See Additional Documents

Attachment 7:

QuikTrip Traffic Impact Study

Traffic Impact Study
Proposed Travel Center

Cascade Township, Michigan

Prepared For:

QuikTrip

KLOA

Kenig, Lindgren, O'Hara, Aboona, Inc.

August 2, 2024

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I. Executive Summary

This report summarizes the results of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed QuikTrip Travel Center to be located in the southwest corner of U.S. Route 12 (Michigan Avenue) with Carpenter Road in Cascade Township, Michigan. The objectives of the traffic study are as follows:

- Determine the existing vehicular transportation conditions in the study area to establish a base condition.
- Assess the impact that the proposed development will have on transportation conditions in the area.
- Determine any improvements or modifications that will be necessary to effectively accommodate and mitigate future conditions.

Traffic counts were conducted during the weekday morning and weekday evening peak periods at the intersections of Broadmoor Avenue with Patterson Avenue, 60th Street, the M6 interchange and area U-Turn intersections as well as the intersections of Patterson Avenue with 60th Street and the Roksam Foods access drive to determine the general peak hour of traffic activity during these time periods.

As proposed, the site will be developed with a Travel Center that will consist of 16 passenger vehicle fueling positions, seven commercial fueling positions, and an approximately 8,296 square-foot convenience store. Access to the site is proposed to be provided via a three-quarters access drive on Broadmoor Avenue that will form the fourth leg of the signalized intersection of Broadmoor Avenue with the northbound to southbound U-Turn Lane. Additional Access will be provided via full movement passenger vehicle access and an outbound only truck access on Patterson Avenue.

Based on the preceding analyses and recommendations, the following conclusions have been made:

- The traffic projected to be generated by the proposed travel center will be reduced due to the volume of pass-by traffic.
- The site is designed to promote separation of trucks and passenger vehicles, improving safety and efficiency of on-site operations.
- Area signalized intersections have sufficient reserve capacity to accommodate the traffic that will be generated by the proposed travel center.
- The following improvements will be provided at the intersection of Broadmoor Avenue with the northbound to southbound U-Turn lane and the site access drive:

- The existing median break, which is currently striped for one U-Turn lane, will be restriped for a shared left-turn/U-Turn lane and an exclusive U-Turn lane.

- An additional northbound turn lane will be provided within the median on Broadmoor Avenue adjacent to the existing turn lane. This turn lane should mirror the storage and taper of the existing turn lane.

- A southbound right-turn lane will be provided on Broadmoor Avenue. This turn lane should provide 250 feet of storage and a 225-foot taper.

- The traffic signal equipment will be modified to accommodate the west leg (proposed access drive). The eastbound approach and northbound U-Turn/left-turn movements will share a single phase. No green time will be taken from the southbound through movement.

- As part of the development, Patterson Avenue will be widened along the site frontage to provide a center left-turn lane.

- No additional improvements are required for the proposed access drives on Patterson Avenue.

- The proposed access system will adequately accommodate site-generated traffic.

1. Introduction

This report summarizes the methodologies, results, and findings of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed QuikTrip Travel Center to be located in Cascade Township, Michigan. The site, which is currently vacant, is located in the triangular parcel between Broadmoor Avenue (Michigan State Route 37), 60th Street, and Patterson Avenue. As proposed, the site will be developed with a Travel Center that will consist of:

- Sixteen (16) passenger vehicle fueling positions
- Seven (7) commercial fueling positions
- An approximately 8,296 square-foot convenience store

Access to the proposed travel center will be provided via Broadmoor Avenue and Patterson Avenue.

The purpose of this study was to examine background traffic conditions, assess the impact that the proposed travel center will have on traffic conditions in the area, and determine if any roadway or access improvements are necessary to accommodate traffic generated by the proposed travel center. **Figure 1** shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial view of the site. The sections of this report present the following:

- Existing roadway conditions
- A description of the proposed travel center
- Directional distribution of the travel center traffic
- Vehicle trip generation for the travel center
- Future traffic conditions including access to the travel center
- Traffic analyses for the weekday morning and weekday evening peak hours
- Recommendations with respect to adequacy of the site access and adjacent roadway system

Traffic capacity analyses were conducted for the weekday morning and weekday evening peak hours for the following conditions:

1. Existing Conditions – Analyzes the capacity of the existing roadway system using peak hour traffic volumes from traffic counts conducted in 2023 adjusted to account for the ongoing road construction.

2. Year 2030 No Build Conditions – Analyzes the capacity of the existing roadway system assuming the no-build traffic volumes that include the existing traffic volumes, an ambient area growth factor not attributable to any particular development.

3. Year 2030 Projected Conditions – Analyzes the capacity of the future roadway system assuming the projected traffic volumes that include the existing traffic volumes, an ambient area growth factor not attributable to any particular development, and the traffic estimated to be generated by the proposed travel center

Site Location **Figure 1**

Proposed QuikTrip Travel Center
Cascade Township, Michigan

Aerial View of Site **Figure 2**

2. Existing Conditions

Existing transportation conditions in the vicinity of the site were documented based on field visits conducted by KLOA, Inc. in order to obtain a database for projecting future conditions. The following provides a description of the geographical location of the site, physical characteristics of the area roadway system including lane usage and traffic control devices, and existing peak hour traffic volumes.

Site Location

The site, which is currently vacant, is bounded by Broadmoor Avenue to the east, Patterson Avenue to the west, and 60th Street to the south. Land uses in the vicinity of the site are primarily industrial.

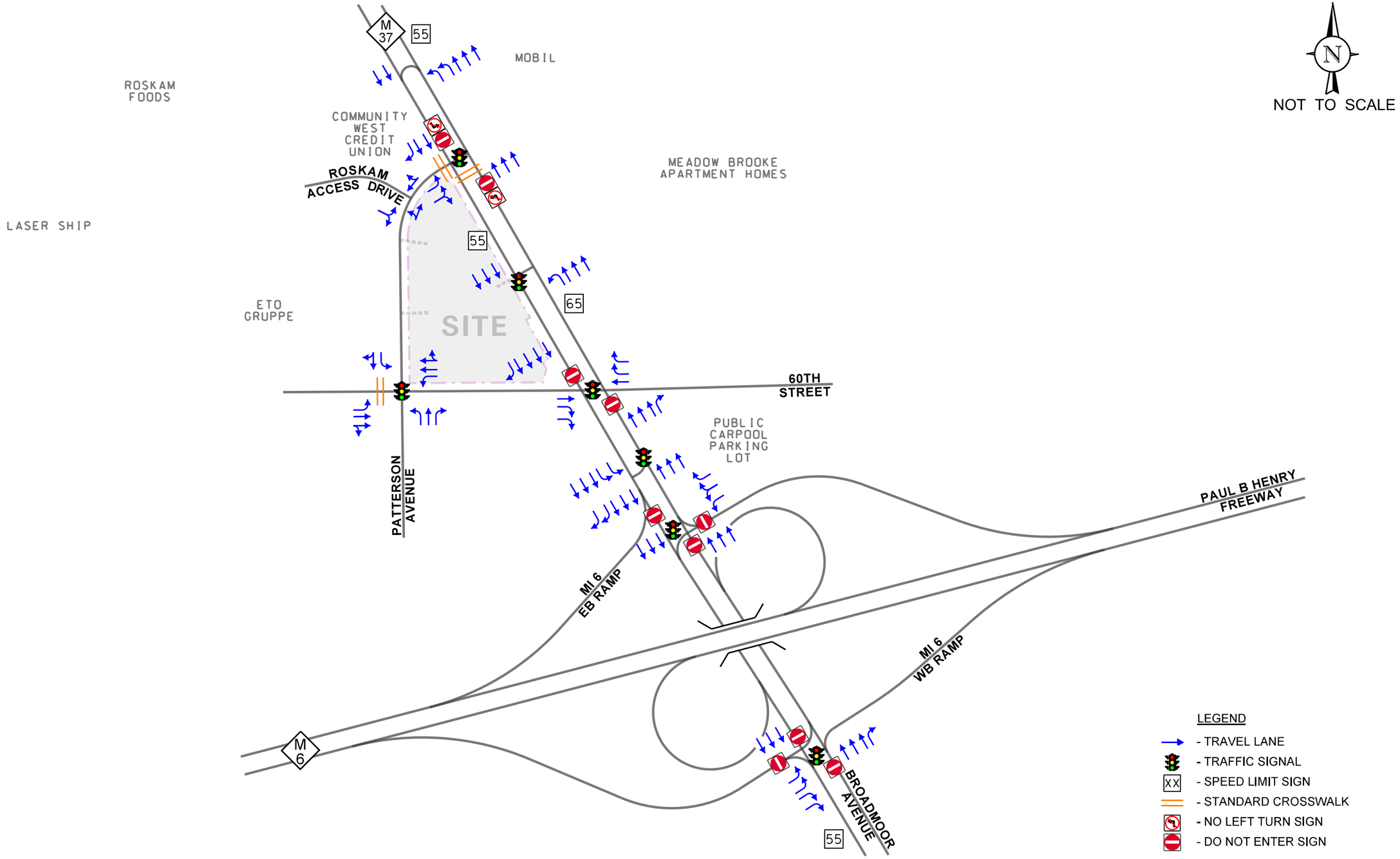
Existing Roadway System Characteristics

The characteristics of the existing roadways near the proposed travel center are described below and illustrated in **Figure 3**.

Michigan State Route 6 (M6, Paul B. Henry Freeway) is an east-west freeway that has an interchange with Broadmoor Avenue south of the site. The interchange consists of four free-flow on-ramps and two signalized off-ramps. M6 is under the jurisdiction of the Michigan Department of Transportation (MDOT) and carries an Annual Average Daily Traffic (AADT) volume of 52,538 vehicles west of Broadmoor Avenue and 28,405 vehicles east of Broadmoor Avenue (MDOT 2023).

Broadmoor Avenue (Michigan State Route 37) is a north-south, principal arterial roadway that generally provides three through lanes in each direction divided by a landscape median narrowing to two lanes in each direction north of 60th Street. At its intersection with the south leg of Patterson Avenue, Broadmoor Avenue provides three northbound through lanes and two southbound through lanes and a southbound right-turn lane. Northbound left-turn movements are prohibited. At its intersection with 60th Street, Broadmoor Avenue provides three through lanes and an exclusive right-turn lane on the northbound approach and four through lanes and an exclusive right-turn lane on the southbound approach. All left-turn movements are prohibited. U-turn lanes are provided along Broadmoor Avenue including north of Patterson Avenue (northbound to southbound, unsignalized), between Patterson Avenue and 60th Street (northbound to southbound, signalized), and between 60th Street and the M6 interchange (southbound to northbound, signalized) Broadmoor Avenue is under the jurisdiction of MDOT and has a posted speed limit of 55 miles per hour. Broadmoor Avenue carries an AADT volume of 22,798 vehicles north of M6 and 28,347 vehicles south of M6 (MDOT 2023).

Patterson Avenue is a north-south minor arterial roadway that provides one lane in each direction. At its intersection with Broadmoor Avenue the north and south legs of Patterson Avenue are separated. At its signalized intersection with Broadmoor Avenue, Patterson Avenue provides an exclusive left-turn lane and a shared left/right-turn lane on the northeast-bound approach.



QUIKTRIP TRAVEL CENTER
CASCADE TOWNSHIP, MICHIGAN

EXISTING ROADWAY CHARACTERISTICS

KLOA Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 24-090 Figure: 3

At its signalized intersection with 60th Street, Patterson Avenue provides an exclusive left-turn lane, a through lane, and an exclusive right-turn lane on the northbound approach and an exclusive left-turn lane and a shared through/right-turn lane on the southbound approach. Patterson Avenue is under the jurisdiction of the Kent County Road Commission (KCRC) and carries an AADT of 7,359 vehicles north of 60th Street and 7,529 vehicles south of 60th Street.

60th Street is an east-west minor arterial roadway that provides two lanes in each direction divided by a center left turn lane narrowing to one lane in each direction east of Broadmoor Avenue. At its signalized intersection with Broadmoor Avenue, 60th Street provides a through lane and dual right-turn lanes on both approaches. At its signalized intersection with Patterson Avenue, 60th Street provides an exclusive left-turn lane, a through lane, and a shared through/right-turn lane on both approaches. 60th Street is under the jurisdiction of the Kent County Road Commission (KCRC) and carries an AADT of 6,712 vehicles west of Patterson Avenue and 5,634 vehicles east of Broadmoor Avenue.

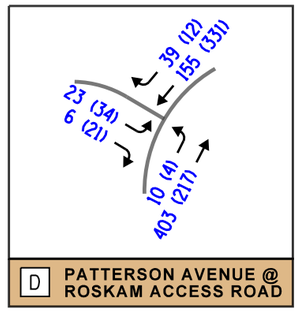
Base Traffic Volumes

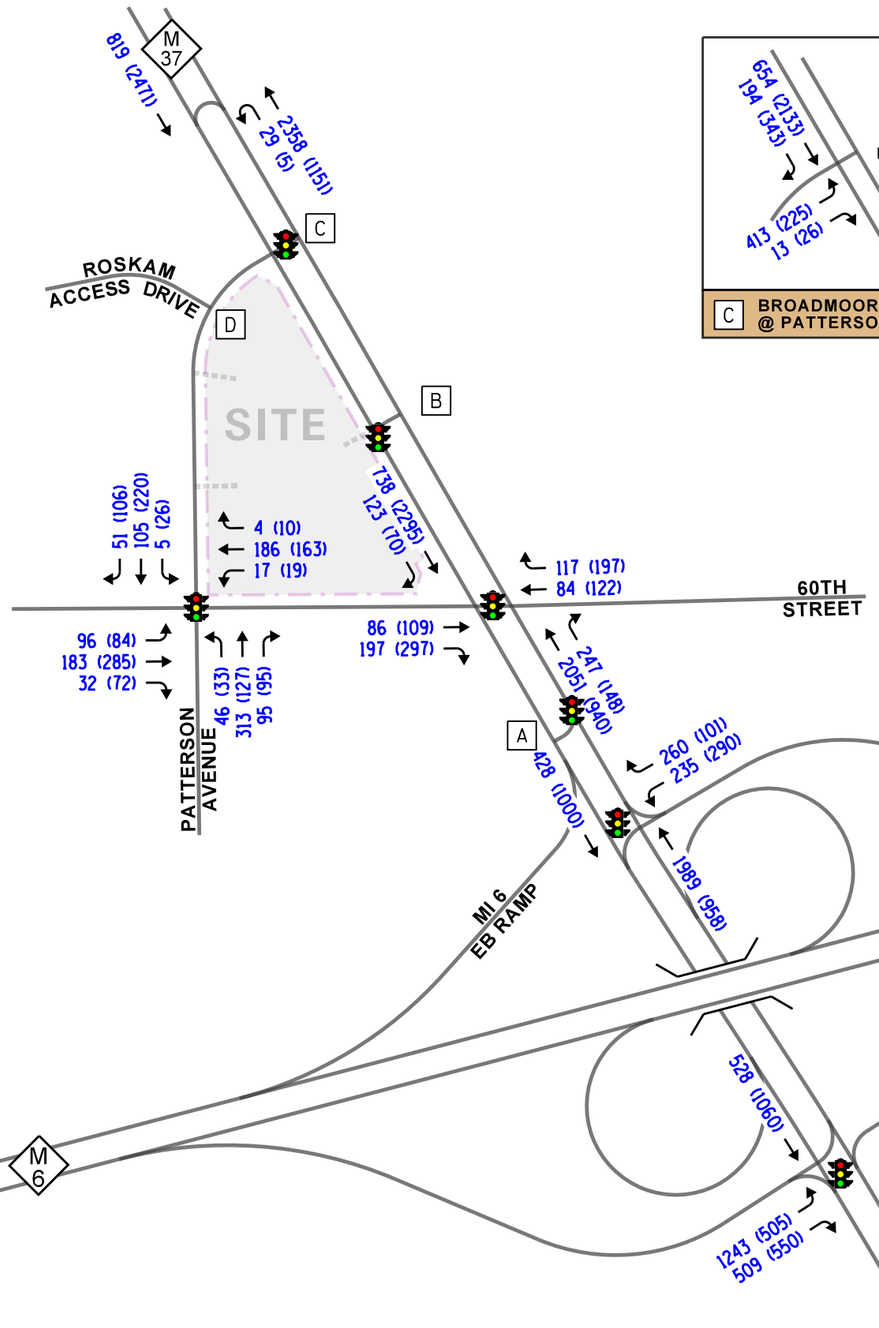
In order to determine current traffic conditions within the study area, peak period traffic counts were conducted at the following intersections:

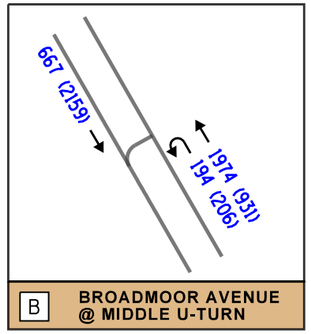
- Broadmoor Avenue with the south leg of Patterson Avenue
- Broadmoor Avenue with 60th Street
- Broadmoor Avenue with the U-Turn lanes in the vicinity of the site
  - North of Patterson Avenue
  - Between Patterson Avenue and 60th Street
  - Between 60th Street and the M6 interchange
- Broadmoor Avenue with the M6 interchange
- Patterson Avenue with 60th Street
- Patterson Avenue with the Roskam Foods access drive

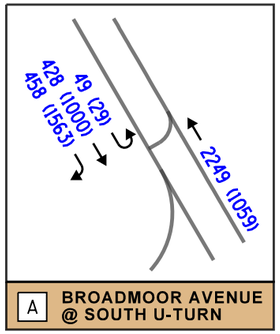
The traffic counts were conducted on Tuesday, March 12, 2023, during the weekday morning (6:30 A.M. to 9:00 A.M.) and weekday evening (4:00 P.M. to 6:30 P.M.) peak periods peak period. The results of the traffic counts show that the peak hours of traffic generally occur from 7:15 to 8:15 A.M. during the weekday morning peak period and from 5:00 to 6:00 P.M. during the weekday evening peak period. Copies of the traffic count summary

The existing traffic volumes, inclusive of heavy vehicles, are illustrated in **Figure 4.** The existing traffic heavy vehicle volumes are illustrated in **Figure 5**.









NOT TO SCALE

LEGEND

00 - AM PEAK HOUR (7:15-8:15 AM)

(00) - PM PEAK HOUR (5:00-6:00 PM)

QUIKTRIP TRAVEL CENTER
CASCADE TOWNSHIP, MICHIGAN

EXISTING TRAFFIC VOLUMES

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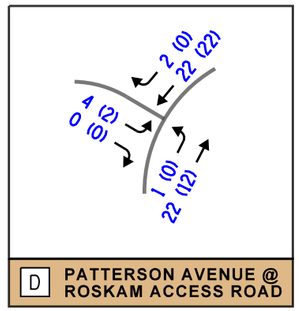
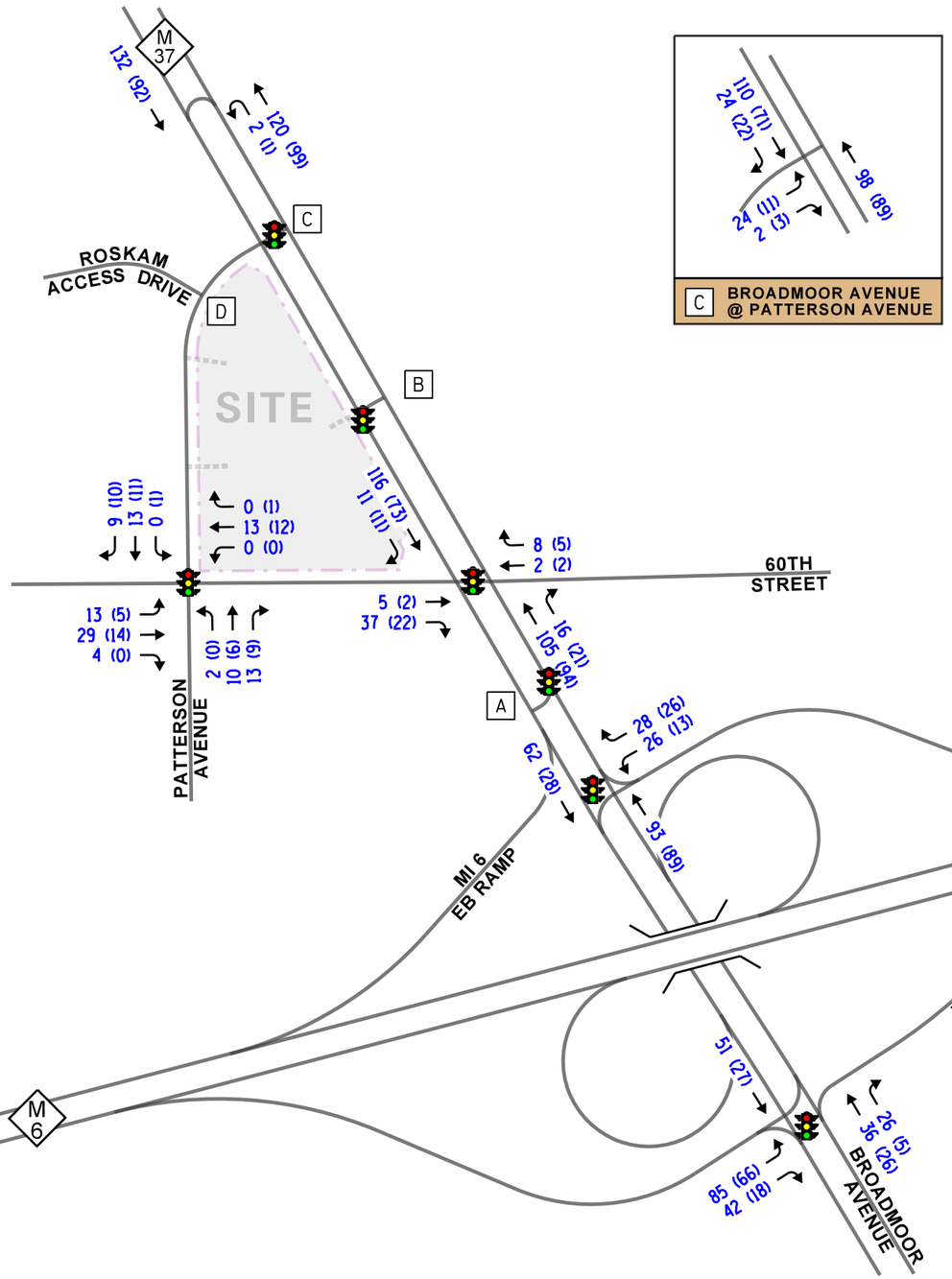
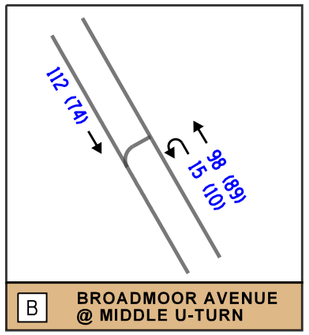
Job No: 24-090 Figure: 4



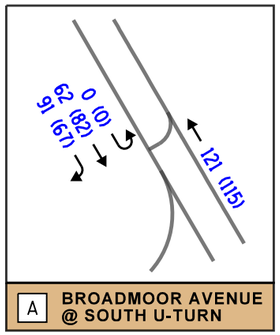
D PATTERSON AVENUE @ ROSKAM ACCESS ROAD



C BROADMOOR AVENUE @ PATTERSON AVENUE



B BROADMOOR AVENUE @ MIDDLE U-TURN



A BROADMOOR AVENUE @ SOUTH U-TURN

N

NOT TO SCALE

LEGEND

00 - AM PEAK HOUR (7:15-8:15 AM)

(00) - PM PEAK HOUR (5:00-6:00 PM)

QUIKTRIP TRAVEL CENTER
CASCADE TOWNSHIP, MICHIGAN

EXISTING TRAFFIC VOLUMES - TRUCKS

KLOA Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 24-090 Figure: 5

Crash Analysis

KLOA, Inc. obtained crash data from the Michigan Traffic Crash Facts data query tool for the most recent available five years (2018 to 2022) for the study area intersections. A review of the crash data revealed the following:

- The intersection of Broadmoor Avenue with Patterson Avenue experienced an average of 3.8 crashes per year. One serious injury, six possible injuries, and no fatalities were reported at this intersection during the review period. **Table 1** summarizes the crash data for this intersection.

- The intersection of Broadmoor Avenue with 60th Street experienced an average of 17.4 crashes per year. Three serious injury, two minor injuries, 13 possible injuries, and no fatalities were reported at this intersection during the review period. **Table 2** summarizes the crash data for this intersection.

- The Broadmoor Avenue with M6 interchange (including the south U-Turn intersection) experienced an average of 6.8 crashes per year. Three minor injuries, four possible injuries, and no fatalities were reported at this intersection during the review period. **Table 3** summarizes the crash data for this intersection.

- The intersection of Patterson Avenue with 60th Street experienced an average of 6.8 crashes per year. Three serious injury, one minor injuries, five possible injuries, and one fatality were reported at this intersection during the review period. **Table 4** summarizes the crash data for this intersection.

- The north Broadmoor Avenue U-Turn intersection experienced no crashes during the review period.

- The middle Broadmoor Avenue U-Turn intersection experienced only one crash during the review period. No injuries or fatalities were reported at this intersection during the review period.

Table 1
BROADMOOR AVENUE WITH PATTERSON AVENUE (SOUTH LEG) – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2019	0	0	0	1	0	0	1	2
2020	2	0	0	1	0	0	1	4
2021	1	0	0	0	0	0	1	2
2022	1	0	0	5	1	0	0	7
2023	0	0	0	3	1	0	0	4
Total	**4**	**0**	**0**	**10**	**2**	**0**	**3**	**19**
Average	**<1.0**	**--**	**--**	**2.0**	**<1.0**	**--**	**<1.0**	**3.8**

Table 2
BROADMOOR AVENUE WITH 60TH STREET – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2019	7	0	0	6	5	0	0	18
2020	8	0	0	2	4	0	1	15
2021	12	0	0	6	6	0	0	24
2022	3	0	0	6	4	0	0	13
2023	8	0	0	4	4	0	1	17
Total	**38**	**0**	**0**	**24**	**23**	**0**	**2**	**87**
Average	**7.6**	**--**	**--**	**4.8**	**4.6**	**--**	**<1.0**	**17.4**

Table 3
BROADMOOR AVENUE WITH THE M6 INTERCHANGE AND SOUTH U-TURN – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2019	3	0	0	4	1	0	0	8
2020	2	0	0	4	0	0	2	8
2021	4	0	0	2	0	1	0	7
2022	1	0	0	2	0	0	1	4
2023	3	0	0	4	0	0	0	7
Total	**13**	**0**	**0**	**16**	**1**	**1**	**3**	**34**
Average	**2.6**	**--**	**--**	**3.2**	**<1.0**	**<1.0**	**<1.0**	**6.8**

Table 4
PATTERSON AVENUE WITH 60TH STREET – CRASH SUMMARY

Year	Type of Crash Frequency							
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total
2019	2	1	0	2	1	0	1	7
2020	5	0	0	0	1	0	2	8
2021	6	0	0	0	1	0	1	8
2022	1	0	0	1	3	0	0	5
2023	5	0	0	0	1	0	0	6
Total	**19**	**1**	**0**	**3**	**7**	**0**	**4**	**34**
Average	**3.8**	**<1.0**	**--**	**<1.0**	**1.4**	**--**	**<1.0**	**6.8**

3. Traffic Characteristics of the Proposed Travel Center

In order to properly evaluate future traffic conditions in the surrounding area, it was necessary to determine the traffic characteristics of the proposed travel center, including the directional distribution and volumes of traffic that it will generate.

Proposed Development Plan

As proposed, the site is proposed to be developed with a QuikTrip Travel Center that is to contain the following:

- Sixteen (16) passenger vehicle fueling positions.
- Seven (7) commercial fueling positions.
- An approximately 8,296 square-foot convenience store

As part of the development Patterson Avenue will be widened along the site frontage to provide a center left turn lane.

Site Access

Access to the travel center will be provided via the following three access drives:

- A proposed three-quarters access drive on Broadmoor Avenue located approximately 700 feet north of 60th Street that will form the west leg of the existing signalized northbound to southbound U-Turn intersection at this location. This access drive will serve passenger vehicles and inbound trucks and will be designed as follows:
    - One inbound lane and one outbound lane with outbound left-turn movements restricted via striping, signage, and the median on Broadmoor Avenue. Increased turning radii will be provided to accommodate inbound truck turning movements.
    - The existing median break, which is currently striped for one U-Turn lane, will be restriped for a shared left-turn/U-Turn lane and an exclusive U-Turn lane.
    - An additional northbound turn lane will be provided within the median on Broadmoor Avenue adjacent to the existing turn lane. This turn lane should mirror the storage and taper of the existing turn lane.
    - A southbound right-turn lane will be provided on Broadmoor Avenue. This turn lane should provide 250 feet of storage and a 225-foot taper.
    - The traffic signal equipment will be modified to accommodate the west leg (proposed access drive). The access drive will share green time with the U-Turn/Northbound left-turn phase.

- A proposed full movement access drive on Patterson Avenue located approximately 800 feet north of 60th Street. This access drive will serve passenger vehicles only and will be designed as follows:

    - One inbound lane and two outbound lanes striped for an exclusive left-turn lane and an exclusive right-turn lane.
    - Outbound movements will be under stop sign control.
    - As previously mentioned, Patterson Avenue will be widened along the site frontage to provide a center left-turn lane. This turn lane will be able to accommodate inbound left-turn movements onto this access drive.

- A proposed outbound only access drive on Patterson Avenue located approximately 405 feet north of 60th Street. This access drive will serve trucks only and will be designed as follows:

    - One outbound lane.
    - Outbound movements will be under stop sign control.
    - Increased turning radii will be provided to accommodate truck turning movements.

The one-way flow of truck traffic within the site as well as the separation of truck and passenger vehicle traffic will promote efficient and safe operations.

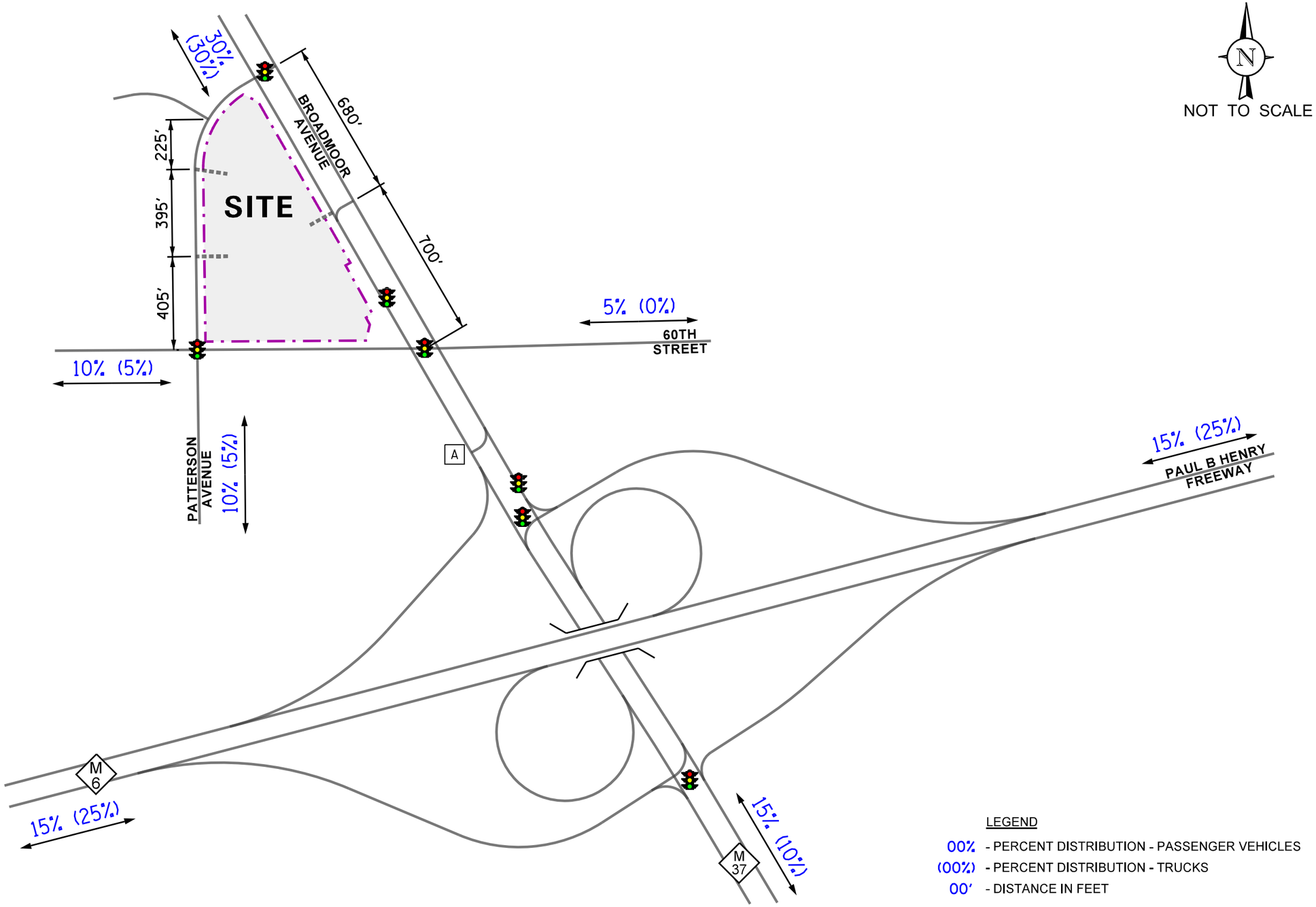
Directional Distribution

The directional distribution of future site-generated trips on the roadway system is a function of several variables, including the operational characteristics of the roadway system, the ease with which drivers can travel over various sections of the roadway system, and the existing travel patterns. This is particularly true for pass-by traffic.

The directions from which patrons and employees of the proposed travel center will approach and depart the site are illustrated in **Figure 6** and summarized in **Table 5.** Figure 6 also shows the distances between the existing and proposed access intersections.

Table 5
DIRECTIONAL DISTRIBUTION OF SITE TRAFFIC

Roadway	Direction	Passenger Vehicles	Trucks
Broadway Avenue	North	30%	30%
Broadway Avenue	South	15%	10%
Patterson Avenue	South	10%	5%
60th Street	East	5%	0%
60th Street	West	10%	5%
M6	East	15%	25%
M6	West	15%	25%



QUIKTRIP TRAVEL CENTER
CASCADE TOWNSHIP, MICHIGAN

DIRECTIONAL DISTRIBUTION

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 24-090 Figure: 6

Peak Hour Traffic Volumes

The number of peak hour trips estimated to be generated by the proposed Travel Center was based on vehicle trip generation rates contained in *Trip Generation Manual*, 11th Edition, published by the Institute of Transportation Engineers (ITE). The "Convenience Store/Gas Station" (Land-Use Code 945) rate was used for the passenger vehicle fueling positions and convenience store. It is important to note that surveys conducted by ITE have shown that approximately 60 percent of trips made to travel centers are diverted from the existing traffic on the roadway system. This is particularly true during the weekday morning and weekday evening peak hours when traffic is diverted from the home-to-work and work-to-home trips. As such, the number of new passenger vehicle trips to be generated by the travel center were reduced to account for pass-by traffic.

Given the limited traffic generation data available for fuel stations specific to trucks, the number of trucks estimated to be generated by the commercial fueling positions was based on previous data from other fueling centers with commercial vehicle fueling positions, which indicated a maximum of four trucks per fueling position per hour. It should be noted that a majority of the truck traffic that will be generated by the proposed travel center will not be new traffic but will be diverted from area roadways. However, to provide a conservative analysis, no pass-by reduction was taken.

Table 6 summarizes the trips projected to be generated by the proposed travel center.

Table 6
ESTIMATED PEAK HOUR VEHICLE TRIP GENERATION

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		In	Out	Total	In	Out	Total
945	Convenience Store/Gas Station (16 positions, 8,296 safe Store)	253	253	506	215	215	430
Pass-By Reduction (60%)		*-152*	*-152*	*-304*	*-129*	*-129*	*-258*
New Convenience Store/Gas Station Trips		**101**	**101**	**202**	**86**	**86**	**172**
Commercial Fueling Lanes (7 Lanes)		28	28	56	28	28	56
Total New Trips		**129**	**129**	**258**	**114**	**114**	**228**

4. Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes, increase in background traffic due to growth, and the traffic estimated to be generated by the proposed travel center.

Travel Center Traffic Assignment

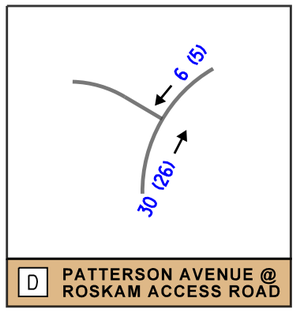
The estimated weekday morning and weekday evening traffic volumes that will be generated by the proposed Travel Center were assigned to the roadway system in accordance with the previously described directional distribution (Figure 6). **Figure 7** illustrates the traffic assignment of the new passenger vehicle trips, **Figure 8** illustrates the traffic assignment of the new truck traffic, and the pass-by traffic assignment is illustrated in **Figure 9**.

Background Traffic Volumes

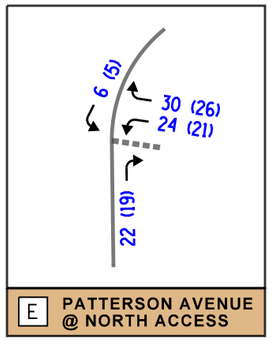
The existing traffic volumes (Figure 4) were increased by a regional growth factor to account for the increase in existing traffic related to regional growth in the area (i.e., not attributable to any particular planned development). Based on projections in Grand Valley Metropolitan Council *Metropolitan Transportation Plan,* Cascade Township is projected to experience compound growth of approximately 0.6 percent per year, As such, a 3.7 percent growth was used to estimate Year 2030 (buildout plus five year) traffic volumes. The Year 2030 no-build traffic volumes are illustrated in **Figure 10.**

Total Projected Traffic Volumes

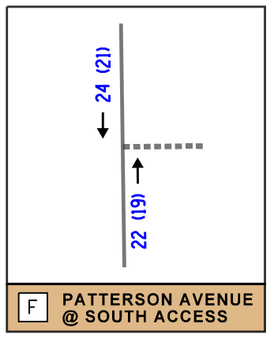
The total projected traffic volumes include the existing traffic volumes (Figure 4) increased by the ambient growth factor and the volume of traffic expected to be generated by the proposed Travel Center (Figures 7, 8, and 9). The total projected traffic volumes are illustrated in **Figure 11.**



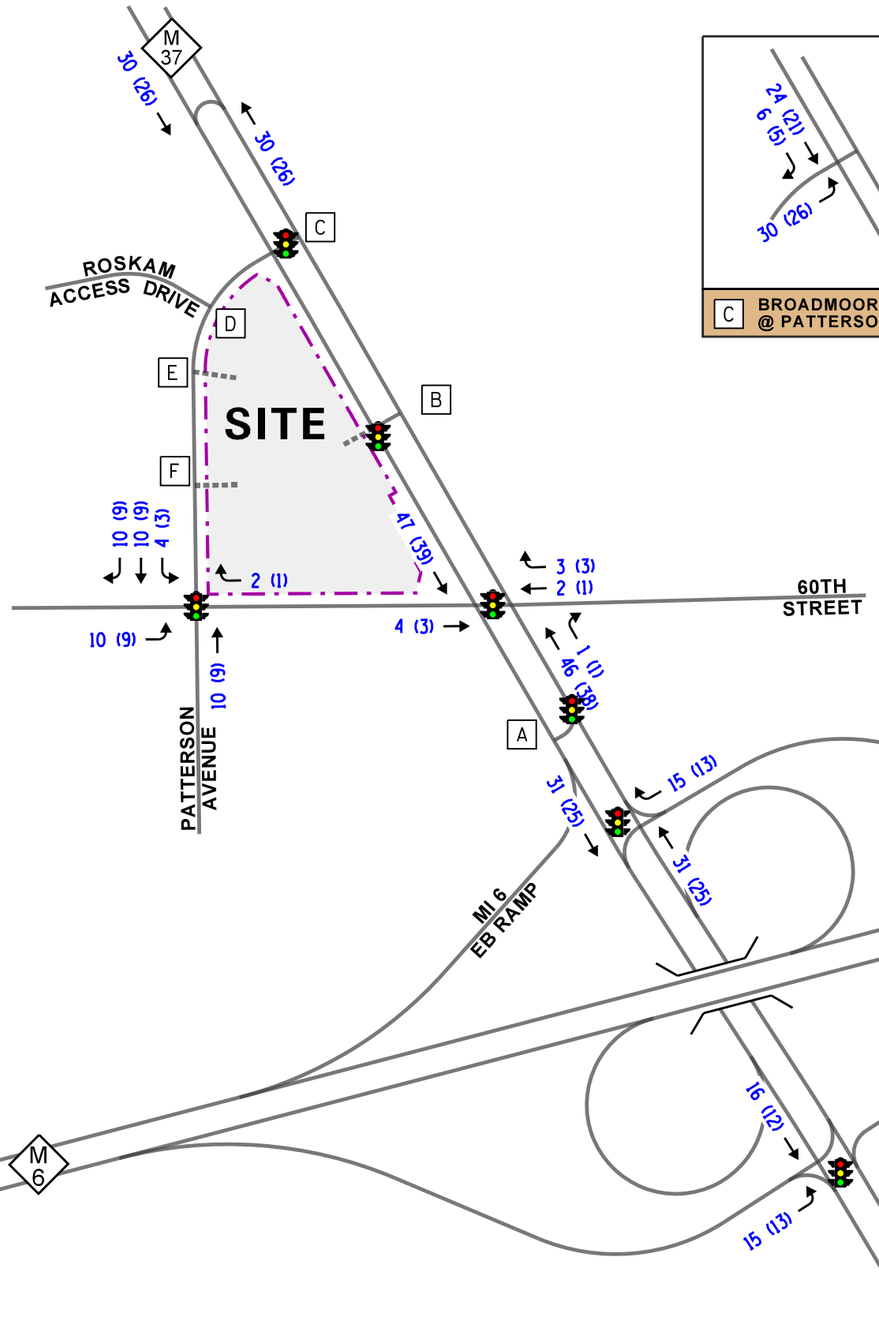
D PATTERSON AVENUE @ ROSKAM ACCESS ROAD



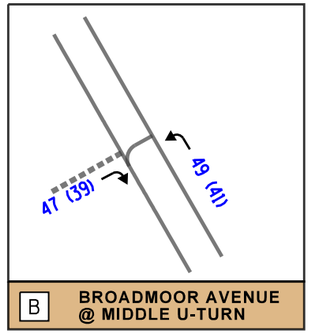
E PATTERSON AVENUE @ NORTH ACCESS



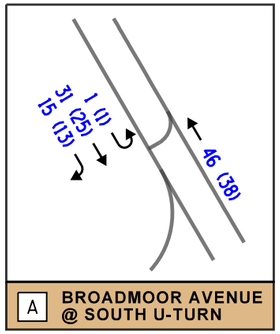
F PATTERSON AVENUE @ SOUTH ACCESS



C BROADMOOR AVENUE @ PATTERSON AVENUE



B BROADMOOR AVENUE @ MIDDLE U-TURN



A BROADMOOR AVENUE @ SOUTH U-TURN

N

NOT TO SCALE

LEGEND

00 - AM PEAK HOUR (7:15-8:15 AM)

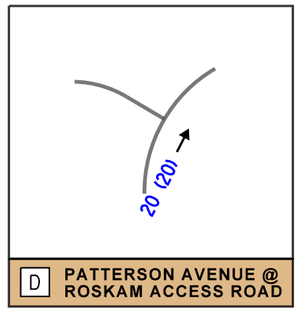
(00) - PM PEAK HOUR (5:00-6:00 PM)

QUIKTRIP TRAVEL CENTER
CASCADE TOWNSHIP, MICHIGAN

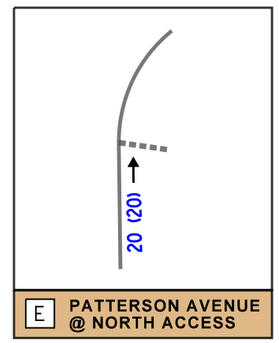
SITE-GENERATED TRAFFIC VOLUMES - PASSENGER VEHICLES

KLOA Kenig,Lindgren,O'Hara,Aboona,Inc.

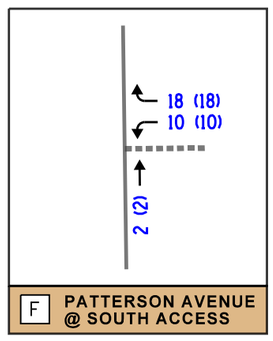
Job No: 24-090 Figure: 7



D PATTERSON AVENUE @ ROSKAM ACCESS ROAD



E PATTERSON AVENUE @ NORTH ACCESS



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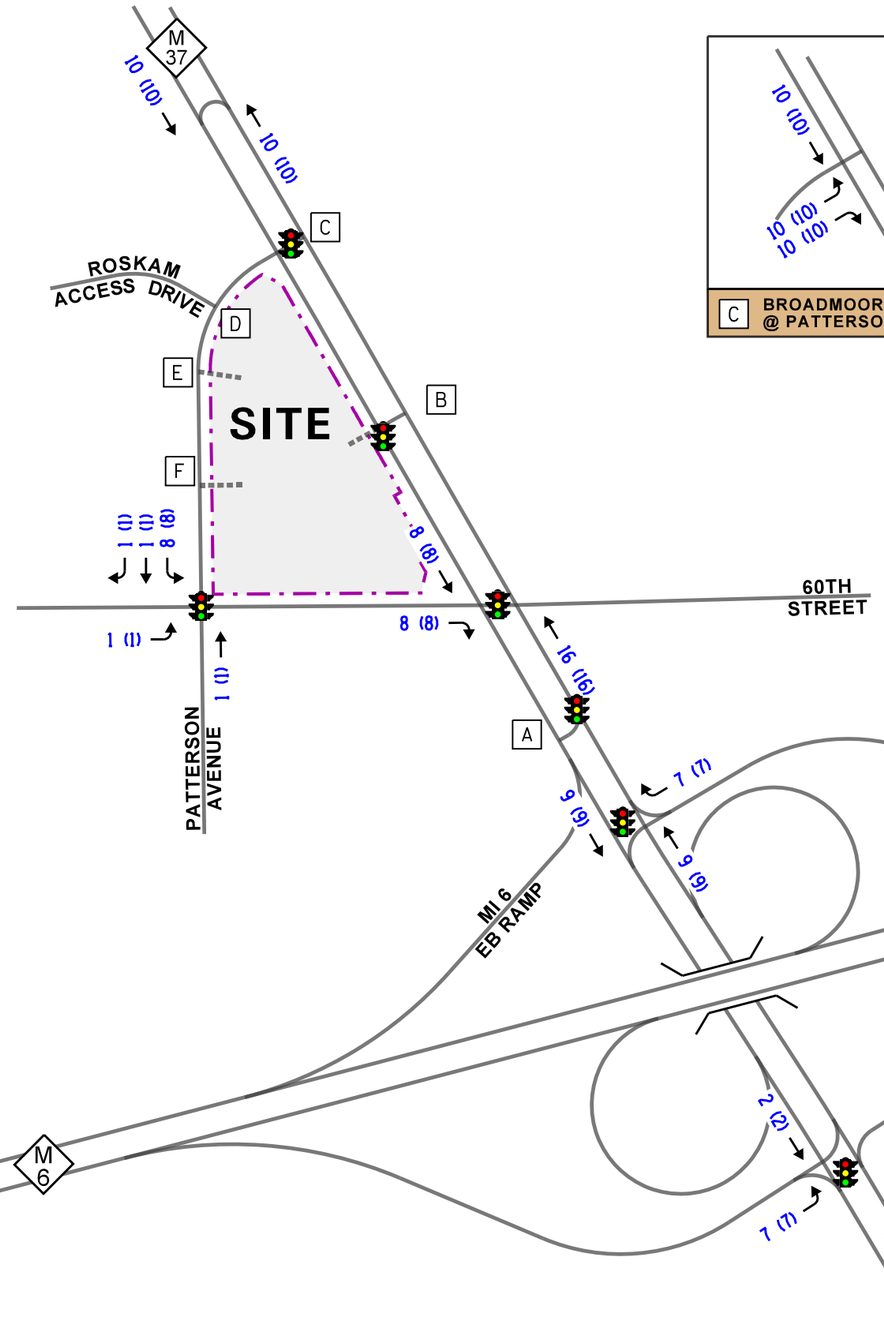
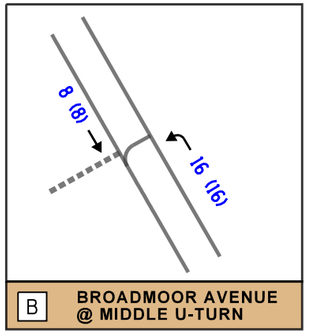
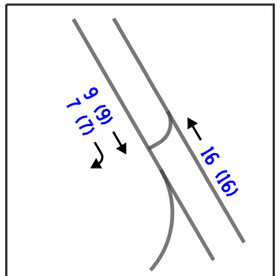


C BROADMOOR AVENUE @ PATTERSON AVENUE



B BROADMOOR AVENUE @ MIDDLE U-TURN



A BROADMOOR AVENUE @ SOUTH U-TURN

N

NOT TO SCALE

LEGEND

00 - AM PEAK HOUR (7:15-8:15 AM)

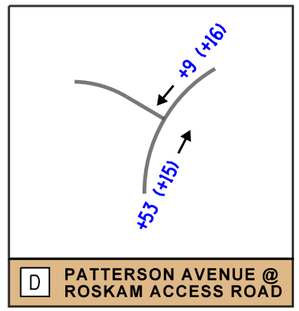
(00) - PM PEAK HOUR (5:00-6:00 PM)

QUIKTRIP TRAVEL CENTER
CASCADE TOWNSHIP, MICHIGAN

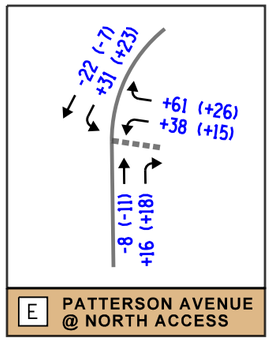
SITE-GENERATED TRAFFIC VOLUMES - TRUCKS

KLOA Kenig,Lindgren,O'Hara,Aboona,Inc.

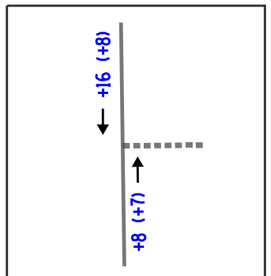
Job No: 24-090 Figure: 8



D PATTERSON AVENUE @ ROSKAM ACCESS ROAD



E PATTERSON AVENUE @ NORTH ACCESS



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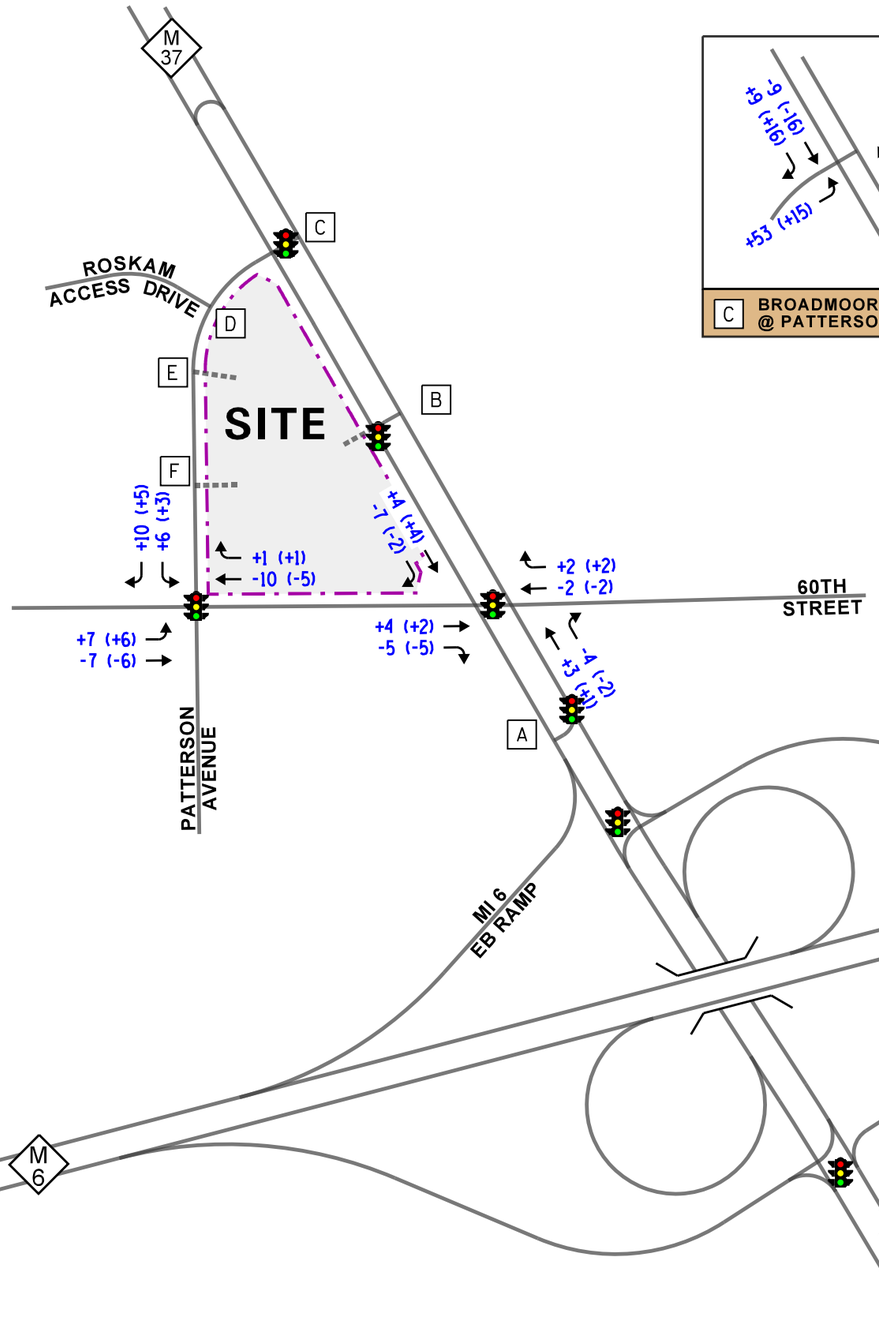
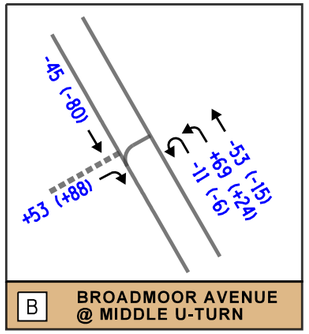
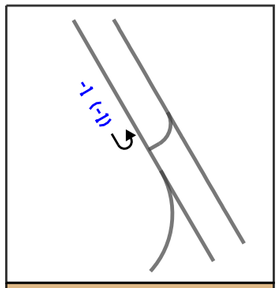


C BROADMOOR AVENUE @ PATTERSON AVENUE



B BROADMOOR AVENUE @ MIDDLE U-TURN



A BROADMOOR AVENUE @ SOUTH U-TURN

NOT TO SCALE

LEGEND

00 - AM PEAK HOUR (7:15-8:15 AM)

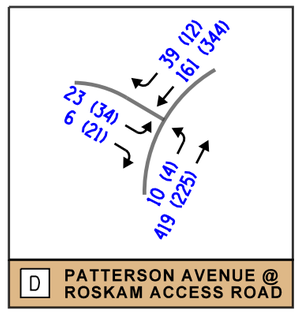
(00) - PM PEAK HOUR (5:00-6:00 PM)

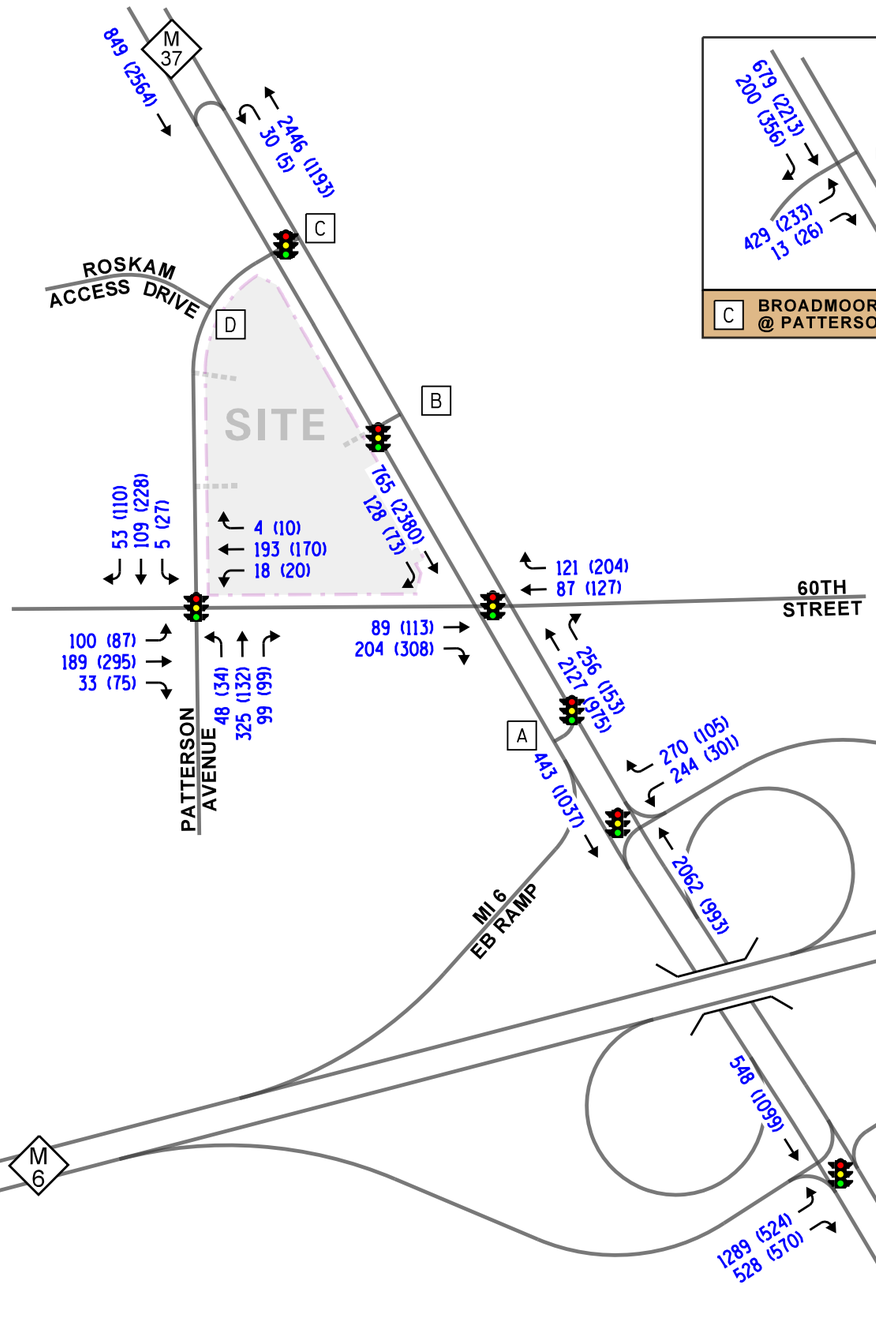
QUIKTRIP TRAVEL CENTER
CASCADE TOWNSHIP, MICHIGAN

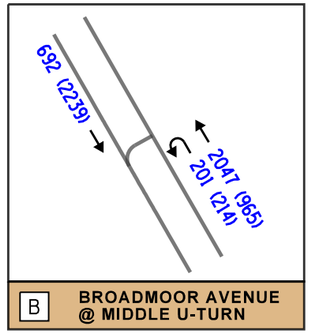
PASS-BY TRAFFIC VOLUMES

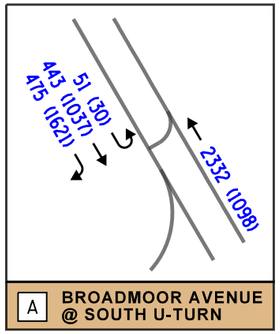
KLOA Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 24-090 Figure: 9









NOT TO SCALE

LEGEND

00 - AM PEAK HOUR (7:15-8:15 AM)

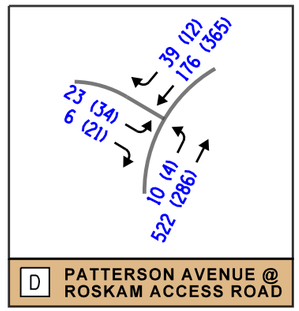
(00) - PM PEAK HOUR (5:00-6:00 PM)

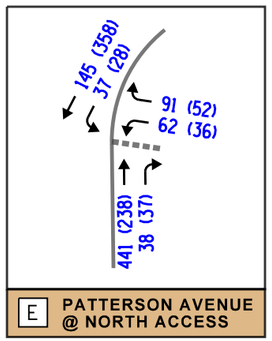
QUIKTRIP TRAVEL CENTER
CASCADE TOWNSHIP, MICHIGAN

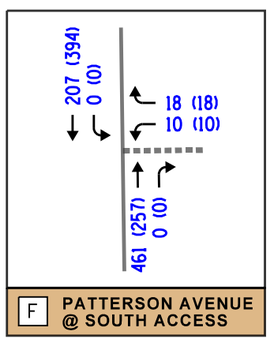
YEAR 2030 NO-BUILD TRAFFIC VOLUMES

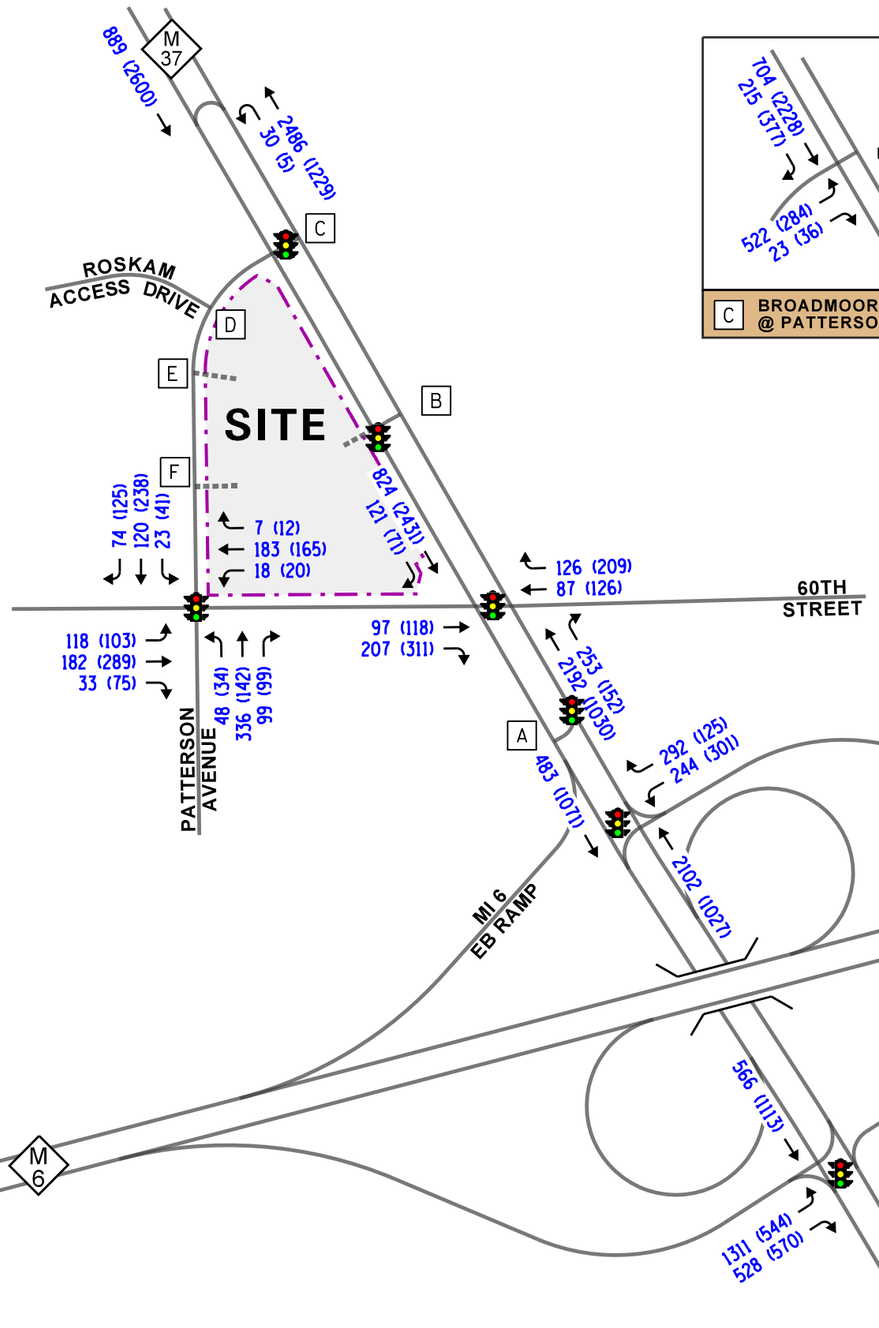
KLOA Kenig,Lindgren,O'Hara,Aboona,Inc.

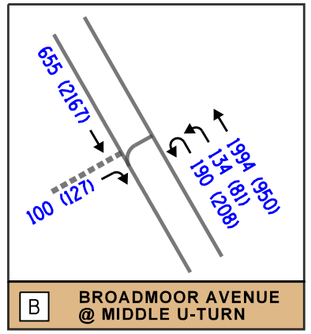
Job No: 24-090 Figure: 10

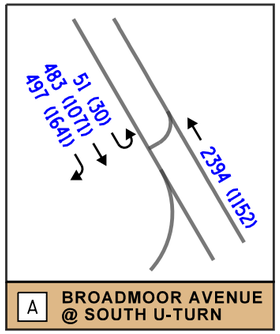












NOT TO SCALE

LEGEND

00 - AM PEAK HOUR (7:15-8:15 AM)

(00) - PM PEAK HOUR (5:00-6:00 PM)

QUIKTRIP TRAVEL CENTER
CASCADE TOWNSHIP, MICHIGAN

YEAR 2030 TOTAL TRAFFIC VOLUMES

KLOA Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 24-090 Figure: 11

5. Traffic Analysis and Recommendations

The following provides an evaluation conducted for the weekday morning, weekday evening, and Saturday midday peak hours. The analysis includes conducting capacity analyses to determine how well the roadway system and access drives are projected to operate and whether any roadway improvements or modifications are required.

Traffic Analyses

Roadway and adjacent or nearby intersection analyses were performed for the weekday morning, and weekday evening peak hours for the base, base plus site, no-build, and total projected traffic volumes.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM),* 6th Edition and analyzed using the Synchro/SimTraffic 11 software. The analysis for the traffic signal-controlled intersections were performed using actual and field measured cycle lengths, phasings, and offsets (provided by WCDPS) to determine the average overall vehicle delay and levels of service.

The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (includes the time required to decelerate to a stop) until its departure from the stop sign and resumption of free flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are included in the Appendix of this report.

Summaries of the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the existing, Year 2030 no build and Year 2030 total projected conditions are presented in **Tables 7** through 17**.** A discussion of each intersection follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 7
CAPACITY ANALYSIS RESULTS – BROADMOOR AVENUE WITH PATTERSON AVENUE – SIGNALIZED

	Peak Hour	Eastbound L/R	Northbound T	Southbound T	Southbound R	Overall[1]
Existing Conditions	**Weekday Morning**	D 37.3	A 4.9	B 11.4 A – 9.2	A 1.9	B – 18.6 A – 4.3
	Weekday Evening	D 41.9	A 7.1	B 19.1 B – 16.6	A 1.3	B - 18.9 A - 5.8
No-Build Conditions	**Weekday Morning**	D 37.8	A 5.6	B 11.5 A – 9.3	A 1.9	B – 18.9 A – 4.9
	Weekday Evening	D 42.4	A 7.2	C 22.1 B – 19.2	A 1.4	C – 21.3 A – 6.0
Projected Conditions	**Weekday Morning**	D 44.0	A 4.4	B 11.7 A – 9.4	A 1.9	C – 22.3 A - 3.9
	Weekday Evening	D 47.8	A 7.0	C 24.0 C – 20.7	A 1.4	C – 23.7 A – 5.6

1 – Operates as two intersections with one controller, top number represent west intersection, bottom number represents east intersection. Letter denotes Level of Service Delay is measured in seconds. L – Left Turn T – Through R – Right Turn

Table 8
CAPACITY ANALYSIS RESULTS – BROADMOOR AVENUE WITH MIDDLE U-TURN INTERSECTION – SIGNALIZED

	Peak Hour	Northbound U-Turn	Southbound T	Overall
Existing Conditions	Weekday Morning	B 15.7	A 2.5	A 5.5
	Weekday Evening	C 28.1	A 3.0	A 5.2
No-Build Conditions	Weekday Morning	B 17.4	A 2.5	A 5.9
	Weekday Evening	C 28.9	A 3.1	A 5.4

Letter denotes Level of Service L – Left Turn R – Right Turn
Delay is measured in seconds. T – Through

Table 9
CAPACITY ANALYSIS RESULTS – BROADMOOR AVENUE WITH MIDDLE U-TURN INTERSECTION AND THE PROPOSED SITE ACCESS – SIGNALIZED

	Peak Hour	Eastbound R	Northbound U-Turn	Northbound L	Southbound T	Southbound R	Overall
Projected Conditions	Weekday Morning	A 1.0	B 19.4	D 42.7	A 2.6	A 0.3	B 10.3
			A – 2.6				
	Weekday Evening	C 24.8	B 18.2	B 19.0	A 3.2	A 0.2	A 5.8
			B – 18.6		A – 3.1		

Letter denotes Level of Service L – Left Turn R – Right Turn
Delay is measured in seconds. T – Through

Table 10
CAPACITY ANALYSIS RESULTS – BROADMOOR AVENUE WITH 60TH STREET – SIGNALIZED

	Peak Hour	Eastbound		Westbound		Northbound		Southbound		Overall
		T	R	T	R	T	R	T	R	
Existing Conditions	Weekday Morning	D 41.3	A 7.8	D 40.8	C 28.4	A 1.1	A 0.4	A 4.7	A 0.8	A - 7.2 A - 3.6
		B – 18.0		C – 33.5		A – 1.1		A – 4.2		
	Weekday Evening	D 36.0	D 35.8	D 36.5	A 5.9	A 3.3	A 0.4	A 3.1	A 0.1	A – 7.6 A – 5.9
		D – 35.9		B – 17.6		A – 2.9		A – 3.0		
No-Build Conditions	Weekday Morning	D 41.6	A 7.7	D 41.0	C 28.8	A 1.2	A 0.4	A 4.8	A 0.8	A – 7.2 A – 3.7
		B – 18.0		C – 33.9		A – 1.2		A – 4.2		
	Weekday Evening	D 36.1	D 36.5	D 36.8	A 5.9	A 3.3	A 0.4	A 3.2	A 0.1	A – 7.7 A – 5.9
		D – 36.4		B – 17.7		A – 2.9		A – 3.1		
Projected Conditions	Weekday Morning	D 42.1	A 7.8	D 41.0	C 29.4	A 1.4	A 0.4	A 4.9	A 0.8	A – 7.5 A – 3.9
		B – 18.8		C – 34.1		A – 1.3		A – 4.4		
	Weekday Evening	D 36.4	D 37.2	D 36.7	A 7.6	A 3.3	A 0.4	A 4.3	A 0.4	A – 8.7 A – 6.0
		D – 37.0		B – 18.6		A – 2.9		A – 4.2		

1 – Operates as two intersections with one controller, top number represent west intersection, bottom number represents east intersection. Letter denotes Level of Service Delay is measured in seconds. T – Through R – Right Turn

Table 11
CAPACITY ANALYSIS RESULTS – BROADMOOR AVENUE WITH SOUTH U-TURN INTERSECTION – SIGNALIZED

	Peak Hour	Southbound U-Turn	Northbound T	Overall
Existing Conditions	Weekday Morning	C 26.9	A 3.4	A 3.9
	Weekday Evening	A <1.0	A 1.4	A 1.3
No-Build Conditions	Weekday Morning	C 28.6	A 3.5	A 4.0
	Weekday Evening	A <1.0	A 1.4	A 1.4
Projected Conditions	Weekday Morning	C 30.4	A 3.7	A 4.2
	Weekday Evening	A <1.0	A 2.0	A 1.9

Letter denotes Level of Service L – Left Turn R – Right Turn
Delay is measured in seconds. T – Through

Table 12
CAPACITY ANALYSIS RESULTS – BROADMOOR AVENUE WITH MI 6 WESTBOUND OFF-RAMPS – SIGNALIZED

	Peak Hour	Westbound		Northbound	Southbound	Overall[1]
		L	R	T	T	
Existing Conditions	Weekday Morning	C 34.4	C 29.5	C 21.7	A 9.3	A – 6.1 C - 24.0
		C – 32.9				
	Weekday Evening	C 32.2	A 8.2	A 8.2	A 5.2	A – 4.2 B – 13.5
		C – 26.6				
No-Build Conditions	Weekday Morning	C 34.9	C 30.3	C 22.8	A 9.4	A – 6.2 C - 24.9
		C – 33.5				
	Weekday Evening	C 32.5	B 10.3	A 8.2	A 5.4	A – 4.3 B – 13.8
		C – 27.4				
Projected Conditions	Weekday Morning	D 35.5	C 31.3	B 19.7	A 9.3	A - 6.3 C – 22.7
		C – 34.2				
	Weekday Evening	C 32.4	B 14.8	A 8.3	A 5.3	A – 4.3 B – 14.0
		C – 27.8				

1 – Operates as two intersections with one controller, top number represent west intersection, bottom number represents east intersection. Letter denotes Level of Service Delay is measured in seconds. L – Left Turn T – Through R – Right Turn

Table 13
CAPACITY ANALYSIS RESULTS – BROADMOOR AVENUE WITH MI 6 EASTBOUND OFF-RAMPS – SIGNALIZED

	Peak Hour	Eastbound		Northbound	Southbound	Overall[1]
		L	R	T	T	
Existing Conditions	**Weekday Morning**	C 32.1	B 11.1	C 23.5	B 18.1	C – 24.2 B – 14.7
		C – 26.0				
	Weekday Evening	C 32.1	C 27.7	B 13.5	A 9.8	B -19.7 A – 9.5
		C – 29.8				
No-Build Conditions	**Weekday Morning**	D 35.9	B 12.1	C 31.3	B 17.8	C – 26.4 B – 15.4
		C – 28.9				
	Weekday Evening	C 32.5	C 29.4	B 13.6	A 10.0	C - 20.4 A – 7.6
		C – 30.9				
Projected Conditions	**Weekday Morning**	D 38.8	B 12.6	C 31.6	B 17.7	C – 28.1 B – 15.7
		C – 31.2				
	Weekday Evening	C 32.2	C 29.7	B 13.7	A 9.8	C - 20.6 A – 7.6
		C – 31.4				

1 – Operates as two intersections with one controller, top number represent west intersection, bottom number represents east intersection.
Letter denotes Level of Service
Delay is measured in seconds.
L – Left Turn
T – Through
R – Right Turn

Table 14
CAPACITY ANALYSIS RESULTS – PATTERSON ROAD WITH 60TH STREET – SIGNALIZED

	Peak Hour	Eastbound		Westbound		Northbound			Southbound		Overall
		L	T/R	L	T/R	L	T	R	L	T/R	
Base Conditions	Weekday Morning	B 18.0	B 13.4	B 14.3	B 14.7	B 15.0	B 19.7	A 3.8	B 14.0	B 13.2	B 15.0
		B – 14.8		B – 14.7		B – 15.9			B – 13.2		
	Weekday Evening	B 16.4	B 13.8	B 14.5	B 13.9	B 15.1	B 15.5	A 3.9	B 14.3	B 17.2	B 14.4
		B – 14.3		B – 13.9		B – 11.1			B – 17.0		
No-Build Conditions	Weekday Morning	B 18.2	B 13.5	B 14.3	B 14.8	B 15.1	C 21.1	A 3.8	B 14.0	B 13.3	B 15.6
		B – 15.0		B – 14.7		B – 17.1			B – 13.4		
	Weekday Evening	B 16.6	B 14.0	B 14.5	B 14.0	B 15.2	B 15.5	A 3.8	B 14.4	B 17.6	B 14.5
		B – 14.5		B – 14.1		B – 11.1			B – 17.4		
Projected Conditions	Weekday Morning	B 19.0	B 13.3	B 14.3	B 14.5	B 15.3	C 20.4	A 3.8	B 15.9	B 13.77	B 15.4
		B – 15.3		B – 14.5		B – 16.5			B – 13.9		
	Weekday Evening	B 17.1	B 13.8	B 14.5	B 13.8	B 15.4	B 15.7	A 3.8	B 15.1	B 18.2	B 14.8
		B – 14.6		B – 13.9		B – 11.4			B – 17.8		

Letter denotes Level of Service L – Left Turn R – Right Turn
Delay is measured in seconds. T – Through

Table 15
CAPACITY ANALYSIS RESULTS – UNSIGNALIZED – EXISTING CONDTIONS

Intersection	Weekday Midday Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Patterson Avenue with Roksam Foods Access Drive				
• Eastbound Approach	B	14.2	B	14.0
• Northbound Left Turn	A	7.8	A	8.2

LOS = Level of Service Delay is measured in seconds.

Table 16
CAPACITY ANALYSIS RESULTS – UNSIGNALIZED – NO BUILD CONDTIONS

Intersection	Weekday Midday Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Patterson Avenue with Roksam Foods Access Drive				
• Eastbound Approach	B	14.5	B	14.4
• Northbound Left Turn	A	7.8	A	8.2

LOS = Level of Service Delay is measured in seconds.

Table 17
CAPACITY ANALYSIS RESULTS – UNSIGNALIZED – TOTAL PROJECTED CONDTIONS

Intersection	Weekday Midday Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Patterson Avenue with Roksam Foods Access Drive				
• Eastbound Approach	C	16.6	B	15.5
• Northbound Left Turn	A	7.9	A	8.3
Patterson Avenue with Proposed North (Passenger Vehicle) Access Drive				
• Westbound Left Turn	C	16.2	C	15.1
• Westbound Right Turn	B	12.3	B	10.0
• Southbound Left Turn	A	8.5	A	7.9
Patterson Avenue with Proposed South (Truck) Access Drive				
• Westbound Approach	C	15.8	B	13.9

LOS = Level of Service Delay is measured in seconds.

Discussion and Recommendations

The following summarizes how the intersections are projected to operate and identifies any roadway and traffic control improvements necessary to accommodate the travel center-generated traffic. **Table 13,** at the end of the section, summarizes the analysis and recommended roadway improvements.

Broadmoor Avenue with Patterson Avenue

The results of the capacity analyses indicate that these intersections currently operate at an overall LOS B or better during the weekday morning and weekday evening peak hours. Further, the northbound through movement operates at LOS A during both peak hour and the southbound through movement operates at LOS B. The eastbound approach currently operates at LOS D during the weekday morning and weekday evening peak hours. This is the result of the fact that Broadmoor Avenue is the major roadway at this intersection and receives a majority of the green time. Under Year 2030 No-Build conditions, these intersections are projected to operate at LOS C or better during both peak hours and the through movements on Broadmoor Avenue are projected to operate at LOS C or better.

Under Year 2030 total projected conditions, these intersections are projected to continue to operate at an overall LOS C or better during the peak hours. Further, the northbound and southbound through movements are projected to operate at the same LOS as no-build conditions with increases in delay of less than two seconds. Further, the eastbound approach is projected to continue to operate at LOS D during both peak hours. It should be noted that eastbound 95th percentile queues are not projected to exceed 260 feet and will not extend to the location of the proposed north site access drive. As such, this intersection has sufficient reserve capacity to accommodate the traffic generated by the proposed travel center and no roadway improvements or traffic control modifications are required.

Broadmoor Avenue with the Middle U-Turn Intersection/Proposed Three-Quarter Site Access Drive

The results of the capacity analyses indicate that U-turns at this intersection currently operate at LOS B during the weekday morning peak hour and LOS C during the weekday evening peak hour. Under Year 2030 No-Build conditions, U-Turns are projected to continue to operate at the same LOS during both peak hours.

As proposed, a three-quarters access drive will be provided on Broadmoor Avenue that will form the west leg of this intersection. This access drive will serve passenger vehicles and inbound trucks and will be designed as follows:

- One inbound lane and one outbound lane with outbound left-turn movements restricted via striping, signage, and the median on Broadmoor Avenue. Increased turning radii will be provided to accommodate inbound truck turning movements.

- The existing median break, which is currently striped for one U-Turn lane, will be restriped for a shared left-turn/U-Turn lane and an exclusive U-Turn lane.

    - The existing median is wide enough to accommodate two lanes.
    - Providing two lanes will increase capacity and allow for continue U-Turn on red movements.

- An additional northbound turn lane will be provided within the median on Broadmoor Avenue adjacent to the existing turn lane.

    - This turn lane should mirror the storage and taper of the existing turn lane.
    - The turn lane is required to accommodate additional queues.
    - Providing two turn lanes will allow for each lane in the median break to be fed by its own turn lane.

- A southbound right-turn lane will be provided on Broadmoor Avenue.

    - MDOT does not provide specific guidance for six-lane roadways. However, the projected volumes exceed the requirements for four-lane highways and provision of a right-turn lane is consistent with area intersections. Further, this turn lane will carry inbound trucks,
    - This turn lane should provide 250 feet of storage and a 225-foot taper.

- The traffic signal equipment will be modified to accommodate the west leg (proposed access drive).

    - The eastbound approach and northbound U-Turn/left-turn movements will share a single phase.
    - No Green time will be taken from the southbound through movement.

Under Year 2030 total projected conditions, this intersection is projected to operate at an overall LOS B or during the weekday morning peak hour and LOS C during the weekday evening peak hour. Northbound left-turn movements should be permitted for the following reasons:

- Not permitting left-turns would require northbound traffic on Broadmoor Avenue to take a very circuitous route to enter the site.

    - Northbound left turn movements are not permitted at the signalized intersections of Broadmoor Avenue with Patterson Avenue or 60th Street.

    - The next available U-Turn location is north of the signalized intersection of Broadmoor Avenue and Patterson Avenue and is unsignalized.

    - This access drive will carry all inbound truck traffic. It is not desirable for trucks to perform U-Turn movements.

- With the restriping of the existing median break and the provision of an additional northbound turn lane, northbound U-Turn/left-turn queues can be accommodated without impacting northbound Broadmoor Avenue.

- A southbound right-turn lane will be provided limiting the impact of southbound vehicles entering the site on through movements.

- The eastbound approach (access drive) will share green time with the northbound U-Turn/left-turn movements. As such, the delay experienced by southbound approach is projected to remain approximately the same (within one tenth of a second).

- The northbound U-Turn movement is projected to operate with a similar or decreased delay due to the additional capacity provided.

- Outbound left-turns will be restricted by the landscape median on Broadmoor Avenue.

As such, the proposed access drive will adequately accommodate the traffic estimated to be generated by the proposed travel center with limited impact on existing signal operations.

Broadmoor Avenue with 60th Street

The results of the capacity analyses indicate that these intersections currently operate at an overall LOS A during the weekday morning and weekday evening peak hours and are projected to continue to do so under Year 2030 No-Build conditions. Under projected conditions, these intersections are projected to operate as follows:

- These intersections are projected to continue to operate at LOS A with increases in delay of less than one second.

- Broadmoor Avenue movements are projected to continue to operate at LOS A during both peak hours.

- 60th Street movements are projected to continue to operate at LOS D or better during both peak hours.

- The proposed development is projected to increase the volume of traffic traversing the interchange by approximately three percent.

As such, these intersections have sufficient reserve capacity to accommodate the traffic to be generated by the proposed travel center and no roadway improvements or traffic control modifications are required.

Broadmoor Avenue with the South U-Turn Intersection

The results of the capacity analyses indicate that this intersection operates at LOS A during both peak hours. Under Year 2030 total projected conditions, this intersection is projected to continue to operate at the same LOS with increases in delay of less than one second. As such, this intersection has sufficient reserve capacity to accommodate the traffic to be generated by the proposed travel center and no roadway improvements or traffic control modifications are required.

Broadmoor Avenue with M6 Interchange

The results of the capacity analyses indicate that the intersections that make up the Broadmoor Avenue with M6 interchange currently operate at LOS C or better during both peak hours and are projected to continue to do so under Year 2030 No-Build conditions. Under projected conditions, the interchange is projected to operate as follows:

- All intersections are projected to operate at the same LOS as no-build conditions with increases in overall delay of less than two seconds.
- All movements are projected to continue to operate at LOS D or better.
- Through movements on Broadmoor Avenue are projected to continue to operate at LOS C or better.
- The proposed development is projected to increase the volume of traffic traversing the interchange by approximately two percent.

As such, this interchange has sufficient reserve capacity to accommodate the traffic to be generated by the proposed travel center and no roadway improvements or traffic control modifications are required.

Patterson Avenue with 60th Street

The results of the capacity analyses indicate that this intersection operates at LOS B during both peak hours. Under Year 2030 No Build and total projected conditions, this intersection is projected to continue to operate at the same LOS with increases in delay of less than one second. Further all movements are projected to operate at LOS C or better. As such, this intersection has sufficient reserve capacity to accommodate the traffic to be generated by the proposed travel center and no roadway improvements or traffic control modifications are required.

Patterson Avenue with the Roksam Foods Access Drive

The results of the capacity analyses indicate that all critical movements at this intersection currently operate at LOS B or better during the weekday morning and weekday evening peak hours. Under Year 2030 total projected conditions, all critical movements are projected to operate at LOS C or better. As such, this intersection has sufficient reserve capacity to accommodate the traffic to be generated by the proposed travel center and no roadway improvements or traffic control modifications are required.

Patterson Avenue with the Proposed North Site Access Drive

As proposed, a full movement access drive will be provided on Patterson Avenue located approximately 800 feet north of 60th Street. This access drive will serve passenger vehicles and will provide one inbound lane and two outbound lanes striped for an exclusive left-turn lane and an exclusive right-turn lane. Outbound movements will be under stop sign control. As previously mentioned, Patterson Avenue will be widened along the site frontage to provide a center left-turn lane. This turn lane will be able to accommodate inbound left-turn movements onto this access drive.

Under Year 2030 projected conditions, outbound movements from the site are projected to operate at LOS C or better during the weekday morning and weekday evening peak hours. It should be noted that southbound left-turn 95th percentile queues on Patterson Avenue are not projected to exceed one to two vehicles and will not conflict with other movements in the center left turn lane. As such, the proposed access drive will adequately accommodate the traffic estimated to be generated by the proposed travel center.

Patterson Avenue with the Proposed South Site Access Drive

As proposed, an outbound only access drive will be provided on Patterson Avenue located approximately 405 feet north of 60th Street. This access drive will serve outbound trucks only and will provide one outbound lane with outbound movements under stop sign control. Increased turning radii will be provided to accommodate truck turning movements.

Under Year 2030 projected conditions, outbound movements from the site are projected to operate at LOS C or better during the weekday morning and weekday evening peak hours. As such, the proposed access drive will adequately accommodate the traffic estimated to be generated by the proposed travel center.

Table 18
SUMMARY OF ANALYSIS AND RECOMMENDED ROADWAY IMPROVEMENTS

Intersection	Analysis Summary	Improvement Recommendations
Broadmoor Avenue with Patterson Avenue	Intersections projected to operate acceptably. Eastbound queues will not extend to proposed access drive.	None
Broadmoor Avenue with Middle U-Turn Intersection/Site Three-Quarters Access Drive	The proposed access drive will form west leg. Southbound Approach will operate with approximately same delay as existing conditions. Additional Northbound U-Turn/left-turn lane needed.	Restripe median for a U-Turn lane and a shared U-Turn/Left-turn Lane. Provide additional northbound U-Turn/left-turn lane (Mirror existing lane) Provide southbound right-turn lane (250 feet of storage and 225-foot taper)
Broadmoor Avenue with 60th Street	Intersections projected to operate acceptably.	None
Broadmoor Avenue with South U-Turn Intersection	Intersection projected to operate acceptably.	None
Broadmoor Avenue with M6 Interchange	Intersections projected to operate acceptably.	None
Patterson Avenue with 60th Street	Intersection projected to operate acceptably.	None
Patterson Avenue with Roksam Foods Access Drive	Intersection projected to operate acceptably.	None
Patterson Avenue with Proposed North Access Drive	Intersection projected to operate acceptably.	Patterson Avenue will be widened to provide a center left-turn lane as part of development
Patterson Avenue with Proposed South Access Drive	Intersection projected to operate acceptably.	None

6. Conclusion

Based on the preceding analyses and recommendations, the following conclusions have been made:

- The traffic projected to be generated by the proposed travel center will be reduced due to the volume of pass-by traffic.
- The site is designed to promote separation of trucks and passenger vehicles, improving safety and efficiency of on-site operations.
- Area signalized intersections have sufficient reserve capacity to accommodate the traffic that will be generated by the proposed travel center.
- As proposed a three-quarters access drive will be provided on Broadmoor Avenue that will form the west leg of the signalized intersection of Broadmoor Avenue with the Middle U-Turn intersection. This access drive will serve passenger vehicles and inbound trucks and will be designed as follows:
    - One inbound lane and one outbound lane with outbound left-turn movements restricted via striping, signage, and the median on Broadmoor Avenue. Increased turning radii will be provided to accommodate inbound truck turning movements.
    - The existing median break, which is currently striped for one U-Turn lane, will be restriped for a shared left-turn/U-Turn lane and an exclusive U-Turn lane.
    - An additional northbound turn lane will be provided within the median on Broadmoor Avenue adjacent to the existing turn lane. This turn lane should mirror the storage and taper of the existing turn lane.
    - A southbound right-turn lane will be provided on Broadmoor Avenue. This turn lane should provide 250 feet of storage and a 225-foot taper.
    - The traffic signal equipment will be modified to accommodate the west leg (proposed access drive). The eastbound approach and northbound U-Turn/left-turn movements will share a single phase. No green time will be taken from the southbound through movement.
- The proposed access drive on Broadmoor Avenue will adequately accommodate site-generated traffic with limited impact on the operations of Broadmoor Avenue.
- As part of the development, Patterson Avenue will be widened along the site frontage to provide a center left-turn lane.

- Access to the development from Patterson Drive will be provided via a full movement access drive located approximately 800 feet north of 60th Street that will serve passenger vehicles only and via a proposed outbound only access drive located approximately 405 feet north of 60th Street.

- The proposed Patterson Avenue access drives will adequately accommodate site-generated traffic.

Appendix

Traffic Count Summary Sheets
ITE Trip Generation Worksheets
Level of Service Criteria
Capacity Analysis Summary Sheets

Traffic Count Summary Sheets

Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

LOCATION: MI 37 -- NB to SB X/O north of Patterson Ave
CITY/STATE: Kentwood, MI

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DATE: Tue, Mar 12 2024

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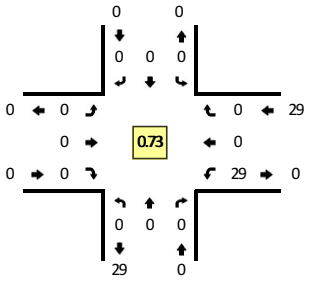
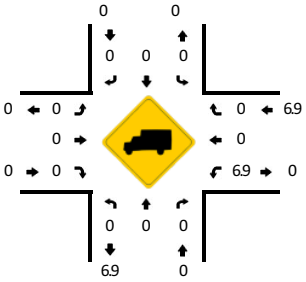
Peak 15-Min: 8:00 AM -- 8:15 AM





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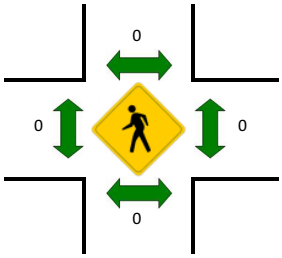

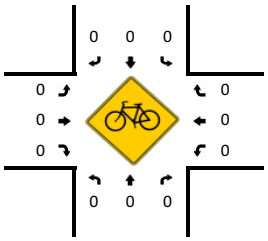

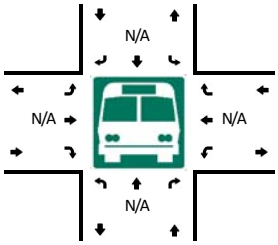

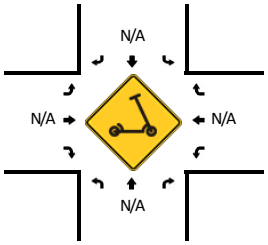

15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				NB to SB X/O north of Patterson Ave (Eastbound)				NB to SB X/O north of Patterson Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	22	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	14	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	45
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	31
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6	23
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	10	29
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	13	37
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	10	39
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	37

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	40
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/26/2024 3:43 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

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CITY/STATE: Kentwood, MI

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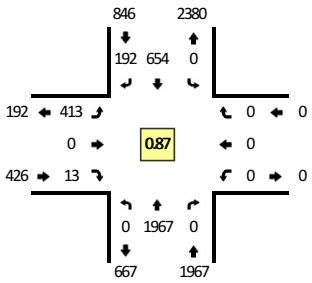

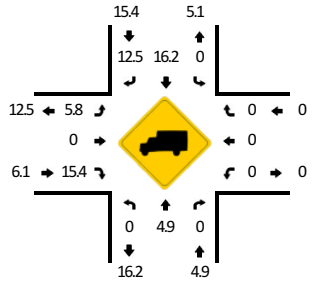

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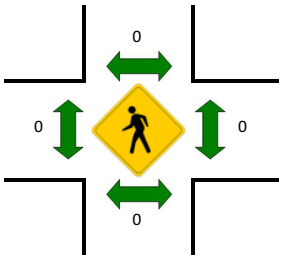

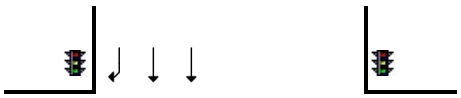

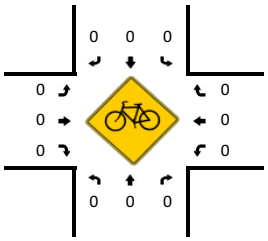

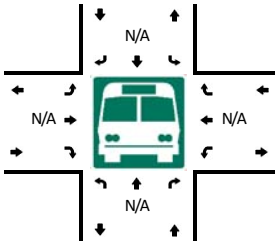

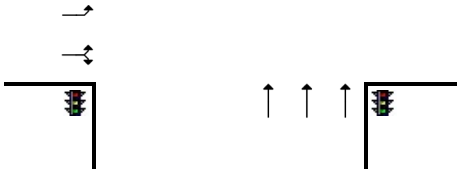

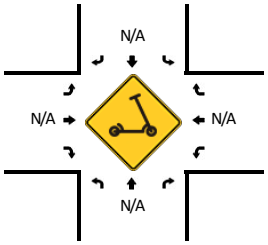

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7:00 AM	0	321	0	0	0	164	79	0	65	0	12	0	0	0	0	0	641	
7:15 AM	0	410	0	0	0	181	60	0	85	0	8	0	0	0	0	0	744	2684
7:30 AM	0	496	0	0	0	153	46	0	106	0	1	0	0	0	0	0	802	2862
7:45 AM	0	596	0	0	0	147	46	0	145	0	1	0	0	0	0	0	935	3122
8:00 AM	0	465	0	0	0	173	40	0	77	0	3	0	0	0	0	0	758	3239
8:15 AM	0	391	0	0	0	165	52	0	70	0	3	0	0	0	0	0	681	3176
8:30 AM	0	357	0	0	0	169	50	0	68	0	3	0	0	0	0	0	647	3021
8:45 AM	0	361	0	0	0	140	38	0	62	0	2	0	0	0	0	0	603	2689

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	2384	0	0	0	588	184	0	580	0	4	0	0	0	0	0	3740
Heavy Trucks	0	112	0		0	92	24		36	0	0		0	0	0		264
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/26/2024 3:43 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

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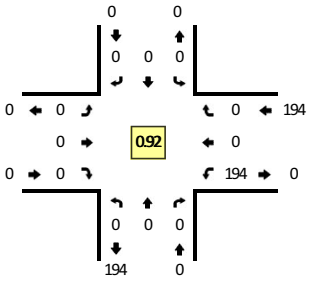

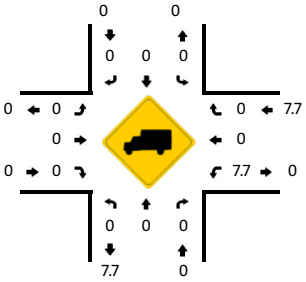

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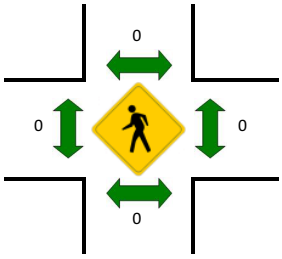
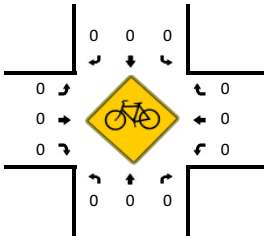
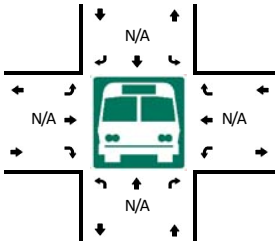
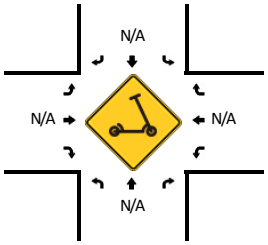








15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				NB to SB X/O north of 60th St (Eastbound)				NB to SB X/O north of 60th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	43	0	0	0	43	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	53	0	0	0	53	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	43	0	0	0	43	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	49	0	0	0	49	188
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	0	50	195
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0	42	184
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	53	0	0	0	53	194
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	38	0	0	0	38	183
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	27	0	0	0	27	160
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	37	0	0	0	37	155

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	212	0	0	0	212
Heavy Trucks	0	0	0		0	0	0		0	0	0		12	0	0		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

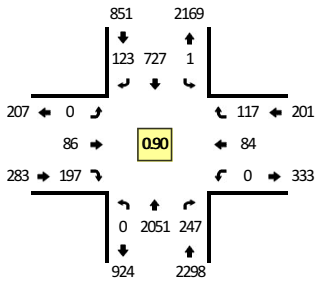
Comments:

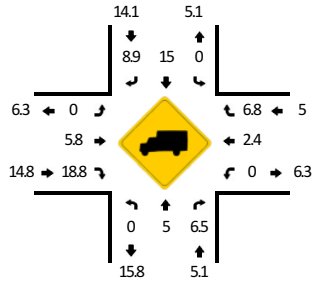
Report generated on 7/26/2024 3:43 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

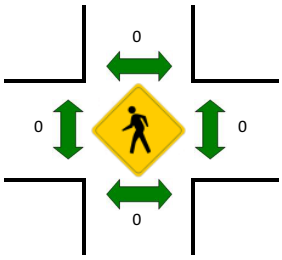
LOCATION: MI 37 -- 60th St SE | **QC JOB #:** 16512907
CITY/STATE: Kent, MI | **DATE:** Tue, Mar 12 2024

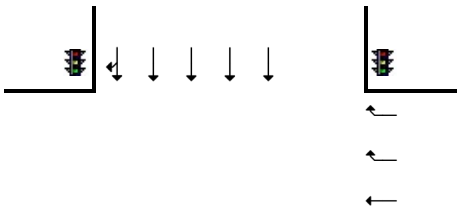
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

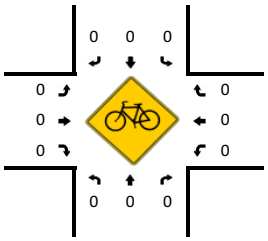


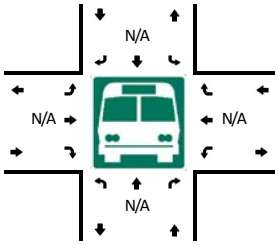


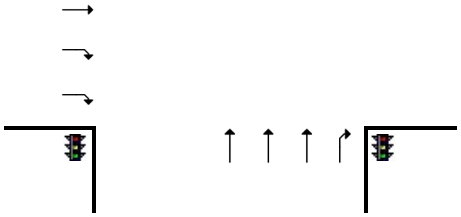
TRUE DATA TO IMPROVE MOBILITY

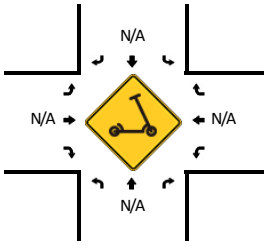












15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				60th St SE (Eastbound)				60th St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	0	395	36	0	0	139	29	0	0	23	29	0	0	8	23	0	682	
6:45 AM	0	437	66	0	0	141	40	0	0	19	29	0	0	15	22	0	769	
7:00 AM	0	357	41	0	0	186	30	0	0	11	43	0	0	24	23	0	715	
7:15 AM	0	428	54	0	0	206	28	1	0	18	50	0	0	17	34	0	836	3002
7:30 AM	0	531	54	0	0	171	29	0	0	16	57	0	0	21	30	0	909	3229
7:45 AM	0	620	73	0	0	155	35	0	0	34	47	0	0	29	20	0	1013	3473
8:00 AM	0	472	66	0	0	195	31	0	0	18	43	0	0	17	33	0	875	3633
8:15 AM	0	415	75	0	0	185	23	0	0	22	40	0	0	17	13	0	790	3587
8:30 AM	0	370	67	0	0	181	14	0	0	22	39	0	0	10	22	0	725	3403
8:45 AM	0	380	61	0	0	151	28	0	0	18	36	0	0	5	13	0	692	3082

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	2480	292	0	0	620	140	0	0	136	188	0	0	116	80	0	4052
Heavy Trucks	0	116	20		0	92	16		0	4	36		0	0	12		296
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

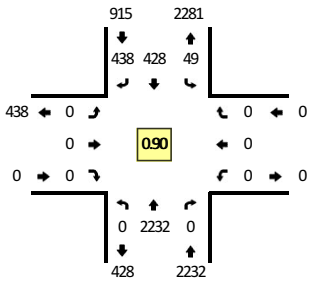
Comments:

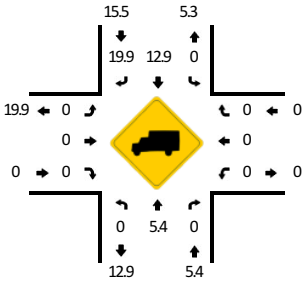
Report generated on 7/26/2024 3:43 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

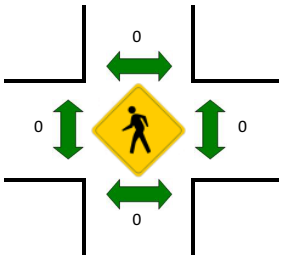
LOCATION: MI 37 -- MI 6 WB On Ramp/SB to NB X/O south of 60th | **QC JOB #:** 16512909
CITY/STATE: Kent, MI | **DATE:** Tue, Mar 12 2024

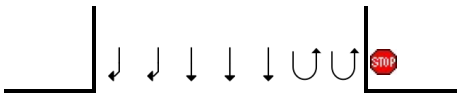
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

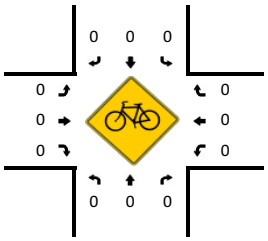


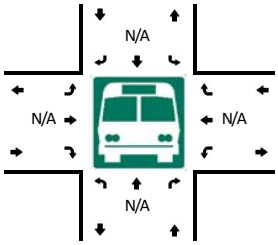


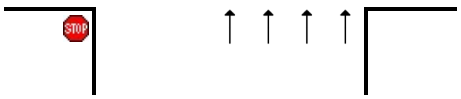
TRUE DATA TO IMPROVE MOBILITY

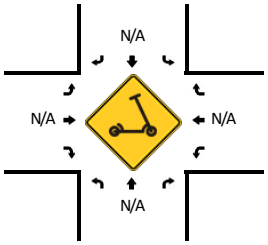












15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				MI 6 WB On Ramp/SB to NB X/O south of 60th (Eastbound)				MI 6 WB On Ramp/SB to NB X/O south of 60th (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	0	431	0	0	0	71	85	7	0	0	0	0	0	0	0	0	594	
6:45 AM	0	496	0	0	0	88	65	9	0	0	0	0	0	0	0	0	658	
7:00 AM	0	391	0	0	0	102	112	10	0	0	0	0	0	0	0	0	615	
7:15 AM	0	483	0	0	0	121	122	5	0	0	0	0	0	0	0	0	731	2598
7:30 AM	0	567	0	0	0	106	106	14	0	0	0	0	0	0	0	0	793	2797
7:45 AM	0	672	0	0	0	100	91	14	0	0	0	0	0	0	0	0	877	3016
8:00 AM	0	510	0	0	0	101	119	16	0	0	0	0	0	0	0	0	746	3147
8:15 AM	0	457	0	0	0	107	103	19	0	0	0	0	0	0	0	0	686	3102
8:30 AM	0	417	0	0	0	113	91	18	0	0	0	0	0	0	0	0	639	2948
8:45 AM	0	417	0	0	0	92	80	15	0	0	0	0	0	0	0	0	604	2675

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	2688	0	0	0	400	364	56	0	0	0	0	0	0	0	0	3508
Heavy Trucks	0	144	0		0	48	84		0	0	0		0	0	0		276
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

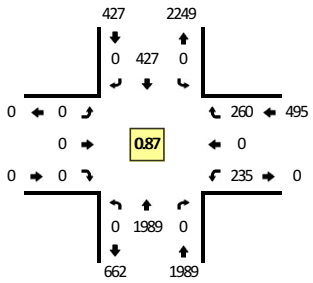
Report generated on 7/26/2024 3:43 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

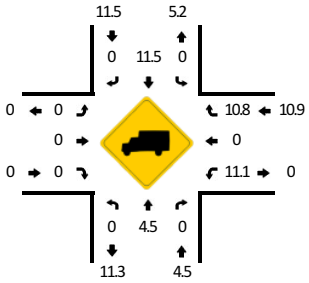
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

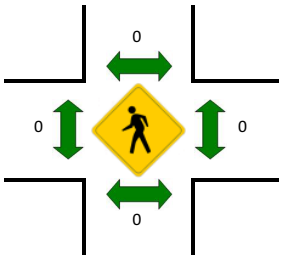
LOCATION: MI 37 -- MI 6 WB Off Ramp
CITY/STATE: Kent, MI

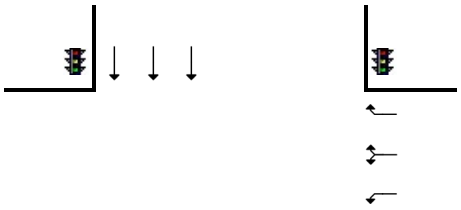
QC JOB #: 16512911
DATE: Tue, Mar 12 2024

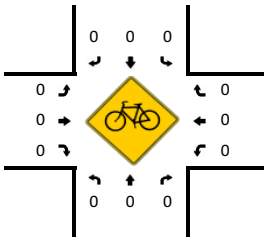
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

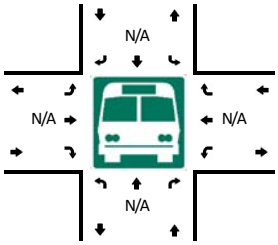


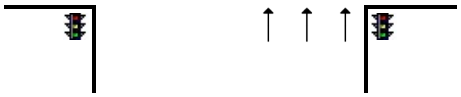


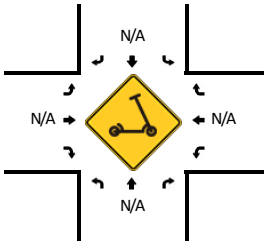












15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				MI 6 WB Off Ramp (Eastbound)				MI 6 WB Off Ramp (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	0	367	0	0	0	73	0	0	0	0	0	0	33	0	70	0	543	
6:45 AM	0	442	0	0	0	87	0	0	0	0	0	0	60	0	72	0	661	
7:00 AM	0	345	0	0	0	105	0	0	0	0	0	0	66	0	57	0	573	
7:15 AM	0	436	0	0	0	123	0	0	0	0	0	0	72	0	54	0	685	2462
7:30 AM	0	517	0	0	0	110	0	0	0	0	0	0	50	0	62	0	739	2658
7:45 AM	0	586	0	0	0	101	0	0	0	0	0	0	64	0	81	0	832	2829
8:00 AM	0	450	0	0	0	93	0	0	0	0	0	0	49	0	63	0	655	2911
8:15 AM	0	423	0	0	0	100	0	0	0	0	0	0	54	0	50	0	627	2853
8:30 AM	0	384	0	0	0	111	0	0	0	0	0	0	40	0	49	0	584	2698
8:45 AM	0	384	0	0	0	89	0	0	0	0	0	0	37	0	39	0	549	2415

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	2344	0	0	0	404	0	0	0	0	0	0	256	0	324	0	3328
Heavy Trucks	0	112	0		0	52	0		0	0	0		16	0	28		208
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/26/2024 3:43 PM

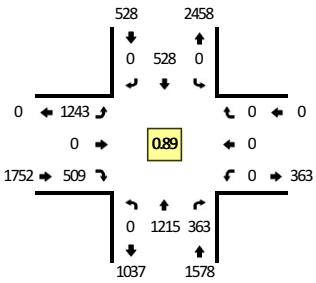
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

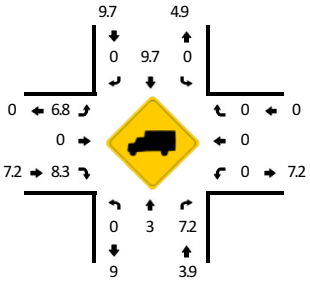
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

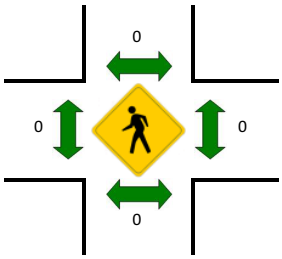
LOCATION: MI 37 -- MI 6 EB Ramps
CITY/STATE: Kent, MI

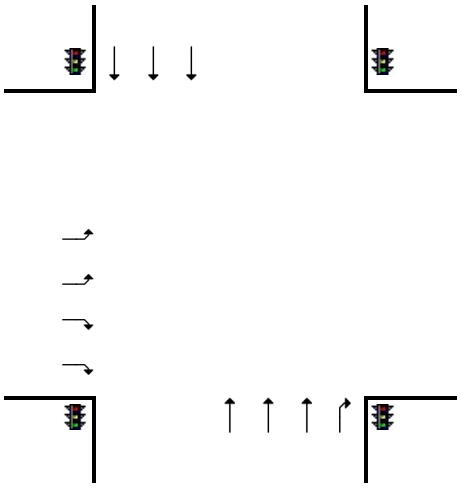
QC JOB #: 16512913
DATE: Tue, Mar 12 2024

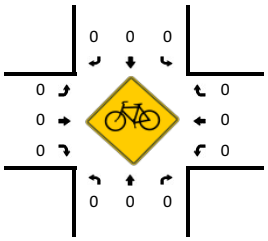
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

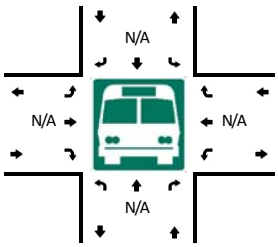


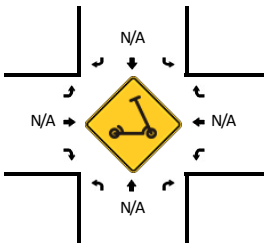












15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				MI 6 EB Ramps (Eastbound)				MI 6 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	0	253	53	0	0	82	0	0	241	0	70	0	0	0	0	0	699	
6:45 AM	0	247	65	0	0	122	0	0	270	0	108	0	0	0	0	0	812	
7:00 AM	0	239	83	0	0	146	0	0	208	0	110	0	0	0	0	0	786	
7:15 AM	0	294	102	0	0	153	0	0	252	0	124	0	0	0	0	0	925	3222
7:30 AM	0	332	89	0	0	126	0	0	325	0	111	0	0	0	0	0	983	3506
7:45 AM	0	337	94	0	0	130	0	0	371	0	146	0	0	0	0	0	1078	3772
8:00 AM	0	252	78	0	0	119	0	0	295	0	128	0	0	0	0	0	872	3858
8:15 AM	0	235	63	0	0	129	0	0	283	0	94	0	0	0	0	0	804	3737
8:30 AM	0	273	70	0	0	112	0	0	209	0	84	0	0	0	0	0	748	3502
8:45 AM	0	236	74	0	0	104	0	0	227	0	75	0	0	0	0	0	716	3140

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1348	376	0	0	520	0	0	1484	0	584	0	0	0	0	0	4312
Heavy Trucks	0	32	28		0	44	0		92	0	32		0	0	0		228
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

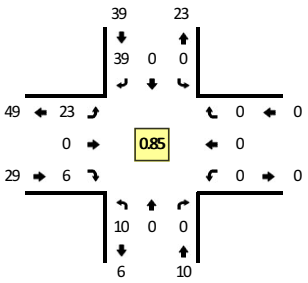
Report generated on 7/26/2024 3:43 PM

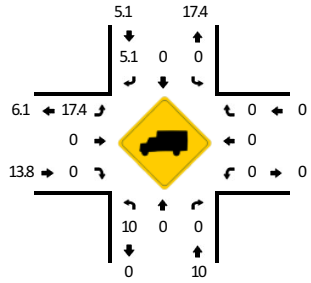
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

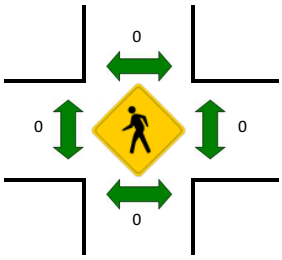
LOCATION: Patterson Ave SE -- Access Driveway to Shipping Centers | **QC JOB #:** 16512915
CITY/STATE: Kentwood, MI | **DATE:** Tue, Mar 12 2024

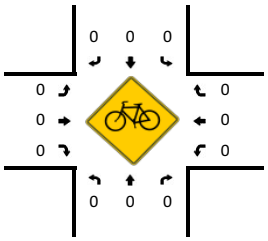
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:15 AM -- 7:30 AM

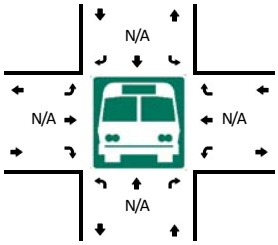


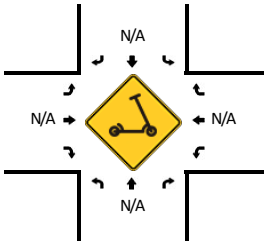


TRUE DATA TO IMPROVE MOBILITY









15-Min Count Period Beginning At	Patterson Ave SE (Northbound)				Patterson Ave SE (Southbound)				Access Driveway to Shipping Centers (Eastbound)				Access Driveway to Shipping Centers (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	7	0	0	0	0	0	33	0	7	0	0	0	0	0	0	0	47	
6:45 AM	5	0	0	0	0	0	24	0	3	0	1	0	0	0	0	0	33	
7:00 AM	1	0	0	0	0	0	9	0	25	0	5	0	0	0	0	0	40	
7:15 AM	2	0	0	0	0	0	6	0	11	0	4	0	0	0	0	0	23	143
7:30 AM	1	0	0	0	0	0	8	0	2	0	0	0	0	0	0	0	11	107
7:45 AM	3	0	0	0	0	0	13	0	3	0	2	0	0	0	0	0	21	95
8:00 AM	4	0	0	0	0	0	12	0	7	0	0	0	0	0	0	0	23	78
8:15 AM	4	0	0	0	0	0	22	0	11	0	2	0	0	0	0	0	39	94
8:30 AM	2	0	0	0	0	0	15	0	4	0	1	0	0	0	0	0	22	105
8:45 AM	1	0	0	0	0	0	11	0	2	0	2	0	0	0	0	0	16	100

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	0	0	0	0	0	24	0	44	0	16	0	0	0	0	0	92
Heavy Trucks	4	0	0		0	0	0		8	0	0		0	0	0		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

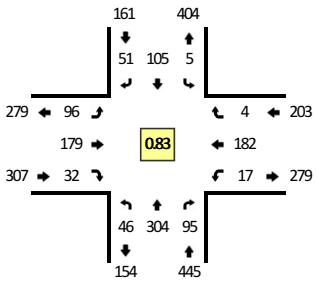
Comments:

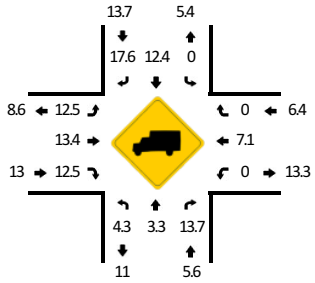
Report generated on 7/26/2024 3:43 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

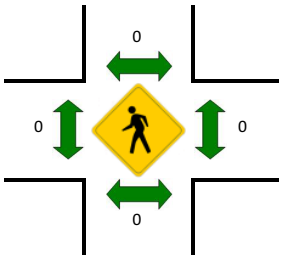
Type of peak hour being reported: System-wide Peak | Method for determining peak hour: Total Entering Volume

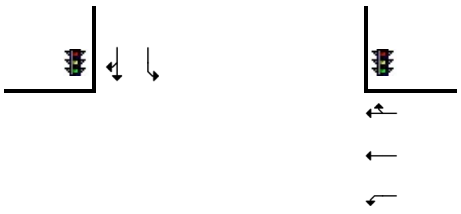
LOCATION: Patterson Ave SE -- 60 St SE | **QC JOB #:** 16512917
CITY/STATE: Kent, MI | **DATE:** Tue, Mar 12 2024

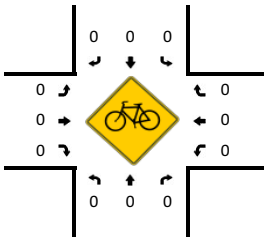
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

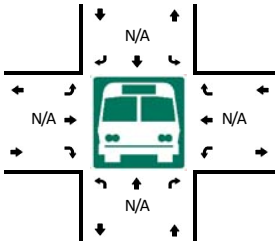


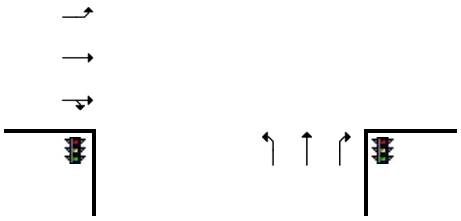


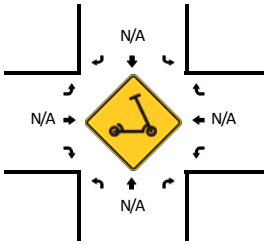












15-Min Count Period Beginning At	Patterson Ave SE (Northbound)				Patterson Ave SE (Southbound)				60 St SE (Eastbound)				60 St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	12	48	16	0	2	18	7	0	24	36	3	0	1	34	2	0	203	
6:45 AM	9	51	11	0	0	29	17	0	25	36	1	0	2	52	0	0	233	
7:00 AM	13	44	10	0	3	41	29	0	14	45	10	0	9	44	0	0	262	
7:15 AM	7	58	24	0	3	44	12	0	21	41	9	0	5	40	0	0	264	962
7:30 AM	22	82	25	0	0	21	14	0	31	51	3	0	2	46	0	0	297	1056
7:45 AM	11	109	22	0	2	23	12	0	30	51	12	0	7	55	2	0	336	1159
8:00 AM	6	55	24	0	0	17	13	0	14	36	8	0	3	41	2	0	219	1116
8:15 AM	8	36	16	0	2	18	12	0	28	45	7	0	5	39	1	0	217	1069
8:30 AM	5	50	21	0	0	21	12	0	24	42	3	0	2	24	0	0	204	976
8:45 AM	9	37	7	0	2	16	16	0	21	45	9	0	3	32	1	0	198	838

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	44	436	88	0	8	92	48	0	120	204	48	0	28	220	8	0	1344
Heavy Trucks	0	12	4		0	20	4		20	40	4		0	16	0		120
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/26/2024 3:43 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

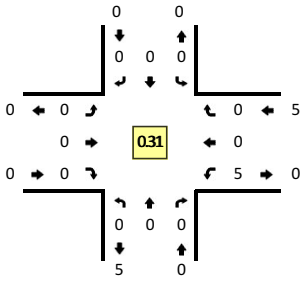
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

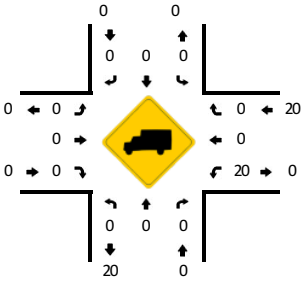
LOCATION: MI 37 -- NB to SB X/O north of Patterson Ave
CITY/STATE: Kentwood, MI

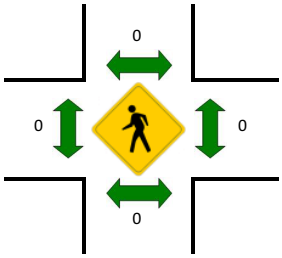
QC JOB #: 16512902
DATE: Tue, Mar 12 2024

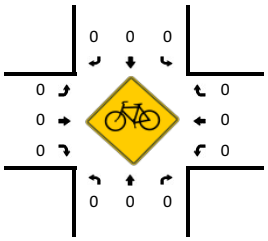
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

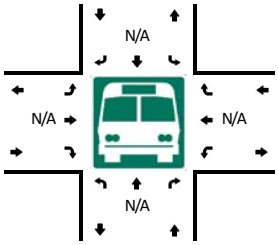


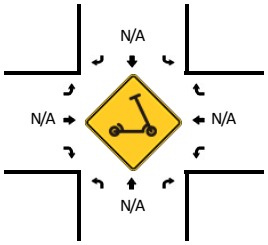
TRUE DATA TO IMPROVE MOBILITY











15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				NB to SB X/O north of Patterson Ave (Eastbound)				NB to SB X/O north of Patterson Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	5
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	16
Heavy Trucks	0	0	0		0	0	0		0	0	0		4	0	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/26/2024 3:44 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

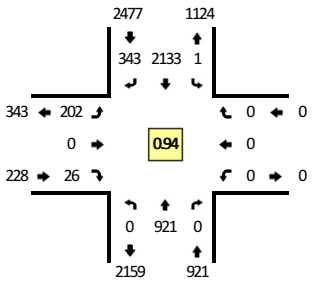
Type of peak hour being reported: Intersection Peak

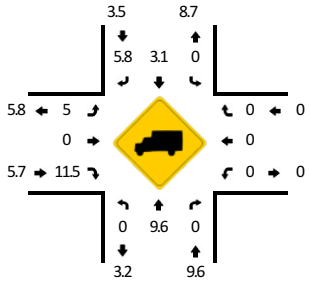
Method for determining peak hour: Total Entering Volume

LOCATION: MI 37 -- Patterson Ave SE
CITY/STATE: Kentwood, MI

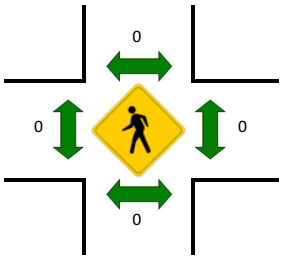
QC JOB #: 16512904
DATE: Tue, Mar 12 2024

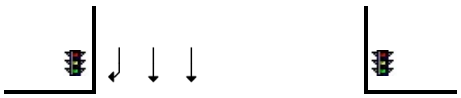
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

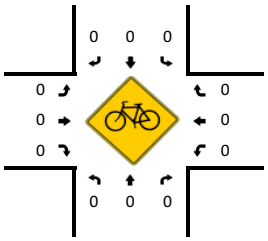


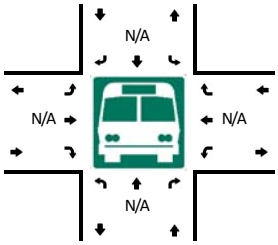


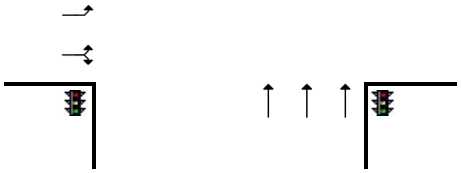
TRUE DATA TO IMPROVE MOBILITY

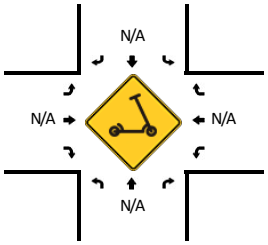












15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				Patterson Ave SE (Eastbound)				Patterson Ave SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	223	0	0	0	482	86	0	55	0	7	0	0	0	0	0	853	
4:15 PM	0	257	0	0	0	437	64	2	53	0	3	0	0	0	0	0	816	
4:30 PM	0	237	0	0	0	529	72	1	58	0	10	0	0	0	0	0	907	
4:45 PM	0	197	0	0	0	504	84	0	42	0	2	0	0	0	0	0	829	3405
5:00 PM	0	244	0	0	0	546	82	0	46	0	10	0	0	0	0	0	928	3480
5:15 PM	0	243	0	0	0	554	105	0	56	0	4	0	0	0	0	0	962	3626
5:30 PM	0	203	0	0	0	347	58	0	47	0	1	0	0	0	0	0	656	3375
5:45 PM	0	205	0	0	0	341	75	0	47	0	2	0	0	0	0	0	670	3216
6:00 PM	0	165	0	0	0	320	49	0	51	0	2	0	0	0	0	0	587	2875
6:15 PM	0	138	0	0	0	283	64	0	43	0	0	0	0	0	0	0	528	2441

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	972	0	0	0	2216	420	0	224	0	16	0	0	0	0	0	3848
Heavy Trucks	0	84	0		0	60	32		8	0	0		0	0	0		184
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/26/2024 3:44 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

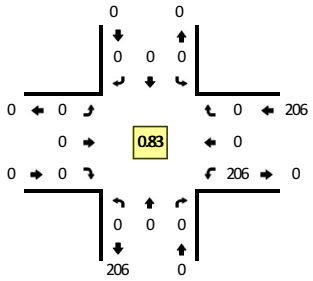
Type of peak hour being reported: Intersection Peak

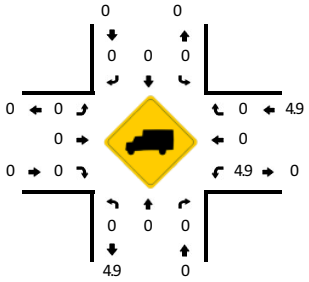
Method for determining peak hour: Total Entering Volume

LOCATION: MI 37 -- NB to SB X/O north of 60th St
CITY/STATE: Kent, MI

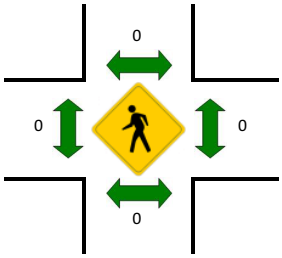
QC JOB #: 16512906
DATE: Tue, Mar 12 2024

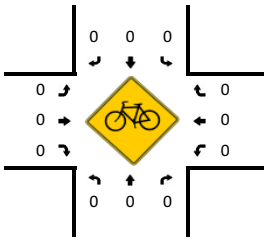
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

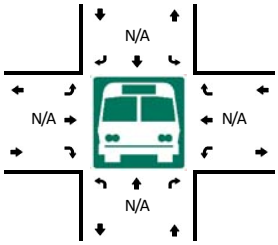


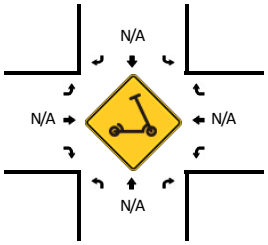


TRUE DATA TO IMPROVE MOBILITY









15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				NB to SB X/O north of 60th St (Eastbound)				NB to SB X/O north of 60th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	41	0	0	0	41	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	47	0	0	0	47	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	0	58	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	39	0	0	0	39	185
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	62	0	0	0	62	206
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	40	199
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	30	0	0	0	30	171
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0	42	174
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	33	0	0	0	33	145
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	24	129

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	248	0	0	0	248
Heavy Trucks	0	0	0		0	0	0		0	0	0		20	0	0		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

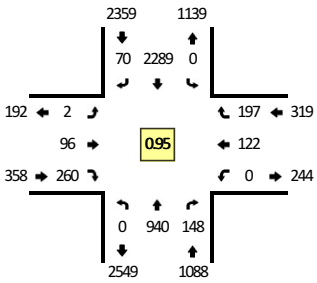
Report generated on 7/26/2024 3:44 PM

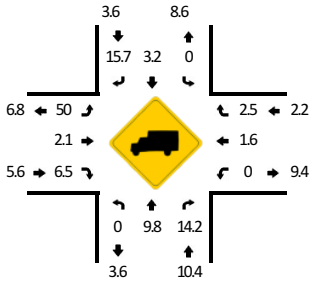
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

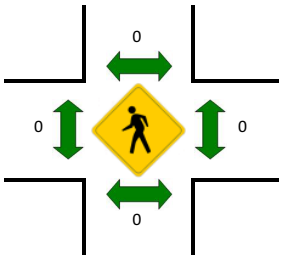
LOCATION: MI 37 -- 60th St SE | **QC JOB #:** 16512908
CITY/STATE: Kent, MI | **DATE:** Tue, Mar 12 2024

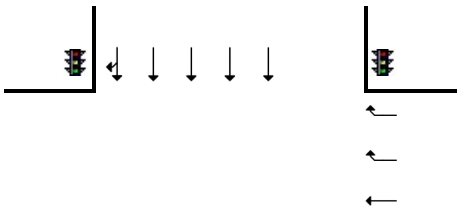
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

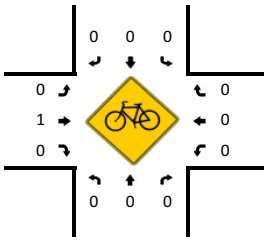


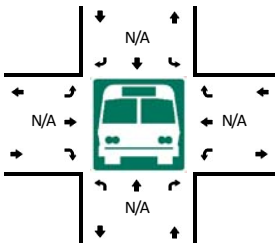


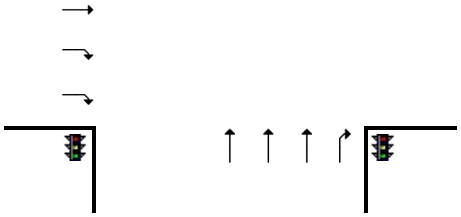
TRUE DATA TO IMPROVE MOBILITY

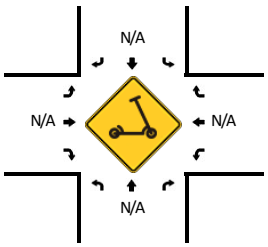












15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				60th St SE (Eastbound)				60th St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	229	27	0	0	513	9	0	0	27	91	0	0	25	49	0	970	
4:15 PM	0	257	31	0	0	475	20	0	0	20	74	0	0	18	39	0	934	
4:30 PM	0	242	22	0	0	576	18	0	1	25	67	0	0	28	63	0	1042	
4:45 PM	0	211	38	0	0	524	23	0	0	23	55	0	0	21	31	0	926	3872
5:00 PM	0	243	35	0	0	600	9	0	0	28	70	0	0	34	62	0	1081	3983
5:15 PM	0	244	53	0	0	589	20	0	1	20	68	0	0	39	41	0	1075	4124
5:30 PM	0	203	44	0	0	371	13	0	0	15	65	0	0	29	36	0	776	3858
5:45 PM	0	213	63	0	0	362	20	0	0	22	36	0	0	17	34	0	767	3699
6:00 PM	0	163	18	0	0	340	15	0	0	16	57	0	0	19	29	0	657	3275
6:15 PM	0	150	24	0	0	303	11	0	0	8	35	0	0	15	22	0	568	2768

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	972	140	0	0	2400	36	0	0	112	280	0	0	136	248	0	4324
Heavy Trucks	0	108	20		0	48	12		0	4	24		0	4	4		224
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/26/2024 3:44 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: MI 37 -- MI 6 WB On Ramp/SB to NB X/O south of 60th

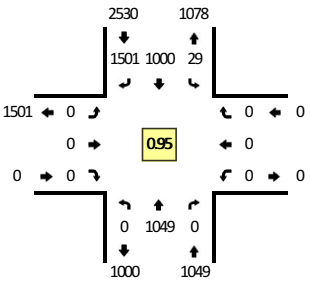
CITY/STATE: Kent, MI

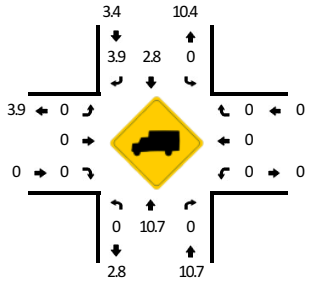
QC JOB #: 16512910

DATE: Tue, Mar 12 2024

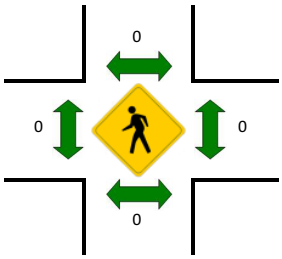
Peak-Hour: 4:30 PM -- 5:30 PM

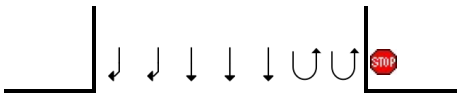
Peak 15-Min: 5:15 PM -- 5:30 PM

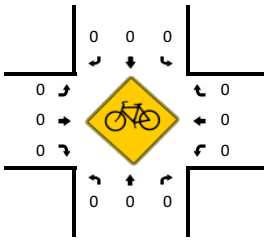


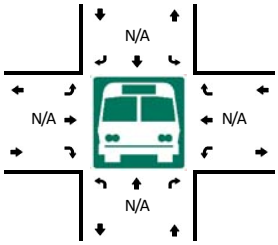


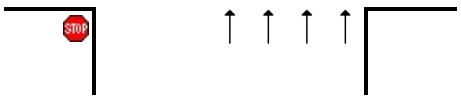
TRUE DATA TO IMPROVE MOBILITY

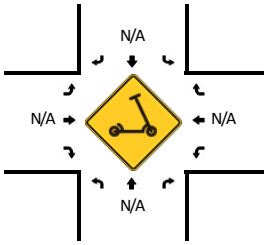












15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				MI 6 WB On Ramp/SB to NB X/O south of 60th (Eastbound)				MI 6 WB On Ramp/SB to NB X/O south of 60th (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	247	0	0	0	293	304	7	0	0	0	0	0	0	0	0	851	
4:15 PM	0	275	0	0	0	226	314	12	0	0	0	0	0	0	0	0	827	
4:30 PM	0	261	0	0	0	247	386	3	0	0	0	0	0	0	0	0	897	
4:45 PM	0	236	0	0	0	226	341	10	0	0	0	0	0	0	0	0	813	3388
5:00 PM	0	268	0	0	0	257	398	6	0	0	0	0	0	0	0	0	929	3466
5:15 PM	0	284	0	0	0	270	376	10	0	0	0	0	0	0	0	0	940	3579
5:30 PM	0	241	0	0	0	189	241	7	0	0	0	0	0	0	0	0	678	3360
5:45 PM	0	261	0	0	0	146	232	11	0	0	0	0	0	0	0	0	650	3197
6:00 PM	0	173	0	0	0	190	201	6	0	0	0	0	0	0	0	0	570	2838
6:15 PM	0	165	0	0	0	158	174	8	0	0	0	0	0	0	0	0	505	2403

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1136	0	0	0	1080	1504	40	0	0	0	0	0	0	0	0	3760
Heavy Trucks	0	96	0		0	24	48		0	0	0		0	0	0		168
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/26/2024 3:44 PM

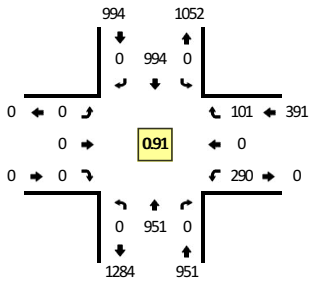
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

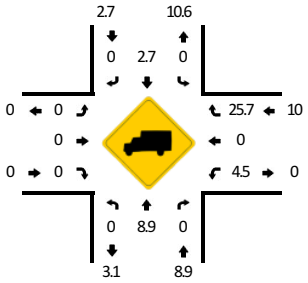
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: MI 37 -- MI 6 WB Off Ramp
CITY/STATE: Kent, MI

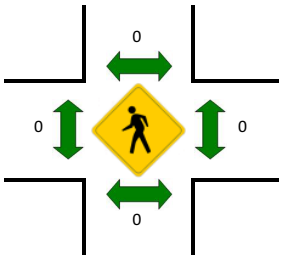
QC JOB #: 16512912
DATE: Tue, Mar 12 2024

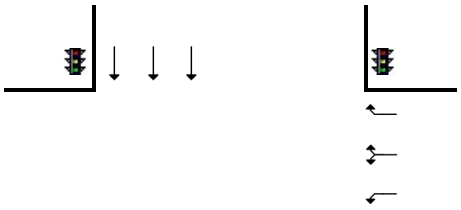
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

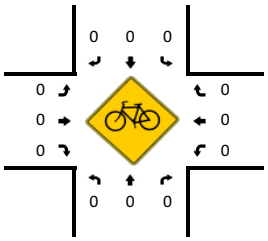


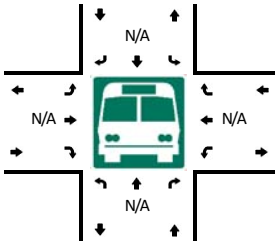


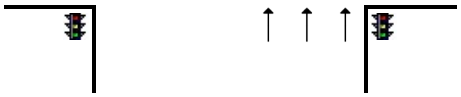
TRUE DATA TO IMPROVE MOBILITY

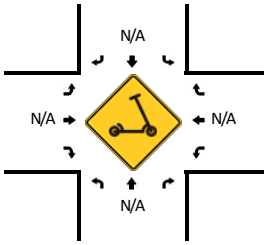












15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				MI 6 WB Off Ramp (Eastbound)				MI 6 WB Off Ramp (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	227	0	0	0	280	0	0	0	0	0	0	44	0	24	0	575	
4:15 PM	0	249	0	0	0	230	0	0	0	0	0	0	49	0	35	0	563	
4:30 PM	0	229	0	0	0	249	0	0	0	0	0	0	58	0	28	0	564	
4:45 PM	0	217	0	0	0	225	0	0	0	0	0	0	59	0	24	0	525	2227
5:00 PM	0	246	0	0	0	253	0	0	0	0	0	0	78	0	29	0	606	2258
5:15 PM	0	259	0	0	0	267	0	0	0	0	0	0	95	0	20	0	641	2336
5:30 PM	0	217	0	0	0	187	0	0	0	0	0	0	82	0	21	0	507	2279
5:45 PM	0	225	0	0	0	152	0	0	0	0	0	0	77	0	40	0	494	2248
6:00 PM	0	157	0	0	0	190	0	0	0	0	0	0	56	0	14	0	417	2059
6:15 PM	0	152	0	0	0	153	0	0	0	0	0	0	55	0	20	0	380	1798

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1036	0	0	0	1068	0	0	0	0	0	0	380	0	80	0	2564
Heavy Trucks	0	84	0		0	24	0		0	0	0		12	0	12		132
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

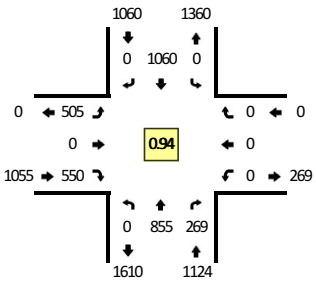
Report generated on 7/26/2024 3:44 PM

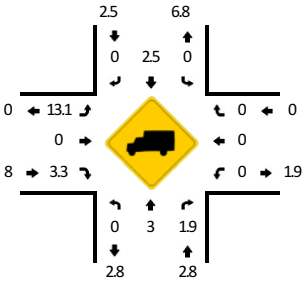
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

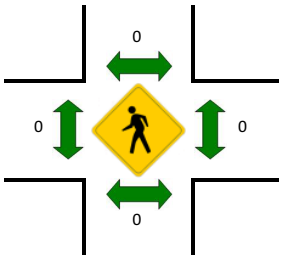
LOCATION: MI 37 -- MI 6 EB Ramps | **QC JOB #:** 16512914
CITY/STATE: Kent, MI | **DATE:** Tue, Mar 12 2024

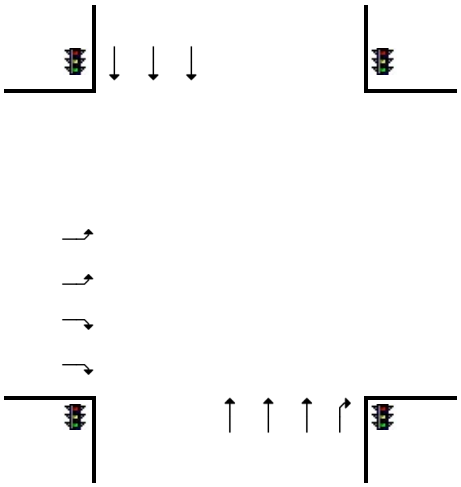
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

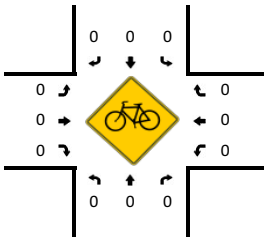


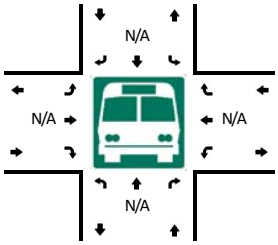


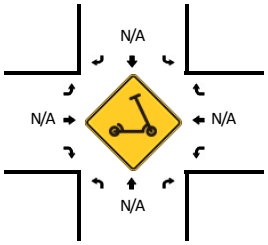
TRUE DATA TO IMPROVE MOBILITY











15-Min Count Period Beginning At	MI 37 (Northbound)				MI 37 (Southbound)				MI 6 EB Ramps (Eastbound)				MI 6 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	190	65	0	0	255	0	0	112	0	113	0	0	0	0	0	735	
4:15 PM	0	218	74	0	0	228	0	0	130	0	157	0	0	0	0	0	807	
4:30 PM	0	223	83	0	0	246	0	0	113	0	130	0	0	0	0	0	795	
4:45 PM	0	195	60	0	0	251	0	0	112	0	149	0	0	0	0	0	767	3104
5:00 PM	0	223	58	0	0	266	0	0	132	0	135	0	0	0	0	0	814	3183
5:15 PM	0	214	68	0	0	297	0	0	148	0	136	0	0	0	0	0	863	3239
5:30 PM	0	172	77	0	0	243	0	0	122	0	128	0	0	0	0	0	742	3186
5:45 PM	0	176	42	0	0	202	0	0	111	0	114	0	0	0	0	0	645	3064
6:00 PM	0	157	65	0	0	225	0	0	66	0	85	0	0	0	0	0	598	2848
6:15 PM	0	164	46	0	0	195	0	0	65	0	86	0	0	0	0	0	556	2541

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	856	272	0	0	1188	0	0	592	0	544	0	0	0	0	0	3452
Heavy Trucks	0	8	12		0	24	0		72	0	8		0	0	0		124
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

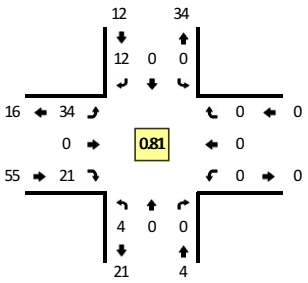
Comments:

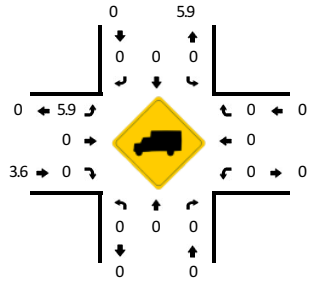
Report generated on 7/26/2024 3:44 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

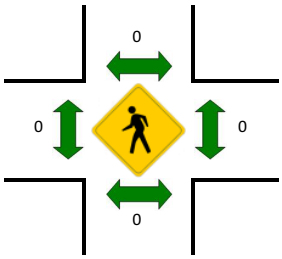
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

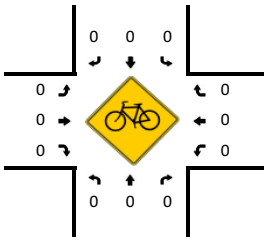
LOCATION: Patterson Ave SE -- Access Driveway to Shipping Centers | **QC JOB #:** 16512916
CITY/STATE: Kentwood, MI | **DATE:** Tue, Mar 12 2024

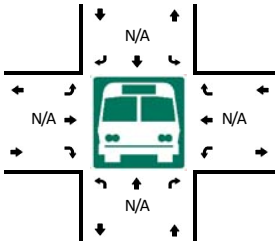
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

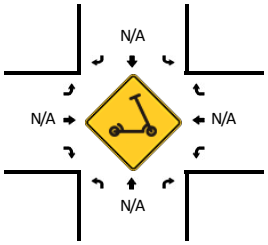












15-Min Count Period Beginning At	Patterson Ave SE (Northbound)				Patterson Ave SE (Southbound)				Access Driveway to Shipping Centers (Eastbound)				Access Driveway to Shipping Centers (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	0	0	0	0	0	5	0	7	0	3	0	0	0	0	0	17	
4:15 PM	0	0	0	0	0	0	2	0	6	0	6	0	0	0	0	0	14	
4:30 PM	1	0	0	0	0	0	1	0	11	0	5	0	0	0	0	0	18	
4:45 PM	2	0	0	0	0	0	4	0	4	0	6	0	0	0	0	0	16	65
5:00 PM	1	0	0	0	0	0	2	0	14	0	5	0	0	0	0	0	22	70
5:15 PM	0	0	0	0	0	0	5	0	5	0	5	0	0	0	0	0	15	71
5:30 PM	1	0	0	0	0	0	0	0	5	0	3	0	0	0	0	0	9	62
5:45 PM	1	0	0	0	0	0	5	0	4	0	1	0	0	0	0	0	11	57
6:00 PM	0	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	10	45
6:15 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	32

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	0	0	0	0	0	8	0	56	0	20	0	0	0	0	0	88
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/26/2024 3:44 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

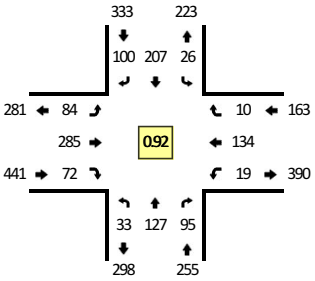
Type of peak hour being reported: Intersection Peak

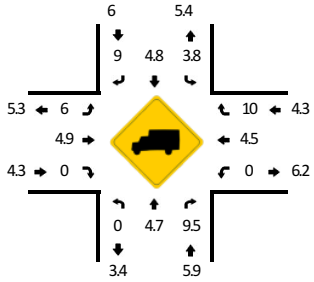
Method for determining peak hour: Total Entering Volume

LOCATION: Patterson Ave SE -- 60 St SE
CITY/STATE: Kent, MI

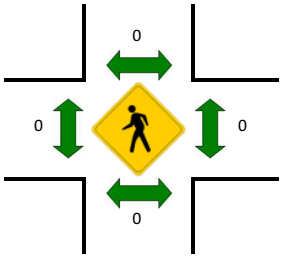
QC JOB #: 16512918
DATE: Tue, Mar 12 2024

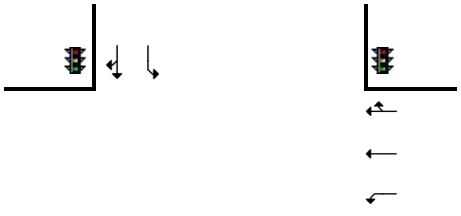
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

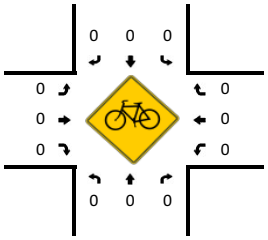


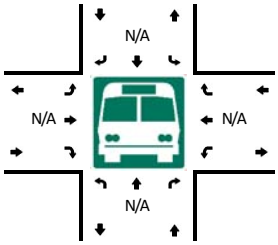


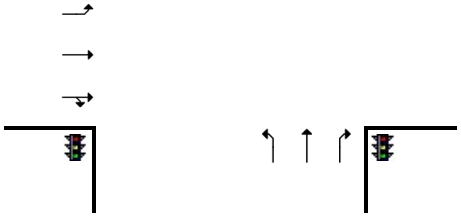
TRUE DATA TO IMPROVE MOBILITY

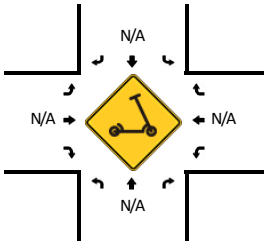












15-Min Count Period Beginning At	Patterson Ave SE (Northbound)				Patterson Ave SE (Southbound)				60 St SE (Eastbound)				60 St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	36	35	0	1	58	24	7	16	81	21	8	5	22	0	0	325	
4:15 PM	5	37	12	0	3	44	26	5	15	83	15	2	3	38	2	0	290	
4:30 PM	13	29	21	0	2	50	23	2	25	70	20	4	7	38	4	0	308	
4:45 PM	4	25	27	0	4	55	27	2	14	51	16	0	4	36	4	0	269	1192
5:00 PM	10	31	28	0	4	62	23	2	9	62	14	0	10	29	0	0	284	1151
5:15 PM	5	34	23	0	3	86	23	0	22	66	9	0	12	45	1	0	329	1190
5:30 PM	9	33	30	0	2	43	18	1	11	52	14	0	2	38	1	0	254	1136
5:45 PM	3	31	17	0	2	55	9	1	13	38	10	0	8	34	0	0	221	1088
6:00 PM	9	40	31	0	3	45	9	0	7	39	10	0	3	30	0	0	226	1030
6:15 PM	5	29	21	0	0	46	16	2	13	23	3	0	0	28	0	0	186	887

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	44	144	140	0	4	232	96	28	64	324	84	32	20	88	0	0	1300
Heavy Trucks	0	4	24		0	12	12		4	20	0		0	4	0		80
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/26/2024 3:44 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

ITE Trip Generation Worksheets

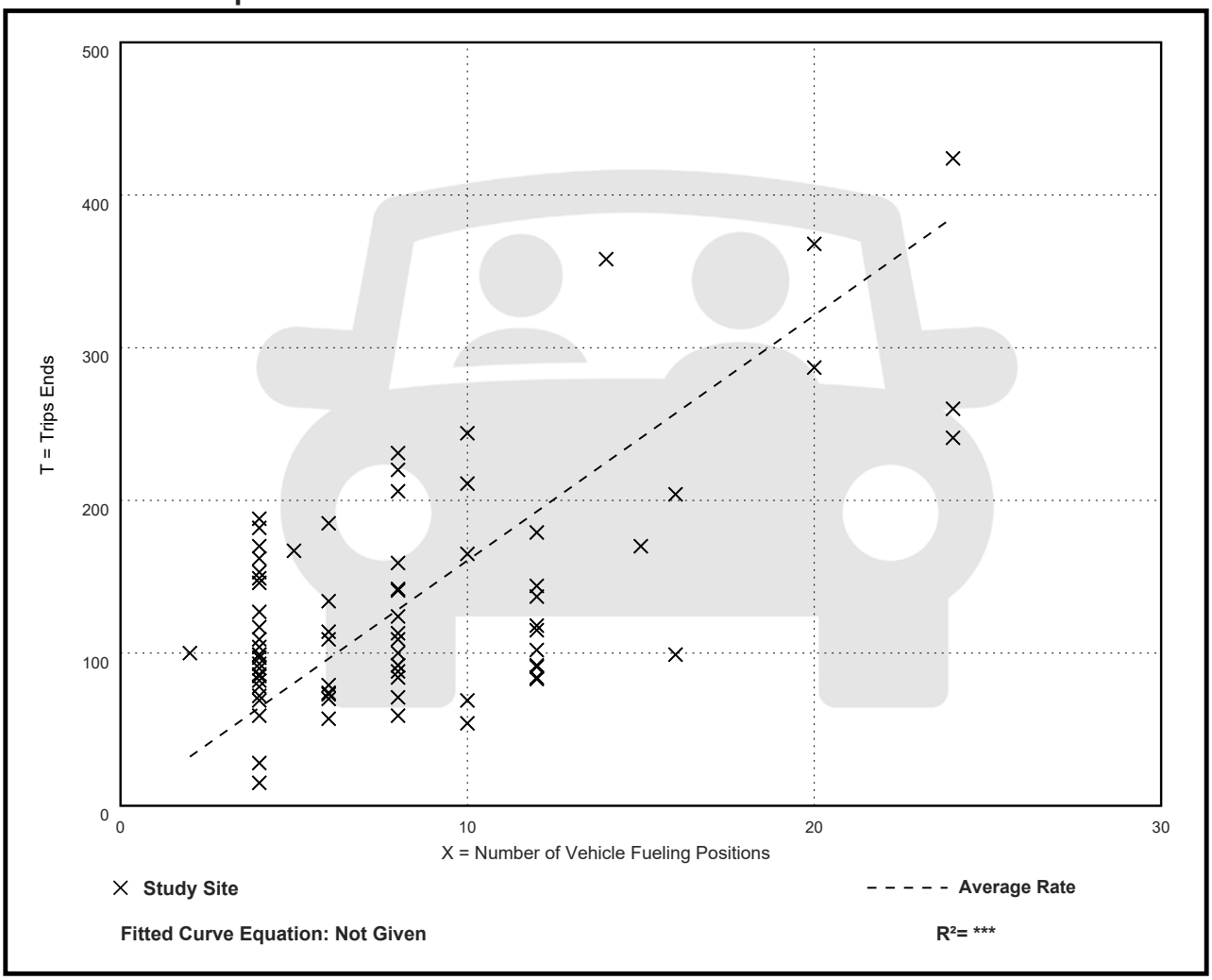
Convenience Store/Gas Station - GFA (2-4k) (945)

Vehicle Trip Ends vs: Vehicle Fueling Positions
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 76
Avg. Num. of Vehicle Fueling Positions: 8
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
16.06	3.75 - 50.00	8.79

Data Plot and Equation



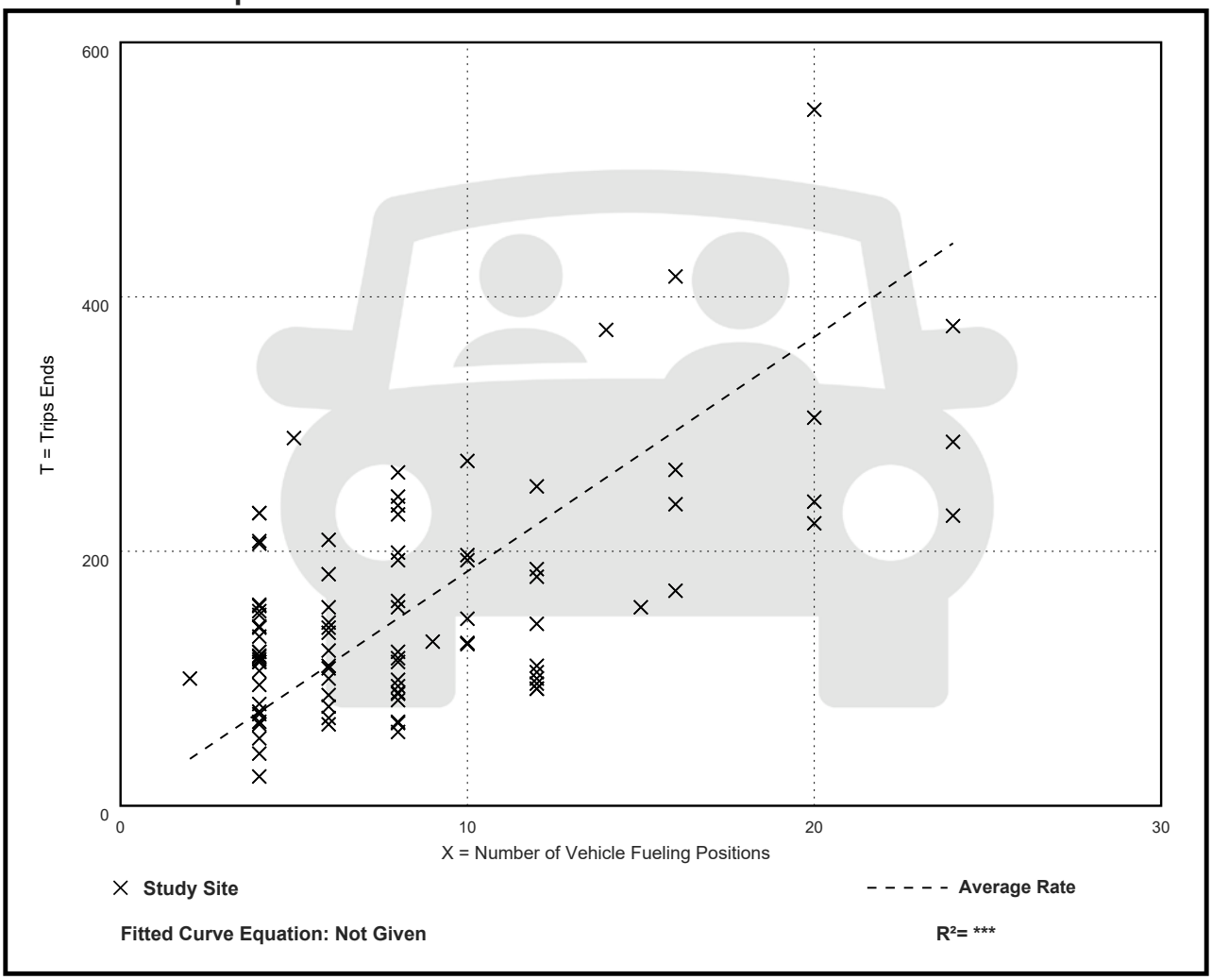
Convenience Store/Gas Station - GFA (2-4k) (945)

Vehicle Trip Ends vs: Vehicle Fueling Positions
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 93
Avg. Num. of Vehicle Fueling Positions: 8
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
18.42	5.75 - 57.80	10.16

Data Plot and Equation



Level of Service Criteria

LEVEL OF SERVICE CRITERIA

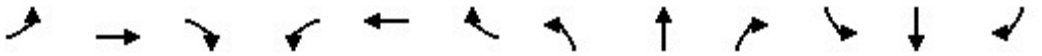
Signalized Intersections		
Level of Service	**Interpretation**	**Average Control Delay (seconds per vehicle)**
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	>10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	>35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	>55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80.0

Unsignalized Intersections	
Level of Service	Average Total Delay (SEC/VEH)
A	0 - 10
B	> 10 - 15
C	> 15 - 25
D	> 25 - 35
E	> 35 - 50
F	> 50

Source: *Highway Capacity Manual*, 6th Edition.

Capacity Analysis Summary Sheets

Existing Weekday Morning Peak Hour Conditions

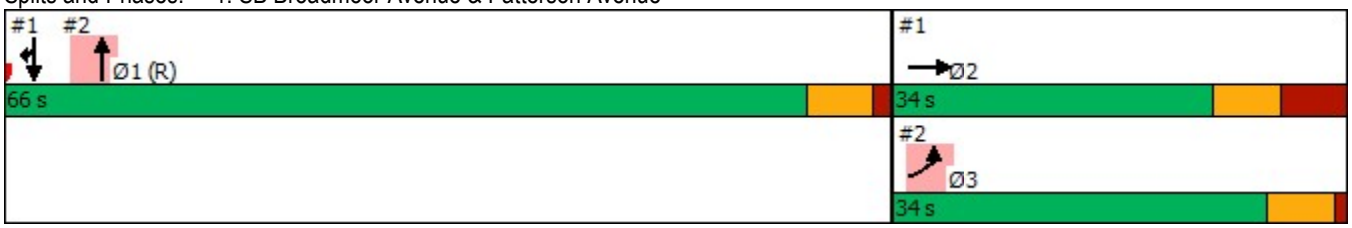


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	413	13	0	0	0	0	0	0	0	654	194
Future Volume (vph)	0	413	13	0	0	0	0	0	0	0	654	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	135		0	0		0	0		0	0		365
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	215			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.995										0.850
Flt Protected												
Satd. Flow (prot)	0	3380	0	0	0	0	0	0	0	0	3248	1442
Flt Permitted												
Satd. Flow (perm)	0	3380	0	0	0	0	0	0	0	0	3248	1442
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)		3										223
Link Speed (mph)		55			30			55			55	
Link Distance (ft)		296			75			707			498	
Travel Time (s)		3.7			1.7			8.8			6.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	6%	15%	0%	0%	0%	0%	0%	0%	0%	17%	12%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	490	0	0	0	0	0	0	0	0	752	223
Turn Type		NA									NA	Prot
Protected Phases		2									1	1
Permitted Phases												
Detector Phase		2									1	1
Switch Phase												
Minimum Initial (s)		7.0									10.0	10.0
Minimum Split (s)		17.1									16.4	16.4
Total Split (s)		34.0									66.0	66.0
Total Split (%)		34.0%									66.0%	66.0%
Yellow Time (s)		5.0									5.0	5.0
All-Red Time (s)		5.1									1.4	1.4
Lost Time Adjust (s)		0.0									0.0	0.0
Total Lost Time (s)		10.1									6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max									C-Max	C-Max
Act Effct Green (s)		23.9									59.6	59.6
Actuated g/C Ratio		0.24									0.60	0.60

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.60									0.39	0.23
Control Delay		37.3									11.4	1.9
Queue Delay		0.0									0.0	0.0
Total Delay		37.3									11.4	1.9
LOS		D									B	A
Approach Delay		37.3									9.2	
Approach LOS		D									A	
Queue Length 50th (ft)		145									123	0
Queue Length 95th (ft)		192									154	25
Internal Link Dist (ft)		216			1			627			418	
Turn Bay Length (ft)												365
Base Capacity (vph)		810									1935	949
Starvation Cap Reductn		0									0	0
Spillback Cap Reductn		0									0	0
Storage Cap Reductn		0									0	0
Reduced v/c Ratio		0.60									0.39	0.23

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 48 (48%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 18.6		Intersection LOS: B	
Intersection Capacity Utilization 58.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: SB Broadmoor Avenue & Patterson Avenue

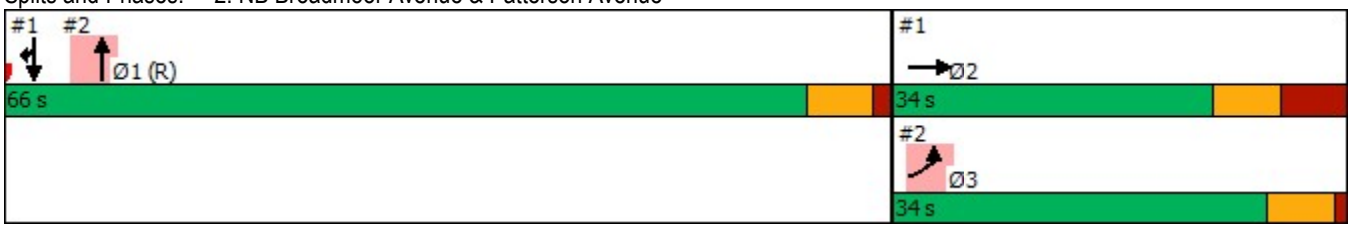


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	413	0	0	1974	0	0	
Future Volume (vph)	413	0	0	1974	0	0	
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)	0	0	0			0	
Storage Lanes	2	0	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	0.97	1.00	1.00	0.91	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3303	0	0	5200	0	0	
Flt Permitted	0.950						
Satd. Flow (perm)	3303	0	0	5200	0	0	
Right Turn on Red	Yes	Yes				Yes	
Satd. Flow (RTOR)	11						
Link Speed (mph)	30			55	55		
Link Distance (ft)	75			702	506		
Travel Time (s)	1.7			8.7	6.3		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	6%	0%	0%	5%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	475	0	0	2269	0	0	
Turn Type	Prot			NA			
Protected Phases	3			1			2
Permitted Phases							
Detector Phase	3			1			
Switch Phase							
Minimum Initial (s)	7.0			10.0			7.0
Minimum Split (s)	13.1			16.4			17.1
Total Split (s)	34.0			66.0			34.0
Total Split (%)	34.0%			66.0%			34%
Yellow Time (s)	5.0			5.0			5.0
All-Red Time (s)	1.1			1.4			5.1
Lost Time Adjust (s)	0.0			0.0			
Total Lost Time (s)	6.1			6.4			
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max			C-Max			Max
Act Effct Green (s)	27.9			59.6			
Actuated g/C Ratio	0.28			0.60			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
v/c Ratio	0.51			0.73			
Control Delay	1.6			4.9			
Queue Delay	0.0			0.0			
Total Delay	1.6			4.9			
LOS	A			A			
Approach Delay	1.6			4.9			
Approach LOS	A			A			
Queue Length 50th (ft)	0			41			
Queue Length 95th (ft)	0			123			
Internal Link Dist (ft)	1			622	426		
Turn Bay Length (ft)							
Base Capacity (vph)	929			3099			
Starvation Cap Reductn	0			0			
Spillback Cap Reductn	0			0			
Storage Cap Reductn	0			0			
Reduced v/c Ratio	0.51			0.73			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 48 (48%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 4.3		Intersection LOS: A	
Intersection Capacity Utilization 58.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: NB Broadmoor Avenue & Patterson Avenue

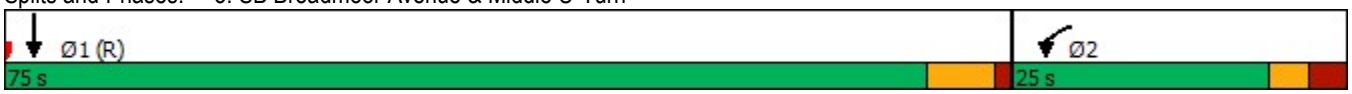


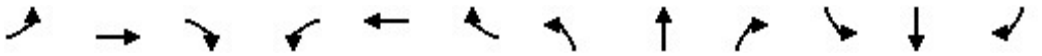
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	194	0	0	0	0	667
Future Volume (vph)	194	0	0	0	0	667
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	210	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				260	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.91
Ped Bike Factor						
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1671	0	0	0	0	4667
Flt Permitted	0.950					
Satd. Flow (perm)	1671	0	0	0	0	4667
Right Turn on Red	Yes	Yes		Yes		
Satd. Flow (RTOR)	254					
Link Speed (mph)	30		55			55
Link Distance (ft)	66		676			707
Travel Time (s)	1.5		8.4			8.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	0%	0%	0%	0%	17%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	223	0	0	0	0	767
Turn Type	Prot					NA
Protected Phases	2					1
Permitted Phases						
Detector Phase	2					1
Switch Phase						
Minimum Initial (s)	7.0					10.0
Minimum Split (s)	13.0					16.4
Total Split (s)	25.0					75.0
Total Split (%)	25.0%					75.0%
Yellow Time (s)	3.0					5.0
All-Red Time (s)	3.0					1.4
Lost Time Adjust (s)	0.0					0.0
Total Lost Time (s)	6.0					6.4
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max					C-Max
Act Effct Green (s)	19.0					68.6
Actuated g/C Ratio	0.19					0.69

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.43					0.24
Control Delay	15.7					2.5
Queue Delay	0.0					0.0
Total Delay	15.7					2.5
LOS	B					A
Approach Delay	15.7					2.5
Approach LOS	B					A
Queue Length 50th (ft)	46					18
Queue Length 95th (ft)	98					20
Internal Link Dist (ft)	1		596			627
Turn Bay Length (ft)						
Base Capacity (vph)	523					3201
Starvation Cap Reductn	0					0
Spillback Cap Reductn	0					0
Storage Cap Reductn	0					0
Reduced v/c Ratio	0.43					0.24

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 40 (40%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 5.5		Intersection LOS: A	
Intersection Capacity Utilization 59.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: SB Broadmoor Avenue & Middle U-Turn



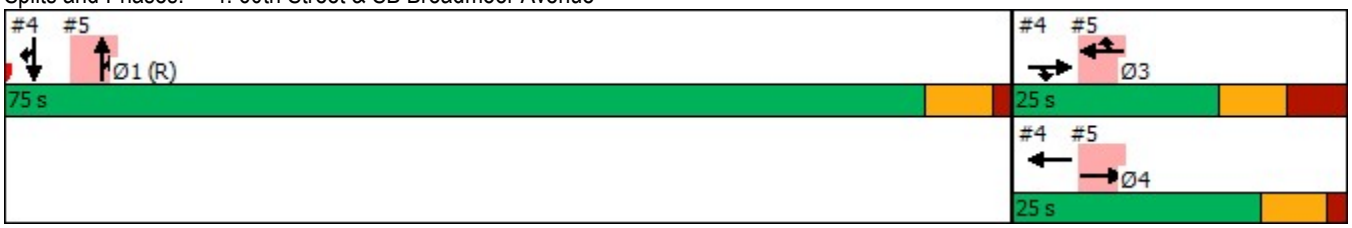


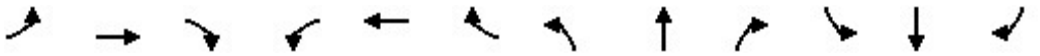
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	86	197	0	84	0	0	0	0	0	738	123
Future Volume (vph)	0	86	197	0	84	0	0	0	0	0	738	123
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		175	0		190	0		0	0		285
Storage Lanes	0		1	0		0	0		0	0		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850									0.850
Flt Protected												
Satd. Flow (prot)	0	1887	2309	0	1961	0	0	0	0	0	5931	1482
Flt Permitted												
Satd. Flow (perm)	0	1887	2309	0	1961	0	0	0	0	0	5931	1482
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			219									137
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		946			59			532			676	
Travel Time (s)		11.7			0.7			6.6			8.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	6%	19%	0%	2%	0%	0%	0%	0%	0%	16%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	96	219	0	93	0	0	0	0	0	820	137
Turn Type		NA	Prot		NA						NA	Prot
Protected Phases		3	3		4						1	1
Permitted Phases												
Detector Phase		3	3		4						1	1
Switch Phase												
Minimum Initial (s)		7.0	7.0		7.0						10.0	10.0
Minimum Split (s)		16.6	16.6		13.6						16.5	16.5
Total Split (s)		25.0	25.0		25.0						75.0	75.0
Total Split (%)		25.0%	25.0%		25.0%						75.0%	75.0%
Yellow Time (s)		5.0	5.0		5.0						5.0	5.0
All-Red Time (s)		4.6	4.6		1.6						1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0						0.0	0.0
Total Lost Time (s)		9.6	9.6		6.6						6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max		Max						C-Max	C-Max
Act Effct Green (s)		15.4	15.4		18.4						68.5	68.5
Actuated g/C Ratio		0.15	0.15		0.18						0.68	0.68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.33	0.41		0.26						0.20	0.13
Control Delay		41.3	7.8		1.7						4.7	0.8
Queue Delay		0.0	0.0		0.0						0.0	0.0
Total Delay		41.3	7.8		1.7						4.7	0.8
LOS		D	A		A						A	A
Approach Delay		18.0			1.7						4.2	
Approach LOS		B			A						A	
Queue Length 50th (ft)		55	0		1						37	0
Queue Length 95th (ft)		105	35		1						47	6
Internal Link Dist (ft)		866			1			452			596	
Turn Bay Length (ft)			175									285
Base Capacity (vph)		290	540		360						4062	1058
Starvation Cap Reductn		0	0		0						0	0
Spillback Cap Reductn		0	0		0						0	0
Storage Cap Reductn		0	0		0						0	0
Reduced v/c Ratio		0.33	0.41		0.26						0.20	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 32 (32%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 7.2		Intersection LOS: A	
Intersection Capacity Utilization 56.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: 60th Street & SB Broadmoor Avenue



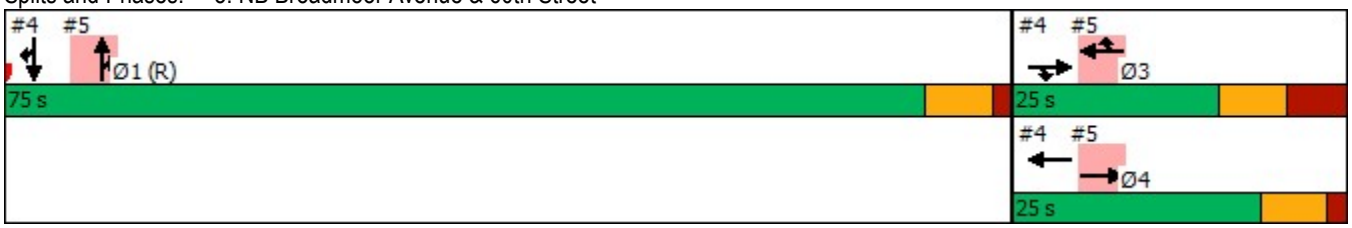


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	86	0	0	84	117	0	2051	247	0	0	0
Future Volume (vph)	0	86	0	0	84	117	0	2051	247	0	0	0
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		190	0		390	0		0
Storage Lanes	0		0	0		2	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850			0.850			
Flt Protected												
Satd. Flow (prot)	0	1887	0	0	1961	2656	0	5200	1524	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1887	0	0	1961	2656	0	5200	1524	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						38			274			
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		59			604			523			698	
Travel Time (s)		0.7			7.5			6.5			8.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	6%	0%	0%	2%	7%	0%	5%	6%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	96	0	0	93	130	0	2279	274	0	0	0
Turn Type		NA			NA	Prot		NA	Prot			
Protected Phases		4			3	3		1	1			
Permitted Phases												
Detector Phase		4			3	3		1	1			
Switch Phase												
Minimum Initial (s)		7.0			7.0	7.0		10.0	10.0			
Minimum Split (s)		13.6			16.6	16.6		16.5	16.5			
Total Split (s)		25.0			25.0	25.0		75.0	75.0			
Total Split (%)		25.0%			25.0%	25.0%		75.0%	75.0%			
Yellow Time (s)		5.0			5.0	5.0		5.0	5.0			
All-Red Time (s)		1.6			4.6	4.6		1.5	1.5			
Lost Time Adjust (s)		0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)		6.6			9.6	9.6		6.5	6.5			
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max			Max	Max		C-Max	C-Max			
Act Effct Green (s)		18.4			15.4	15.4		68.5	68.5			
Actuated g/C Ratio		0.18			0.15	0.15		0.68	0.68			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.28			0.31	0.29		0.64	0.24			
Control Delay		1.9			40.8	28.4		1.1	0.4			
Queue Delay		0.0			0.0	0.0		0.0	0.0			
Total Delay		1.9			40.8	28.4		1.1	0.4			
LOS		A			D	C		A	A			
Approach Delay		1.9			33.5			1.1				
Approach LOS		A			C			A				
Queue Length 50th (ft)		1			53	29		10	1			
Queue Length 95th (ft)		1			101	60		12	0			
Internal Link Dist (ft)		1			524			443			618	
Turn Bay Length (ft)						190			390			
Base Capacity (vph)		347			301	441		3562	1130			
Starvation Cap Reductn		0			0	0		0	0			
Spillback Cap Reductn		0			0	0		0	0			
Storage Cap Reductn		0			0	0		0	0			
Reduced v/c Ratio		0.28			0.31	0.29		0.64	0.24			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 32 (32%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 3.6		Intersection LOS: A	
Intersection Capacity Utilization 56.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: NB Broadmoor Avenue & 60th Street

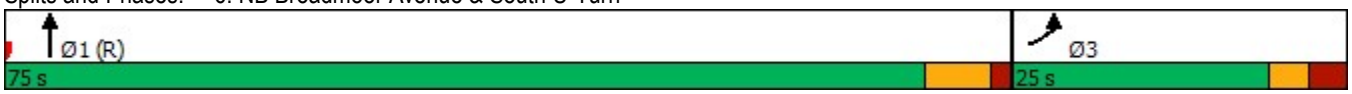


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	49	0	0	2249	0	0
Future Volume (vph)	49	0	0	2249	0	0
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	2	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3502	0	0	6552	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3502	0	0	6552	0	0
Right Turn on Red	Yes	Yes				Yes
Satd. Flow (RTOR)	14					
Link Speed (mph)	30			55	55	
Link Distance (ft)	62			358	523	
Travel Time (s)	1.4			4.4	6.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	0	2499	0	0
Turn Type	Prot			NA		
Protected Phases	3			1		
Permitted Phases						
Detector Phase	3			1		
Switch Phase						
Minimum Initial (s)	7.0			10.0		
Minimum Split (s)	13.0			16.6		
Total Split (s)	25.0			75.0		
Total Split (%)	25.0%			75.0%		
Yellow Time (s)	3.0			5.0		
All-Red Time (s)	3.0			1.6		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	6.0			6.6		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max			C-Max		
Act Effct Green (s)	19.0			68.4		
Actuated g/C Ratio	0.19			0.68		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.08			0.56		
Control Delay	26.9			3.0		
Queue Delay	0.0			0.4		
Total Delay	26.9			3.4		
LOS	C			A		
Approach Delay	26.9			3.4		
Approach LOS	C			A		
Queue Length 50th (ft)	13			52		
Queue Length 95th (ft)	30			59		
Internal Link Dist (ft)	1			278	443	
Turn Bay Length (ft)						
Base Capacity (vph)	676			4481		
Starvation Cap Reductn	0			1229		
Spillback Cap Reductn	0			0		
Storage Cap Reductn	0			0		
Reduced v/c Ratio	0.08			0.77		

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 31 (31%), Referenced to phase 1:NBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 3.9		Intersection LOS: A	
Intersection Capacity Utilization 50.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: NB Broadmoor Avenue & South U-Turn

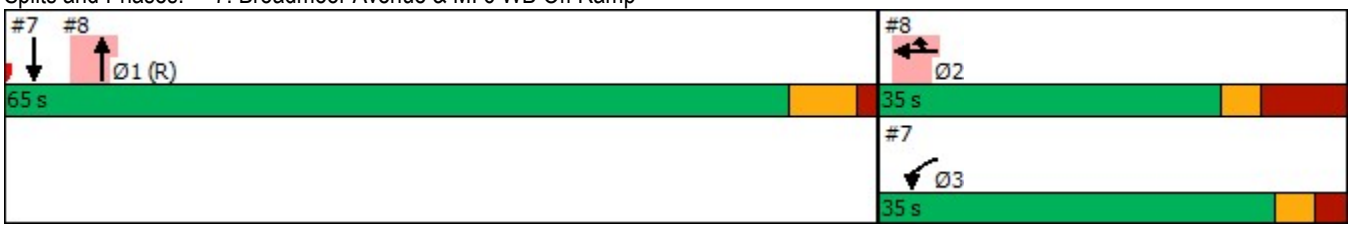


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
Lane Configurations							
Traffic Volume (vph)	235	0	0	0	0	428	
Future Volume (vph)	235	0	0	0	0	428	
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%		0%			0%	
Storage Length (ft)	0	0		0	0		
Storage Lanes	2	0		0	0		
Taper Length (ft)	0				25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.91	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3155	0	0	0	0	4789	
Flt Permitted	0.950						
Satd. Flow (perm)	3155	0	0	0	0	4789	
Right Turn on Red	Yes	Yes		Yes			
Satd. Flow (RTOR)	711						
Link Speed (mph)	30		55			55	
Link Distance (ft)	64		504			150	
Travel Time (s)	1.5		6.2			1.9	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	11%	0%	0%	0%	0%	14%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%		0%			0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	270	0	0	0	0	492	
Turn Type	Prot					NA	
Protected Phases	3					1	2
Permitted Phases							
Detector Phase	3					1	
Switch Phase							
Minimum Initial (s)	7.0					10.0	7.0
Minimum Split (s)	12.5					16.6	16.5
Total Split (s)	35.0					65.0	35.0
Total Split (%)	35.0%					65.0%	35%
Yellow Time (s)	3.0					5.0	3.0
All-Red Time (s)	2.5					1.6	6.5
Lost Time Adjust (s)	0.0					0.0	
Total Lost Time (s)	5.5					6.6	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max					C-Max	Max
Act Effct Green (s)	29.5					58.4	
Actuated g/C Ratio	0.30					0.58	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
v/c Ratio	0.19					0.18	
Control Delay	0.3					9.3	
Queue Delay	0.0					0.0	
Total Delay	0.3					9.3	
LOS	A					A	
Approach Delay	0.3					9.3	
Approach LOS	A					A	
Queue Length 50th (ft)	0					34	
Queue Length 95th (ft)	0					58	
Internal Link Dist (ft)	1		424			70	
Turn Bay Length (ft)							
Base Capacity (vph)	1431					2796	
Starvation Cap Reductn	0					0	
Spillback Cap Reductn	0					0	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.19					0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 6.1		Intersection LOS: A	
Intersection Capacity Utilization 62.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Broadmoor Avenue & MI 6 WB Off Ramp

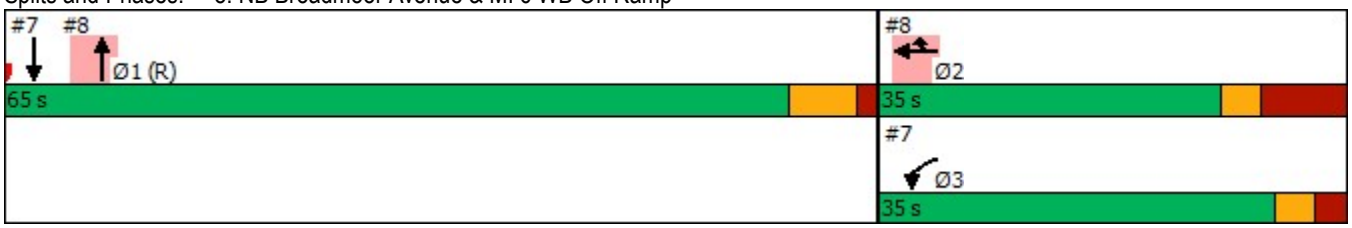


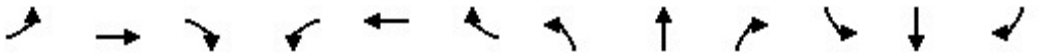
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	235	260	0	1989	0	0	0	0
Future Volume (vph)	0	0	0	0	235	260	0	1989	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	170		0	0		0	0		0
Storage Lanes	0		0	1		1	0		0	0		0
Taper Length (ft)	25			300			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.953	0.850						
Flt Protected												
Satd. Flow (prot)	0	0	0	0	2969	1324	0	4550	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	2969	1324	0	4550	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)					5	39						
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		64			495			1291			358	
Travel Time (s)		1.5			11.3			16.0			4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	11%	11%	0%	14%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)						41%						
Lane Group Flow (vph)	0	0	0	0	393	176	0	2286	0	0	0	0
Turn Type					NA	Prot		NA				
Protected Phases					2	2		1				
Permitted Phases												
Detector Phase					2	2		1				
Switch Phase												
Minimum Initial (s)					7.0	7.0		10.0				
Minimum Split (s)					16.5	16.5		16.6				
Total Split (s)					35.0	35.0		65.0				
Total Split (%)					35.0%	35.0%		65.0%				
Yellow Time (s)					3.0	3.0		5.0				
All-Red Time (s)					6.5	6.5		1.6				
Lost Time Adjust (s)					0.0	0.0		0.0				
Total Lost Time (s)					9.5	9.5		6.6				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode					Max	Max		C-Max				
Act Effct Green (s)					25.5	25.5		58.4				
Actuated g/C Ratio					0.26	0.26		0.58				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio					0.52	0.48		0.86				
Control Delay					34.4	29.5		21.7				
Queue Delay					0.0	0.0		0.0				
Total Delay					34.4	29.5		21.7				
LOS					C	C		C				
Approach Delay					32.9			21.7				
Approach LOS					C			C				
Queue Length 50th (ft)					117	80		549				
Queue Length 95th (ft)					159	147		517				
Internal Link Dist (ft)		1			415			1211			278	
Turn Bay Length (ft)												
Base Capacity (vph)					760	366		2657				
Starvation Cap Reductn					0	0		0				
Spillback Cap Reductn					0	0		0				
Storage Cap Reductn					0	0		0				
Reduced v/c Ratio					0.52	0.48		0.86				

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 24.0		Intersection LOS: C	
Intersection Capacity Utilization 62.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 8: NB Broadmoor Avenue & MI 6 WB Off Ramp



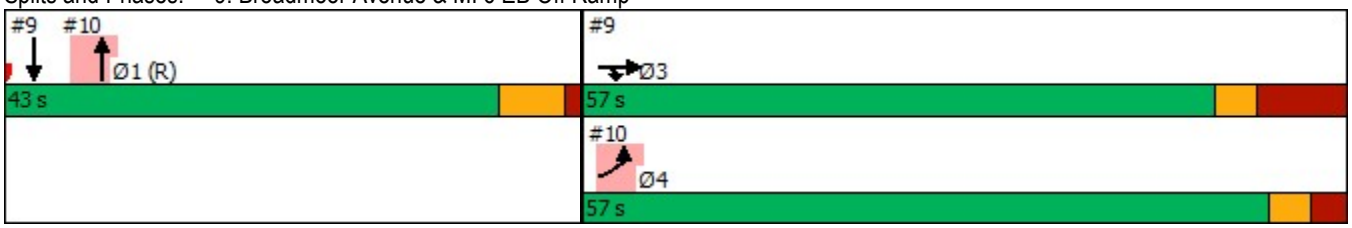


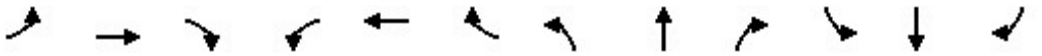
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1243	509	0	0	0	0	0	0	0	528	0
Future Volume (vph)	0	1243	509	0	0	0	0	0	0	0	528	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		185	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	185			25			25			25		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor												
Frt			0.850									
Flt Protected												
Satd. Flow (prot)	0	3374	2632	0	0	0	0	0	0	0	4964	0
Flt Permitted												
Satd. Flow (perm)	0	3374	2632	0	0	0	0	0	0	0	4964	0
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)			227									
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		677			77			864			776	
Travel Time (s)		15.4			1.8			10.7			9.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	7%	8%	0%	0%	0%	0%	0%	0%	0%	10%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1397	572	0	0	0	0	0	0	0	593	0
Turn Type		NA	Prot								NA	
Protected Phases		3	3								1	
Permitted Phases												
Detector Phase		3	3								1	
Switch Phase												
Minimum Initial (s)		7.0	7.0								10.0	
Minimum Split (s)		16.9	16.9								16.3	
Total Split (s)		57.0	57.0								43.0	
Total Split (%)		57.0%	57.0%								43.0%	
Yellow Time (s)		3.0	3.0								5.0	
All-Red Time (s)		6.9	6.9								1.3	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		9.9	9.9								6.3	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max								C-Max	
Act Effct Green (s)		47.1	47.1								36.7	
Actuated g/C Ratio		0.47	0.47								0.37	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.88	0.42								0.33	
Control Delay		31.8	11.1								18.1	
Queue Delay		0.3	0.0								0.0	
Total Delay		32.1	11.1								18.1	
LOS		C	B								B	
Approach Delay		26.0									18.1	
Approach LOS		C									B	
Queue Length 50th (ft)		408	75								98	
Queue Length 95th (ft)		504	118								110	
Internal Link Dist (ft)		597			1			784			696	
Turn Bay Length (ft)			185									
Base Capacity (vph)		1589	1359								1821	
Starvation Cap Reductn		0	0								0	
Spillback Cap Reductn		23	0								0	
Storage Cap Reductn		0	0								0	
Reduced v/c Ratio		0.89	0.42								0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 24.2		Intersection LOS: C	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 9: Broadmoor Avenue & MI 6 EB Off Ramp



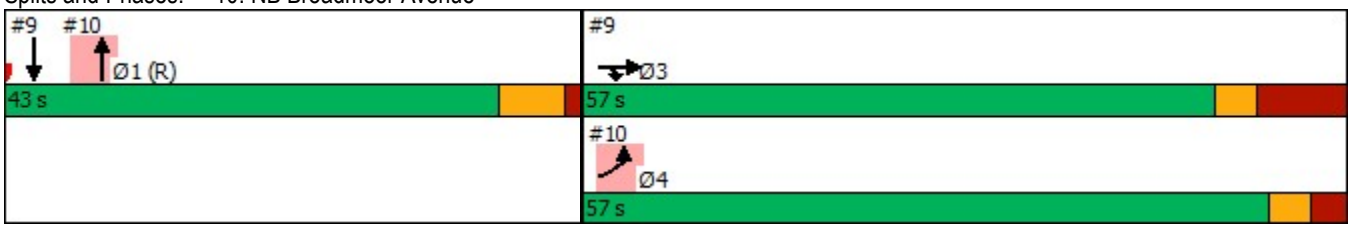


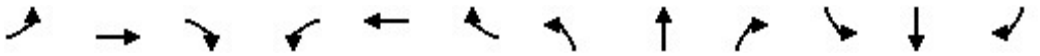
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1243	0	0	0	0	0	0	1215	363	0	0	0
Future Volume (vph)	1243	0	0	0	0	0	0	1215	363	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		150	0		0
Storage Lanes	2		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt									0.850			
Flt Protected	0.950											
Satd. Flow (prot)	3273	0	0	0	0	0	0	5036	1509	0	0	0
Flt Permitted	0.950											
Satd. Flow (perm)	3273	0	0	0	0	0	0	5036	1509	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	36								206			
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		77			517			871			1291	
Travel Time (s)		1.8			11.8			10.8			16.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	3%	7%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1397	0	0	0	0	0	0	1365	408	0	0	0
Turn Type	Prot							NA	Free			
Protected Phases	4							1				
Permitted Phases									Free			
Detector Phase	4							1				
Switch Phase												
Minimum Initial (s)	7.0							10.0				
Minimum Split (s)	12.9							16.3				
Total Split (s)	57.0							43.0				
Total Split (%)	57.0%							43.0%				
Yellow Time (s)	3.0							5.0				
All-Red Time (s)	2.9							1.3				
Lost Time Adjust (s)	0.0							0.0				
Total Lost Time (s)	5.9							6.3				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max							C-Max				
Act Effct Green (s)	51.1							36.7	100.0			
Actuated g/C Ratio	0.51							0.37	1.00			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.83							0.74	0.27			
Control Delay	3.6							30.4	0.4			
Queue Delay	0.0							0.0	0.0			
Total Delay	3.6							30.4	0.4			
LOS	A							C	A			
Approach Delay		3.6						23.5				
Approach LOS		A						C				
Queue Length 50th (ft)	12							273	0			
Queue Length 95th (ft)	10							323	0			
Internal Link Dist (ft)		1			437			791			1211	
Turn Bay Length (ft)									150			
Base Capacity (vph)	1690							1848	1509			
Starvation Cap Reductn	0							0	0			
Spillback Cap Reductn	0							0	0			
Storage Cap Reductn	0							0	0			
Reduced v/c Ratio	0.83							0.74	0.27			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 14.7		Intersection LOS: B	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 10: NB Broadmoor Avenue





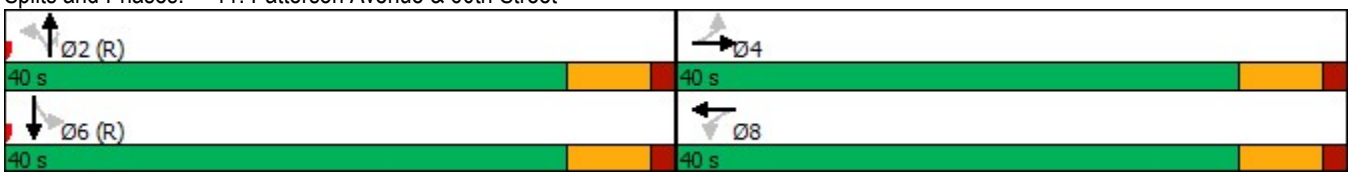
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	183	32	17	186	4	46	313	95	5	105	51
Future Volume (vph)	96	183	32	17	186	4	46	313	95	5	105	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	10	12	12	10	12	12	12	12	12	12	12	16
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	200		0	115		115	145		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	50			35			250			275		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.977			0.997				0.850		0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1478	3052	0	1685	3369	0	1736	1845	1417	1805	1669	0
Flt Permitted	0.609			0.592			0.639			0.444		
Satd. Flow (perm)	947	3052	0	1050	3369	0	1167	1845	1417	844	1669	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			3				114		37	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2458			946			2396			516	
Travel Time (s)		30.5			11.7			29.7			6.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	14%	16%	13%	0%	7%	0%	4%	3%	14%	0%	12%	18%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	259	0	20	229	0	55	377	114	6	188	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		16.5	16.5	16.5	16.5	16.5	
Total Split (s)	40.0	40.0		40.0	40.0		40.0	40.0	40.0	40.0	40.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	6.5	6.5	6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	33.5	33.5		33.5	33.5		33.5	33.5	33.5	33.5	33.5	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.42	0.42	0.42	0.42	0.42	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.29	0.20		0.05	0.16		0.11	0.49	0.17	0.02	0.26	
Control Delay	18.0	13.4		14.3	14.7		15.0	19.7	3.8	14.0	13.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.0	13.4		14.3	14.7		15.0	19.7	3.8	14.0	13.2	
LOS	B	B		B	B		B	B	A	B	B	
Approach Delay		14.8			14.7			15.9			13.2	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	37	36		6	35		16	133	0	2	47	
Queue Length 95th (ft)	69	55		17	53		36	188	24	8	81	
Internal Link Dist (ft)		2378			866			2316			436	
Turn Bay Length (ft)	150			200			115		115	145		
Base Capacity (vph)	396	1296		439	1412		488	772	659	353	720	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.29	0.20		0.05	0.16		0.11	0.49	0.17	0.02	0.26	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 11: Patterson Avenue & 60th Street



Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	6	10	403	155	39
Future Vol, veh/h	23	6	10	403	155	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	17	0	10	5	14	5
Mvmt Flow	27	7	12	474	182	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	703	205	228	0	-	0
Stage 1	205	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Critical Hdwy	6.57	6.2	4.2	-	-	-
Critical Hdwy Stg 1	5.57	-	-	-	-	-
Critical Hdwy Stg 2	5.57	-	-	-	-	-
Follow-up Hdwy	3.653	3.3	2.29	-	-	-
Pot Cap-1 Maneuver	382	841	1294	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	377	841	1294	-	-	-
Mov Cap-2 Maneuver	377	-	-	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	581	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.2	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1294	-	426	-	-
HCM Lane V/C Ratio	0.009	-	0.08	-	-
HCM Control Delay (s)	7.8	0	14.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Capacity Analysis Summary Sheets

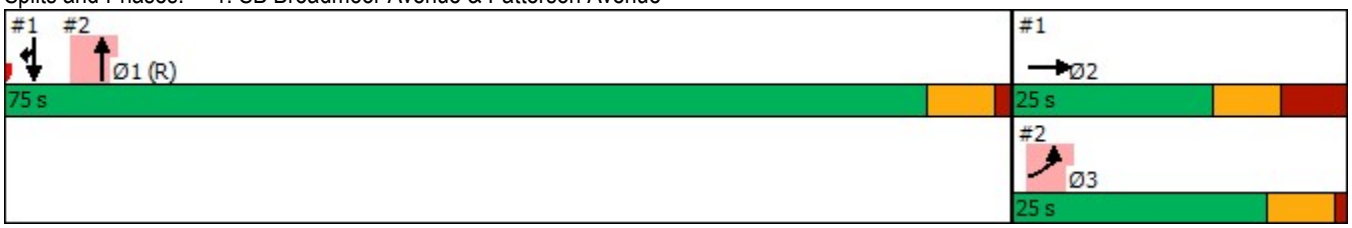
Existing Weekday Evening Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	225	26	0	0	0	0	0	0	0	2133	343
Future Volume (vph)	0	225	26	0	0	0	0	0	0	0	2133	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	135		0	0		0	0		0	0		365
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	215			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.984										0.850
Flt Protected												
Satd. Flow (prot)	0	3360	0	0	0	0	0	0	0	0	3689	1524
Flt Permitted												
Satd. Flow (perm)	0	3360	0	0	0	0	0	0	0	0	3689	1524
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)		10										365
Link Speed (mph)		55			30			55			55	
Link Distance (ft)		296			75			707			498	
Travel Time (s)		3.7			1.7			8.8			6.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	12%	0%	0%	0%	0%	0%	0%	0%	3%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	267	0	0	0	0	0	0	0	0	2269	365
Turn Type		NA									NA	Prot
Protected Phases		2									1	1
Permitted Phases												
Detector Phase		2									1	1
Switch Phase												
Minimum Initial (s)		7.0									10.0	10.0
Minimum Split (s)		17.1									16.4	16.4
Total Split (s)		25.0									75.0	75.0
Total Split (%)		25.0%									75.0%	75.0%
Yellow Time (s)		5.0									5.0	5.0
All-Red Time (s)		5.1									1.4	1.4
Lost Time Adjust (s)		0.0									0.0	0.0
Total Lost Time (s)		10.1									6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max									C-Max	C-Max
Act Effct Green (s)		14.9									68.6	68.6
Actuated g/C Ratio		0.15									0.69	0.69

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.52									0.90	0.31
Control Delay		41.9									19.1	1.3
Queue Delay		0.0									0.0	0.0
Total Delay		41.9									19.1	1.3
LOS		D									B	A
Approach Delay		41.9									16.6	
Approach LOS		D									B	
Queue Length 50th (ft)		80									547	0
Queue Length 95th (ft)		122									690	26
Internal Link Dist (ft)		216			1			627			418	
Turn Bay Length (ft)												365
Base Capacity (vph)		509									2530	1160
Starvation Cap Reductn		0									0	0
Spillback Cap Reductn		0									0	0
Storage Cap Reductn		0									0	0
Reduced v/c Ratio		0.52									0.90	0.31

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 78 (78%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 18.9		Intersection LOS: B	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: SB Broadmoor Avenue & Patterson Avenue

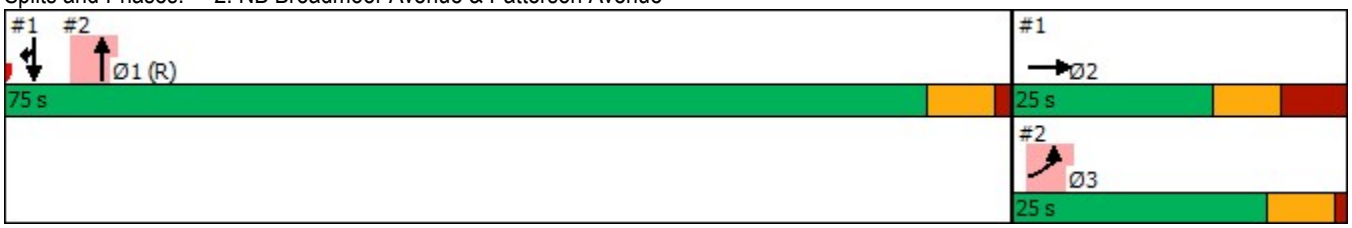


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	225	0	0	931	0	0	
Future Volume (vph)	225	0	0	931	0	0	
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)	0	0	0			0	
Storage Lanes	2	0	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	0.97	1.00	1.00	0.91	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3335	0	0	4964	0	0	
Flt Permitted	0.950						
Satd. Flow (perm)	3335	0	0	4964	0	0	
Right Turn on Red	Yes	Yes				Yes	
Satd. Flow (RTOR)	318						
Link Speed (mph)	30			55	55		
Link Distance (ft)	75			702	506		
Travel Time (s)	1.7			8.7	6.3		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	5%	0%	0%	10%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	239	0	0	990	0	0	
Turn Type	Prot			NA			
Protected Phases	3			1			2
Permitted Phases							
Detector Phase	3			1			
Switch Phase							
Minimum Initial (s)	7.0			10.0			7.0
Minimum Split (s)	13.1			16.4			17.1
Total Split (s)	25.0			75.0			25.0
Total Split (%)	25.0%			75.0%			25%
Yellow Time (s)	5.0			5.0			5.0
All-Red Time (s)	1.1			1.4			5.1
Lost Time Adjust (s)	0.0			0.0			
Total Lost Time (s)	6.1			6.4			
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max			C-Max			Max
Act Effct Green (s)	18.9			68.6			
Actuated g/C Ratio	0.19			0.69			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
v/c Ratio	0.27			0.29			
Control Delay	0.6			7.1			
Queue Delay	0.0			0.0			
Total Delay	0.6			7.1			
LOS	A			A			
Approach Delay	0.6			7.1			
Approach LOS	A			A			
Queue Length 50th (ft)	0			105			
Queue Length 95th (ft)	0			118			
Internal Link Dist (ft)	1			622	426		
Turn Bay Length (ft)							
Base Capacity (vph)	888			3405			
Starvation Cap Reductn	0			0			
Spillback Cap Reductn	0			0			
Storage Cap Reductn	0			0			
Reduced v/c Ratio	0.27			0.29			

Intersection Summary		
Area Type:	Other	
Cycle Length: 100		
Actuated Cycle Length: 100		
Offset: 78 (78%), Referenced to phase 1:SBT, Start of Green		
Natural Cycle: 75		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.90		
Intersection Signal Delay: 5.8		Intersection LOS: A
Intersection Capacity Utilization 76.8%		ICU Level of Service D
Analysis Period (min) 15		

Splits and Phases: 2: NB Broadmoor Avenue & Patterson Avenue

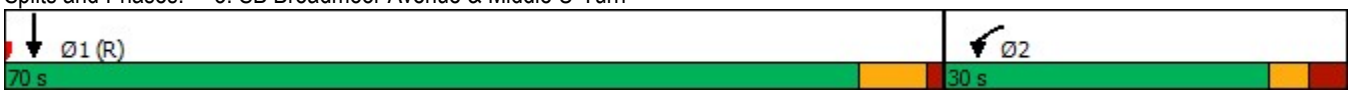


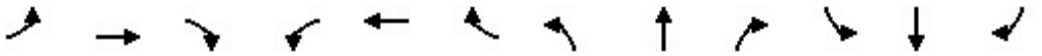
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	206	0	0	0	0	2159
Future Volume (vph)	206	0	0	0	0	2159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	210	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				260	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.91
Ped Bike Factor						
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1719	0	0	0	0	5301
Flt Permitted	0.950					
Satd. Flow (perm)	1719	0	0	0	0	5301
Right Turn on Red	Yes	Yes		Yes		
Satd. Flow (RTOR)	7					
Link Speed (mph)	30		55			55
Link Distance (ft)	66		676			707
Travel Time (s)	1.5		8.4			8.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	0%	0%	0%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	219	0	0	0	0	2297
Turn Type	Prot					NA
Protected Phases	2					1
Permitted Phases						
Detector Phase	2					1
Switch Phase						
Minimum Initial (s)	7.0					10.0
Minimum Split (s)	13.0					16.4
Total Split (s)	30.0					70.0
Total Split (%)	30.0%					70.0%
Yellow Time (s)	3.0					5.0
All-Red Time (s)	3.0					1.4
Lost Time Adjust (s)	0.0					0.0
Total Lost Time (s)	6.0					6.4
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max					C-Max
Act Effct Green (s)	24.0					63.6
Actuated g/C Ratio	0.24					0.64

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.53					0.68
Control Delay	28.1					2.9
Queue Delay	0.0					0.1
Total Delay	28.1					3.0
LOS	C					A
Approach Delay	28.1					3.0
Approach LOS	C					A
Queue Length 50th (ft)	121					34
Queue Length 95th (ft)	208					51
Internal Link Dist (ft)	1		596			627
Turn Bay Length (ft)						
Base Capacity (vph)	417					3371
Starvation Cap Reductn	0					205
Spillback Cap Reductn	0					0
Storage Cap Reductn	0					0
Reduced v/c Ratio	0.53					0.73

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 87 (87%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 5.2		Intersection LOS: A	
Intersection Capacity Utilization 66.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: SB Broadmoor Avenue & Middle U-Turn





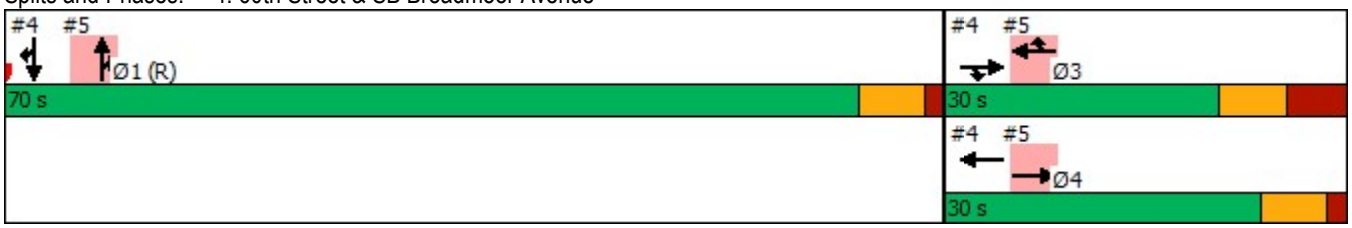
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	109	297	0	122	0	0	0	0	0	2295	70
Future Volume (vph)	0	109	297	0	122	0	0	0	0	0	2295	70
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		175	0		190	0		0	0		285
Storage Lanes	0		1	0		0	0		0	0		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850									0.850
Flt Protected												
Satd. Flow (prot)	0	1961	2568	0	1961	0	0	0	0	0	6680	1392
Flt Permitted												
Satd. Flow (perm)	0	1961	2568	0	1961	0	0	0	0	0	6680	1392
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			38									74
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		946			59			532			676	
Travel Time (s)		11.7			0.7			6.6			8.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	7%	0%	2%	0%	0%	0%	0%	0%	3%	16%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	313	0	128	0	0	0	0	0	2416	74
Turn Type		NA	Prot		NA						NA	Prot
Protected Phases		3	3		4						1	1
Permitted Phases												
Detector Phase		3	3		4						1	1
Switch Phase												
Minimum Initial (s)		7.0	7.0		7.0						10.0	10.0
Minimum Split (s)		16.6	16.6		13.6						16.5	16.5
Total Split (s)		30.0	30.0		30.0						70.0	70.0
Total Split (%)		30.0%	30.0%		30.0%						70.0%	70.0%
Yellow Time (s)		5.0	5.0		5.0						5.0	5.0
All-Red Time (s)		4.6	4.6		1.6						1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0						0.0	0.0
Total Lost Time (s)		9.6	9.6		6.6						6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max		Max						C-Max	C-Max
Act Effct Green (s)		20.4	20.4		23.4						63.5	63.5
Actuated g/C Ratio		0.20	0.20		0.23						0.64	0.64

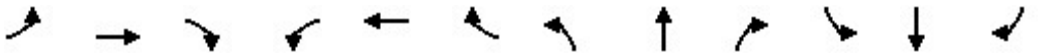
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.29	0.56		0.28						0.57	0.08
Control Delay		36.0	35.8		1.5						3.1	0.1
Queue Delay		0.0	0.0		0.0						0.0	0.0
Total Delay		36.0	35.8		1.5						3.1	0.1
LOS		D	D		A						A	A
Approach Delay		35.9			1.5						3.0	
Approach LOS		D			A						A	
Queue Length 50th (ft)		62	89		1						41	0
Queue Length 95th (ft)		113	139		1						45	m1
Internal Link Dist (ft)		866			1			452			596	
Turn Bay Length (ft)			175									285
Base Capacity (vph)		400	554		458						4241	910
Starvation Cap Reductn		0	0		0						0	0
Spillback Cap Reductn		0	0		0						0	0
Storage Cap Reductn		0	0		0						0	0
Reduced v/c Ratio		0.29	0.56		0.28						0.57	0.08

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 96 (96%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 55.4%		ICU Level of Service B	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: 60th Street & SB Broadmoor Avenue



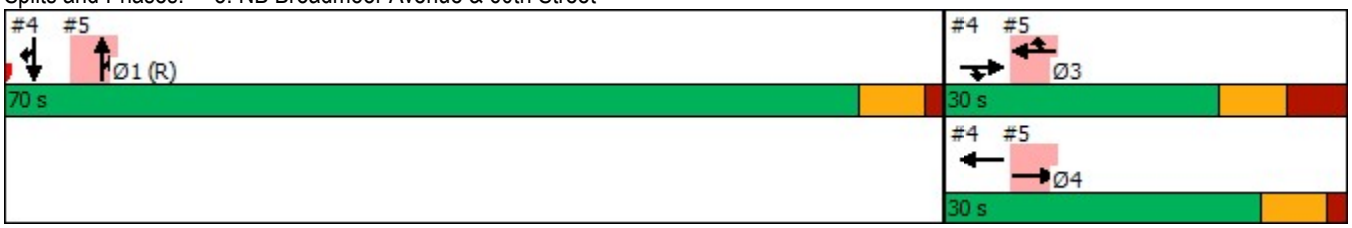


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	109	0	0	122	197	0	940	148	0	0	0
Future Volume (vph)	0	109	0	0	122	197	0	940	148	0	0	0
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		190	0		390	0		0
Storage Lanes	0		0	0		2	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850			0.850			
Flt Protected												
Satd. Flow (prot)	0	1961	0	0	1961	2760	0	4964	1417	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1961	0	0	1961	2760	0	4964	1417	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						207			156			
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		59			604			523			698	
Travel Time (s)		0.7			7.5			6.5			8.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	0%	2%	3%	0%	10%	14%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	0	0	128	207	0	989	156	0	0	0
Turn Type		NA			NA	Prot		NA	Prot			
Protected Phases		4			3	3		1	1			
Permitted Phases												
Detector Phase		4			3	3		1	1			
Switch Phase												
Minimum Initial (s)		7.0			7.0	7.0		10.0	10.0			
Minimum Split (s)		13.6			16.6	16.6		16.5	16.5			
Total Split (s)		30.0			30.0	30.0		70.0	70.0			
Total Split (%)		30.0%			30.0%	30.0%		70.0%	70.0%			
Yellow Time (s)		5.0			5.0	5.0		5.0	5.0			
All-Red Time (s)		1.6			4.6	4.6		1.5	1.5			
Lost Time Adjust (s)		0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)		6.6			9.6	9.6		6.5	6.5			
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max			Max	Max		C-Max	C-Max			
Act Effct Green (s)		23.4			20.4	20.4		63.5	63.5			
Actuated g/C Ratio		0.23			0.20	0.20		0.64	0.64			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.25			0.32	0.28		0.31	0.16			
Control Delay		1.3			36.5	5.9		3.3	0.4			
Queue Delay		0.0			0.0	0.0		0.0	0.0			
Total Delay		1.3			36.5	5.9		3.3	0.4			
LOS		A			D	A		A	A			
Approach Delay		1.3			17.6			2.9				
Approach LOS		A			B			A				
Queue Length 50th (ft)		1			70	0		26	0			
Queue Length 95th (ft)		1			124	32		30	1			
Internal Link Dist (ft)		1			524			443			618	
Turn Bay Length (ft)						190			390			
Base Capacity (vph)		458			400	727		3152	956			
Starvation Cap Reductn		0			0	0		0	0			
Spillback Cap Reductn		0			0	0		0	0			
Storage Cap Reductn		0			0	0		0	0			
Reduced v/c Ratio		0.25			0.32	0.28		0.31	0.16			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 96 (96%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 5.9		Intersection LOS: A	
Intersection Capacity Utilization 55.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: NB Broadmoor Avenue & 60th Street



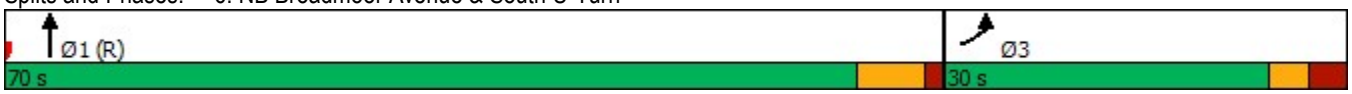
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	29	0	0	1059	0	0
Future Volume (vph)	29	0	0	1059	0	0
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	2	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3502	0	0	6198	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3502	0	0	6198	0	0
Right Turn on Red	Yes	Yes				Yes
Satd. Flow (RTOR)	206					
Link Speed (mph)	30			55	55	
Link Distance (ft)	62			358	523	
Travel Time (s)	1.4			4.4	6.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	0	0	1115	0	0
Turn Type	Prot			NA		
Protected Phases	3			1		
Permitted Phases						
Detector Phase	3			1		
Switch Phase						
Minimum Initial (s)	7.0			10.0		
Minimum Split (s)	13.0			16.6		
Total Split (s)	30.0			70.0		
Total Split (%)	30.0%			70.0%		
Yellow Time (s)	3.0			5.0		
All-Red Time (s)	3.0			1.6		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	6.0			6.6		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max			C-Max		
Act Effct Green (s)	24.0			63.4		
Actuated g/C Ratio	0.24			0.63		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.03			0.28		
Control Delay	0.0			1.4		
Queue Delay	0.0			0.0		
Total Delay	0.0			1.4		
LOS	A			A		
Approach Delay				1.4		
Approach LOS				A		
Queue Length 50th (ft)	0			8		
Queue Length 95th (ft)	m0			16		
Internal Link Dist (ft)	1			278	443	
Turn Bay Length (ft)						
Base Capacity (vph)	997			3929		
Starvation Cap Reductn	0			0		
Spillback Cap Reductn	0			0		
Storage Cap Reductn	0			0		
Reduced v/c Ratio	0.03			0.28		

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 5 (5%), Referenced to phase 1:NBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.28			
Intersection Signal Delay: 1.3		Intersection LOS: A	
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: NB Broadmoor Avenue & South U-Turn

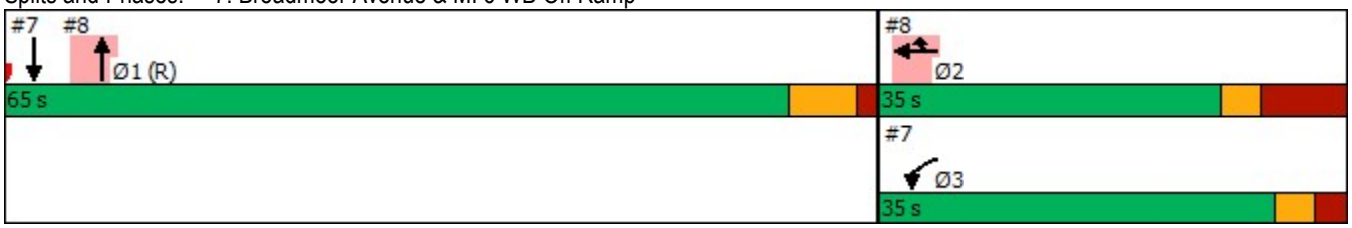


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
Lane Configurations							
Traffic Volume (vph)	290	0	0	0	0	1000	
Future Volume (vph)	290	0	0	0	0	1000	
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%		0%			0%	
Storage Length (ft)	0	0		0	0		
Storage Lanes	2	0		0	0		
Taper Length (ft)	0				25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.91	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3367	0	0	0	0	5301	
Flt Permitted	0.950						
Satd. Flow (perm)	3367	0	0	0	0	5301	
Right Turn on Red	Yes	Yes		Yes			
Satd. Flow (RTOR)	174						
Link Speed (mph)	30		55			55	
Link Distance (ft)	64		504			150	
Travel Time (s)	1.5		6.2			1.9	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	4%	0%	0%	0%	0%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%		0%			0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	319	0	0	0	0	1099	
Turn Type	Prot					NA	
Protected Phases	3					1	2
Permitted Phases							
Detector Phase	3					1	
Switch Phase							
Minimum Initial (s)	7.0					10.0	7.0
Minimum Split (s)	12.5					16.6	16.5
Total Split (s)	35.0					65.0	35.0
Total Split (%)	35.0%					65.0%	35%
Yellow Time (s)	3.0					5.0	3.0
All-Red Time (s)	2.5					1.6	6.5
Lost Time Adjust (s)	0.0					0.0	
Total Lost Time (s)	5.5					6.6	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max					C-Max	Max
Act Effct Green (s)	29.5					58.4	
Actuated g/C Ratio	0.30					0.58	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
v/c Ratio	0.29					0.36	
Control Delay	0.6					5.2	
Queue Delay	0.0					0.0	
Total Delay	0.6					5.2	
LOS	A					A	
Approach Delay	0.6					5.2	
Approach LOS	A					A	
Queue Length 50th (ft)	0					43	
Queue Length 95th (ft)	0					57	
Internal Link Dist (ft)	1		424			70	
Turn Bay Length (ft)							
Base Capacity (vph)	1115					3095	
Starvation Cap Reductn	0					0	
Spillback Cap Reductn	0					0	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.29					0.36	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 7 (7%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 4.2		Intersection LOS: A	
Intersection Capacity Utilization 41.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 7: Broadmoor Avenue & MI 6 WB Off Ramp

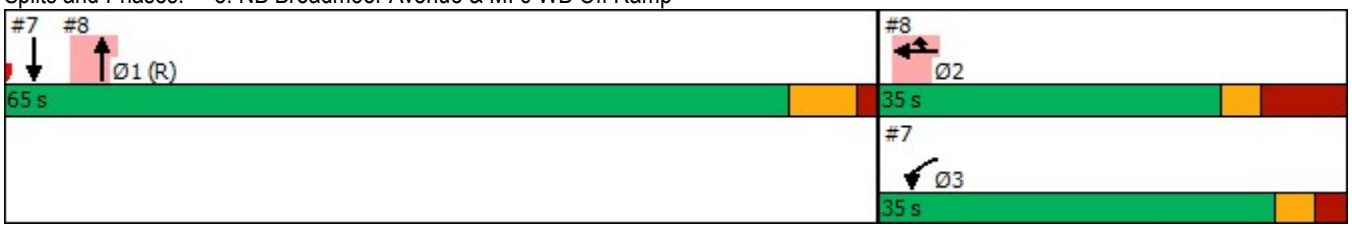


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	290	101	0	958	0	0	0	0
Future Volume (vph)	0	0	0	0	290	101	0	958	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	170		0	0		0	0		0
Storage Lanes	0		0	1		1	0		0	0		0
Taper Length (ft)	25			300			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.995	0.850						
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3285	1166	0	4759	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3285	1166	0	4759	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)					3	100						
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		64			495			1291			358	
Travel Time (s)		1.5			11.3			16.0			4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	4%	26%	0%	9%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	0	0	0	0	330	100	0	1053	0	0	0	0
Turn Type					NA	Prot		NA				
Protected Phases					2	2		1				
Permitted Phases												
Detector Phase					2	2		1				
Switch Phase												
Minimum Initial (s)					7.0	7.0		10.0				
Minimum Split (s)					16.5	16.5		16.6				
Total Split (s)					35.0	35.0		65.0				
Total Split (%)					35.0%	35.0%		65.0%				
Yellow Time (s)					3.0	3.0		5.0				
All-Red Time (s)					6.5	6.5		1.6				
Lost Time Adjust (s)					0.0	0.0		0.0				
Total Lost Time (s)					9.5	9.5		6.6				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode					Max	Max		C-Max				
Act Effct Green (s)					25.5	25.5		58.4				
Actuated g/C Ratio					0.26	0.26		0.58				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio					0.39	0.27		0.38				
Control Delay					32.2	8.2		8.2				
Queue Delay					0.0	0.0		0.0				
Total Delay					32.2	8.2		8.2				
LOS					C	A		A				
Approach Delay					26.6			8.2				
Approach LOS					C			A				
Queue Length 50th (ft)					95	0		122				
Queue Length 95th (ft)					137	43		121				
Internal Link Dist (ft)		1			415			1211			278	
Turn Bay Length (ft)												
Base Capacity (vph)					839	371		2779				
Starvation Cap Reductn					0	0		0				
Spillback Cap Reductn					0	0		0				
Storage Cap Reductn					0	0		0				
Reduced v/c Ratio					0.39	0.27		0.38				

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 7 (7%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 41.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: NB Broadmoor Avenue & MI 6 WB Off Ramp

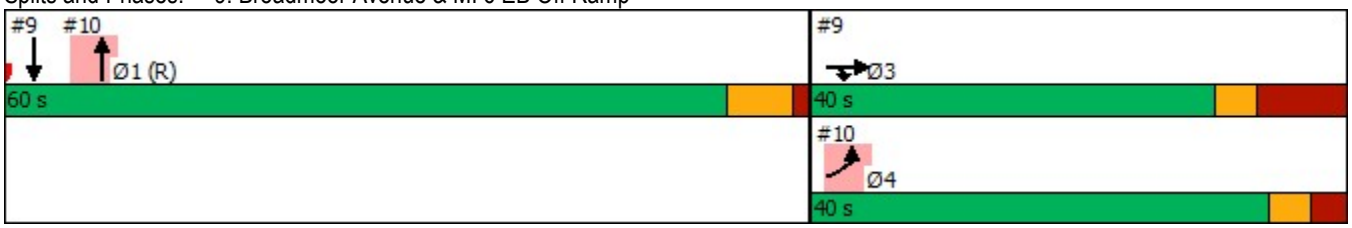


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱↱								↑↑↑	
Traffic Volume (vph)	0	505	550	0	0	0	0	0	0	0	1060	0
Future Volume (vph)	0	505	550	0	0	0	0	0	0	0	1060	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		185	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	185			25			25			25		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor												
Frt			0.850									
Flt Protected												
Satd. Flow (prot)	0	3195	2760	0	0	0	0	0	0	0	5301	0
Flt Permitted												
Satd. Flow (perm)	0	3195	2760	0	0	0	0	0	0	0	5301	0
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)			116									
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		677			77			864			776	
Travel Time (s)		15.4			1.8			10.7			9.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	13%	3%	0%	0%	0%	0%	0%	0%	0%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	537	585	0	0	0	0	0	0	0	1128	0
Turn Type		NA	Prot								NA	
Protected Phases		3	3								1	
Permitted Phases												
Detector Phase		3	3								1	
Switch Phase												
Minimum Initial (s)		7.0	7.0								10.0	
Minimum Split (s)		16.9	16.9								16.3	
Total Split (s)		40.0	40.0								60.0	
Total Split (%)		40.0%	40.0%								60.0%	
Yellow Time (s)		3.0	3.0								5.0	
All-Red Time (s)		6.9	6.9								1.3	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		9.9	9.9								6.3	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max								C-Max	
Act Effct Green (s)		30.1	30.1								53.7	
Actuated g/C Ratio		0.30	0.30								0.54	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.56	0.64								0.40	
Control Delay		32.1	27.7								9.8	
Queue Delay		0.0	0.0								0.0	
Total Delay		32.1	27.7								9.8	
LOS		C	C								A	
Approach Delay		29.8									9.8	
Approach LOS		C									A	
Queue Length 50th (ft)		151	146								82	
Queue Length 95th (ft)		205	211								103	
Internal Link Dist (ft)		597			1			784			696	
Turn Bay Length (ft)			185									
Base Capacity (vph)		961	911								2846	
Starvation Cap Reductn		0	0								0	
Spillback Cap Reductn		0	0								0	
Storage Cap Reductn		0	0								0	
Reduced v/c Ratio		0.56	0.64								0.40	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 18 (18%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 19.7		Intersection LOS: B	
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 9: Broadmoor Avenue & MI 6 EB Off Ramp

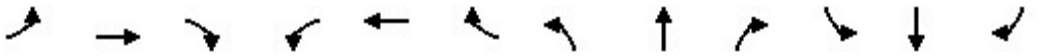


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	505	0	0	0	0	0	0	855	269	0	0	0
Future Volume (vph)	505	0	0	0	0	0	0	855	269	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		150	0		0
Storage Lanes	2		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt									0.850			
Flt Protected	0.950											
Satd. Flow (prot)	3099	0	0	0	0	0	0	5036	1583	0	0	0
Flt Permitted	0.950											
Satd. Flow (perm)	3099	0	0	0	0	0	0	5036	1583	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	225								216			
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		77			517			871			1291	
Travel Time (s)		1.8			11.8			10.8			16.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	537	0	0	0	0	0	0	910	286	0	0	0
Turn Type	Prot							NA	Free			
Protected Phases	4							1				
Permitted Phases									Free			
Detector Phase	4							1				
Switch Phase												
Minimum Initial (s)	7.0							10.0				
Minimum Split (s)	12.9							16.3				
Total Split (s)	40.0							60.0				
Total Split (%)	40.0%							60.0%				
Yellow Time (s)	3.0							5.0				
All-Red Time (s)	2.9							1.3				
Lost Time Adjust (s)	0.0							0.0				
Total Lost Time (s)	5.9							6.3				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max							C-Max				
Act Effct Green (s)	34.1							53.7	100.0			
Actuated g/C Ratio	0.34							0.54	1.00			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.45							0.34	0.18			
Control Delay	1.2							13.5	0.2			
Queue Delay	0.0							0.0	0.0			
Total Delay	1.2							13.5	0.2			
LOS	A							B	A			
Approach Delay		1.2						10.3				
Approach LOS		A						B				
Queue Length 50th (ft)	3							113	0			
Queue Length 95th (ft)	0							142	0			
Internal Link Dist (ft)		1			437			791			1211	
Turn Bay Length (ft)									150			
Base Capacity (vph)	1205							2704	1583			
Starvation Cap Reductn	0							0	0			
Spillback Cap Reductn	0							0	0			
Storage Cap Reductn	0							0	0			
Reduced v/c Ratio	0.45							0.34	0.18			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 18 (18%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 7.5		Intersection LOS: A	
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: NB Broadmoor Avenue



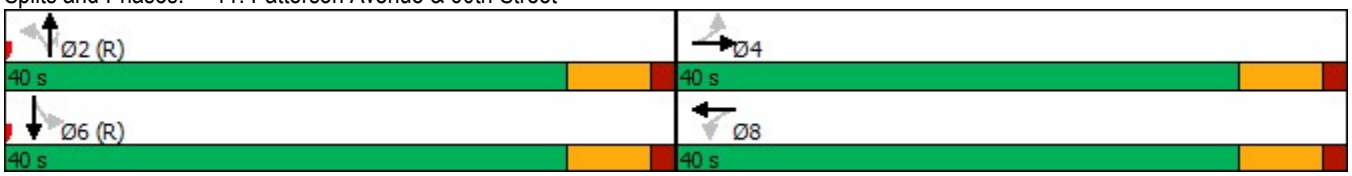
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	285	72	19	163	10	33	127	95	26	220	106
Future Volume (vph)	84	285	72	19	163	10	33	127	95	26	220	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	10	12	12	10	12	12	12	12	12	12	12	16
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	200		0	115		115	145		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	50			35			250			275		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.970			0.991				0.850		0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1589	3367	0	1685	3338	0	1805	1810	1482	1736	1789	0
Flt Permitted	0.633			0.522			0.469			0.669		
Satd. Flow (perm)	1059	3367	0	926	3338	0	891	1810	1482	1222	1789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			10				103		37	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2458			946			2396			516	
Travel Time (s)		30.5			11.7			29.7			6.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	5%	0%	0%	7%	10%	0%	5%	9%	4%	5%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	388	0	21	188	0	36	138	103	28	354	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		16.5	16.5	16.5	16.5	16.5	
Total Split (s)	40.0	40.0		40.0	40.0		40.0	40.0	40.0	40.0	40.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	6.5	6.5	6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	33.5	33.5		33.5	33.5		33.5	33.5	33.5	33.5	33.5	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.42	0.42	0.42	0.42	0.42	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.21	0.27		0.05	0.13		0.10	0.18	0.15	0.05	0.46	
Control Delay	16.4	13.8		14.5	13.9		15.1	15.5	3.9	14.3	17.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.4	13.8		14.5	13.9		15.1	15.5	3.9	14.3	17.2	
LOS	B	B		B	B		B	B	A	B	B	
Approach Delay		14.3			13.9			11.1			17.0	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	28	56		6	27		11	42	0	8	109	
Queue Length 95th (ft)	59	86		20	47		29	78	27	23	182	
Internal Link Dist (ft)		2378			866			2316			436	
Turn Bay Length (ft)	150			200			115		115	145		
Base Capacity (vph)	443	1437		387	1403		373	757	680	511	770	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.21	0.27		0.05	0.13		0.10	0.18	0.15	0.05	0.46	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 14.4 Intersection LOS: B
Intersection Capacity Utilization 59.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 11: Patterson Avenue & 60th Street



Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	21	4	217	331	12
Future Vol, veh/h	34	21	4	217	331	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	6	0	0	6	7	0
Mvmt Flow	42	26	5	268	409	15

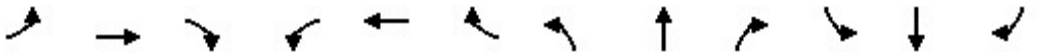
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	695	417	424	0	-	0
Stage 1	417	-	-	-	-	-
Stage 2	278	-	-	-	-	-
Critical Hdwy	6.46	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	402	640	1146	-	-	-
Stage 1	657	-	-	-	-	-
Stage 2	760	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	400	640	1146	-	-	-
Mov Cap-2 Maneuver	400	-	-	-	-	-
Stage 1	654	-	-	-	-	-
Stage 2	760	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1146	-	467	-	-
HCM Lane V/C Ratio	0.004	-	0.145	-	-
HCM Control Delay (s)	8.2	0	14	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Capacity Analysis Summary Sheets

No Build Weekday Morning Peak Hour Conditions

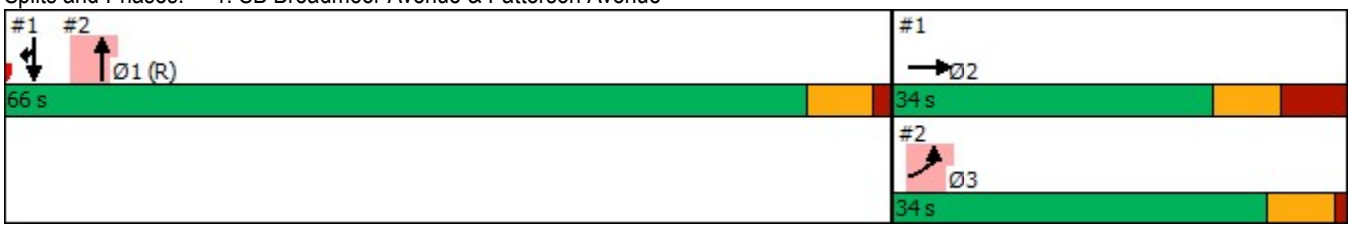


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	429	13	0	0	0	0	0	0	0	679	200
Future Volume (vph)	0	429	13	0	0	0	0	0	0	0	679	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	135		0	0		0	0		0	0		365
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	215			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.996										0.850
Flt Protected												
Satd. Flow (prot)	0	3384	0	0	0	0	0	0	0	0	3248	1442
Flt Permitted												
Satd. Flow (perm)	0	3384	0	0	0	0	0	0	0	0	3248	1442
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)		3										230
Link Speed (mph)		55			30			55			55	
Link Distance (ft)		296			75			707			498	
Travel Time (s)		3.7			1.7			8.8			6.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	6%	15%	0%	0%	0%	0%	0%	0%	0%	17%	12%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	508	0	0	0	0	0	0	0	0	780	230
Turn Type		NA									NA	Prot
Protected Phases		2									1	1
Permitted Phases												
Detector Phase		2									1	1
Switch Phase												
Minimum Initial (s)		7.0									10.0	10.0
Minimum Split (s)		17.1									16.4	16.4
Total Split (s)		34.0									66.0	66.0
Total Split (%)		34.0%									66.0%	66.0%
Yellow Time (s)		5.0									5.0	5.0
All-Red Time (s)		5.1									1.4	1.4
Lost Time Adjust (s)		0.0									0.0	0.0
Total Lost Time (s)		10.1									6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max									C-Max	C-Max
Act Effct Green (s)		23.9									59.6	59.6
Actuated g/C Ratio		0.24									0.60	0.60

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.63									0.40	0.24
Control Delay		37.8									11.5	1.9
Queue Delay		0.0									0.0	0.0
Total Delay		37.8									11.5	1.9
LOS		D									B	A
Approach Delay		37.8									9.3	
Approach LOS		D									A	
Queue Length 50th (ft)		152									128	0
Queue Length 95th (ft)		198									161	26
Internal Link Dist (ft)		216			1			627			418	
Turn Bay Length (ft)												365
Base Capacity (vph)		811									1935	952
Starvation Cap Reductn		0									0	0
Spillback Cap Reductn		0									0	0
Storage Cap Reductn		0									0	0
Reduced v/c Ratio		0.63									0.40	0.24

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 48 (48%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 18.9		Intersection LOS: B	
Intersection Capacity Utilization 60.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: SB Broadmoor Avenue & Patterson Avenue

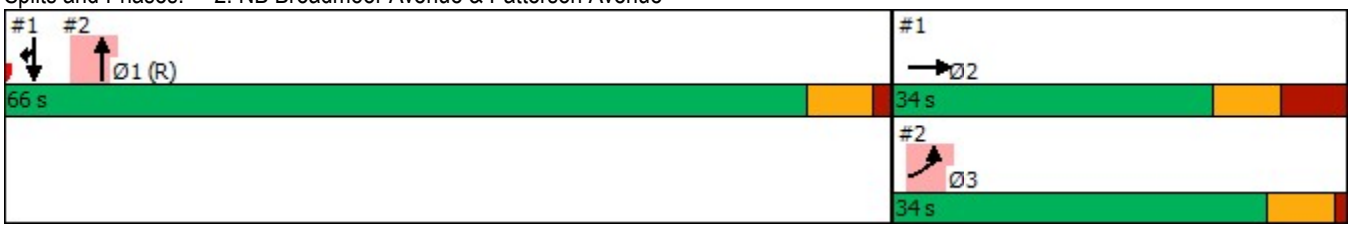


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	429	0	0	2047	0	0	
Future Volume (vph)	429	0	0	2047	0	0	
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)	0	0	0			0	
Storage Lanes	2	0	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	0.97	1.00	1.00	0.91	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3303	0	0	5200	0	0	
Flt Permitted	0.950						
Satd. Flow (perm)	3303	0	0	5200	0	0	
Right Turn on Red	Yes	Yes				Yes	
Satd. Flow (RTOR)	9						
Link Speed (mph)	30			55	55		
Link Distance (ft)	75			702	506		
Travel Time (s)	1.7			8.7	6.3		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	6%	0%	0%	5%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	493	0	0	2353	0	0	
Turn Type	Prot			NA			
Protected Phases	3			1			2
Permitted Phases							
Detector Phase	3			1			
Switch Phase							
Minimum Initial (s)	7.0			10.0			7.0
Minimum Split (s)	13.1			16.4			17.1
Total Split (s)	34.0			66.0			34.0
Total Split (%)	34.0%			66.0%			34%
Yellow Time (s)	5.0			5.0			5.0
All-Red Time (s)	1.1			1.4			5.1
Lost Time Adjust (s)	0.0			0.0			
Total Lost Time (s)	6.1			6.4			
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max			C-Max			Max
Act Effct Green (s)	27.9			59.6			
Actuated g/C Ratio	0.28			0.60			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
v/c Ratio	0.53			0.76			
Control Delay	1.7			5.6			
Queue Delay	0.0			0.0			
Total Delay	1.7			5.6			
LOS	A			A			
Approach Delay	1.7			5.6			
Approach LOS	A			A			
Queue Length 50th (ft)	0			60			
Queue Length 95th (ft)	0			127			
Internal Link Dist (ft)	1			622	426		
Turn Bay Length (ft)							
Base Capacity (vph)	928			3099			
Starvation Cap Reductn	0			0			
Spillback Cap Reductn	0			0			
Storage Cap Reductn	0			0			
Reduced v/c Ratio	0.53			0.76			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 48 (48%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 4.9		Intersection LOS: A	
Intersection Capacity Utilization 60.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: NB Broadmoor Avenue & Patterson Avenue

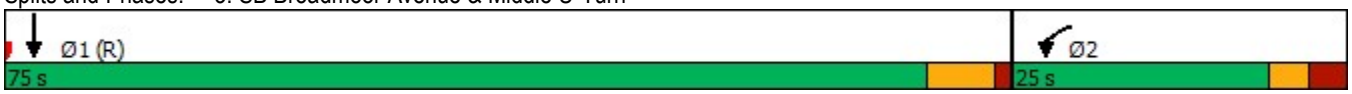


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	201	0	0	0	0	692
Future Volume (vph)	201	0	0	0	0	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	210	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				260	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.91
Ped Bike Factor						
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1671	0	0	0	0	4667
Flt Permitted	0.950					
Satd. Flow (perm)	1671	0	0	0	0	4667
Right Turn on Red	Yes	Yes		Yes		
Satd. Flow (RTOR)	241					
Link Speed (mph)	30		55			55
Link Distance (ft)	66		676			707
Travel Time (s)	1.5		8.4			8.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	0%	0%	0%	0%	17%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	231	0	0	0	0	795
Turn Type	Prot					NA
Protected Phases	2					1
Permitted Phases						
Detector Phase	2					1
Switch Phase						
Minimum Initial (s)	7.0					10.0
Minimum Split (s)	13.0					16.4
Total Split (s)	25.0					75.0
Total Split (%)	25.0%					75.0%
Yellow Time (s)	3.0					5.0
All-Red Time (s)	3.0					1.4
Lost Time Adjust (s)	0.0					0.0
Total Lost Time (s)	6.0					6.4
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max					C-Max
Act Effct Green (s)	19.0					68.6
Actuated g/C Ratio	0.19					0.69

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.45					0.25
Control Delay	17.4					2.5
Queue Delay	0.0					0.0
Total Delay	17.4					2.5
LOS	B					A
Approach Delay	17.4					2.5
Approach LOS	B					A
Queue Length 50th (ft)	54					18
Queue Length 95th (ft)	109					21
Internal Link Dist (ft)	1		596			627
Turn Bay Length (ft)						
Base Capacity (vph)	512					3201
Starvation Cap Reductn	0					0
Spillback Cap Reductn	0					0
Storage Cap Reductn	0					0
Reduced v/c Ratio	0.45					0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 40 (40%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 5.9		Intersection LOS: A	
Intersection Capacity Utilization 60.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: SB Broadmoor Avenue & Middle U-Turn

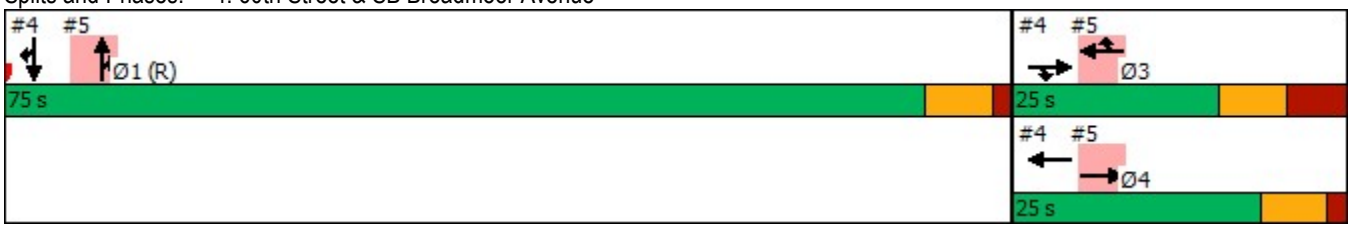


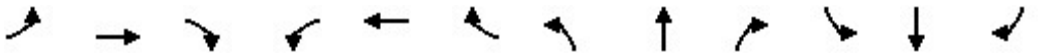
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	89	204	0	87	0	0	0	0	0	765	128
Future Volume (vph)	0	89	204	0	87	0	0	0	0	0	765	128
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		175	0		190	0		0	0		285
Storage Lanes	0		1	0		0	0		0	0		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850									0.850
Flt Protected												
Satd. Flow (prot)	0	1887	2309	0	1961	0	0	0	0	0	5931	1482
Flt Permitted												
Satd. Flow (perm)	0	1887	2309	0	1961	0	0	0	0	0	5931	1482
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			227									142
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		946			59			532			676	
Travel Time (s)		11.7			0.7			6.6			8.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	6%	19%	0%	2%	0%	0%	0%	0%	0%	16%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	227	0	97	0	0	0	0	0	850	142
Turn Type		NA	Prot		NA						NA	Prot
Protected Phases		3	3		4						1	1
Permitted Phases												
Detector Phase		3	3		4						1	1
Switch Phase												
Minimum Initial (s)		7.0	7.0		7.0						10.0	10.0
Minimum Split (s)		16.6	16.6		13.6						16.5	16.5
Total Split (s)		25.0	25.0		25.0						75.0	75.0
Total Split (%)		25.0%	25.0%		25.0%						75.0%	75.0%
Yellow Time (s)		5.0	5.0		5.0						5.0	5.0
All-Red Time (s)		4.6	4.6		1.6						1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0						0.0	0.0
Total Lost Time (s)		9.6	9.6		6.6						6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max		Max						C-Max	C-Max
Act Effct Green (s)		15.4	15.4		18.4						68.5	68.5
Actuated g/C Ratio		0.15	0.15		0.18						0.68	0.68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.34	0.41		0.27						0.21	0.13
Control Delay		41.6	7.7		1.8						4.8	0.8
Queue Delay		0.0	0.0		0.0						0.0	0.0
Total Delay		41.6	7.7		1.8						4.8	0.8
LOS		D	A		A						A	A
Approach Delay		18.0			1.8						4.2	
Approach LOS		B			A						A	
Queue Length 50th (ft)		57	0		1						40	0
Queue Length 95th (ft)		107	36		1						48	6
Internal Link Dist (ft)		866			1			452			596	
Turn Bay Length (ft)			175									285
Base Capacity (vph)		290	547		360						4062	1059
Starvation Cap Reductn		0	0		0						0	0
Spillback Cap Reductn		0	0		0						0	0
Storage Cap Reductn		0	0		0						0	0
Reduced v/c Ratio		0.34	0.41		0.27						0.21	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 32 (32%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 7.2		Intersection LOS: A	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: 60th Street & SB Broadmoor Avenue



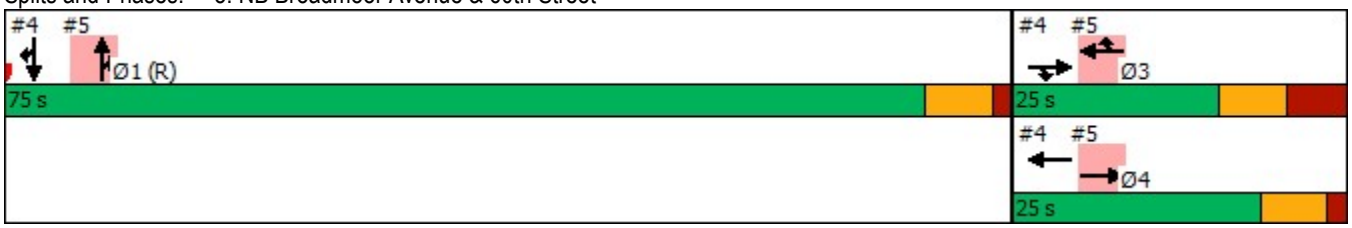


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	89	0	0	87	121	0	2127	256	0	0	0
Future Volume (vph)	0	89	0	0	87	121	0	2127	256	0	0	0
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		190	0		390	0		0
Storage Lanes	0		0	0		2	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850			0.850			
Flt Protected												
Satd. Flow (prot)	0	1887	0	0	1961	2656	0	5200	1524	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1887	0	0	1961	2656	0	5200	1524	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						38			284			
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		59			604			523			698	
Travel Time (s)		0.7			7.5			6.5			8.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	6%	0%	0%	2%	7%	0%	5%	6%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	0	97	134	0	2363	284	0	0	0
Turn Type		NA			NA	Prot		NA	Prot			
Protected Phases		4			3	3		1	1			
Permitted Phases												
Detector Phase		4			3	3		1	1			
Switch Phase												
Minimum Initial (s)		7.0			7.0	7.0		10.0	10.0			
Minimum Split (s)		13.6			16.6	16.6		16.5	16.5			
Total Split (s)		25.0			25.0	25.0		75.0	75.0			
Total Split (%)		25.0%			25.0%	25.0%		75.0%	75.0%			
Yellow Time (s)		5.0			5.0	5.0		5.0	5.0			
All-Red Time (s)		1.6			4.6	4.6		1.5	1.5			
Lost Time Adjust (s)		0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)		6.6			9.6	9.6		6.5	6.5			
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max			Max	Max		C-Max	C-Max			
Act Effct Green (s)		18.4			15.4	15.4		68.5	68.5			
Actuated g/C Ratio		0.18			0.15	0.15		0.68	0.68			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.29			0.32	0.30		0.66	0.25			
Control Delay		2.0			41.0	28.8		1.2	0.4			
Queue Delay		0.0			0.0	0.0		0.0	0.0			
Total Delay		2.0			41.0	28.8		1.2	0.4			
LOS		A			D	C		A	A			
Approach Delay		2.0			33.9			1.2				
Approach LOS		A			C			A				
Queue Length 50th (ft)		0			56	30		11	1			
Queue Length 95th (ft)		0			105	61		13	0			
Internal Link Dist (ft)		1			524			443			618	
Turn Bay Length (ft)						190			390			
Base Capacity (vph)		347			301	441		3562	1133			
Starvation Cap Reductn		0			0	0		0	0			
Spillback Cap Reductn		0			0	0		0	0			
Storage Cap Reductn		0			0	0		0	0			
Reduced v/c Ratio		0.29			0.32	0.30		0.66	0.25			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 32 (32%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 3.7		Intersection LOS: A	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: NB Broadmoor Avenue & 60th Street

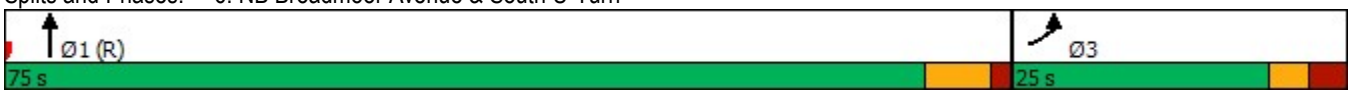


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	51	0	0	2332	0	0
Future Volume (vph)	51	0	0	2332	0	0
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	2	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3502	0	0	6552	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3502	0	0	6552	0	0
Right Turn on Red	Yes	Yes				Yes
Satd. Flow (RTOR)	11					
Link Speed (mph)	30			55	55	
Link Distance (ft)	62			358	523	
Travel Time (s)	1.4			4.4	6.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	2591	0	0
Turn Type	Prot			NA		
Protected Phases	3			1		
Permitted Phases						
Detector Phase	3			1		
Switch Phase						
Minimum Initial (s)	7.0			10.0		
Minimum Split (s)	13.0			16.6		
Total Split (s)	25.0			75.0		
Total Split (%)	25.0%			75.0%		
Yellow Time (s)	3.0			5.0		
All-Red Time (s)	3.0			1.6		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	6.0			6.6		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max			C-Max		
Act Effct Green (s)	19.0			68.4		
Actuated g/C Ratio	0.19			0.68		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.08			0.58		
Control Delay	28.6			3.0		
Queue Delay	0.0			0.5		
Total Delay	28.6			3.5		
LOS	C			A		
Approach Delay	28.6			3.5		
Approach LOS	C			A		
Queue Length 50th (ft)	15			55		
Queue Length 95th (ft)	33			61		
Internal Link Dist (ft)	1			278	443	
Turn Bay Length (ft)						
Base Capacity (vph)	674			4481		
Starvation Cap Reductn	0			1228		
Spillback Cap Reductn	0			0		
Storage Cap Reductn	0			0		
Reduced v/c Ratio	0.08			0.80		

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 31 (31%), Referenced to phase 1:NBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 4.0		Intersection LOS: A	
Intersection Capacity Utilization 51.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: NB Broadmoor Avenue & South U-Turn

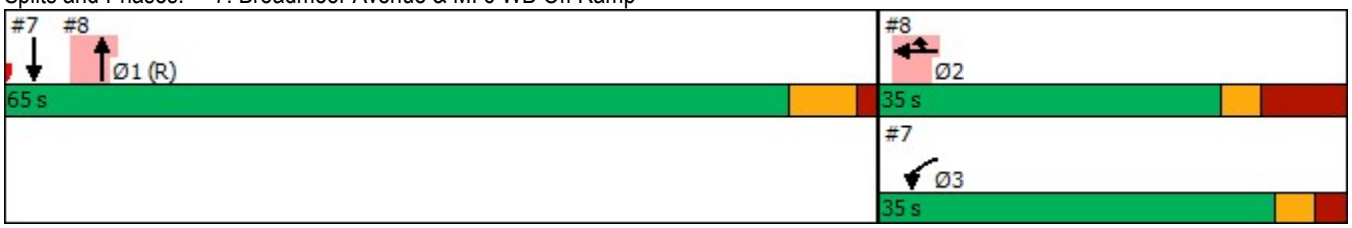


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
Lane Configurations							
Traffic Volume (vph)	244	0	0	0	0	443	
Future Volume (vph)	244	0	0	0	0	443	
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%		0%			0%	
Storage Length (ft)	0	0		0	0		
Storage Lanes	2	0		0	0		
Taper Length (ft)	0				25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.91	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3155	0	0	0	0	4789	
Flt Permitted	0.950						
Satd. Flow (perm)	3155	0	0	0	0	4789	
Right Turn on Red	Yes	Yes		Yes			
Satd. Flow (RTOR)	685						
Link Speed (mph)	30		55			55	
Link Distance (ft)	64		504			150	
Travel Time (s)	1.5		6.2			1.9	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	11%	0%	0%	0%	0%	14%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%		0%			0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	280	0	0	0	0	509	
Turn Type	Prot					NA	
Protected Phases	3					1	2
Permitted Phases							
Detector Phase	3					1	
Switch Phase							
Minimum Initial (s)	7.0					10.0	7.0
Minimum Split (s)	12.5					16.6	16.5
Total Split (s)	35.0					65.0	35.0
Total Split (%)	35.0%					65.0%	35%
Yellow Time (s)	3.0					5.0	3.0
All-Red Time (s)	2.5					1.6	6.5
Lost Time Adjust (s)	0.0					0.0	
Total Lost Time (s)	5.5					6.6	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max					C-Max	Max
Act Effct Green (s)	29.5					58.4	
Actuated g/C Ratio	0.30					0.58	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
v/c Ratio	0.20					0.18	
Control Delay	0.3					9.4	
Queue Delay	0.0					0.0	
Total Delay	0.3					9.4	
LOS	A					A	
Approach Delay	0.3					9.4	
Approach LOS	A					A	
Queue Length 50th (ft)	0					36	
Queue Length 95th (ft)	0					60	
Internal Link Dist (ft)	1		424			70	
Turn Bay Length (ft)							
Base Capacity (vph)	1413					2796	
Starvation Cap Reductn	0					0	
Spillback Cap Reductn	0					0	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.20					0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 6.2		Intersection LOS: A	
Intersection Capacity Utilization 64.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: Broadmoor Avenue & MI 6 WB Off Ramp

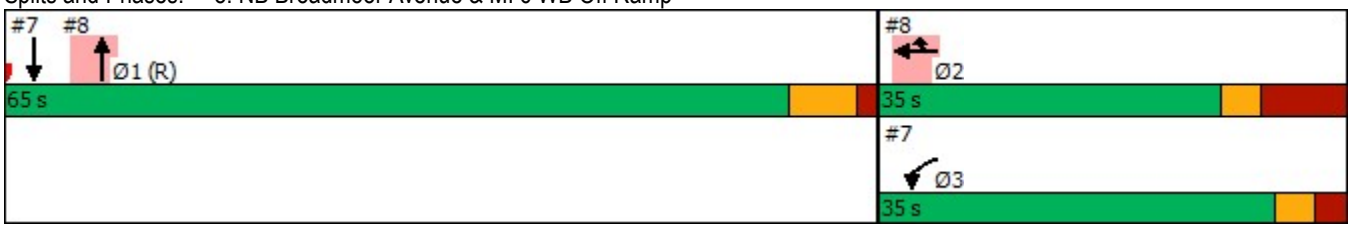


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	244	270	0	2062	0	0	0	0
Future Volume (vph)	0	0	0	0	244	270	0	2062	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	170		0	0		0	0		0
Storage Lanes	0		0	1		1	0		0	0		0
Taper Length (ft)	25			300			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.953	0.850						
Flt Protected												
Satd. Flow (prot)	0	0	0	0	2969	1324	0	4550	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	2969	1324	0	4550	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)					4	39						
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		64			495			1291			358	
Travel Time (s)		1.5			11.3			16.0			4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	11%	11%	0%	14%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)						41%						
Lane Group Flow (vph)	0	0	0	0	407	183	0	2370	0	0	0	0
Turn Type					NA	Prot		NA				
Protected Phases					2	2		1				
Permitted Phases												
Detector Phase					2	2		1				
Switch Phase												
Minimum Initial (s)					7.0	7.0		10.0				
Minimum Split (s)					16.5	16.5		16.6				
Total Split (s)					35.0	35.0		65.0				
Total Split (%)					35.0%	35.0%		65.0%				
Yellow Time (s)					3.0	3.0		5.0				
All-Red Time (s)					6.5	6.5		1.6				
Lost Time Adjust (s)					0.0	0.0		0.0				
Total Lost Time (s)					9.5	9.5		6.6				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode					Max	Max		C-Max				
Act Effct Green (s)					25.5	25.5		58.4				
Actuated g/C Ratio					0.26	0.26		0.58				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio					0.54	0.50		0.89				
Control Delay					34.9	30.3		22.8				
Queue Delay					0.0	0.0		0.0				
Total Delay					34.9	30.3		22.8				
LOS					C	C		C				
Approach Delay					33.5			22.8				
Approach LOS					C			C				
Queue Length 50th (ft)					121	85		576				
Queue Length 95th (ft)					165	153		568				
Internal Link Dist (ft)		1			415			1211			278	
Turn Bay Length (ft)												
Base Capacity (vph)					760	366		2657				
Starvation Cap Reductn					0	0		0				
Spillback Cap Reductn					0	0		0				
Storage Cap Reductn					0	0		0				
Reduced v/c Ratio					0.54	0.50		0.89				

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 24.9		Intersection LOS: C	
Intersection Capacity Utilization 64.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 8: NB Broadmoor Avenue & MI 6 WB Off Ramp

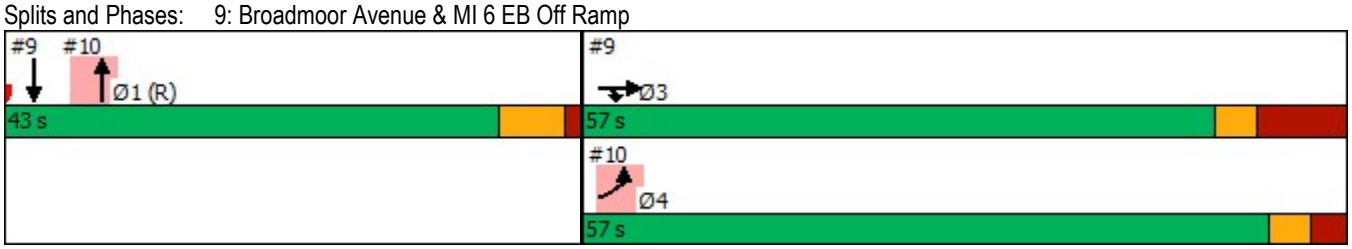


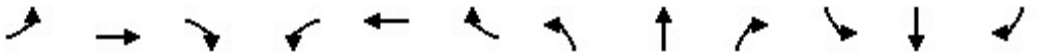
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1289	528	0	0	0	0	0	0	0	548	0
Future Volume (vph)	0	1289	528	0	0	0	0	0	0	0	548	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		185	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	185			25			25			25		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor												
Frt			0.850									
Flt Protected												
Satd. Flow (prot)	0	3374	2632	0	0	0	0	0	0	0	4964	0
Flt Permitted												
Satd. Flow (perm)	0	3374	2632	0	0	0	0	0	0	0	4964	0
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)			209									
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		677			77			864			776	
Travel Time (s)		15.4			1.8			10.7			9.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	7%	8%	0%	0%	0%	0%	0%	0%	0%	10%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1448	593	0	0	0	0	0	0	0	616	0
Turn Type		NA	Prot								NA	
Protected Phases		3	3								1	
Permitted Phases												
Detector Phase		3	3								1	
Switch Phase												
Minimum Initial (s)		7.0	7.0								10.0	
Minimum Split (s)		16.9	16.9								16.3	
Total Split (s)		57.0	57.0								43.0	
Total Split (%)		57.0%	57.0%								43.0%	
Yellow Time (s)		3.0	3.0								5.0	
All-Red Time (s)		6.9	6.9								1.3	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		9.9	9.9								6.3	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max								C-Max	
Act Effct Green (s)		47.1	47.1								36.7	
Actuated g/C Ratio		0.47	0.47								0.37	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.91	0.44								0.34	
Control Delay		34.7	12.1								17.8	
Queue Delay		1.2	0.0								0.0	
Total Delay		35.9	12.1								17.8	
LOS		D	B								B	
Approach Delay		28.9									17.8	
Approach LOS		C									B	
Queue Length 50th (ft)		435	85								101	
Queue Length 95th (ft)		#581	130								113	
Internal Link Dist (ft)		597			1			784			696	
Turn Bay Length (ft)			185									
Base Capacity (vph)		1589	1350								1821	
Starvation Cap Reductn		0	0								0	
Spillback Cap Reductn		42	0								0	
Storage Cap Reductn		0	0								0	
Reduced v/c Ratio		0.94	0.44								0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 26.4		Intersection LOS: C	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Broadmoor Avenue & MI 6 EB Off Ramp





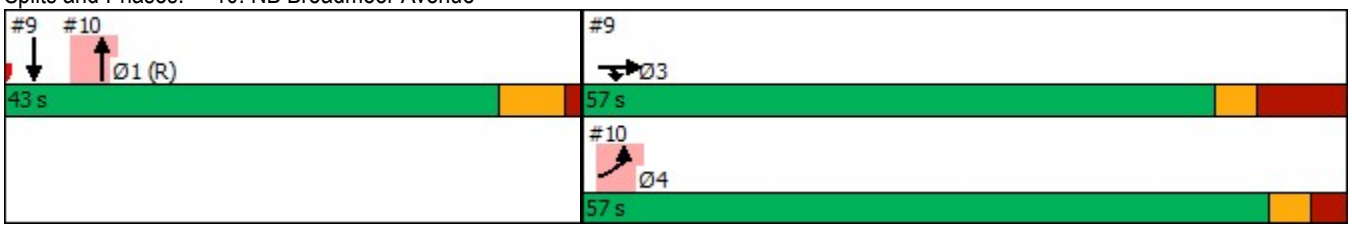
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1289	0	0	0	0	0	0	1260	376	0	0	0
Future Volume (vph)	1289	0	0	0	0	0	0	1260	376	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		150	0		0
Storage Lanes	2		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt									0.850			
Flt Protected	0.950											
Satd. Flow (prot)	3273	0	0	0	0	0	0	5036	1509	0	0	0
Flt Permitted	0.950											
Satd. Flow (perm)	3273	0	0	0	0	0	0	5036	1509	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	36								205			
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		77			517			871			1291	
Travel Time (s)		1.8			11.8			10.8			16.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	3%	7%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1448	0	0	0	0	0	0	1416	422	0	0	0
Turn Type	Prot							NA	Free			
Protected Phases	4							1				
Permitted Phases									Free			
Detector Phase	4							1				
Switch Phase												
Minimum Initial (s)	7.0							10.0				
Minimum Split (s)	12.9							16.3				
Total Split (s)	57.0							43.0				
Total Split (%)	57.0%							43.0%				
Yellow Time (s)	3.0							5.0				
All-Red Time (s)	2.9							1.3				
Lost Time Adjust (s)	0.0							0.0				
Total Lost Time (s)	5.9							6.3				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max							C-Max				
Act Effct Green (s)	51.1							36.7	100.0			
Actuated g/C Ratio	0.51							0.37	1.00			

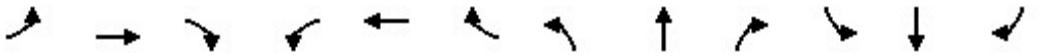
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.86							0.77	0.28			
Control Delay	4.3							31.3	0.5			
Queue Delay	0.0							0.0	0.0			
Total Delay	4.3							31.3	0.5			
LOS	A							C	A			
Approach Delay		4.3						24.2				
Approach LOS		A						C				
Queue Length 50th (ft)	13							287	0			
Queue Length 95th (ft)	m15							339	0			
Internal Link Dist (ft)		1			437			791			1211	
Turn Bay Length (ft)									150			
Base Capacity (vph)	1690							1848	1509			
Starvation Cap Reductn	0							0	0			
Spillback Cap Reductn	0							0	0			
Storage Cap Reductn	0							0	0			
Reduced v/c Ratio	0.86							0.77	0.28			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: NB Broadmoor Avenue



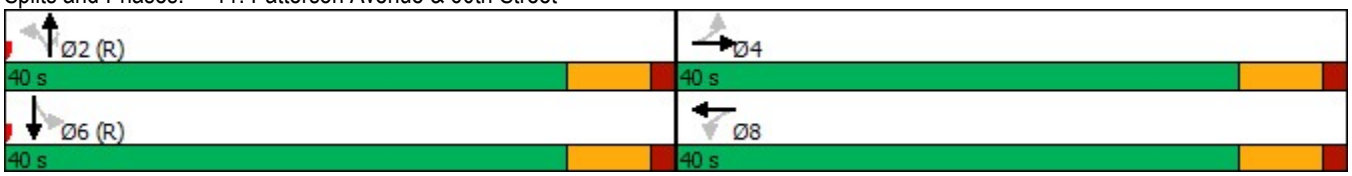


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	189	33	18	193	4	48	358	99	5	109	53
Future Volume (vph)	100	189	33	18	193	4	48	358	99	5	109	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	10	12	12	10	12	12	12	12	12	12	12	16
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	200		0	115		115	145		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	50			35			250			275		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.978			0.997				0.850		0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1478	3055	0	1685	3368	0	1736	1845	1417	1805	1669	0
Flt Permitted	0.604			0.587			0.635			0.387		
Satd. Flow (perm)	940	3055	0	1041	3368	0	1160	1845	1417	735	1669	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			3				119		38	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2458			946			2396			516	
Travel Time (s)		30.5			11.7			29.7			6.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	14%	16%	13%	0%	7%	0%	4%	3%	14%	0%	12%	18%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	268	0	22	238	0	58	431	119	6	195	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		16.5	16.5	16.5	16.5	16.5	
Total Split (s)	40.0	40.0		40.0	40.0		40.0	40.0	40.0	40.0	40.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	6.5	6.5	6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	33.5	33.5		33.5	33.5		33.5	33.5	33.5	33.5	33.5	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.42	0.42	0.42	0.42	0.42	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.31	0.21		0.05	0.17		0.12	0.56	0.18	0.02	0.27	
Control Delay	18.2	13.5		14.3	14.8		15.1	21.1	3.8	14.0	13.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.2	13.5		14.3	14.8		15.1	21.1	3.8	14.0	13.3	
LOS	B	B		B	B		B	C	A	B	B	
Approach Delay		15.0			14.7			17.1			13.4	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	39	37		6	37		17	158	0	2	49	
Queue Length 95th (ft)	71	56		18	55		37	219	24	8	84	
Internal Link Dist (ft)		2378			866			2316			436	
Turn Bay Length (ft)	150			200			115		115	145		
Base Capacity (vph)	393	1297		435	1412		485	772	662	307	720	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.31	0.21		0.05	0.17		0.12	0.56	0.18	0.02	0.27	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 61.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 11: Patterson Avenue & 60th Street



Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	6	10	419	161	39
Future Vol, veh/h	23	6	10	419	161	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	17	0	10	5	14	5
Mvmt Flow	27	7	12	493	189	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	729	212	235	0	-	0
Stage 1	212	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Critical Hdwy	6.57	6.2	4.2	-	-	-
Critical Hdwy Stg 1	5.57	-	-	-	-	-
Critical Hdwy Stg 2	5.57	-	-	-	-	-
Follow-up Hdwy	3.653	3.3	2.29	-	-	-
Pot Cap-1 Maneuver	369	833	1287	-	-	-
Stage 1	789	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	364	833	1287	-	-	-
Mov Cap-2 Maneuver	364	-	-	-	-	-
Stage 1	779	-	-	-	-	-
Stage 2	569	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.5	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1287	-	412	-	-
HCM Lane V/C Ratio	0.009	-	0.083	-	-
HCM Control Delay (s)	7.8	0	14.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Capacity Analysis Summary Sheets

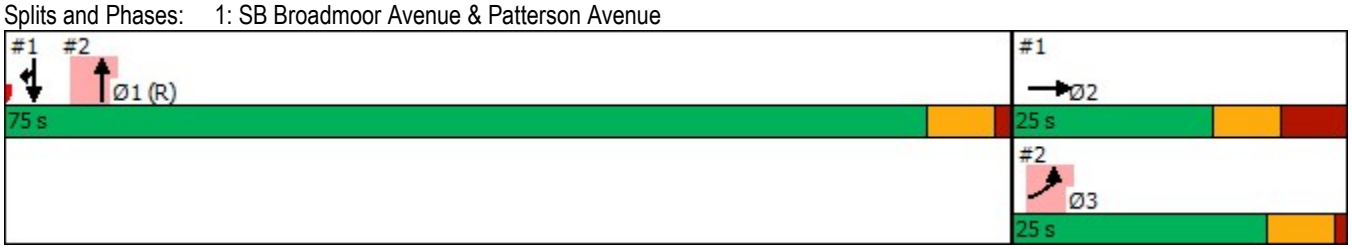
No Build Weekday Evening Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	233	26	0	0	0	0	0	0	0	2213	356
Future Volume (vph)	0	233	26	0	0	0	0	0	0	0	2213	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	135		0	0		0	0		0	0		365
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	215			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.985										0.850
Flt Protected												
Satd. Flow (prot)	0	3364	0	0	0	0	0	0	0	0	3689	1524
Flt Permitted												
Satd. Flow (perm)	0	3364	0	0	0	0	0	0	0	0	3689	1524
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)		10										379
Link Speed (mph)		55			30			55			55	
Link Distance (ft)		296			75			707			498	
Travel Time (s)		3.7			1.7			8.8			6.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	12%	0%	0%	0%	0%	0%	0%	0%	3%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	276	0	0	0	0	0	0	0	0	2354	379
Turn Type		NA									NA	Prot
Protected Phases		2									1	1
Permitted Phases												
Detector Phase		2									1	1
Switch Phase												
Minimum Initial (s)		7.0									10.0	10.0
Minimum Split (s)		17.1									16.4	16.4
Total Split (s)		25.0									75.0	75.0
Total Split (%)		25.0%									75.0%	75.0%
Yellow Time (s)		5.0									5.0	5.0
All-Red Time (s)		5.1									1.4	1.4
Lost Time Adjust (s)		0.0									0.0	0.0
Total Lost Time (s)		10.1									6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max									C-Max	C-Max
Act Effct Green (s)		14.9									68.6	68.6
Actuated g/C Ratio		0.15									0.69	0.69

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.54									0.93	0.33
Control Delay		42.4									22.1	1.4
Queue Delay		0.0									0.0	0.0
Total Delay		42.4									22.1	1.4
LOS		D									C	A
Approach Delay		42.4									19.2	
Approach LOS		D									B	
Queue Length 50th (ft)		83									604	0
Queue Length 95th (ft)		126									#787	26
Internal Link Dist (ft)		216			1			627			418	
Turn Bay Length (ft)												365
Base Capacity (vph)		509									2530	1164
Starvation Cap Reductn		0									0	0
Spillback Cap Reductn		0									0	0
Storage Cap Reductn		0									0	0
Reduced v/c Ratio		0.54									0.93	0.33

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 78 (78%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 21.3		Intersection LOS: C	
Intersection Capacity Utilization 79.1%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: SB Broadmoor Avenue & Patterson Avenue

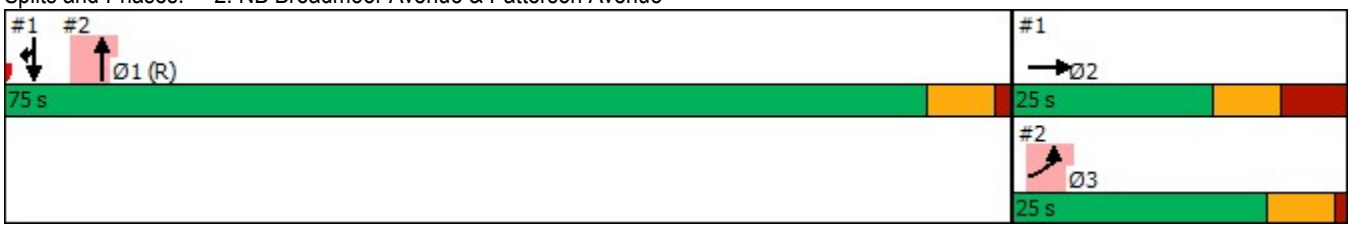


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	233	0	0	965	0	0	
Future Volume (vph)	233	0	0	965	0	0	
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)	0	0	0			0	
Storage Lanes	2	0	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	0.97	1.00	1.00	0.91	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3335	0	0	4964	0	0	
Flt Permitted	0.950						
Satd. Flow (perm)	3335	0	0	4964	0	0	
Right Turn on Red	Yes	Yes				Yes	
Satd. Flow (RTOR)	295						
Link Speed (mph)	30			55	55		
Link Distance (ft)	75			702	506		
Travel Time (s)	1.7			8.7	6.3		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	5%	0%	0%	10%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	248	0	0	1027	0	0	
Turn Type	Prot			NA			
Protected Phases	3			1			2
Permitted Phases							
Detector Phase	3			1			
Switch Phase							
Minimum Initial (s)	7.0			10.0			7.0
Minimum Split (s)	13.1			16.4			17.1
Total Split (s)	25.0			75.0			25.0
Total Split (%)	25.0%			75.0%			25%
Yellow Time (s)	5.0			5.0			5.0
All-Red Time (s)	1.1			1.4			5.1
Lost Time Adjust (s)	0.0			0.0			
Total Lost Time (s)	6.1			6.4			
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max			C-Max			Max
Act Effct Green (s)	18.9			68.6			
Actuated g/C Ratio	0.19			0.69			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
v/c Ratio	0.29			0.30			
Control Delay	0.7			7.2			
Queue Delay	0.0			0.0			
Total Delay	0.7			7.2			
LOS	A			A			
Approach Delay	0.7			7.2			
Approach LOS	A			A			
Queue Length 50th (ft)	0			108			
Queue Length 95th (ft)	0			126			
Internal Link Dist (ft)	1			622	426		
Turn Bay Length (ft)							
Base Capacity (vph)	869			3405			
Starvation Cap Reductn	0			0			
Spillback Cap Reductn	0			0			
Storage Cap Reductn	0			0			
Reduced v/c Ratio	0.29			0.30			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 78 (78%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 6.0		Intersection LOS: A	
Intersection Capacity Utilization 79.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: NB Broadmoor Avenue & Patterson Avenue



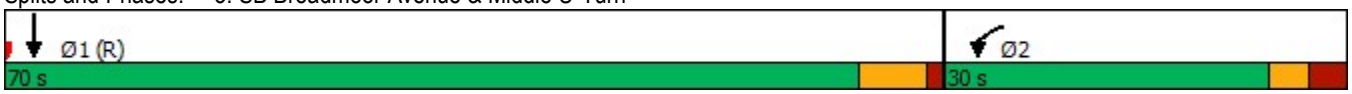
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	214	0	0	0	0	2239
Future Volume (vph)	214	0	0	0	0	2239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	210	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				260	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.91
Ped Bike Factor						
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1719	0	0	0	0	5301
Flt Permitted	0.950					
Satd. Flow (perm)	1719	0	0	0	0	5301
Right Turn on Red	Yes	Yes		Yes		
Satd. Flow (RTOR)	6					
Link Speed (mph)	30		55			55
Link Distance (ft)	66		676			707
Travel Time (s)	1.5		8.4			8.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	0%	0%	0%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	228	0	0	0	0	2382
Turn Type	Prot					NA
Protected Phases	2					1
Permitted Phases						
Detector Phase	2					1
Switch Phase						
Minimum Initial (s)	7.0					10.0
Minimum Split (s)	13.0					16.4
Total Split (s)	30.0					70.0
Total Split (%)	30.0%					70.0%
Yellow Time (s)	3.0					5.0
All-Red Time (s)	3.0					1.4
Lost Time Adjust (s)	0.0					0.0
Total Lost Time (s)	6.0					6.4
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max					C-Max
Act Effct Green (s)	24.0					63.6
Actuated g/C Ratio	0.24					0.64

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.55					0.71
Control Delay	28.9					3.0
Queue Delay	0.0					0.1
Total Delay	28.9					3.1
LOS	C					A
Approach Delay	28.9					3.1
Approach LOS	C					A
Queue Length 50th (ft)	130					35
Queue Length 95th (ft)	216					m52
Internal Link Dist (ft)	1		596			627
Turn Bay Length (ft)						
Base Capacity (vph)	417					3371
Starvation Cap Reductn	0					205
Spillback Cap Reductn	0					0
Storage Cap Reductn	0					0
Reduced v/c Ratio	0.55					0.75

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 87 (87%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 5.4		Intersection LOS: A	
Intersection Capacity Utilization 68.4%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SB Broadmoor Avenue & Middle U-Turn



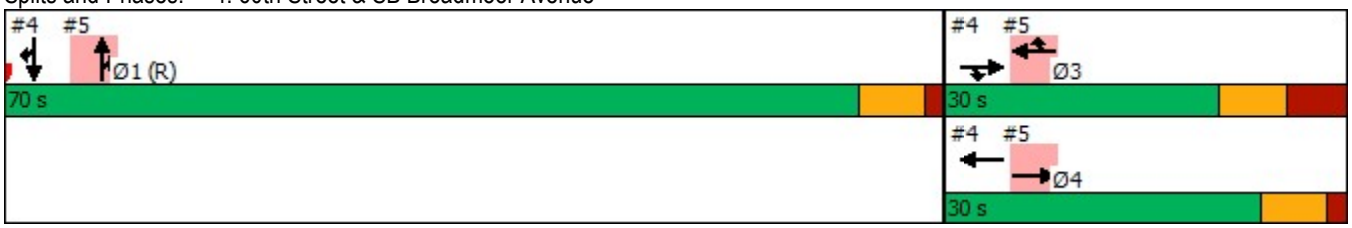
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱↑		↑						↑↑↑↑	↱
Traffic Volume (vph)	0	113	308	0	127	0	0	0	0	0	2380	73
Future Volume (vph)	0	113	308	0	127	0	0	0	0	0	2380	73
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		175	0		190	0		0	0		285
Storage Lanes	0		1	0		0	0		0	0		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850									0.850
Flt Protected												
Satd. Flow (prot)	0	1961	2568	0	1961	0	0	0	0	0	6680	1392
Flt Permitted												
Satd. Flow (perm)	0	1961	2568	0	1961	0	0	0	0	0	6680	1392
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			38									77
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		946			59			532			676	
Travel Time (s)		11.7			0.7			6.6			8.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	7%	0%	2%	0%	0%	0%	0%	0%	3%	16%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	119	324	0	134	0	0	0	0	0	2505	77
Turn Type		NA	Prot		NA						NA	Prot
Protected Phases		3	3		4						1	1
Permitted Phases												
Detector Phase		3	3		4						1	1
Switch Phase												
Minimum Initial (s)		7.0	7.0		7.0						10.0	10.0
Minimum Split (s)		16.6	16.6		13.6						16.5	16.5
Total Split (s)		30.0	30.0		30.0						70.0	70.0
Total Split (%)		30.0%	30.0%		30.0%						70.0%	70.0%
Yellow Time (s)		5.0	5.0		5.0						5.0	5.0
All-Red Time (s)		4.6	4.6		1.6						1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0						0.0	0.0
Total Lost Time (s)		9.6	9.6		6.6						6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max		Max						C-Max	C-Max
Act Effct Green (s)		20.4	20.4		23.4						63.5	63.5
Actuated g/C Ratio		0.20	0.20		0.23						0.64	0.64

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.30	0.58		0.29						0.59	0.08
Control Delay		36.1	36.5		1.6						3.2	0.1
Queue Delay		0.0	0.0		0.0						0.0	0.0
Total Delay		36.1	36.5		1.6						3.2	0.1
LOS		D	D		A						A	A
Approach Delay		36.4			1.6						3.1	
Approach LOS		D			A						A	
Queue Length 50th (ft)		65	93		1						43	0
Queue Length 95th (ft)		116	144		1						47	m0
Internal Link Dist (ft)		866			1			452			596	
Turn Bay Length (ft)			175									285
Base Capacity (vph)		400	554		458						4241	912
Starvation Cap Reductn		0	0		0						0	0
Spillback Cap Reductn		0	0		0						0	0
Storage Cap Reductn		0	0		0						0	0
Reduced v/c Ratio		0.30	0.58		0.29						0.59	0.08

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 96 (96%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 7.7		Intersection LOS: A	
Intersection Capacity Utilization 57.0%		ICU Level of Service B	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: 60th Street & SB Broadmoor Avenue

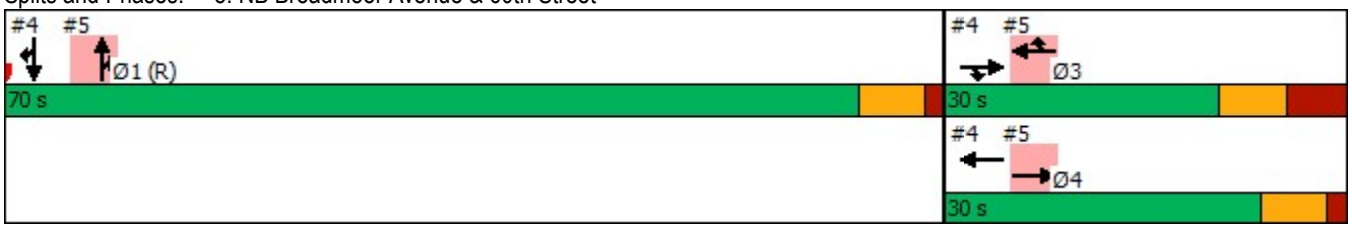


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	113	0	0	127	204	0	975	153	0	0	0
Future Volume (vph)	0	113	0	0	127	204	0	975	153	0	0	0
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		190	0		390	0		0
Storage Lanes	0		0	0		2	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850			0.850			
Flt Protected												
Satd. Flow (prot)	0	1961	0	0	1961	2760	0	4964	1417	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1961	0	0	1961	2760	0	4964	1417	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						215			161			
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		59			604			523			698	
Travel Time (s)		0.7			7.5			6.5			8.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	0%	2%	3%	0%	10%	14%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	119	0	0	134	215	0	1026	161	0	0	0
Turn Type		NA			NA	Prot		NA	Prot			
Protected Phases		4			3	3		1	1			
Permitted Phases												
Detector Phase		4			3	3		1	1			
Switch Phase												
Minimum Initial (s)		7.0			7.0	7.0		10.0	10.0			
Minimum Split (s)		13.6			16.6	16.6		16.5	16.5			
Total Split (s)		30.0			30.0	30.0		70.0	70.0			
Total Split (%)		30.0%			30.0%	30.0%		70.0%	70.0%			
Yellow Time (s)		5.0			5.0	5.0		5.0	5.0			
All-Red Time (s)		1.6			4.6	4.6		1.5	1.5			
Lost Time Adjust (s)		0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)		6.6			9.6	9.6		6.5	6.5			
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max			Max	Max		C-Max	C-Max			
Act Effct Green (s)		23.4			20.4	20.4		63.5	63.5			
Actuated g/C Ratio		0.23			0.20	0.20		0.64	0.64			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.26			0.34	0.29		0.33	0.17			
Control Delay		1.4			36.8	5.9		3.3	0.4			
Queue Delay		0.0			0.0	0.0		0.0	0.0			
Total Delay		1.4			36.8	5.9		3.3	0.4			
LOS		A			D	A		A	A			
Approach Delay		1.4			17.7			2.9				
Approach LOS		A			B			A				
Queue Length 50th (ft)		1			74	0		27	0			
Queue Length 95th (ft)		1			129	32		30	0			
Internal Link Dist (ft)		1			524			443			618	
Turn Bay Length (ft)						190			390			
Base Capacity (vph)		458			400	734		3152	958			
Starvation Cap Reductn		0			0	0		0	0			
Spillback Cap Reductn		0			0	0		0	0			
Storage Cap Reductn		0			0	0		0	0			
Reduced v/c Ratio		0.26			0.34	0.29		0.33	0.17			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 96 (96%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 5.9		Intersection LOS: A	
Intersection Capacity Utilization 57.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: NB Broadmoor Avenue & 60th Street



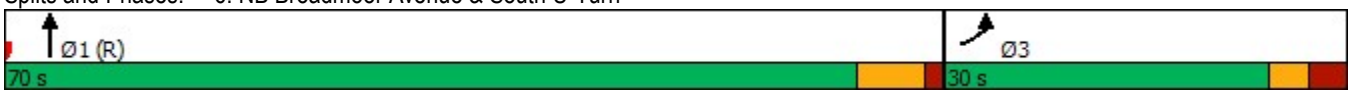
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	0	0	1098	0	0
Future Volume (vph)	30	0	0	1098	0	0
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	2	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3502	0	0	6198	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3502	0	0	6198	0	0
Right Turn on Red	Yes	Yes				Yes
Satd. Flow (RTOR)	188					
Link Speed (mph)	30			55	55	
Link Distance (ft)	62			358	523	
Travel Time (s)	1.4			4.4	6.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	0	1156	0	0
Turn Type	Prot			NA		
Protected Phases	3			1		
Permitted Phases						
Detector Phase	3			1		
Switch Phase						
Minimum Initial (s)	7.0			10.0		
Minimum Split (s)	13.0			16.6		
Total Split (s)	30.0			70.0		
Total Split (%)	30.0%			70.0%		
Yellow Time (s)	3.0			5.0		
All-Red Time (s)	3.0			1.6		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	6.0			6.6		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max			C-Max		
Act Effct Green (s)	24.0			63.4		
Actuated g/C Ratio	0.24			0.63		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.03			0.29		
Control Delay	0.0			1.4		
Queue Delay	0.0			0.0		
Total Delay	0.0			1.4		
LOS	A			A		
Approach Delay				1.4		
Approach LOS				A		
Queue Length 50th (ft)	0			10		
Queue Length 95th (ft)	m0			18		
Internal Link Dist (ft)	1			278	443	
Turn Bay Length (ft)						
Base Capacity (vph)	983			3929		
Starvation Cap Reductn	0			0		
Spillback Cap Reductn	0			0		
Storage Cap Reductn	0			0		
Reduced v/c Ratio	0.03			0.29		

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 5 (5%), Referenced to phase 1:NBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.29			
Intersection Signal Delay: 1.4		Intersection LOS: A	
Intersection Capacity Utilization 54.8%		ICU Level of Service A	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: NB Broadmoor Avenue & South U-Turn

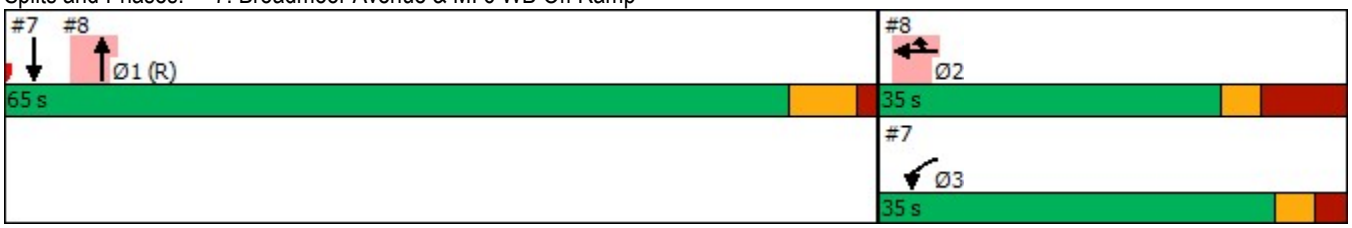


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
Lane Configurations							
Traffic Volume (vph)	301	0	0	0	0	1037	
Future Volume (vph)	301	0	0	0	0	1037	
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%		0%			0%	
Storage Length (ft)	0	0		0	0		
Storage Lanes	2	0		0	0		
Taper Length (ft)	0				25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.91	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3367	0	0	0	0	5301	
Flt Permitted	0.950						
Satd. Flow (perm)	3367	0	0	0	0	5301	
Right Turn on Red	Yes	Yes		Yes			
Satd. Flow (RTOR)	157						
Link Speed (mph)	30		55			55	
Link Distance (ft)	64		504			150	
Travel Time (s)	1.5		6.2			1.9	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	4%	0%	0%	0%	0%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%		0%			0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	331	0	0	0	0	1140	
Turn Type	Prot					NA	
Protected Phases	3					1	2
Permitted Phases							
Detector Phase	3					1	
Switch Phase							
Minimum Initial (s)	7.0					10.0	7.0
Minimum Split (s)	12.5					16.6	16.5
Total Split (s)	35.0					65.0	35.0
Total Split (%)	35.0%					65.0%	35%
Yellow Time (s)	3.0					5.0	3.0
All-Red Time (s)	2.5					1.6	6.5
Lost Time Adjust (s)	0.0					0.0	
Total Lost Time (s)	5.5					6.6	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max					C-Max	Max
Act Effct Green (s)	29.5					58.4	
Actuated g/C Ratio	0.30					0.58	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
v/c Ratio	0.30					0.37	
Control Delay	0.6					5.4	
Queue Delay	0.0					0.0	
Total Delay	0.6					5.4	
LOS	A					A	
Approach Delay	0.6					5.4	
Approach LOS	A					A	
Queue Length 50th (ft)	0					45	
Queue Length 95th (ft)	0					59	
Internal Link Dist (ft)	1		424			70	
Turn Bay Length (ft)							
Base Capacity (vph)	1103					3095	
Starvation Cap Reductn	0					0	
Spillback Cap Reductn	0					0	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.30					0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 7 (7%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 4.3		Intersection LOS: A	
Intersection Capacity Utilization 42.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 7: Broadmoor Avenue & MI 6 WB Off Ramp

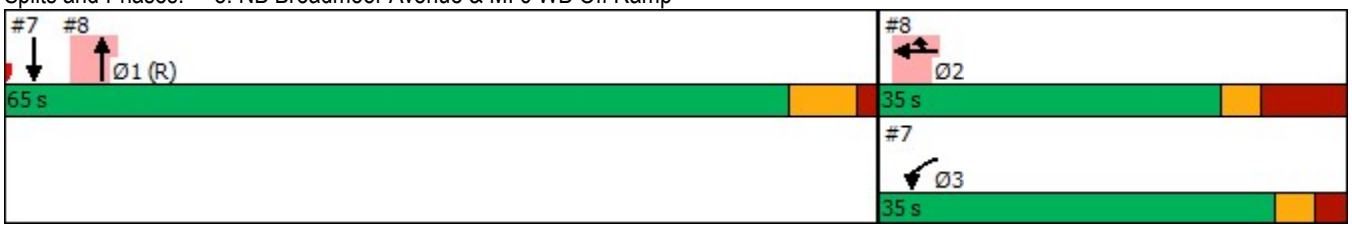


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	301	105	0	993	0	0	0	0
Future Volume (vph)	0	0	0	0	301	105	0	993	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	170		0	0		0	0		0
Storage Lanes	0		0	1		1	0		0	0		0
Taper Length (ft)	25			300			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.995	0.850						
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3284	1166	0	4759	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3284	1166	0	4759	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)					3	91						
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		64			495			1291			358	
Travel Time (s)		1.5			11.3			16.0			4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	4%	26%	0%	9%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	0	0	0	0	343	103	0	1091	0	0	0	0
Turn Type					NA	Prot		NA				
Protected Phases					2	2		1				
Permitted Phases												
Detector Phase					2	2		1				
Switch Phase												
Minimum Initial (s)					7.0	7.0		10.0				
Minimum Split (s)					16.5	16.5		16.6				
Total Split (s)					35.0	35.0		65.0				
Total Split (%)					35.0%	35.0%		65.0%				
Yellow Time (s)					3.0	3.0		5.0				
All-Red Time (s)					6.5	6.5		1.6				
Lost Time Adjust (s)					0.0	0.0		0.0				
Total Lost Time (s)					9.5	9.5		6.6				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode					Max	Max		C-Max				
Act Effct Green (s)					25.5	25.5		58.4				
Actuated g/C Ratio					0.26	0.26		0.58				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio					0.41	0.28		0.39				
Control Delay					32.5	10.3		8.2				
Queue Delay					0.0	0.0		0.0				
Total Delay					32.5	10.3		8.2				
LOS					C	B		A				
Approach Delay					27.4			8.2				
Approach LOS					C			A				
Queue Length 50th (ft)					99	6		127				
Queue Length 95th (ft)					143	52		123				
Internal Link Dist (ft)		1			415			1211			278	
Turn Bay Length (ft)												
Base Capacity (vph)					839	365		2779				
Starvation Cap Reductn					0	0		0				
Spillback Cap Reductn					0	0		0				
Storage Cap Reductn					0	0		0				
Reduced v/c Ratio					0.41	0.28		0.39				

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 7 (7%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 13.8		Intersection LOS: B	
Intersection Capacity Utilization 42.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: NB Broadmoor Avenue & MI 6 WB Off Ramp

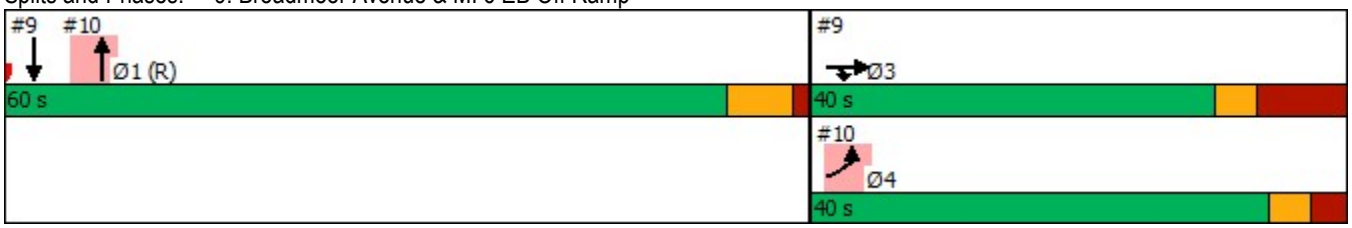


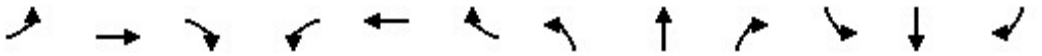
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	524	570	0	0	0	0	0	0	0	1099	0
Future Volume (vph)	0	524	570	0	0	0	0	0	0	0	1099	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		185	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	185			25			25			25		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor												
Frt			0.850									
Flt Protected												
Satd. Flow (prot)	0	3195	2760	0	0	0	0	0	0	0	5301	0
Flt Permitted												
Satd. Flow (perm)	0	3195	2760	0	0	0	0	0	0	0	5301	0
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)			104									
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		677			77			864			776	
Travel Time (s)		15.4			1.8			10.7			9.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	13%	3%	0%	0%	0%	0%	0%	0%	0%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	557	606	0	0	0	0	0	0	0	1169	0
Turn Type		NA	Prot								NA	
Protected Phases		3	3								1	
Permitted Phases												
Detector Phase		3	3								1	
Switch Phase												
Minimum Initial (s)		7.0	7.0								10.0	
Minimum Split (s)		16.9	16.9								16.3	
Total Split (s)		40.0	40.0								60.0	
Total Split (%)		40.0%	40.0%								60.0%	
Yellow Time (s)		3.0	3.0								5.0	
All-Red Time (s)		6.9	6.9								1.3	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		9.9	9.9								6.3	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max								C-Max	
Act Effct Green (s)		30.1	30.1								53.7	
Actuated g/C Ratio		0.30	0.30								0.54	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.58	0.67								0.41	
Control Delay		32.5	29.4								10.0	
Queue Delay		0.0	0.0								0.0	
Total Delay		32.5	29.4								10.0	
LOS		C	C								A	
Approach Delay		30.9									10.0	
Approach LOS		C									A	
Queue Length 50th (ft)		157	159								90	
Queue Length 95th (ft)		213	226								106	
Internal Link Dist (ft)		597			1			784			696	
Turn Bay Length (ft)			185									
Base Capacity (vph)		961	903								2846	
Starvation Cap Reductn		0	0								0	
Spillback Cap Reductn		0	0								0	
Storage Cap Reductn		0	0								0	
Reduced v/c Ratio		0.58	0.67								0.41	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 18 (18%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 20.4		Intersection LOS: C	
Intersection Capacity Utilization 53.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 9: Broadmoor Avenue & MI 6 EB Off Ramp



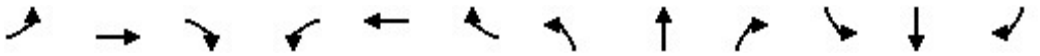


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	524	0	0	0	0	0	0	887	279	0	0	0
Future Volume (vph)	524	0	0	0	0	0	0	887	279	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		150	0		0
Storage Lanes	2		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt									0.850			
Flt Protected	0.950											
Satd. Flow (prot)	3099	0	0	0	0	0	0	5036	1583	0	0	0
Flt Permitted	0.950											
Satd. Flow (perm)	3099	0	0	0	0	0	0	5036	1583	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	206								216			
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		77			517			871			1291	
Travel Time (s)		1.8			11.8			10.8			16.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	557	0	0	0	0	0	0	944	297	0	0	0
Turn Type	Prot							NA	Free			
Protected Phases	4							1				
Permitted Phases									Free			
Detector Phase	4							1				
Switch Phase												
Minimum Initial (s)	7.0							10.0				
Minimum Split (s)	12.9							16.3				
Total Split (s)	40.0							60.0				
Total Split (%)	40.0%							60.0%				
Yellow Time (s)	3.0							5.0				
All-Red Time (s)	2.9							1.3				
Lost Time Adjust (s)	0.0							0.0				
Total Lost Time (s)	5.9							6.3				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max							C-Max				
Act Effct Green (s)	34.1							53.7	100.0			
Actuated g/C Ratio	0.34							0.54	1.00			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.47							0.35	0.19			
Control Delay	1.3							13.6	0.3			
Queue Delay	0.0							0.0	0.0			
Total Delay	1.3							13.6	0.3			
LOS	A							B	A			
Approach Delay		1.3						10.4				
Approach LOS		A						B				
Queue Length 50th (ft)	3							119	0			
Queue Length 95th (ft)	0							147	0			
Internal Link Dist (ft)		1			437			791			1211	
Turn Bay Length (ft)									150			
Base Capacity (vph)	1192							2704	1583			
Starvation Cap Reductn	0							0	0			
Spillback Cap Reductn	0							0	0			
Storage Cap Reductn	0							0	0			
Reduced v/c Ratio	0.47							0.35	0.19			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 18 (18%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 53.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: NB Broadmoor Avenue

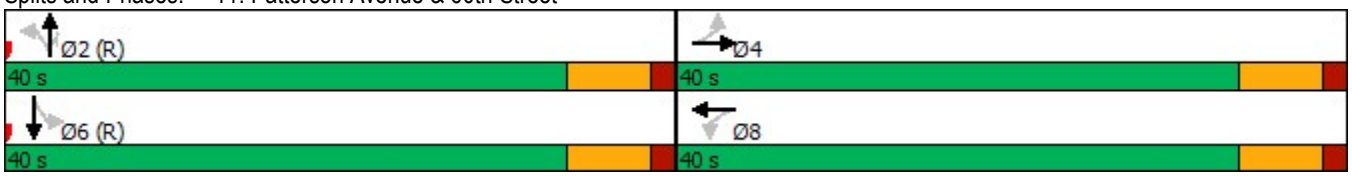


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	295	75	20	170	10	34	132	99	27	228	110
Future Volume (vph)	87	295	75	20	170	10	34	132	99	27	228	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	10	12	12	10	12	12	12	12	12	12	12	16
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	200		0	115		115	145		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	50			35			250			275		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.969			0.992				0.850		0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1589	3364	0	1685	3342	0	1805	1810	1482	1736	1789	0
Flt Permitted	0.629			0.515			0.454			0.666		
Satd. Flow (perm)	1052	3364	0	913	3342	0	863	1810	1482	1217	1789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			9				108		37	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2458			946			2396			516	
Travel Time (s)		30.5			11.7			29.7			6.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	5%	0%	0%	7%	10%	0%	5%	9%	4%	5%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	403	0	22	196	0	37	143	108	29	368	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		16.5	16.5	16.5	16.5	16.5	
Total Split (s)	40.0	40.0		40.0	40.0		40.0	40.0	40.0	40.0	40.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	6.5	6.5	6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	33.5	33.5		33.5	33.5		33.5	33.5	33.5	33.5	33.5	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.42	0.42	0.42	0.42	0.42	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.22	0.28		0.06	0.14		0.10	0.19	0.16	0.06	0.48	
Control Delay	16.6	14.0		14.5	14.0		15.2	15.5	3.8	14.4	17.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.6	14.0		14.5	14.0		15.2	15.5	3.8	14.4	17.6	
LOS	B	B		B	B		B	B	A	B	B	
Approach Delay		14.5			14.1			11.1			17.4	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	29	58		6	29		11	44	0	8	115	
Queue Length 95th (ft)	62	90		20	50		30	81	28	24	191	
Internal Link Dist (ft)		2378			866			2316			436	
Turn Bay Length (ft)	150			200			115		115	145		
Base Capacity (vph)	440	1437		382	1404		361	757	683	509	770	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.22	0.28		0.06	0.14		0.10	0.19	0.16	0.06	0.48	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 14.5		Intersection LOS: B	
Intersection Capacity Utilization 60.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 11: Patterson Avenue & 60th Street



Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	21	4	225	344	12
Future Vol, veh/h	34	21	4	225	344	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	6	0	0	6	7	0
Mvmt Flow	42	26	5	278	425	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	721	433	440	0	-	0
Stage 1	433	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Critical Hdwy	6.46	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	388	627	1131	-	-	-
Stage 1	646	-	-	-	-	-
Stage 2	752	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	386	627	1131	-	-	-
Mov Cap-2 Maneuver	386	-	-	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	752	-	-	-	-	-

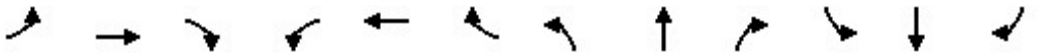
Approach	EB	NB	SB
HCM Control Delay, s	14.4	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1131	-	452	-	-
HCM Lane V/C Ratio	0.004	-	0.15	-	-
HCM Control Delay (s)	8.2	0	14.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Capacity Analysis Summary Sheets

Projected Weekday Morning Peak Hour Conditions

Lanes, Volumes, Timings
1: SB Broadmoor Avenue & Patterson Avenue

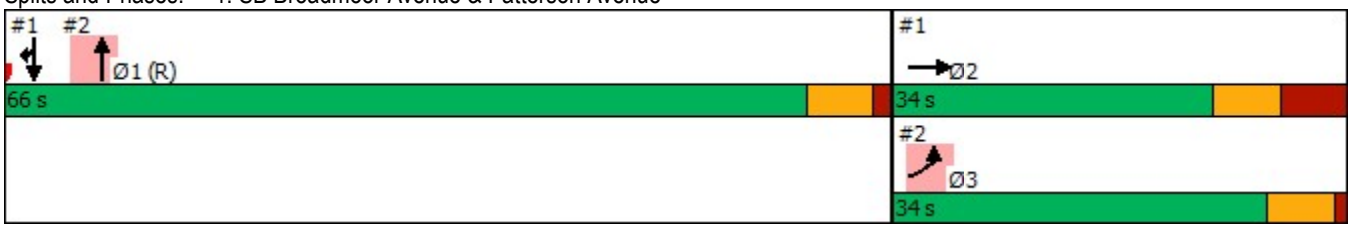


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	522	23	0	0	0	0	0	0	0	704	215
Future Volume (vph)	0	522	23	0	0	0	0	0	0	0	704	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	135		0	0		0	0		0	0		365
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	215			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.994										0.850
Flt Protected												
Satd. Flow (prot)	0	3296	0	0	0	0	0	0	0	0	3248	1455
Flt Permitted												
Satd. Flow (perm)	0	3296	0	0	0	0	0	0	0	0	3248	1455
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)		4										247
Link Speed (mph)		55			30			55			55	
Link Distance (ft)		296			75			707			498	
Travel Time (s)		3.7			1.7			8.8			6.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	7%	52%	0%	0%	0%	0%	0%	0%	0%	17%	11%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	626	0	0	0	0	0	0	0	0	809	247
Turn Type		NA									NA	Prot
Protected Phases		2									1	1
Permitted Phases												
Detector Phase		2									1	1
Switch Phase												
Minimum Initial (s)		7.0									10.0	10.0
Minimum Split (s)		17.1									16.4	16.4
Total Split (s)		34.0									66.0	66.0
Total Split (%)		34.0%									66.0%	66.0%
Yellow Time (s)		5.0									5.0	5.0
All-Red Time (s)		5.1									1.4	1.4
Lost Time Adjust (s)		0.0									0.0	0.0
Total Lost Time (s)		10.1									6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max									C-Max	C-Max
Act Effct Green (s)		23.9									59.6	59.6
Actuated g/C Ratio		0.24									0.60	0.60

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.79									0.42	0.26
Control Delay		44.0									11.7	1.9
Queue Delay		0.0									0.0	0.0
Total Delay		44.0									11.7	1.9
LOS		D									B	A
Approach Delay		44.0									9.4	
Approach LOS		D									A	
Queue Length 50th (ft)		196									135	0
Queue Length 95th (ft)		251									168	26
Internal Link Dist (ft)		216			1			627			418	
Turn Bay Length (ft)												365
Base Capacity (vph)		790									1935	966
Starvation Cap Reductn		0									0	0
Spillback Cap Reductn		0									0	0
Storage Cap Reductn		0									0	0
Reduced v/c Ratio		0.79									0.42	0.26

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 48 (48%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 61.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: SB Broadmoor Avenue & Patterson Avenue

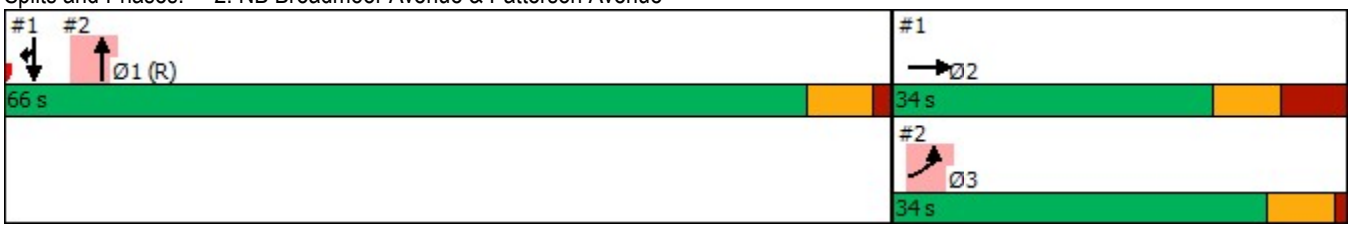


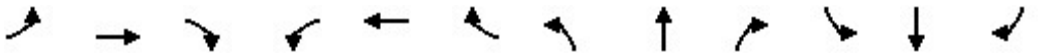
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	522	0	0	1994	0	0	
Future Volume (vph)	522	0	0	1994	0	0	
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)	0	0	0			0	
Storage Lanes	2	0	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	0.97	1.00	1.00	0.91	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3273	0	0	5200	0	0	
Flt Permitted	0.950						
Satd. Flow (perm)	3273	0	0	5200	0	0	
Right Turn on Red	Yes	Yes				Yes	
Satd. Flow (RTOR)	10						
Link Speed (mph)	30			55	55		
Link Distance (ft)	75			702	506		
Travel Time (s)	1.7			8.7	6.3		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	7%	0%	0%	5%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	600	0	0	2292	0	0	
Turn Type	Prot			NA			
Protected Phases	3			1			2
Permitted Phases							
Detector Phase	3			1			
Switch Phase							
Minimum Initial (s)	7.0			10.0			7.0
Minimum Split (s)	13.1			16.4			17.1
Total Split (s)	34.0			66.0			34.0
Total Split (%)	34.0%			66.0%			34%
Yellow Time (s)	5.0			5.0			5.0
All-Red Time (s)	1.1			1.4			5.1
Lost Time Adjust (s)	0.0			0.0			
Total Lost Time (s)	6.1			6.4			
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max			C-Max			Max
Act Effct Green (s)	27.9			59.6			
Actuated g/C Ratio	0.28			0.60			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
v/c Ratio	0.65			0.74			
Control Delay	2.1			4.4			
Queue Delay	0.0			0.0			
Total Delay	2.1			4.4			
LOS	A			A			
Approach Delay	2.1			4.4			
Approach LOS	A			A			
Queue Length 50th (ft)	0			41			
Queue Length 95th (ft)	0			108			
Internal Link Dist (ft)	1			622	426		
Turn Bay Length (ft)							
Base Capacity (vph)	920			3099			
Starvation Cap Reductn	0			0			
Spillback Cap Reductn	0			0			
Storage Cap Reductn	0			0			
Reduced v/c Ratio	0.65			0.74			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 48 (48%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 3.9		Intersection LOS: A	
Intersection Capacity Utilization 61.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: NB Broadmoor Avenue & Patterson Avenue





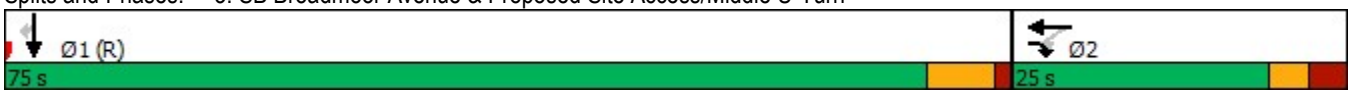
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	100	190	134	0	0	0	0	0	655	72
Future Volume (vph)	0	0	100	190	134	0	0	0	0	0	655	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	210		250
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			0			260		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor												
Frt			0.865									0.850
Flt Protected				0.950	0.991							
Satd. Flow (prot)	0	0	1644	1588	1763	0	0	0	0	0	4588	1380
Flt Permitted				0.950	0.991							
Satd. Flow (perm)	0	0	1644	1588	1763	0	0	0	0	0	4588	1380
Right Turn on Red			Yes	Yes		Yes			Yes			Yes
Satd. Flow (RTOR)			261	183	37							83
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		242			66			676			707	
Travel Time (s)		5.5			1.5			8.4			8.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	19%	17%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				16%								
Lane Group Flow (vph)	0	0	115	183	189	0	0	0	0	0	753	83
Turn Type			Prot	Perm	NA						NA	Perm
Protected Phases			2		2						1	
Permitted Phases				2								1
Detector Phase			2	2	2						1	1
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						10.0	10.0
Minimum Split (s)			13.0	13.0	13.0						16.4	16.4
Total Split (s)			25.0	25.0	25.0						75.0	75.0
Total Split (%)			25.0%	25.0%	25.0%						75.0%	75.0%
Yellow Time (s)			3.0	3.0	3.0						5.0	5.0
All-Red Time (s)			3.0	3.0	3.0						1.4	1.4
Lost Time Adjust (s)			0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)			6.0	6.0	6.0						6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode			Max	Max	Max						C-Max	C-Max
Act Effct Green (s)			19.0	19.0	19.0						68.6	68.6
Actuated g/C Ratio			0.19	0.19	0.19						0.69	0.69

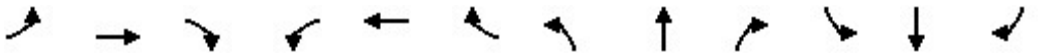
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio			0.22	0.41	0.52						0.24	0.09
Control Delay			1.0	19.4	42.7						2.6	0.3
Queue Delay			0.0	0.0	0.0						0.0	0.0
Total Delay			1.0	19.4	42.7						2.6	0.3
LOS			A	B	D						A	A
Approach Delay		1.0			31.2						2.4	
Approach LOS		A			C						A	
Queue Length 50th (ft)			0	50	113						18	0
Queue Length 95th (ft)			0	m98	m171						20	m1
Internal Link Dist (ft)		162			1			596			627	
Turn Bay Length (ft)												250
Base Capacity (vph)			523	449	364						3147	972
Starvation Cap Reductn			0	0	0						0	0
Spillback Cap Reductn			0	0	0						0	0
Storage Cap Reductn			0	0	0						0	0
Reduced v/c Ratio			0.22	0.41	0.52						0.24	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 40 (40%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 10.3		Intersection LOS: B	
Intersection Capacity Utilization 67.9%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SB Broadmoor Avenue & Proposed Site Access/Middle U-Turn



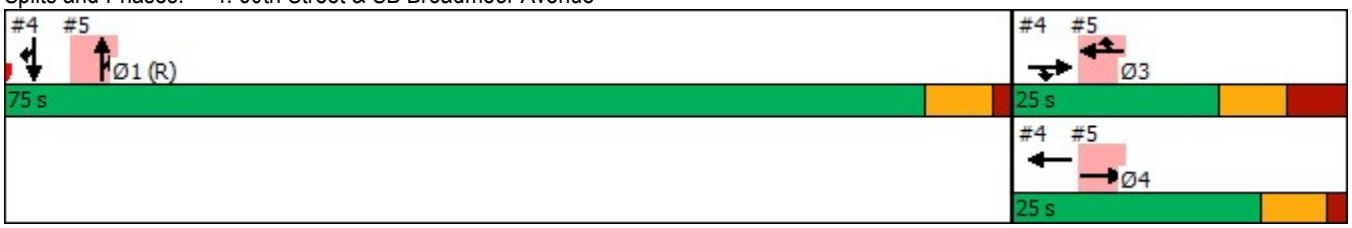


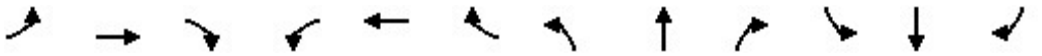
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱↱		↑						↑↑↑↑	↱
Traffic Volume (vph)	0	97	207	0	87	0	0	0	0	0	824	121
Future Volume (vph)	0	97	207	0	87	0	0	0	0	0	824	121
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		175	0		190	0		0	0		285
Storage Lanes	0		1	0		0	0		0	0		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850									0.850
Flt Protected												
Satd. Flow (prot)	0	1905	2252	0	1961	0	0	0	0	0	5931	1482
Flt Permitted												
Satd. Flow (perm)	0	1905	2252	0	1961	0	0	0	0	0	5931	1482
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			230									134
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		946			59			532			676	
Travel Time (s)		11.7			0.7			6.6			8.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	22%	0%	2%	0%	0%	0%	0%	0%	16%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	108	230	0	97	0	0	0	0	0	916	134
Turn Type		NA	Prot		NA						NA	Prot
Protected Phases		3	3		4						1	1
Permitted Phases												
Detector Phase		3	3		4						1	1
Switch Phase												
Minimum Initial (s)		7.0	7.0		7.0						10.0	10.0
Minimum Split (s)		16.6	16.6		13.6						16.5	16.5
Total Split (s)		25.0	25.0		25.0						75.0	75.0
Total Split (%)		25.0%	25.0%		25.0%						75.0%	75.0%
Yellow Time (s)		5.0	5.0		5.0						5.0	5.0
All-Red Time (s)		4.6	4.6		1.6						1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0						0.0	0.0
Total Lost Time (s)		9.6	9.6		6.6						6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max		Max						C-Max	C-Max
Act Effct Green (s)		15.4	15.4		18.4						68.5	68.5
Actuated g/C Ratio		0.15	0.15		0.18						0.68	0.68

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.37	0.43		0.27						0.23	0.13
Control Delay		42.1	7.8		1.8						4.9	0.8
Queue Delay		0.0	0.0		0.0						0.0	0.0
Total Delay		42.1	7.8		1.8						4.9	0.8
LOS		D	A		A						A	A
Approach Delay		18.8			1.8						4.4	
Approach LOS		B			A						A	
Queue Length 50th (ft)		62	0		1						46	0
Queue Length 95th (ft)		115	36		1						55	5
Internal Link Dist (ft)		866			1			452			596	
Turn Bay Length (ft)			175									285
Base Capacity (vph)		293	541		360						4062	1057
Starvation Cap Reductn		0	0		0						0	0
Spillback Cap Reductn		0	0		0						0	0
Storage Cap Reductn		0	0		0						0	0
Reduced v/c Ratio		0.37	0.43		0.27						0.23	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 32 (32%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 7.5		Intersection LOS: A	
Intersection Capacity Utilization 59.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: 60th Street & SB Broadmoor Avenue



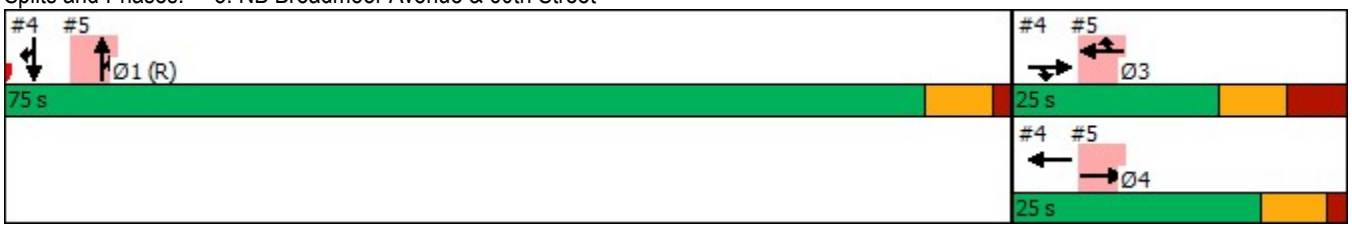


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	97	0	0	87	126	0	2192	253	0	0	0
Future Volume (vph)	0	97	0	0	87	126	0	2192	253	0	0	0
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		190	0		390	0		0
Storage Lanes	0		0	0		2	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850			0.850			
Flt Protected												
Satd. Flow (prot)	0	1905	0	0	1961	2682	0	5151	1509	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1905	0	0	1961	2682	0	5151	1509	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						38			281			
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		59			604			523			698	
Travel Time (s)		0.7			7.5			6.5			8.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	0%	0%	2%	6%	0%	6%	7%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	108	0	0	97	140	0	2436	281	0	0	0
Turn Type		NA			NA	Prot		NA	Prot			
Protected Phases		4			3	3		1	1			
Permitted Phases												
Detector Phase		4			3	3		1	1			
Switch Phase												
Minimum Initial (s)		7.0			7.0	7.0		10.0	10.0			
Minimum Split (s)		13.6			16.6	16.6		16.5	16.5			
Total Split (s)		25.0			25.0	25.0		75.0	75.0			
Total Split (%)		25.0%			25.0%	25.0%		75.0%	75.0%			
Yellow Time (s)		5.0			5.0	5.0		5.0	5.0			
All-Red Time (s)		1.6			4.6	4.6		1.5	1.5			
Lost Time Adjust (s)		0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)		6.6			9.6	9.6		6.5	6.5			
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max			Max	Max		C-Max	C-Max			
Act Effct Green (s)		18.4			15.4	15.4		68.5	68.5			
Actuated g/C Ratio		0.18			0.15	0.15		0.68	0.68			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.31			0.32	0.31		0.69	0.25			
Control Delay		2.2			41.0	29.4		1.4	0.4			
Queue Delay		0.0			0.0	0.0		0.0	0.0			
Total Delay		2.2			41.0	29.4		1.4	0.4			
LOS		A			D	C		A	A			
Approach Delay		2.2			34.1			1.3				
Approach LOS		A			C			A				
Queue Length 50th (ft)		0			56	32		11	1			
Queue Length 95th (ft)		1			105	64		13	0			
Internal Link Dist (ft)		1			524			443			618	
Turn Bay Length (ft)						190			390			
Base Capacity (vph)		350			301	445		3528	1122			
Starvation Cap Reductn		0			0	0		0	0			
Spillback Cap Reductn		0			0	0		0	0			
Storage Cap Reductn		0			0	0		0	0			
Reduced v/c Ratio		0.31			0.32	0.31		0.69	0.25			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 32 (32%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 3.9		Intersection LOS: A	
Intersection Capacity Utilization 59.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: NB Broadmoor Avenue & 60th Street

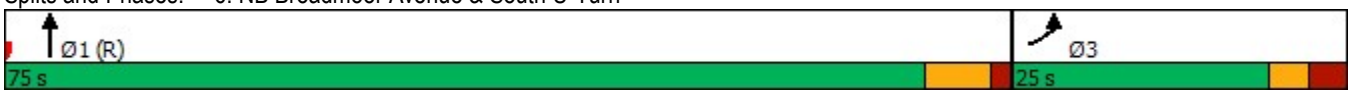


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	51	0	0	2394	0	0
Future Volume (vph)	51	0	0	2394	0	0
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	2	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3502	0	0	6491	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3502	0	0	6491	0	0
Right Turn on Red	Yes	Yes				Yes
Satd. Flow (RTOR)	10					
Link Speed (mph)	30			55	55	
Link Distance (ft)	62			358	523	
Travel Time (s)	1.4			4.4	6.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	6%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	2660	0	0
Turn Type	Prot			NA		
Protected Phases	3			1		
Permitted Phases						
Detector Phase	3			1		
Switch Phase						
Minimum Initial (s)	7.0			10.0		
Minimum Split (s)	13.0			16.6		
Total Split (s)	25.0			75.0		
Total Split (%)	25.0%			75.0%		
Yellow Time (s)	3.0			5.0		
All-Red Time (s)	3.0			1.6		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	6.0			6.6		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max			C-Max		
Act Effct Green (s)	19.0			68.4		
Actuated g/C Ratio	0.19			0.68		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.08			0.60		
Control Delay	30.4			3.3		
Queue Delay	0.0			0.4		
Total Delay	30.4			3.7		
LOS	C			A		
Approach Delay	30.4			3.7		
Approach LOS	C			A		
Queue Length 50th (ft)	15			60		
Queue Length 95th (ft)	34			66		
Internal Link Dist (ft)	1			278	443	
Turn Bay Length (ft)						
Base Capacity (vph)	673			4439		
Starvation Cap Reductn	0			1058		
Spillback Cap Reductn	0			0		
Storage Cap Reductn	0			0		
Reduced v/c Ratio	0.08			0.79		

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 31 (31%), Referenced to phase 1:NBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 4.2		Intersection LOS: A	
Intersection Capacity Utilization 53.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: NB Broadmoor Avenue & South U-Turn

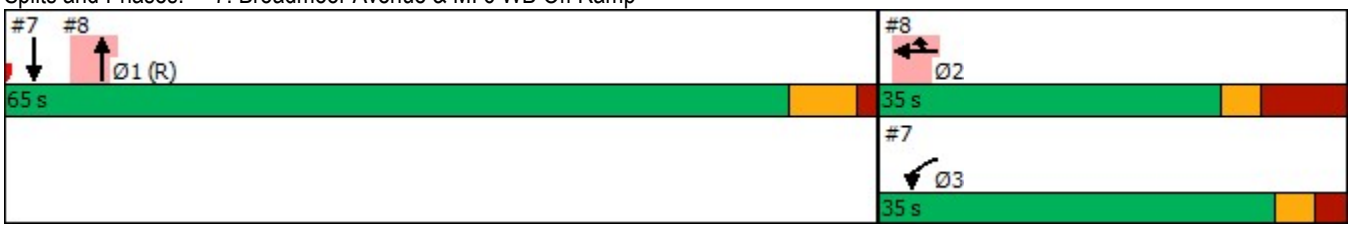


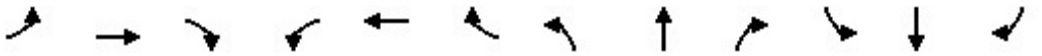
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
Lane Configurations							
Traffic Volume (vph)	244	0	0	0	0	483	
Future Volume (vph)	244	0	0	0	0	483	
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%		0%			0%	
Storage Length (ft)	0	0		0	0		
Storage Lanes	2	0		0	0		
Taper Length (ft)	0				25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.91	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3155	0	0	0	0	4748	
Flt Permitted	0.950						
Satd. Flow (perm)	3155	0	0	0	0	4748	
Right Turn on Red	Yes	Yes		Yes			
Satd. Flow (RTOR)	616						
Link Speed (mph)	30		55			55	
Link Distance (ft)	64		504			150	
Travel Time (s)	1.5		6.2			1.9	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	11%	0%	0%	0%	0%	15%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%		0%			0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	280	0	0	0	0	555	
Turn Type	Prot					NA	
Protected Phases	3					1	2
Permitted Phases							
Detector Phase	3					1	
Switch Phase							
Minimum Initial (s)	7.0					10.0	7.0
Minimum Split (s)	12.5					16.6	16.5
Total Split (s)	35.0					65.0	35.0
Total Split (%)	35.0%					65.0%	35%
Yellow Time (s)	3.0					5.0	3.0
All-Red Time (s)	2.5					1.6	6.5
Lost Time Adjust (s)	0.0					0.0	
Total Lost Time (s)	5.5					6.6	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max					C-Max	Max
Act Effct Green (s)	29.5					58.4	
Actuated g/C Ratio	0.30					0.58	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
v/c Ratio	0.21					0.20	
Control Delay	0.3					9.3	
Queue Delay	0.0					0.0	
Total Delay	0.3					9.3	
LOS	A					A	
Approach Delay	0.3					9.3	
Approach LOS	A					A	
Queue Length 50th (ft)	0					40	
Queue Length 95th (ft)	0					64	
Internal Link Dist (ft)	1		424			70	
Turn Bay Length (ft)							
Base Capacity (vph)	1365					2772	
Starvation Cap Reductn	0					0	
Spillback Cap Reductn	0					0	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.21					0.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 6.3		Intersection LOS: A	
Intersection Capacity Utilization 66.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: Broadmoor Avenue & MI 6 WB Off Ramp



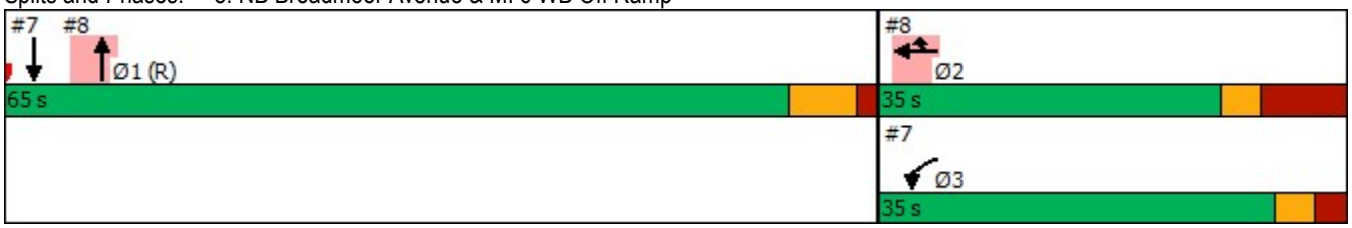


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	244	292	0	2102	0	0	0	0
Future Volume (vph)	0	0	0	0	244	292	0	2102	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	170		0	0		0	0		0
Storage Lanes	0		0	1		1	0		0	0		0
Taper Length (ft)	25			300			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.949	0.850						
Flt Protected												
Satd. Flow (prot)	0	0	0	0	2956	1324	0	4940	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	2956	1324	0	4940	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)					3	39						
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		64			495			1291			358	
Travel Time (s)		1.5			11.3			16.0			4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	11%	11%	0%	5%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)						43%						
Lane Group Flow (vph)	0	0	0	0	424	192	0	2416	0	0	0	0
Turn Type					NA	Prot		NA				
Protected Phases					2	2		1				
Permitted Phases												
Detector Phase					2	2		1				
Switch Phase												
Minimum Initial (s)					7.0	7.0		10.0				
Minimum Split (s)					16.5	16.5		16.6				
Total Split (s)					35.0	35.0		65.0				
Total Split (%)					35.0%	35.0%		65.0%				
Yellow Time (s)					3.0	3.0		5.0				
All-Red Time (s)					6.5	6.5		1.6				
Lost Time Adjust (s)					0.0	0.0		0.0				
Total Lost Time (s)					9.5	9.5		6.6				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode					Max	Max		C-Max				
Act Effct Green (s)					25.5	25.5		58.4				
Actuated g/C Ratio					0.26	0.26		0.58				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio					0.56	0.52		0.84				
Control Delay					35.5	31.3		19.7				
Queue Delay					0.0	0.0		0.0				
Total Delay					35.5	31.3		19.7				
LOS					D	C		B				
Approach Delay					34.2			19.7				
Approach LOS					C			B				
Queue Length 50th (ft)					128	91		510				
Queue Length 95th (ft)					173	162		456				
Internal Link Dist (ft)		1			415			1211			278	
Turn Bay Length (ft)												
Base Capacity (vph)					756	366		2884				
Starvation Cap Reductn					0	0		0				
Spillback Cap Reductn					0	0		0				
Storage Cap Reductn					0	0		0				
Reduced v/c Ratio					0.56	0.52		0.84				

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.7		Intersection LOS: C	
Intersection Capacity Utilization 66.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 8: NB Broadmoor Avenue & MI 6 WB Off Ramp

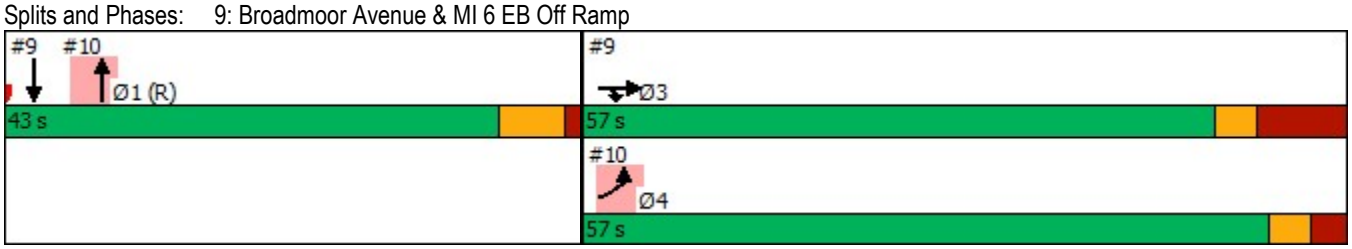


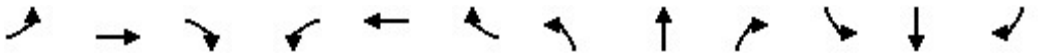
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1311	528	0	0	0	0	0	0	0	566	0
Future Volume (vph)	0	1311	528	0	0	0	0	0	0	0	566	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		185	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	185			25			25			25		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor												
Frt			0.850									
Flt Protected												
Satd. Flow (prot)	0	3374	2632	0	0	0	0	0	0	0	4964	0
Flt Permitted												
Satd. Flow (perm)	0	3374	2632	0	0	0	0	0	0	0	4964	0
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)			194									
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		677			77			864			776	
Travel Time (s)		15.4			1.8			10.7			9.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	7%	8%	0%	0%	0%	0%	0%	0%	0%	10%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1473	593	0	0	0	0	0	0	0	636	0
Turn Type		NA	Prot								NA	
Protected Phases		3	3								1	
Permitted Phases												
Detector Phase		3	3								1	
Switch Phase												
Minimum Initial (s)		7.0	7.0								10.0	
Minimum Split (s)		16.9	16.9								16.3	
Total Split (s)		57.0	57.0								43.0	
Total Split (%)		57.0%	57.0%								43.0%	
Yellow Time (s)		3.0	3.0								5.0	
All-Red Time (s)		6.9	6.9								1.3	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		9.9	9.9								6.3	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max								C-Max	
Act Effct Green (s)		47.1	47.1								36.7	
Actuated g/C Ratio		0.47	0.47								0.37	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.93	0.44								0.35	
Control Delay		36.4	12.6								17.7	
Queue Delay		2.4	0.0								0.0	
Total Delay		38.8	12.6								17.7	
LOS		D	B								B	
Approach Delay		31.2									17.7	
Approach LOS		C									B	
Queue Length 50th (ft)		448	89								100	
Queue Length 95th (ft)		#598	134								113	
Internal Link Dist (ft)		597			1			784			696	
Turn Bay Length (ft)			185									
Base Capacity (vph)		1589	1342								1821	
Starvation Cap Reductn		0	0								0	
Spillback Cap Reductn		54	0								0	
Storage Cap Reductn		0	0								0	
Reduced v/c Ratio		0.96	0.44								0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 28.1		Intersection LOS: C	
Intersection Capacity Utilization 72.3%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Broadmoor Avenue & MI 6 EB Off Ramp





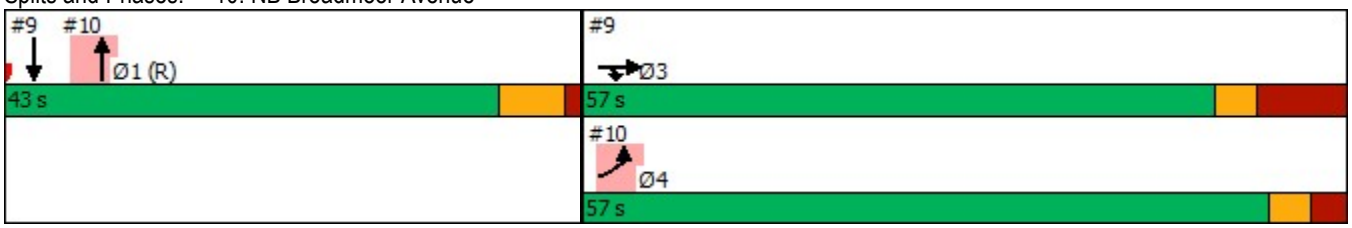
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1311	0	0	0	0	0	0	1278	376	0	0	0
Future Volume (vph)	1311	0	0	0	0	0	0	1278	376	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		150	0		0
Storage Lanes	2		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt									0.850			
Flt Protected	0.950											
Satd. Flow (prot)	3273	0	0	0	0	0	0	5036	1509	0	0	0
Flt Permitted	0.950											
Satd. Flow (perm)	3273	0	0	0	0	0	0	5036	1509	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	36								202			
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		77			517			871			1291	
Travel Time (s)		1.8			11.8			10.8			16.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	3%	7%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1473	0	0	0	0	0	0	1436	422	0	0	0
Turn Type	Prot							NA	Free			
Protected Phases	4							1				
Permitted Phases									Free			
Detector Phase	4							1				
Switch Phase												
Minimum Initial (s)	7.0							10.0				
Minimum Split (s)	12.9							16.3				
Total Split (s)	57.0							43.0				
Total Split (%)	57.0%							43.0%				
Yellow Time (s)	3.0							5.0				
All-Red Time (s)	2.9							1.3				
Lost Time Adjust (s)	0.0							0.0				
Total Lost Time (s)	5.9							6.3				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max							C-Max				
Act Effct Green (s)	51.1							36.7	100.0			
Actuated g/C Ratio	0.51							0.37	1.00			

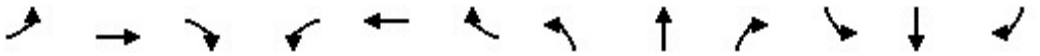
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.87							0.78	0.28			
Control Delay	4.6							31.6	0.5			
Queue Delay	0.0							0.0	0.0			
Total Delay	4.6							31.6	0.5			
LOS	A							C	A			
Approach Delay		4.6						24.5				
Approach LOS		A						C				
Queue Length 50th (ft)	13							293	0			
Queue Length 95th (ft)	m15							345	0			
Internal Link Dist (ft)		1			437			791			1211	
Turn Bay Length (ft)									150			
Base Capacity (vph)	1690							1848	1509			
Starvation Cap Reductn	0							0	0			
Spillback Cap Reductn	0							0	0			
Storage Cap Reductn	0							0	0			
Reduced v/c Ratio	0.87							0.78	0.28			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 30 (30%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 15.7		Intersection LOS: B	
Intersection Capacity Utilization 72.3%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: NB Broadmoor Avenue



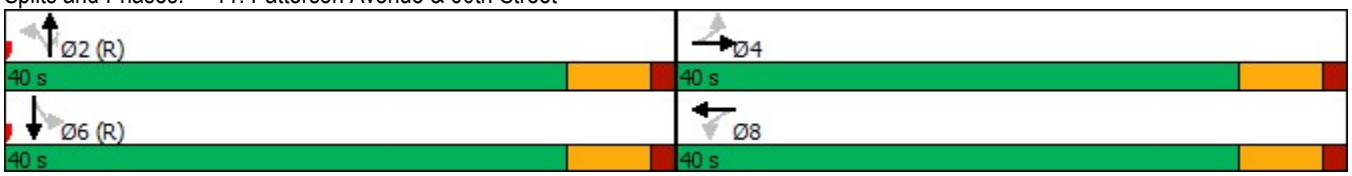


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	182	33	18	183	7	48	336	99	23	120	74
Future Volume (vph)	118	182	33	18	183	7	48	336	99	23	120	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	10	12	12	10	12	12	12	12	12	12	12	16
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	200		0	115		115	145		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	50			35			250			275		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.977			0.995				0.850		0.943	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1504	3057	0	1685	3365	0	1736	1845	1429	1337	1673	0
Flt Permitted	0.610			0.592			0.605			0.415		
Satd. Flow (perm)	966	3057	0	1050	3365	0	1105	1845	1429	584	1673	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			6				119		48	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2458			946			2396			516	
Travel Time (s)		30.5			11.7			29.7			6.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	12%	16%	12%	0%	7%	0%	4%	3%	13%	35%	12%	14%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	142	259	0	22	228	0	58	405	119	28	234	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		16.5	16.5	16.5	16.5	16.5	
Total Split (s)	40.0	40.0		40.0	40.0		40.0	40.0	40.0	40.0	40.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	6.5	6.5	6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	33.5	33.5		33.5	33.5		33.5	33.5	33.5	33.5	33.5	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.42	0.42	0.42	0.42	0.42	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.35	0.20		0.05	0.16		0.13	0.52	0.18	0.11	0.32	
Control Delay	19.0	13.3		14.3	14.5		15.3	20.4	3.8	15.9	13.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	19.0	13.3		14.3	14.5		15.3	20.4	3.8	15.9	13.7	
LOS	B	B		B	B		B	C	A	B	B	
Approach Delay		15.3			14.5			16.5			13.9	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	47	36		6	35		17	146	0	8	59	
Queue Length 95th (ft)	84	55		18	52		37	204	24	23	98	
Internal Link Dist (ft)		2378			866			2316			436	
Turn Bay Length (ft)	150			200			115		115	145		
Base Capacity (vph)	404	1298		439	1412		462	772	667	244	728	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.35	0.20		0.05	0.16		0.13	0.52	0.18	0.11	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 60.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 11: Patterson Avenue & 60th Street



Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	6	10	522	176	39
Future Vol, veh/h	23	6	10	522	176	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	17	0	10	8	13	5
Mvmt Flow	27	7	12	614	207	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	868	230	253	0	-	0
Stage 1	230	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Critical Hdwy	6.57	6.2	4.2	-	-	-
Critical Hdwy Stg 1	5.57	-	-	-	-	-
Critical Hdwy Stg 2	5.57	-	-	-	-	-
Follow-up Hdwy	3.653	3.3	2.29	-	-	-
Pot Cap-1 Maneuver	304	814	1267	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	499	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	300	814	1267	-	-	-
Mov Cap-2 Maneuver	300	-	-	-	-	-
Stage 1	763	-	-	-	-	-
Stage 2	499	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1267	-	345	-	-
HCM Lane V/C Ratio	0.009	-	0.099	-	-
HCM Control Delay (s)	7.9	0	16.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	91	441	38	37	145
Future Vol, veh/h	62	91	441	38	37	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	10	0	0	15
Mvmt Flow	65	96	464	40	39	153

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	715	484	0	0	504	0
Stage 1	484	-	-	-	-	-
Stage 2	231	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	400	587	-	-	1071	-
Stage 1	624	-	-	-	-	-
Stage 2	812	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	386	587	-	-	1071	-
Mov Cap-2 Maneuver	386	-	-	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	1.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	386	587	1071	-
HCM Lane V/C Ratio	-	-	0.169	0.163	0.036	-
HCM Control Delay (s)	-	-	16.2	12.3	8.5	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.6	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	18	461	0	0	207
Future Vol, veh/h	10	18	461	0	0	207
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	100	100	5	0	0	11
Mvmt Flow	11	19	485	0	0	218

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	703	485	0	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	218	-	-	-	-	-
Critical Hdwy	7.4	7.2	-	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	-	-	-	-
Pot Cap-1 Maneuver	287	425	-	0	0	-
Stage 1	458	-	-	0	0	-
Stage 2	633	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	287	425	-	-	-	-
Mov Cap-2 Maneuver	287	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	363	-
HCM Lane V/C Ratio	-	0.081	-
HCM Control Delay (s)	-	15.8	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	0.3	-

Capacity Analysis Summary Sheets

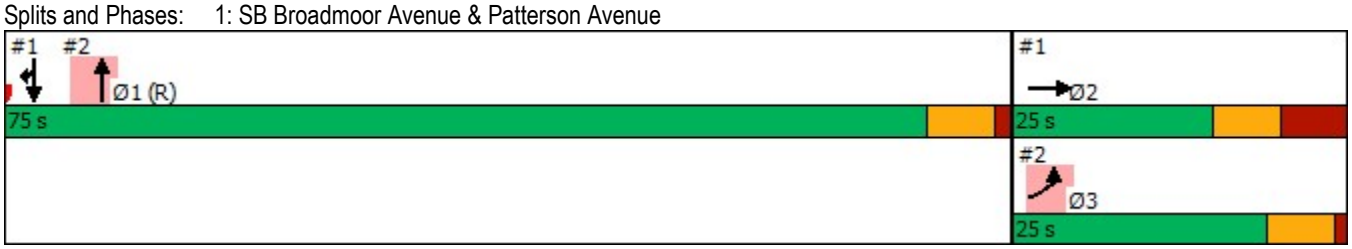
Projected Weekday Evening Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	284	36	0	0	0	0	0	0	0	2228	377
Future Volume (vph)	0	284	36	0	0	0	0	0	0	0	2228	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	135		0	0		0	0		0	0		365
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	215			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.983										0.850
Flt Protected												
Satd. Flow (prot)	0	3219	0	0	0	0	0	0	0	0	3654	1524
Flt Permitted												
Satd. Flow (perm)	0	3219	0	0	0	0	0	0	0	0	3654	1524
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)		9										401
Link Speed (mph)		55			30			55			55	
Link Distance (ft)		296			75			707			498	
Travel Time (s)		3.7			1.7			8.8			6.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	7%	36%	0%	0%	0%	0%	0%	0%	0%	4%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	340	0	0	0	0	0	0	0	0	2370	401
Turn Type		NA									NA	Prot
Protected Phases		2									1	1
Permitted Phases												
Detector Phase		2									1	1
Switch Phase												
Minimum Initial (s)		7.0									10.0	10.0
Minimum Split (s)		17.1									16.4	16.4
Total Split (s)		25.0									75.0	75.0
Total Split (%)		25.0%									75.0%	75.0%
Yellow Time (s)		5.0									5.0	5.0
All-Red Time (s)		5.1									1.4	1.4
Lost Time Adjust (s)		0.0									0.0	0.0
Total Lost Time (s)		10.1									6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max									C-Max	C-Max
Act Effct Green (s)		14.9									68.6	68.6
Actuated g/C Ratio		0.15									0.69	0.69

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.70									0.95	0.34
Control Delay		47.8									24.0	1.4
Queue Delay		0.0									0.0	0.0
Total Delay		47.8									24.0	1.4
LOS		D									C	A
Approach Delay		47.8									20.7	
Approach LOS		D									C	
Queue Length 50th (ft)		106									627	0
Queue Length 95th (ft)		155									#921	27
Internal Link Dist (ft)		216			1			627			418	
Turn Bay Length (ft)												365
Base Capacity (vph)		487									2506	1171
Starvation Cap Reductn		0									0	0
Spillback Cap Reductn		0									0	0
Storage Cap Reductn		0									0	0
Reduced v/c Ratio		0.70									0.95	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 78 (78%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 23.7		Intersection LOS: C	
Intersection Capacity Utilization 81.3%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: SB Broadmoor Avenue & Patterson Avenue

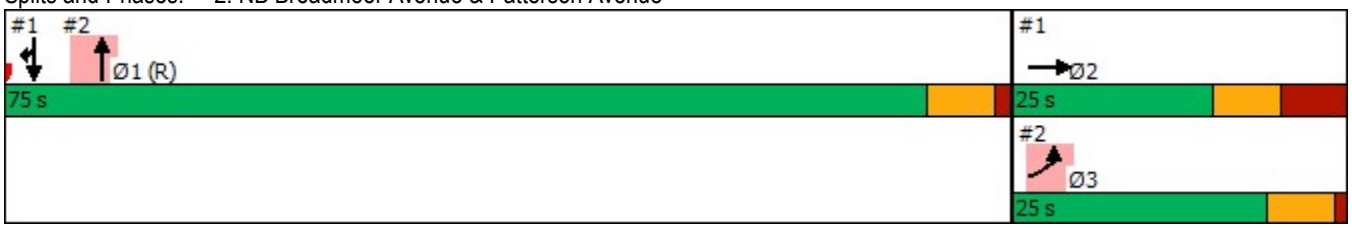


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	284	0	0	950	0	0	
Future Volume (vph)	284	0	0	950	0	0	
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%			0%	0%		
Storage Length (ft)	0	0	0			0	
Storage Lanes	2	0	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	0.97	1.00	1.00	0.91	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3273	0	0	4964	0	0	
Flt Permitted	0.950						
Satd. Flow (perm)	3273	0	0	4964	0	0	
Right Turn on Red	Yes	Yes				Yes	
Satd. Flow (RTOR)	305						
Link Speed (mph)	30			55	55		
Link Distance (ft)	75			702	506		
Travel Time (s)	1.7			8.7	6.3		
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	7%	0%	0%	10%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%			0%	0%		
Shared Lane Traffic (%)							
Lane Group Flow (vph)	302	0	0	1011	0	0	
Turn Type	Prot			NA			
Protected Phases	3			1			2
Permitted Phases							
Detector Phase	3			1			
Switch Phase							
Minimum Initial (s)	7.0			10.0			7.0
Minimum Split (s)	13.1			16.4			17.1
Total Split (s)	25.0			75.0			25.0
Total Split (%)	25.0%			75.0%			25%
Yellow Time (s)	5.0			5.0			5.0
All-Red Time (s)	1.1			1.4			5.1
Lost Time Adjust (s)	0.0			0.0			
Total Lost Time (s)	6.1			6.4			
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max			C-Max			Max
Act Effct Green (s)	18.9			68.6			
Actuated g/C Ratio	0.19			0.69			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
v/c Ratio	0.35			0.30			
Control Delay	0.8			7.0			
Queue Delay	0.0			0.0			
Total Delay	0.8			7.0			
LOS	A			A			
Approach Delay	0.8			7.0			
Approach LOS	A			A			
Queue Length 50th (ft)	0			101			
Queue Length 95th (ft)	0			124			
Internal Link Dist (ft)	1			622	426		
Turn Bay Length (ft)							
Base Capacity (vph)	865			3405			
Starvation Cap Reductn	0			0			
Spillback Cap Reductn	0			0			
Storage Cap Reductn	0			0			
Reduced v/c Ratio	0.35			0.30			

Intersection Summary		
Area Type:	Other	
Cycle Length: 100		
Actuated Cycle Length: 100		
Offset: 78 (78%), Referenced to phase 1:SBT, Start of Green		
Natural Cycle: 90		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.95		
Intersection Signal Delay: 5.6		Intersection LOS: A
Intersection Capacity Utilization 81.3%		ICU Level of Service D
Analysis Period (min) 15		

Splits and Phases: 2: NB Broadmoor Avenue & Patterson Avenue



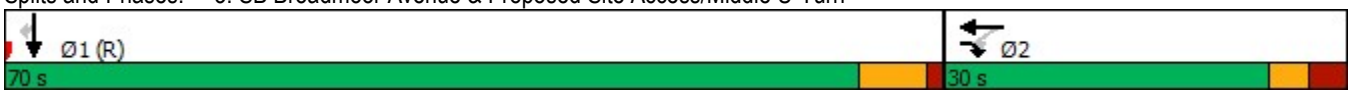
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	127	208	81	0	0	0	0	0	2167	97
Future Volume (vph)	0	0	127	208	81	0	0	0	0	0	2167	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	210		250
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			0			260		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor												
Frt			0.865									0.850
Flt Protected				0.950	0.978							
Satd. Flow (prot)	0	0	1644	1633	1560	0	0	0	0	0	5250	1442
Flt Permitted				0.950	0.978							
Satd. Flow (perm)	0	0	1644	1633	1560	0	0	0	0	0	5250	1442
Right Turn on Red			Yes	Yes		Yes			Yes			Yes
Satd. Flow (RTOR)			37	37	37							102
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		242			66			676			707	
Travel Time (s)		5.5			1.5			8.4			8.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.94	0.95	0.94	0.95	0.94	0.94	0.94	0.94	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	5%	20%	0%	0%	0%	0%	0%	4%	12%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				32%								
Lane Group Flow (vph)	0	0	134	150	156	0	0	0	0	0	2305	102
Turn Type			Prot	Perm	NA						NA	Perm
Protected Phases			2		2						1	
Permitted Phases				2								1
Detector Phase			2	2	2						1	1
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						10.0	10.0
Minimum Split (s)			13.0	13.0	13.0						16.4	16.4
Total Split (s)			30.0	30.0	30.0						70.0	70.0
Total Split (%)			30.0%	30.0%	30.0%						70.0%	70.0%
Yellow Time (s)			3.0	3.0	3.0						5.0	5.0
All-Red Time (s)			3.0	3.0	3.0						1.4	1.4
Lost Time Adjust (s)			0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)			6.0	6.0	6.0						6.4	6.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode			Max	Max	Max						C-Max	C-Max
Act Effct Green (s)			24.0	24.0	24.0						63.6	63.6
Actuated g/C Ratio			0.24	0.24	0.24						0.64	0.64

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio			0.32	0.36	0.39						0.69	0.11
Control Delay			24.8	18.2	19.0						3.1	0.2
Queue Delay			0.0	0.0	0.0						0.1	0.0
Total Delay			24.8	18.2	19.0						3.2	0.2
LOS			C	B	B						A	A
Approach Delay		24.8			18.6						3.1	
Approach LOS		C			B						A	
Queue Length 50th (ft)			50	54	58						36	0
Queue Length 95th (ft)			103	112	118						m52	m0
Internal Link Dist (ft)		162			1			596			627	
Turn Bay Length (ft)												250
Base Capacity (vph)			422	420	402						3339	954
Starvation Cap Reductn			0	0	0						213	0
Spillback Cap Reductn			0	0	0						0	0
Storage Cap Reductn			0	0	0						0	0
Reduced v/c Ratio			0.32	0.36	0.39						0.74	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 87 (87%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 5.8		Intersection LOS: A	
Intersection Capacity Utilization 77.2%		ICU Level of Service D	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SB Broadmoor Avenue & Proposed Site Access/Middle U-Turn



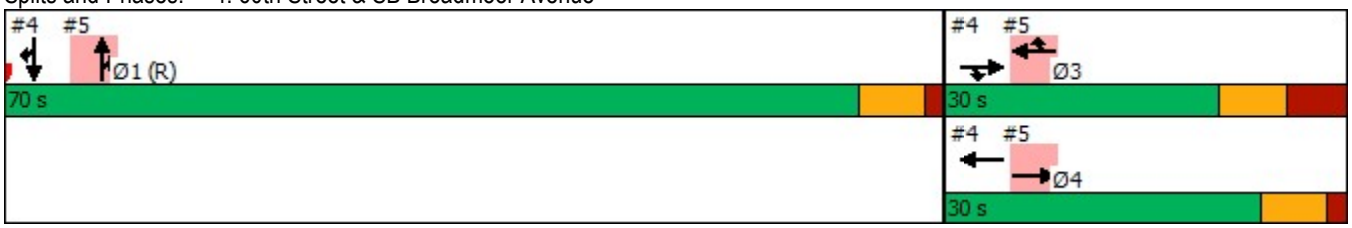
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	118	311	0	126	0	0	0	0	0	2431	71
Future Volume (vph)	0	118	311	0	126	0	0	0	0	0	2431	71
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		175	0		190	0		0	0		285
Storage Lanes	0		1	0		0	0		0	0		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850									0.850
Flt Protected												
Satd. Flow (prot)	0	1961	2498	0	1961	0	0	0	0	0	6680	1404
Flt Permitted												
Satd. Flow (perm)	0	1961	2498	0	1961	0	0	0	0	0	6680	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			38									75
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		946			59			532			676	
Travel Time (s)		11.7			0.7			6.6			8.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	10%	0%	2%	0%	0%	0%	0%	0%	3%	15%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	124	327	0	133	0	0	0	0	0	2559	75
Turn Type		NA	Prot		NA						NA	Prot
Protected Phases		3	3		4						1	1
Permitted Phases												
Detector Phase		3	3		4						1	1
Switch Phase												
Minimum Initial (s)		7.0	7.0		7.0						10.0	10.0
Minimum Split (s)		16.6	16.6		13.6						16.5	16.5
Total Split (s)		30.0	30.0		30.0						70.0	70.0
Total Split (%)		30.0%	30.0%		30.0%						70.0%	70.0%
Yellow Time (s)		5.0	5.0		5.0						5.0	5.0
All-Red Time (s)		4.6	4.6		1.6						1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0						0.0	0.0
Total Lost Time (s)		9.6	9.6		6.6						6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max		Max						C-Max	C-Max
Act Effct Green (s)		20.4	20.4		23.4						63.5	63.5
Actuated g/C Ratio		0.20	0.20		0.23						0.64	0.64

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.31	0.61		0.29						0.60	0.08
Control Delay		36.4	37.2		1.6						4.3	0.4
Queue Delay		0.0	0.0		0.0						0.0	0.0
Total Delay		36.4	37.2		1.6						4.3	0.4
LOS		D	D		A						A	A
Approach Delay		37.0			1.6						4.2	
Approach LOS		D			A						A	
Queue Length 50th (ft)		68	95		1						58	0
Queue Length 95th (ft)		121	147		1						66	m1
Internal Link Dist (ft)		866			1			452			596	
Turn Bay Length (ft)			175									285
Base Capacity (vph)		400	539		458						4241	918
Starvation Cap Reductn		0	0		0						0	0
Spillback Cap Reductn		0	0		0						0	0
Storage Cap Reductn		0	0		0						0	0
Reduced v/c Ratio		0.31	0.61		0.29						0.60	0.08

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 96 (96%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 8.7		Intersection LOS: A	
Intersection Capacity Utilization 57.8%		ICU Level of Service B	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: 60th Street & SB Broadmoor Avenue

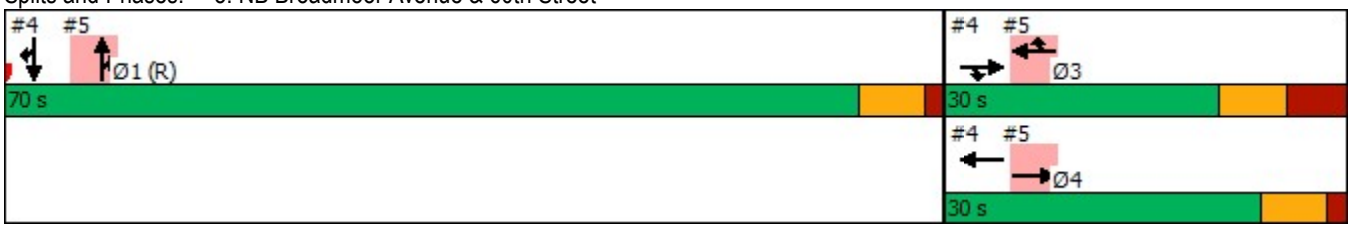


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	118	0	0	126	209	0	1030	152	0	0	0
Future Volume (vph)	0	118	0	0	126	209	0	1030	152	0	0	0
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		190	0		390	0		0
Storage Lanes	0		0	0		2	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850			0.850			
Flt Protected												
Satd. Flow (prot)	0	1961	0	0	1961	2787	0	4919	1417	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1961	0	0	1961	2787	0	4919	1417	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						201			160			
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		59			604			523			698	
Travel Time (s)		0.7			7.5			6.5			8.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	0%	2%	2%	0%	11%	14%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	124	0	0	133	220	0	1084	160	0	0	0
Turn Type		NA			NA	Prot		NA	Prot			
Protected Phases		4			3	3		1	1			
Permitted Phases												
Detector Phase		4			3	3		1	1			
Switch Phase												
Minimum Initial (s)		7.0			7.0	7.0		10.0	10.0			
Minimum Split (s)		13.6			16.6	16.6		16.5	16.5			
Total Split (s)		30.0			30.0	30.0		70.0	70.0			
Total Split (%)		30.0%			30.0%	30.0%		70.0%	70.0%			
Yellow Time (s)		5.0			5.0	5.0		5.0	5.0			
All-Red Time (s)		1.6			4.6	4.6		1.5	1.5			
Lost Time Adjust (s)		0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)		6.6			9.6	9.6		6.5	6.5			
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max			Max	Max		C-Max	C-Max			
Act Effct Green (s)		23.4			20.4	20.4		63.5	63.5			
Actuated g/C Ratio		0.23			0.20	0.20		0.64	0.64			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.27			0.33	0.30		0.35	0.17			
Control Delay		1.4			36.7	7.6		3.3	0.4			
Queue Delay		0.0			0.0	0.0		0.0	0.0			
Total Delay		1.4			36.7	7.6		3.3	0.4			
LOS		A			D	A		A	A			
Approach Delay		1.4			18.6			2.9				
Approach LOS		A			B			A				
Queue Length 50th (ft)		1			73	5		27	0			
Queue Length 95th (ft)		0			128	39		30	0			
Internal Link Dist (ft)		1			524			443			618	
Turn Bay Length (ft)						190			390			
Base Capacity (vph)		458			400	728		3123	958			
Starvation Cap Reductn		0			0	0		0	0			
Spillback Cap Reductn		0			0	0		0	0			
Storage Cap Reductn		0			0	0		0	0			
Reduced v/c Ratio		0.27			0.33	0.30		0.35	0.17			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 96 (96%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 6.0		Intersection LOS: A	
Intersection Capacity Utilization 57.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: NB Broadmoor Avenue & 60th Street



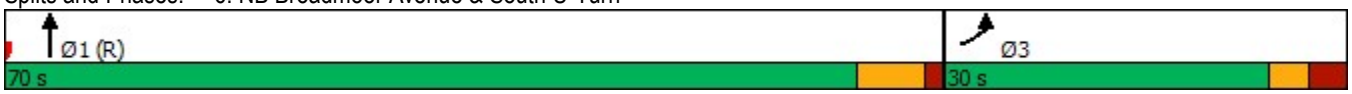
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	0	0	1152	0	0
Future Volume (vph)	30	0	0	1152	0	0
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	2	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3502	0	0	6143	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3502	0	0	6143	0	0
Right Turn on Red	Yes	Yes				Yes
Satd. Flow (RTOR)	166					
Link Speed (mph)	30			55	55	
Link Distance (ft)	62			358	523	
Travel Time (s)	1.4			4.4	6.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	12%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	0	1213	0	0
Turn Type	Prot			NA		
Protected Phases	3			1		
Permitted Phases						
Detector Phase	3			1		
Switch Phase						
Minimum Initial (s)	7.0			10.0		
Minimum Split (s)	13.0			16.6		
Total Split (s)	30.0			70.0		
Total Split (%)	30.0%			70.0%		
Yellow Time (s)	3.0			5.0		
All-Red Time (s)	3.0			1.6		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	6.0			6.6		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max			C-Max		
Act Effct Green (s)	24.0			63.4		
Actuated g/C Ratio	0.24			0.63		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.03			0.31		
Control Delay	0.1			1.9		
Queue Delay	0.0			0.1		
Total Delay	0.1			2.0		
LOS	A			A		
Approach Delay	0.1			2.0		
Approach LOS	A			A		
Queue Length 50th (ft)	0			17		
Queue Length 95th (ft)	m0			25		
Internal Link Dist (ft)	1			278	443	
Turn Bay Length (ft)						
Base Capacity (vph)	966			3894		
Starvation Cap Reductn	0			900		
Spillback Cap Reductn	0			0		
Storage Cap Reductn	0			0		
Reduced v/c Ratio	0.03			0.41		

Intersection Summary		
Area Type:	Other	
Cycle Length: 100		
Actuated Cycle Length: 100		
Offset: 5 (5%), Referenced to phase 1:NBT, Start of Green		
Natural Cycle: 40		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.31		
Intersection Signal Delay: 1.9	Intersection LOS: A	
Intersection Capacity Utilization 56.1%	ICU Level of Service B	
Analysis Period (min) 15		

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: NB Broadmoor Avenue & South U-Turn

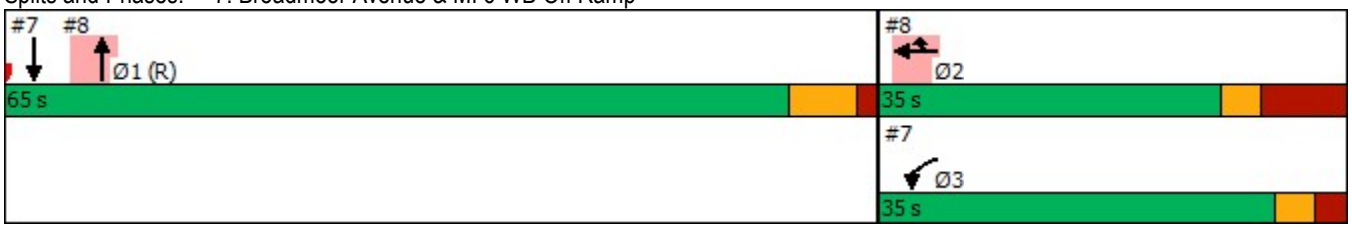


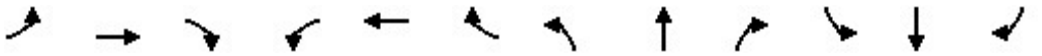
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
Lane Configurations							
Traffic Volume (vph)	301	0	0	0	0	1071	
Future Volume (vph)	301	0	0	0	0	1071	
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	
Lane Width (ft)	12	12	12	12	12	12	
Grade (%)	0%		0%			0%	
Storage Length (ft)	0	0		0	0		
Storage Lanes	2	0		0	0		
Taper Length (ft)	0				25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.91	
Ped Bike Factor							
Frt							
Flt Protected	0.950						
Satd. Flow (prot)	3367	0	0	0	0	5250	
Flt Permitted	0.950						
Satd. Flow (perm)	3367	0	0	0	0	5250	
Right Turn on Red	Yes	Yes		Yes			
Satd. Flow (RTOR)	144						
Link Speed (mph)	30		55			55	
Link Distance (ft)	64		504			150	
Travel Time (s)	1.5		6.2			1.9	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	
Growth Factor	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	4%	0%	0%	0%	0%	4%	
Bus Blockages (#/hr)	0	0	0	0	0	0	
Parking (#/hr)							
Mid-Block Traffic (%)	0%		0%			0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	331	0	0	0	0	1177	
Turn Type	Prot					NA	
Protected Phases	3					1	2
Permitted Phases							
Detector Phase	3					1	
Switch Phase							
Minimum Initial (s)	7.0					10.0	7.0
Minimum Split (s)	12.5					16.6	16.5
Total Split (s)	35.0					65.0	35.0
Total Split (%)	35.0%					65.0%	35%
Yellow Time (s)	3.0					5.0	3.0
All-Red Time (s)	2.5					1.6	6.5
Lost Time Adjust (s)	0.0					0.0	
Total Lost Time (s)	5.5					6.6	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max					C-Max	Max
Act Effct Green (s)	29.5					58.4	
Actuated g/C Ratio	0.30					0.58	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2
v/c Ratio	0.30					0.38	
Control Delay	0.7					5.3	
Queue Delay	0.0					0.0	
Total Delay	0.7					5.3	
LOS	A					A	
Approach Delay	0.7					5.3	
Approach LOS	A					A	
Queue Length 50th (ft)	0					46	
Queue Length 95th (ft)	0					60	
Internal Link Dist (ft)	1		424			70	
Turn Bay Length (ft)							
Base Capacity (vph)	1094					3066	
Starvation Cap Reductn	0					0	
Spillback Cap Reductn	0					0	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.30					0.38	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 7 (7%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 4.3		Intersection LOS: A	
Intersection Capacity Utilization 42.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 7: Broadmoor Avenue & MI 6 WB Off Ramp



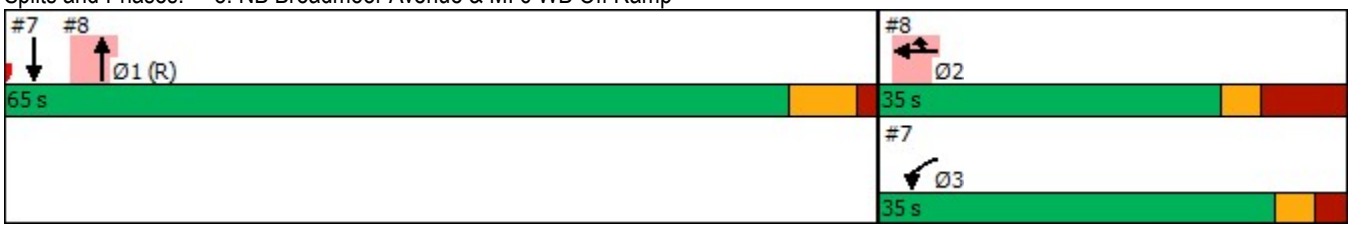


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	301	125	0	1027	0	0	0	0
Future Volume (vph)	0	0	0	0	301	125	0	1027	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	170		0	0		0	0		0
Storage Lanes	0		0	1		1	0		0	0		0
Taper Length (ft)	25			300			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.994	0.850						
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3276	1157	0	4715	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3276	1157	0	4715	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)					4	83						
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		64			495			1291			358	
Travel Time (s)		1.5			11.3			16.0			4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	4%	27%	0%	10%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	0	0	0	0	345	123	0	1129	0	0	0	0
Turn Type					NA	Prot		NA				
Protected Phases					2	2		1				
Permitted Phases												
Detector Phase					2	2		1				
Switch Phase												
Minimum Initial (s)					7.0	7.0		10.0				
Minimum Split (s)					16.5	16.5		16.6				
Total Split (s)					35.0	35.0		65.0				
Total Split (%)					35.0%	35.0%		65.0%				
Yellow Time (s)					3.0	3.0		5.0				
All-Red Time (s)					6.5	6.5		1.6				
Lost Time Adjust (s)					0.0	0.0		0.0				
Total Lost Time (s)					9.5	9.5		6.6				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode					Max	Max		C-Max				
Act Effct Green (s)					25.5	25.5		58.4				
Actuated g/C Ratio					0.26	0.26		0.58				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio					0.41	0.35		0.41				
Control Delay					32.4	14.8		8.3				
Queue Delay					0.0	0.0		0.0				
Total Delay					32.4	14.8		8.3				
LOS					C	B		A				
Approach Delay					27.8			8.3				
Approach LOS					C			A				
Queue Length 50th (ft)					99	21		133				
Queue Length 95th (ft)					143	75		126				
Internal Link Dist (ft)		1			415			1211			278	
Turn Bay Length (ft)												
Base Capacity (vph)					838	356		2753				
Starvation Cap Reductn					0	0		0				
Spillback Cap Reductn					0	0		0				
Storage Cap Reductn					0	0		0				
Reduced v/c Ratio					0.41	0.35		0.41				

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 7 (7%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 42.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: NB Broadmoor Avenue & MI 6 WB Off Ramp

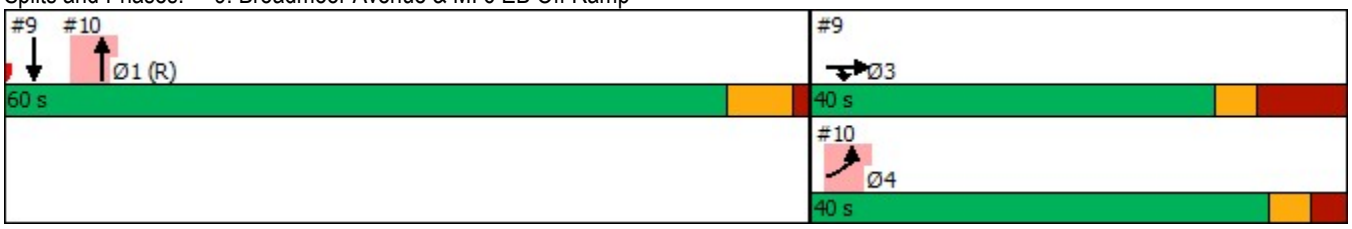


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱↱								↑↑↑	
Traffic Volume (vph)	0	544	570	0	0	0	0	0	0	0	1113	0
Future Volume (vph)	0	544	570	0	0	0	0	0	0	0	1113	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		185	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	185			25			25			25		
Lane Util. Factor	1.00	0.95	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor												
Frt			0.850									
Flt Protected												
Satd. Flow (prot)	0	3167	2760	0	0	0	0	0	0	0	5301	0
Flt Permitted												
Satd. Flow (perm)	0	3167	2760	0	0	0	0	0	0	0	5301	0
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)			100									
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		677			77			864			776	
Travel Time (s)		15.4			1.8			10.7			9.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	14%	3%	0%	0%	0%	0%	0%	0%	0%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	579	606	0	0	0	0	0	0	0	1184	0
Turn Type		NA	Prot								NA	
Protected Phases		3	3								1	
Permitted Phases												
Detector Phase		3	3								1	
Switch Phase												
Minimum Initial (s)		7.0	7.0								10.0	
Minimum Split (s)		16.9	16.9								16.3	
Total Split (s)		40.0	40.0								60.0	
Total Split (%)		40.0%	40.0%								60.0%	
Yellow Time (s)		3.0	3.0								5.0	
All-Red Time (s)		6.9	6.9								1.3	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		9.9	9.9								6.3	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		Max	Max								C-Max	
Act Effct Green (s)		30.1	30.1								53.7	
Actuated g/C Ratio		0.30	0.30								0.54	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.61	0.67								0.42	
Control Delay		33.2	29.7								9.8	
Queue Delay		0.0	0.0								0.0	
Total Delay		33.2	29.7								9.8	
LOS		C	C								A	
Approach Delay		31.4									9.8	
Approach LOS		C									A	
Queue Length 50th (ft)		165	160								91	
Queue Length 95th (ft)		223	228								105	
Internal Link Dist (ft)		597			1			784			696	
Turn Bay Length (ft)			185									
Base Capacity (vph)		953	900								2846	
Starvation Cap Reductn		0	0								0	
Spillback Cap Reductn		0	0								0	
Storage Cap Reductn		0	0								0	
Reduced v/c Ratio		0.61	0.67								0.42	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 18 (18%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 20.6		Intersection LOS: C	
Intersection Capacity Utilization 53.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 9: Broadmoor Avenue & MI 6 EB Off Ramp

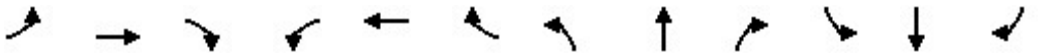


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	544	0	0	0	0	0	0	901	279	0	0	0
Future Volume (vph)	544	0	0	0	0	0	0	901	279	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		150	0		0
Storage Lanes	2		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt									0.850			
Flt Protected	0.950											
Satd. Flow (prot)	3072	0	0	0	0	0	0	5036	1583	0	0	0
Flt Permitted	0.950											
Satd. Flow (perm)	3072	0	0	0	0	0	0	5036	1583	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	199								213			
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		77			517			871			1291	
Travel Time (s)		1.8			11.8			10.8			16.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	14%	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	579	0	0	0	0	0	0	959	297	0	0	0
Turn Type	Prot							NA	Free			
Protected Phases	4							1				
Permitted Phases									Free			
Detector Phase	4							1				
Switch Phase												
Minimum Initial (s)	7.0							10.0				
Minimum Split (s)	12.9							16.3				
Total Split (s)	40.0							60.0				
Total Split (%)	40.0%							60.0%				
Yellow Time (s)	3.0							5.0				
All-Red Time (s)	2.9							1.3				
Lost Time Adjust (s)	0.0							0.0				
Total Lost Time (s)	5.9							6.3				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max							C-Max				
Act Effct Green (s)	34.1							53.7	100.0			
Actuated g/C Ratio	0.34							0.54	1.00			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.49							0.35	0.19			
Control Delay	1.4							13.7	0.3			
Queue Delay	0.0							0.0	0.0			
Total Delay	1.4							13.7	0.3			
LOS	A							B	A			
Approach Delay		1.4						10.5				
Approach LOS		A						B				
Queue Length 50th (ft)	3							121	0			
Queue Length 95th (ft)	0							151	0			
Internal Link Dist (ft)		1			437			791			1211	
Turn Bay Length (ft)									150			
Base Capacity (vph)	1178							2704	1583			
Starvation Cap Reductn	0							0	0			
Spillback Cap Reductn	0							0	0			
Storage Cap Reductn	0							0	0			
Reduced v/c Ratio	0.49							0.35	0.19			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 18 (18%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 53.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: NB Broadmoor Avenue

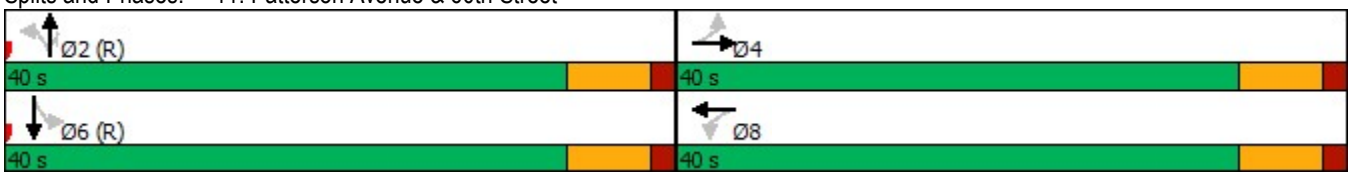


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	289	75	20	165	12	34	142	99	41	238	125
Future Volume (vph)	103	289	75	20	165	12	34	142	99	41	238	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Lane Width (ft)	10	12	12	10	12	12	12	12	12	12	12	16
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	200		0	115		115	145		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	50			35			250			275		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.969			0.990				0.850		0.948	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1589	3365	0	1685	3338	0	1805	1810	1482	1480	1782	0
Flt Permitted	0.631			0.518			0.425			0.659		
Satd. Flow (perm)	1056	3365	0	919	3338	0	808	1810	1482	1026	1782	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			11				108		41	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		2458			946			2396			516	
Travel Time (s)		30.5			11.7			29.7			6.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	5%	0%	0%	7%	8%	0%	5%	9%	22%	5%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	112	396	0	22	192	0	37	154	108	45	395	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		16.5	16.5	16.5	16.5	16.5	
Total Split (s)	40.0	40.0		40.0	40.0		40.0	40.0	40.0	40.0	40.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	6.5	6.5	6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	33.5	33.5		33.5	33.5		33.5	33.5	33.5	33.5	33.5	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.42	0.42	0.42	0.42	0.42	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.25	0.28		0.06	0.14		0.11	0.20	0.16	0.10	0.51	
Control Delay	17.1	13.8		14.5	13.8		15.4	15.7	3.8	15.1	18.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	17.1	13.8		14.5	13.8		15.4	15.7	3.8	15.1	18.2	
LOS	B	B		B	B		B	B	A	B	B	
Approach Delay		14.6			13.9			11.4			17.8	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	35	57		6	28		11	47	0	13	126	
Queue Length 95th (ft)	72	87		20	48		30	86	28	34	206	
Internal Link Dist (ft)		2378			866			2316			436	
Turn Bay Length (ft)	150			200			115		115	145		
Base Capacity (vph)	442	1438		384	1404		338	757	683	429	770	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.25	0.28		0.06	0.14		0.11	0.20	0.16	0.10	0.51	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 14.8		Intersection LOS: B	
Intersection Capacity Utilization 65.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 11: Patterson Avenue & 60th Street



Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	21	4	286	365	12
Future Vol, veh/h	34	21	4	286	365	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	11	6	0
Mvmt Flow	42	26	5	353	451	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	822	459	466	0	-	0
Stage 1	459	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	346	606	1106	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	344	606	1106	-	-	-
Mov Cap-2 Maneuver	344	-	-	-	-	-
Stage 1	637	-	-	-	-	-
Stage 2	708	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.5	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1106	-	412	-	-
HCM Lane V/C Ratio	0.004	-	0.165	-	-
HCM Control Delay (s)	8.3	0	15.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	52	238	37	28	358
Future Vol, veh/h	36	52	238	37	28	358
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	11	0	0	6
Mvmt Flow	38	55	251	39	29	377

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	706	271	0	0	290	0
Stage 1	271	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	405	773	-	-	1283	-
Stage 1	779	-	-	-	-	-
Stage 2	657	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	396	773	-	-	1283	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	779	-	-	-	-	-
Stage 2	642	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	396	773	1283	-
HCM Lane V/C Ratio	-	-	0.096	0.071	0.023	-
HCM Control Delay (s)	-	-	15.1	10	7.9	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	18	257	0	0	394
Future Vol, veh/h	10	18	257	0	0	394
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	100	100	5	0	0	6
Mvmt Flow	11	19	271	0	0	415

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	686	271	0	-	-	-
Stage 1	271	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Critical Hdwy	7.4	7.2	-	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	-	-	-	-
Pot Cap-1 Maneuver	295	581	-	0	0	-
Stage 1	594	-	-	0	0	-
Stage 2	499	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	295	581	-	-	-	-
Mov Cap-2 Maneuver	295	-	-	-	-	-
Stage 1	594	-	-	-	-	-
Stage 2	499	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	432	-
HCM Lane V/C Ratio	-	0.068	-
HCM Control Delay (s)	-	13.9	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.2	-

See Additional Documents

Attachment 9:

QuikTrip Presentation

Cascade Township Planning Commission
QuikTrip #7419
5905 Broadmoor Avenue SE (M-37)

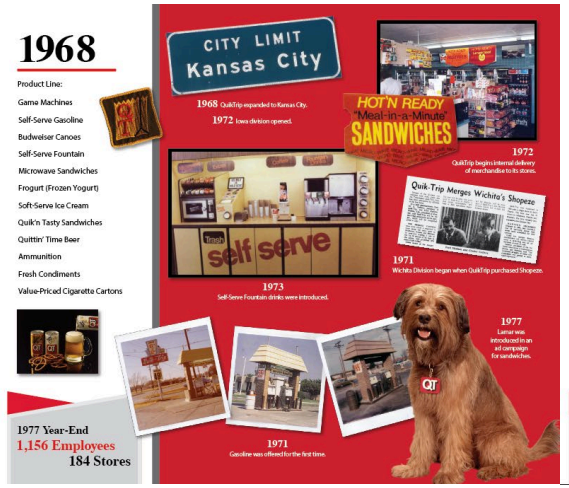
Request for Preliminary Concept Plan Review of a PUD Amendment

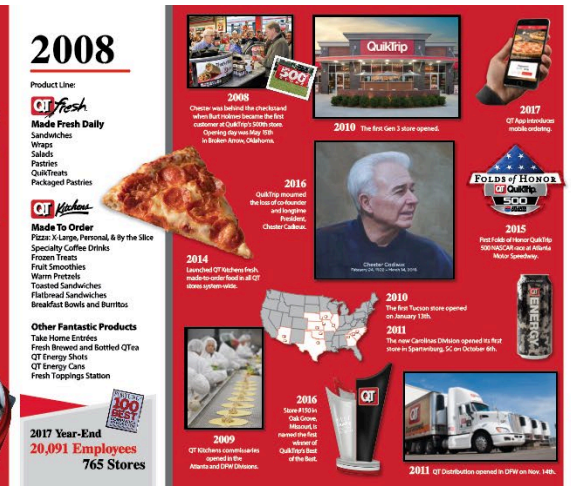
September 16, 2024

Case 24-3843

Who Is QuikTrip?

QUIKTRIP HISTORY AT A GLANCE





2023

1000th store opened.

QuikTrip® employs over 25,000 people, operating more than 1070 stores.

Expanded in Chicagoland

A FEW FACTS ABOUT QUIKTRIP

- 15 years on Fortune's List of "100 Best Companies to Work For"
- Perennially listed on Forbes' "Top 100 Privately Held Companies"
- Create an average of 20 new jobs per location
- Has never laid off a single employee in the history of the company
- QuikTrip contributes 5% of its profits to charitable organizations in the local communities in which it operates
- QuikTrip is a National Safe Place location for endangered youth
- Last year QuikTrip contributed $50 million in charitable contributions

QUIKTRIP COFFEE

INSIDE QUIKTRIP

STORE SECURITY

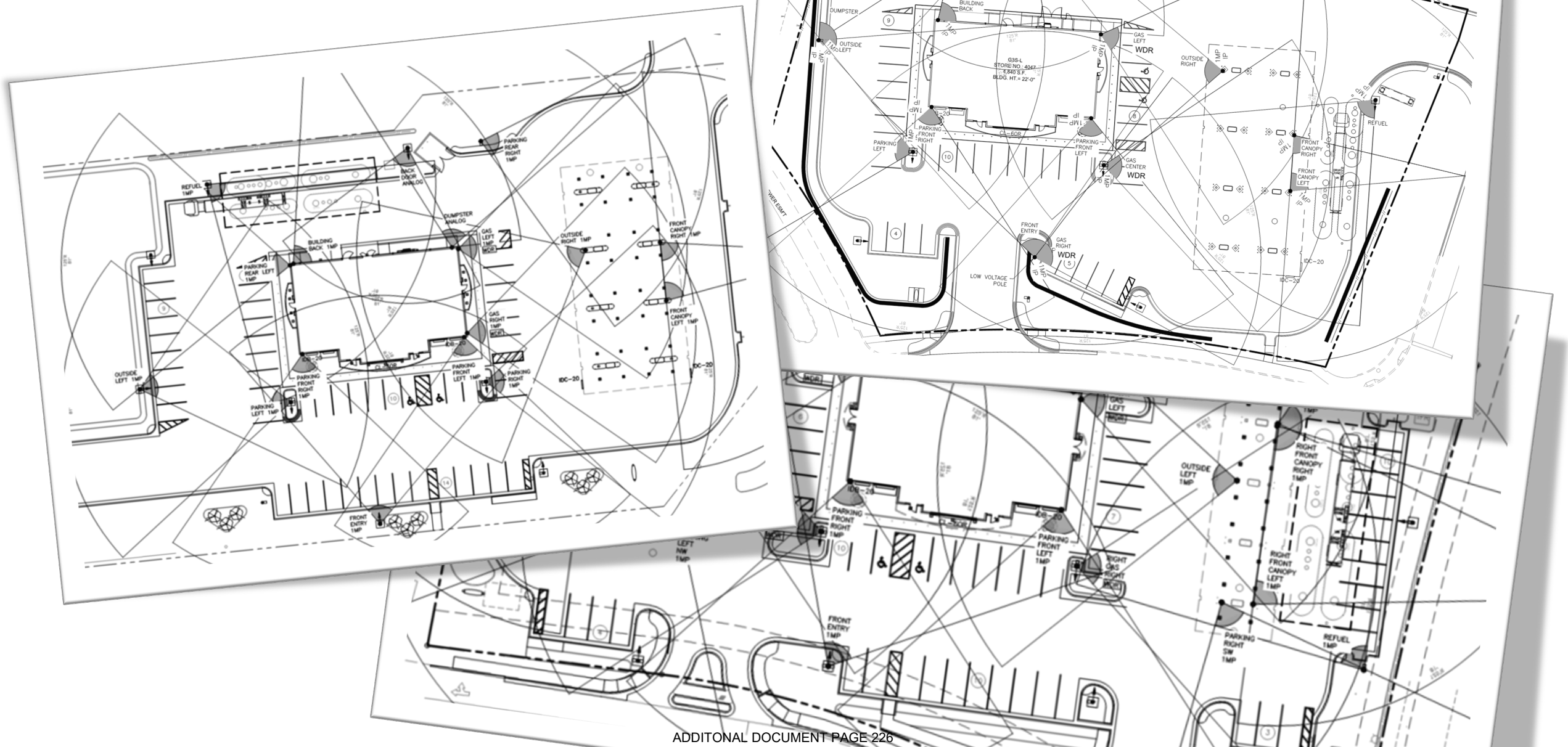
Security That Leaves Nothing To Chance

Providing a great work environment, serving our customers and being a welcome community partner start with exceptional security. Each store has multiple alarm points and digital video surveillance that is monitored 24/7 from our centralized,
high-tech Security Operations Center.

"QuikTrip's commitment to the safety of their employees and customers is not only well known by the community, it is deeply appreciated by every deputy in Tulsa County."

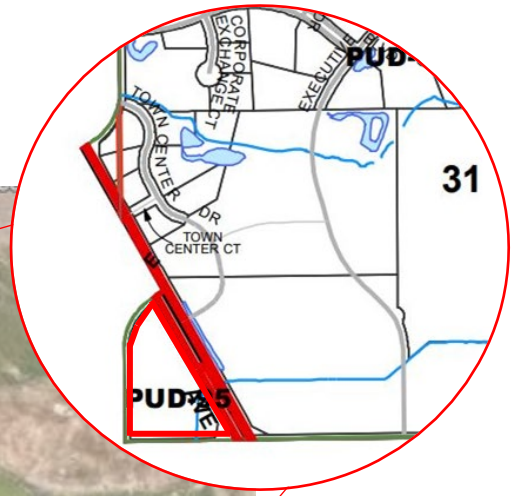
-Tulsa County Sheriff's Department

STORE SECURITY



Proposed Project

Existing Conditions



Surroundings

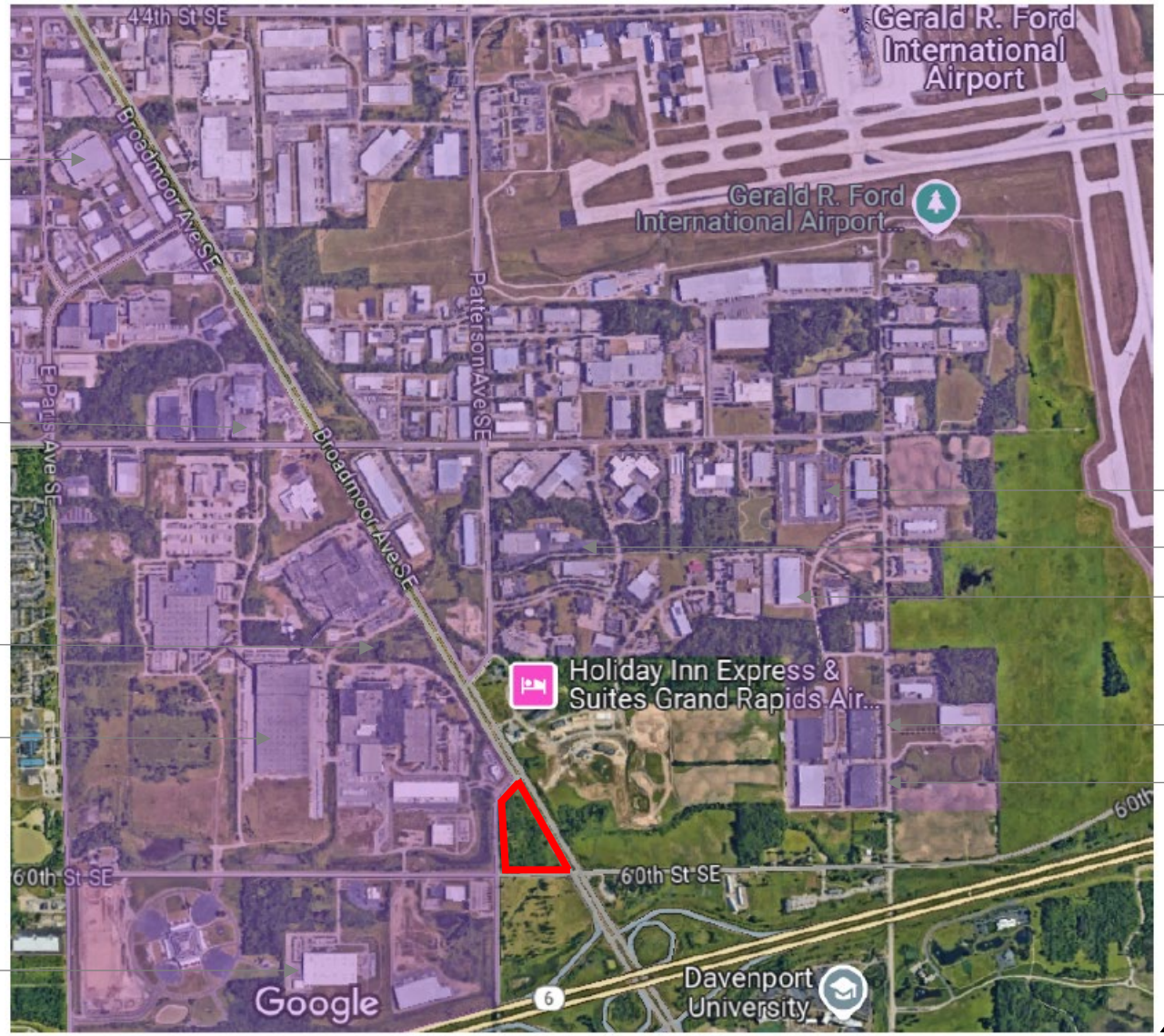
BFG Supply

Lacks Enterprises

Roskam Foods (S2)

Steelcase Kentwood Manufacturing Plant

Alliance Beverage Distributing



Gerald R. Ford Int. Airport

FedEx Freight

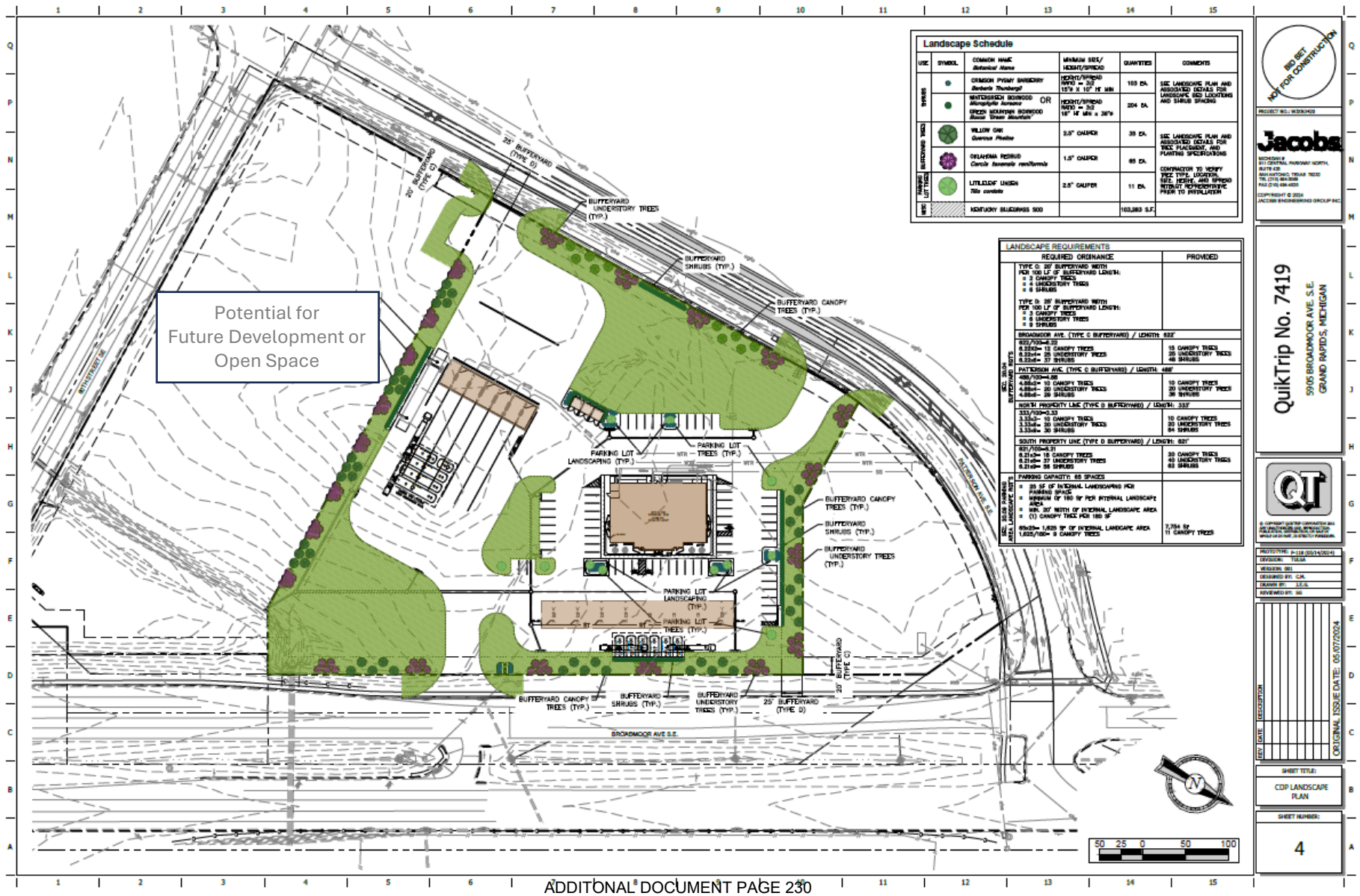
West Side Beer Distributing

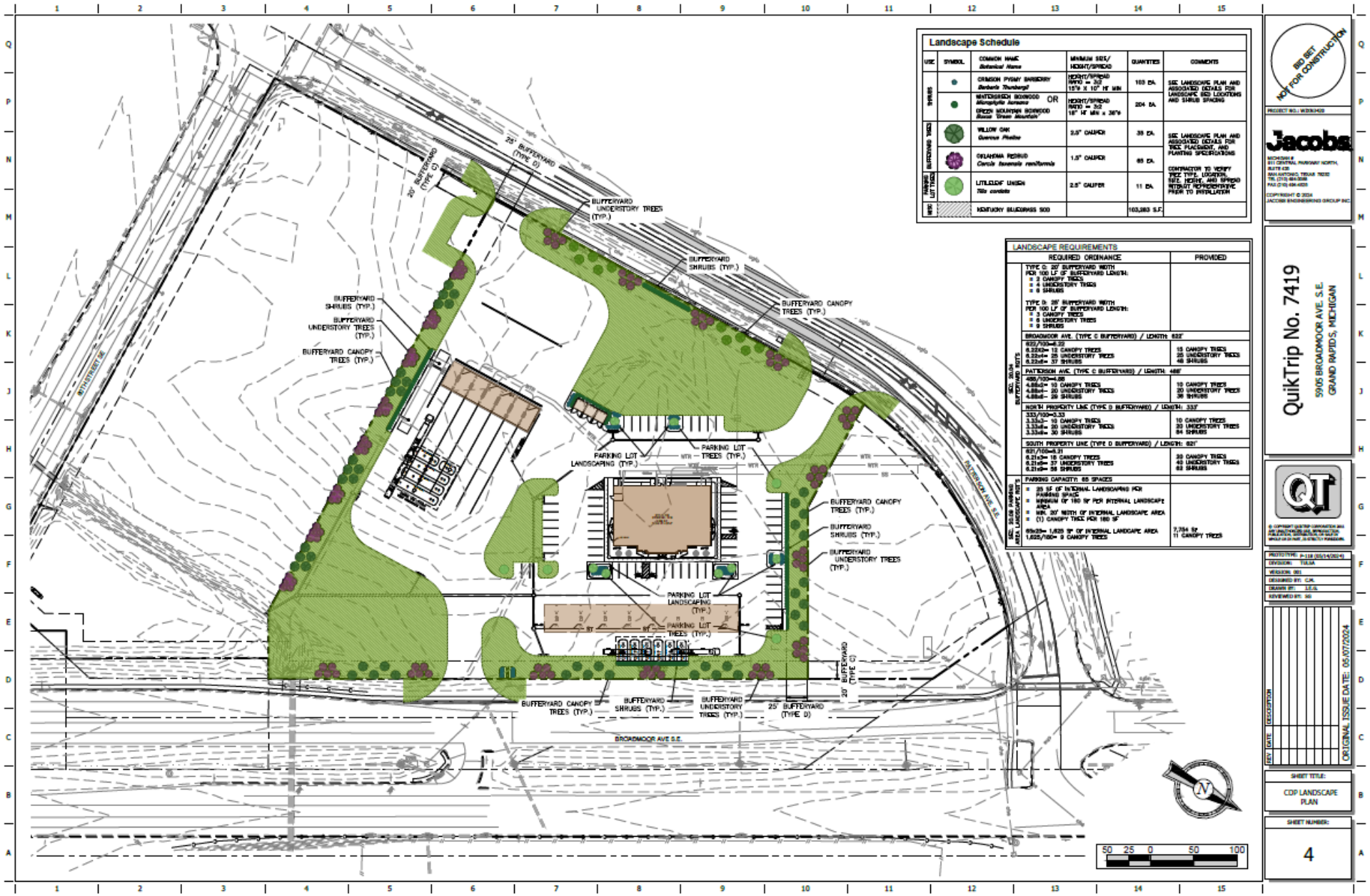
Grupo Medrano

Plastic Plate, Inc.

Lacks Exterior Systems

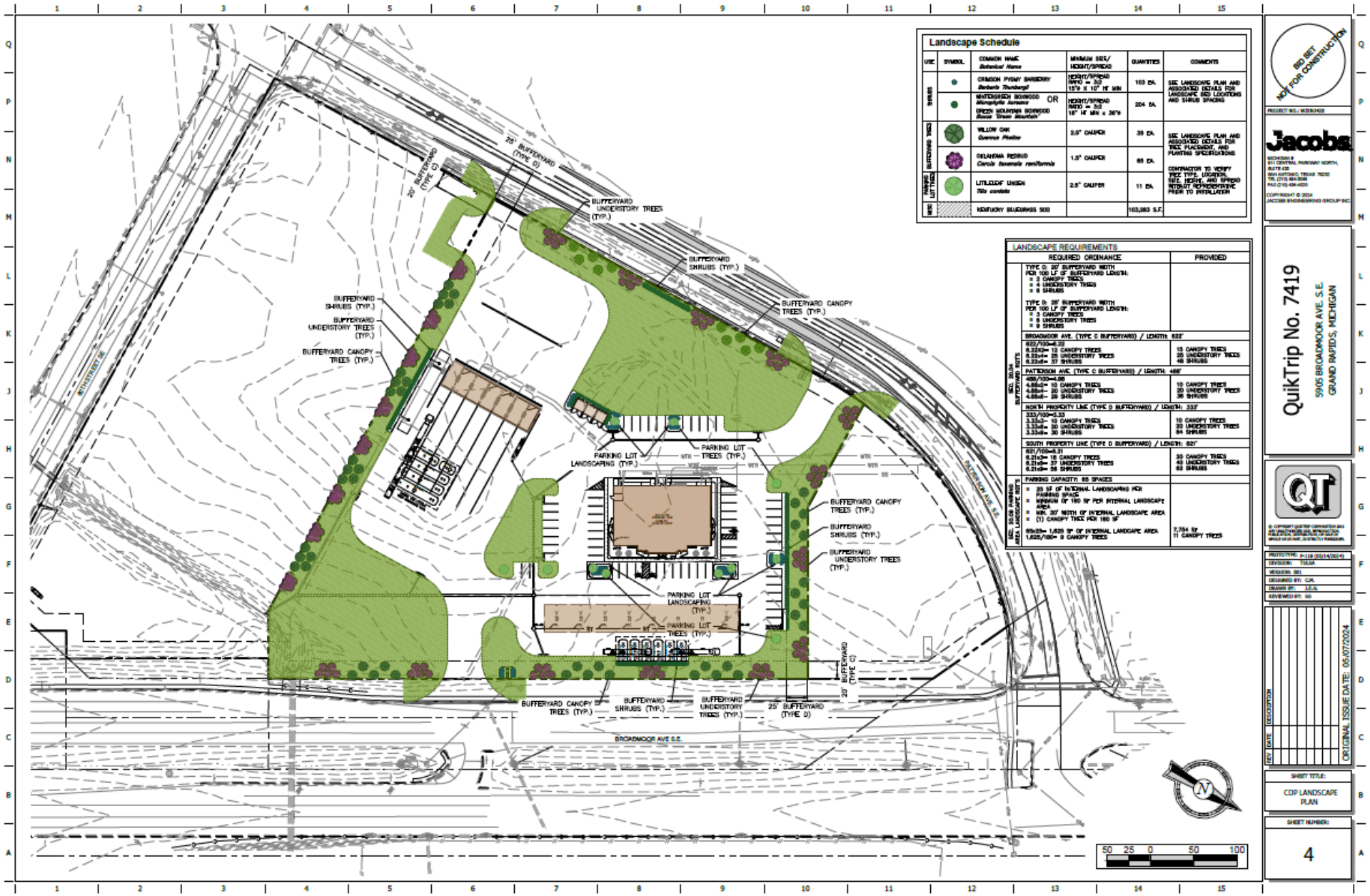
Proposed Development





High Level Details:

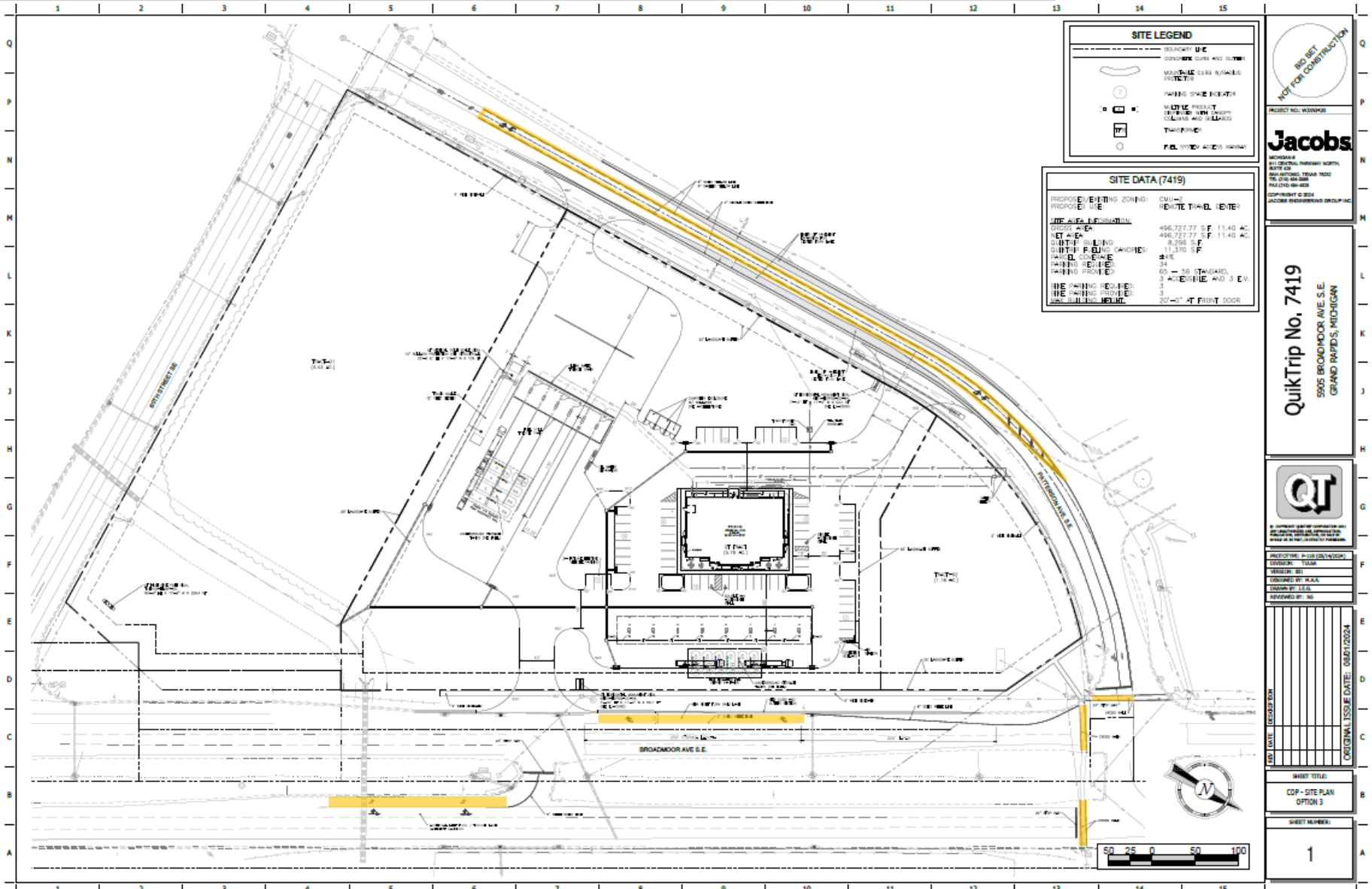
- 5.79 Acre Site
- 8,300 +/- SF C-Store
- An Auto fuel canopy over 8 double-sided dispensers
- A Diesel fuel canopy over 5 service lanes
- 62 Standard Parking Spaces
- A scale is included in the development
- Landscaping, lighting, and signage to meet code



Landscape Details:

- 307 shrubs
- 100 buffer yard trees (Willow Oak & Oklahoma Redbud)
- 11 parking lot trees (Little leaf Linden)
- Over 100,000 SF of KY bluegrass sod

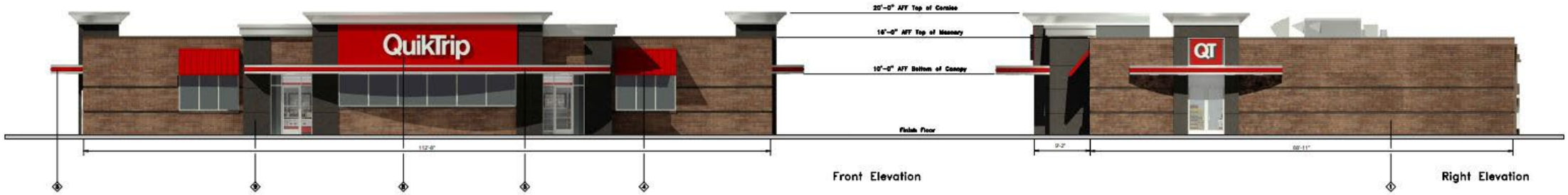
TIS Recommendations



Improvements from Traffic Impact Study:

- Additional left turn lane to be added at the median break on Broadmoor Avenue. New 24” stop line to be added at the median break.
- New right-in only lane, for the proposed driveway on Broadmoor Avenue.
- Addition of a center turn lane along Patterson Avenue
- 5’ wide sidewalk along Broadmoor Avenue.
- New stop lines and crosswalks across Broadmoor Avenue and Patterson Avenue.
- Pavement markings along Patterson Avenue.

Building Elevations



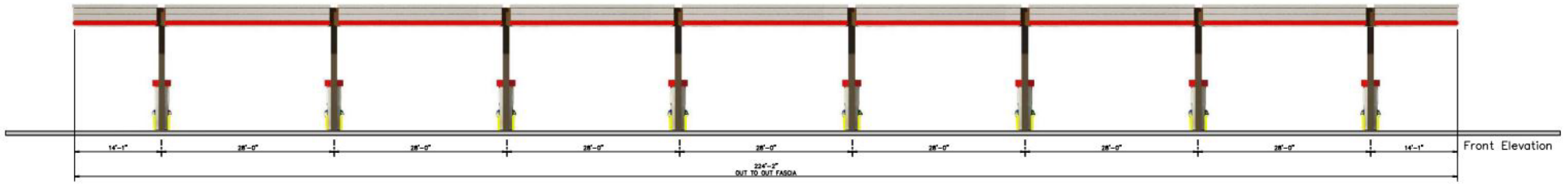
Front Elevation

Right Elevation

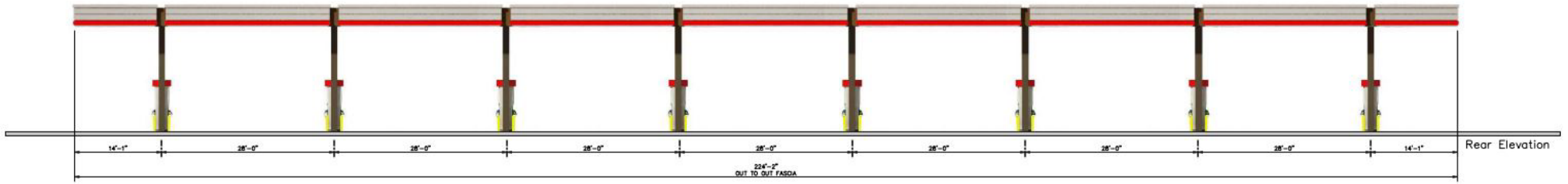
Rear Elevation

Left Elevation

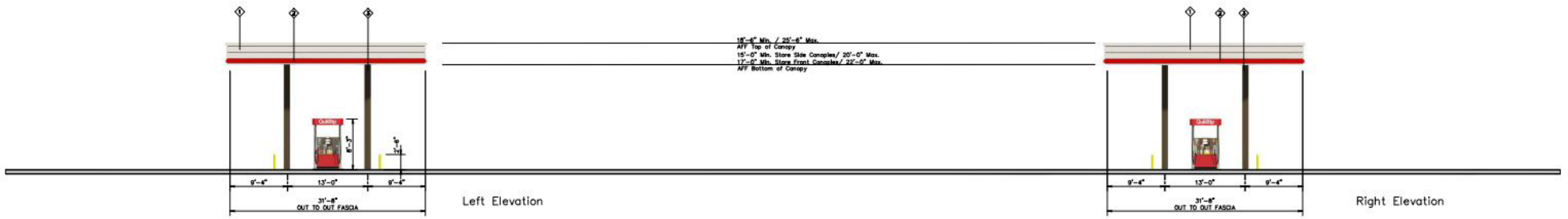
Auto Canopy Elevations



Front Elevation



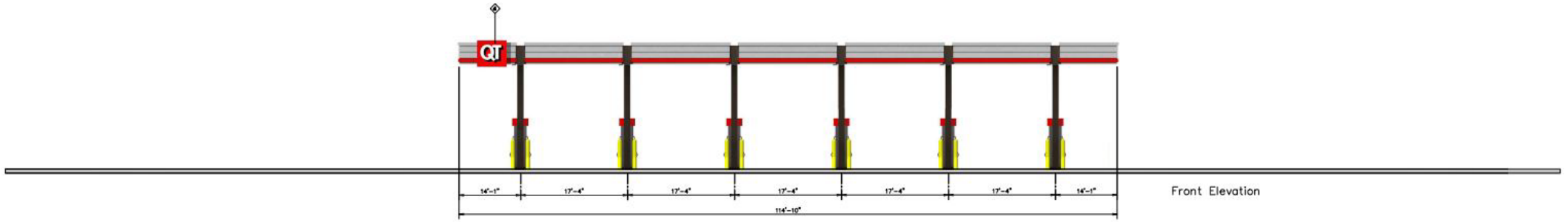
Rear Elevation



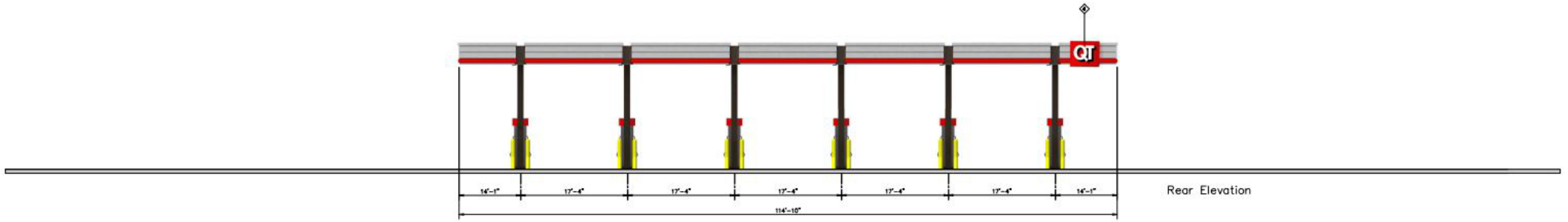
Left Elevation

Right Elevation

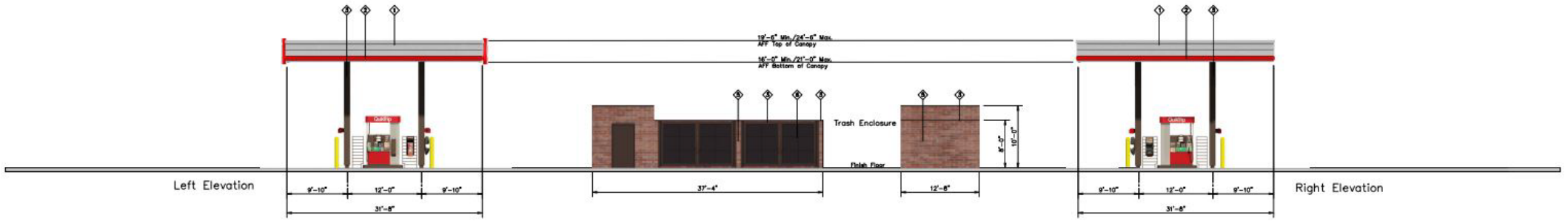
Diesel Canopy Elevations



Front Elevation



Rear Elevation



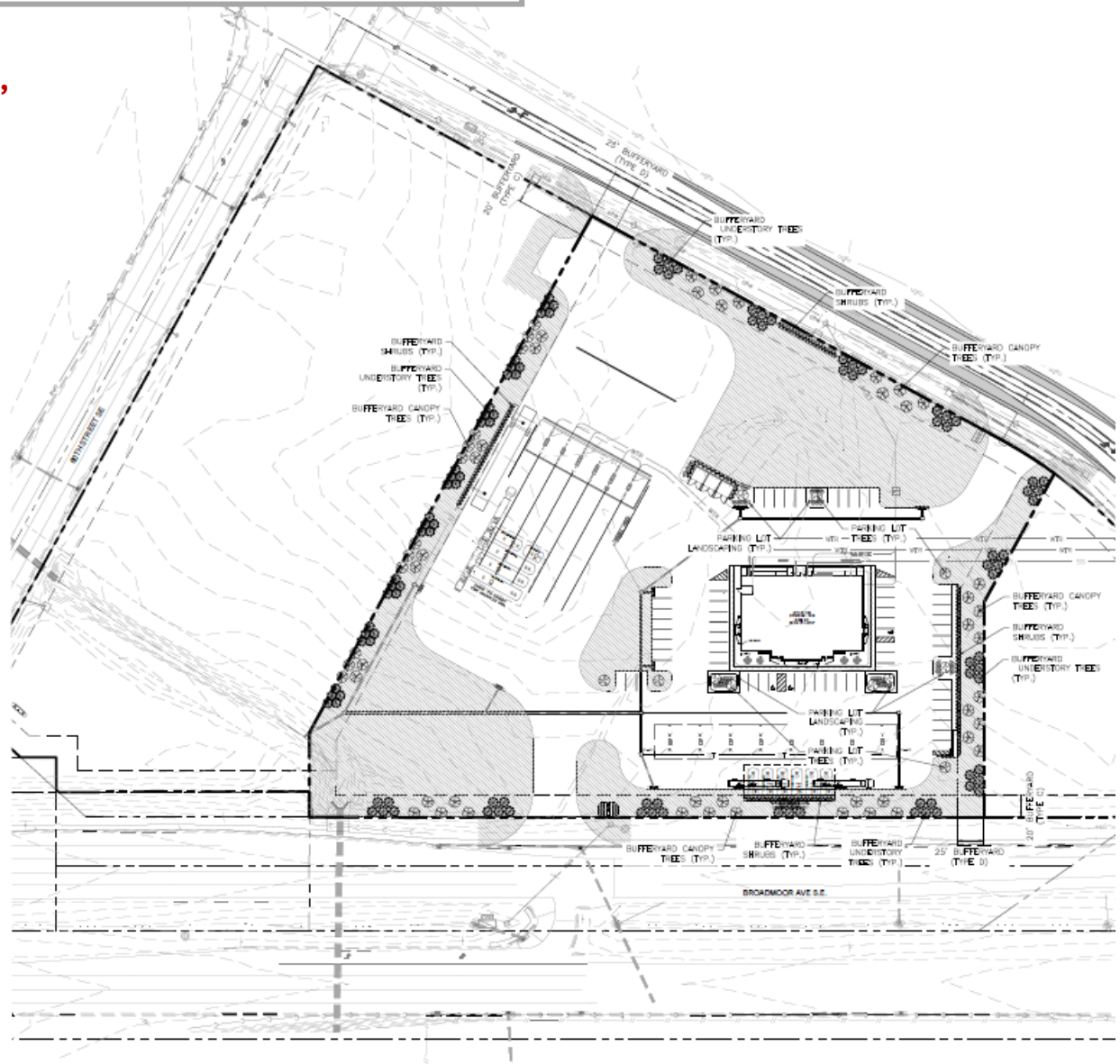
Left Elevation

Right Elevation

Permitted Signage

Permitted Signage in the "O" Office District:

- **One (1) permanent freestanding sign not to exceed 9' in height**
- **1 wall sign not to exceed 100 SF**
- **Directional Signs**



Proposed Signage

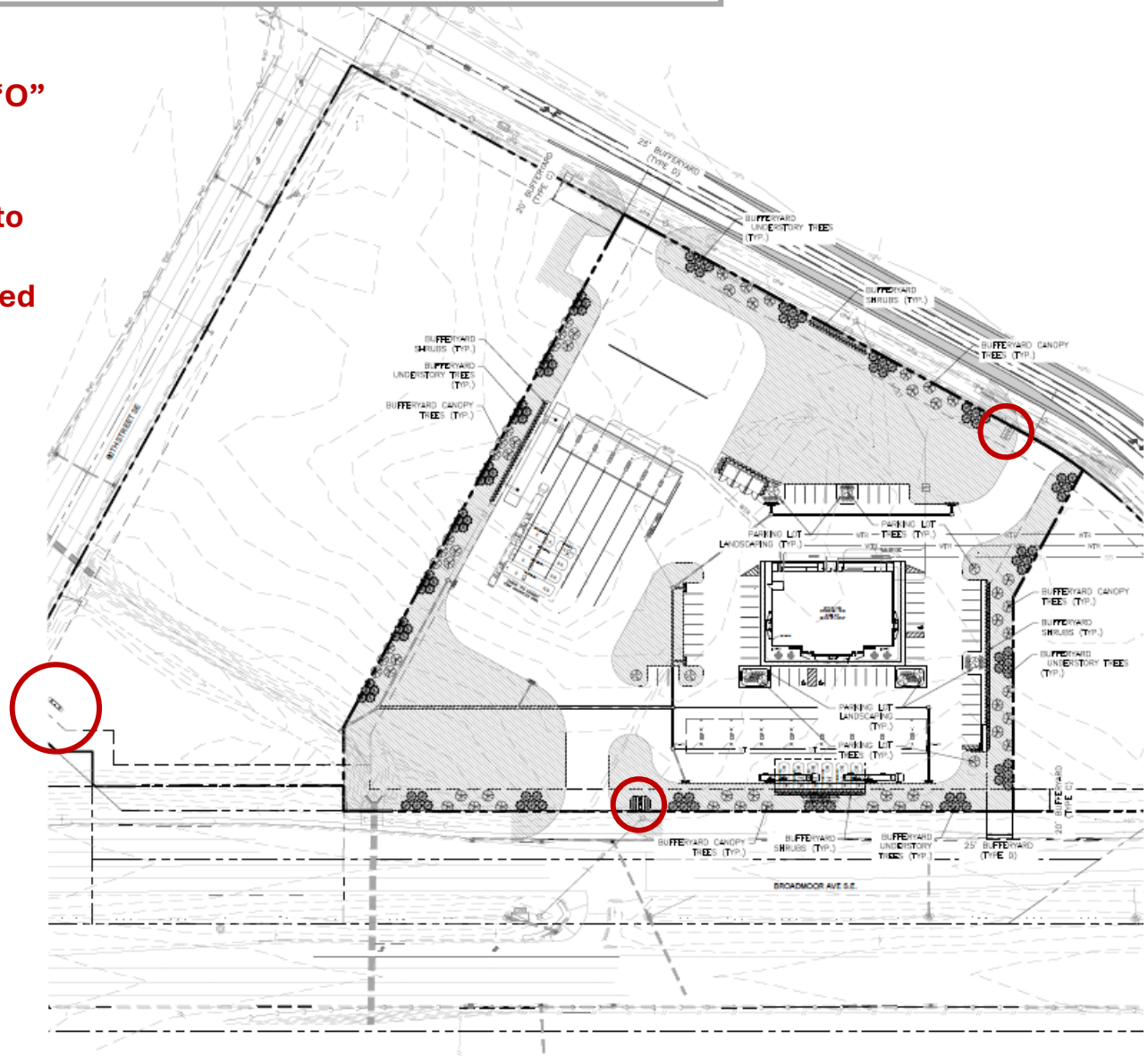
Permitted Signage in the "O" District:

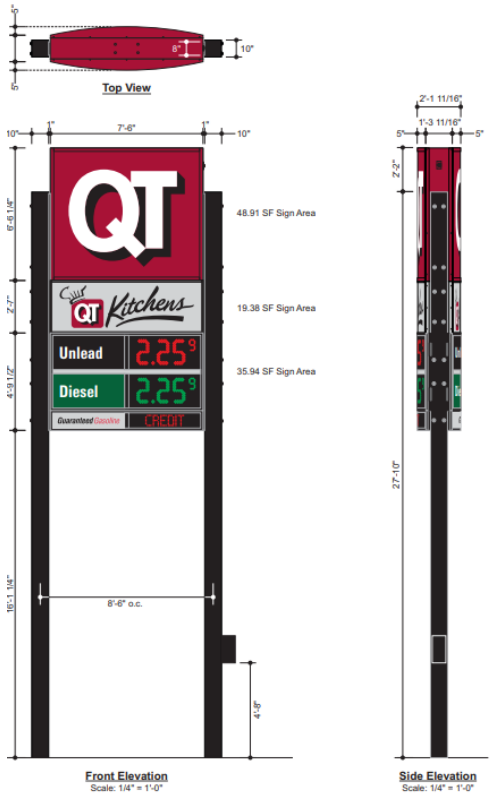
- **One (1) permanent freestanding sign not to exceed 9' in height**
- **1 wall sign not to exceed 100 SF**
- **Directional Signs**

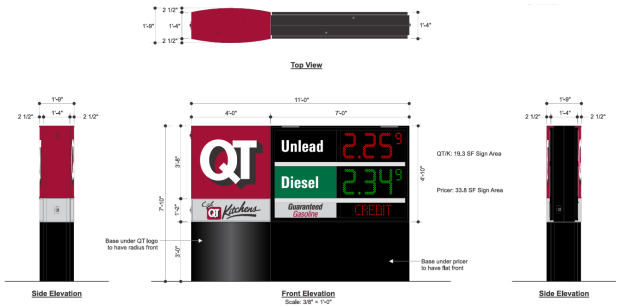
QuikTrip proposes:
Removal of the existing billboard on site.

Two (2) 8' tall monument signs are proposed along each frontage. Each sign is approximately 53.1 SF in area.

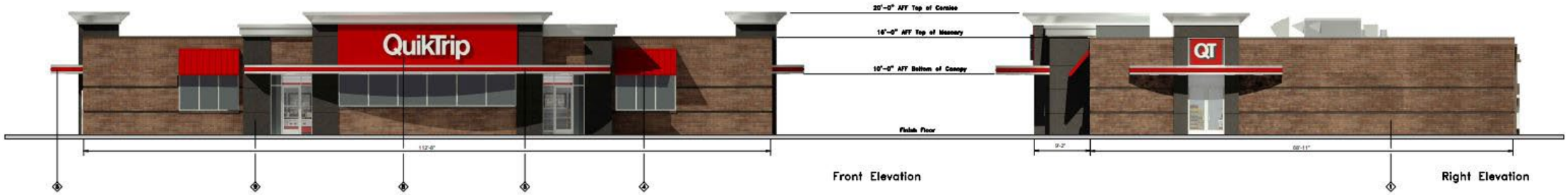
One (1) pole sign not to exceed 35' in height







Building Wall Signage



Front Elevation

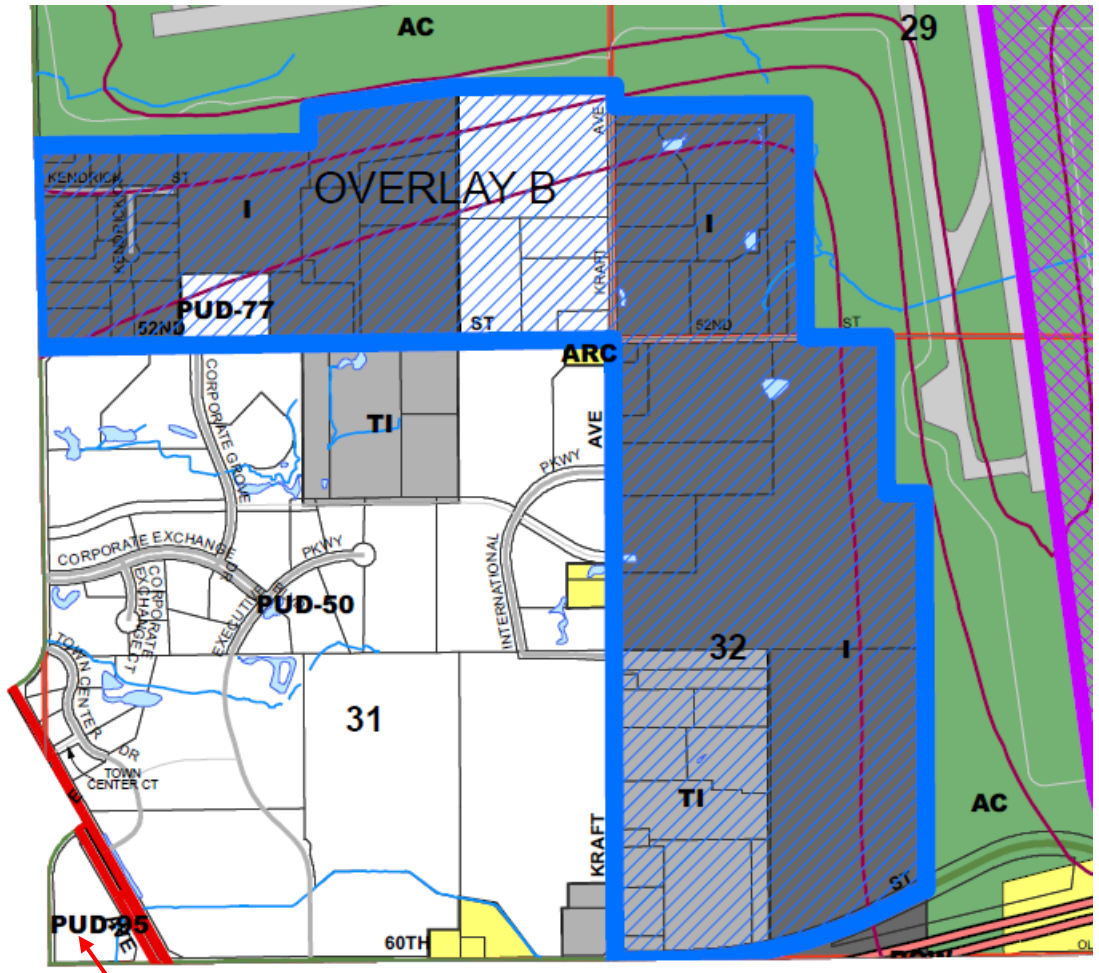
Right Elevation

Rear Elevation

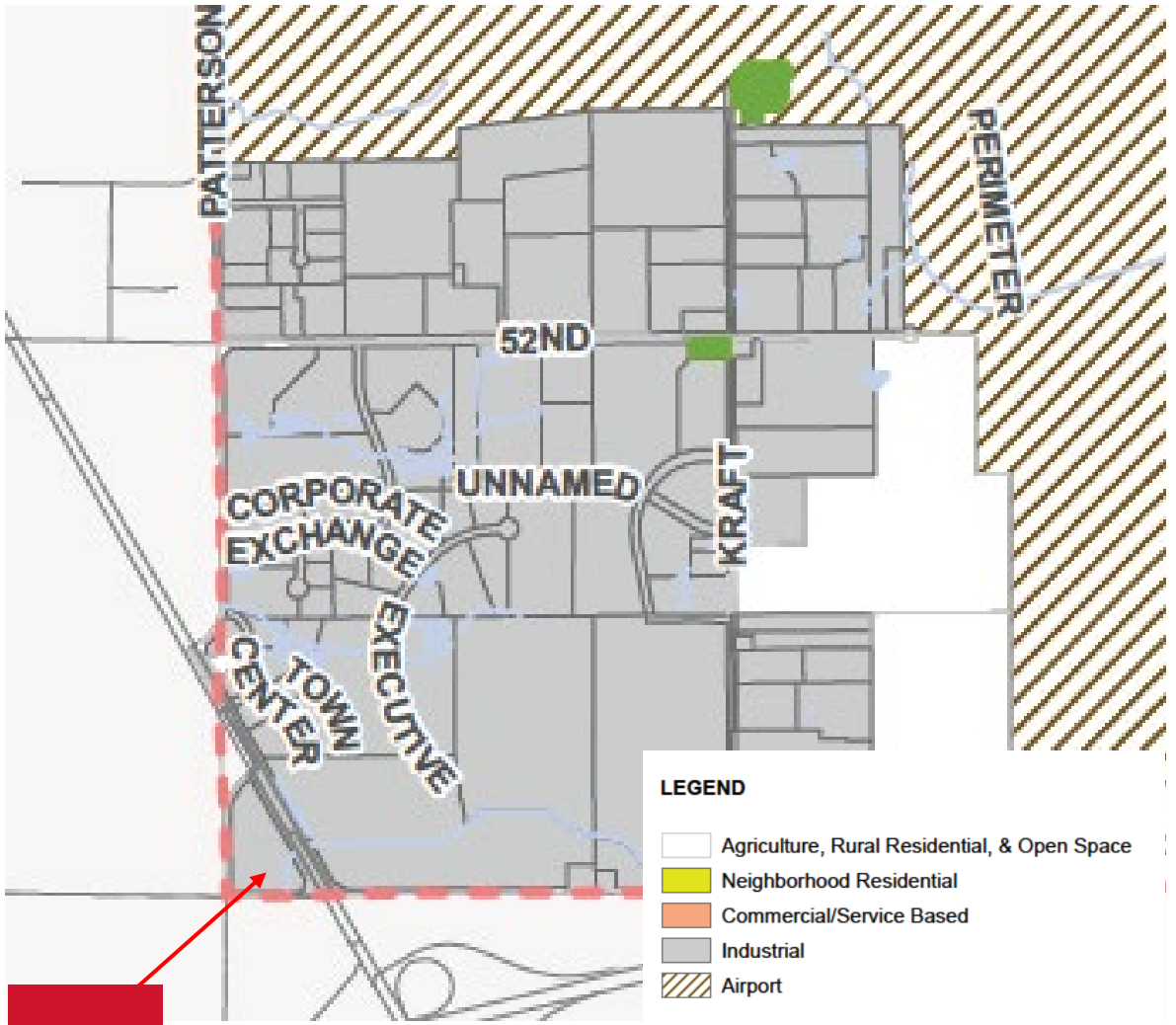
Left Elevation

Comprehensive Plan Support

Existing Land Use – Township



Zoning Map



Existing Land Use Map

Existing Land Use – Township

Zoning Map and Designation

- Site is zoned PUD-95 (Ordinance #3 of 2015)
- Designed to allow a mix of office uses, data centers, healthcare facilities, banks, sit-down restaurants, etc. Special approvals needed for drive-throughs.

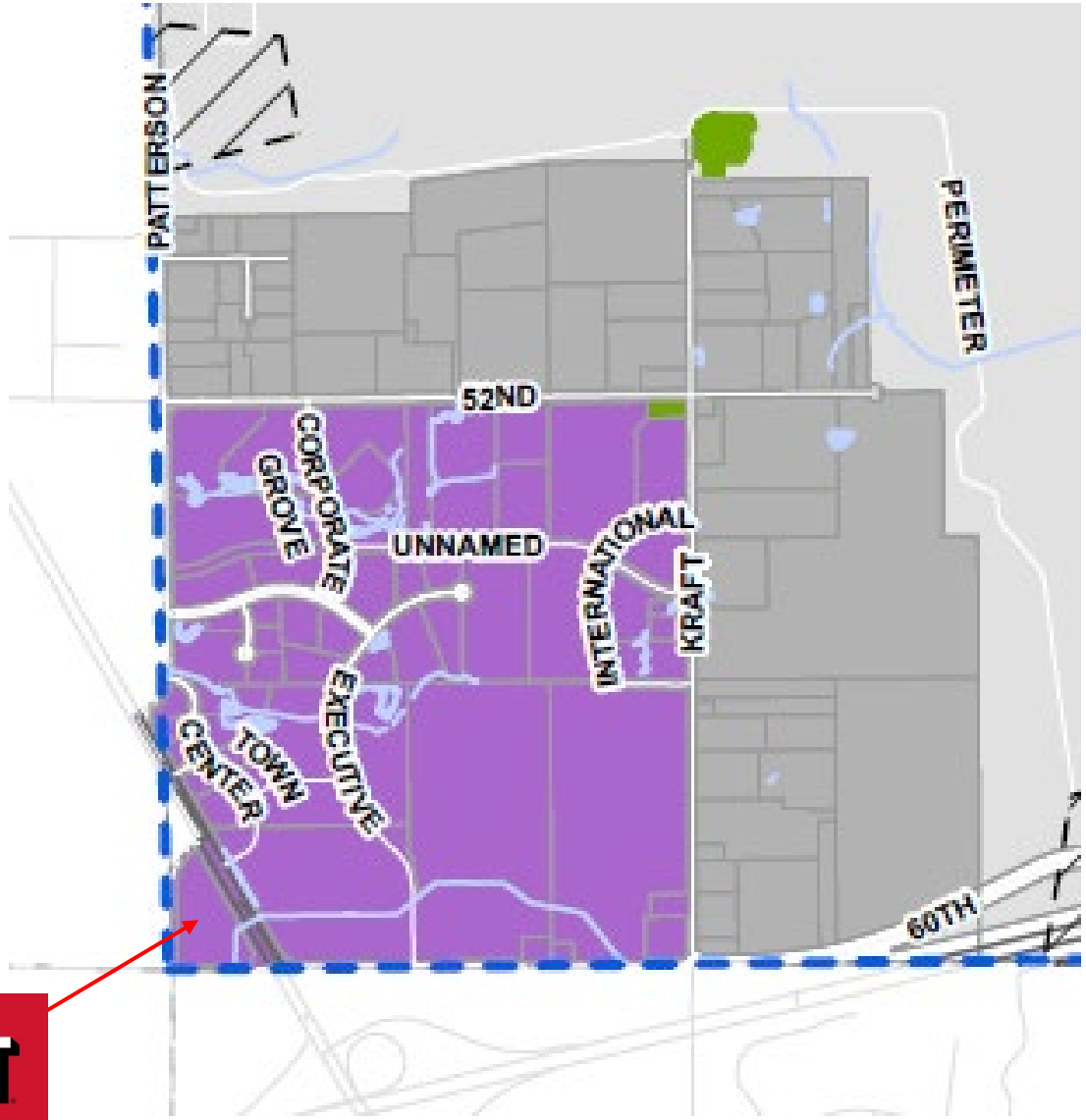
Existing Land Use Designation

- Site is illustrated as “Industrial” on Existing Land Use Map
- Industrial land uses are defined as:
  - Found on both north and south sides of the airport.
  - Manufacturing, warehousing, and other similar type businesses.
  - Primarily used for the assembling, manufacturing, and production of goods with accessory offices.

Future Land Use – Township

Southwest Mixed-Use

- South westernmost corner of the Township.
- Unique location – boarders several different jurisdictions.
- Generally industrial in nature but is planned to accommodate mixed uses.
- Area likely experiences heavier truck traffic.
- Heavy employment.
- Appropriate land uses include light industrial businesses, hotels, **retail and commercial** businesses, higher density residential, and office.
- Offering flexibility in land uses.



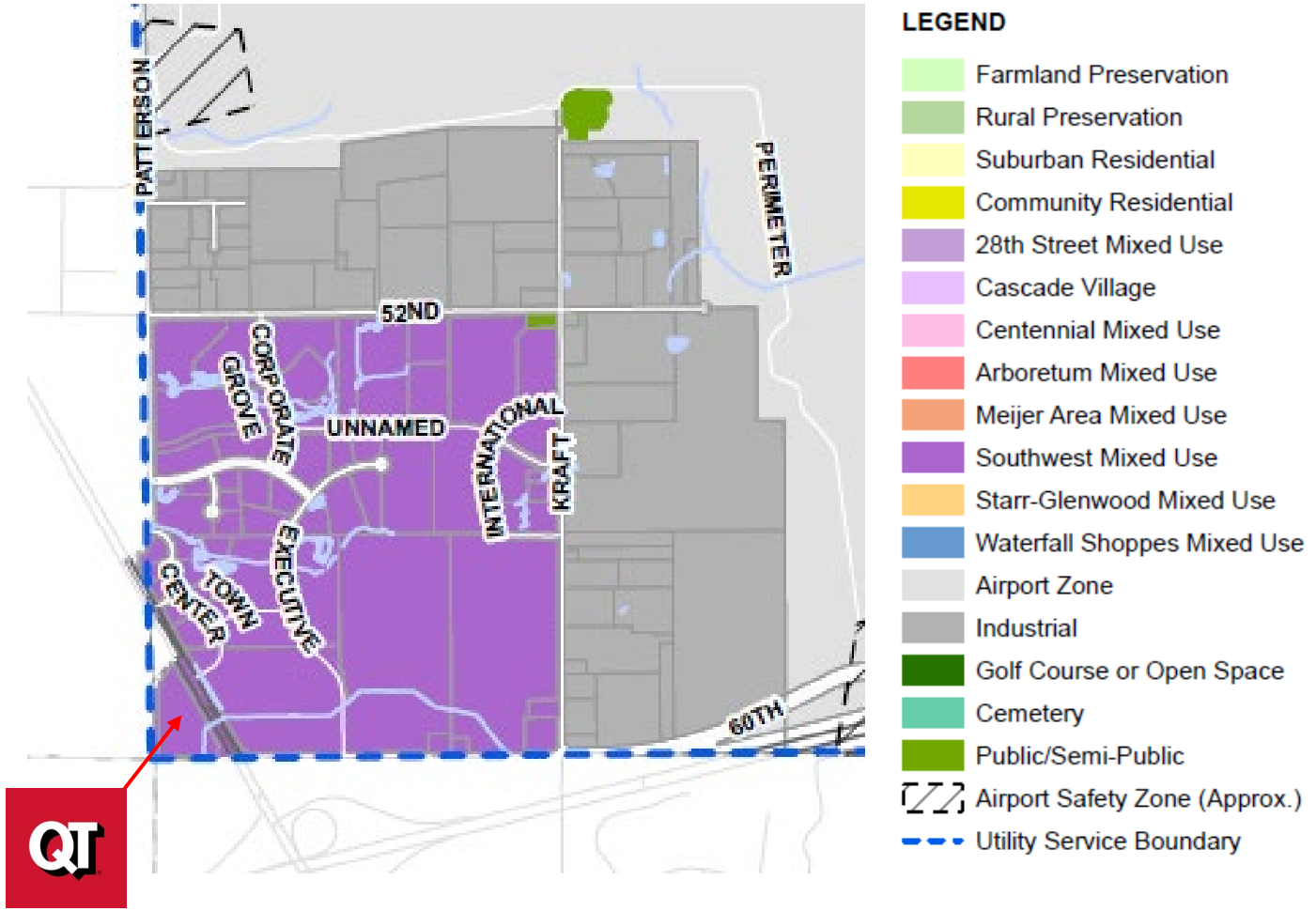
LEGEND

- Farmland Preservation
- Rural Preservation
- Suburban Residential
- Community Residential
- 28th Street Mixed Use
- Cascade Village
- Centennial Mixed Use
- Arboretum Mixed Use
- Meijer Area Mixed Use
- Southwest Mixed Use
- Starr-Glenwood Mixed Use
- Waterfall Shoppes Mixed Use
- Airport Zone
- Industrial
- Golf Course or Open Space
- Cemetery
- Public/Semi-Public
- Airport Safety Zone (Approx.)
- Utility Service Boundary

Future Land Use – Southwest Mixed Use

- **Appropriate Zoning Districts:**
  - "TI" Transitional Industrial
  - "B-2" General Business
  - "O" Office
  - "PUD" Planned Unit Development

- **New Development Should:**
  - Be constructed of high-quality materials, such as brick, stone, or siding.
  - Roads and driveway shall be constructed to withstand heavy vehicle traffic.
  - Include robust landscaping and signage elements.
  - Connected to public facilities



Market Conditions

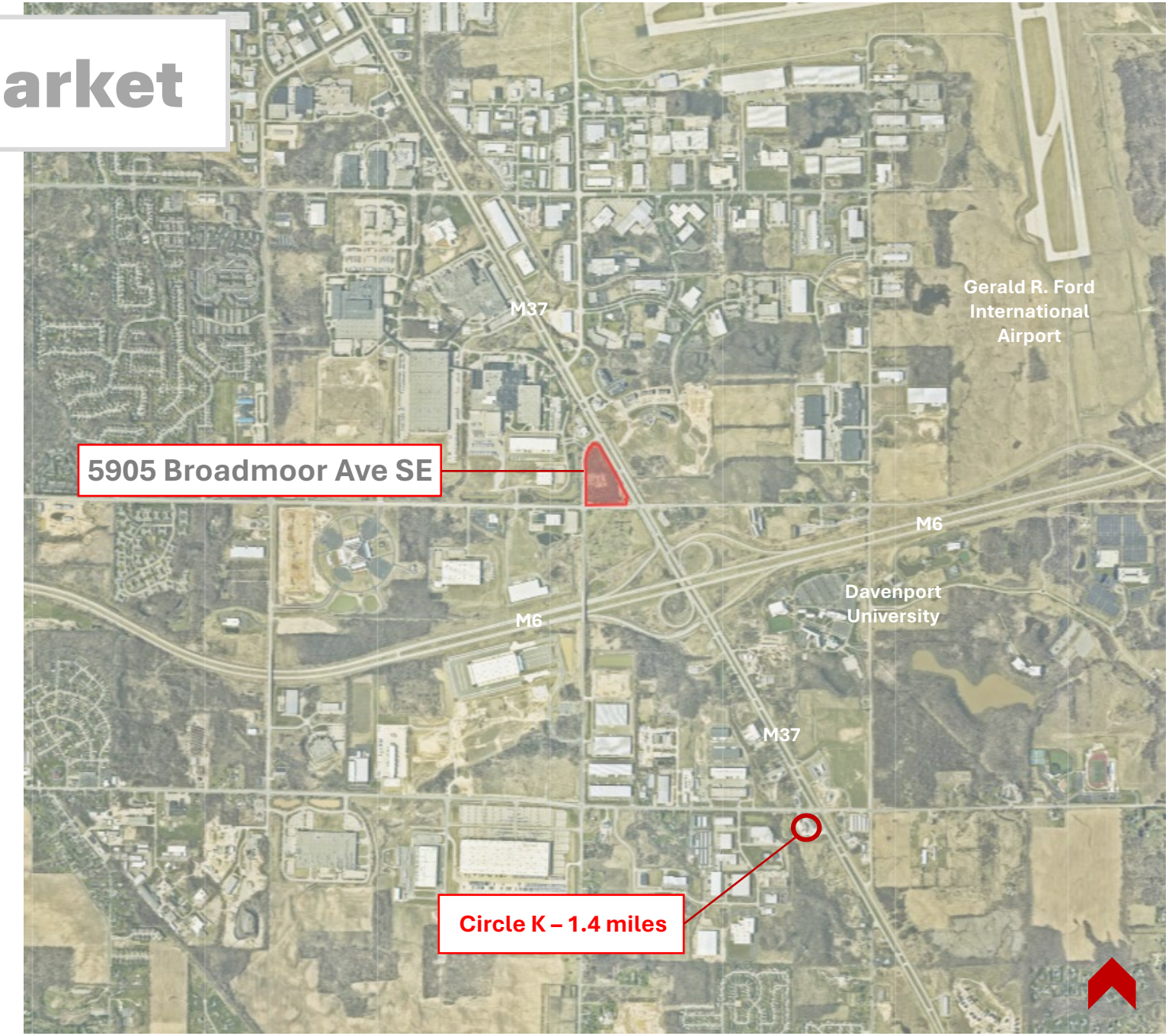
- Is Office Still the Correct Fit for the Property?
  - PUD was approved in 2015. Office market was on “fire”.
  - Continued to climb 2016- Early 2020.

- 2020 (Doom Year)
  - Covid surreal experience.
  - “Work from home” and “telecommute” daily vernacular.
  - Demand for office dropped…significantly.

- 2021 to present
  - Still trying to find office demand.
  - Different types of demand.
  - “What to do with these office parks?”

Gap in Diesel Fuel Market

- The intersection of 60th SE and Broadmoor is estimated to host nearly 50,000 vehicles per day, making it one of the highest trafficked intersections in the Grand Rapids Metro.
- There is a high volume of manufacturing and distribution companies in the vicinity.
- QuikTrip will fill a major gap in the diesel fuel market for the industrial uses immediately north of the site, as well as the airport.
- The nearest high flow diesel service offering is the Circle K, which is 1.4 miles south of the site in Caledonia Township. Circle K only has 3 truck fueling lanes.



Community Benefits

1. By amending the PUD to allow this additional use, the Township will gain a use that is consistent with existing development pattern along the Broadmoor corridor, and a use that works well with the uses which are permitted by right in the PUD. The use will provide necessary services to many people, including the local community and others who are working or passing through the area.
2. A high-quality convenience store which is aesthetically pleasing and well-maintained.
3. Creation of 25-30 jobs (all of which have access to healthcare and tuition reimbursement)
4. Creation of new crosswalks/roadway improvements along Patterson Avenue and Broadmoor.
5. A nationally recognized Safe Place, which provides immediate help and safety for youth in crisis.

We respectfully request approval of the proposed project.

Thank you.