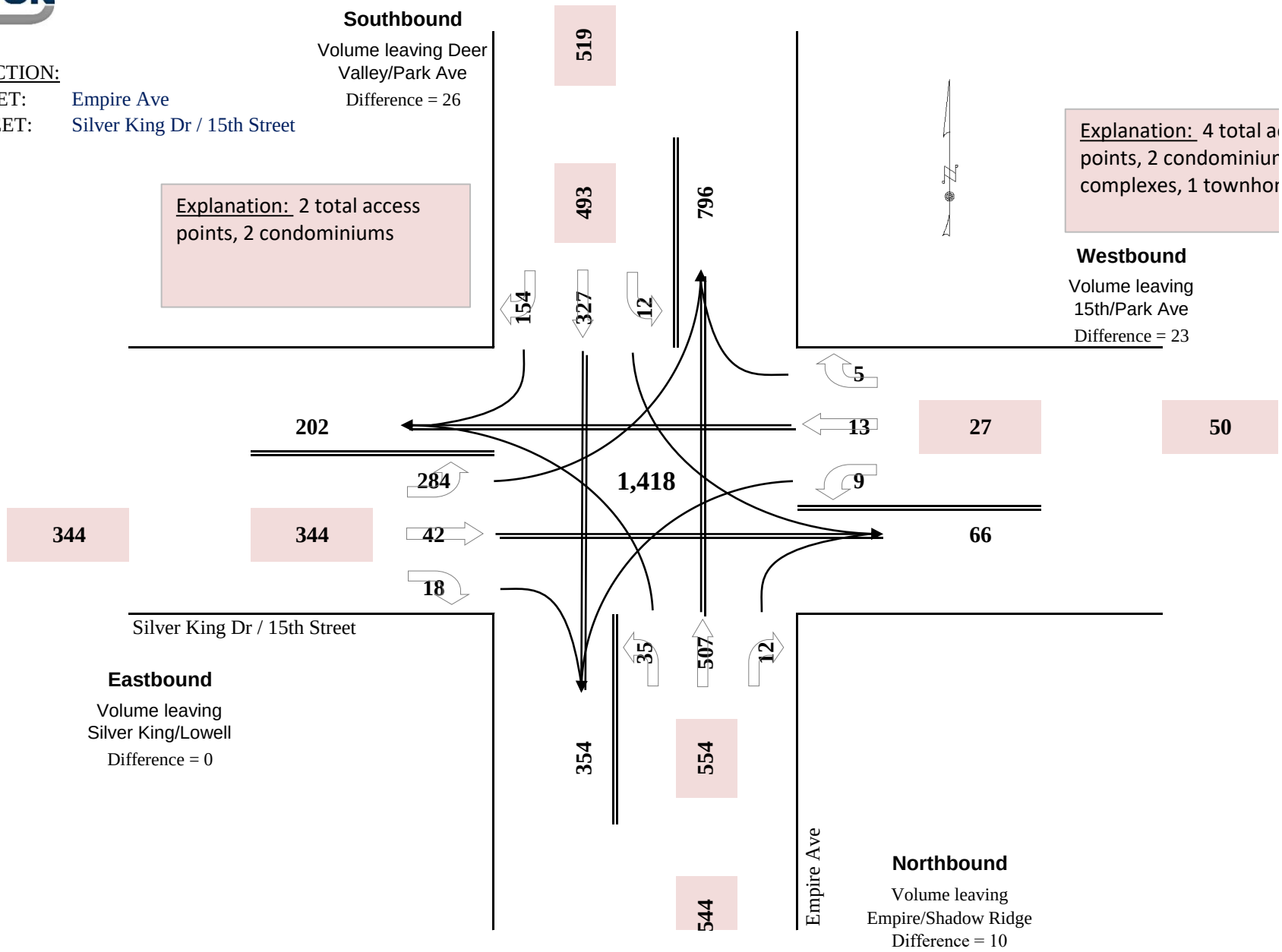
AM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION
N-S STREET: Empire Ave
E-W STREET: Silver King Dr / 15th Street



PM PEAK HOUR TURNING MOVEMENT DIAGRAM

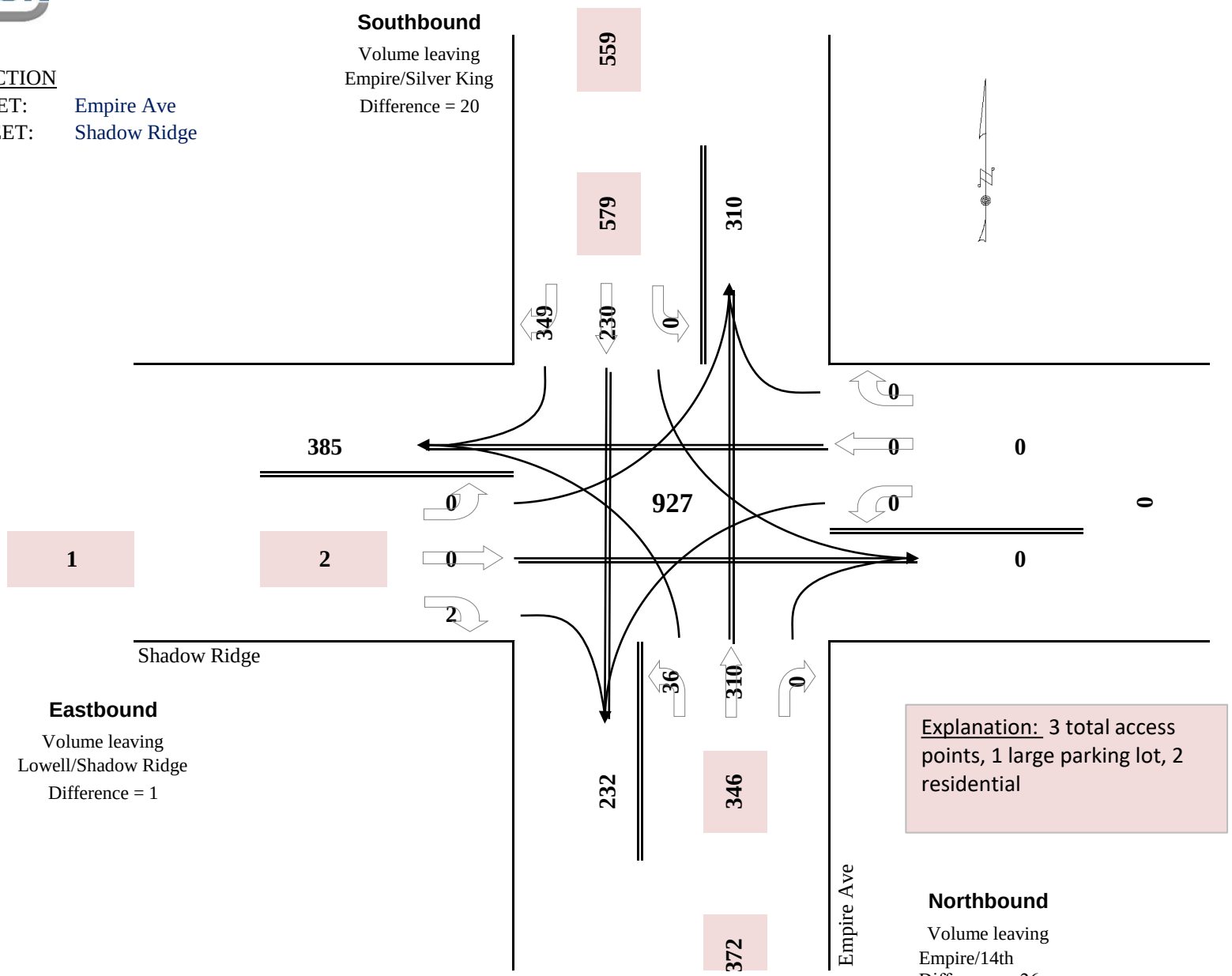
INTERSECTION:
N-S STREET: Empire Ave
E-W STREET: Silver King Dr / 15th Street



AM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION
N-S STREET: Empire Ave
E-W STREET: Shadow Ridge

Southbound
Volume leaving
Empire/Silver King
Difference = 20



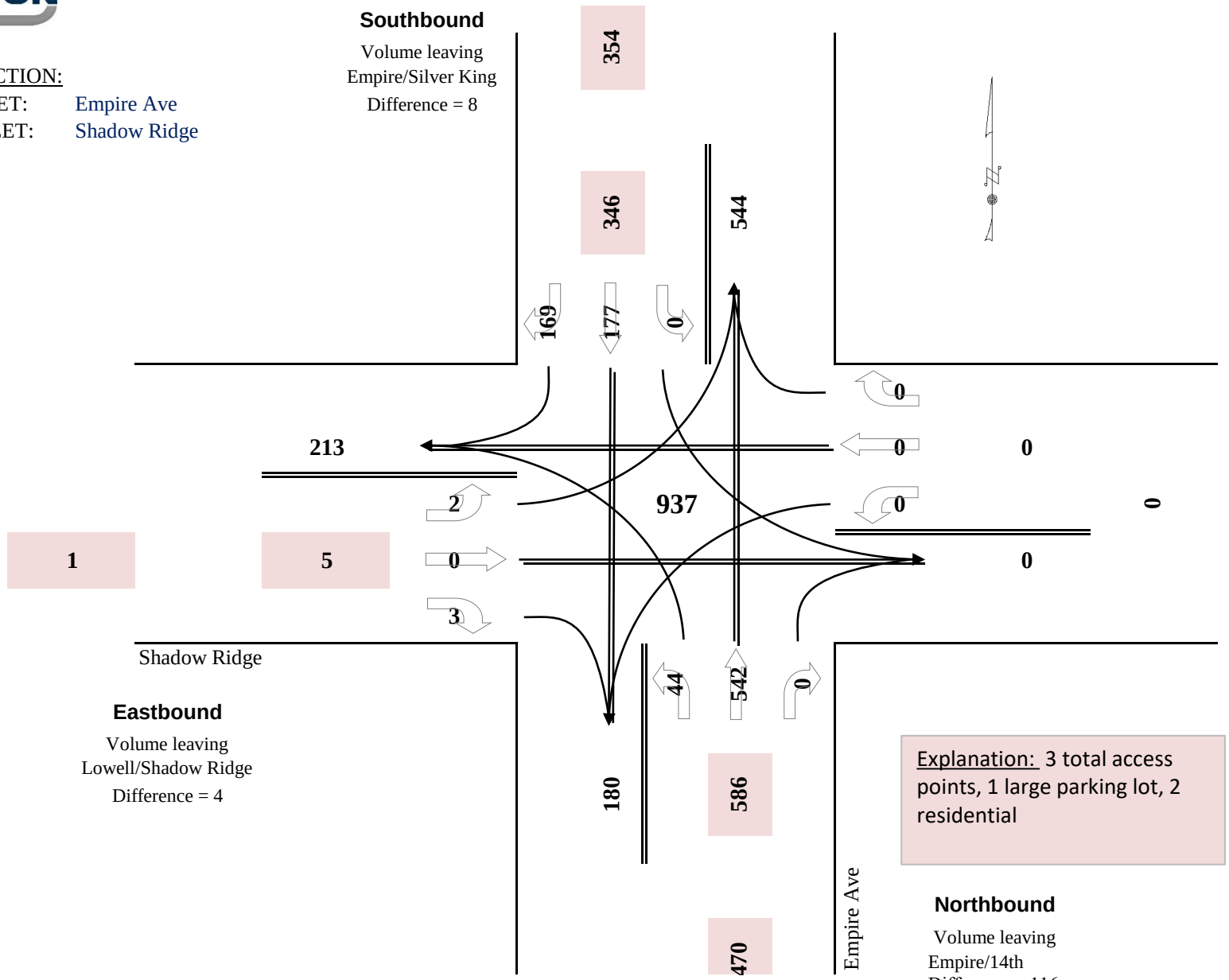
Eastbound
Volume leaving
Lowell/Shadow Ridge
Difference = 1

Explanation: 3 total access points, 1 large parking lot, 2 residential

Northbound
Volume leaving
Empire/14th
Difference = 26

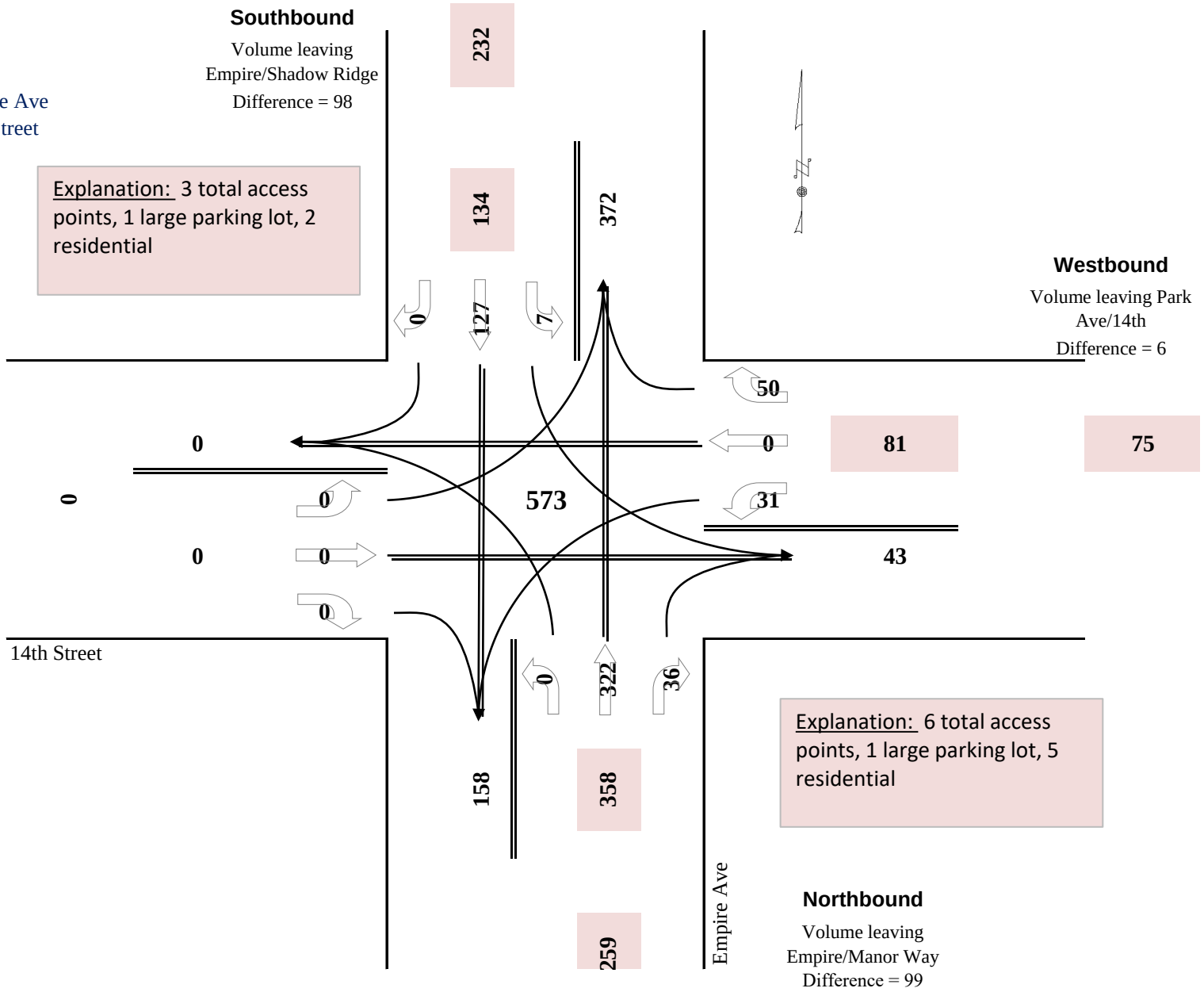
PM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION:
N-S STREET: Empire Ave
E-W STREET: Shadow Ridge



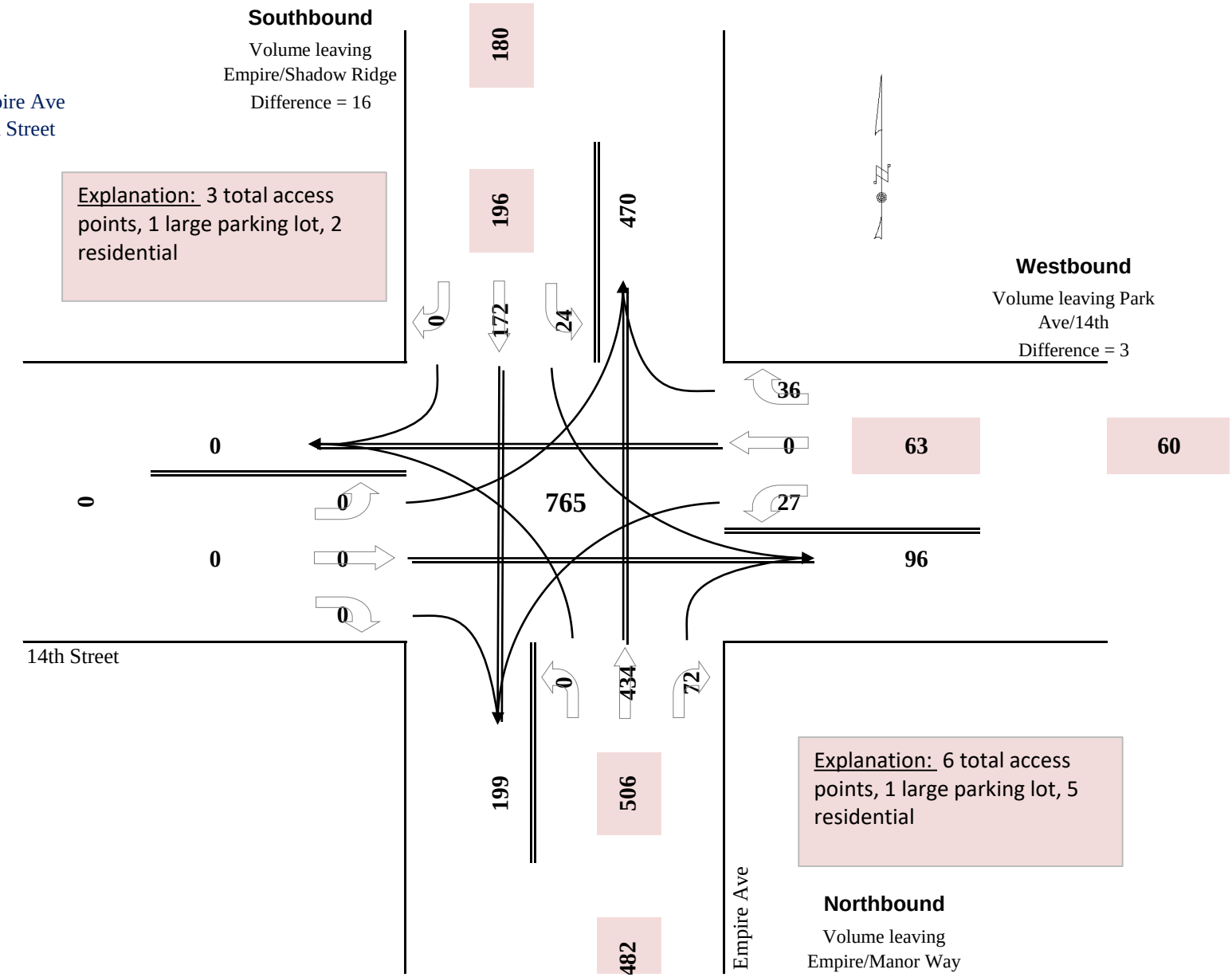
AM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION
N-S STREET: Empire Ave
E-W STREET: 14th Street



PM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION:
N-S STREET: Empire Ave
E-W STREET: 14th Street

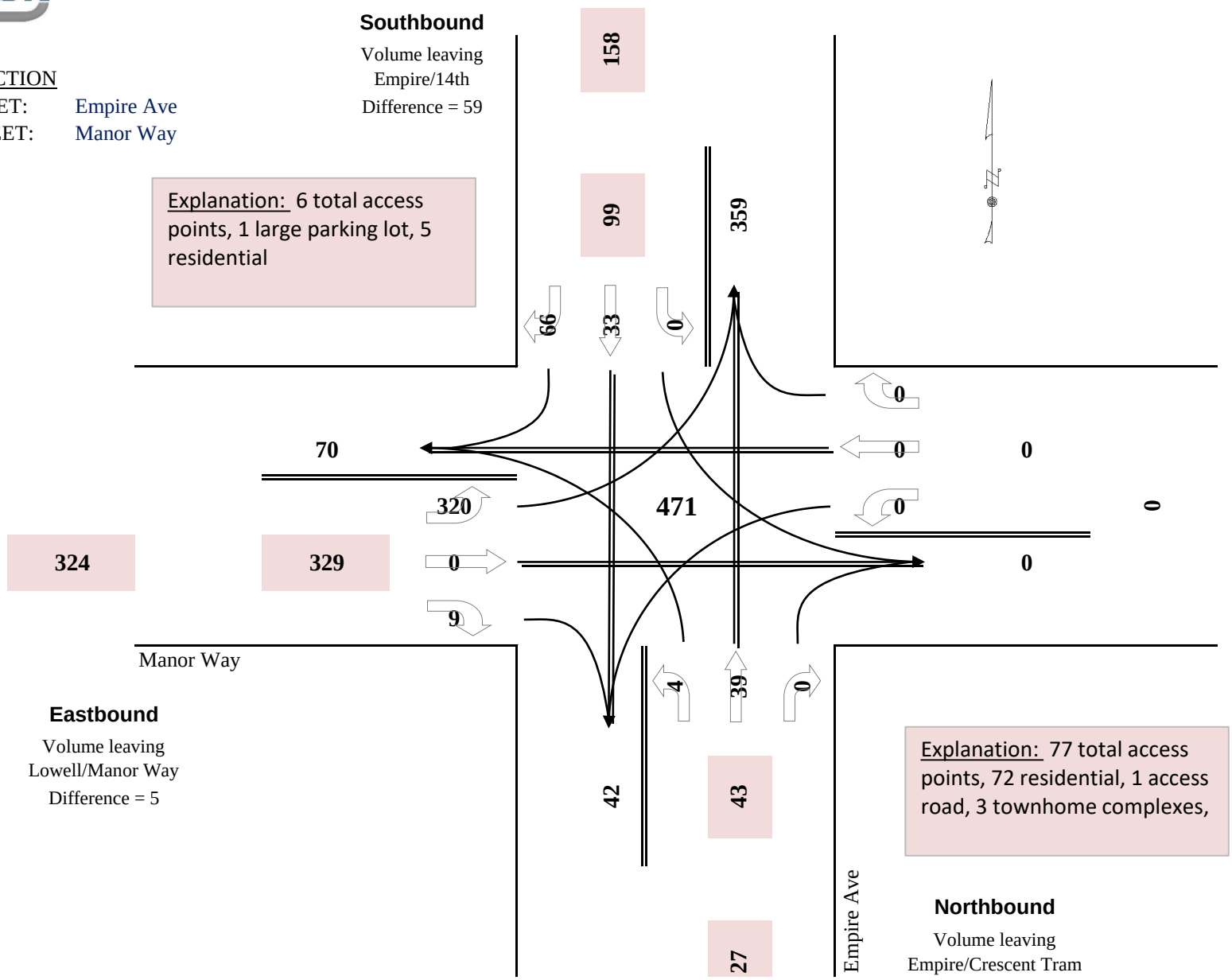


AM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION
N-S STREET: Empire Ave
E-W STREET: Manor Way

Southbound
Volume leaving Empire/14th
Difference = 59

Explanation: 6 total access points, 1 large parking lot, 5 residential



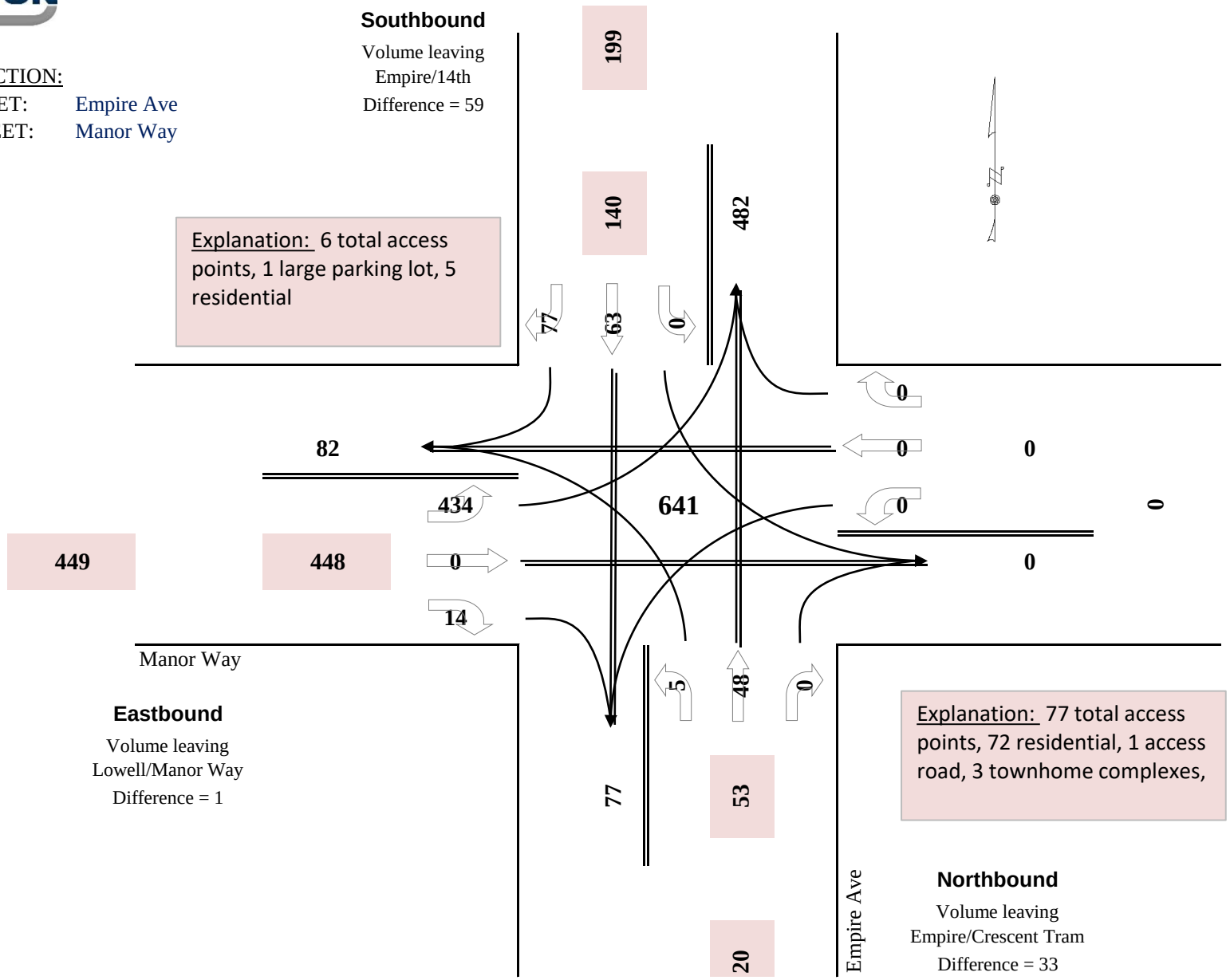
Eastbound
Volume leaving Lowell/Manor Way
Difference = 5

Explanation: 77 total access points, 72 residential, 1 access road, 3 townhome complexes,

Northbound
Volume leaving Empire/Crescent Tram
Difference = 16

PM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION:
N-S STREET: Empire Ave
E-W STREET: Manor Way



AM PEAK HOUR TURNING MOVEMENT DIAGRAM

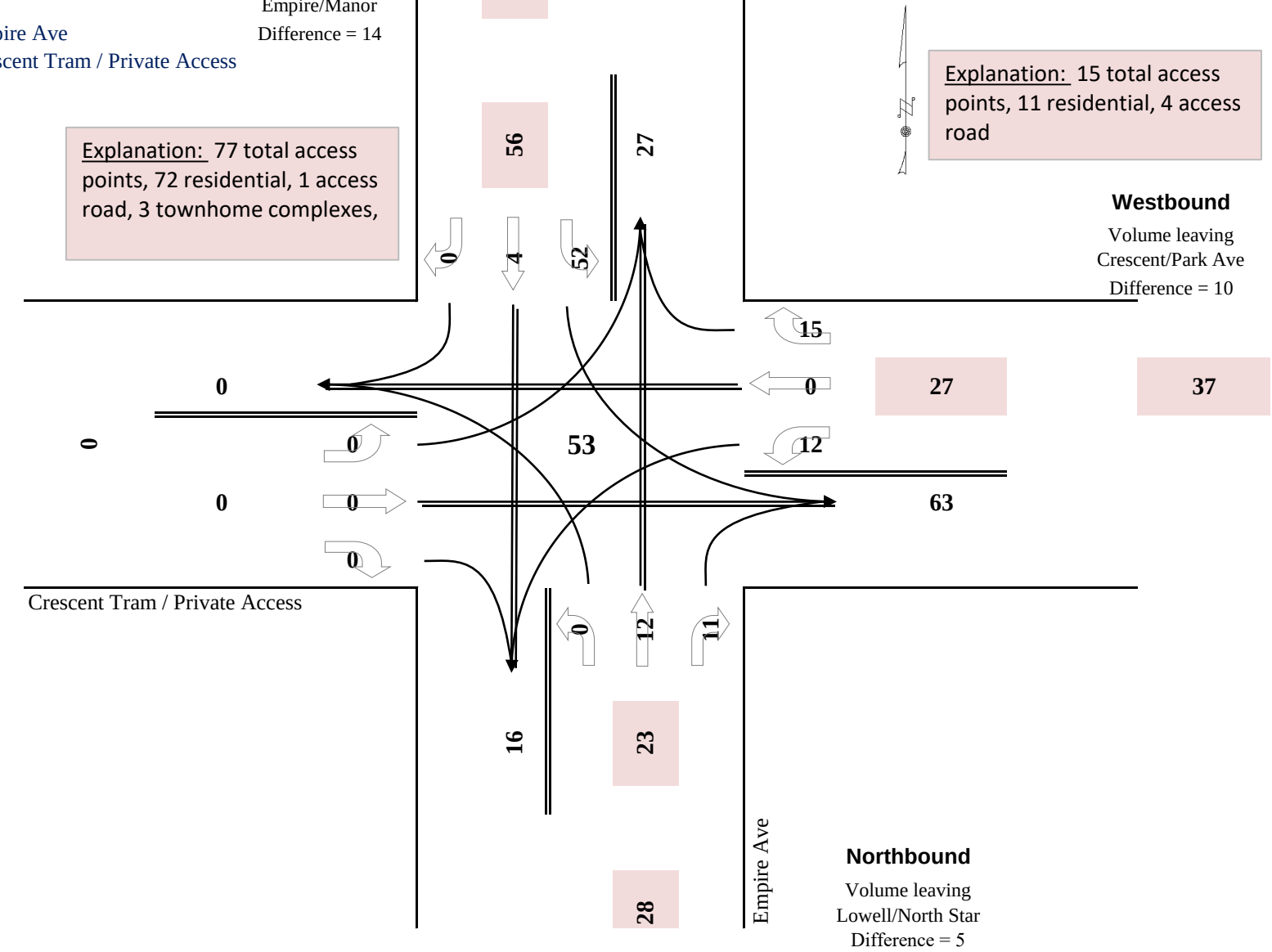
INTERSECTION
N-S STREET: Empire Ave
E-W STREET: Crescent Tram / Private Access

Southbound
Volume leaving Empire/Manor
Difference = 14

Explanation: 77 total access points, 72 residential, 1 access road, 3 townhome complexes,

Explanation: 15 total access points, 11 residential, 4 access road

Westbound
Volume leaving Crescent/Park Ave
Difference = 10



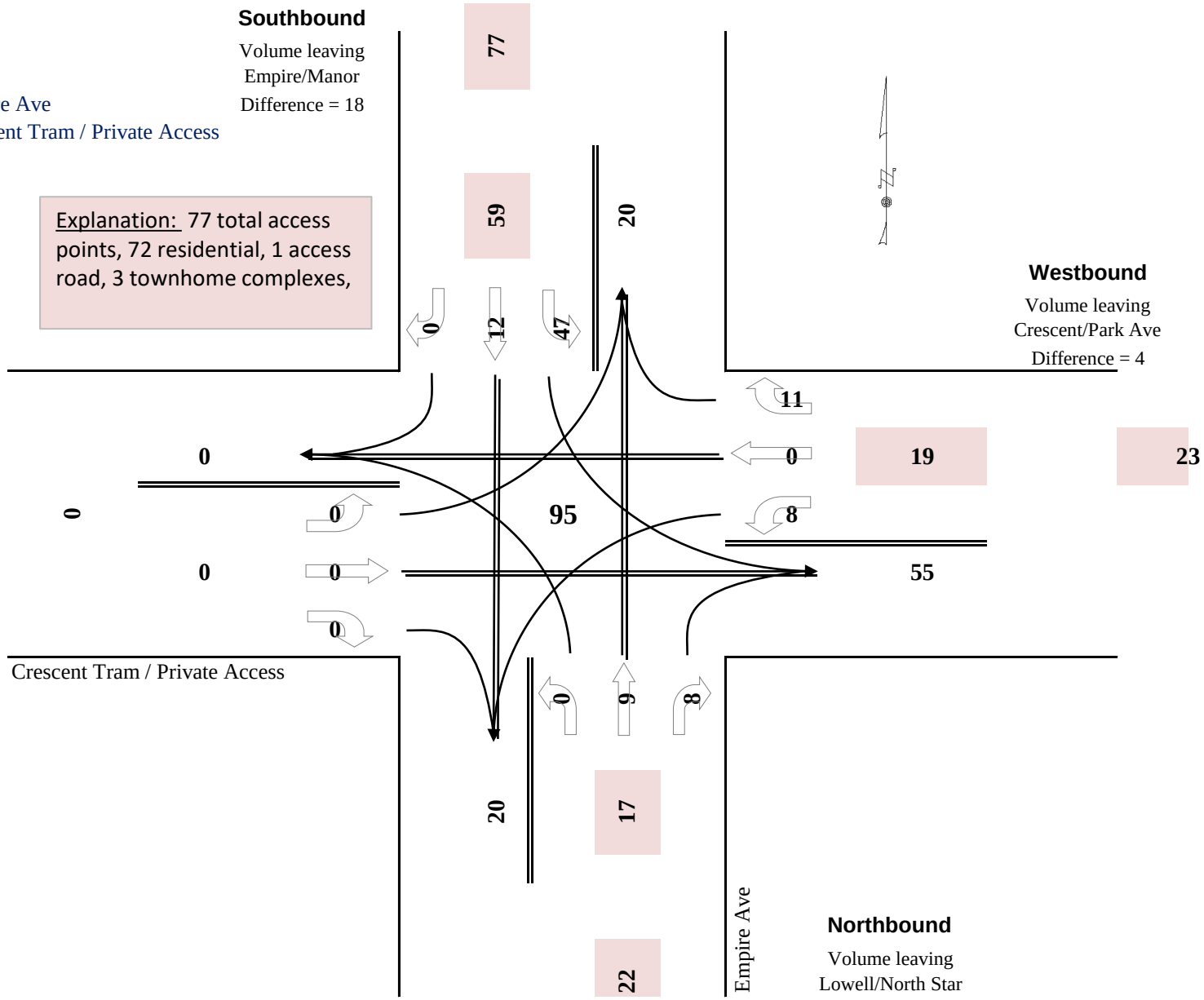
Northbound
Volume leaving Lowell/North Star
Difference = 5

PM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION:
N-S STREET: Empire Ave
E-W STREET: Crescent Tram / Private Access

Southbound
Volume leaving Empire/Manor
Difference = 18

Explanation: 77 total access points, 72 residential, 1 access road, 3 townhome complexes,



Westbound
Volume leaving Crescent/Park Ave
Difference = 4

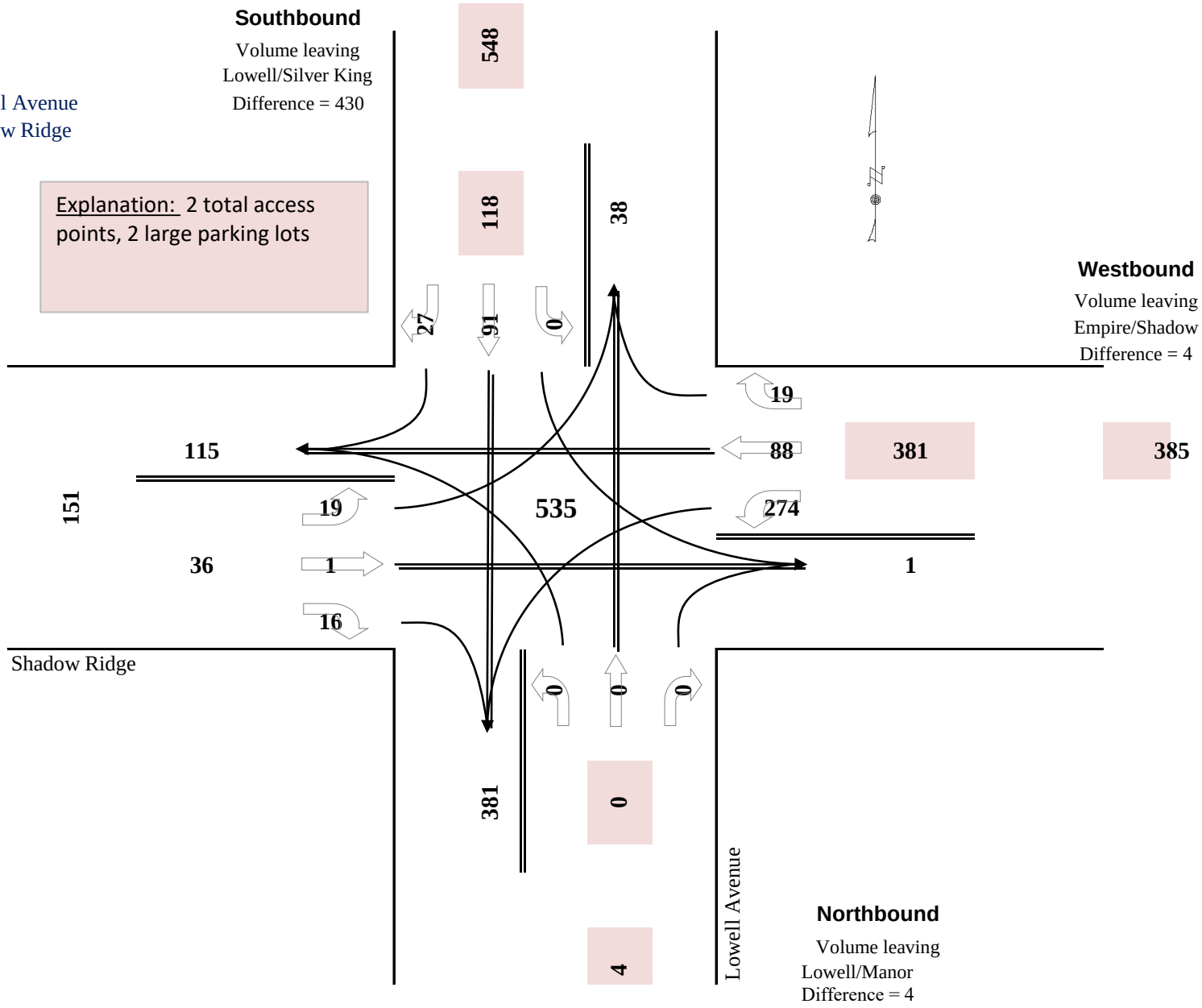
Northbound
Volume leaving Lowell/North Star
Difference = 5

AM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION
N-S STREET: Lowell Avenue
E-W STREET: Shadow Ridge

Southbound
Volume leaving
Lowell/Silver King
Difference = 430

Explanation: 2 total access points, 2 large parking lots

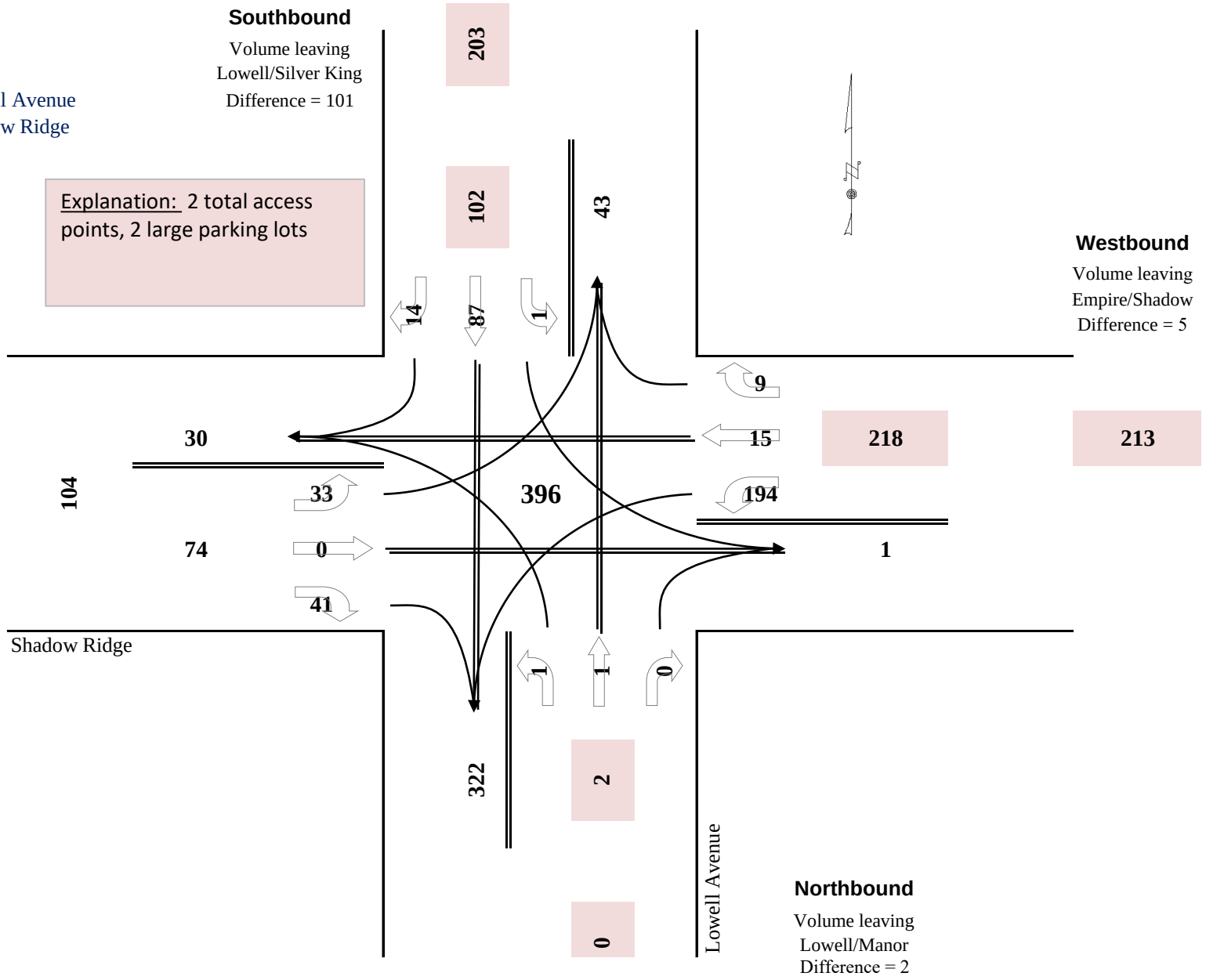


PM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION:
N-S STREET: Lowell Avenue
E-W STREET: Shadow Ridge

Southbound
Volume leaving
Lowell/Silver King
Difference = 101

Explanation: 2 total access points, 2 large parking lots

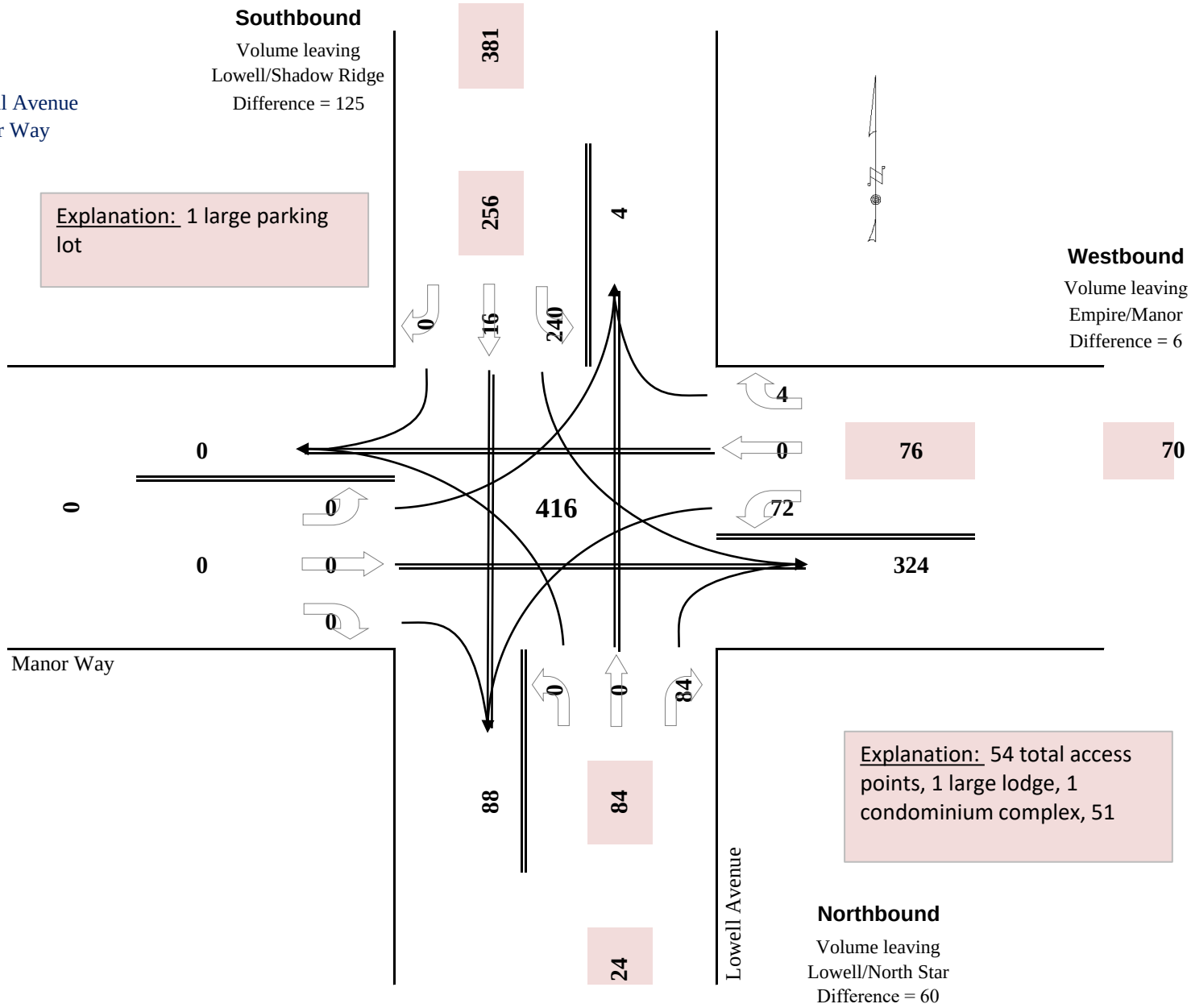


Westbound
Volume leaving
Empire/Shadow
Difference = 5

Northbound
Volume leaving
Lowell/Manor
Difference = 2

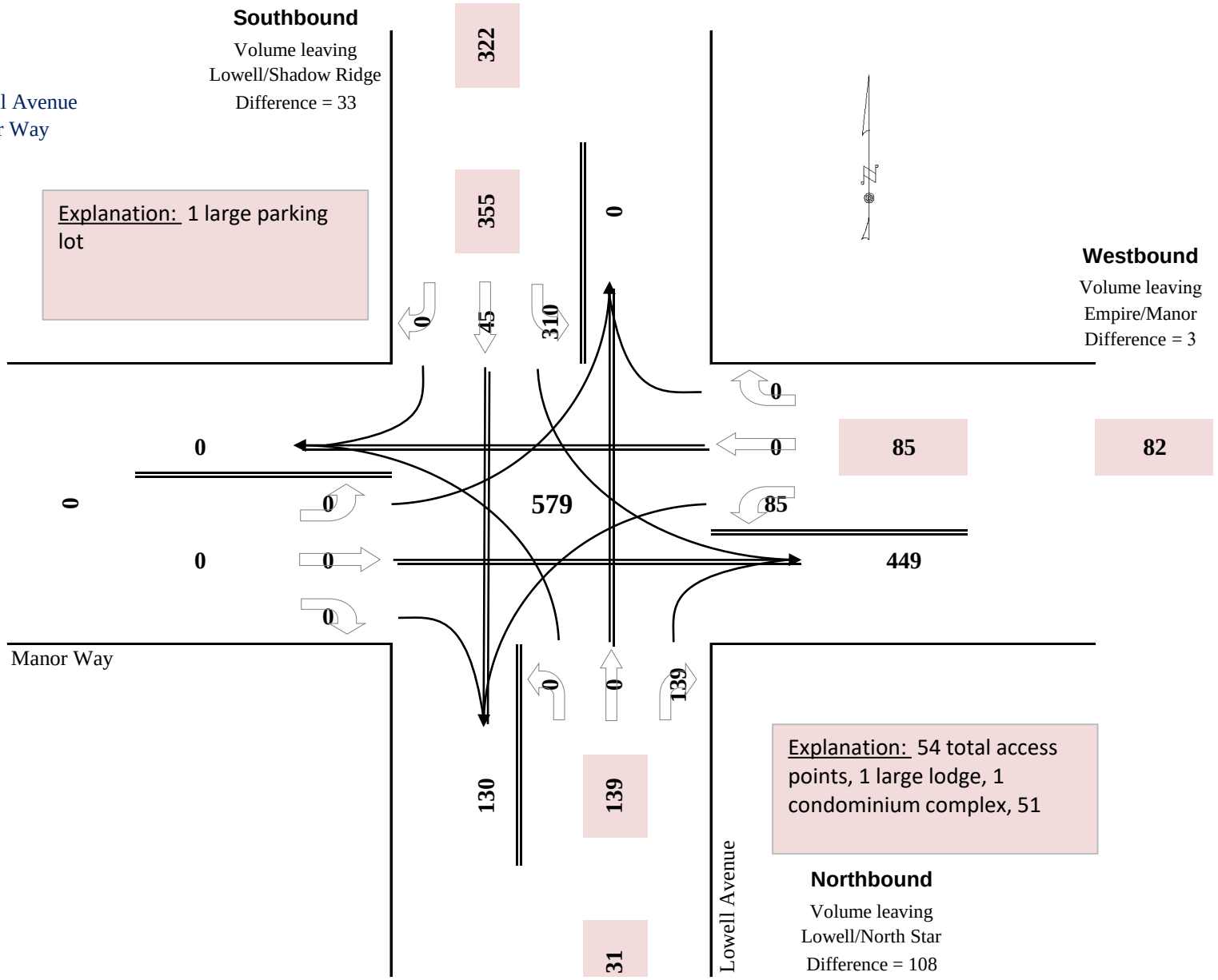
AM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION
N-S STREET: Lowell Avenue
E-W STREET: Manor Way



PM PEAK HOUR TURNING MOVEMENT DIAGRAM

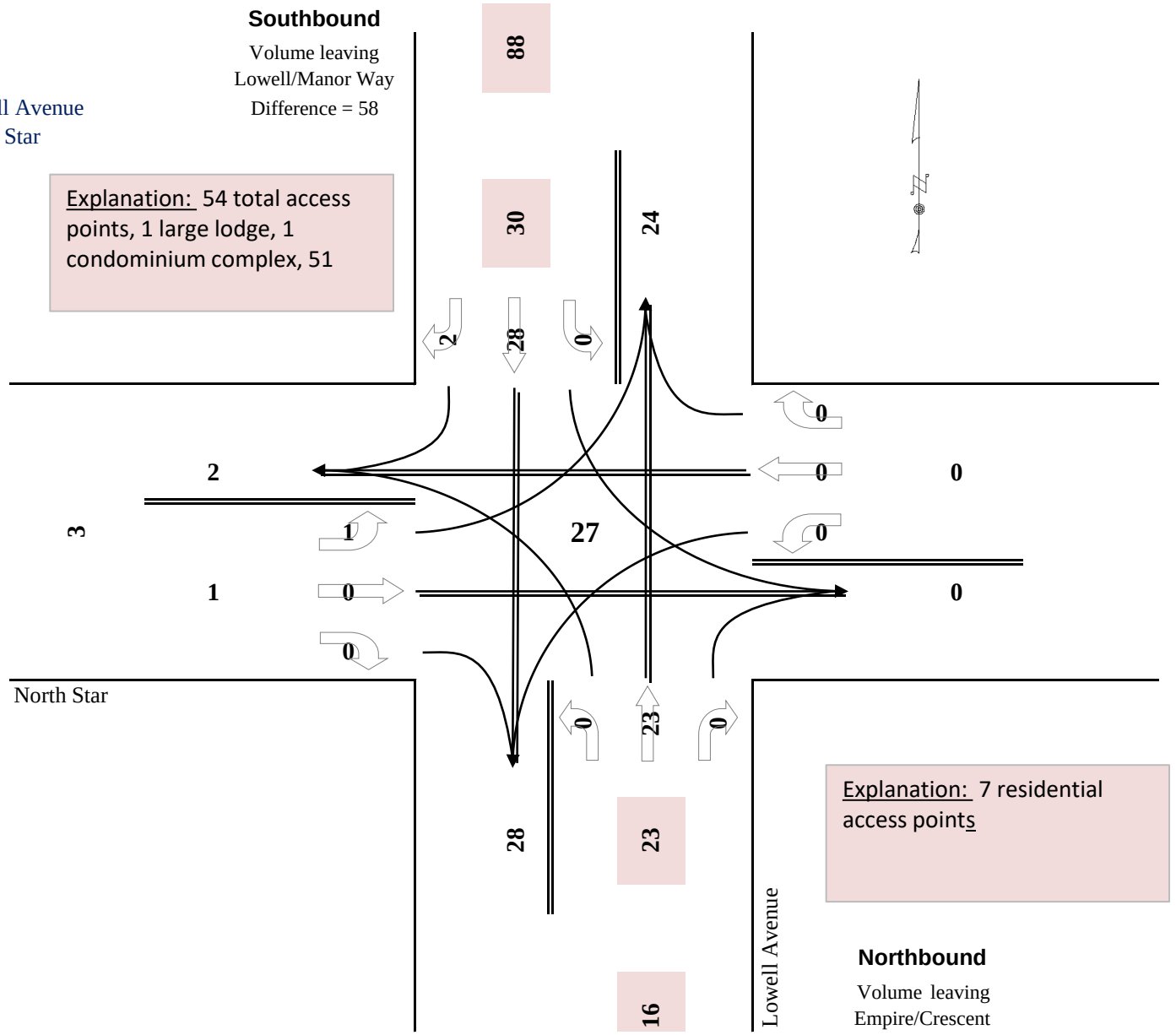
INTERSECTION:
N-S STREET: Lowell Avenue
E-W STREET: Manor Way



AM PEAK HOUR TURNING MOVEMENT DIAGRAM

INTERSECTION
N-S STREET: Lowell Avenue
E-W STREET: North Star

Southbound
Volume leaving
Lowell/Manor Way
Difference = 58



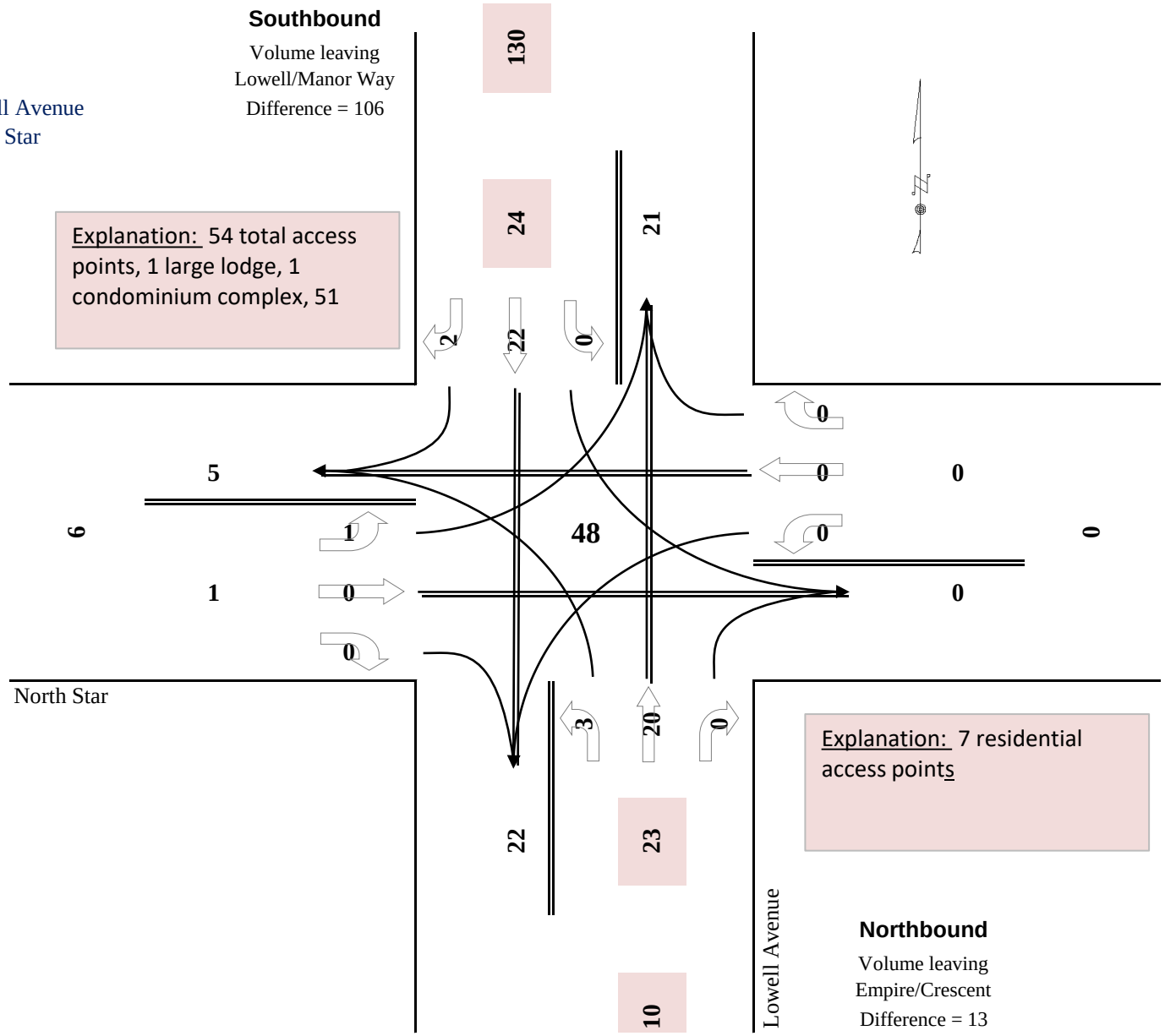
Explanation: 54 total access points, 1 large lodge, 1 condominium complex, 51

Explanation: 7 residential access points

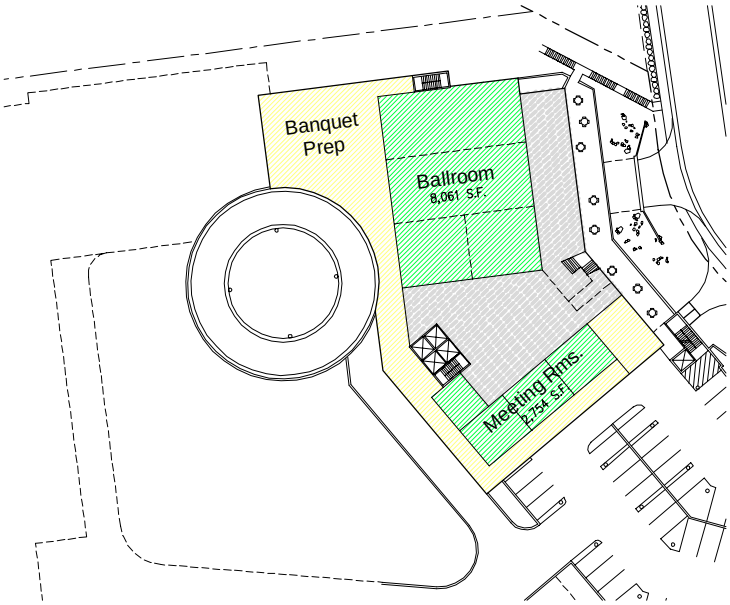
Northbound
Volume leaving
Empire/Crescent
Difference = 7

PM PEAK HOUR TURNING MOVEMENT DIAGRAM

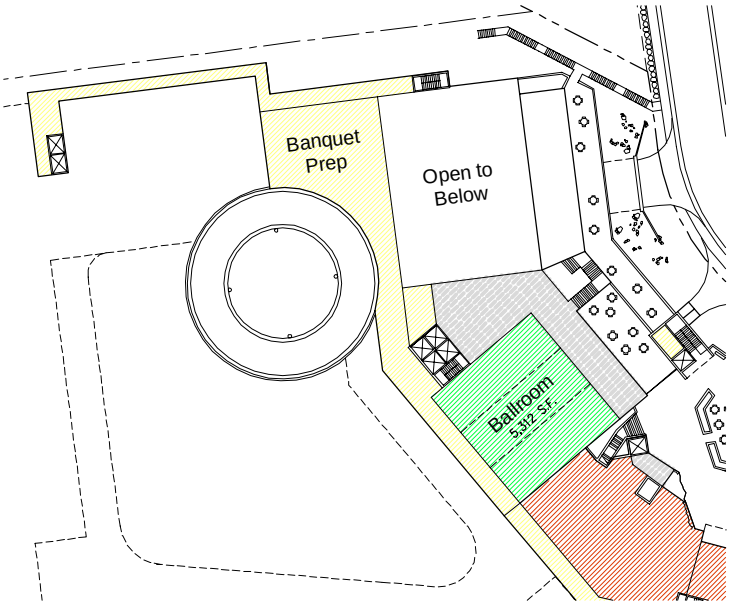
INTERSECTION:
N-S STREET: Lowell Avenue
E-W STREET: North Star



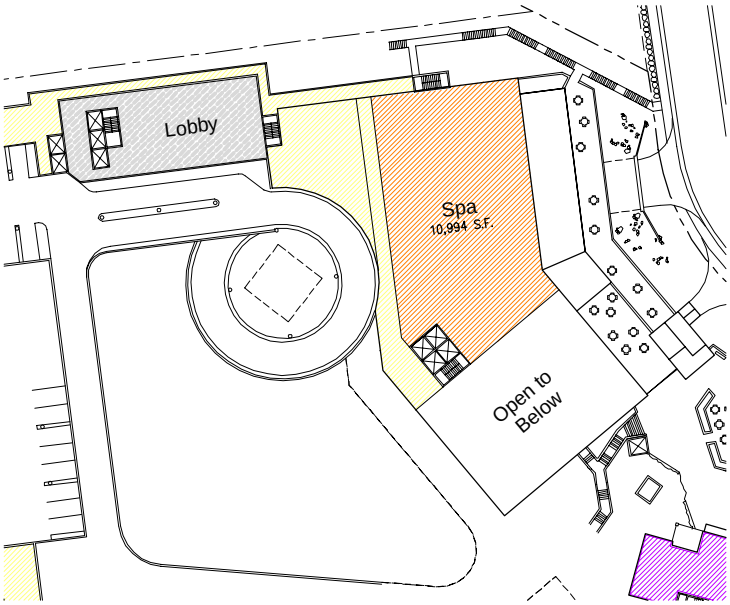
Appendix B – Trip Generation and Trip Reduction



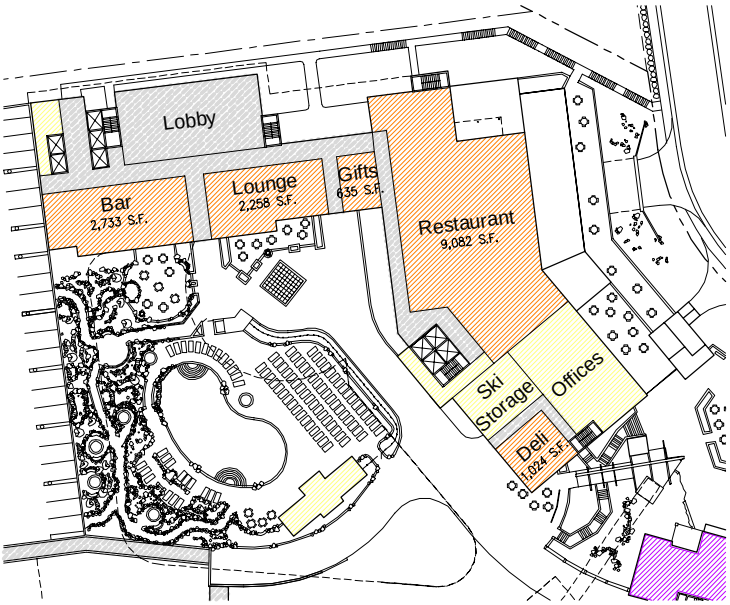
PARTIAL PLAN P-2



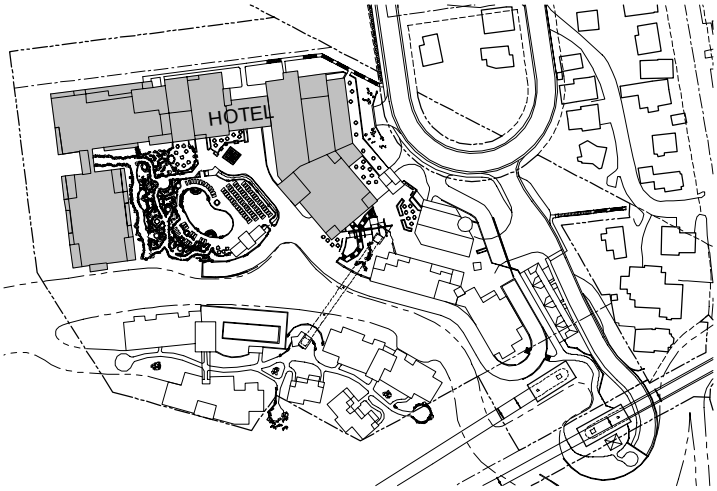
PARTIAL PLAN P-3



PARTIAL PLAN P-4



PARTIAL PLAN P-5



KEY PLAN

USE LEGEND

- UE RESIDENTIAL: Hotel (Net Area)
- UE RESIDENTIAL: Residences (Net Area)
- CIRCULATION & COMMON SPACE
- UE COMMERCIAL
- SUPPORT COMMERCIAL
- MEETING SPACE
- ACCESSORY SPACES
  Includes Residential and Resort Accessory Uses not specifically designated as "Circulation".

AM Peak Internal Capture

Only change values in yellow fields

Land Use A Residential

	ITE Code	230	
	Size	103	DU
	Total	Internal	External
Enter	10	2	8
Exit	42	2	40
Total	52	4	48
%		8%	92%

Land Use B Restaurant

	ITE Code	826	
	Size	8	DU
	Total	Internal	External
Enter	3	1	2
Exit	4	1	3
Total	7	2	5
%		29%	71%

20%	Balanced	12%
2	0	0

53%	Balanced	9%
22	0	0

3%	0
Balanced	0
31%	0

53%	22
Balanced	2
9%	2

20%	1
Balanced	1
20%	5

3%	1
Balanced	0
31%	0

20%	1
Balanced	1
20%	5

2%	0
Balanced	0
23%	0

20%	2
Balanced	2
12%	3

2%	0
Balanced	0
23%	0

Land Use C

Land Use D Specialty Retail

	ITE Code		
	Size		
	Total	Internal	External
Enter		0	0
Exit		0	0
Total	0	0	0
%		#DIV/0!	#DIV/0!

0%	Balanced	0%
0	0	0

2%	0.03	2%
0	0	0

	ITE Code	931	
	Size	8	SF
	Total	Internal	External
Enter	23	3	20
Exit	25	3	22
Total	48	6	42
%		13%	88%

Net External Trips for Multi-Use Development

	A	B	C	D	Total	
Enter	8	2	0	20	30	
Exit	40	3	0	22	65	Internal
Total	48	5	0	42	95	Capture
Single-Use Trip Gen	52	7	0	48	107	**11%**

ECONOMIC PROFILE

Tourism

Park City &
Summit County Utah

Prepared by
Park City Chamber of Commerce
Convention & Visitors Bureau

P.O. Box 1630 ~ Park City, UT 84060-1630
800.453.1360 ~ 435.649.6100 ~ fax 435.649.4132

park city™

CHAMBER OF COMMERCE | CONVENTION & VISITORS BUREAU

TOURISM

The travel and tourism industry is made up of a combination of several major industries that provide goods and services demanded when traveling away from home. These industries include accommodations, dining, retail, transportation services, recreation and entertainment, among others. Tourism also crosses into construction, manufacturing, health care, government, public utilities, real estate and agriculture. The fact that each of these goods and services are produced and consumed by both travelers and non-travelers complicates measurement of dollars generated and numbers of individuals served.

That said, in Summit County, tourism is the largest single component of the economic base. In 2014 it provided approximately 8,889 jobs in travel and recreation-related employment, nearly one-half of total employment. Visitor spending is estimated at well over $500 million annually. Total tourism-related tax revenues increased 8.5% in 2015, with Park City's resort community sales tax providing sales tax revenues of over $12 million (up from $11 million in 2014), the restaurant sales tax bringing in $2.4 million in 2015 (an increase of 7% over 2014) and transient room tax revenues increasing 9.4% to over $7.3 million.[1]

While visitors bring revenue dollars to Summit County, they also increase the cost of local service providers for basic services, such as fire, police and transportation. When local expenditures for visitors are compared to visitor revenue, however, tourism has a decidedly positive impact on Summit County residents. Visitors contribute heavily to property and sales tax revenues and thus reduce resident tax burdens, and residents enjoy a higher standard of living — 'resort style' — than they might otherwise afford.

According to research done by the Department of Employment Security, tourism's share of total employment is declining. This is because as other industries grow, so too does their share of the market. This is evidence that the county's economy is progressing toward healthy diversification. Seasonal fluctuations in employment levels are not as significant as they once were, and employment levels do not decrease as drastically during the 'off season.' This is due in part to an increase in the tourism industry during the summer months as well as to gains in other industries.

[1]Utah State Tax Commission 2015 Annual Report; [2]Kem C. Gardner Policy Institute, University of Utah, 2015 Summit County Travel & Tourism Profile; Utah State Tax Commission (Gross Leisure & Hospitality Taxable Sales, 2014)
Updated June 2016

State of Utah Tourism Profile

	2014	2015	% Change
Utah Population	2,942,902	2,995,919	1.8%
U.S. Population	318,857,056	321,418,820	0.8%
Tourism-Related Tax Revenues (Fiscal Year)	$58,305,231	$61,871,642	6.1%
Resort Communities Taxable Sales (Fiscal Year)	$18,900,246	$20,436,237	8.1%
Leisure & Hospitality Jobs[1]	128,064	135,100 [e]	5.5%
Leisure & Hospitality Wages[1] (Millions)	$2,193.4	N/A	
Average Annual Hotel Occupancy Rate	60.1%	N/A	
Total State Park Visitation (July-May)	3,529,846	4,180,254	18.4%
Total National Park Visitation	7,239,149	8,369,533	15.6%

[1]The "Leisure and Hospitality" sector includes NAICS 71 and 72.

Sources: Kem C. Gardner Policy Institute, State of Utah's Travel & Tourism Industry, 2015 report; Utah Tax Commission 2015 Annual Report; Department of Workforce Services

Updated June 2016

Land Ownership Summit County and State of Utah

	Summit County		State of Utah	
	Number of Acre	% Total	Number of Acre	% Total
Total Acres in County	1,197,985	100.00%	52,809,309	100.00%
Federal Government	517,466	43.2%	34,740,016	65.8%
Bureau of Land Management (BLM)	673	0.1%	22,806,752	43.2%
US Forest Service	516,793	43.1%	8,109,117	15.4%
National Park Service	----	----	1,950,709	3.7%
National Wildlife Refuge	----	----	62,123	0.1%
Other*	----	----	1,811,315	3.4%
State Government	27,582	2.2%	4,149,951	7.9%
Utah State Parks & Recreation	768	0.1%	89,605	0.2%
Utah State Wildlife & Reserves	17,147	1.4%	446,969	0.8%
State Trust Lands	8,667	0.7%	3,423,726	6.5%
Other**	----	----	362	0.0%
American Indian	----	----	2,444,046	4.6%
Private**	655,782	54.7%	11,475,296	21.7%

* Includes Military and Bankhead Jones land

** Includes State Sovereign and UDOT land

Updated June 2016

Summit County Tourism Profile

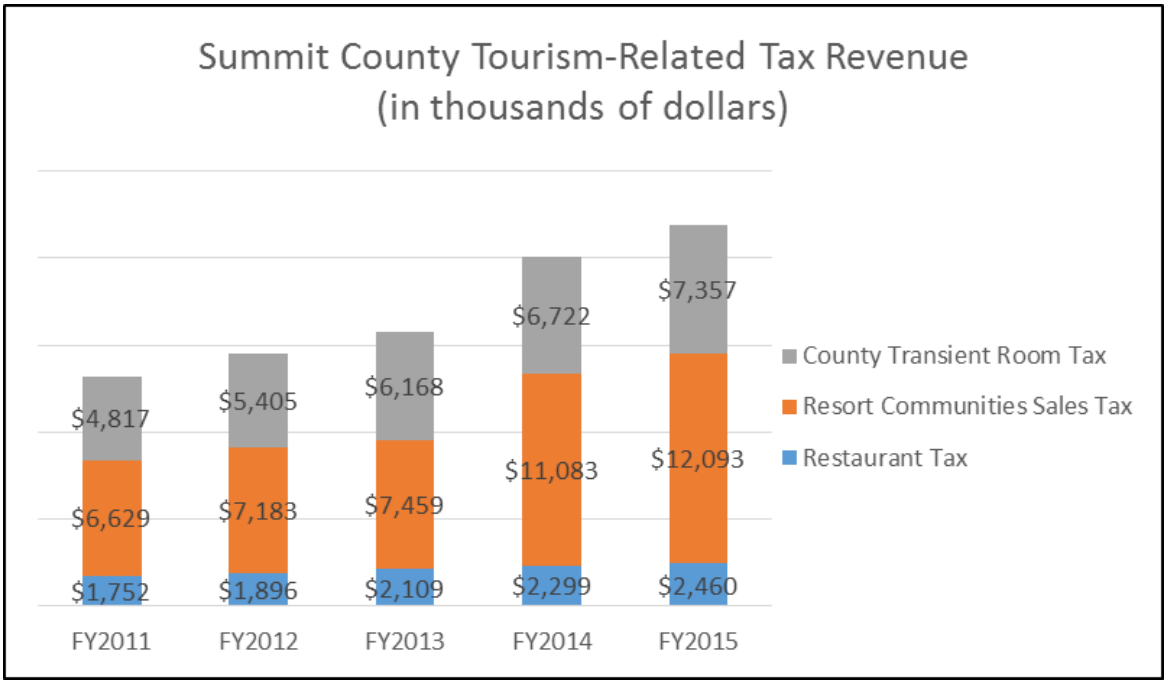
	2014	2015	% Change
Summit County Population	39,105	39,633	1.4%
Utah Population	2,942,902	2,995,919	1.8%
Leisure & Hospitality Taxable Sales[1] (Calendar Year; In Millions)	$542.4	$643.2	18.6%
Leisure & Hospitality Jobs[1]	8,889	N/A	
Leisure & Hospitality Wages[1] (Millions)	$246.1	N/A	
Average Annual Hotel Occupancy Rate (Summit County)	35.25%	36.75%	4.3%

*Based on share of private leisure and hospitality jobs to total private jobs.

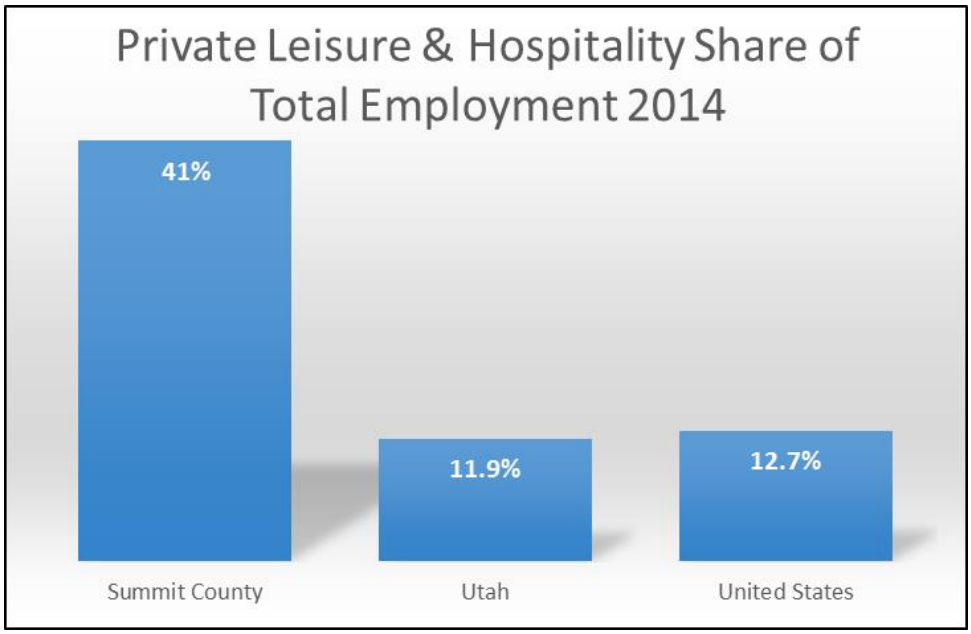
[1]The "Leisure and Hospitality" sector includes NAICS 71 and 72.

Sources: Park City Chamber/Bureau; Kem C. Gardner Policy Institute, University of Utah 2015 Summit County Travel & Tourism Profile
http://gardner.utah.edu/utah-travel-tourism

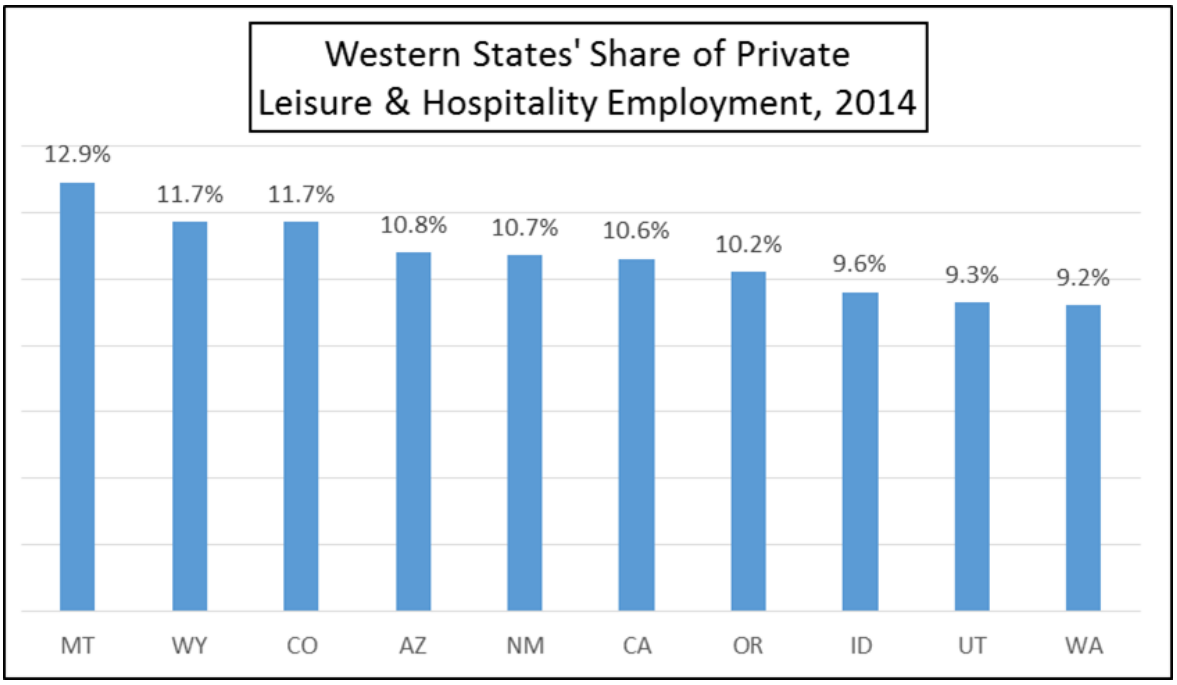
Updated June 2016



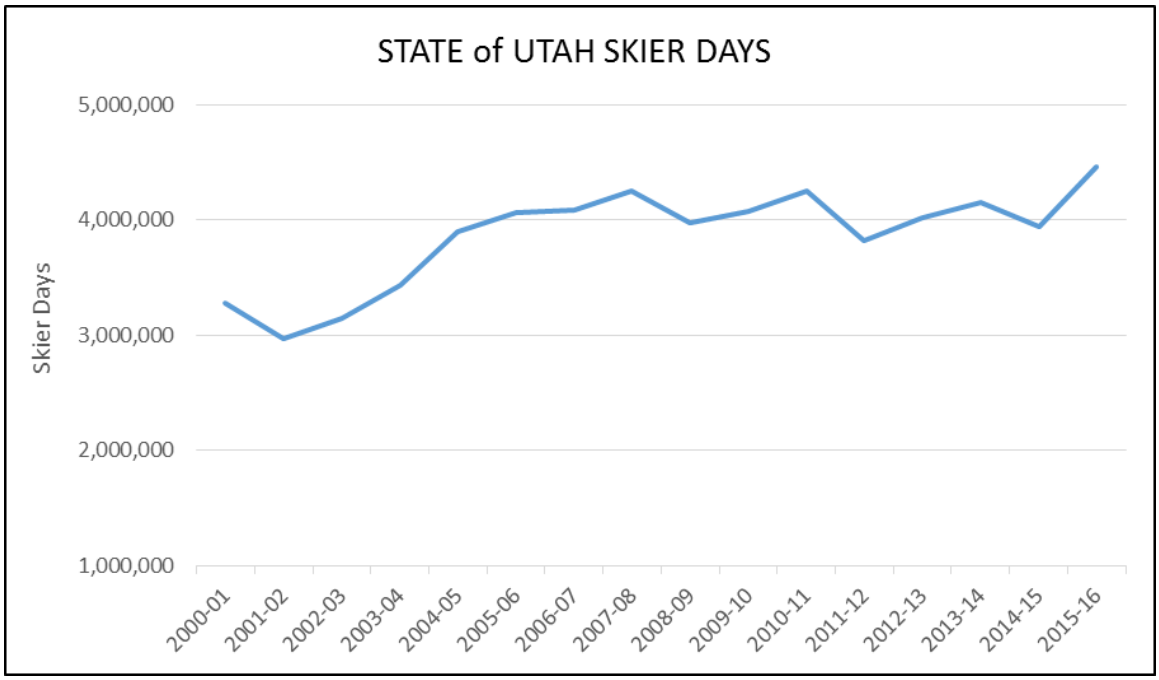
Source: Utah Tax Commission 2015 Annual Report; Kem C. Gardner Policy Institute, University of Utah 2015 Summit County Travel & Tourism Profile
Updated June 2016

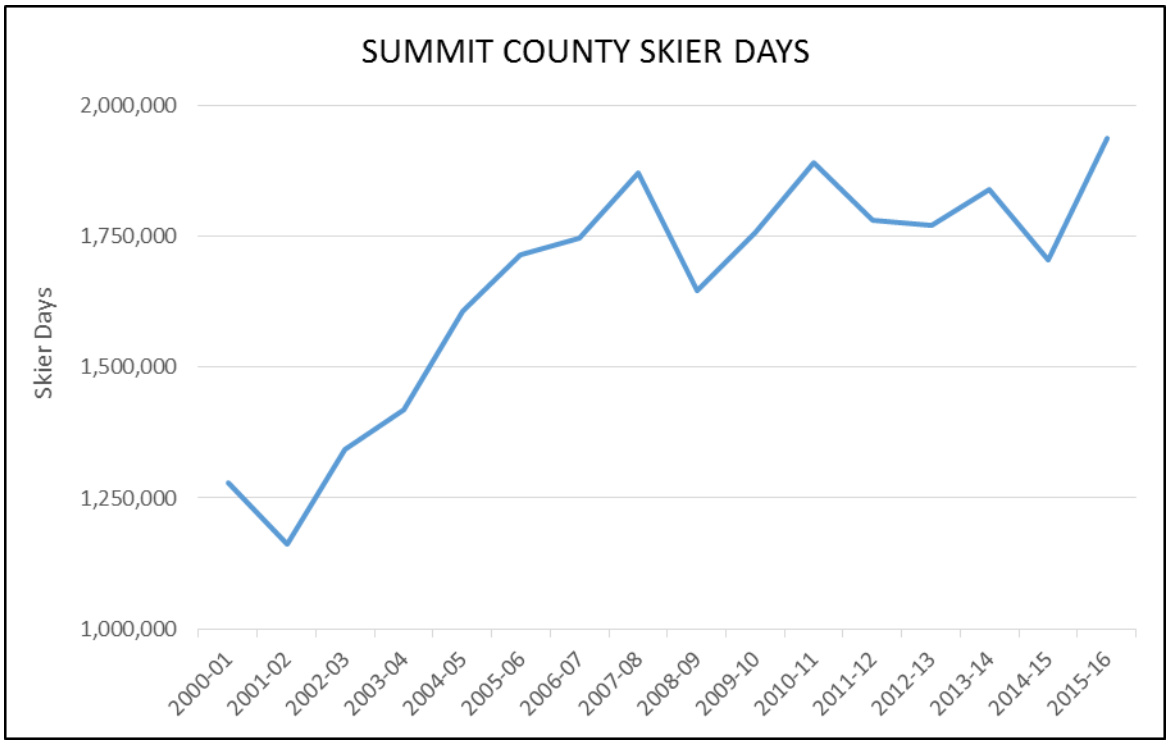


Source: U.S. Bureau of Labor Statistics; Utah Department of Workforce Services;
Kem C. Gardner Policy Institute, University of Utah 2015 Summit County Travel & Tourism Profile
Data Current June 2016



Source: Kem C. Gardner Policy Institute analysis of U.S. Bureau of Labor Statistics Data, State of Utah's Travel & Tourism Report, 2015
Updated June 2016


STATE of UTAH SKIER DAYS
Skier Days
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16


SUMMIT COUNTY SKIER DAYS
Skier Days
2,000,000
1,750,000
1,500,000
1,250,000
1,000,000
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16

Skier Days
Summit County & State of Utah with Summit County Market Share

Year	Skier Days Utah	Percent Change	Skier Days Summit County	Percent Change	Market Share of Utah
1987-88	2,368,985	-2.90%	767,786	6.10%	32.40%
1988-89	2,572,154	8.58%	887,314	15.57%	34.50%
1989-90	2,491,230	-3.15%	861,242	-2.94%	34.57%
1990-91	2,751,551	10.45%	943,040	9.50%	34.27%
1991-92	2,560,805	-6.93%	788,830	-16.35%	30.80%
1992-93	2,850,000	11.29%	970,000	22.97%	34.04%
1993-94	2,810,000	-1.40%	992,000	2.27%	35.30%
1994-95	3,113,072	10.79%	1,137,589	14.68%	36.54%
1995-96	2,954,690	-5.09%	1,055,857	-7.18%	35.73%
1996-97	3,042,767	2.98%	1,211,189	14.71%	39.81%
1997-98	3,101,735	1.94%	1,204,399	-0.56%	38.83%
1998-99	3,144,328	1.37%	1,203,905	-0.04%	38.29%
1999-00	2,976,796	-5.33%	1,158,911	-3.74%	38.93%
2000-01	3,278,291	10.13%	1,278,796	10.34%	39.01%
2001-02	2,974,574	-9.26%	1,161,734	-9.15%	39.06%
2002-03	3,141,212	5.60%	1,343,941	15.68%	42.78%
2003-04	3,429,141	9.17%	1,418,345	5.54%	41.36%
2004-05	3,895,578	13.60%	1,608,332	13.39%	41.29%
2005-06	4,062,188	4.28%	1,715,536	6.67%	42.23%
2006-07	4,082,094	0.49%	1,746,333	1.80%	42.78%
2007-08	4,249,190	4.09%	1,871,540	7.17%	44.04%
2008-09	3,972,984	-6.50%	1,645,233	-12.09%	41.41%
2009-10	4,070,822	2.46%	1,756,694	6.77%	43.15%
2010-11	4,247,510	4.34%	1,890,763	7.63%	44.51%
2011-12	3,825,090	-9.95%	1,782,212	-5.74%	46.59%
2012-13	4,018,812	5.06%	1,770,069	-0.68%	44.04%
2013-14	4,148,573	3.23%	1,838,641	3.87%	44.32%
2014-15	3,946,762	-4.86%	1,705,492	-7.24%	43.21%
2015-16	4,457,575	12.94%	1,937,887	13.63%	43.47%

Calculated by Ski Utah & Park City Chamber Bureau. Percentages are rounded up.

Park City Tourism Profile

	2010	2011	2012	2013	2014	2015
Total Spending by Travelers State of Utah (millions)[1]	$6,999	$7,157	$7,589	$7,606	$7,805	$8,195 (e)
Total Tourism Related Tax Revenue (millions)[2]	$229.1	$300.4	$300.8	$325.8	$361.3	$443.4
Total Visitor Nights[3]	3,007,970	3,118,065	3,071,015	3,086,547	3,101,293	2,784,091
Winter (Nov-April)	1,655,808	1,743,652	1,665,093	1,693,814	1,715,323	1,726,938
Summer (May-Oct)	1,301,584	1,367,643	1,399,345	1,410,877	1,376,901	1,493,543
Total Overnight Visitors[4]	537,138	545,925	503,445	505,991	508,409	456,408
Winter (Jan-April, Nov-Dec)	280,645	277,842	248,521	252,808	256,018	257,752
Summer (May-Oct)	232,425	234,873	249,883	251,942	245,875	266,704

Employment

Tourism provides nearly 9,000 jobs and accounts for over 40% of Summit County's total employment. Tourism also indirectly supports other industries, such as construction, real estate, insurance, building supplies, automotive, etc.

Sources: [1] and [2] Kem C. Gardner Policy Institute, University of Utah 2015 Utah Tourism Report (http://gardner.utah.edu/utah-travel-tourism)

[3] and [4] Park City Chamber/Bureau

[3] = Visitor nights are based on occupancy rates and pillow counts

[4] = Number of visitors (visitor nights divided by avg length of stay) (length of stay figured during summer and winter surveys-years between surveys are averaged)

Winter figures are based on Nov-April seasonal dates. Summer figures are based on May-Oct of the same year. Due to rounding, year totals may differ as compared to seasons.

Updated June 2016

Park City Overnight Visitor Profile

Winter Overnight Visitor
2012-2013
61% Male 39% Female
Average Age: 43.8
Repeat Visitors 77%
Avg Length of Stay 6.7 nights
Avg Days Skied/Snowboarded: 5.8
Avg Party Size 4.1 people

Household Income
> $50,000 9% $50,000-99,999 14%
$100,000-149,999 20%
$150,000-199,999 13% $200,000+ 43%

State of Residence
California 9.5% New York 6.5%
Florida 6.5% Texas 5.0%
International 8.6%

Family/Marital Status
Married with Children 38%
Empty Nesters 19%
Single No Children 22%
Couple, No Children 18%

Accommodations
Condo/Vacation Home 33%
Hotel/Motel/Lodge 23%
Family & Friends 17%
Timeshare 12%
Owned Condo/Vacation Home 11%
Using a Friend's Condo; Not with Friends 3%
Bed & Breakfast 1%

Per Person Daily Expenditure Excluding Airfare
$378.00

Summer Overnight Visitor
2014
49% Male 51% Female
Average Age: 46
Repeat Visitors 49%
Average Mean Length of Stay 5.43 nights
Traveling with family: 62%
Avg. Time Trip was Planned: 2-3 months

Household Income
> $50,000 11% $50,000-$99,999 24%
$100,000-199,999 26% $200,000+ 13%
Declined 26%

State of Residence
California 22% Arizona 9%
Texas 7% Colorado 3% Florida 5%
New York 4% International 5%

Family/Marital Status
Married 70% Single, Never Married 24%
Other 6%

Accommodations
Hotel 47% Rental Home/Condo 31%
Family & Friends 16% Bed & Breakfast 1%
Camp/RV Park 2% Other 3%
Average nightly lodging expense: $93.10

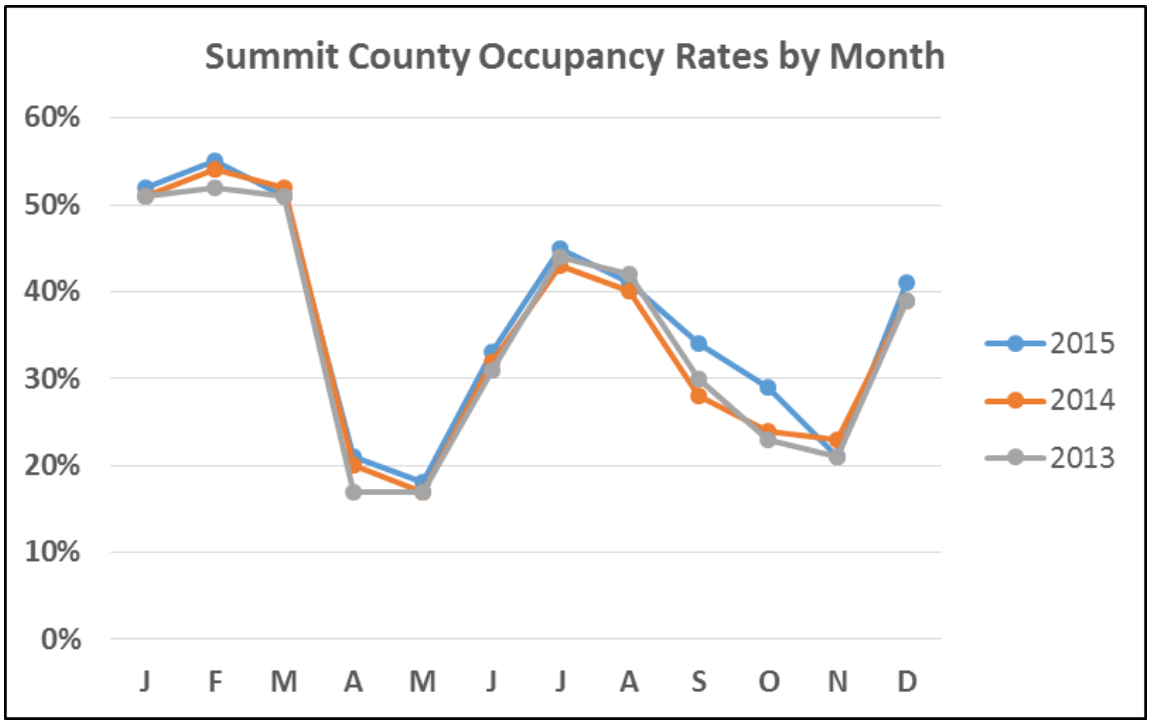
Main Purpose for Visit
Recreation 55% Social 28%
Business 3% Retail 9% Arts & Culture 4%

Specific activities while in Park City
Hiking 69% Alpine Slide 51%
Alpine Coaster/Zipline 50% Olympic Venues 40%
Biking 38% Swimming 35%
Scenic Lift/Gondola Ride 30%

Per Person Daily Expenditure Excluding Airfare
$302.02

Source Winter Info: Ski Utah Skier & Snowboard Survey 2012-13
Source Summer Info: Park City Chamber/Bureau 2014 Summer Visitor Study
Prepared by the Office of New Urban Mechanics, Utah Valley University
Updated March 2016

Typically, Summit County accommodations' occupancy rates are highest between December and March and June through September, with lows in April, May, October and November. In 2015, the average annual occupancy rate increased 4.3% over 2014 from 35.25% to 36.75%.



Source: Park City Chamber/Bureau
Updated June 2016

Park City Nightly Lodging Inventory

	Units	Pillows
Hotel	1,841	3,682
Studio	836	2,090
One Bedroom	1,251	3,128
Two Bedroom	1,499	6,746
Three Bedroom	684	4,446
Four Bedroom	320	2,720
Five Bedroom	83	1,038
Six Bedroom	40	580
Seven Bedroom	7	116
Nine Bedroom	0	0
Total	**6,561**	**24,544**

Source: Park City Chamber/Bureau
Updated March 2016

Park City Timeshare Lodging Inventory

	Units	Pillows
Hotel	36	72
Studio	168	420
One Bedroom	293	733
Two Bedroom	476	2,142
Three Bedroom	22	143
Four Bedroom	26	221
Total	**1,021**	**3,731**

Source: Park City Chamber/Bureau
Updated March 2016

Park City Restaurants

Location	# of Restaurants
Canyons	11
Deer Valley	15
Kimball Junction	31
Main Street	70
Park City Mountain Resort	6
Prospector/Bonanza	12
Quarry Village	4
Redstone Center	6
Snow Creek	4
Other	5
Total	**164**

Sources: Park City Chamber/ Bureau
Mountain Express Magazine Menu Guide
Updated March 2016

Appendix C – Existing traffic Analysis

3: Park Ave & 15th St Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.2	4.2	5.2	9.1	3.4	2.8	0.3	1.7	1.3	1.7

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.0	0.0	3.5	0.4	0.2	0.0	0.0	0.0	2.6	1.1	0.8
Total Del/Veh (s)	28.0	23.2	14.9	45.3	40.7	5.7	23.1	30.8	13.5	44.1	25.1	13.4

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	All
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	25.2

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	36.6	14.5	9.1	18.6	19.3	8.7	6.1	1.9	1.9	3.4	1.3	4.0

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	6.0

9: Empire Ave & Crescent Tram Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.1	2.4	0.0	0.0	1.8	0.4	1.4

10: Empire Ave & Manor Way Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.5	4.3	1.8	0.4	0.4	0.4	3.5

11: Lowell Ave & Northstar Dr Performance by movement

Movement	EBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.7	0.0	0.9	1.4	0.9

12: Park Ave & Osborne St Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.2	0.0	0.0	0.1
Total Del/Veh (s)	5.1	2.9	1.9	0.1	1.6	2.9	1.4

13: Lowell Ave & Manor Way Performance by movement

Movement	WBL	WBR	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	4.0	2.7	3.6	6.0	1.7	4.1

14: Park Ave & 14th Street Performance by movement

Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.7	3.7	3.5	1.5	2.2	2.4	0.6	0.3	1.9

20: Lowell Ave & Silver King Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.2	0.2	0.0
Total Del/Veh (s)	0.4	0.1	6.3	4.8	22.0	4.6	5.9

21: Empire Ave & Shadow Ridge Rd Performance by movement

Movement	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.7	9.4	1.4	2.7	1.7	2.2

22: Lowell Ave & Shadow Ridge Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.2	6.0	2.7	6.0	6.7	5.0	0.2	1.3	3.8	3.4

29: Empire Ave & 14th Street Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.2	5.2	0.9	0.7	3.9	0.7	1.6

Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	35.2

Intersection: 3: Park Ave & 15th St

Movement	EB	WB	NB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	52	33	26
Average Queue (ft)	27	13	2
95th Queue (ft)	47	36	12
Link Distance (ft)	388	334	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			50
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	TR	L	T	R
Maximum Queue (ft)	131	139	182	166	262	92	60	117	122	245	581	559
Average Queue (ft)	59	77	71	42	138	44	20	54	61	204	200	178
95th Queue (ft)	107	119	137	101	227	77	49	92	101	284	498	371
Link Distance (ft)			591		536	536	357	357	357		706	706
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	215	215		250						220		
Storage Blk Time (%)			0		1					21	0	
Queuing Penalty (veh)			0		0					34	0	

Intersection: 7: Empire Ave & Silver King Dr/15th St

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	LTR	LT	R
Maximum Queue (ft)	142	198	60	141	25	90
Average Queue (ft)	70	40	21	35	2	5
95th Queue (ft)	135	149	46	98	15	46
Link Distance (ft)		315	388	602	591	591
Upstream Blk Time (%)		0				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)	50					
Storage Blk Time (%)	30	0				
Queuing Penalty (veh)	10	0				

Intersection: 9: Empire Ave & Crescent Tram

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	32	18
Average Queue (ft)	11	1
95th Queue (ft)	33	8
Link Distance (ft)	185	2121
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Empire Ave & Manor Way

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	97	19
Average Queue (ft)	52	1
95th Queue (ft)	83	8
Link Distance (ft)	146	2121
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Lowell Ave & Northstar Dr

Movement	EB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	247
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Park Ave & Osborne St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	51	32
Average Queue (ft)	25	2
95th Queue (ft)	50	17
Link Distance (ft)	160	288
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Lowell Ave & Manor Way

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	58	78	78
Average Queue (ft)	32	35	45
95th Queue (ft)	52	59	69
Link Distance (ft)	146	1734	505
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Park Ave & 14th Street

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	60	49	6
Average Queue (ft)	32	12	0
95th Queue (ft)	56	40	4
Link Distance (ft)	392	2685	312
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: Lowell Ave & Silver King Dr

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	85	125
Average Queue (ft)	19	44
95th Queue (ft)	61	84
Link Distance (ft)		738
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	1	
Queuing Penalty (veh)	0	

Intersection: 21: Empire Ave & Shadow Ridge Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	28	139	22
Average Queue (ft)	3	41	2
95th Queue (ft)	16	104	12
Link Distance (ft)	270	167	602
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 22: Lowell Ave & Shadow Ridge Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	31	121	70
Average Queue (ft)	10	59	35
95th Queue (ft)	22	93	57
Link Distance (ft)	232	270	738
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 29: Empire Ave & 14th Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	80	62
Average Queue (ft)	38	5
95th Queue (ft)	62	29
Link Distance (ft)	392	167
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 46

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	204	19	61	310	270	47	208	77	594	199	1111
Future Volume (veh/h)	372	204	19	61	310	270	47	208	77	594	199	1111
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	404	222	21	66	337	293	51	226	84	646	216	1208
Adj No. of Lanes	2	1	0	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	474	426	40	84	304	697	432	770	278	539	697	810
Arrive On Green	0.14	0.25	0.25	0.05	0.16	0.16	0.20	0.30	0.30	0.28	0.37	0.37
Sat Flow, veh/h	3442	1676	159	1774	1863	1583	1774	2549	921	1774	1863	1583
Grp Volume(v), veh/h	404	0	243	66	337	293	51	155	155	646	216	1208
Grp Sat Flow(s),veh/h/ln	1721	0	1835	1774	1863	1583	1774	1770	1700	1774	1863	1583
Q Serve(g_s), s	17.2	0.0	17.1	5.5	24.5	19.1	0.0	10.0	10.5	41.5	12.3	46.7
Cycle Q Clear(g_c), s	17.2	0.0	17.1	5.5	24.5	19.1	0.0	10.0	10.5	41.5	12.3	46.7
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.54	1.00		1.00
Lane Grp Cap(c), veh/h	474	0	466	84	304	697	432	535	514	539	697	810
V/C Ratio(X)	0.85	0.00	0.52	0.79	1.11	0.42	0.12	0.29	0.30	1.20	0.31	1.49
Avail Cap(c_a), veh/h	1044	0	708	143	304	697	432	535	514	539	697	810
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.2	0.0	48.1	70.7	62.8	28.9	45.8	40.0	40.2	45.1	33.2	20.4
Incr Delay (d2), s/veh	4.4	0.0	0.9	15.0	83.7	0.4	0.1	1.4	1.5	106.4	1.2	227.4
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(50%),veh/ln	8.5	0.0	8.8	3.1	19.7	8.4	1.7	5.1	5.2	17.9	6.6	71.3
LnGrp Delay(d),s/veh	67.6	0.0	49.0	85.7	146.4	29.3	45.9	41.4	41.7	151.5	34.4	247.8
LnGrp LOS	E		D	F	F	C	D	D	D	F	C	F
Approach Vol, veh/h		647			696			361			2070	
Approach Delay, s/veh		60.6			91.3			42.2			195.5	
Approach LOS		E			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	46.0	49.8	11.6	42.6	35.2	60.6	25.2	29.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	41.5	20.5	12.1	57.9	5.9	56.1	45.5	24.5
Max Q Clear Time (g_c+I1), s	43.5	12.5	7.5	19.1	2.0	48.7	19.2	26.5
Green Ext Time (p_c), s	0.0	1.2	0.0	5.0	0.7	4.5	1.5	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	138.5
HCM 2010 LOS	F

3: Park Ave & 15th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1
Total Del/Veh (s)	12.8	1.6	8.0	11.5	15.5	3.6	5.7	0.8	2.0	1.4	2.2

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.0	0.0	2.8	0.5	0.5	0.0	0.0	0.0	7.7	5.5	5.5
Total Del/Veh (s)	36.5	25.8	16.0	47.8	41.3	28.7	20.2	30.6	24.1	56.0	27.8	4.7

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	All
Denied Del/Veh (s)	2.4
Total Del/Veh (s)	32.6

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.9	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	137.5	70.2	64.7	26.0	7.5	11.8	4.2	1.5	0.9	6.5	1.9	3.1

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	All
Denied Del/Veh (s)	1.0
Total Del/Veh (s)	28.0

9: Empire Ave & Crescent Tram Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.4	2.4	0.1	0.1	2.1	0.5	1.6

10: Empire Ave & Manor Way Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	7.3	1.6	6.2	2.1	0.4	0.5	0.4	4.9

11: Lowell Ave & Northstar Dr Performance by movement

Movement	EBL	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.6	1.5	0.0	1.2	1.5	1.1

12: Park Ave & Osborne St Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.3	0.0	0.0	0.1
Total Del/Veh (s)	8.2	3.9	3.0	0.3	3.8	3.9	2.7

13: Lowell Ave & Manor Way Performance by movement

Movement	WBL	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.2	0.0	0.1	0.1
Total Del/Veh (s)	4.4	4.8	7.5	7.7	6.4

14: Park Ave & 14th St Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.2	0.4	0.0	0.0	0.0	0.1
Total Del/Veh (s)	12.7	0.2	6.2	5.7	3.4	4.8	2.9	0.9	0.6	2.7

20: Lowell Ave & Silver King Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	168.5	204.1	125.8
Total Del/Veh (s)	11.1	0.0	4.7	3.3	101.9	122.0	73.1

21: Empire Ave & Shadow Ridge Rd Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.1	0.2	0.1	0.0	0.0	0.1
Total Del/Veh (s)	6.8	2.7	4.2	1.0	1.9	1.1	1.3

22: Lowell Ave & Shadow Ridge Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.5	2.9	5.2	5.4	3.7	0.0	0.0	5.8	2.8	3.6	4.0

29: Empire Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	11.4	5.6	1.2	0.8	4.8	0.8	1.7

Total Network Performance

Denied Del/Veh (s)	24.8
Total Del/Veh (s)	61.3

Intersection: 3: Park Ave & 15th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	LTR
Maximum Queue (ft)	61	39	42	4
Average Queue (ft)	25	17	11	0
95th Queue (ft)	48	42	34	3
Link Distance (ft)	382	341		357
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			50	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			1	

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	TR	L	T	R
Maximum Queue (ft)	236	249	254	115	343	449	51	179	196	325	706	471
Average Queue (ft)	140	154	121	53	139	222	21	108	123	255	272	122
95th Queue (ft)	209	225	204	96	246	413	46	164	180	371	653	469
Link Distance (ft)			591		537	537		357	357		706	706
Upstream Blk Time (%)					0	1					7	2
Queuing Penalty (veh)					0	0					0	0
Storage Bay Dist (ft)	215	215		250			300			300		
Storage Blk Time (%)	1	1	1		0					18	0	
Queuing Penalty (veh)	2	4	5		0					60	2	

Intersection: 7: Empire Ave & Silver King Dr/15th St

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR	LT
Maximum Queue (ft)	150	331	59	123	111
Average Queue (ft)	148	305	16	23	13
95th Queue (ft)	161	413	41	78	62
Link Distance (ft)		315	382	602	591
Upstream Blk Time (%)		51			
Queuing Penalty (veh)		198			
Storage Bay Dist (ft)	50				
Storage Blk Time (%)	99	3			
Queuing Penalty (veh)	68	10			

Intersection: 9: Empire Ave & Crescent Tram

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	36	30
Average Queue (ft)	14	1
95th Queue (ft)	37	12
Link Distance (ft)	185	2121
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Empire Ave & Manor Way

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	157	23
Average Queue (ft)	79	1
95th Queue (ft)	130	13
Link Distance (ft)	146	2121
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	2	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Lowell Ave & Northstar Dr

Movement	EB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	247
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Park Ave & Osborne St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	67	53
Average Queue (ft)	32	7
95th Queue (ft)	55	31
Link Distance (ft)	160	288
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Lowell Ave & Manor Way

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	70	93	114
Average Queue (ft)	34	45	63
95th Queue (ft)	55	72	96
Link Distance (ft)	146	1734	505
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Park Ave & 14th St

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	73	114	73
Average Queue (ft)	32	23	4
95th Queue (ft)	58	79	31
Link Distance (ft)	392	2685	312
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: Lowell Ave & Silver King Dr

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (ft)	36	47	456
Average Queue (ft)	6	5	329
95th Queue (ft)	27	25	554
Link Distance (ft)	334		738
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 21: Empire Ave & Shadow Ridge Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	33	151	13
Average Queue (ft)	6	29	1
95th Queue (ft)	25	98	6
Link Distance (ft)	270	167	602
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 22: Lowell Ave & Shadow Ridge Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	53	78	68
Average Queue (ft)	17	44	34
95th Queue (ft)	38	69	55
Link Distance (ft)	232	270	738
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 29: Empire Ave

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	67	34	72
Average Queue (ft)	30	1	15
95th Queue (ft)	56	18	53
Link Distance (ft)	392	332	167
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 353

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	613	264	34	69	223	633	35	375	65	490	337	329
Future Volume (veh/h)	613	264	34	69	223	633	35	375	65	490	337	329
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	666	287	37	75	242	688	38	408	71	533	366	358
Adj No. of Lanes	2	1	0	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	631	532	69	97	373	642	294	637	110	524	713	896
Arrive On Green	0.18	0.33	0.33	0.05	0.20	0.20	0.03	0.21	0.21	0.21	0.38	0.38
Sat Flow, veh/h	3442	1617	209	1774	1863	1583	1774	3019	521	1774	1863	1583
Grp Volume(v), veh/h	666	0	324	75	242	688	38	238	241	533	366	358
Grp Sat Flow(s),veh/h/ln	1721	0	1826	1774	1863	1583	1774	1770	1771	1774	1863	1583
Q Serve(g_s), s	16.5	0.0	13.0	3.8	10.8	16.0	1.5	11.0	11.2	18.5	13.6	2.2
Cycle Q Clear(g_c), s	16.5	0.0	13.0	3.8	10.8	16.0	1.5	11.0	11.2	18.5	13.6	2.2
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	631	0	600	97	373	642	294	374	374	524	713	896
V/C Ratio(X)	1.06	0.00	0.54	0.78	0.65	1.07	0.13	0.64	0.64	1.02	0.51	0.40
Avail Cap(c_a), veh/h	631	0	600	175	373	642	332	374	374	524	713	896
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	0.0	24.6	42.0	33.1	9.3	26.2	32.4	32.4	23.3	21.3	4.0
Incr Delay (d2), s/veh	51.4	0.0	1.0	12.4	3.9	56.2	0.2	8.1	8.3	43.8	2.6	1.3
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(50%),veh/ln	12.3	0.0	6.7	2.2	5.9	16.9	0.7	6.2	6.4	10.4	7.4	3.1
LnGrp Delay(d),s/veh	88.1	0.0	25.6	54.4	37.0	65.5	26.4	40.4	40.7	67.2	24.0	5.4
LnGrp LOS	F		C	D	D	F	C	D	D	F	C	A
Approach Vol, veh/h		990			1005			517			1257	
Approach Delay, s/veh		67.7			57.8			39.5			37.0	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	23.5	9.4	34.1	7.6	38.9	21.0	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	19.0	8.9	25.6	5.0	32.5	16.5	18.0
Max Q Clear Time (g_c+I1), s	20.5	13.2	5.8	15.0	3.5	15.6	18.5	18.0
Green Ext Time (p_c), s	0.0	3.1	0.0	3.5	0.0	6.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	50.9
HCM 2010 LOS	D

Appendix D – Future Traffic Analysis without Project

3: Park Ave & 15th St Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.1	0.6	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.8	4.5	5.7	8.3	3.1	2.5	0.4	1.5	1.0	1.7

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.0	0.0	3.1	0.5	0.3	0.0	0.0	0.0	146.8	141.5	139.4
Total Del/Veh (s)	33.9	24.3	16.3	51.2	53.1	8.6	36.2	29.3	15.4	103.8	66.5	50.0

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	All
Denied Del/Veh (s)	78.1
Total Del/Veh (s)	50.6

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	4.5	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	147.1	65.3	49.6	34.0	37.3	15.7	8.4	3.1	2.7	4.5	1.7	4.7

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	17.6

9: Empire Ave & Crescent Tram Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.0	2.3	0.1	0.0	2.0	0.4	1.5

10: Empire Ave & Manor Way Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	6.5	4.6	2.1	0.4	0.4	0.4	4.1

11: Lowell Ave & Northstar Dr Performance by movement

Movement	EBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.6	0.0	1.0	1.4	0.9

12: Park Ave & Osborne St Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.2	0.0	0.0	0.1
Total Del/Veh (s)	5.0	3.3	2.1	0.2	1.8	2.1	1.5

13: Lowell Ave & Manor Way Performance by movement

Movement	WBL	WBR	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	4.3	2.7	4.3	6.4	1.8	4.6

14: Park Ave & 14th St Performance by movement

Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	8.1	3.8	4.7	2.1	2.7	3.3	0.6	0.3	2.4

20: Lowell Ave & Silver King Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	4.7	5.5	1.2
Total Del/Veh (s)	10.5	1.1	6.9	5.0	100.8	66.2	20.4

21: Empire Ave & Shadow Ridge Rd Performance by movement

Movement	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	6.1	13.0	3.0	3.3	2.1	3.2

22: Lowell Ave & Shadow Ridge Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.7	4.7	3.2	7.0	7.4	5.5	0.2	1.6	4.0	3.9

29: Empire Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.5	8.0	1.5	1.1	3.5	0.8	2.3

Total Network Performance

Denied Del/Veh (s)	76.8
Total Del/Veh (s)	71.4

Intersection: 3: Park Ave & 15th St

Movement	EB	WB	NB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	69	41	31
Average Queue (ft)	30	18	2
95th Queue (ft)	52	41	14
Link Distance (ft)	388	334	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			50
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	TR	L	T	R
Maximum Queue (ft)	162	176	178	197	371	151	104	110	141	245	753	754
Average Queue (ft)	84	98	87	60	194	69	34	62	79	239	710	706
95th Queue (ft)	141	150	158	169	352	123	77	102	133	275	827	829
Link Distance (ft)			591		536	536	357	357	357		706	706
Upstream Blk Time (%)					0						41	30
Queuing Penalty (veh)					0						0	0
Storage Bay Dist (ft)	215	215		250						220		
Storage Blk Time (%)	0	0	0	0	8					60	0	
Queuing Penalty (veh)	0	0	0	0	5					119	2	

Intersection: 7: Empire Ave & Silver King Dr/15th St

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	LTR	LT	R
Maximum Queue (ft)	150	307	85	201	65	152
Average Queue (ft)	125	204	27	57	5	8
95th Queue (ft)	188	429	64	139	32	69
Link Distance (ft)		315	388	602	591	591
Upstream Blk Time (%)		28				
Queuing Penalty (veh)		60				
Storage Bay Dist (ft)	50					
Storage Blk Time (%)	82	2				
Queuing Penalty (veh)	35	3				

Intersection: 9: Empire Ave & Crescent Tram

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	31	6
Average Queue (ft)	15	0
95th Queue (ft)	36	6
Link Distance (ft)	185	2121
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Empire Ave & Manor Way

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	130	23
Average Queue (ft)	65	1
95th Queue (ft)	106	12
Link Distance (ft)	146	2121
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Lowell Ave & Northstar Dr

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	3
95th Queue (ft)	18
Link Distance (ft)	247
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Park Ave & Osborne St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	66	49
Average Queue (ft)	30	4
95th Queue (ft)	53	25
Link Distance (ft)	160	288
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Lowell Ave & Manor Way

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	64	74	87
Average Queue (ft)	36	40	50
95th Queue (ft)	56	65	75
Link Distance (ft)	146	1734	505
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Park Ave & 14th St

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	67	83	29
Average Queue (ft)	36	17	1
95th Queue (ft)	58	57	12
Link Distance (ft)	392	2685	312
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: Lowell Ave & Silver King Dr

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (ft)	27	96	293
Average Queue (ft)	3	25	147
95th Queue (ft)	21	72	370
Link Distance (ft)	334		738
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		1	
Queuing Penalty (veh)		0	

Intersection: 21: Empire Ave & Shadow Ridge Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	28	179	40
Average Queue (ft)	4	66	5
95th Queue (ft)	19	160	22
Link Distance (ft)	270	167	602
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		8	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 22: Lowell Ave & Shadow Ridge Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	47	146	69
Average Queue (ft)	14	71	40
95th Queue (ft)	32	115	64
Link Distance (ft)	232	270	738
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 29: Empire Ave

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	104	146	40
Average Queue (ft)	42	7	4
95th Queue (ft)	77	65	23
Link Distance (ft)	392	332	167
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 233

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	204	19	61	310	270	47	208	77	594	199	1111
Future Volume (veh/h)	372	204	19	61	310	270	47	208	77	594	199	1111
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	404	222	21	66	337	293	51	226	84	646	216	1208
Adj No. of Lanes	2	1	0	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	492	494	47	85	372	624	288	670	242	469	671	796
Arrive On Green	0.14	0.29	0.29	0.05	0.20	0.20	0.10	0.26	0.26	0.19	0.36	0.36
Sat Flow, veh/h	3442	1676	159	1774	1863	1583	1774	2549	921	1774	1863	1583
Grp Volume(v), veh/h	404	0	243	66	337	293	51	155	155	646	216	1208
Grp Sat Flow(s),veh/h/ln	1721	0	1835	1774	1863	1583	1774	1770	1700	1774	1863	1583
Q Serve(g_s), s	10.3	0.0	9.7	3.3	15.9	12.4	0.0	6.4	6.7	17.5	7.6	23.3
Cycle Q Clear(g_c), s	10.3	0.0	9.7	3.3	15.9	12.4	0.0	6.4	6.7	17.5	7.6	23.3
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.54	1.00		1.00
Lane Grp Cap(c), veh/h	492	0	541	85	372	624	288	465	447	469	671	796
V/C Ratio(X)	0.82	0.00	0.45	0.78	0.91	0.47	0.18	0.33	0.35	1.38	0.32	1.52
Avail Cap(c_a), veh/h	631	0	557	142	373	625	288	465	447	469	671	796
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	25.8	42.4	35.2	20.3	33.8	26.8	26.9	29.3	20.8	7.9
Incr Delay (d2), s/veh	6.7	0.0	0.6	14.1	25.1	0.6	0.3	1.9	2.1	182.5	1.3	239.0
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(50%),veh/ln	5.3	0.0	5.0	1.9	10.7	5.5	1.2	3.3	3.4	26.8	4.1	62.8
LnGrp Delay(d),s/veh	44.2	0.0	26.4	56.4	60.3	20.8	34.1	28.7	29.0	211.8	22.1	246.8
LnGrp LOS	D		C	E	E	C	C	C	C	F	C	F
Approach Vol, veh/h		647			696			361			2070	
Approach Delay, s/veh		37.5			43.3			29.6			212.5	
Approach LOS		D			D			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	28.2	8.8	31.0	13.3	36.9	17.4	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	20.0	7.2	27.3	5.1	32.4	16.5	18.0
Max Q Clear Time (g_c+I1), s	19.5	8.7	5.3	11.7	2.0	25.3	12.3	17.9
Green Ext Time (p_c), s	0.0	1.5	0.0	4.1	0.6	4.3	0.6	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	133.8
HCM 2010 LOS	F

3: Park Ave & 15th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1
Total Del/Veh (s)	17.0	1.3	8.5	15.9	16.8	5.1	6.7	1.1	1.8	1.2	2.3

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.0	0.0	277.8	266.7	270.5	0.0	0.0	0.0	364.1	354.6	364.4
Total Del/Veh (s)	46.4	25.7	16.8	76.2	57.6	100.0	21.7	38.5	37.5	135.0	70.2	15.0

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	All
Denied Del/Veh (s)	201.3
Total Del/Veh (s)	65.6

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	4.0	18.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	175.6	90.0	75.0	26.7	9.8	11.1	5.3	2.3	1.9	8.9	2.2	3.3

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	30.0

9: Empire Ave & Crescent Tram Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.5	2.6	0.2	0.0	2.2	0.6	1.7

10: Empire Ave & Manor Way Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.4	2.4	7.9	3.2	0.9	0.6	0.5	6.4

11: Lowell Ave & Northstar Dr Performance by movement

Movement	EBL	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.7	1.5	0.0	1.3	1.5	1.2

12: Park Ave & Osborne St Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.4	0.3	0.0	0.0	0.1
Total Del/Veh (s)	8.4	4.2	3.3	0.4	3.6	4.3	2.6

13: Lowell Ave & Manor Way Performance by movement

Movement	WBL	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.2	0.1	0.1	0.1
Total Del/Veh (s)	5.1	5.8	10.6	10.7	8.6

14: Park Ave & 14th St Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.3	0.2	0.0	0.0	0.0	0.2
Total Del/Veh (s)	18.8	0.3	8.7	7.5	4.4	3.0	4.4	0.8	0.4	3.8

20: Lowell Ave & Silver King Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	764.7	803.4	517.2
Total Del/Veh (s)	11.4	0.9	4.9	3.6	171.0	195.4	102.7

21: Empire Ave & Shadow Ridge Rd Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.4	0.3	0.0	0.0	0.2
Total Del/Veh (s)	19.8	3.3	5.5	1.8	2.1	1.3	2.0

22: Lowell Ave & Shadow Ridge Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	3.2	5.7	6.9	3.9	0.0	0.0	4.3	3.2	3.4	4.4

29: Empire Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.0	8.7	1.6	1.2	7.1	1.4	2.6

Total Network Performance

Denied Del/Veh (s)	269.1
Total Del/Veh (s)	95.9

Intersection: 3: Park Ave & 15th St

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	79	56	53	52	4
Average Queue (ft)	30	21	13	3	0
95th Queue (ft)	62	48	40	31	3
Link Distance (ft)	382	341		345	357
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		
Storage Blk Time (%)			1	0	
Queuing Penalty (veh)			3	0	

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	TR	L	T	R
Maximum Queue (ft)	269	297	242	220	584	592	73	286	324	325	763	744
Average Queue (ft)	169	186	126	74	548	554	27	151	164	324	724	690
95th Queue (ft)	257	281	207	156	630	595	57	255	274	326	769	900
Link Distance (ft)			591		537	537		357	357		706	706
Upstream Blk Time (%)					54	87		0	1		70	22
Queuing Penalty (veh)					0	0		2	3		0	0
Storage Bay Dist (ft)	215	215		250			300			300		
Storage Blk Time (%)	4	7	0		3			2		67	0	
Queuing Penalty (veh)	13	27	3		2			1		284	2	

Intersection: 7: Empire Ave & Silver King Dr/15th St

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR	LT
Maximum Queue (ft)	150	332	61	196	137
Average Queue (ft)	149	326	19	35	18
95th Queue (ft)	149	334	45	115	73
Link Distance (ft)		315	382	602	591
Upstream Blk Time (%)		65			
Queuing Penalty (veh)		319			
Storage Bay Dist (ft)	50				
Storage Blk Time (%)	100	5			
Queuing Penalty (veh)	88	21			

Intersection: 9: Empire Ave & Crescent Tram

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	31	23
Average Queue (ft)	17	2
95th Queue (ft)	39	14
Link Distance (ft)	185	2121
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Empire Ave & Manor Way

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	161	53
Average Queue (ft)	97	3
95th Queue (ft)	156	25
Link Distance (ft)	146	2121
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	9	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Lowell Ave & Northstar Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	36	6
Average Queue (ft)	3	0
95th Queue (ft)	19	6
Link Distance (ft)	247	292
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Park Ave & Osborne St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	67	73
Average Queue (ft)	35	10
95th Queue (ft)	58	44
Link Distance (ft)	160	288
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Lowell Ave & Manor Way

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	78	96	225
Average Queue (ft)	38	52	86
95th Queue (ft)	65	80	155
Link Distance (ft)	146	1734	505
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Park Ave & 14th St

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	110	196	65
Average Queue (ft)	45	42	6
95th Queue (ft)	84	131	33
Link Distance (ft)	392	2685	312
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: Lowell Ave & Silver King Dr

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (ft)	52	53	466
Average Queue (ft)	8	8	413
95th Queue (ft)	34	33	450
Link Distance (ft)	334		738
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 21: Empire Ave & Shadow Ridge Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	28	180	17
Average Queue (ft)	9	60	1
95th Queue (ft)	30	154	8
Link Distance (ft)	270	167	602
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		4	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 22: Lowell Ave & Shadow Ridge Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	51	93	76
Average Queue (ft)	19	50	37
95th Queue (ft)	40	78	61
Link Distance (ft)	232	270	738
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 29: Empire Ave

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	89	92	91
Average Queue (ft)	37	6	23
95th Queue (ft)	67	38	70
Link Distance (ft)	392	332	167
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 781

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	772	333	43	87	281	797	45	472	82	617	424	414
Future Volume (veh/h)	772	333	43	87	281	797	45	472	82	617	424	414
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	839	362	47	95	305	866	49	513	89	671	461	450
Adj No. of Lanes	2	1	0	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	593	492	64	121	373	642	264	671	116	495	724	888
Arrive On Green	0.17	0.30	0.30	0.07	0.20	0.20	0.04	0.22	0.22	0.21	0.39	0.39
Sat Flow, veh/h	3442	1616	210	1774	1863	1583	1774	3019	522	1774	1863	1583
Grp Volume(v), veh/h	839	0	409	95	305	866	49	300	302	671	461	450
Grp Sat Flow(s),veh/h/ln	1721	0	1826	1774	1863	1583	1774	1770	1771	1774	1863	1583
Q Serve(g_s), s	15.5	0.0	18.1	4.7	14.1	16.7	1.9	14.3	14.4	18.5	18.1	3.2
Cycle Q Clear(g_c), s	15.5	0.0	18.1	4.7	14.1	16.7	1.9	14.3	14.4	18.5	18.1	3.2
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	593	0	555	121	373	642	264	393	393	495	724	888
V/C Ratio(X)	1.42	0.00	0.74	0.79	0.82	1.35	0.19	0.76	0.77	1.35	0.64	0.51
Avail Cap(c_a), veh/h	593	0	555	140	373	642	295	393	393	495	724	888
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	0.0	28.1	41.3	34.4	9.3	25.3	32.8	32.8	21.7	22.4	4.4
Incr Delay (d2), s/veh	196.8	0.0	5.1	22.2	13.4	167.1	0.3	13.1	13.4	172.5	4.3	2.1
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(50%),veh/ln	23.5	0.0	9.9	3.1	8.6	37.0	0.9	8.4	8.5	23.7	10.1	4.4
LnGrp Delay(d),s/veh	234.0	0.0	33.2	63.5	47.8	176.4	25.6	45.9	46.2	194.2	26.6	6.5
LnGrp LOS	F		C	E	D	F	C	D	D	F	C	A
Approach Vol, veh/h		1248			1266			651			1582	
Approach Delay, s/veh		168.2			137.0			44.5			92.0	
Approach LOS		F			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	24.5	10.6	31.9	8.0	39.5	20.0	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	20.0	7.1	26.4	5.1	33.4	15.5	18.0
Max Q Clear Time (g_c+I1), s	20.5	16.4	6.7	20.1	3.9	20.1	17.5	18.7
Green Ext Time (p_c), s	0.0	2.5	0.0	3.2	0.0	6.9	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	117.5
HCM 2010 LOS	F

Appendix E – Future Traffic Analysis with Project

3: Park Ave & 15th St Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.1	0.2	0.1	0.1	0.6	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.0	4.9	10.1	7.0	3.8	3.2	0.3	1.9	1.5	1.9

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.0	0.0	3.0	0.4	0.3	0.0	0.0	0.0	2.8	1.6	1.4
Total Del/Veh (s)	32.5	21.9	14.8	37.0	47.1	2.7	17.5	27.3	14.3	28.9	19.1	15.3

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	All
Denied Del/Veh (s)	1.1
Total Del/Veh (s)	23.1

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.5	0.0	0.0	0.8	0.1	0.2	0.0	0.0	0.0
Total Del/Veh (s)	20.2	8.1	8.7	19.1	14.5	4.7	27.1	8.1	6.7	19.7	13.0	10.0

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	12.0

9: Empire Ave & Crescent Tram Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.9	2.6	0.3	0.1	2.0	0.7	1.2

10: Empire Ave & Manor Way Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	7.4	3.0	5.8	2.3	0.6	0.5	0.4	4.6

11: Lowell Ave & Northstar Dr Performance by movement

Movement	EBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.9	0.3	1.1	1.5	0.9

12: Park Ave & Osborne St Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.2	0.0	0.0	0.1
Total Del/Veh (s)	5.7	3.3	2.0	0.2	2.6	2.5	2.0

13: Lowell Ave & Manor Way Performance by movement

Movement	WBL	WBR	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	4.3	2.7	4.6	7.0	2.1	4.9

14: Park Ave & 14th Performance by movement

Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.2	4.8	3.5	2.0	1.9	2.3	0.8	0.4	2.3

16: Performance by movement

Movement	EBT	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	0.2	1.6	0.3	4.2	2.7	1.9

17: Lowell Ave Performance by movement

Movement	EBL	EBR	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.9	2.0	0.6	0.0	0.1	1.2

20: Lowell Ave & Silver King Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.3	0.2	0.1
Total Del/Veh (s)	0.5	0.1	7.3	5.6	34.6	10.5	8.2

21: Empire Ave & Shadow Ridge Rd Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	33.9	10.2	19.4	4.8	5.6	4.4	5.9

22: Lowell Ave & Shadow Ridge Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.4	5.3	3.5	7.4	7.2	6.4	0.2	1.6	4.0	4.0

29: Empire Ave & 14th Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	15.7	11.2	2.4	1.3	5.2	1.2	3.1

Total Network Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	39.5

Intersection: 3: Park Ave & 15th St

Movement	EB	WB	NB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	58	50	30
Average Queue (ft)	25	19	2
95th Queue (ft)	46	47	14
Link Distance (ft)	374	343	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			50
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	TR	L	L	T
Maximum Queue (ft)	176	197	231	238	326	95	64	113	137	242	293	612
Average Queue (ft)	101	114	102	49	182	22	24	62	79	122	176	103
95th Queue (ft)	158	170	181	148	298	71	53	96	127	236	274	319
Link Distance (ft)			599		910	910		351	351			720
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	215	215		250			300			300	300	
Storage Blk Time (%)		0	1	0	4						0	
Queuing Penalty (veh)		0	2	0	2						0	

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	SB
Directions Served	R
Maximum Queue (ft)	572
Average Queue (ft)	45
95th Queue (ft)	321
Link Distance (ft)	720
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Empire Ave & Silver King Dr/15th St

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	134	127	50	36	74	283	39	297	120
Average Queue (ft)	71	28	15	8	35	114	6	138	13
95th Queue (ft)	123	88	42	27	73	219	27	243	94
Link Distance (ft)		309		374		600		599	599
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	50		50		50		50		
Storage Blk Time (%)	24	1	1	0	7	15	0	20	
Queuing Penalty (veh)	11	2	0	0	33	10	0	2	

Intersection: 9: Empire Ave & Crescent Tram

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	31	25
Average Queue (ft)	15	1
95th Queue (ft)	36	12
Link Distance (ft)	185	2121
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Empire Ave & Manor Way

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	137	30
Average Queue (ft)	77	2
95th Queue (ft)	123	14
Link Distance (ft)	146	2121
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	2	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Lowell Ave & Northstar Dr

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	4
95th Queue (ft)	20
Link Distance (ft)	247
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Park Ave & Osborne St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	63	29
Average Queue (ft)	31	3
95th Queue (ft)	57	19
Link Distance (ft)	160	288
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Lowell Ave & Manor Way

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	74	84	105
Average Queue (ft)	37	43	54
95th Queue (ft)	58	69	84
Link Distance (ft)	146	1734	505
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Park Ave & 14th

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	88	90	28
Average Queue (ft)	37	16	1
95th Queue (ft)	68	56	10
Link Distance (ft)	391	2685	312
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16:

Movement	NB
Directions Served	LR
Maximum Queue (ft)	46
Average Queue (ft)	19
95th Queue (ft)	44
Link Distance (ft)	176
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Lowell Ave

Movement	EB
Directions Served	LR
Maximum Queue (ft)	21
Average Queue (ft)	10
95th Queue (ft)	24
Link Distance (ft)	217
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 20: Lowell Ave & Silver King Dr

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (ft)	4	118	245
Average Queue (ft)	0	29	71
95th Queue (ft)	3	87	165
Link Distance (ft)	334		738
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		1	
Queuing Penalty (veh)		0	

Intersection: 21: Empire Ave & Shadow Ridge Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	76	179	52
Average Queue (ft)	24	87	6
95th Queue (ft)	57	188	29
Link Distance (ft)	265	165	600
Upstream Blk Time (%)		4	
Queuing Penalty (veh)		26	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 22: Lowell Ave & Shadow Ridge Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	44	143	77
Average Queue (ft)	12	81	41
95th Queue (ft)	28	125	64
Link Distance (ft)	232	265	738
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 29: Empire Ave & 14th

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	134	187	49
Average Queue (ft)	45	21	6
95th Queue (ft)	93	102	31
Link Distance (ft)	391	332	165
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 91

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	404	222	21	63	323	270	47	211	79	594	203	1140
Future Volume (veh/h)	404	222	21	63	323	270	47	211	79	594	203	1140
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	439	241	23	68	351	0	51	229	86	646	221	0
Adj No. of Lanes	2	1	0	1	1	1	1	2	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	525	532	51	88	399	547	485	703	257	1049	681	579
Arrive On Green	0.15	0.32	0.32	0.05	0.21	0.00	0.04	0.28	0.28	0.13	0.37	0.00
Sat Flow, veh/h	3442	1675	160	1774	1863	1583	1774	2541	928	3442	1863	1583
Grp Volume(v), veh/h	439	0	264	68	351	0	51	157	158	646	221	0
Grp Sat Flow(s),veh/h/ln	1721	0	1835	1774	1863	1583	1774	1770	1699	1721	1863	1583
Q Serve(g_s), s	9.9	0.0	9.2	3.0	14.6	0.0	1.6	5.7	5.9	10.5	6.8	0.0
Cycle Q Clear(g_c), s	9.9	0.0	9.2	3.0	14.6	0.0	1.6	5.7	5.9	10.5	6.8	0.0
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.55	1.00		1.00
Lane Grp Cap(c), veh/h	525	0	583	88	399	547	485	490	470	1049	681	579
V/C Ratio(X)	0.84	0.00	0.45	0.78	0.88	0.00	0.11	0.32	0.33	0.62	0.32	0.00
Avail Cap(c_a), veh/h	568	0	583	191	454	594	523	490	470	1049	681	579
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)	0.87	0.00	0.87	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.9	0.0	21.8	37.6	30.4	0.0	19.1	23.0	23.1	16.4	18.3	0.0
Incr Delay (d2), s/veh	8.7	0.0	0.5	13.6	16.3	0.0	0.1	1.7	1.9	1.1	1.3	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(50%),veh/ln	5.3	0.0	4.7	1.8	9.3	0.0	0.8	3.0	3.0	5.0	3.7	0.0
LnGrp Delay(d),s/veh	41.6	0.0	22.2	51.2	46.7	0.0	19.2	24.7	25.0	17.5	19.5	0.0
LnGrp LOS	D		C	D	D		B	C	C	B	B	
Approach Vol, veh/h		703			419			366			867	
Approach Delay, s/veh		34.3			47.4			24.0			18.0	
Approach LOS		C			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	26.6	8.4	29.9	7.9	33.8	16.7	21.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	18.8	8.6	24.1	5.1	24.2	13.2	19.5
Max Q Clear Time (g_c+I1), s	12.5	7.9	5.0	11.2	3.6	8.8	11.9	16.6
Green Ext Time (p_c), s	0.0	2.4	0.0	2.7	0.0	2.8	0.3	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	29.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	21	22	27	17	7	66	441	24	8	784	709
Future Volume (veh/h)	177	21	22	27	17	7	66	441	24	8	784	709
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1824	1863	1863	1863
Adj Flow Rate, veh/h	192	23	24	29	18	8	72	479	26	9	852	0
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	388	161	169	369	236	105	348	1110	60	580	1181	1004
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.63	0.63	0.63	0.63	0.63	0.00
Sat Flow, veh/h	1379	836	873	1353	1223	544	645	1751	95	890	1863	1583
Grp Volume(v), veh/h	192	0	47	29	0	26	72	0	505	9	852	0
Grp Sat Flow(s),veh/h/ln	1379	0	1709	1353	0	1767	645	0	1846	890	1863	1583
Q Serve(g_s), s	6.9	0.0	1.2	0.9	0.0	0.6	4.4	0.0	7.2	0.3	16.1	0.0
Cycle Q Clear(g_c), s	7.5	0.0	1.2	2.1	0.0	0.6	20.5	0.0	7.2	7.4	16.1	0.0
Prop In Lane	1.00		0.51	1.00		0.31	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	388	0	330	369	0	341	348	0	1170	580	1181	1004
V/C Ratio(X)	0.49	0.00	0.14	0.08	0.00	0.08	0.21	0.00	0.43	0.02	0.72	0.00
Avail Cap(c_a), veh/h	599	0	591	575	0	611	348	0	1170	580	1181	1004
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	0.0	17.4	18.3	0.0	17.2	13.3	0.0	4.8	6.7	6.4	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.2	0.1	0.0	0.1	1.3	0.0	1.2	0.0	3.8	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(50%),veh/ln	2.7	0.0	0.6	0.4	0.0	0.3	0.9	0.0	3.9	0.1	9.3	0.0
LnGrp Delay(d),s/veh	21.3	0.0	17.6	18.4	0.0	17.3	14.7	0.0	6.0	6.7	10.3	0.0
LnGrp LOS	C		B	B		B	B		A	A	B	
Approach Vol, veh/h		239			55			577			861	
Approach Delay, s/veh		20.5			17.9			7.0			10.2	
Approach LOS		C			B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		37.5		14.6		37.5		14.6
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		33.0		18.0		33.0		18.0
Max Q Clear Time (g_c+I1), s		22.5		9.5		18.1		4.1
Green Ext Time (p_c), s		7.0		0.7		9.0		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B

3: Park Ave & 15th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1
Total Del/Veh (s)	22.9	1.3	12.5	21.8	29.7	6.2	7.1	0.9	2.6	1.9	3.2

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.0	0.0	137.1	131.4	133.1	0.0	0.0	0.0	5.2	4.1	3.2
Total Del/Veh (s)	58.2	30.1	25.7	58.5	60.8	129.4	43.4	30.6	25.2	92.3	37.9	5.4

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	All
Denied Del/Veh (s)	36.4
Total Del/Veh (s)	60.9

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0
Total Del/Veh (s)	31.8	21.2	11.9	16.8	6.1	10.7	27.0	19.0	14.0	36.6	12.1	5.9

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	18.2

9: Empire Ave & Crescent Tram Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	4.5	2.6	0.3	0.1	2.9	1.3	1.8

10: Empire Ave & Manor Way Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.2
Total Del/Veh (s)	15.1	3.8	14.2	3.7	0.8	0.9	0.8	9.4

11: Lowell Ave & Northstar Dr Performance by movement

Movement	EBL	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	6.0	2.4	0.3	1.4	1.7	1.3

12: Park Ave & Osborne St Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.1	0.3	0.3	0.0	0.0	0.1
Total Del/Veh (s)	9.5	4.8	2.7	0.4	4.2	3.7	3.0

13: Lowell Ave & Manor Way Performance by movement

Movement	WBL	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.2	1.7	1.8	1.0
Total Del/Veh (s)	5.4	10.2	20.2	23.4	15.5

14: Park Ave & 14th Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.0	0.1
Total Del/Veh (s)	22.6	0.3	12.8	7.6	4.5	6.3	4.7	1.3	0.8	4.3

16: Access 2 Performance by movement

Movement	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.6	0.3	2.6	1.5

17: Access 1 & Lowell Ave Performance by movement

Movement	EBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.8	0.1	0.2	1.3

20: Lowell Ave & Silver King Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.4	0.4	0.3
Total Del/Veh (s)	0.7	0.0	5.3	4.4	11.2	7.7	6.6

21: Empire Ave & Shadow Ridge Rd Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.5	0.6	0.0	0.0	0.3
Total Del/Veh (s)	23.0	3.0	7.8	2.7	3.6	2.8	3.2

22: Lowell Ave & Shadow Ridge Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	3.2	6.0	6.8	4.5	0.1	0.1	4.7	3.3	3.8	4.4

29: Empire Ave & 14th Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	21.6	13.3	2.1	1.6	8.8	2.0	3.4

Total Network Performance

Denied Del/Veh (s)	34.9
Total Del/Veh (s)	78.5

Intersection: 3: Park Ave & 15th St

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	92	52	52	19	12
Average Queue (ft)	39	21	15	1	0
95th Queue (ft)	78	50	41	13	6
Link Distance (ft)	374	343		340	351
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		
Storage Blk Time (%)			0		
Queuing Penalty (veh)			2		

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	TR	L	L	T
Maximum Queue (ft)	315	408	572	250	955	956	90	226	232	312	324	688
Average Queue (ft)	245	283	277	70	677	809	32	139	147	258	290	379
95th Queue (ft)	343	433	569	165	1253	1140	69	204	214	356	365	783
Link Distance (ft)			599		910	910		351	351			720
Upstream Blk Time (%)			1		42	55						8
Queuing Penalty (veh)			15		0	0						0
Storage Bay Dist (ft)	215	215		250			300			300	300	
Storage Blk Time (%)	21	29	4		3					3	17	2
Queuing Penalty (veh)	83	115	36		3					11	75	9

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	SB
Directions Served	R
Maximum Queue (ft)	604
Average Queue (ft)	128
95th Queue (ft)	582
Link Distance (ft)	720
Upstream Blk Time (%)	2
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Empire Ave & Silver King Dr/15th St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T
Maximum Queue (ft)	149	318	31	40	74	536	62	231
Average Queue (ft)	133	158	5	11	28	254	14	119
95th Queue (ft)	174	338	23	31	68	475	46	201
Link Distance (ft)		309		374		600		599
Upstream Blk Time (%)		2				0		
Queuing Penalty (veh)		11				2		
Storage Bay Dist (ft)	50		50		50		50	
Storage Blk Time (%)	55	7	0	0	2	34	2	21
Queuing Penalty (veh)	49	27	0	0	14	17	10	4

Intersection: 9: Empire Ave & Crescent Tram

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	41	29
Average Queue (ft)	20	3
95th Queue (ft)	41	20
Link Distance (ft)	185	2121
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Empire Ave & Manor Way

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	164	23
Average Queue (ft)	138	1
95th Queue (ft)	186	13
Link Distance (ft)	146	2121
Upstream Blk Time (%)	9	
Queuing Penalty (veh)	63	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Lowell Ave & Northstar Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	24	25
Average Queue (ft)	2	1
95th Queue (ft)	15	12
Link Distance (ft)	247	270
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Park Ave & Osborne St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	63	53
Average Queue (ft)	35	7
95th Queue (ft)	57	33
Link Distance (ft)	160	288
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Lowell Ave & Manor Way

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	90	151	358
Average Queue (ft)	43	69	141
95th Queue (ft)	70	122	299
Link Distance (ft)	146	1734	505
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Park Ave & 14th

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	126	197	133
Average Queue (ft)	51	46	12
95th Queue (ft)	97	132	63
Link Distance (ft)	391	2685	312
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Access 2

Movement	NB
Directions Served	LR
Maximum Queue (ft)	55
Average Queue (ft)	21
95th Queue (ft)	49
Link Distance (ft)	176
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Access 1 & Lowell Ave

Movement	EB
Directions Served	LR
Maximum Queue (ft)	37
Average Queue (ft)	12
95th Queue (ft)	28
Link Distance (ft)	217
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 20: Lowell Ave & Silver King Dr

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (ft)	6	61	220
Average Queue (ft)	0	9	86
95th Queue (ft)	5	37	161
Link Distance (ft)	334		738
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 21: Empire Ave & Shadow Ridge Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	32	186	29
Average Queue (ft)	6	74	2
95th Queue (ft)	26	183	16
Link Distance (ft)	265	165	600
Upstream Blk Time (%)		2	
Queuing Penalty (veh)		14	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 22: Lowell Ave & Shadow Ridge Rd

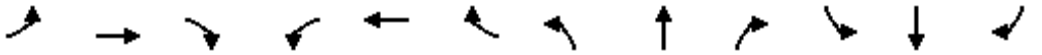
Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	43	97	76
Average Queue (ft)	16	54	41
95th Queue (ft)	35	83	65
Link Distance (ft)	232	265	738
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 29: Empire Ave & 14th

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	93	206	132
Average Queue (ft)	43	17	31
95th Queue (ft)	75	95	94
Link Distance (ft)	391	332	165
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 561



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	806	352	45	90	306	797	45	476	84	617	431	470
Future Volume (veh/h)	806	352	45	90	306	797	45	476	84	617	431	470
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	876	383	49	98	333	0	49	517	91	671	468	0
Adj No. of Lanes	2	1	0	1	1	1	1	2	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	746	557	71	124	368	313	70	643	113	593	646	549
Arrive On Green	0.22	0.34	0.34	0.07	0.20	0.00	0.04	0.21	0.21	0.17	0.35	0.00
Sat Flow, veh/h	3442	1619	207	1774	1863	1583	1774	3011	528	3442	1863	1583
Grp Volume(v), veh/h	876	0	432	98	333	0	49	303	305	671	468	0
Grp Sat Flow(s),veh/h/ln	1721	0	1826	1774	1863	1583	1774	1770	1770	1721	1863	1583
Q Serve(g_s), s	19.5	0.0	18.3	4.9	15.7	0.0	2.5	14.6	14.7	15.5	19.7	0.0
Cycle Q Clear(g_c), s	19.5	0.0	18.3	4.9	15.7	0.0	2.5	14.6	14.7	15.5	19.7	0.0
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	746	0	628	124	368	313	70	378	378	593	646	549
V/C Ratio(X)	1.17	0.00	0.69	0.79	0.91	0.00	0.70	0.80	0.81	1.13	0.72	0.00
Avail Cap(c_a), veh/h	746	0	628	152	373	317	99	378	378	593	646	549
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)	0.30	0.00	0.30	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.3	0.0	25.4	41.2	35.3	0.0	42.7	33.6	33.6	37.3	25.7	0.0
Incr Delay (d2), s/veh	83.2	0.0	1.0	19.8	24.6	0.0	12.2	16.3	16.7	79.0	7.0	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(50%),veh/ln	17.8	0.0	9.4	3.1	10.6	0.0	1.4	8.9	9.0	13.8	11.4	0.0
LnGrp Delay(d),s/veh	118.5	0.0	26.3	60.9	59.9	0.0	54.9	49.8	50.3	116.3	32.6	0.0
LnGrp LOS	F		C	E	E		D	D	D	F	C	
Approach Vol, veh/h		1308			431			657			1139	
Approach Delay, s/veh		88.0			60.2			50.5			81.9	
Approach LOS		F			E			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	23.7	10.8	35.5	8.0	35.7	24.0	22.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	19.0	7.7	29.8	5.0	29.5	19.5	18.0
Max Q Clear Time (g_c+I1), s	17.5	16.7	6.9	20.3	4.5	21.7	21.5	17.7
Green Ext Time (p_c), s	0.0	1.4	0.0	4.4	0.0	3.9	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	75.7
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	404	61	27	14	19	8	51	774	22	18	534	231
Future Volume (veh/h)	404	61	27	14	19	8	51	774	22	18	534	231
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	439	66	29	15	21	9	55	841	24	20	580	0
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	543	405	178	484	409	175	379	970	28	191	1002	852
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.54	0.54	0.54	0.54	0.54	0.00
Sat Flow, veh/h	1374	1228	540	1295	1238	531	831	1802	51	637	1863	1583
Grp Volume(v), veh/h	439	0	95	15	0	30	55	0	865	20	580	0
Grp Sat Flow(s),veh/h/ln	1374	0	1768	1295	0	1769	831	0	1854	637	1863	1583
Q Serve(g_s), s	21.7	0.0	2.6	0.6	0.0	0.8	3.2	0.0	27.6	1.9	14.2	0.0
Cycle Q Clear(g_c), s	22.5	0.0	2.6	3.2	0.0	0.8	17.5	0.0	27.6	29.5	14.2	0.0
Prop In Lane	1.00		0.31	1.00		0.30	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	543	0	583	484	0	584	379	0	997	191	1002	852
V/C Ratio(X)	0.81	0.00	0.16	0.03	0.00	0.05	0.15	0.00	0.87	0.10	0.58	0.00
Avail Cap(c_a), veh/h	543	0	583	484	0	584	401	0	1047	208	1052	894
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.3	0.0	16.2	17.3	0.0	15.6	16.4	0.0	13.6	26.4	10.6	0.0
Incr Delay (d2), s/veh	8.9	0.0	0.1	0.0	0.0	0.0	0.2	0.0	7.6	0.2	0.7	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(50%),veh/ln	9.5	0.0	1.3	0.2	0.0	0.4	0.8	0.0	16.0	0.3	7.5	0.0
LnGrp Delay(d),s/veh	32.1	0.0	16.3	17.3	0.0	15.6	16.6	0.0	21.3	26.6	11.3	0.0
LnGrp LOS	C		B	B		B	B		C	C	B	
Approach Vol, veh/h		534			45			920			600	
Approach Delay, s/veh		29.3			16.2			21.0			11.8	
Approach LOS		C			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		41.2		27.0		41.2		27.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		38.5		22.5		38.5		22.5
Max Q Clear Time (g_c+I1), s		29.6		24.5		31.5		5.2
Green Ext Time (p_c), s		6.4		0.0		5.2		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	20.4
HCM 2010 LOS	C

Appendix F – One Way Traffic Analysis

3: Park Ave & 15th St Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1	0.1	0.7	0.1	0.0	0.0	0.1
Total Del/Veh (s)	7.6	4.4	8.4	8.5	3.5	3.9	0.4	2.0	1.6	2.0

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	173.2	172.7	169.9	0.0	0.0	0.0	158.5	156.7	157.1
Total Del/Veh (s)	47.2	25.2	22.3	175.6	221.5	13.1	26.4	37.8	21.8	37.9	36.9	66.8

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	All
Denied Del/Veh (s)	117.4
Total Del/Veh (s)	63.7

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	1.4	0.1	0.2	0.0	0.0	17.9	11.6
Total Del/Veh (s)	7.1	7.1	6.7	3.2	3.7	2.0	1.2	20.3	20.6	36.3	24.3

9: Empire Ave & Crescent Tram Performance by movement

Movement	WBR	NBT	NBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1
Total Del/Veh (s)	2.7	0.3	0.2	0.7

10: Empire Ave & Manor Way Performance by movement

Movement	EBL	NBL	NBT	All
Denied Del/Veh (s)	0.3	1.5	0.2	0.3
Total Del/Veh (s)	6.7	2.2	0.7	4.6

11: Lowell Ave & Northstar Dr Performance by movement

Movement	EBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	1.8	1.3	1.6	1.3

12: Park Ave & 8th St. Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.2	0.0	0.0	0.1
Total Del/Veh (s)	4.9	3.0	2.1	0.2	2.0	2.5	1.6

13: Lowell Ave & Manor Way Performance by movement

Movement	WBL	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	4.0	6.5	2.2	3.6

14: Park Ave & 14th St Performance by movement

Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0		0.0	0.0	0.0
Total Del/Veh (s)	7.6	4.4	4.7	2.2	2.9		0.7	0.4	2.4

16: Access 1 & Lowell Ave/Empire Ave Performance by movement

Movement	NBR	All
Denied Del/Veh (s)	0.1	0.1
Total Del/Veh (s)	2.4	2.4

17: Lowell Ave & Access 2 Performance by movement

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

20: Lowell Ave & Silver King Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	0.5	0.2	8.2	4.6	7.8

21: Empire Ave & Shadow Ridge Rd Performance by movement

Movement	EBT	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.9	1.5	0.2	0.4

22: Lowell Ave & Shadow Ridge Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.6	3.1	4.9	5.9	5.1	5.4	5.1

29: Empire Ave Performance by movement

Movement	WBT	WBR	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.4	4.1	0.6	0.6	0.9

Total Network Performance

Denied Del/Veh (s)	114.1
Total Del/Veh (s)	80.4

Intersection: 3: Park Ave & 15th St

Movement	EB	WB	NB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	63	46	26
Average Queue (ft)	27	19	2
95th Queue (ft)	49	44	14
Link Distance (ft)	362	341	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			50
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	TR	L	L	T
Maximum Queue (ft)	203	215	231	275	572	555	69	148	174	286	312	770
Average Queue (ft)	124	141	112	192	512	381	29	83	102	158	197	699
95th Queue (ft)	186	205	192	380	642	775	61	130	160	264	289	951
Link Distance (ft)		599	599		532	532		356	356			720
Upstream Blk Time (%)					62	27						27
Queuing Penalty (veh)					0	0						0
Storage Bay Dist (ft)	215			250			300			300	300	
Storage Blk Time (%)	0	0		0	87					0	1	0
Queuing Penalty (veh)	0	1		0	53					0	1	0

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	SB
Directions Served	R
Maximum Queue (ft)	768
Average Queue (ft)	710
95th Queue (ft)	929
Link Distance (ft)	720
Upstream Blk Time (%)	53
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Empire Ave & Silver King Dr/15th St

Movement	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	R
Maximum Queue (ft)	23	27	48	35	94	85	656	687
Average Queue (ft)	3	2	18	8	32	26	537	587
95th Queue (ft)	18	15	36	27	77	67	891	928
Link Distance (ft)		330	362		593	593	599	599
Upstream Blk Time (%)							8	25
Queuing Penalty (veh)							63	189
Storage Bay Dist (ft)	100			100				
Storage Blk Time (%)					0			
Queuing Penalty (veh)					0			

Intersection: 9: Empire Ave & Crescent Tram

Movement	WB
Directions Served	R
Maximum Queue (ft)	36
Average Queue (ft)	14
95th Queue (ft)	36
Link Distance (ft)	180
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Empire Ave & Manor Way

Movement	EB
Directions Served	L
Maximum Queue (ft)	129
Average Queue (ft)	79
95th Queue (ft)	117
Link Distance (ft)	159
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Lowell Ave & Northstar Dr

Movement	EB
Directions Served	R
Maximum Queue (ft)	12
Average Queue (ft)	1
95th Queue (ft)	8
Link Distance (ft)	256
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Park Ave & 8th St.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	60	45
Average Queue (ft)	29	3
95th Queue (ft)	51	20
Link Distance (ft)	160	288
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Lowell Ave & Manor Way

Movement	WB	SB	SB
Directions Served	L	L	T
Maximum Queue (ft)	69	78	45
Average Queue (ft)	38	44	27
95th Queue (ft)	62	68	46
Link Distance (ft)	159	502	502
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Park Ave & 14th St

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	72	98	10
Average Queue (ft)	34	19	0
95th Queue (ft)	58	64	6
Link Distance (ft)	378	2685	311
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Access 1 & Lowell Ave/Empire Ave

Movement	NB
Directions Served	R
Maximum Queue (ft)	56
Average Queue (ft)	27
95th Queue (ft)	47
Link Distance (ft)	106
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Lowell Ave & Access 2

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

Intersection: 20: Lowell Ave & Silver King Dr

Movement	EB	WB	WB
Directions Served	TR	L	T
Maximum Queue (ft)	13	200	160
Average Queue (ft)	1	36	11
95th Queue (ft)	6	130	117
Link Distance (ft)	329	330	330
Upstream Blk Time (%)			0
Queuing Penalty (veh)			1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 21: Empire Ave & Shadow Ridge Rd

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

Intersection: 22: Lowell Ave & Shadow Ridge Rd

Movement	EB	WB	SB	SB
Directions Served	TR	LT	LT	TR
Maximum Queue (ft)	36	47	76	99
Average Queue (ft)	11	26	44	61
95th Queue (ft)	25	45	63	85
Link Distance (ft)	218	306	725	725
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 29: Empire Ave

Movement	WB
Directions Served	R
Maximum Queue (ft)	59
Average Queue (ft)	28
95th Queue (ft)	48
Link Distance (ft)	378
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 309

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	404	222	19	61	325	270	47	214	81	594	199	1143
Future Volume (veh/h)	404	222	19	61	325	270	47	214	81	594	199	1143
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	439	241	21	66	353	0	51	233	88	646	216	0
Adj No. of Lanes	2	1	0	1	1	1	1	2	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	534	541	47	85	397	569	509	850	312	1169	834	709
Arrive On Green	0.16	0.32	0.32	0.05	0.21	0.00	0.03	0.34	0.34	0.15	0.45	0.00
Sat Flow, veh/h	3442	1690	147	1774	1863	1583	1774	2536	932	3442	1863	1583
Grp Volume(v), veh/h	439	0	262	66	353	0	51	161	160	646	216	0
Grp Sat Flow(s),veh/h/ln	1721	0	1837	1774	1863	1583	1774	1770	1698	1721	1863	1583
Q Serve(g_s), s	14.8	0.0	13.6	4.4	22.1	0.0	2.2	8.0	8.3	13.9	8.7	0.0
Cycle Q Clear(g_c), s	14.8	0.0	13.6	4.4	22.1	0.0	2.2	8.0	8.3	13.9	8.7	0.0
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.55	1.00		1.00
Lane Grp Cap(c), veh/h	534	0	588	85	397	569	509	593	569	1169	834	709
V/C Ratio(X)	0.82	0.00	0.45	0.78	0.89	0.00	0.10	0.27	0.28	0.55	0.26	0.00
Avail Cap(c_a), veh/h	663	0	730	149	539	690	529	593	569	1367	834	709
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)	0.98	0.00	0.98	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.1	0.0	32.3	56.5	45.9	0.0	24.6	29.2	29.3	19.2	20.7	0.0
Incr Delay (d2), s/veh	6.6	0.0	0.5	14.1	13.3	0.0	0.1	1.1	1.2	0.4	0.8	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(50%),veh/ln	7.6	0.0	7.0	2.5	12.8	0.0	1.1	4.1	4.1	6.6	4.6	0.0
LnGrp Delay(d),s/veh	55.7	0.0	32.9	70.6	59.2	0.0	24.7	30.3	30.5	19.6	21.4	0.0
LnGrp LOS	E		C	E	E		C	C	C	B	C	
Approach Vol, veh/h		701			419			372			862	
Approach Delay, s/veh		47.2			61.0			29.6			20.1	
Approach LOS		D			E			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.1	44.7	10.2	42.9	8.6	58.2	23.1	30.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	24.5	19.7	10.1	47.7	5.4	38.8	23.1	34.7
Max Q Clear Time (g_c+I1), s	15.9	10.3	6.4	15.6	4.2	10.7	16.8	24.1
Green Ext Time (p_c), s	1.7	2.2	0.0	3.4	0.0	3.3	1.8	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	36.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	2	0	0	40	7	66	640	35	8	0	1523
Future Volume (veh/h)	6	2	0	0	40	7	66	640	35	8	0	1523
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1900	1863	0	1863
Adj Flow Rate, veh/h	7	2	0	0	43	8	72	696	38	9	0	0
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	2	0	2
Cap, veh/h	336	126	0	0	104	19	281	1341	73	21	0	0
Arrive On Green	0.07	0.07	0.00	0.00	0.07	0.07	0.39	0.39	0.39	0.01	0.00	0.00
Sat Flow, veh/h	1348	1863	0	0	1528	284	1412	3413	186	1774	9	
Grp Volume(v), veh/h	7	2	0	0	0	51	72	361	373	9	25.0	
Grp Sat Flow(s),veh/h/ln	1348	1863	0	0	0	1813	1412	1770	1830	1774	C	
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	0.7	0.0	4.0	4.0	0.1		
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.0	0.0	0.7	0.1	4.0	4.0	0.1		
Prop In Lane	1.00		0.00	0.00		0.16	1.00		0.10	1.00		
Lane Grp Cap(c), veh/h	336	126	0	0	0	123	281	695	719	21		
V/C Ratio(X)	0.02	0.02	0.00	0.00	0.00	0.41	0.26	0.52	0.52	0.42		
Avail Cap(c_a), veh/h	1192	1309	0	0	0	1274	747	1278	1322	346		
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	11.8	11.1	0.0	0.0	0.0	11.4	7.8	5.9	5.9	12.6		
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	2.2	0.5	0.6	0.6	12.5		
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		
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.4	0.3	2.0	2.1	0.1		
LnGrp Delay(d),s/veh	11.9	11.2	0.0	0.0	0.0	13.7	8.3	6.5	6.5	25.0		
LnGrp LOS	B	B				B	A	A	A	C		
Approach Vol, veh/h		9			51			806				
Approach Delay, s/veh		11.7			13.7			6.7				
Approach LOS		B			B			A				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4				8
Phs Duration (G+Y+Rc), s	4.8	14.6		6.2				6.2
Change Period (Y+Rc), s	4.5	4.5		4.5				4.5
Max Green Setting (Gmax), s	5.0	18.5		18.0				18.0
Max Q Clear Time (g_c+I1), s	2.1	6.0		2.8				2.7
Green Ext Time (p_c), s	0.0	4.1		0.2				0.2

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

3: Park Ave & 15th St Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1
Total Del/Veh (s)	20.3	10.6	22.5	21.8	5.9	8.9	1.0	2.8	1.9	3.2

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	181.6	197.4	197.1	0.0	0.0	0.0	2.8	1.4	1.0
Total Del/Veh (s)	46.6	24.0	24.1	79.1	96.5	82.6	53.3	38.9	34.2	62.4	31.2	4.6

6: Park Ave & Empire Ave/Deer Valley Dr Performance by movement

Movement	All
Denied Del/Veh (s)	50.7
Total Del/Veh (s)	48.9

7: Empire Ave & Silver King Dr/15th St Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	2.0	0.3	0.2	0.0	0.0	0.0	0.2
Total Del/Veh (s)	15.1	15.2	5.5	6.5	4.8	4.1	2.5	17.7	4.3	9.7	6.2

9: Empire Ave & Crescent Tram Performance by movement

Movement	WBR	NBT	NBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1
Total Del/Veh (s)	2.8	0.3	0.2	0.9

10: Empire Ave & Manor Way Performance by movement

Movement	EBL	NBL	NBT	All
Denied Del/Veh (s)	1.0	1.1	0.1	0.8
Total Del/Veh (s)	8.9	2.1	0.9	6.9

11: Lowell Ave & Northstar Dr Performance by movement

Movement	EBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.3	1.7	1.6	1.7

12: Park Ave & 8th St. Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.2	0.3	0.3	0.0	0.0	0.1
Total Del/Veh (s)	10.1	5.7	3.8	0.4	4.4	5.0	3.3

13: Lowell Ave & Manor Way Performance by movement

Movement	WBL	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	4.4	8.6	3.7	6.3

14: Park Ave & 14th St Performance by movement

Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.1	0.2	0.3	0.2	0.0	0.0	0.0	0.1
Total Del/Veh (s)	24.4	12.1	8.7	4.7	1.8	4.5	1.3	0.7	4.4

16: Access 1 & Lowell Ave/Empire Ave Performance by movement

Movement	NBR	All
Denied Del/Veh (s)	0.1	0.1
Total Del/Veh (s)	2.4	2.4

17: Lowell Ave & Access 2 Performance by movement

Movement	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.1	0.4	0.3

20: Lowell Ave & Silver King Dr Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	1.1	0.4	5.6	3.7	5.2

21: Empire Ave & Shadow Ridge Rd Performance by movement

Movement	EBT	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.1
Total Del/Veh (s)	1.8	1.5	0.3	0.5

22: Lowell Ave & Shadow Ridge Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	7.2	3.4	5.4	6.3	8.6	7.9	5.2	7.1

29: Empire Ave Performance by movement

Movement	WBT	WBR	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.5	4.4	0.7	0.8	1.0

Total Network Performance

Denied Del/Veh (s)	47.1
Total Del/Veh (s)	57.6

Intersection: 3: Park Ave & 15th St

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	111	64	44	34	34
Average Queue (ft)	41	24	14	1	2
95th Queue (ft)	80	50	39	24	15
Link Distance (ft)	362	341		345	356
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		
Storage Blk Time (%)			1		
Queuing Penalty (veh)			4		

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	TR	L	L	T
Maximum Queue (ft)	399	472	371	275	570	581	123	272	296	312	324	643
Average Queue (ft)	235	257	188	115	538	537	37	162	171	232	270	245
95th Queue (ft)	348	388	313	282	620	654	83	242	258	327	348	478
Link Distance (ft)		599	599		532	532		356	356			720
Upstream Blk Time (%)					46	79			0			0
Queuing Penalty (veh)					0	0			0			0
Storage Bay Dist (ft)	215			250			300			300	300	
Storage Blk Time (%)	13	19		0	23			0		1	6	1
Queuing Penalty (veh)	54	77		0	20			0		2	26	4

Intersection: 6: Park Ave & Empire Ave/Deer Valley Dr

Movement	SB
Directions Served	R
Maximum Queue (ft)	286
Average Queue (ft)	10
95th Queue (ft)	145
Link Distance (ft)	720
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Empire Ave & Silver King Dr/15th St

Movement	EB	EB	WB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	L
Maximum Queue (ft)	46	28	50	90	264	237	48
Average Queue (ft)	12	3	15	11	94	68	15
95th Queue (ft)	38	15	35	54	200	158	41
Link Distance (ft)		330	362		593	593	599
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	100			100			
Storage Blk Time (%)					4		
Queuing Penalty (veh)					2		

Intersection: 9: Empire Ave & Crescent Tram

Movement	WB
Directions Served	R
Maximum Queue (ft)	51
Average Queue (ft)	20
95th Queue (ft)	43
Link Distance (ft)	180
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Empire Ave & Manor Way

Movement	EB
Directions Served	L
Maximum Queue (ft)	159
Average Queue (ft)	101
95th Queue (ft)	151
Link Distance (ft)	159
Upstream Blk Time (%)	0
Queuing Penalty (veh)	3
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Lowell Ave & Northstar Dr

Movement	EB
Directions Served	R
Maximum Queue (ft)	31
Average Queue (ft)	2
95th Queue (ft)	15
Link Distance (ft)	256
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Park Ave & 8th St.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	79	73
Average Queue (ft)	39	12
95th Queue (ft)	68	47
Link Distance (ft)	160	288
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Lowell Ave & Manor Way

Movement	WB	SB	SB
Directions Served	L	L	T
Maximum Queue (ft)	80	139	72
Average Queue (ft)	40	69	36
95th Queue (ft)	69	110	55
Link Distance (ft)	159	502	502
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Park Ave & 14th St

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	142	256	98
Average Queue (ft)	54	49	13
95th Queue (ft)	109	152	59
Link Distance (ft)	378	2685	311
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Access 1 & Lowell Ave/Empire Ave

Movement	NB
Directions Served	R
Maximum Queue (ft)	58
Average Queue (ft)	28
95th Queue (ft)	50
Link Distance (ft)	106
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Lowell Ave & Access 2

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

Intersection: 20: Lowell Ave & Silver King Dr

Movement	EB	WB
Directions Served	TR	L
Maximum Queue (ft)	31	106
Average Queue (ft)	3	18
95th Queue (ft)	16	68
Link Distance (ft)	329	330
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 21: Empire Ave & Shadow Ridge Rd

Movement	NB
Directions Served	LT
Maximum Queue (ft)	4
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	171
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 22: Lowell Ave & Shadow Ridge Rd

Movement	EB	WB	SB	SB
Directions Served	TR	LT	LT	TR
Maximum Queue (ft)	53	50	138	125
Average Queue (ft)	20	29	61	65
95th Queue (ft)	44	49	107	100
Link Distance (ft)	218	306	725	725
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 29: Empire Ave

Movement	WB
Directions Served	R
Maximum Queue (ft)	51
Average Queue (ft)	28
95th Queue (ft)	44
Link Distance (ft)	378
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 192

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	806	352	43	87	309	797	45	478	86	617	424	477
Future Volume (veh/h)	806	352	43	87	309	797	45	478	86	617	424	477
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	876	383	47	95	336	0	49	520	93	671	461	0
Adj No. of Lanes	2	1	0	1	1	1	1	2	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	878	599	74	120	337	287	66	565	101	675	646	549
Arrive On Green	0.25	0.37	0.37	0.07	0.18	0.00	0.04	0.19	0.19	0.20	0.35	0.00
Sat Flow, veh/h	3442	1628	200	1774	1863	1583	1774	3003	535	3442	1863	1583
Grp Volume(v), veh/h	876	0	430	95	336	0	49	306	307	671	461	0
Grp Sat Flow(s),veh/h/ln	1721	0	1827	1774	1863	1583	1774	1770	1768	1721	1863	1583
Q Serve(g_s), s	25.4	0.0	19.4	5.3	18.0	0.0	2.7	16.9	17.1	19.5	21.5	0.0
Cycle Q Clear(g_c), s	25.4	0.0	19.4	5.3	18.0	0.0	2.7	16.9	17.1	19.5	21.5	0.0
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	878	0	673	120	337	287	66	333	332	675	646	549
V/C Ratio(X)	1.00	0.00	0.64	0.79	1.00	0.00	0.74	0.92	0.92	0.99	0.71	0.00
Avail Cap(c_a), veh/h	878	0	673	154	337	287	89	333	332	675	646	549
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)	0.88	0.00	0.88	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.2	0.0	26.1	45.9	40.9	0.0	47.7	39.8	39.9	40.1	28.3	0.0
Incr Delay (d2), s/veh	28.0	0.0	1.8	18.7	48.0	0.0	20.0	32.4	33.5	33.2	6.6	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(50%),veh/ln	15.5	0.0	10.1	3.2	13.7	0.0	1.7	11.2	11.5	12.3	12.2	0.0
LnGrp Delay(d),s/veh	65.2	0.0	27.9	64.6	89.0	0.0	67.7	72.2	73.4	73.4	35.0	0.0
LnGrp LOS	E		C	E	F		E	E	E	E	C	
Approach Vol, veh/h		1306			431			662			1132	
Approach Delay, s/veh		52.9			83.6			72.4			57.7	
Approach LOS		D			F			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.1	23.3	11.3	41.3	8.2	39.2	30.0	22.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.6	18.8	8.7	34.9	5.0	33.4	25.5	18.1
Max Q Clear Time (g_c+I1), s	21.5	19.1	7.3	21.4	4.7	23.5	27.4	20.0
Green Ext Time (p_c), s	0.0	0.0	0.0	5.4	0.0	4.6	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	61.9
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	3	0	0	33	8	51	1253	47	18	0	778
Future Volume (veh/h)	13	3	0	0	33	8	51	1253	47	18	0	778
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1900	1863	0	1863
Adj Flow Rate, veh/h	14	3	0	0	36	9	55	1362	51	20	0	0
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	2	0	2
Cap, veh/h	237	117	0	0	90	23	184	1971	74	44	0	0
Arrive On Green	0.06	0.06	0.00	0.00	0.06	0.06	0.57	0.57	0.57	0.02	0.00	0.00
Sat Flow, veh/h	1356	1863	0	0	1439	360	1412	3479	130	1774	20	
Grp Volume(v), veh/h	14	3	0	0	0	45	55	692	721	20	25.8	
Grp Sat Flow(s),veh/h/ln	1356	1863	0	0	0	1799	1412	1770	1840	1774	C	
Q Serve(g_s), s	0.4	0.1	0.0	0.0	0.0	0.9	0.0	10.9	10.9	0.4		
Cycle Q Clear(g_c), s	1.3	0.1	0.0	0.0	0.0	0.9	0.1	10.9	10.9	0.4		
Prop In Lane	1.00		0.00	0.00		0.20	1.00		0.07	1.00		
Lane Grp Cap(c), veh/h	237	117	0	0	0	113	184	1003	1042	44		
V/C Ratio(X)	0.06	0.03	0.00	0.00	0.00	0.40	0.30	0.69	0.69	0.45		
Avail Cap(c_a), veh/h	780	864	0	0	0	834	408	1283	1334	232		
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	18.2	17.2	0.0	0.0	0.0	17.6	8.5	6.0	6.0	18.8		
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.0	2.3	0.9	1.1	1.1	7.0		
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		
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.0	0.0	0.5	0.3	5.5	5.7	0.3		
LnGrp Delay(d),s/veh	18.3	17.3	0.0	0.0	0.0	19.9	9.4	7.1	7.1	25.8		
LnGrp LOS	B	B				B	A	A	A	C		
Approach Vol, veh/h		17			45			1468				
Approach Delay, s/veh		18.1			19.9			7.2				
Approach LOS		B			B			A				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4				8
Phs Duration (G+Y+Rc), s	5.5	26.6		6.9				6.9
Change Period (Y+Rc), s	4.5	4.5		4.5				4.5
Max Green Setting (Gmax), s	5.1	28.3		18.1				18.1
Max Q Clear Time (g_c+I1), s	2.4	12.9		3.3				2.9
Green Ext Time (p_c), s	0.0	9.2		0.2				0.2

Intersection Summary		
HCM 2010 Ctrl Delay	7.9	
HCM 2010 LOS	A	