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The Ranch Sketch Plan
Master Traffic Impact Study
PCD File No.: SKP-18-006
(LSC #184390)
May 20, 2019

Traffic Engineer's Statement

See comment letter.

This traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

A handwritten signature in blue ink, appearing to be 'H. L. L. v.p.', written over a horizontal line.

5/20/19
Date



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May 20, 2019

Loren J. Moreland
PRI #4 LLC
6385 Corporate Drive, Suite 200
Colorado Springs, CO 80919

RE: The Ranch Sketch Plan
El Paso County, Colorado
Traffic Impact Analysis
PCD File No.: SKP-18-213
LSC #184390

Dear Mr. Moreland,

In response to your request, LSC Transportation Consultants, Inc. has prepared this “master” traffic impact analysis for The Ranch Sketch Plan. As shown in Figure 1, the site is located northwest of the Meadows neighborhood, south of Old Stapleton Road, and east of Raygor Road in El Paso County, Colorado.

REPORT CONTENTS

This report is being prepared as part of a Sketch Plan submittal to El Paso County. It identifies the general traffic impacts associated with the proposed Sketch Plan. The report contains the following:

- The traffic count data and street conditions
- Projections of long-term (2040) background traffic volumes
- The projected average weekday and peak-hour vehicle-trips to be generated by the site
- The assignment of the site’s projected traffic volumes to the key area streets and intersections for the long term and the resulting total traffic volumes for the long term
- The resulting traffic impacts including level of service analysis at key intersections and average daily traffic volumes on key street sections in the vicinity of the site
- The anticipated lane geometry at the key area intersections
- The recommended functional classification for the streets within and in the vicinity of the site

PREVIOUS TRAFFIC REPORTS COMPLETED IN THE AREA

A list of other traffic studies in the area of study completed by LSC within the past five years is attached for reference. This study accounts for the land use, trip generation and the roadway network included in these studies.

LAND USE

The site is surrounded by existing residential developments on the north, south and east. The Sterling Ranch development is located one-quarter mile west of the site. Figure 2 shows the currently proposed sketch plan. The 610.5-acre site is planned to be developed with a maximum of 2,144 residential dwelling units, a one-acre neighborhood commercial parcel and a 10-acre elementary school.

The Ranch is planned to be developed starting with the parcels in the northeast corner and moving to the southwest. Initial access is planned via a new section of Briargate Parkway which will be constructed west from the intersection of Towner Avenue and Stapleton Drive. As the site develops to the south, Woodmen Hills Drive will be extended west from Towner Avenue to provide secondary access. Woodmen Hills Drive will eventually extend northwest through the site connecting to the intersection of Raygor and Stapleton Drive. An emergency only access is proposed to Falcon Meadows Boulevard.

Phasing of Access to the Development

It is intended that the development will be phased generally from the northeast corner to the southwest of the property. The initial phase will be served by Stapleton Drive, which will eventually become an extension of Briargate Parkway when connected to the west. In the interim, the plan is to construct the 4-lane, median-separated section of the future principal arterial as a temporary solution to provide the required two points of access. This is permitted in Section 8.4.4.(D)(2) of the Land Development Code. There is also an opportunity to utilize access through the adjacent Church property to Grace Church View to provide a temporary emergency access if required, which will also benefit the church property.

Future Traffic Studies/Impact Assessment

This report is intended as a “master” traffic study to accompany the sketch plan. This report addresses the long-term buildout of the development with planned area roadways shown on the MTCP for 2040. As development progresses, the capacity of the adjacent and connecting roads and the need for road improvements will be assessed by a more detailed traffic impact analyses for each phase of development.

PEDESTRIAN AND BICYCLE FACILITIES

A network of 73 acres of open space and trails is planned throughout the Sketch Plan area, primarily following the existing drainageways. In accordance with the County Parks Master Plan, a regional trail is shown running from the southeast corner of the property to the northern boundary. A 25-foot trail easement will be provided to the County with the final plats.

This master plan level study only identifies the major street connections within the development. Sidewalks and other pedestrian and bicycle facilities should be included on these internal roadways based on the El Paso County standard cross-section for the proposed classification of each roadway. Pedestrian and bicycle facilities should also be reevaluated and addressed with each applicable Preliminary Plan submittal. The section near the end of this report “Transitions from Rural to Urban Cross Sections” discusses the potential phasing of pedestrian/bicycle facilities.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The area roadways in the site’s vicinity are shown on Figure 1 and are described below.

- **Meridian Road** extends north from South Blaney Road to County Line Road. Meridian Road is shown as a four-lane Principal Arterial south of Rex Road, a four-lane Minor Arterial north of Rex Road, and a two-lane Minor Arterial north of Murphy Road on the *El Paso County Major Transportation Corridors Plan (MTCP)*.
- **Briargate Parkway** is a six-lane, Principal Arterial that extends east from I-25 to Grand Lawn Circle (about one-half mile east of Powers Boulevard). Briargate Parkway is planned to ultimately extend east to Stapleton Road. The County MTCP shows Briargate/Stapleton east of Black Forest Road as a four-lane Principal Arterial.
- **Stapleton Drive** currently extends east from just west of Towner Drive across US Highway 24 to the intersection of Judge Orr Road and Curtis Road. West of Meridian Road, Stapleton Drive is currently a two-lane roadway with a posted speed limit of 45 miles per hour (mph). Stapleton Drive is planned to be extended west from Towner Drive as Briargate Parkway with this development.
- **Woodmen Hills Drive** is a Collector roadway extending west from Eastonville Road and terminating at the site’s southeast corner. West of Meridian Road, Woodmen Hills Drive is a two-lane road with a rural cross section and a posted speed limit of 30 mph. Woodmen Hills Drive has an 80-foot right-of-way and is about 30-feet wide west of Meridian Road, except for the westernmost 2,200 feet, which is about 40-feet wide. Woodmen Hills Drive is proposed to be extended northwest through the site as an Urban Residential Collector to the extension of Briargate Parkway.

- **Raygor Road** is a two-lane Collector extending south from Burgess Road and terminating at the site's northwest corner. Raygor Road is planned to be extended southeast through the site as an Urban Residential Collector to the future intersection of Stapleton Drive and Woodmen Hills Drive.
- **Towner Avenue** is a 40-foot-wide Urban Residential Collector street (within Paint Brush Hills) that extends south from Londonderry Drive to just south of Woodmen Hills Drive. The posted speed limit is 35 mph.
- **Woodmen Road** is an east/west Expressway through the northern portion of the City of Colorado Springs and El Paso County.
- **Banning Lewis Parkway** is a planned north/south street through the Banning Lewis Ranch development on the east side of the City of Colorado Springs. North of Woodmen Road, Banning Lewis Parkway is classified as a four-lane Principal Arterial on the El Paso County MTCP.

Existing Traffic Volumes

Figure 3 shows the existing peak-hour traffic volumes and existing lane geometries and traffic controls at the intersections of Meridian/Woodmen Hills, Meridian/Stapleton and Towner/Stapleton and Woodmen/Meridian. The traffic volumes are based on counts by LSC in May 2018. The traffic count reports are attached.

Existing Level of Service

Level of service (LOS) is a quantitative measure of the level of delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A represents control delay of less than 10 seconds for unsignalized and signalized intersections. LOS F represents control delay of more than 50 seconds for unsignalized intersections and more than 80 seconds for signalized intersections. Table 1 shows the level of service delay ranges.

Table 1 Intersection Levels of Service Delay Ranges		
Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	Average Control Delay (seconds per vehicle) ⁽¹⁾
A	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more

(1) For unsignalized intersections if V/C ratio is greater than 1.0 the level of service is LOS F regardless of the projected average control delay

The intersections of Meridian/Woodmen, Meridian/Woodmen Hills, Meridian/Stapleton, Towner/Stapleton have been analyzed to determine the existing levels of service. The signalized intersections of Meridian/Woodmen, Meridian/Woodmen Hills and Meridian/Stapleton have been analyzed using Synchro. The intersection of Towner/Stapleton has been analyzed based on the unsignalized method of analysis procedures found in the Highway Capacity Manual, 6th Edition by the Transportation Research Board. The results of the analysis are shown in Figure 3. The level of service reports are attached.

All movements at the signalized intersections of Meridian/Woodmen Hills and Meridian/Stapleton are currently operating at LOS D or better during the peak hours based on the existing traffic volumes.

The intersection of Towner/Stapleton is currently operating at a satisfactory level of service for all movements as Stop-sign-controlled intersections.

BACKGROUND TRAFFIC

Figure 4 shows the projected background traffic volumes for the year 2040. These volumes assume Stapleton Drive has been extended west (as Briargate Parkway/Stapleton Drive) to connect with the existing section of Briargate Parkway. The 2040 background traffic volumes were based in part on previous work completed by LSC in the area, including work done for Meridian Ranch, Paint Brush Hills and Sterling Ranch.

TRIP GENERATION

Estimates of site-generated vehicle-trips are typically made using the nationally published trip generation rates from *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). Table 2 shows the results of the trip generation estimates.

Table 2 includes an estimate of internal trips, which are trips beginning and ending within The Ranch. Internal trips reflect travel between the residential areas, the neighborhood commercial parcel and the elementary school at full buildout. Internal trips between the residential and non-residential land uses have been balanced.

The total number of vehicle-trips generated has also been reduced to take into account the “pass-by” phenomena. A pass-by trip is made by a motorist who would already be on the adjacent roadways regardless of the proposed development, but who stops in at the site while passing by. The motorist would then continue on his or her way to a final destination in the original direction. The pass-by percentages shown on Table 2 are from the *Trip Generation Handbook - An ITE Proposed Recommended Practice, 3rd Edition, 2017* by ITE.

As shown in Table 2, at buildout The Ranch could be expected to generate about 20,799 new external vehicle-trips on the average weekday, with about one-half entering and one-half exiting in a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 475 vehicles would enter and 1,236 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:30 and 6:30 p.m., about 1,376 vehicles would enter and 815 vehicles would exit the site.

TRIP DISTRIBUTION AND ASSIGNMENT

The directional distribution of the site-generated traffic volumes on the street and roadway system serving the site is a key factor in determining the site’s traffic impacts. Figure 5 shows external trip distribution estimates (external to The Ranch). The directional distribution estimate has been based on the location of the site with respect to the regional residential employment, commercial, and activity centers; the land use proposed; the access/roadway connections assumed; and the roadway network. The directional distribution estimate (long-term/2040 for purposes of the sketch plan report) assumes Briargate Parkway has been extended east of the Sketch Plan area, Banning Lewis Parkway completed (between Stapleton/Briargate and US Highway 24), and Woodmen Hills Drive has been extended northwest to Raygor Road (as buildout of the sketch plan is assumed). The internal trips have been assigned separately based on the location of the proposed neighborhood shopping center and school site.

When the external trip distribution percentages (from Figure 5) are applied to the trip generation estimates (from Table 2), the resulting site-generated traffic volumes can be determined. Figure 6 shows the buildout site-generated traffic volume estimate. The site-generated traffic volumes assume buildout of the maximum number of residential dwelling units as indicated on The Ranch Sketch Plan, a 10,000 square foot sit-down restaurant and an elementary school.

TOTAL TRAFFIC

Figure 7 shows the projected 2040 total traffic volumes. The 2040 total traffic volumes are the sum of the 2040 background traffic volumes (from Figure 4) plus the buildout site-generated traffic volumes from Figure 6.

PROJECTED LEVELS OF SERVICE

The key area intersections were analyzed to determine the projected levels of service for the 2040 background and total traffic volumes based on the unsignalized method of analysis procedures from the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board and the Synchro signalized intersection procedures. Figures 4 and 7 show the level of service analysis results. The laneage and traffic control assumed in the analysis are depicted on the figures. The level of service reports are attached.

Meridian/Woodmen Hills

All movements at the signalized intersection of Meridian/Woodmen Hills are projected to operate at LOS D or better during the peak hours based on the projected 2040 total traffic volumes. This intersection should be reevaluated with each Preliminary Plan submittal to determine if any improvements would be required at each phase given the latest information/projections for short- and long-term timing of area road connections and/or upgrades at time of submittal of each Preliminary Plan.

Meridian/Stapleton Drive

By 2040 it was assumed that the intersection of Meridian/Stapleton would be improved to provide two eastbound and westbound through lanes and dual northbound, eastbound and westbound left-turn lanes. Based on the 2040 total traffic volumes and the lane geometry shown in Figure 7 the intersection of Meridian/Stapleton is projected to operate at an overall LOS D or better during the peak hours. The eastbound and northbound left-turn movements are projected to operate at LOS E during the morning peak hour. These movements have projected delays in the LOS E range simply because they arrive at the traffic signal at the beginning of the red phase at an intersection with many phases and a long cycle length. These movements would not be considered "failing" since their volume-to-capacity ratios are less than one. The justification is that to progress through traffic along an arterial corridor, the traffic signal offsets and left-turn phase times have been adjusted to favor the through band, which can result in higher delay for the left-turn movements

even though there is sufficient capacity for them. This intersection is likely to be evaluated in the short-term as part of the PPRTA planning and design process for this roadway corridor (PPRTA "A-List" project).

Towner/Stapleton/Briargate

The intersection of Towner/Stapleton is currently an all-way stop sign-controlled T-intersection. This intersection should be reevaluated with each Preliminary Plan submittal to determine if traffic signal warrant(s) will be met. It was assumed by 2040 that this intersection would be signal controlled. As a signalized intersection all movements are projected to operate at LOS D or better during the peak hours.

Briargate/Stapleton/Raygor/Woodmen Hills

The future intersection of Briargate/Raygor/Woodmen Hills is planned to be constructed as a two-lane modern roundabout. As a two-lane modern roundabout, all of the movements at this intersection are projected to operate at D or better during the peak hours based on the projected 2040 total traffic volumes.

Briargate/Stapleton/Banning Lewis

Based on the 2040 total traffic volumes and the lane geometry shown in Figure 7, the future intersection of Briargate/Stapleton/Banning Lewis is projected to operate at an overall LOS D or better during the peak hours, however some of the minor movements are projected to operate at LOS E during the peak hours and the northbound left-turn movement is projected to operate at LOS F during the afternoon peak hour. This analysis has been based on a conventional, signalized intersection configuration as shown in the schematic laneage in Figure 7 with dual left-turn lanes on all approaches. The 2040 total traffic volumes shown at this intersection are based on previous work completed by LSC in the area, including the Sterling Ranch Master Plan. However, this is a planned regional intersection and the projected volumes and the intersection design/laneage will likely be reevaluated as part of the Pikes Peak Rural Transportation Authority (PPRTA) "A" Group Project. LSC anticipates that the intersection will be designed as part of this PPRTA project to achieve levels of service that meet County standards.

Stapleton/ Residential Collector

An Urban Residential Collector is proposed to be constructed forming a loop on the south side of Stapleton Drive from just east of Woodmen Hills Drive to just west of Towner Avenue. The west intersection is planned to be constructed as a modern two-lane roundabout. As a two-lane modern roundabout all of the movements at this intersection are projected to operate at LOS D or better during the peak hours based on the projected 2040 total traffic volumes.

Two traffic control options were considered for the east intersection. The preferred option is for the east intersection to be constructed as a modern two-lane roundabout. As a modern two-lane roundabout all approaches at this intersection are projected to operate at LOS B or better during the peak hours based on the projected 2040 total traffic volumes. The second option is to construct this intersection as a standard four-leg intersection. If this option is selected the intersection should be reevaluated with each Preliminary Plan submittal to determine if traffic signal warrant(s) will be met. It was assumed by 2040 that this intersection would be signal controlled if it is constructed as a standard four-leg intersection. As a signalized intersection all movements are projected to operate at LOS D or better during the peak hours.

Woodmen Hills/Residential Collector

The intersection of Woodmen Hills Drive and the proposed Residential Collector loop is planned to be constructed as a modern two-lane roundabout. All movements at this intersection are projected to operate at LOS D or better during the peak hours based on the projected 2040 total traffic volumes.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

The Ranch could be expected to generate about 20,799 new external vehicle-trips on the average weekday, with about one-half entering and one-half exiting in a 24-hour period. During the morning peak hour about 475 vehicles would enter and 1,236 vehicles would exit the site. During the afternoon peak hour about 1,376 vehicles would enter and 815 vehicles would exit the site.

Street Classification

Figure 8 shows the recommended street classifications for the streets in the vicinity of the site based on the projected 2040 traffic volumes shown in Figure 7.

Transitions from Rural to Urban Cross Sections

Stapleton Drive – Meridian Road to the project (just west of Towner)

Stapleton Drive is shown as a Four-lane Principal Arterial on the MTCP. An “urban”-type Principal Arterial would be most logical as Stapleton will be urban to the east and is planned to be “urban” through The Ranch. The current roadway west of Meridian is primarily a paved, “unimproved” roadway. This section of Stapleton is likely to be evaluated in the short-term as part of the PPRTA planning and design process for this roadway corridor (PPRTA "A-List" project). The upgrade from an “unimproved” roadway to the Urban, Four-Lane Principal Arterial cross section could likely be phased by constructing a “half-section” of the full Four-Lane Principal Arterial. A sidewalk could potentially be added on the “finished” side of the roadway. Note: The vacant 160-acre parcel

southwest of Meridian/Stapleton (owner: State of Colorado) has a one-half-mile frontage on Stapleton Road. The status of this parcel may factor into the phasing and timing of Stapleton upgrades.

Woodmen Hills Drive – Meridian Road to the project (just west of Towner)

Woodmen Hills Drive is a Collector on the MTCP. It currently has a rural cross section with varying widths. The right-of-way is 80-feet. There is a drainage channel on the north side of the roadway. The section west of Meridian Road passes through Woodmen Hills Filing No. 1, with generally half-acre lots, and The Meadows Filing 3 with generally five-acre lots. Woodmen Hills Drive east of Meridian has curb and gutter and sidewalk on the south side of the roadway through some locations.

Given the existing and planned continuity of Woodmen Hills Drive and associated additional background traffic plus site-generated traffic, upgrades to the current rural cross section will likely be needed. These will likely include:

- Additional pavement width, where feasible, in locations where pavement is less than the ECM standard width – generally between Meridian Road and 750 feet west of Theriot Road.
- The addition of a sidewalk or trail on the south side of the roadway between Meridian Road and the site.

The timing and phasing details should be determined with the Preliminary Plan(s).

Improvements

A general, preliminary summary of potentially-needed transportation improvements in the area due to the sketch plan, background traffic or a combination is shown in Table 3. This table includes improvements called for on the MTCP and anticipated responsibility for each improvement.

A traffic study should be completed at each development phase of The Ranch to determine the specific roadway improvements necessary to accommodate the proposed number of lots, based on the traffic conditions at the time of submittal and based on the latest information/projections for short- and long-term timing of area road connections and/or upgrades as well as other prevailing conditions (such as other new developments, etc.).

The need for and timing of improvement of the existing two-lane section of Stapleton Drive to a half or full Principal Arterial cross section (likely to be addressed as part of the PPRTA planning and design process for this roadway corridor (PPRTA "A-List" project), phasing of Woodmen Hills Drive improvement/upgrades (Meridian to the site), and the timing of the extension of Woodmen Hills Drive east of Towner Avenue should also be addressed with each applicable Preliminary Plan submittal.

west?

El Paso County Roadway Improvement Fee Program

This project will be required to participate in the El Paso County Road Impact Fee Program.

Deviations to the El Paso County Engineering Criteria Manual

Stapleton/ 

- **Intersection Spacing Deviation:** The proposed spacing of intersections on Briargate Parkway will require a deviation to the criteria contained in the El Paso County Engineering Criteria Manual. A deviation request was previously submitted and reviewed and an updated deviation will be included with the current submittal.
- **Future Deviation Submittal:** The required right-of-way for a Principal 4-lane Principal Arterial is 130 feet, but the Sketch Plan shows a 150 feet right-of-way to allow for a wider central median and roundabouts at major intersections to create an attractive landscaped entrance and route through the community. A deviation for this alternative cross-section will be processed with subsequent Preliminary Plans, as more detailed design is needed to evaluate and justify the wider median.

Future Traffic Studies/Impact Assessment

This report is intended as a “master” traffic study to accompany the sketch plan. This report addresses the long-term buildout of the development with planned area roadways shown on the MTCP for 2040. As development progresses, the capacity of the adjacent and connecting roads and the need for road improvements will be assessed by more detailed traffic impact analyses for each phase of development.

* * * * *

Please contact me if you have any questions regarding this report.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Jeffrey C. Hodsdon, P.E.
Principal

JCH:KDF/jas/bjwb

Enclosures: Tables 2-3
Figures 1-8
Appendix Table 1
Traffic Count Reports
Level of Service Reports

Table 2
Trip Generation Estimate
The Ranch

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾				Total Trips Generated				Daily Internal Trips ⁽²⁾	Total "External" Trips Generated				Pass-by Trips ⁽³⁾	Average Weekday Traffic			
			Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out		Afternoon Peak Hour In	Afternoon Peak Hour Out	Average Weekday Traffic	Morning Peak Hour In			Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out
210	Single-Family Detached Housing	2,144 DU ⁽⁴⁾	9.44	0.19	0.56	0.62	0.37	20,239	397	1,190	1,337	785	5.1%	19,766	358	1,099	1,315	775	0%	19,766
520	Elementary School	500 Students	1.89	0.36	0.31	0.08	0.09	945	181	154	41	44	50%	472	90	115	31	22	0%	472
932	High-Turnover (Sit-Down) Restaurant	10 KSF ⁽⁵⁾	112.18	5.47	4.47	6.06	3.71	1,122	55	45	61	37	50%	561	27	22	30	18	43%	561
								22,306	633	1,389	1,439	866		20,799	475	1,236	1,376	815		20,799

Notes:

- (1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)
- (2) The residential internal trips have been balanced with the estimated internal school trips
- (3) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice, 3rd Edition, 2017" by ITE
- (4) DU = dwelling unit
- (5) KSF = thousand square feet

Source: LSC Transportation Consultants, Inc.

verify 3 acres vs. 1 acre;
 33 ksf?

alignment needs to be approved by the Road Fee committee for reimbursement

This segment is not currently on the list of projects.

Table 3 Roadway Improvements The Ranch		
Improvement	Timing	Responsibility ⁽¹⁾
To be completed by the Applicant		
Briargate Parkway/Stapleton Drive (Towner Avenue to the west boundary of The Ranch Sketch Plan area): Construct as a half section or full-section four-lane Principal Arterial.	To be evaluated with each Preliminary Plan submittal.	To be constructed by the applicant, with credit/reimbursement (per fee program provisions) from El Paso County through funds from the Countywide Roadway Improvement Fee Program
Woodmen Hills (Meridian Road to 750 feet west of Theriot Road): Upgrade to a Rural Major Collector roadway (within the existing 80-foot right of way and considering the width constraint due to the existing box culvert just west of Meridian Road); add sidewalk or trail on the south side of the roadway.	Once this project adds significant traffic to this segment of roadway; To be evaluated with each Preliminary Plan submittal.	To be constructed by the applicant, with credit/reimbursement (per fee program provisions) from El Paso County through funds from the Countywide Roadway Improvement Fee Program
Woodmen Hills (750 feet west of Theriot Road to Towner Avenue): Add sidewalk or trail on the south side of the roadway.	Once the sidewalk/trail is completed on the Meridian Road to Garrison Road section.	Applicant
Woodmen Hills (Towner Avenue to the property boundary): Construct Rural Major Collector roadway such that just west of Towner the roadway width matches the width on the east side of Towner. West of the intersection, transition the cross section to tie in with the proposed Urban Collector section to be constructed on The Ranch property; Add sidewalk or trail on the south side of the roadway.	With the phase of The Ranch which adds the road connection to existing Woodmen Hills Drive.	To be constructed by the applicant, with credit/reimbursement (per fee program provisions) from El Paso County through funds from the Countywide Roadway Improvement Fee Program
Woodmen Hills Drive (West property boundary to the future extension of Briargate Parkway/Stapleton Drive): Construct as a two-lane Urban Residential Collector.	To be evaluated with each Preliminary Plan submittal.	To be constructed by the applicant, with credit/reimbursement (per fee program provisions) from El Paso County through funds from the Countywide Roadway Improvement Fee Program
Raygor Road (Old Stapleton Drive to the future extension of Briargate Parkway/Stapleton Drive): Construct as a two-lane Urban Residential Collector	To be evaluated with each Preliminary Plan submittal.	Applicant
Construct the intersection of Briargate(Stapleton)/Raygor/Woodmen Hills as a modern two-lane roundabout.	To be evaluated with each Preliminary Plan submittal.	To be constructed by the applicant, with intersection improvement credit/reimbursement (per fee program provisions) from El Paso County through funds from the Countywide Roadway Improvement Fee Program
Construct a two-lane modern roundabout intersection on Briargate Parkway/Stapleton Drive west of Woodmen Hills/Raygor	To be evaluated with each Preliminary Plan submittal.	Applicant
Construct the east intersection of the proposed Urban Residential Collector loop & Briargate Parkway/Stapleton as a modern roundabout (or signalize the intersection)	The roundabout option is preferred by the applicant. However, if the signalization option is selected, signalize once warrants are met. This should be evaluated with each Preliminary Plan submittal. The decision on timing of traffic signal installation rests with El Paso County Public Works.	Applicant
Other Area Roadway Improvements (for Reference)		
Stapleton Drive (Meridian Road to Towner Avenue): Upgrade the existing "unimproved" roadway to a four-lane Urban Principal Arterial from Meridian Road to Towner Avenue. This roadway upgrade could potentially be phased by initially constructing a one-half section of ultimate four-lane Urban Principal Arterial.	Potential timing/trigger for half-section: Once the ADT on this segment of roadway exceeds 7,000 vehicles per day. Potential timing/trigger for full four-lane cross section: Once the ADT on this segment of roadway exceeds the capacity of a half section (if upgrade is phased and an interim half section is constructed first) estimated to be about 15,000 -20,000 ADT depending on the design of the half section and other capacity considerations.	El Paso County (PPRTA and/or County Road Improvement Fee Program/PID)
Briargate Parkway/Stapleton Drive from the west boundary of The Ranch Sketch Plan area to Black Forest Road.	Likely to be determined by the PPRTA planning and design process for this roadway corridor (PPRTA "A-List" project)	El Paso County (PPRTA and/or County Road Improvement Fee Program/PID) and developments to the west per applicable development agreements.
Briargate Parkway/Stapleton & Towner Intersection: Signalize the intersection (or construct as a modern roundabout intersection).	Once warrants are met. However, the decision on timing of traffic signal installation rests with El Paso County Public Works.	El Paso County through funds from the Countywide Roadway Improvement Fee Program
Notes: (1) Preliminary concept of responsibility; the actual construction or participation responsibility would be determined through development agreements and/or subdivision improvement agreements. (2) PPRTA = Pikes Peak Rural Transportation Authority.		
Development that warrants or		
Source: LSC Transportation Consultants, Inc. (Rev. 5/29/2019)		

Replace the first four intersection improvements items from the previous submittal.

Woodmen Hills Drive/Meridian Road- Upgrade the west leg of the intersection for additional eastbound lanes and to match the east side; any other necessary auxiliary turn lane improvements; signal modifications.
Stapleton/Meridian: Auxiliary turn lane improvements (ultimately right turn lanes and dual northbound, eastbound and westbound left-turn lanes); Two eastbound and westbound through lanes (ultimately); and any needed traffic signal modifications
Stapleton/Towner: Construct additional auxiliary turn lanes as needed to accommodate turning movements from this development
Meridian/Woodmen: Lengthen Eastbound Dual Left Turn Lanes or fair-share contribution toward a lengthening project.

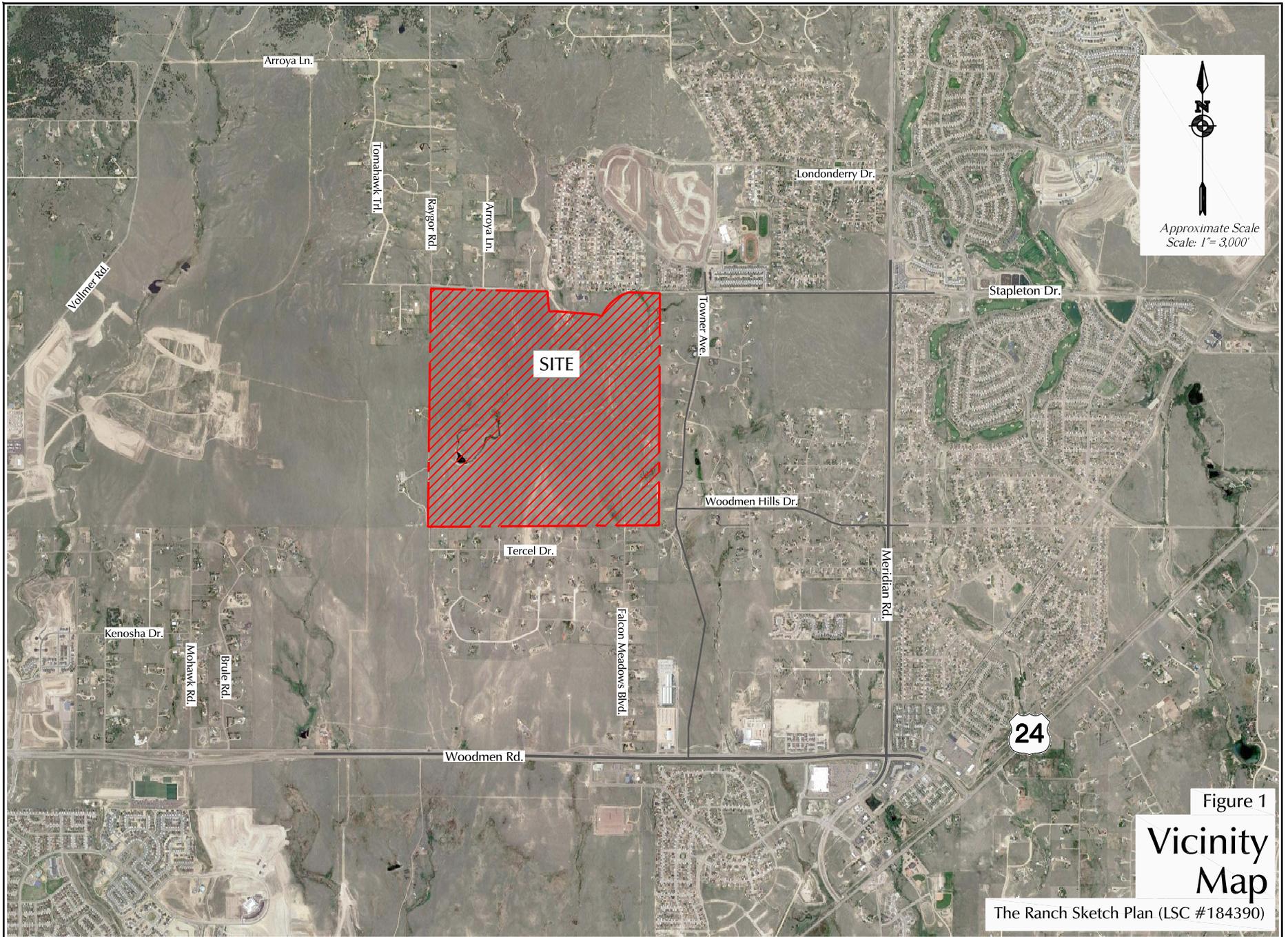
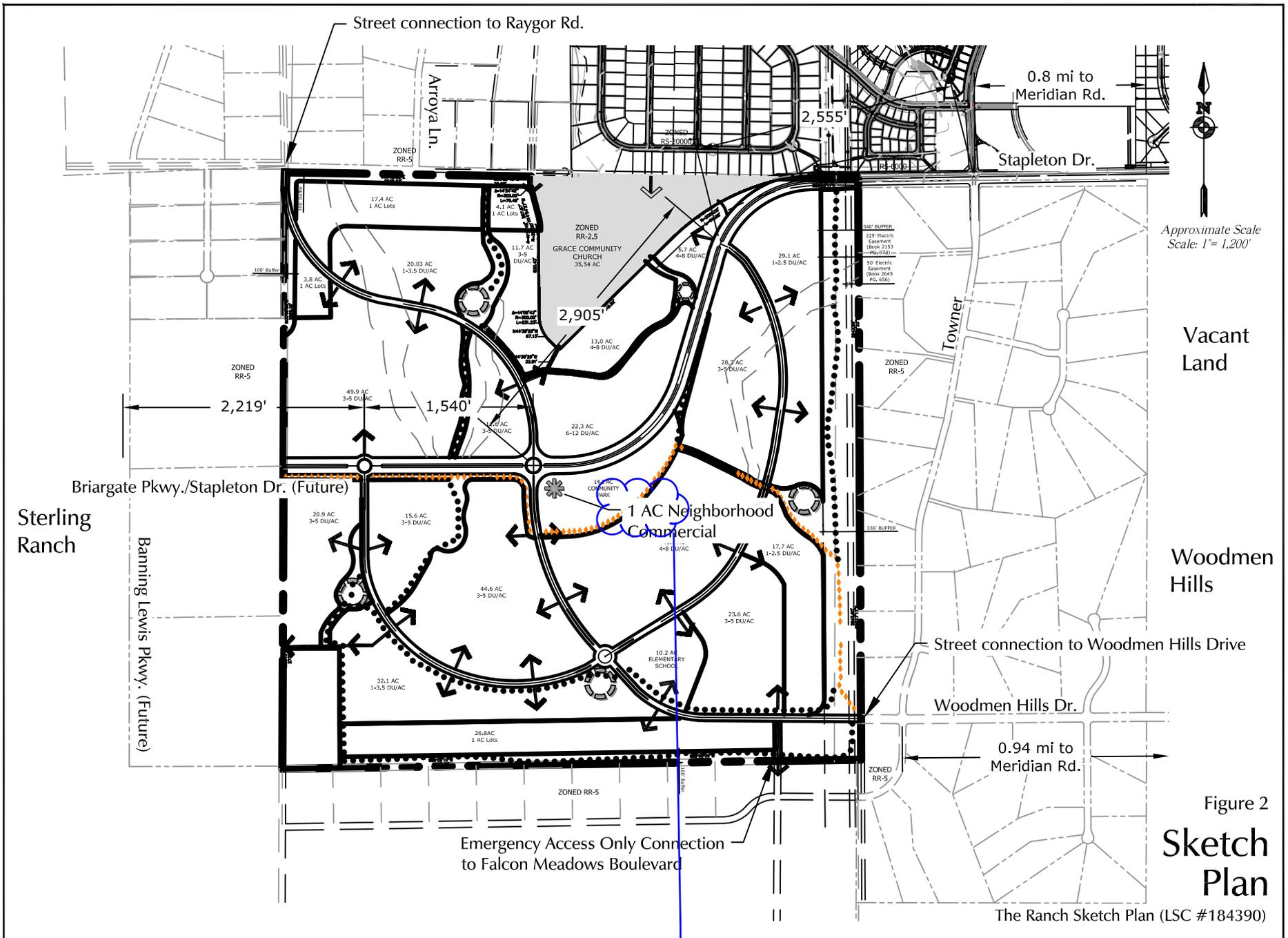
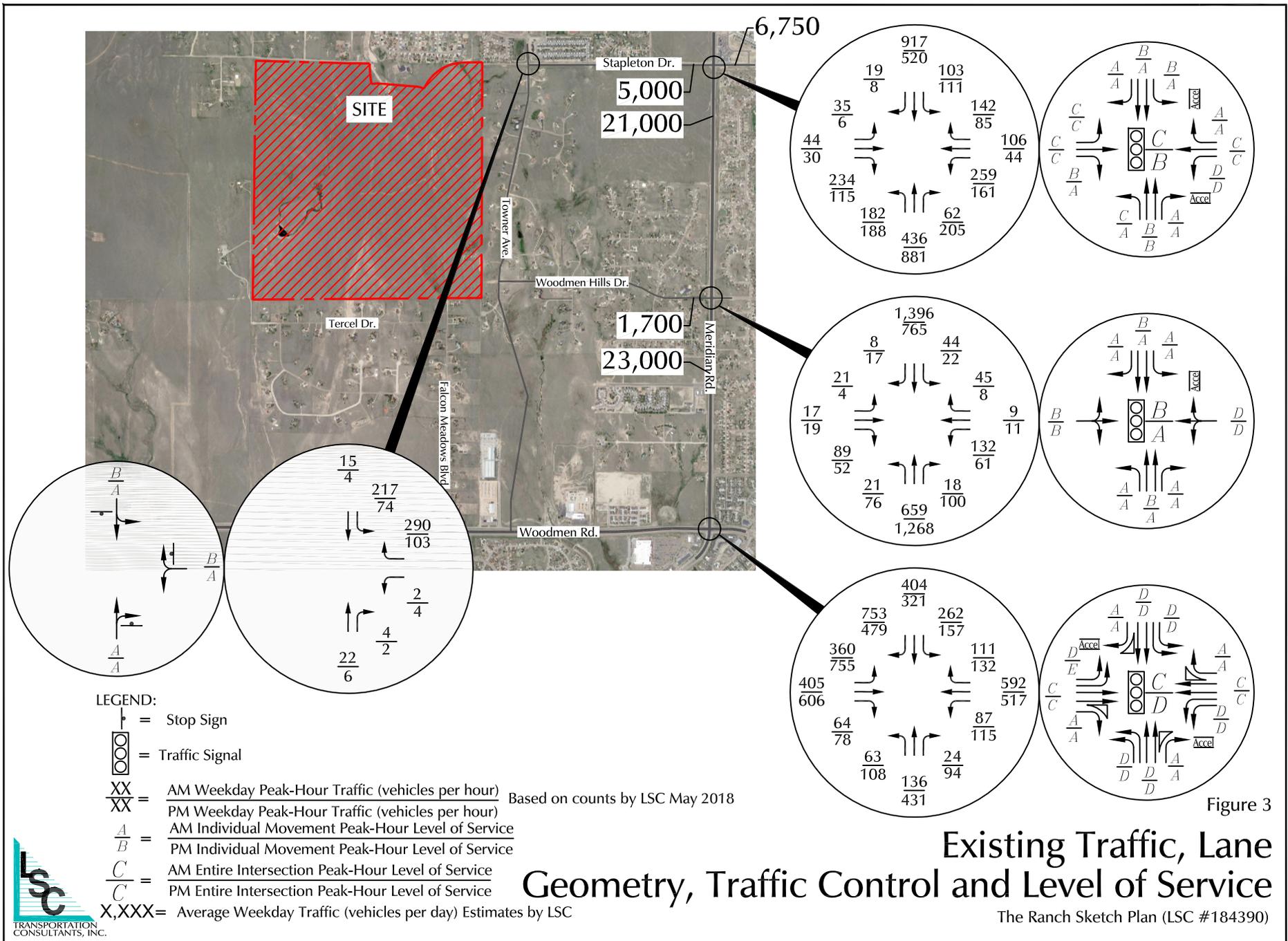


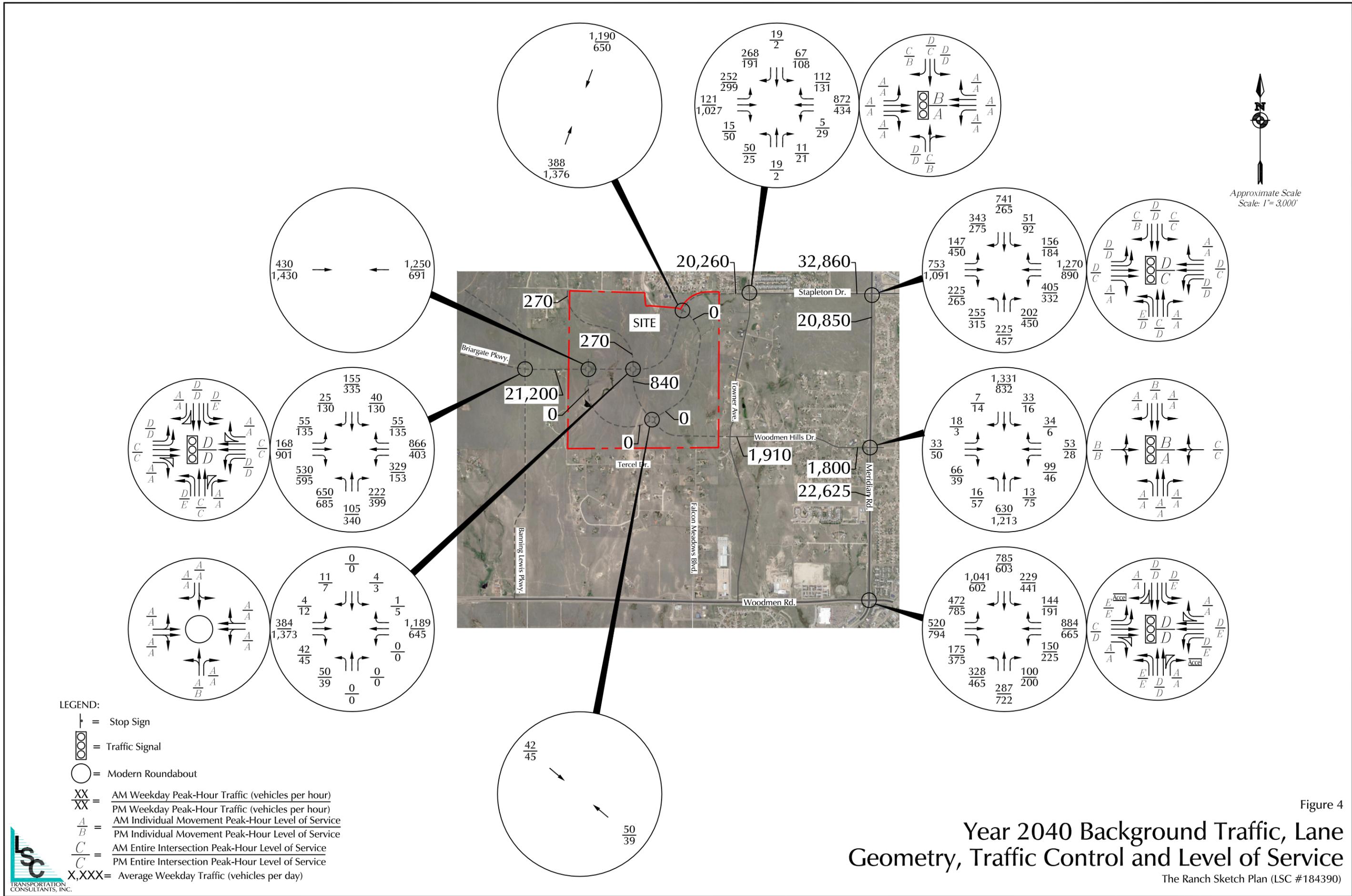
Figure 1

Vicinity Map

The Ranch Sketch Plan (LSC #184390)







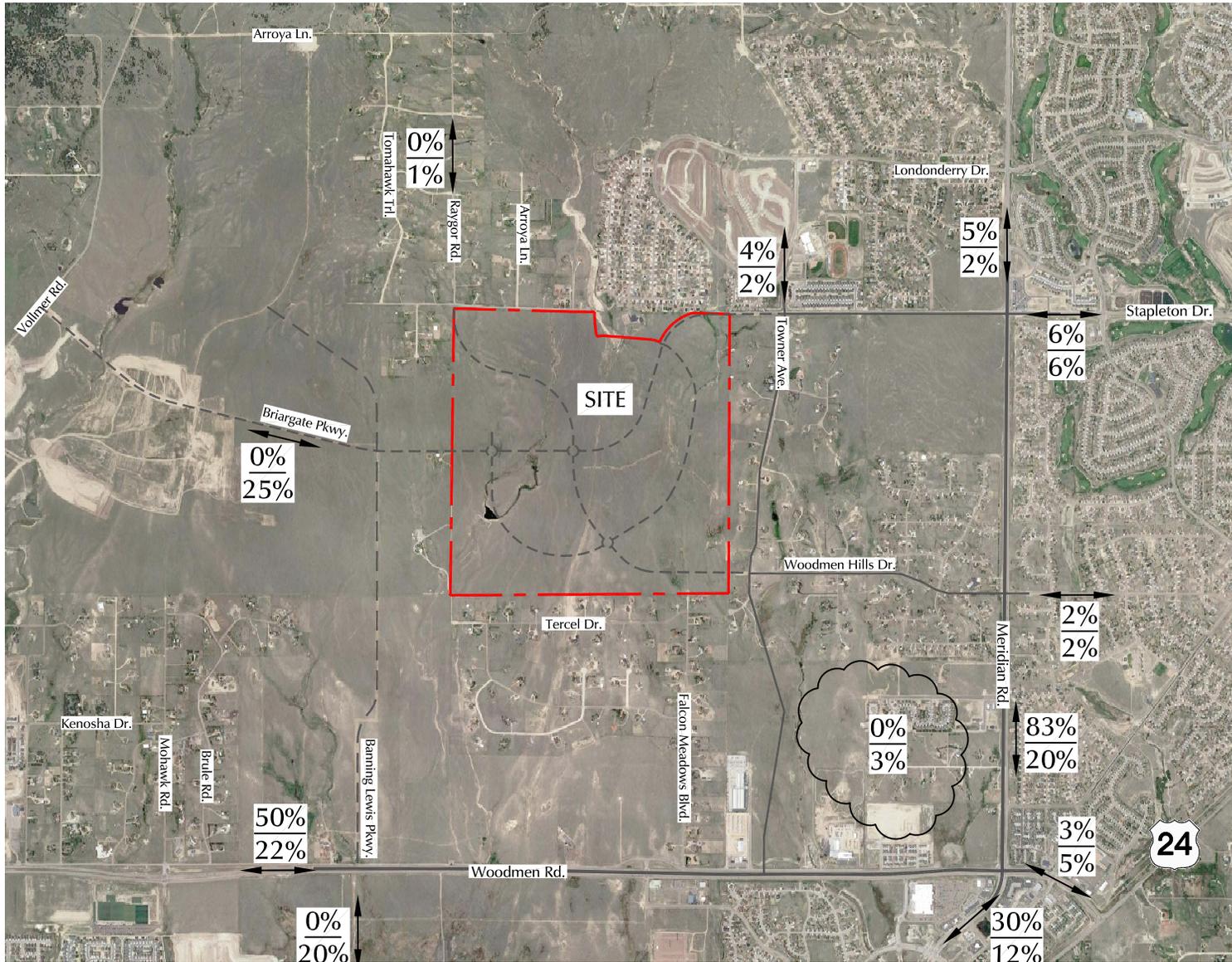
Approximate Scale
Scale: 1" = 3,000'

LEGEND:

- = Stop Sign
- = Traffic Signal
- = Modern Roundabout
- $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
PM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service
PM Individual Movement Peak-Hour Level of Service
- $\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service
PM Entire Intersection Peak-Hour Level of Service
- X,XXX = Average Weekday Traffic (vehicles per day)

Figure 4
Year 2040 Background Traffic, Lane
Geometry, Traffic Control and Level of Service
The Ranch Sketch Plan (LSC #184390)

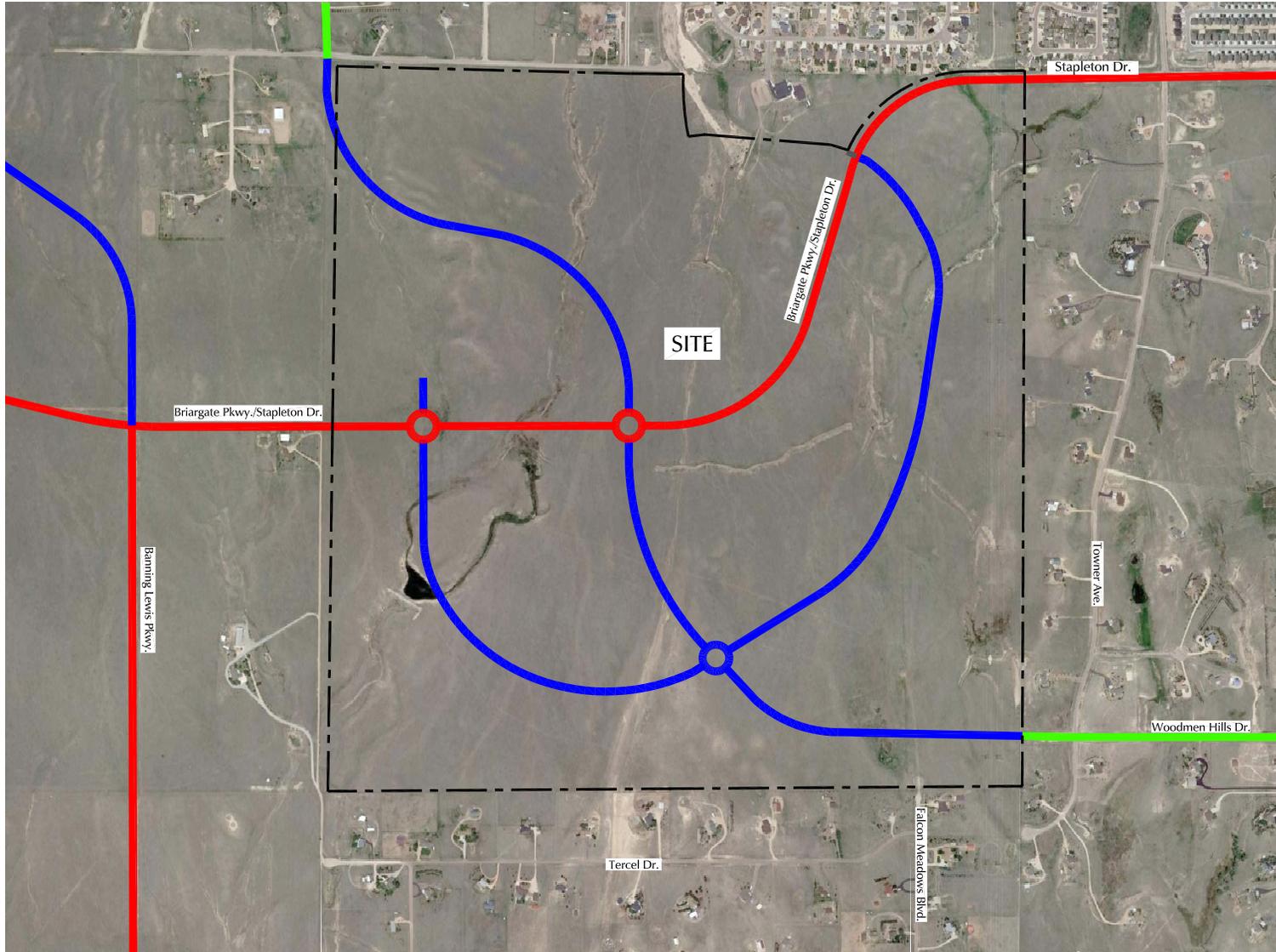





 Approximate Scale
 Scale: 1" = 3,000'

Figure 5
**Directional Distribution
 of Site-Generated Traffic**
 The Ranch Sketch Plan (LSC #184390)

LEGEND:
 XX% = Short-Term Percent Directional Distribution
 XX% = Long-Term Percent Directional Distribution




 Approximate Scale
 Scale: 1" = 1,200'

LEGEND:

- = 4-Lane Urban Principal Arterial
- = Urban Residential Collector
- = Rural Collector

Figure 8
**Recommended
 Street Classification**
 The Ranch Sketch Plan (LSC #184390)

**Appendix Table 1
Area Traffic Impact Studies by LSC
The Ranch**

Study	Date
Falcon Hills	
Falcon Hills Traffic Impact Study	April 8, 2004
Paint Brush Hills Filing 13A	May 14, 2014
Paint Brush Hills Filing 13B	March 26, 2014
Scenic View at Paint Brush Hills	April 7, 2014
Paint Brush Hills Filings 13C-13F	September 25, 2014
Paint Brush Hills Filings 13C and 13D	January 9, 2017
D-49 Elementary School	May 30, 2017
Paint Brush Hills Filing 13E	October 18, 2018
Meridian Ranch	
Meridian Ranch Sketch Plan TIA	April 11, 2011
Meridian Ranch Filing 11 Updated TIA	November 26, 2013
Stonebridge at Meridian Ranch Filing No. 1 Updated TIA	April 23, 2014
Stonebridge at Meridian Ranch Transportation Memorandum	July 28, 2015
Meridian Ranch Filing 8 Updated TIA	December 23, 2014
Meridian Ranch Filing 9 Updated TIA	May 21, 2015
Meridian Ranch Sketch Plan 2015 Amendment TIA	July 30, 2015
The Vistas at Meridian Ranch TIA	March 24, 2016
The Vistas at Meridian Ranch Updated Transportation Memorandum	June 20, 2017
Londonderry Drive Pedestrian Operations and Safety Study	February 8, 2017
Stonebridge Filing 3 at Meridian Ranch Updated TIA	March 20, 2017
Meridian Ranch Sketch Plan 2017 Amendment TIA	October 3, 2017
WindingWalk at Meridian Ranch and The Enclave at Stonebridge at Meridian Ranch Updated Traffic Impact Analysis	May 10, 2018
Waterbury/4-Way Ranch	
Waterbury PUD Development Plan Updated TIA	January 10, 2013
Waterbury Preliminary Plan No. 1 Updated TIA	June 5, 2013
Waterbury Phase 2 Preliminary Plan	August 3, 2017
Waterbury Phase 1 Filing Nos. 2 and 3	October 16, 2017
Grandview Reserve Traffic Impact Analysis	January 11, 2019
Bent Grass	
Bent Grass Subdivision PUD Traffic Impact Analysis	October 6, 2006
Bent Grass East Commercial – Preliminary Plan	January 25, 2013
Bent Grass East Commercial – Report Supplement #2	March 14, 2013
Bent Grass Subdivision Filing 1 Updated Traffic Impact Analysis	July 14, 2014
Bent Grass East Commercial Filing No. 2 Updated Traffic Impact Analysis	July 17, 2014
Falcon Dental East Commercial Filing No. 2A	March 7, 2016
Bent Grass Meadows Drive/Meridian Road Traffic Signal Warrant Analysis	October 2, 2017
Bent Grass East Commercial/Bent Grass Meadows Drive & Meridian Road Transportation Memorandum	March 21, 2019
Sterling Ranch	
Sterling Ranch Updated Traffic Impact Analysis	June 5, 2008
Sterling Ranch Phase 1 Updated Traffic Impact Analysis	March 16, 2015
Sterling Ranch Phase 1-3 Traffic Technical Memoandum	October 2, 2017
Branding Iron at Sterling Ranch Filing No. 1 and Homestead at Sterling Ranch Filing No. 1	December 19, 2017
Sterling Ranch Filing No. 2	April 3, 2018
Copper Chase at Sterling Ranch	December 20, 2018
Sterling Ranch Phase 2 Preliminary Plan	December 20, 2018
Homestead at Sterling Ranch Filing No. 2	March 1, 2019
Branding Iron at Sterling Ranch Filing No. 2 Transportation Memorandum	April 5, 2019
Others	
Falcon Marketplace Traffic Impact Analysis	September 5, 2018
<i>Source: LSC Transportation Consultants, Inc.</i>	

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Site Code : 184390

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Page No : 1

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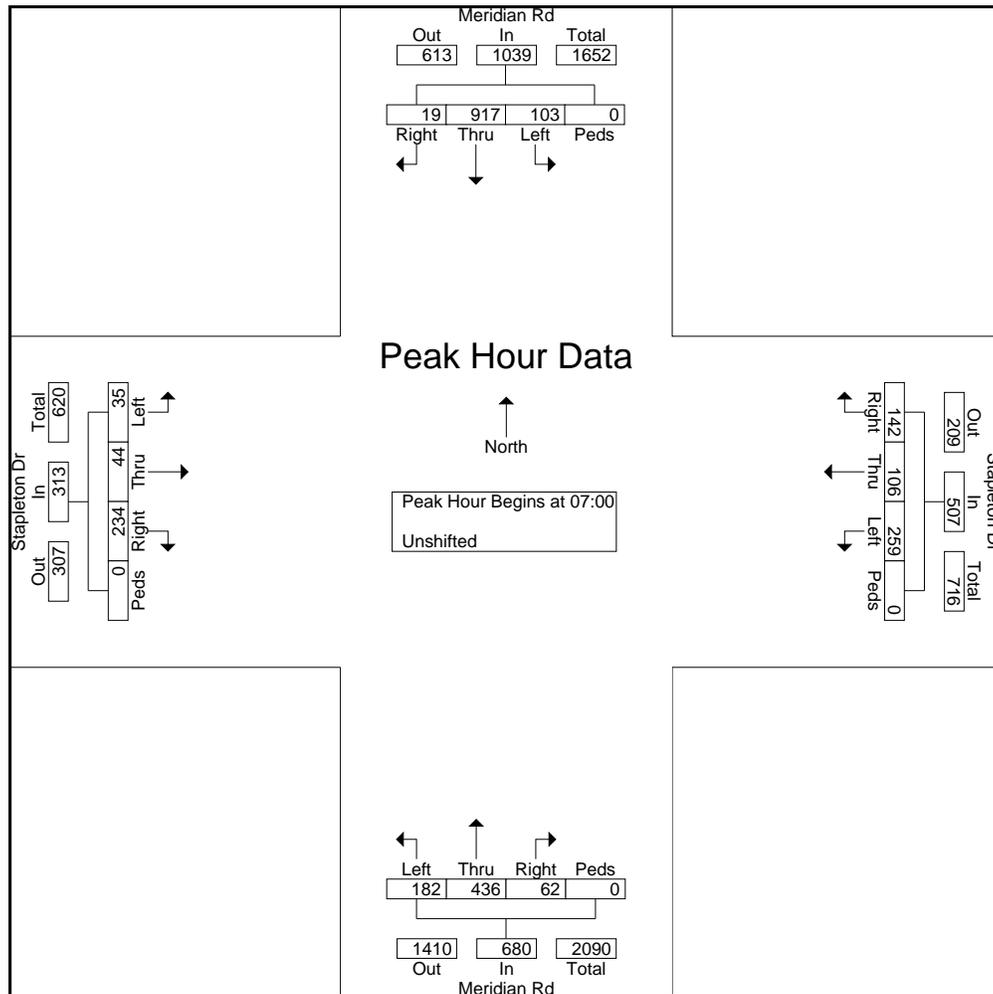
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06:30	30	174	2	0	206	39	1	21	0	61	24	50	5	0	79	2	6	41	0	49	395
06:45	24	178	1	0	203	59	5	15	0	79	32	93	10	0	135	3	6	28	0	37	454
Total	54	352	3	0	409	98	6	36	0	140	56	143	15	0	214	5	12	69	0	86	849
07:00	14	227	2	0	243	96	15	30	0	141	38	89	16	0	143	6	10	51	0	67	594
07:15	19	206	9	0	234	72	38	35	0	145	67	101	14	0	182	14	15	73	0	102	663
07:30	33	263	7	0	303	54	46	48	0	148	56	121	16	0	193	10	10	58	0	78	722
07:45	37	221	1	0	259	37	7	29	0	73	21	125	16	0	162	5	9	52	0	66	560
Total	103	917	19	0	1039	259	106	142	0	507	182	436	62	0	680	35	44	234	0	313	2539
08:00	21	179	1	0	201	38	2	22	1	63	15	90	11	0	116	6	3	22	0	31	411
08:15	8	191	5	0	204	45	3	12	0	60	16	98	22	0	136	5	1	28	0	34	434

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 Site Code : 184390
 Start Date : 05/02/2018
 Page No : 3

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	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	14	227	2	0	243	96	15	30	0	141	38	89	16	0	143	6	10	51	0	67	594
07:15	19	206	9	0	234	72	38	35	0	145	67	101	14	0	182	14	15	73	0	102	663
07:30	33	263	7	0	303	54	46	48	0	148	56	121	16	0	193	10	10	58	0	78	722
07:45	37	221	1	0	259	37	7	29	0	73	21	125	16	0	162	5	9	52	0	66	560
Total Volume	103	917	19	0	1039	259	106	142	0	507	182	436	62	0	680	35	44	234	0	313	2539
% App. Total	9.9	88.3	1.8	0		51.1	20.9	28	0		26.8	64.1	9.1	0		11.2	14.1	74.8	0		
PHF	.696	.872	.528	.000	.857	.674	.576	.740	.000	.856	.679	.872	.969	.000	.881	.625	.733	.801	.000	.767	.879



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File Name : Meridian Rd - Stapleton Dr PM

Site Code : 184390

Start Date : 05/02/2018

Page No : 1

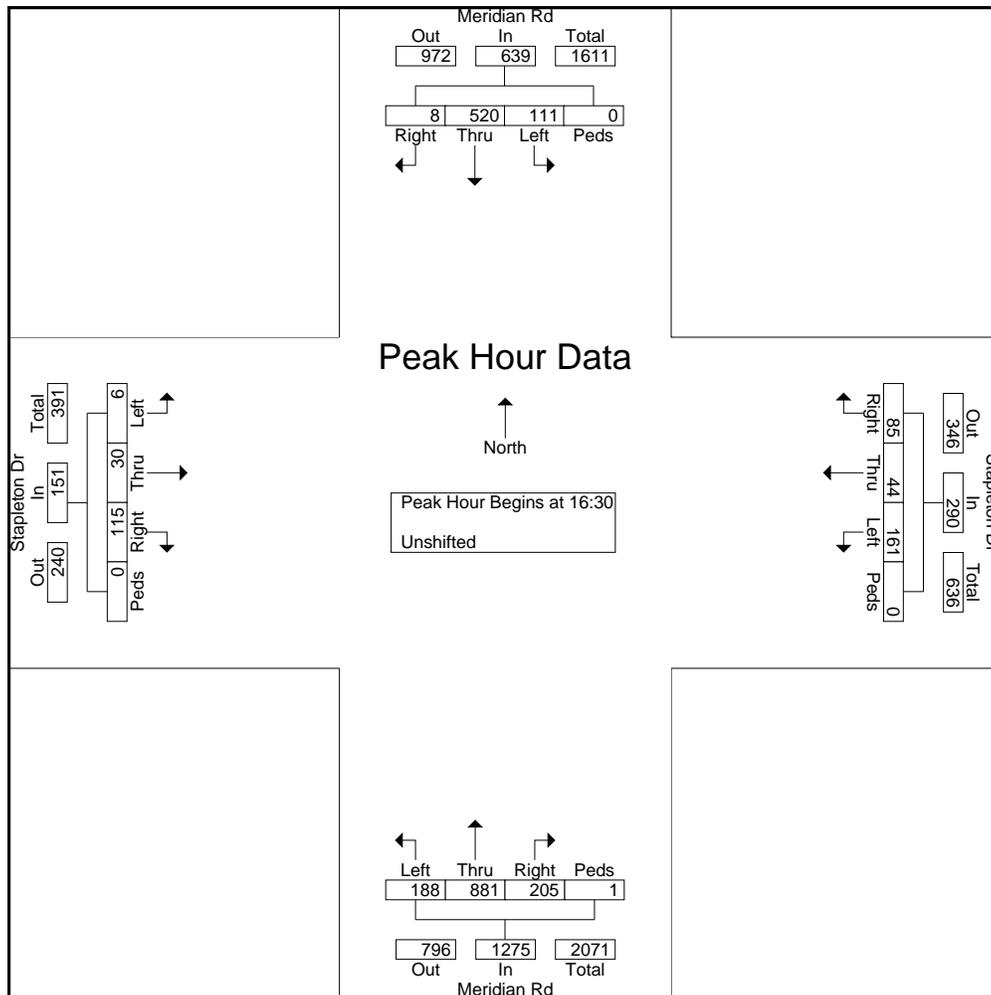
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16:00	19	176	6	0	201	40	6	20	0	66	40	218	48	0	306	2	6	28	0	36	609
16:15	25	151	3	0	179	34	9	23	0	66	28	172	64	0	264	2	3	29	0	34	543
16:30	28	131	2	0	161	50	8	28	0	86	40	217	50	0	307	0	6	32	0	38	592
16:45	32	138	3	0	173	34	10	18	0	62	50	212	46	0	308	0	8	24	0	32	575
Total	104	596	14	0	714	158	33	89	0	280	158	819	208	0	1185	4	23	113	0	140	2319
17:00	25	124	3	0	152	39	11	20	0	70	50	214	49	1	314	4	9	35	0	48	584
17:15	26	127	0	0	153	38	15	19	0	72	48	238	60	0	346	2	7	24	0	33	604
17:30	22	138	4	0	164	23	11	22	0	56	38	208	57	1	304	3	8	27	0	38	562
17:45	29	103	1	0	133	32	9	18	0	59	54	213	50	0	317	2	6	41	0	49	558
Total	102	492	8	0	602	132	46	79	0	257	190	873	216	2	1281	11	30	127	0	168	2308

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 Site Code : 184390
 Start Date : 05/02/2018
 Page No : 3

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	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	28	131	2	0	161	50	8	28	0	86	40	217	50	0	307	0	6	32	0	38	592
16:45	32	138	3	0	173	34	10	18	0	62	50	212	46	0	308	0	8	24	0	32	575
17:00	25	124	3	0	152	39	11	20	0	70	50	214	49	1	314	4	9	35	0	48	584
17:15	26	127	0	0	153	38	15	19	0	72	48	238	60	0	346	2	7	24	0	33	604
Total Volume	111	520	8	0	639	161	44	85	0	290	188	881	205	1	1275	6	30	115	0	151	2355
% App. Total	17.4	81.4	1.3	0		55.5	15.2	29.3	0		14.7	69.1	16.1	0.1		4	19.9	76.2	0		
PHF	.867	.942	.667	.000	.923	.805	.733	.759	.000	.843	.940	.925	.854	.250	.921	.375	.833	.821	.000	.786	.975



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Start Date : 05/08/2018

Page No : 1

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Start Time	Meridian rd Southbound					Woodmen Hills Dr Westbound					Meridian rd Northbound					Woodmen Hills Dr Eastbound					Int. Total
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06:30	2	225	1	0	228	25	2	11	0	38	1	137	4	0	142	0	2	9	0	11	419
06:45	2	271	1	0	274	31	2	10	0	43	1	144	7	0	152	0	2	10	0	12	481
Total	4	496	2	0	502	56	4	21	0	81	2	281	11	0	294	0	4	19	0	23	900
07:00	4	381	1	0	386	41	3	14	0	58	4	128	2	0	134	6	9	33	0	48	626
07:15	4	367	3	0	374	37	3	12	0	52	3	188	4	0	195	4	4	23	0	31	652
07:30	20	355	2	0	377	33	3	15	0	51	4	189	4	0	197	8	2	22	0	32	657
07:45	16	293	2	0	311	21	0	4	0	25	10	154	8	0	172	3	2	11	0	16	524
Total	44	1396	8	0	1448	132	9	45	0	186	21	659	18	0	698	21	17	89	0	127	2459
08:00	12	258	0	0	270	21	1	3	0	25	4	134	25	0	163	0	9	13	0	22	480
08:15	21	223	3	0	247	53	7	17	0	77	6	146	17	0	169	0	6	13	0	19	512

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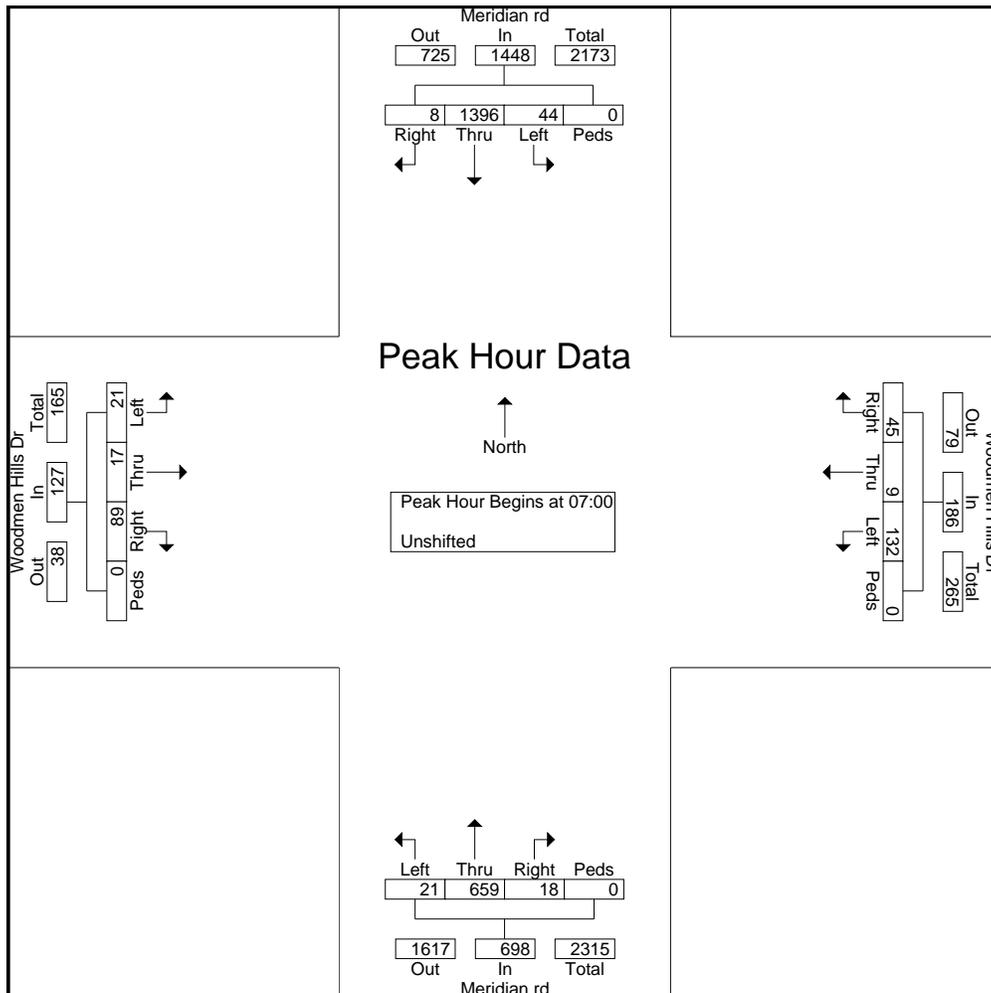
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Site Code : 184390

Start Date : 05/08/2018

Page No : 3

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	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	4	381	1	0	386	41	3	14	0	58	4	128	2	0	134	6	9	33	0	48	626
07:15	4	367	3	0	374	37	3	12	0	52	3	188	4	0	195	4	4	23	0	31	652
07:30	20	355	2	0	377	33	3	15	0	51	4	189	4	0	197	8	2	22	0	32	657
07:45	16	293	2	0	311	21	0	4	0	25	10	154	8	0	172	3	2	11	0	16	524
Total Volume	44	1396	8	0	1448	132	9	45	0	186	21	659	18	0	698	21	17	89	0	127	2459
% App. Total	3	96.4	0.6	0		71	4.8	24.2	0		3	94.4	2.6	0		16.5	13.4	70.1	0		
PHF	.550	.916	.667	.000	.938	.805	.750	.750	.000	.802	.525	.872	.563	.000	.886	.656	.472	.674	.000	.661	.936



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16:00	6	244	2	0	252	13	0	1	0	14	24	272	21	0	317	2	0	13	0	15	598
16:15	1	199	5	0	205	11	7	6	0	24	20	276	18	1	315	1	4	6	0	11	555
16:30	4	181	6	0	191	24	3	2	0	29	14	320	24	0	358	3	5	12	0	20	598
16:45	2	215	3	0	220	4	5	3	0	12	23	297	23	1	344	1	1	14	0	16	592
Total	13	839	16	0	868	52	15	12	0	79	81	1165	86	2	1334	7	10	45	0	62	2343
17:00	5	195	5	1	206	20	3	1	0	24	27	334	22	0	383	0	8	12	0	20	633
17:15	11	174	3	0	188	13	0	2	0	15	12	317	31	2	362	0	5	14	0	19	584
17:30	3	192	1	0	196	18	1	3	0	22	28	292	42	0	362	3	2	8	0	13	593
17:45	8	161	4	0	173	17	5	0	0	22	17	327	19	0	363	2	4	16	0	22	580
Total	27	722	13	1	763	68	9	6	0	83	84	1270	114	2	1470	5	19	50	0	74	2390

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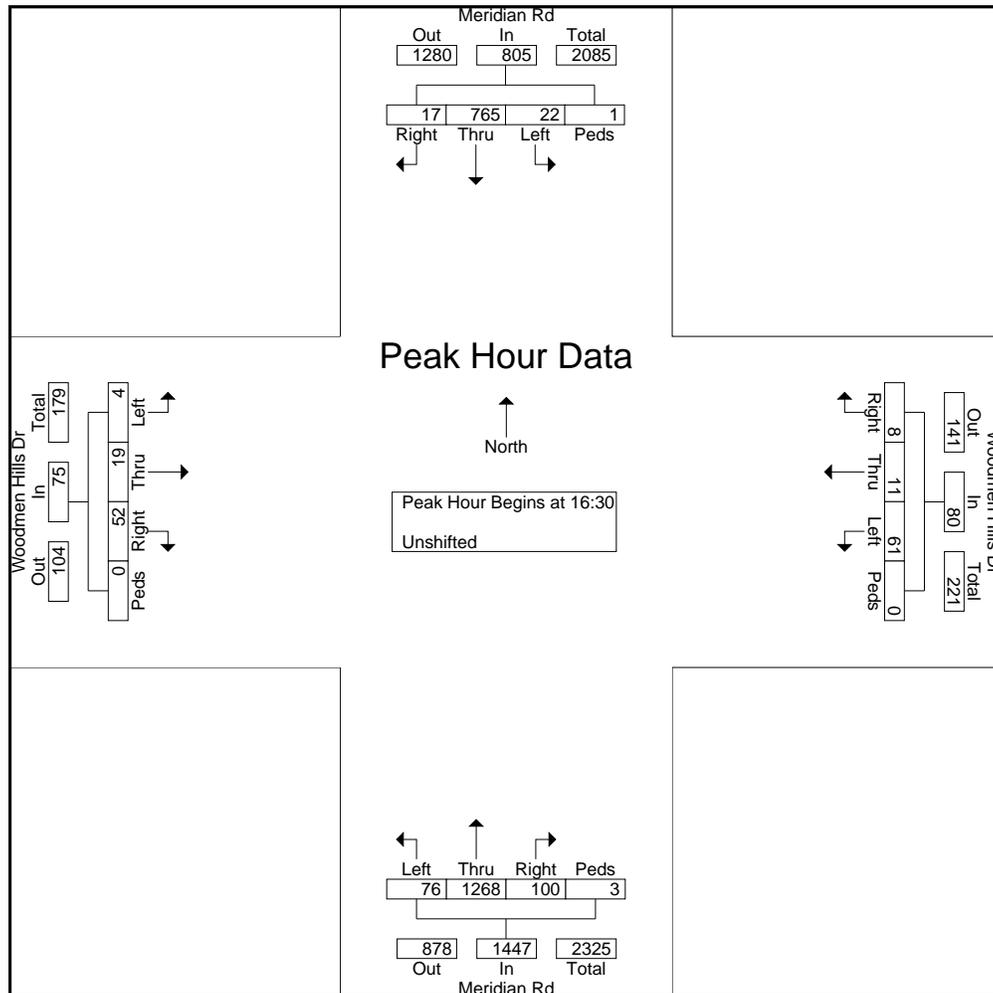
File Name : Meridian Rd - Woodmen Hills Dr PM

Site Code : 184390

Start Date : 05/08/2018

Page No : 3

Start Time	Meridian Rd Southbound					Woodmen Hills Dr Westbound					Meridian Rd Northbound					Woodmen Hills Dr Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	4	181	6	0	191	24	3	2	0	29	14	320	24	0	358	3	5	12	0	20	598
16:45	2	215	3	0	220	4	5	3	0	12	23	297	23	1	344	1	1	14	0	16	592
17:00	5	195	5	1	206	20	3	1	0	24	27	334	22	0	383	0	8	12	0	20	633
17:15	11	174	3	0	188	13	0	2	0	15	12	317	31	2	362	0	5	14	0	19	584
Total Volume	22	765	17	1	805	61	11	8	0	80	76	1268	100	3	1447	4	19	52	0	75	2407
% App. Total	2.7	95	2.1	0.1		76.2	13.8	10	0		5.3	87.6	6.9	0.2		5.3	25.3	69.3	0		
PHF	.500	.890	.708	.250	.915	.635	.550	.667	.000	.690	.704	.949	.806	.375	.945	.333	.594	.929	.000	.938	.951



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Groups Printed- Unshifted

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06:30	16	38	84	0	138	1	69	9	0	79	7	8	1	0	16	37	35	4	0	76	309
06:45	61	95	139	1	296	12	135	30	0	177	13	26	3	0	42	58	92	18	0	168	683
Total	77	133	223	1	434	13	204	39	0	256	20	34	4	0	58	95	127	22	0	244	992
07:00	72	98	174	0	344	30	137	32	0	199	12	22	6	0	40	87	121	18	1	227	810
07:15	81	100	232	0	413	21	164	31	0	216	15	30	4	0	49	92	90	19	0	201	879
07:30	51	104	216	0	371	17	196	20	0	233	18	34	4	1	57	84	104	17	0	205	866
07:45	58	102	131	0	291	19	95	28	0	142	18	50	10	0	78	97	90	10	0	197	708
Total	262	404	753	0	1419	87	592	111	0	790	63	136	24	1	224	360	405	64	1	830	3263
08:00	43	75	150	0	268	13	109	27	0	149	15	24	7	0	46	103	90	24	0	217	680
08:15	40	60	143	0	243	17	139	22	0	178	19	27	7	2	55	94	56	17	0	167	643

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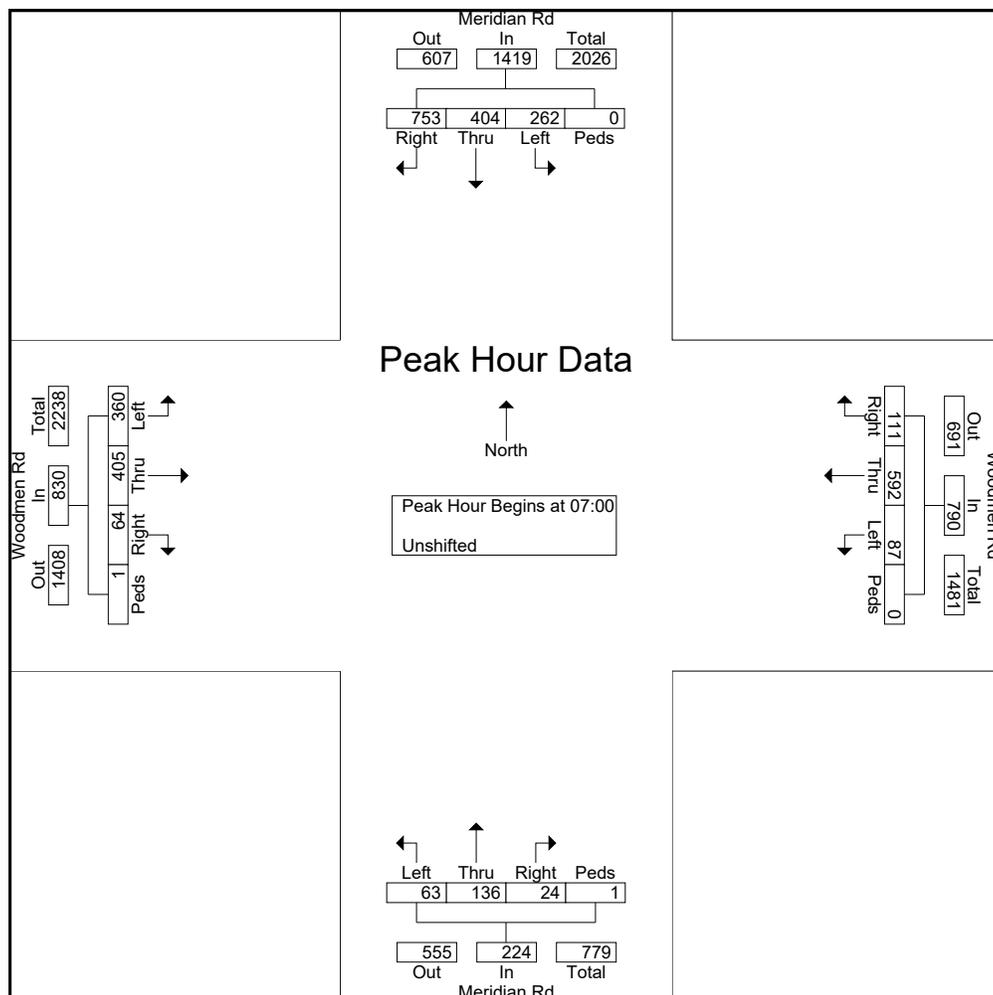
File Name : Meridian Rd - Woodmen Rd AM

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Start Time	Meridian Rd Southbound					Woodmen Rd Westbound					Meridian Rd Northbound					Woodmen Rd Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	72	98	174	0	344	30	137	32	0	199	12	22	6	0	40	87	121	18	1	227	810
07:15	81	100	232	0	413	21	164	31	0	216	15	30	4	0	49	92	90	19	0	201	879
07:30	51	104	216	0	371	17	196	20	0	233	18	34	4	1	57	84	104	17	0	205	866
07:45	58	102	131	0	291	19	95	28	0	142	18	50	10	0	78	97	90	10	0	197	708
Total Volume	262	404	753	0	1419	87	592	111	0	790	63	136	24	1	224	360	405	64	1	830	3263
% App. Total	18.5	28.5	53.1	0		11	74.9	14.1	0		28.1	60.7	10.7	0.4		43.4	48.8	7.7	0.1		
PHF	.809	.971	.811	.000	.859	.725	.755	.867	.000	.848	.875	.680	.600	.250	.718	.928	.837	.842	.250	.914	.928



LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

File Name : Meridian Rd - Woodmen Rd PM

Site Code : 184390

Start Date : 05/24/2018

Page No : 1

Groups Printed- Unshifted

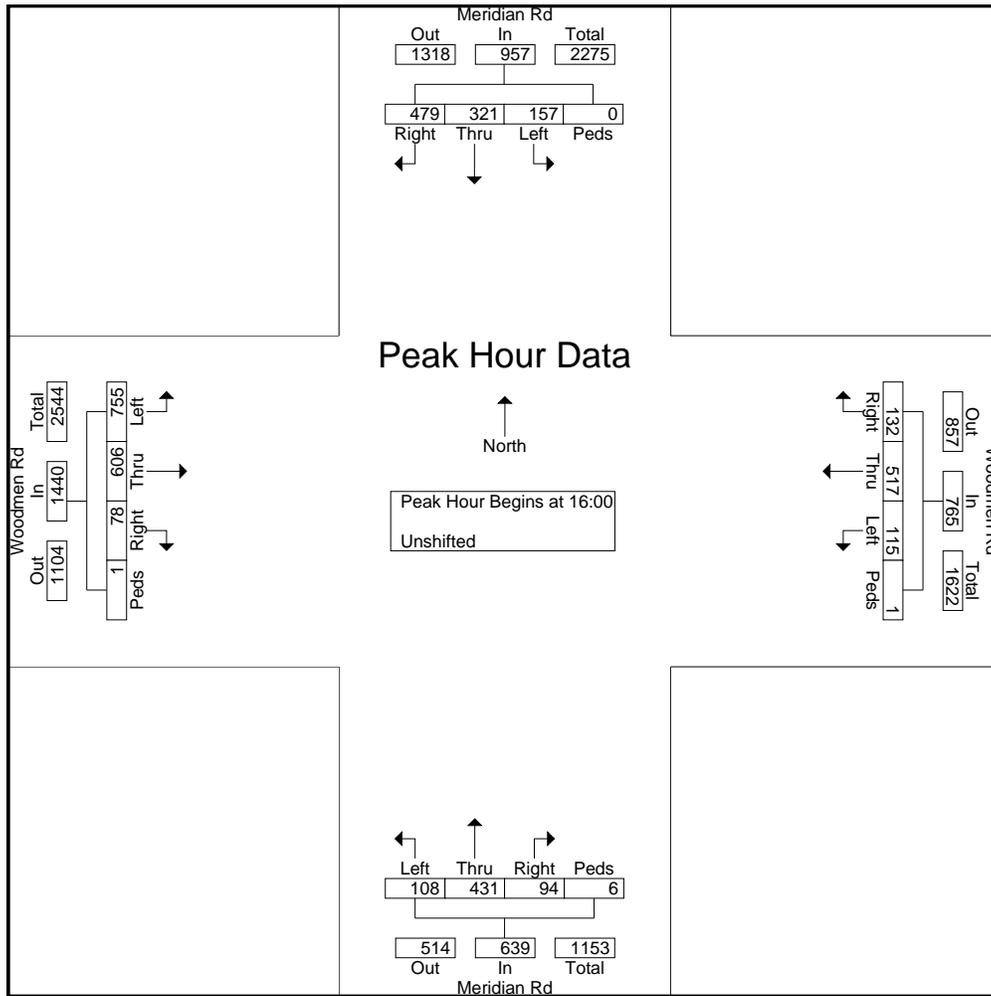
Start Time	Meridian Rd Southbound					Woodmen Rd Westbound					Meridian Rd Northbound					Woodmen Rd Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
16:00	41	86	117	0	244	14	131	29	0	174	23	111	26	2	162	187	127	8	1	323	903
16:15	37	86	115	0	238	34	105	37	0	176	30	112	23	0	165	187	169	21	0	377	956
16:30	38	70	111	0	219	38	170	22	0	230	23	111	17	2	153	191	164	19	0	374	976
16:45	41	79	136	0	256	29	111	44	1	185	32	97	28	2	159	190	146	30	0	366	966
Total	157	321	479	0	957	115	517	132	1	765	108	431	94	6	639	755	606	78	1	1440	3801
17:00	29	72	113	0	214	30	133	52	0	215	21	89	30	2	142	147	140	23	0	310	881
17:15	47	78	95	0	220	60	84	34	0	178	25	121	22	3	171	185	150	32	0	367	936
17:30	34	68	104	0	206	47	79	32	0	158	18	102	26	2	148	222	166	26	0	414	926
17:45	34	58	94	0	186	37	106	40	0	183	20	81	15	2	118	157	151	18	0	326	813
Total	144	276	406	0	826	174	402	158	0	734	84	393	93	9	579	711	607	99	0	1417	3556

LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210
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 719-633-2868

File Name : Meridian Rd - Woodmen Rd PM
 Site Code : 184390
 Start Date : 05/24/2018
 Page No : 3

Start Time	Meridian Rd Southbound					Woodmen Rd Westbound					Meridian Rd Northbound					Woodmen Rd Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	41	86	117	0	244	14	131	29	0	174	23	111	26	2	162	187	127	8	1	323	903
16:15	37	86	115	0	238	34	105	37	0	176	30	112	23	0	165	187	169	21	0	377	956
16:30	38	70	111	0	219	38	170	22	0	230	23	111	17	2	153	191	164	19	0	374	976
16:45	41	79	136	0	256	29	111	44	1	185	32	97	28	2	159	190	146	30	0	366	966
Total Volume	157	321	479	0	957	115	517	132	1	765	108	431	94	6	639	755	606	78	1	1440	3801
% App. Total	16.4	33.5	50.1	0		15	67.6	17.3	0.1		16.9	67.4	14.7	0.9		52.4	42.1	5.4	0.1		
PHF	.957	.933	.881	.000	.935	.757	.760	.750	.250	.832	.844	.962	.839	.750	.968	.988	.896	.650	.250	.955	.974



LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

File Name : Stapleton Dr - Towner Ave AM

Site Code : 184390

Start Date : 05/03/2018

Page No : 1

Groups Printed- Unshifted

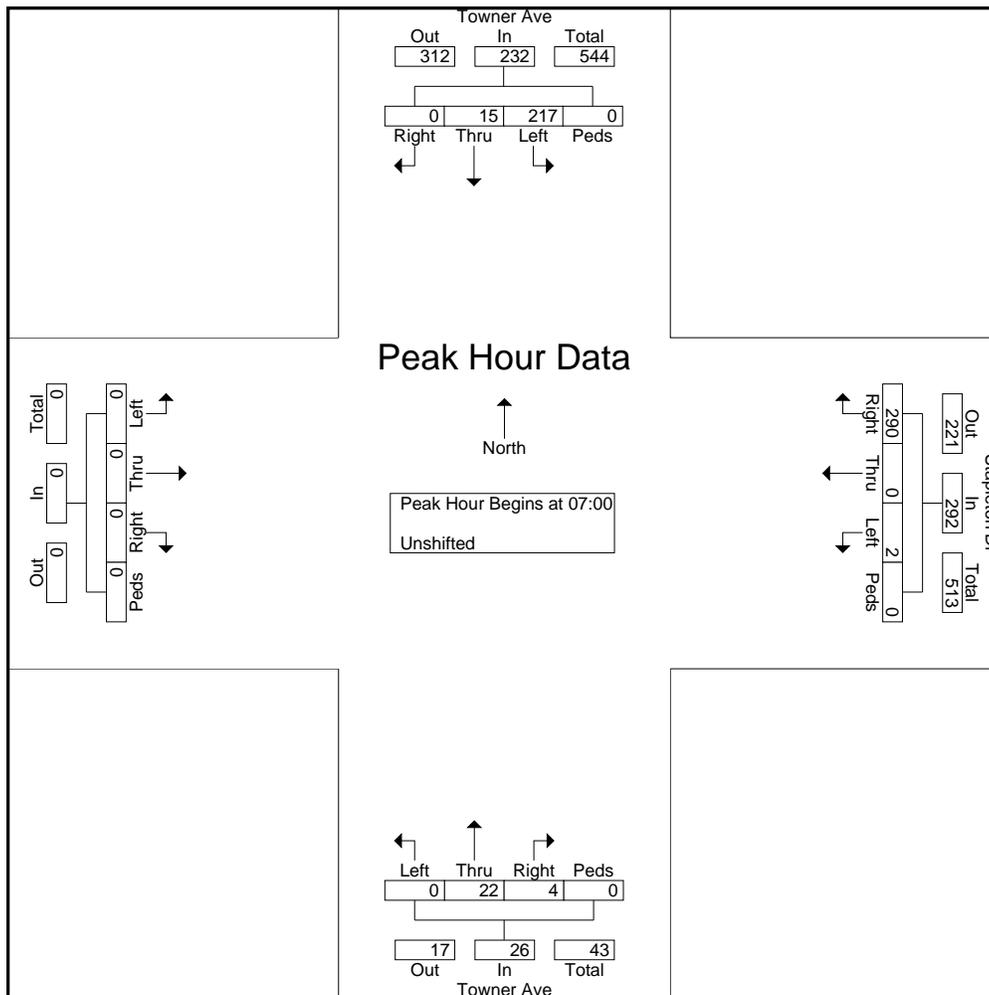
Start Time	Towner Ave Southbound					Stapleton Dr Westbound					Towner Ave Northbound					Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
06:30	22	1	0	0	23	1	0	16	0	17	0	2	1	0	3	0	0	0	0	0	43
06:45	26	1	0	0	27	0	0	33	0	33	0	2	1	0	3	0	1	0	0	0	64
Total	48	2	0	0	50	1	0	49	0	50	0	4	2	0	6	0	1	0	0	1	107
07:00	48	5	0	0	53	0	0	47	0	47	0	5	0	0	5	0	0	0	0	0	105
07:15	65	4	0	0	69	0	0	93	0	93	0	6	2	0	8	0	0	0	0	0	170
07:30	59	4	0	0	63	1	0	119	0	120	0	8	1	0	9	0	0	0	0	0	192
07:45	45	2	0	0	47	1	0	31	0	32	0	3	1	0	4	0	0	0	0	0	83
Total	217	15	0	0	232	2	0	290	0	292	0	22	4	0	26	0	0	0	0	0	550
08:00	22	1	0	0	23	1	0	20	0	21	0	2	1	0	3	0	0	0	0	0	47
08:15	16	2	0	0	18	0	0	12	0	12	0	1	0	0	1	0	0	0	0	0	31

LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210
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 719-633-2868

File Name : Stapleton Dr - Towner Ave AM
 Site Code : 184390
 Start Date : 05/03/2018
 Page No : 3

Start Time	Towner Ave Southbound					Stapleton Dr Westbound					Towner Ave Northbound					Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	48	5	0	0	53	0	0	47	0	47	0	5	0	0	5	0	0	0	0	0	105
07:15	65	4	0	0	69	0	0	93	0	93	0	6	2	0	8	0	0	0	0	0	170
07:30	59	4	0	0	63	1	0	119	0	120	0	8	1	0	9	0	0	0	0	0	192
07:45	45	2	0	0	47	1	0	31	0	32	0	3	1	0	4	0	0	0	0	0	83
Total Volume	217	15	0	0	232	2	0	290	0	292	0	22	4	0	26	0	0	0	0	0	550
% App. Total	93.5	6.5	0	0		0.7	0	99.3	0		0	84.6	15.4	0		0	0	0	0		
PHF	.835	.750	.000	.000	.841	.500	.000	.609	.000	.608	.000	.688	.500	.000	.722	.000	.000	.000	.000	.000	.716



LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

File Name : Stapleton Dr - Towner Ave PM

Site Code : 184390

Start Date : 05/03/2018

Page No : 1

Groups Printed- Unshifted

Start Time	Towner ave Southbound					Stapleton Dr Westbound					Towner ave Northbound					Eastbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		
16:00	16	0	0	0	16	0	0	10	0	10	0	1	0	0	1	0	0	0	0	0	0	27
16:15	16	2	0	0	18	0	0	34	0	34	0	1	1	0	2	0	0	0	0	0	0	54
16:30	12	0	0	0	12	1	0	26	0	27	0	3	0	0	3	0	0	0	0	0	0	42
16:45	17	0	0	0	17	2	0	25	0	27	0	1	0	0	1	0	0	0	0	0	0	45
Total	61	2	0	0	63	3	0	95	0	98	0	6	1	0	7	0	0	0	0	0	0	168
17:00	29	2	0	0	31	1	0	18	0	19	0	1	1	0	2	0	0	0	0	0	0	52
17:15	13	1	0	0	14	0	0	14	0	14	0	3	1	0	4	0	0	0	0	0	0	32
17:30	11	1	0	0	12	1	0	16	0	17	0	0	0	0	0	0	0	0	0	0	0	29
17:45	9	0	0	0	9	1	0	12	0	13	0	1	0	0	1	0	0	0	0	0	0	23
Total	62	4	0	0	66	3	0	60	0	63	0	5	2	0	7	0	0	0	0	0	0	136

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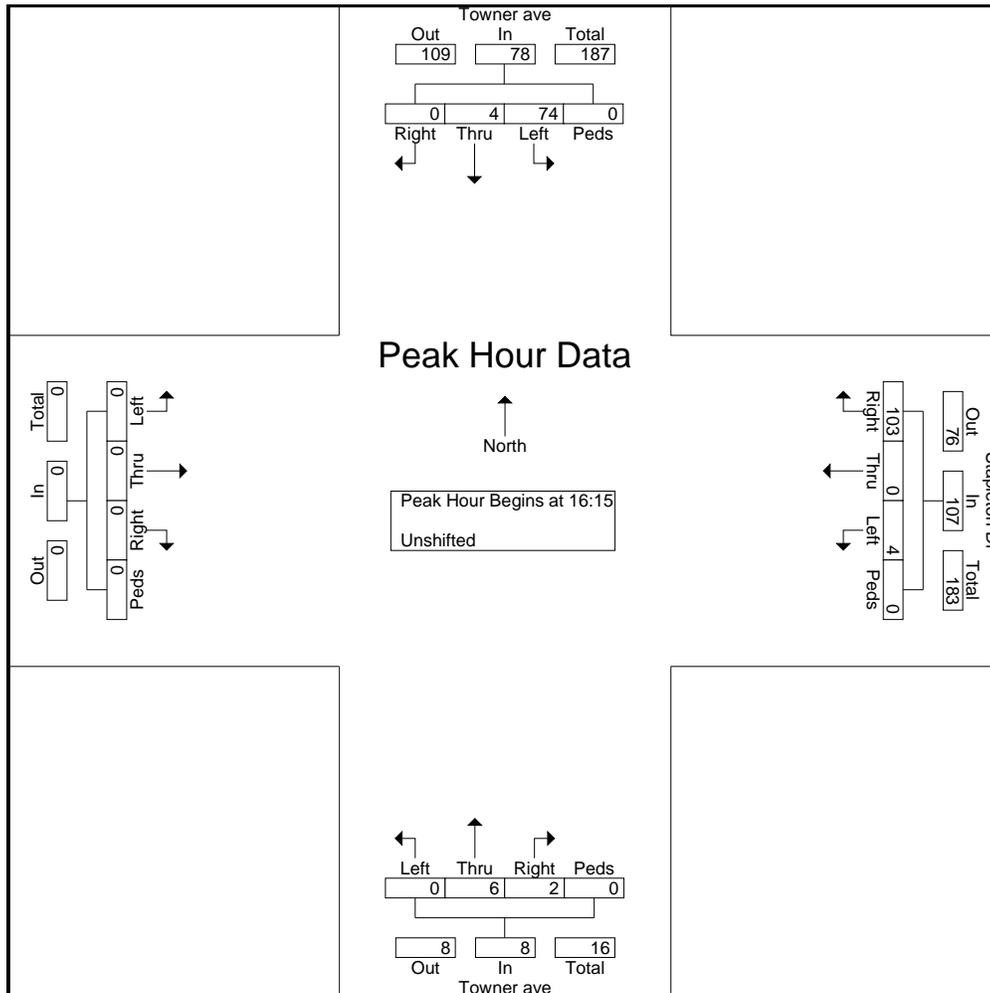
File Name : Stapleton Dr - Towner Ave PM

Site Code : 184390

Start Date : 05/03/2018

Page No : 1

Start Time	Towner ave Southbound					Stapleton Dr Westbound					Towner ave Northbound					Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	16	2	0	0	18	0	0	34	0	34	0	1	1	0	2	0	0	0	0	0	54
16:30	12	0	0	0	12	1	0	26	0	27	0	3	0	0	3	0	0	0	0	0	42
16:45	17	0	0	0	17	2	0	25	0	27	0	1	0	0	1	0	0	0	0	0	45
17:00	29	2	0	0	31	1	0	18	0	19	0	1	1	0	2	0	0	0	0	0	52
Total Volume	74	4	0	0	78	4	0	103	0	107	0	6	2	0	8	0	0	0	0	0	193
% App. Total	94.9	5.1	0	0		3.7	0	96.3	0		0	75	25	0		0	0	0	0		
PHF	.638	.500	.000	.000	.629	.500	.000	.757	.000	.787	.000	.500	.500	.000	.667	.000	.000	.000	.000	.000	.894



Intersection

Intersection Delay, s/veh 11.6

Intersection LOS B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	290	22	4	217	15
Future Vol, veh/h	2	290	22	4	217	15
Peak Hour Factor	0.61	0.61	0.72	0.72	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	475	31	6	236	16
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12	8.6	11.2
HCM LOS	B	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	1%	94%
Vol Thru, %	85%	0%	6%
Vol Right, %	15%	99%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	26	292	232
LT Vol	0	2	217
Through Vol	22	0	15
RT Vol	4	290	0
Lane Flow Rate	36	479	252
Geometry Grp	1	1	1
Degree of Util (X)	0.052	0.546	0.363
Departure Headway (Hd)	5.214	4.104	5.181
Convergence, Y/N	Yes	Yes	Yes
Cap	679	876	688
Service Time	3.304	2.133	3.256
HCM Lane V/C Ratio	0.053	0.547	0.366
HCM Control Delay	8.6	12	11.2
HCM Lane LOS	A	B	B
HCM 95th-tile Q	0.2	3.4	1.7

Timings
6: Meridian Rd & Stapleton Dr

Existing Traffic
AM Peak Hour

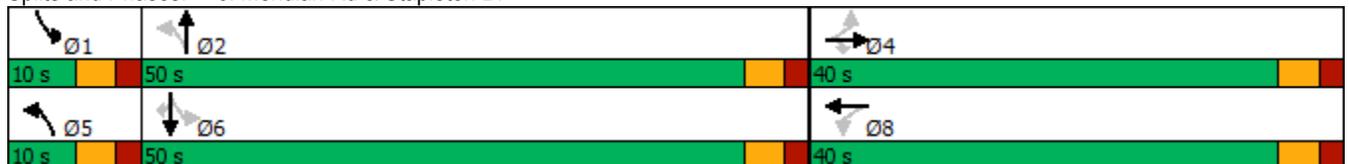
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	44	234	259	106	142	182	436	62	103	917	19
Future Volume (vph)	35	44	234	259	106	142	182	436	62	103	917	19
Turn Type	Perm	NA	Perm	Perm	NA	Free	pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		Free	2		Free	6		6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0		9.0	9.0	9.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0		10.0	50.0		10.0	50.0	50.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		10.0%	50.0%		10.0%	50.0%	50.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Act Effct Green (s)	24.5	24.5	24.5	24.5	24.5	89.9	50.3	45.3	89.9	50.3	45.3	45.3
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27	1.00	0.56	0.50	1.00	0.56	0.50	0.50
v/c Ratio	0.10	0.09	0.43	0.82	0.24	0.10	0.78	0.28	0.04	0.23	0.60	0.03
Control Delay	23.9	23.5	12.2	48.1	25.8	0.1	34.7	14.5	0.0	10.2	18.8	0.1
Queue Delay	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 Delay	23.9	23.5	12.2	48.1	25.8	0.1	34.7	14.5	0.0	10.2	18.8	0.1
LOS	C	C	B	D	C	A	C	B	A	B	B	A
Approach Delay		15.1			30.0			18.6			17.6	
Approach LOS		B			C			B			B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 89.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 20.1
 Intersection Capacity Utilization 68.9%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 6: Meridian Rd & Stapleton Dr



Timings
16: Meridian Rd & Woodmen Hills Dr

Existing Traffic
AM Peak Hour

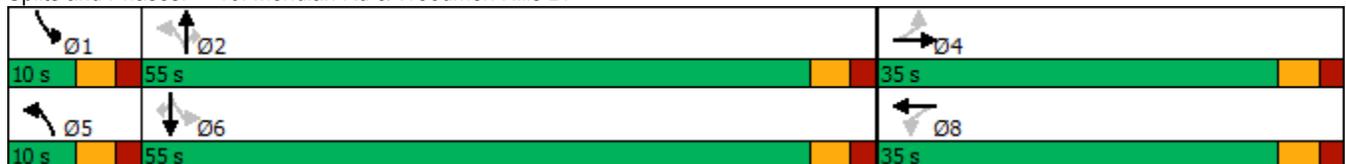


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↙	↕	↗	↙	↕	↗
Traffic Volume (vph)	21	17	132	9	21	659	18	44	1396	8
Future Volume (vph)	21	17	132	9	21	659	18	44	1396	8
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	35.0	35.0	35.0	35.0	10.0	55.0	55.0	10.0	55.0	55.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	10.0%	55.0%	55.0%	10.0%	55.0%	55.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		17.4		17.4	53.6	50.8	50.8	54.5	52.7	52.7
Actuated g/C Ratio		0.21		0.21	0.64	0.61	0.61	0.65	0.63	0.63
v/c Ratio		0.37		0.74	0.12	0.32	0.02	0.11	0.77	0.01
Control Delay		12.9		47.1	7.6	10.4	0.1	6.6	17.0	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		12.9		47.1	7.6	10.4	0.1	6.6	17.0	0.0
LOS		B		D	A	B	A	A	B	A
Approach Delay		12.9		47.1		10.1			16.6	
Approach LOS		B		D		B			B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 83.9
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 16.7
 Intersection LOS: B
 Intersection Capacity Utilization 64.1%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 16: Meridian Rd & Woodmen Hills Dr



Timings
163: Meridian & Woodmen

Existing Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	405	64	87	592	111	63	136	24	262	404	753
Future Volume (vph)	360	405	64	87	592	111	63	136	24	262	404	753
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			8			Free			Free
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0	21.0	9.0	21.0		9.0	21.0	
Total Split (s)	25.0	60.0		15.0	50.0	50.0	15.0	23.0		22.0	30.0	
Total Split (%)	20.8%	50.0%		12.5%	41.7%	41.7%	12.5%	19.2%		18.3%	25.0%	
Yellow Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0		4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	Max	C-Max		Max	C-Max	C-Max	Max	Max		Max	Max	
Act Effct Green (s)	21.0	54.0	120.0	11.0	44.0	44.0	11.0	17.0	120.0	18.0	24.0	120.0
Actuated g/C Ratio	0.18	0.45	1.00	0.09	0.37	0.37	0.09	0.14	1.00	0.15	0.20	1.00
v/c Ratio	0.60	0.25	0.04	0.31	0.50	0.17	0.20	0.27	0.02	0.59	0.66	0.55
Control Delay	50.4	21.0	0.0	53.8	31.2	0.5	52.2	47.6	0.0	52.9	49.5	1.4
Queue Delay	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 Delay	50.4	21.0	0.0	53.8	31.2	0.5	52.2	47.6	0.0	52.9	49.5	1.4
LOS	D	C	A	D	C	A	D	D	A	D	D	A
Approach Delay		32.2			29.4			43.8			24.6	
Approach LOS		C			C			D			C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green, Master Intersection
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 28.7
 Intersection LOS: C
 Intersection Capacity Utilization 57.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 163: Meridian & Woodmen



Timings
6: Meridian Rd & Stapleton Dr

Existing Traffic
PM Peak Hour

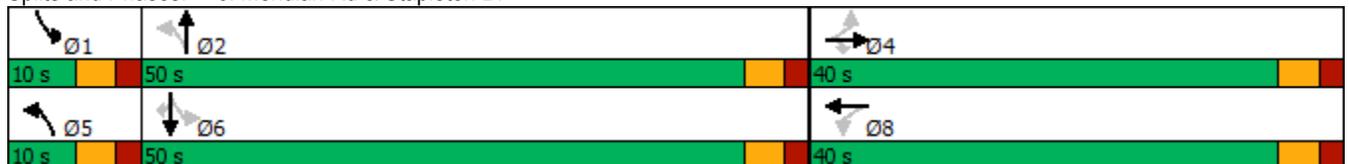
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	30	115	161	44	85	188	881	205	111	520	8
Future Volume (vph)	6	30	115	161	44	85	188	881	205	111	520	8
Turn Type	Perm	NA	Perm	Perm	NA	Free	pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		Free	2		Free	6		6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0		9.0	9.0	9.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0		10.0	50.0		10.0	50.0	50.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		10.0%	50.0%		10.0%	50.0%	50.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Act Effct Green (s)	14.4	14.4	14.4	14.4	14.4	79.6	51.2	47.3	79.6	50.1	45.1	45.1
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	1.00	0.64	0.59	1.00	0.63	0.57	0.57
v/c Ratio	0.02	0.09	0.30	0.65	0.13	0.05	0.35	0.46	0.14	0.29	0.26	0.01
Control Delay	25.7	26.7	7.8	42.4	27.3	0.1	7.2	11.2	0.2	7.1	9.8	0.0
Queue Delay	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 Delay	25.7	26.7	7.8	42.4	27.3	0.1	7.2	11.2	0.2	7.1	9.8	0.0
LOS	C	C	A	D	C	A	A	B	A	A	A	A
Approach Delay		12.3			27.7			8.8			9.2	
Approach LOS		B			C			A			A	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 79.6
 Natural Cycle: 45
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 11.4
 Intersection Capacity Utilization 58.6%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 6: Meridian Rd & Stapleton Dr



Timings
16: Meridian Rd & Woodmen Hills Dr

Existing Traffic
PM Peak Hour

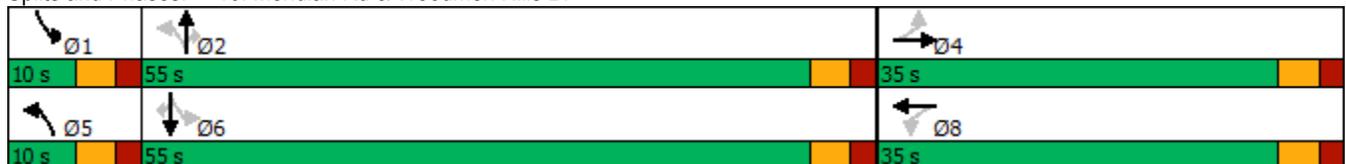


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↙	↕	↗	↙	↕	↗
Traffic Volume (vph)	4	19	61	11	76	1268	100	22	765	17
Future Volume (vph)	4	19	61	11	76	1268	100	22	765	17
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	35.0	35.0	35.0	35.0	10.0	55.0	55.0	10.0	55.0	55.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	10.0%	55.0%	55.0%	10.0%	55.0%	55.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		10.2		10.4	57.8	57.2	57.2	55.8	53.3	53.3
Actuated g/C Ratio		0.13		0.13	0.75	0.74	0.74	0.72	0.69	0.69
v/c Ratio		0.29		0.48	0.15	0.52	0.09	0.07	0.32	0.02
Control Delay		16.7		38.6	4.1	8.0	1.9	4.0	7.6	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		16.7		38.6	4.1	8.0	1.9	4.0	7.6	0.0
LOS		B		D	A	A	A	A	A	A
Approach Delay		16.7		38.6		7.4			7.3	
Approach LOS		B		D		A			A	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 77.3
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 8.8
 Intersection Capacity Utilization 62.0%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 16: Meridian Rd & Woodmen Hills Dr



Timings
163: Meridian & Woodmen

Existing Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	755	606	78	115	517	132	108	431	94	157	321	479
Future Volume (vph)	755	606	78	115	517	132	108	431	94	157	321	479
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			8			Free			Free
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0	21.0	9.0	21.0		9.0	21.0	
Total Split (s)	32.0	59.0		16.0	43.0	43.0	15.0	28.0		17.0	30.0	
Total Split (%)	26.7%	49.2%		13.3%	35.8%	35.8%	12.5%	23.3%		14.2%	25.0%	
Yellow Time (s)	3.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-3.0		-1.0	-4.0	-3.0	-1.0	-3.0		-1.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	3.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	Max	C-Max		Max	C-Max	C-Max	Max	Max		Max	Max	
Act Effct Green (s)	29.0	55.0	120.0	12.0	40.0	39.0	11.0	24.0	120.0	13.0	26.0	120.0
Actuated g/C Ratio	0.24	0.46	1.00	0.10	0.33	0.32	0.09	0.20	1.00	0.11	0.22	1.00
v/c Ratio	0.95	0.39	0.05	0.41	0.53	0.25	0.34	0.61	0.06	0.42	0.42	0.30
Control Delay	66.0	22.3	0.1	54.5	34.3	4.4	54.4	48.0	0.1	53.9	42.5	0.5
Queue Delay	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 Delay	66.0	22.3	0.1	54.5	34.3	4.4	54.4	48.0	0.1	53.9	42.5	0.5
LOS	E	C	A	D	C	A	D	D	A	D	D	A
Approach Delay		44.0			32.2			42.0			23.3	
Approach LOS		D			C			D			C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 36.1
 Intersection LOS: D
 Intersection Capacity Utilization 65.6%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 163: Meridian & Woodmen



Timings
1: Banning Lewis Pkwy & Briargate Pkwy

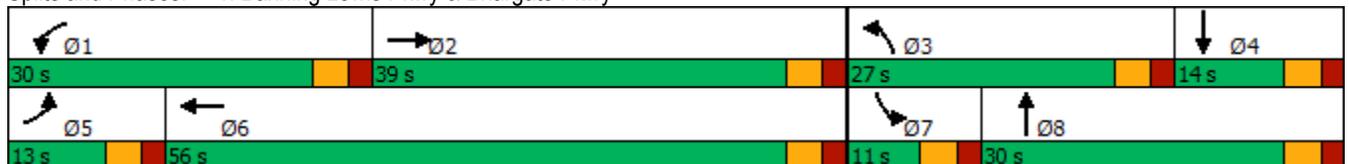
2040 Background Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	168	530	329	866	55	650	105	222	40	155	25
Future Volume (vph)	55	168	530	329	866	55	650	105	222	40	155	25
Turn Type	Prot	NA	Free									
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			Free			Free			Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Total Split (s)	13.0	39.0		30.0	56.0		27.0	30.0		11.0	14.0	
Total Split (%)	11.8%	35.5%		27.3%	50.9%		24.5%	27.3%		10.0%	12.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag										
Lead-Lag Optimize?	Yes	Yes										
Recall Mode	None	None										
Act Effct Green (s)	6.9	18.9	82.6	13.5	28.5	82.6	21.2	28.7	82.6	6.0	8.5	82.6
Actuated g/C Ratio	0.08	0.23	1.00	0.16	0.35	1.00	0.26	0.35	1.00	0.07	0.10	1.00
v/c Ratio	0.20	0.22	0.35	0.60	0.73	0.04	0.75	0.09	0.15	0.17	0.45	0.02
Control Delay	40.9	26.5	0.6	38.4	28.3	0.0	36.6	23.7	0.2	42.0	42.1	0.0
Queue Delay	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 Delay	40.9	26.5	0.6	38.4	28.3	0.0	36.6	23.7	0.2	42.0	42.1	0.0
LOS	D	C	A	D	C	A	D	C	A	D	D	A
Approach Delay		9.3			29.7			26.8			37.4	
Approach LOS		A			C			C			D	

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 82.6
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 24.4
 Intersection LOS: C
 Intersection Capacity Utilization 66.8%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 1: Banning Lewis Pkwy & Briargate Pkwy



Intersection									
Intersection Delay, s/veh 6.8									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	452		1253		53		16		
Demand Flow Rate, veh/h	461		1278		54		16		
Vehicles Circulating, veh/h	4		58		420		1331		
Vehicles Exiting, veh/h	1343		416		45		5		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	4.0		7.8		4.5		8.5		
Approach LOS	A		A		A		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	R	LT	R	
Assumed Moves	LT	TR	LT	TR	LT	R	LT	R	
RT Channelized									
Lane Util	0.471	0.529	0.470	0.530	1.000	0.000	0.250	0.750	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	217	244	601	677	54	0	4	12	
Cap Entry Lane, veh/h	1345	1415	1280	1352	917	994	397	458	
Entry HV Adj Factor	0.979	0.982	0.980	0.981	0.981	1.000	1.000	1.000	
Flow Entry, veh/h	212	240	589	664	53	0	4	12	
Cap Entry, veh/h	1316	1389	1254	1326	900	994	397	458	
V/C Ratio	0.161	0.172	0.470	0.501	0.059	0.000	0.010	0.026	
Control Delay, s/veh	4.1	4.0	7.7	7.9	4.5	3.6	9.2	8.2	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	1	1	3	3	0	0	0	0	

Timings
5: Towner Ave & Briargate Pkwy

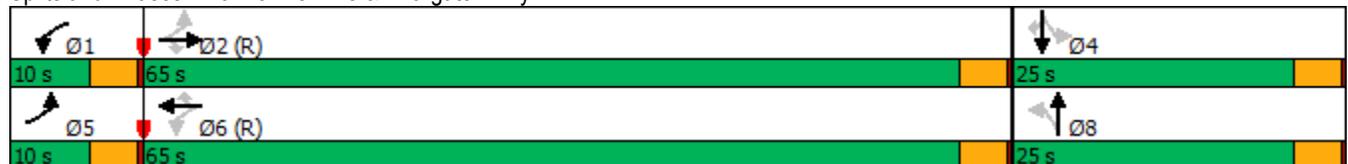
2040 Background Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	252	121	15	5	872	112	50	19	67	19	268
Future Volume (vph)	252	121	15	5	872	112	50	19	67	19	268
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	10.0	65.0	65.0	10.0	65.0	65.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	80.3	78.7	78.7	74.1	68.5	68.5	11.3	11.3	11.3	11.3	11.3
Actuated g/C Ratio	0.80	0.79	0.79	0.74	0.68	0.68	0.11	0.11	0.11	0.11	0.11
v/c Ratio	0.54	0.05	0.01	0.01	0.38	0.11	0.34	0.15	0.46	0.09	0.73
Control Delay	6.9	3.6	0.0	3.2	7.9	1.7	44.7	28.0	49.3	37.8	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	3.6	0.0	3.2	7.9	1.7	44.7	28.0	49.3	37.8	20.4
LOS	A	A	A	A	A	A	D	C	D	D	C
Approach Delay		5.6			7.2			38.4		26.8	
Approach LOS		A			A			D		C	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 12.1
 Intersection Capacity Utilization 58.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 5: Towner Ave & Briargate Pkwy



Timings
6: Meridian Rd & Briargate Pkwy/Stapleton Dr

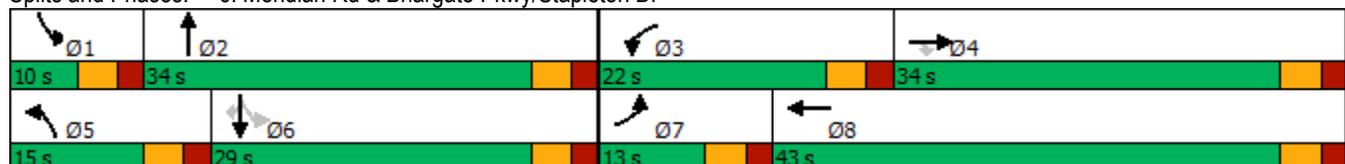
2040 Background Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	753	225	405	1270	156	255	225	202	51	741	343
Future Volume (vph)	147	753	225	405	1270	156	255	225	202	51	741	343
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free			Free	6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0		9.0	9.0	9.0
Total Split (s)	13.0	34.0	34.0	22.0	43.0		15.0	34.0		10.0	29.0	29.0
Total Split (%)	13.0%	34.0%	34.0%	22.0%	43.0%		15.0%	34.0%		10.0%	29.0%	29.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	None		None	None	None
Act Effct Green (s)	7.8	30.1	30.1	15.7	38.0	99.2	9.9	30.5	99.2	28.5	23.5	23.5
Actuated g/C Ratio	0.08	0.30	0.30	0.16	0.38	1.00	0.10	0.31	1.00	0.29	0.24	0.24
v/c Ratio	0.56	0.72	0.38	0.76	0.96	0.10	0.76	0.21	0.13	0.15	0.90	0.66
Control Delay	52.7	35.7	9.0	49.6	46.9	0.1	59.0	27.0	0.2	20.8	52.1	21.2
Queue Delay	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 Delay	52.7	35.7	9.0	49.6	46.9	0.1	59.0	27.0	0.2	20.8	52.1	21.2
LOS	D	D	A	D	D	A	E	C	A	C	D	C
Approach Delay		32.6			43.5			31.0			41.4	
Approach LOS		C			D			C			D	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 99.2
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 38.6
 Intersection LOS: D
 Intersection Capacity Utilization 83.7%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 6: Meridian Rd & Briargate Pkwy/Stapleton Dr



Timings
16: Meridian Rd & Woodmen Hills Dr

2040 Background Traffic
AM Peak Hour

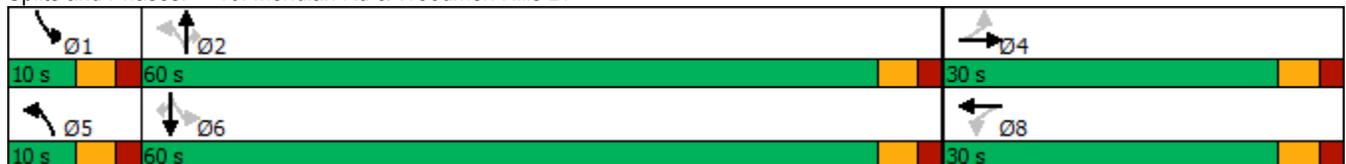


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↙	↕	↗	↙	↕	↗
Traffic Volume (vph)	18	33	99	53	16	630	13	33	1331	7
Future Volume (vph)	18	33	99	53	16	630	13	33	1331	7
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	30.0	30.0	30.0	30.0	10.0	60.0	60.0	10.0	60.0	60.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	10.0%	60.0%	60.0%	10.0%	60.0%	60.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None									
Act Effct Green (s)		15.5		15.5	36.3	34.9	34.9	36.3	34.9	34.9
Actuated g/C Ratio		0.24		0.24	0.56	0.54	0.54	0.56	0.54	0.54
v/c Ratio		0.29		0.55	0.07	0.34	0.02	0.07	0.71	0.01
Control Delay		16.4		31.0	6.4	9.7	0.0	6.2	14.5	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		16.4		31.0	6.4	9.7	0.0	6.2	14.5	0.0
LOS		B		C	A	A	A	A	B	A
Approach Delay		16.4		31.0		9.5			14.2	
Approach LOS		B		C		A			B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 64.6
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 14.4
 Intersection Capacity Utilization 62.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 16: Meridian Rd & Woodmen Hills Dr



Timings
163: Meridian Rd & Woodmen Rd

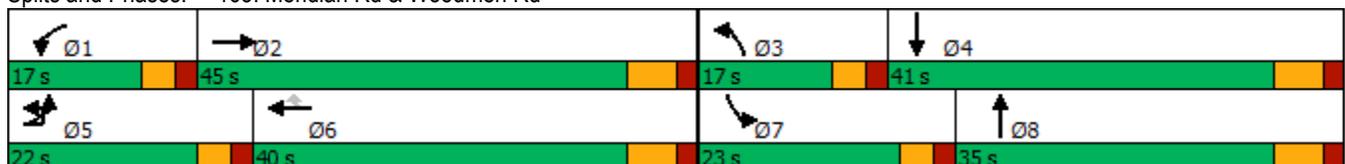
2040 Background Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (vph)	457	520	175	150	884	144	328	287	100	229	785	1041
Future Volume (vph)	457	520	175	150	884	144	328	287	100	229	785	1041
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			6			Free			Free
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	11.5		10.0	11.5	11.5	10.0	11.5		10.0	11.5	
Total Split (s)	22.0	45.0		17.0	40.0	40.0	17.0	35.0		23.0	41.0	
Total Split (%)	18.3%	37.5%		14.2%	33.3%	33.3%	14.2%	29.2%		19.2%	34.2%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	5.5		4.0	5.5	5.5	4.0	5.5		4.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min		None	Min	Min	None	None		None	None	
Act Effct Green (s)	18.1	40.2	115.3	11.2	33.3	33.3	13.0	30.7	115.3	14.2	31.8	115.3
Actuated g/C Ratio	0.16	0.35	1.00	0.10	0.29	0.29	0.11	0.27	1.00	0.12	0.28	1.00
v/c Ratio	0.90	0.43	0.11	0.46	0.88	0.26	0.86	0.31	0.06	0.56	0.82	0.67
Control Delay	69.0	30.9	0.1	54.6	50.9	4.5	73.3	35.5	0.1	53.2	47.0	2.3
Queue Delay	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 Delay	69.0	30.9	0.1	54.6	50.9	4.5	73.3	35.5	0.1	53.2	47.0	2.3
LOS	E	C	A	D	D	A	E	D	A	D	D	A
Approach Delay		41.7			45.7			47.9			25.0	
Approach LOS		D			D			D			C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 115.3
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 36.8
 Intersection LOS: D
 Intersection Capacity Utilization 84.8%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 163: Meridian Rd & Woodmen Rd



Timings
1: Banning Lewis Pkwy & Briargate Pkwy

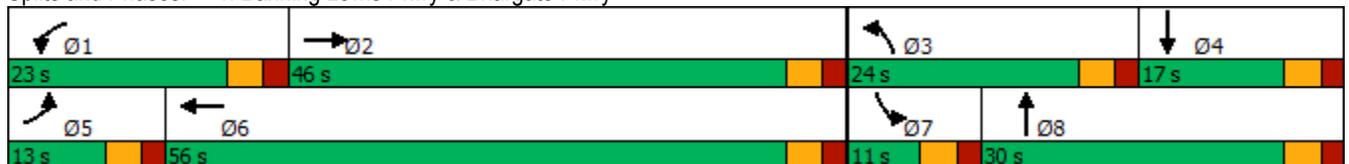
2040 Background Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	901	595	153	403	135	685	340	399	130	335	130
Future Volume (vph)	135	901	595	153	403	135	685	340	399	130	335	130
Turn Type	Prot	NA	Free									
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			Free			Free			Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Total Split (s)	13.0	46.0		23.0	56.0		24.0	30.0		11.0	17.0	
Total Split (%)	11.8%	41.8%		20.9%	50.9%		21.8%	27.3%		10.0%	15.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag										
Lead-Lag Optimize?	Yes	Yes										
Recall Mode	None	None										
Act Effct Green (s)	7.8	30.2	91.2	9.6	32.0	91.2	19.2	25.2	91.2	6.1	12.0	91.2
Actuated g/C Ratio	0.09	0.33	1.00	0.11	0.35	1.00	0.21	0.28	1.00	0.07	0.13	1.00
v/c Ratio	0.49	0.78	0.40	0.43	0.34	0.09	0.97	0.37	0.27	0.60	0.76	0.09
Control Delay	47.9	32.8	0.7	43.5	22.0	0.1	64.8	29.6	0.4	55.6	51.3	0.1
Queue Delay	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 Delay	47.9	32.8	0.7	43.5	22.0	0.1	64.8	29.6	0.4	55.6	51.3	0.1
LOS	D	C	A	D	C	A	E	C	A	E	D	A
Approach Delay		22.2			22.4			38.0			41.1	
Approach LOS		C			C			D			D	

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 91.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 30.0
 Intersection LOS: C
 Intersection Capacity Utilization 74.7%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 1: Banning Lewis Pkwy & Briargate Pkwy



Intersection									
Intersection Delay, s/veh 7.7									
Intersection LOS A									
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	1505		684		41		10		
Demand Flow Rate, veh/h	1535		698		42		10		
Vehicles Circulating, veh/h	3		55		1490		735		
Vehicles Exiting, veh/h	742		1477		48		18		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	8.7		5.1		12.9		5.0		
Approach LOS	A		A		B		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	LT	R	LT	R	
Assumed Moves	LT	TR	LT	TR	LT	R	LT	R	
RT Channelized									
Lane Util	0.470	0.530	0.470	0.530	1.000	0.000	0.300	0.700	
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535	2.667	2.535	
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328	4.645	4.328	
Entry Flow, veh/h	721	814	328	370	42	0	3	7	
Cap Entry Lane, veh/h	1346	1417	1283	1355	343	400	687	760	
Entry HV Adj Factor	0.981	0.980	0.981	0.980	0.976	1.000	1.000	1.000	
Flow Entry, veh/h	707	798	322	363	41	0	3	7	
Cap Entry, veh/h	1321	1388	1258	1329	335	400	687	760	
V/C Ratio	0.536	0.575	0.256	0.273	0.123	0.000	0.004	0.009	
Control Delay, s/veh	8.5	8.9	5.1	5.1	12.9	9.0	5.3	4.8	
LOS	A	A	A	A	B	A	A	A	
95th %tile Queue, veh	3	4	1	1	0	0	0	0	

Timings
5: Towner Ave & Briargate Pkwy

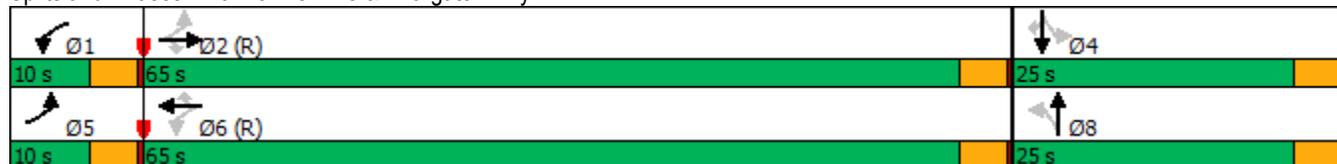
2040 Background Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	299	1027	50	29	434	131	25	2	108	2	191
Future Volume (vph)	299	1027	50	29	434	131	25	2	108	2	191
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	10.0	65.0	65.0	10.0	65.0	65.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	77.6	72.2	72.2	71.5	65.5	65.5	13.7	13.7	13.7	13.7	13.7
Actuated g/C Ratio	0.78	0.72	0.72	0.72	0.66	0.66	0.14	0.14	0.14	0.14	0.14
v/c Ratio	0.43	0.42	0.05	0.08	0.20	0.13	0.14	0.10	0.61	0.01	0.52
Control Delay	5.6	7.5	2.1	3.9	7.7	1.7	37.1	15.7	53.2	33.5	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	7.5	2.1	3.9	7.7	1.7	37.1	15.7	53.2	33.5	10.2
LOS	A	A	A	A	A	A	D	B	D	C	B
Approach Delay		6.9			6.2			26.8		25.8	
Approach LOS		A			A			C		C	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 9.6
 Intersection Capacity Utilization 54.4%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 5: Towner Ave & Briargate Pkwy



Timings
6: Meridian Rd & Briargate Pkwy

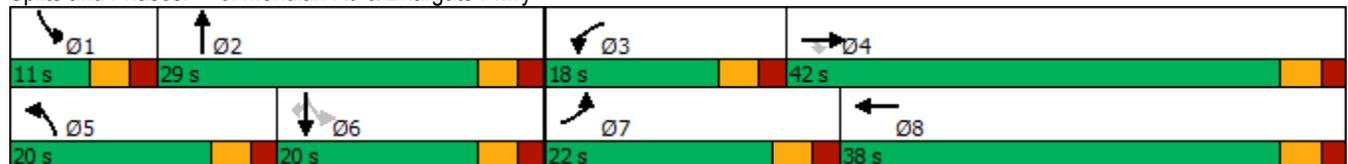
2040 Background Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	450	1091	265	332	890	184	315	457	450	92	265	275
Future Volume (vph)	450	1091	265	332	890	184	315	457	450	92	265	275
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free			Free	6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0		9.0	9.0	9.0
Total Split (s)	22.0	42.0	42.0	18.0	38.0		20.0	29.0		11.0	20.0	20.0
Total Split (%)	22.0%	42.0%	42.0%	18.0%	38.0%		20.0%	29.0%		11.0%	20.0%	20.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	None		None	None	None
Act Effct Green (s)	15.9	34.2	34.2	12.4	30.8	92.4	13.2	22.1	92.4	18.4	12.3	12.3
Actuated g/C Ratio	0.17	0.37	0.37	0.13	0.33	1.00	0.14	0.24	1.00	0.20	0.13	0.13
v/c Ratio	0.78	0.85	0.37	0.73	0.77	0.12	0.66	0.55	0.29	0.40	0.57	0.62
Control Delay	48.0	34.7	6.8	50.2	33.4	0.2	45.6	35.1	0.5	29.4	43.7	11.5
Queue Delay	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 Delay	48.0	34.7	6.8	50.2	33.4	0.2	45.6	35.1	0.5	29.4	43.7	11.5
LOS	D	C	A	D	C	A	D	D	A	C	D	B
Approach Delay		33.9			33.0			25.0			27.6	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 92.4
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 30.7
 Intersection LOS: C
 Intersection Capacity Utilization 74.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 6: Meridian Rd & Briargate Pkwy



Timings
16: Meridian Rd & Woodmen Hills Dr/Raygor Rd

2040 Background Traffic
PM Peak Hour

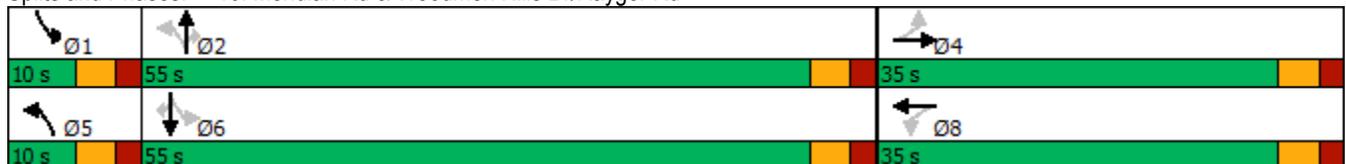


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↙	↕	↗	↙	↕	↗
Traffic Volume (vph)	3	50	46	28	57	1213	75	16	832	14
Future Volume (vph)	3	50	46	28	57	1213	75	16	832	14
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	35.0	35.0	35.0	35.0	10.0	55.0	55.0	10.0	55.0	55.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	10.0%	55.0%	55.0%	10.0%	55.0%	55.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None									
Act Effct Green (s)		10.0		10.1	28.1	30.2	30.2	26.2	26.5	26.5
Actuated g/C Ratio		0.22		0.22	0.61	0.66	0.66	0.57	0.58	0.58
v/c Ratio		0.24		0.25	0.12	0.53	0.07	0.04	0.41	0.02
Control Delay		16.3		22.6	4.6	7.9	2.1	4.3	9.6	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		16.3		22.6	4.6	7.9	2.1	4.3	9.6	0.0
LOS		B		C	A	A	A	A	A	A
Approach Delay		16.3		22.6		7.5			9.3	
Approach LOS		B		C		A			A	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 45.8
 Natural Cycle: 45
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 9.0
 Intersection Capacity Utilization 60.4%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 16: Meridian Rd & Woodmen Hills Dr/Raygor Rd



Timings
163: Meridian Rd & Woodmen Rd

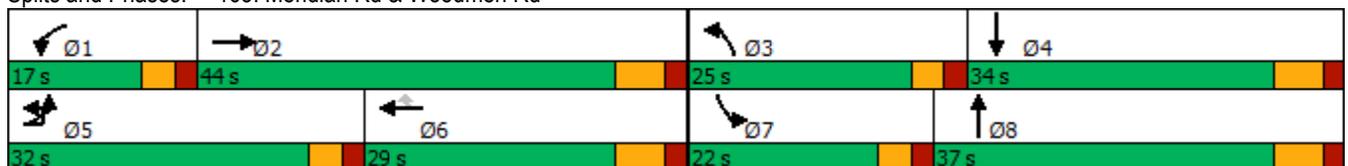
2040 Background Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	755	794	375	225	665	191	465	722	200	441	603	602
Future Volume (vph)	755	794	375	225	665	191	465	722	200	441	603	602
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			6			Free			Free
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	11.5		10.0	11.5	11.5	10.0	11.5		10.0	11.5	
Total Split (s)	32.0	44.0		17.0	29.0	29.0	25.0	37.0		22.0	34.0	
Total Split (%)	26.7%	36.7%		14.2%	24.2%	24.2%	20.8%	30.8%		18.3%	28.3%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	5.5		4.0	5.5	5.5	4.0	5.5		4.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min		None	Min	Min	None	None		None	None	
Act Effct Green (s)	28.0	39.2	117.5	12.4	23.5	23.5	20.0	29.2	117.5	17.8	26.9	117.5
Actuated g/C Ratio	0.24	0.33	1.00	0.11	0.20	0.20	0.17	0.25	1.00	0.15	0.23	1.00
v/c Ratio	0.98	0.69	0.24	0.64	0.96	0.41	0.81	0.84	0.13	0.87	0.76	0.39
Control Delay	71.7	38.1	0.4	59.4	72.3	8.5	59.2	51.6	0.2	67.1	49.2	0.7
Queue Delay	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 Delay	71.7	38.1	0.4	59.4	72.3	8.5	59.2	51.6	0.2	67.1	49.2	0.7
LOS	E	D	A	E	E	A	E	D	A	E	D	A
Approach Delay		44.4			58.3			46.7			36.3	
Approach LOS		D			E			D			D	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 117.5
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 45.2
 Intersection LOS: D
 Intersection Capacity Utilization 89.1%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 163: Meridian Rd & Woodmen Rd



Timings
1: Banning Lewis Pkwy & Briargate Pkwy

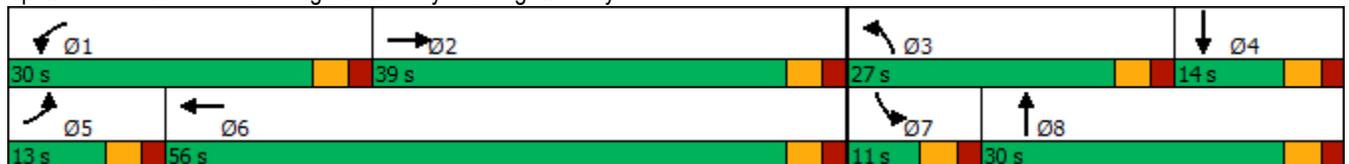
2040 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	276	530	832	1156	55	650	105	408	40	155	25
Future Volume (vph)	55	276	530	832	1156	55	650	105	408	40	155	25
Turn Type	Prot	NA	Free									
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			Free			Free			Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Total Split (s)	13.0	39.0		30.0	56.0		27.0	30.0		11.0	14.0	
Total Split (%)	11.8%	35.5%		27.3%	50.9%		24.5%	27.3%		10.0%	12.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag										
Lead-Lag Optimize?	Yes	Yes										
Recall Mode	None	None										
Act Effct Green (s)	6.9	21.4	97.1	25.3	42.3	97.1	21.6	29.1	97.1	5.9	8.6	97.1
Actuated g/C Ratio	0.07	0.22	1.00	0.26	0.44	1.00	0.22	0.30	1.00	0.06	0.09	1.00
v/c Ratio	0.24	0.37	0.35	0.95	0.77	0.04	0.87	0.10	0.27	0.20	0.52	0.02
Control Delay	48.1	32.7	0.6	57.8	27.9	0.0	51.1	29.5	0.4	49.4	50.9	0.0
Queue Delay	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 Delay	48.1	32.7	0.6	57.8	27.9	0.0	51.1	29.5	0.4	49.4	50.9	0.0
LOS	D	C	A	E	C	A	D	C	A	D	D	A
Approach Delay		13.9			39.3			31.0			44.9	
Approach LOS		B			D			C			D	

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 97.1
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 32.1
 Intersection LOS: C
 Intersection Capacity Utilization 74.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 1: Banning Lewis Pkwy & Briargate Pkwy



Intersection									
Intersection Delay, s/veh	12.6								
Intersection LOS	B								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	740		1848		188		121		
Demand Flow Rate, veh/h	755		1885		191		124		
Vehicles Circulating, veh/h	35		193		728		2045		
Vehicles Exiting, veh/h	2134		726		61		33		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	4.9		15.9		6.4		19.0		
Approach LOS	A		C		A		C		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	L	TR	L	TR	
Assumed Moves	LT	TR	LT	TR	L	TR	L	TR	
RT Channelized									
Lane Util	0.470	0.530	0.470	0.530	0.880	0.120	0.218	0.782	
Follow-Up Headway, s	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	
Critical Headway, s	4.050	4.050	4.050	4.050	4.050	4.050	4.050	4.050	
Entry Flow, veh/h	355	400	886	999	168	23	27	97	
Cap Entry Lane, veh/h	1401	1401	1239	1239	817	817	293	293	
Entry HV Adj Factor	0.979	0.980	0.981	0.981	0.982	1.000	0.963	0.979	
Flow Entry, veh/h	348	392	869	980	165	23	26	95	
Cap Entry, veh/h	1372	1374	1215	1215	803	817	283	287	
V/C Ratio	0.253	0.285	0.715	0.806	0.206	0.028	0.092	0.331	
Control Delay, s/veh	4.8	5.1	13.6	17.9	6.7	4.7	14.5	20.2	
LOS	A	A	B	C	A	A	B	C	
95th %tile Queue, veh	1	1	7	9	1	0	0	1	

HCM 6th Roundabout
 3: Woodmen Hills Dr/Raygor Rd & Briargate Pkwy

2040 Total Traffic
 AM Peak Hour

Intersection									
Intersection Delay, s/veh	13.4								
Intersection LOS	B								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	732		1381		421		314		
Demand Flow Rate, veh/h	747		1408		430		320		
Vehicles Circulating, veh/h	167		459		614		1742		
Vehicles Exiting, veh/h	1895		585		300		125		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	5.6		15.4		8.1		30.0		
Approach LOS	A		C		A		D		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	L	TR	L	TR	
Assumed Moves	LT	TR	LT	TR	L	TR	L	TR	
RT Channelized									
Lane Util	0.470	0.530	0.470	0.530	0.823	0.177	0.181	0.819	
Follow-Up Headway, s	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	
Critical Headway, s	4.050	4.050	4.050	4.050	4.050	4.050	4.050	4.050	
Entry Flow, veh/h	351	396	662	746	354	76	58	262	
Cap Entry Lane, veh/h	1265	1265	1008	1008	893	893	371	371	
Entry HV Adj Factor	0.981	0.980	0.981	0.981	0.980	0.976	0.983	0.982	
Flow Entry, veh/h	344	388	649	732	347	74	57	257	
Cap Entry, veh/h	1240	1239	988	989	876	872	365	365	
V/C Ratio	0.278	0.313	0.657	0.740	0.396	0.085	0.156	0.705	
Control Delay, s/veh	5.4	5.8	13.6	16.9	8.8	4.9	12.5	33.9	
LOS	A	A	B	C	A	A	B	D	
95th %tile Queue, veh	1	1	5	7	2	0	1	5	

Timings
4: Briargate Pkwy & Residential Collector

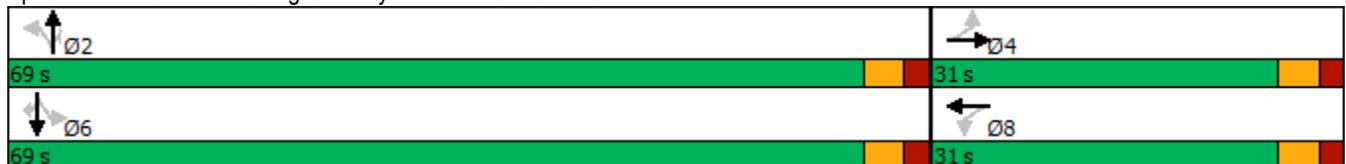
2040 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	24	6	73	3	18	501	25	23	1226	7
Future Volume (vph)	24	6	73	3	18	501	25	23	1226	7
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	31.0	31.0	31.0	31.0	69.0	69.0	69.0	69.0	69.0	69.0
Total Split (%)	31.0%	31.0%	31.0%	31.0%	69.0%	69.0%	69.0%	69.0%	69.0%	69.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	10.1	10.1	10.3	10.3	69.5	69.5	69.5	69.5	69.5	69.5
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.80	0.80	0.80	0.80	0.80	0.80
v/c Ratio	0.16	0.26	0.49	0.26	0.07	0.19	0.02	0.04	0.45	0.01
Control Delay	35.2	13.9	45.4	12.9	3.8	3.0	1.4	3.3	4.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	13.9	45.4	12.9	3.8	3.0	1.4	3.3	4.4	0.4
LOS	D	B	D	B	A	A	A	A	A	A
Approach Delay		20.0		30.9		3.0			4.3	
Approach LOS		C		C		A			A	

Intersection Summary

Cycle Length: 100	
Actuated Cycle Length: 86.5	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 6.3	Intersection LOS: A
Intersection Capacity Utilization 52.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Briargate Pkwy & Residential Collector



Timings
5: Towner Ave & Briargate Pkwy

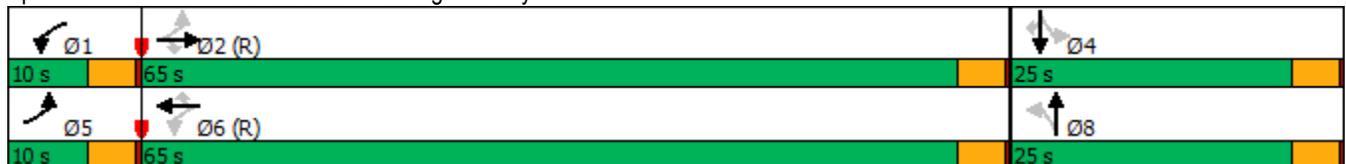
2040 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	276	290	15	5	929	112	50	19	67	19	277
Future Volume (vph)	276	290	15	5	929	112	50	19	67	19	277
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	10.0	65.0	65.0	10.0	65.0	65.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	78.9	77.7	77.7	72.4	66.9	66.9	12.4	12.4	12.4	12.4	12.4
Actuated g/C Ratio	0.79	0.78	0.78	0.72	0.67	0.67	0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.62	0.11	0.01	0.01	0.41	0.11	0.31	0.14	0.42	0.09	0.76
Control Delay	11.9	4.0	0.0	3.8	9.0	1.8	42.1	26.6	45.9	36.1	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	4.0	0.0	3.8	9.0	1.8	42.1	26.6	45.9	36.1	24.5
LOS	B	A	A	A	A	A	D	C	D	D	C
Approach Delay		7.6			8.2			36.3		29.1	
Approach LOS		A			A			D		C	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 12.8
 Intersection LOS: B
 Intersection Capacity Utilization 61.3%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 5: Towner Ave & Briargate Pkwy



Timings
6: Meridian Rd & Briargate Pkwy/Stapleton Dr

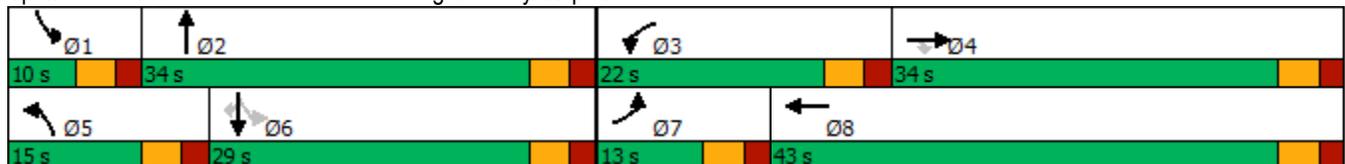
2040 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	822	302	406	1295	156	279	226	204	51	741	351
Future Volume (vph)	170	822	302	406	1295	156	279	226	204	51	741	351
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free			Free	6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0		9.0	9.0	9.0
Total Split (s)	13.0	34.0	34.0	22.0	43.0		15.0	34.0		10.0	29.0	29.0
Total Split (%)	13.0%	34.0%	34.0%	22.0%	43.0%		15.0%	34.0%		10.0%	29.0%	29.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	None		None	None	None
Act Effct Green (s)	7.9	30.1	30.1	15.8	38.0	99.7	10.0	30.8	99.7	28.8	23.8	23.8
Actuated g/C Ratio	0.08	0.30	0.30	0.16	0.38	1.00	0.10	0.31	1.00	0.29	0.24	0.24
v/c Ratio	0.64	0.78	0.51	0.76	0.98	0.10	0.83	0.21	0.13	0.14	0.90	0.68
Control Delay	55.8	38.5	14.9	49.9	51.5	0.1	65.0	27.0	0.2	20.8	51.5	22.1
Queue Delay	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 Delay	55.8	38.5	14.9	49.9	51.5	0.1	65.0	27.0	0.2	20.8	51.5	22.1
LOS	E	D	B	D	D	A	E	C	A	C	D	C
Approach Delay		35.2			46.8			34.2			41.1	
Approach LOS		D			D			C			D	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 99.7
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 40.7
 Intersection LOS: D
 Intersection Capacity Utilization 85.8%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 6: Meridian Rd & Briargate Pkwy/Stapleton Dr



Intersection				
Intersection Delay, s/veh	4.8			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	73	258	165	270
Demand Flow Rate, veh/h	74	263	168	276
Vehicles Circulating, veh/h	330	145	162	79
Vehicles Exiting, veh/h	25	185	242	329
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.4	5.1	4.4	4.8
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	74	263	168	276
Cap Entry Lane, veh/h	986	1190	1170	1273
Entry HV Adj Factor	0.981	0.980	0.980	0.979
Flow Entry, veh/h	73	258	165	270
Cap Entry, veh/h	966	1167	1146	1246
V/C Ratio	0.075	0.221	0.144	0.217
Control Delay, s/veh	4.4	5.1	4.4	4.8
LOS	A	A	A	A
95th %tile Queue, veh	0	1	1	1

Timings
16: Meridian Rd & Woodmen Hills Dr

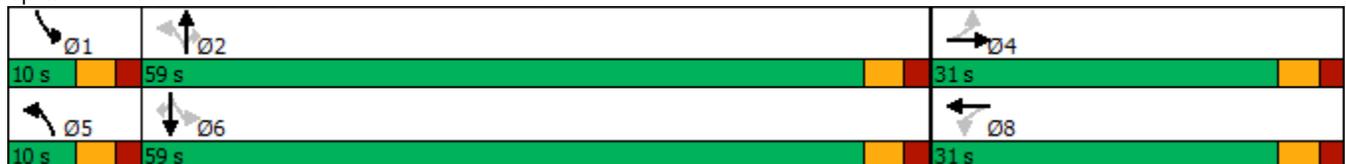
2040 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	21	54	99	61	81	653	13	36	1405	8
Future Volume (vph)	21	54	99	61	81	653	13	36	1405	8
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	31.0	31.0	31.0	31.0	10.0	59.0	59.0	10.0	59.0	59.0
Total Split (%)	31.0%	31.0%	31.0%	31.0%	10.0%	59.0%	59.0%	10.0%	59.0%	59.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None									
Act Effct Green (s)		24.5		24.5	47.8	45.1	45.1	46.8	43.1	43.1
Actuated g/C Ratio		0.29		0.29	0.56	0.53	0.53	0.55	0.50	0.50
v/c Ratio		0.59		0.74	0.45	0.36	0.02	0.09	0.80	0.01
Control Delay		23.6		48.4	15.9	12.8	0.0	7.5	22.2	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		23.6		48.4	15.9	12.8	0.0	7.5	22.2	0.0
LOS		C		D	B	B	A	A	C	A
Approach Delay		23.6		48.4		13.0			21.7	
Approach LOS		C		D		B			C	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 85.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 21.5
 Intersection LOS: C
 Intersection Capacity Utilization 89.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 16: Meridian Rd & Woodmen Hills Dr



Timings
163: Meridian Rd & Woodmen Rd

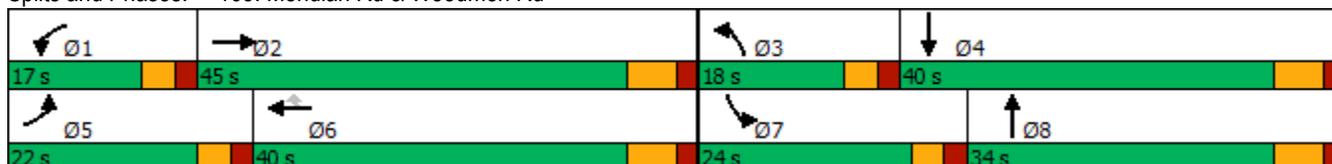
2040 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	472	520	175	150	884	166	328	340	100	289	929	1041
Future Volume (vph)	472	520	175	150	884	166	328	340	100	289	929	1041
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			6			Free			Free
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	11.5		10.0	11.5	11.5	10.0	11.5		10.0	11.5	
Total Split (s)	22.0	45.0		17.0	40.0	40.0	18.0	34.0		24.0	40.0	
Total Split (%)	18.3%	37.5%		14.2%	33.3%	33.3%	15.0%	28.3%		20.0%	33.3%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	5.5		4.0	5.5	5.5	4.0	5.5		4.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Max		None	Max	Max	None	None		None	None	
Act Effct Green (s)	18.0	41.2	119.7	11.3	34.5	34.5	14.0	31.8	119.7	16.4	34.2	119.7
Actuated g/C Ratio	0.15	0.34	1.00	0.09	0.29	0.29	0.12	0.27	1.00	0.14	0.29	1.00
v/c Ratio	0.94	0.44	0.11	0.47	0.88	0.29	0.84	0.37	0.06	0.63	0.94	0.67
Control Delay	77.0	32.1	0.1	56.0	52.3	6.3	70.4	37.8	0.1	54.8	58.9	2.3
Queue Delay	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 Delay	77.0	32.1	0.1	56.0	52.3	6.3	70.4	37.8	0.1	54.8	58.9	2.3
LOS	E	C	A	E	D	A	E	D	A	D	E	A
Approach Delay		45.5			46.4			46.8			32.3	
Approach LOS		D			D			D			C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 119.7
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 40.3
 Intersection LOS: D
 Intersection Capacity Utilization 88.8%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 163: Meridian Rd & Woodmen Rd



Timings
1: Banning Lewis Pkwy & Briargate Pkwy

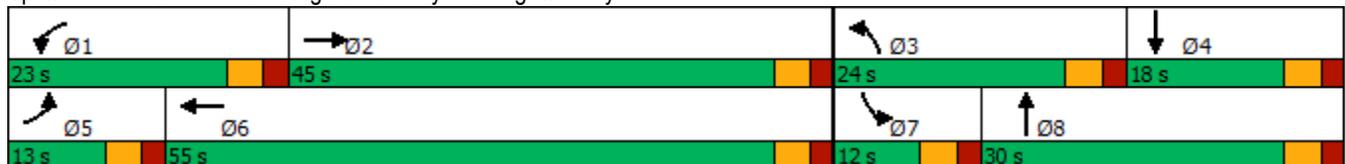
2040 Total Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	1226	595	477	589	135	685	340	965	130	335	130
Future Volume (vph)	135	1226	595	477	589	135	685	340	965	130	335	130
Turn Type	Prot	NA	Free									
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			Free			Free			Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Total Split (s)	13.0	45.0		23.0	55.0		24.0	30.0		12.0	18.0	
Total Split (%)	11.8%	40.9%		20.9%	50.0%		21.8%	27.3%		10.9%	16.4%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag										
Lead-Lag Optimize?	Yes	Yes										
Recall Mode	None	None										
Act Effct Green (s)	7.8	40.0	109.5	17.6	49.8	109.5	19.0	24.9	109.5	7.0	12.9	109.5
Actuated g/C Ratio	0.07	0.37	1.00	0.16	0.45	1.00	0.17	0.23	1.00	0.06	0.12	1.00
v/c Ratio	0.58	0.97	0.40	0.88	0.39	0.09	1.17	0.45	0.64	0.63	0.85	0.09
Control Delay	59.4	53.4	0.7	63.6	20.7	0.1	136.3	38.5	2.0	63.3	66.8	0.1
Queue Delay	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 Delay	59.4	53.4	0.7	63.6	20.7	0.1	136.3	38.5	2.0	63.3	66.8	0.1
LOS	E	D	A	E	C	A	F	D	A	E	E	A
Approach Delay		37.5			35.1			53.6			51.5	
Approach LOS		D			D			D			D	

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 109.5
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.17
 Intersection Signal Delay: 44.0
 Intersection LOS: D
 Intersection Capacity Utilization 93.0%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 1: Banning Lewis Pkwy & Briargate Pkwy



HCM 6th Roundabout
 2: Residential Collector/TAZ 7 & Briargate Pkwy

2040 Total Traffic
 PM Peak Hour

Intersection									
Intersection Delay, s/veh	18.2								
Intersection LOS	C								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	2378		1120		132		74		
Demand Flow Rate, veh/h	2426		1143		134		75		
Vehicles Circulating, veh/h	46		216		2241		1226		
Vehicles Exiting, veh/h	1255		2159		231		133		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	22.9		8.0		26.9		7.6		
Approach LOS	C		A		D		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	L	TR	L	TR	
Assumed Moves	LT	TR	LT	TR	L	TR	L	TR	
RT Channelized									
Lane Util	0.470	0.530	0.470	0.530	0.866	0.134	0.240	0.760	
Follow-Up Headway, s	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	
Critical Headway, s	4.050	4.050	4.050	4.050	4.050	4.050	4.050	4.050	
Entry Flow, veh/h	1140	1286	537	606	116	18	18	57	
Cap Entry Lane, veh/h	1389	1389	1217	1217	252	252	555	555	
Entry HV Adj Factor	0.981	0.980	0.980	0.979	0.983	1.000	1.000	0.982	
Flow Entry, veh/h	1118	1261	526	593	114	18	18	56	
Cap Entry, veh/h	1362	1362	1193	1192	248	252	555	545	
V/C Ratio	0.821	0.926	0.441	0.498	0.460	0.071	0.032	0.103	
Control Delay, s/veh	17.4	27.7	7.6	8.5	28.7	15.7	6.9	7.9	
LOS	C	D	A	A	D	C	A	A	
95th %tile Queue, veh	10	16	2	3	2	0	0	0	

Intersection									
Intersection Delay, s/veh	16.8								
Intersection LOS	C								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	2		2		2		2		
Adj Approach Flow, veh/h	2114		896		300		225		
Demand Flow Rate, veh/h	2155		914		306		230		
Vehicles Circulating, veh/h	130		501		1870		1049		
Vehicles Exiting, veh/h	1149		1675		415		366		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	19.6		9.4		25.5		9.1		
Approach LOS	C		A		D		A		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	TR	LT	TR	L	TR	L	TR	
Assumed Moves	LT	TR	LT	TR	L	TR	L	TR	
RT Channelized									
Lane Util	0.470	0.530	0.470	0.530	0.670	0.330	0.187	0.813	
Follow-Up Headway, s	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	
Critical Headway, s	4.050	4.050	4.050	4.050	4.050	4.050	4.050	4.050	
Entry Flow, veh/h	1013	1142	430	484	205	101	43	187	
Cap Entry Lane, veh/h	1302	1302	975	975	336	336	637	637	
Entry HV Adj Factor	0.981	0.981	0.979	0.981	0.980	0.976	0.977	0.979	
Flow Entry, veh/h	993	1120	421	475	201	99	42	183	
Cap Entry, veh/h	1276	1277	955	957	330	328	622	623	
V/C Ratio	0.778	0.877	0.441	0.496	0.610	0.300	0.068	0.294	
Control Delay, s/veh	15.8	22.9	8.9	9.9	29.6	17.1	6.5	9.6	
LOS	C	C	A	A	D	C	A	A	
95th %tile Queue, veh	8	13	2	3	4	1	0	1	

Timings
4: Briargate Pkwy & Residential Collector

2040 Total Traffic
PM Peak Hour

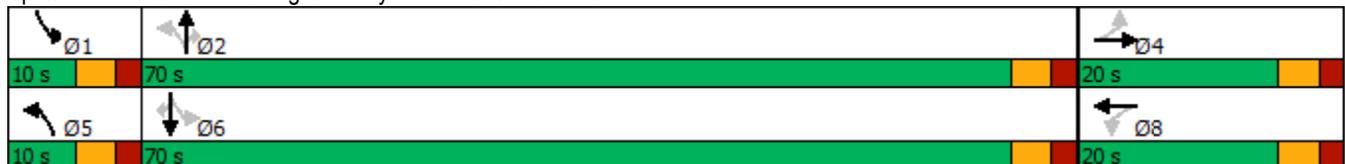


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	17	1	51	2	63	1455	90	57	787	29
Future Volume (vph)	17	1	51	2	63	1455	90	57	787	29
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	20.0	20.0	20.0	10.0	70.0	70.0	10.0	70.0	70.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	10.0%	70.0%	70.0%	10.0%	70.0%	70.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None									
Act Effct Green (s)	9.8	9.8	9.8	9.8	41.9	42.6	42.6	41.9	42.6	42.6
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.69	0.70	0.70	0.69	0.70	0.70
v/c Ratio	0.08	0.14	0.25	0.13	0.12	0.62	0.08	0.19	0.34	0.03
Control Delay	32.8	13.5	34.5	14.3	3.5	9.7	1.7	4.5	6.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	13.5	34.5	14.3	3.5	9.7	1.7	4.5	6.6	0.0
LOS	C	B	C	B	A	A	A	A	A	A
Approach Delay		19.5		26.3		9.0			6.3	
Approach LOS		B		C		A			A	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 61
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 8.9
 Intersection Capacity Utilization 66.4%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C

Splits and Phases: 4: Briargate Pkwy & Residential Collector



Timings
5: Towner Ave & Briargate Pkwy

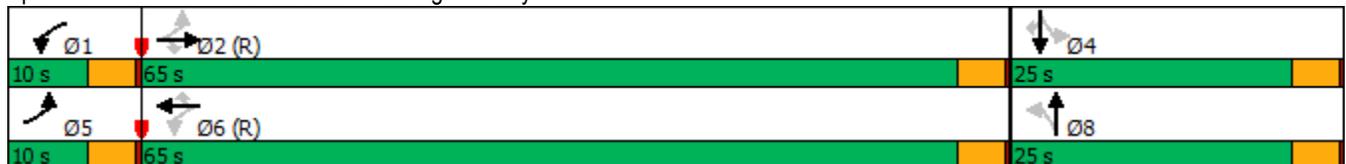
2040 Total Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	314	1140	50	29	630	131	25	2	108	2	218
Future Volume (vph)	314	1140	50	29	630	131	25	2	108	2	218
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	10.0	65.0	65.0	10.0	65.0	65.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	77.6	72.2	72.2	71.4	65.4	65.4	13.7	13.7	13.7	13.7	13.7
Actuated g/C Ratio	0.78	0.72	0.72	0.71	0.65	0.65	0.14	0.14	0.14	0.14	0.14
v/c Ratio	0.54	0.47	0.05	0.09	0.29	0.13	0.14	0.10	0.61	0.01	0.55
Control Delay	7.6	8.0	2.1	4.0	8.3	1.7	37.1	15.7	53.2	33.5	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	8.0	2.1	4.0	8.3	1.7	37.1	15.7	53.2	33.5	10.3
LOS	A	A	A	A	A	A	D	B	D	C	B
Approach Delay		7.7			7.1			26.8		24.6	
Approach LOS		A			A			C		C	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 9.9
 Intersection Capacity Utilization 57.5%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 5: Towner Ave & Briargate Pkwy



Timings
6: Meridian Rd & Briargate Pkwy

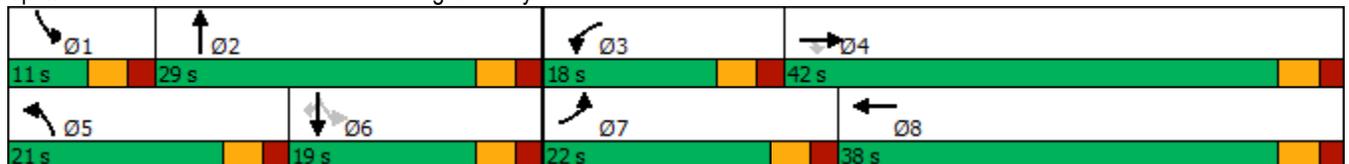
2040 Total Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	465	1135	319	335	967	184	408	457	451	92	266	301
Future Volume (vph)	465	1135	319	335	967	184	408	457	451	92	266	301
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free			Free	6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0		9.0	9.0	9.0
Total Split (s)	22.0	42.0	42.0	18.0	38.0		21.0	29.0		11.0	19.0	19.0
Total Split (%)	22.0%	42.0%	42.0%	18.0%	38.0%		21.0%	29.0%		11.0%	19.0%	19.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	None		None	None	None
Act Effct Green (s)	16.2	35.5	35.5	12.5	31.8	95.4	15.0	23.8	95.4	18.3	12.3	12.3
Actuated g/C Ratio	0.17	0.37	0.37	0.13	0.33	1.00	0.16	0.25	1.00	0.19	0.13	0.13
v/c Ratio	0.81	0.88	0.43	0.76	0.84	0.12	0.77	0.53	0.29	0.41	0.59	0.71
Control Delay	51.2	37.6	7.6	53.0	37.6	0.2	50.0	34.7	0.5	30.1	45.6	17.7
Queue Delay	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 Delay	51.2	37.6	7.6	53.0	37.6	0.2	50.0	34.7	0.5	30.1	45.6	17.7
LOS	D	D	A	D	D	A	D	C	A	C	D	B
Approach Delay		35.9			36.4			27.7			30.7	
Approach LOS		D			D			C			C	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 95.4
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 33.4
 Intersection LOS: C
 Intersection Capacity Utilization 76.6%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 6: Meridian Rd & Briargate Pkwy



Intersection				
Intersection Delay, s/veh	4.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	37	124	263	301
Demand Flow Rate, veh/h	38	127	268	307
Vehicles Circulating, veh/h	321	231	149	82
Vehicles Exiting, veh/h	68	186	210	275
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.1	4.4	5.1	5.0
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	38	127	268	307
Cap Entry Lane, veh/h	995	1090	1185	1269
Entry HV Adj Factor	0.973	0.976	0.980	0.980
Flow Entry, veh/h	37	124	263	301
Cap Entry, veh/h	967	1064	1162	1244
V/C Ratio	0.038	0.116	0.226	0.242
Control Delay, s/veh	4.1	4.4	5.1	5.0
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	1

Timings
16: Meridian Rd & Woodmen Hills Dr/Raygor Rd

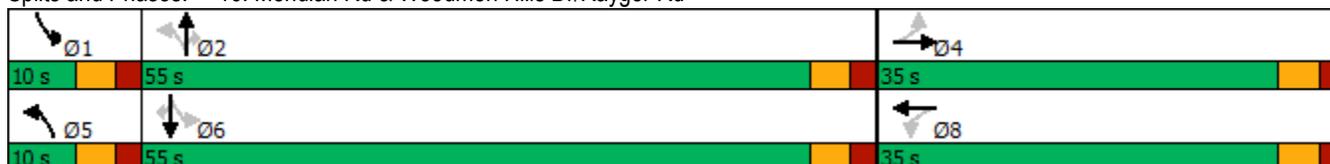
2040 Total Traffic
PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	5	63	46	51	236	1303	75	18	884	17
Future Volume (vph)	5	63	46	51	236	1303	75	18	884	17
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	35.0	35.0	35.0	35.0	10.0	55.0	55.0	10.0	55.0	55.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	10.0%	55.0%	55.0%	10.0%	55.0%	55.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None									
Act Effct Green (s)		10.9		10.9	35.3	33.8	33.8	31.3	25.9	25.9
Actuated g/C Ratio		0.19		0.19	0.60	0.58	0.58	0.53	0.44	0.44
v/c Ratio		0.56		0.51	0.67	0.65	0.08	0.07	0.58	0.02
Control Delay		19.9		33.1	17.5	11.4	2.5	4.9	13.0	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.9		33.1	17.5	11.4	2.5	4.9	13.0	0.1
LOS		B		C	B	B	A	A	B	A
Approach Delay		19.9		33.1		11.9			12.6	
Approach LOS		B		C		B			B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 58.7
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 13.5
 Intersection LOS: B
 Intersection Capacity Utilization 74.1%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 16: Meridian Rd & Woodmen Hills Dr/Raygor Rd



Timings
163: Meridian Rd & Woodmen Rd

2040 Total Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	785	794	375	225	665	258	465	884	200	480	696	602
Future Volume (vph)	785	794	375	225	665	258	465	884	200	480	696	602
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			6			Free			Free
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	11.5		10.0	11.5	11.5	10.0	11.5		10.0	11.5	
Total Split (s)	32.0	44.0		17.0	29.0	29.0	24.0	36.0		23.0	35.0	
Total Split (%)	26.7%	36.7%		14.2%	24.2%	24.2%	20.0%	30.0%		19.2%	29.2%	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	5.5		4.0	5.5	5.5	4.0	5.5		4.0	5.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min		None	Min	Min	None	None		None	None	
Act Effct Green (s)	28.0	39.0	120.0	12.5	23.5	23.5	19.6	30.5	120.0	19.0	29.9	120.0
Actuated g/C Ratio	0.23	0.32	1.00	0.10	0.20	0.20	0.16	0.25	1.00	0.16	0.25	1.00
v/c Ratio	1.00	0.70	0.24	0.64	0.98	0.50	0.85	1.00	0.13	0.90	0.80	0.39
Control Delay	78.0	39.6	0.4	60.4	77.9	8.6	63.6	75.7	0.2	70.7	50.6	0.7
Queue Delay	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 Delay	78.0	39.6	0.4	60.4	77.9	8.6	63.6	75.7	0.2	70.7	50.6	0.7
LOS	E	D	A	E	E	A	E	E	A	E	D	A
Approach Delay		47.5			58.9			62.3			39.1	
Approach LOS		D			E			E			D	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 50.8
 Intersection LOS: D
 Intersection Capacity Utilization 94.7%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 163: Meridian Rd & Woodmen Rd

