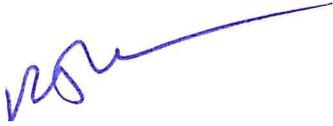


MEMORANDUM

DATE: January 24, 2025

TO: Mr. Gil Hilario, Town Planner
Town of North Attleborough
43 South Washington Street
North Attleborough, MA 02760

FROM: Robert J. Michaud, P.E. – Managing Principal 
Daniel A. Dumais, P.E. – Senior Project Manager

RE: Response to Comments – Pare
582 Kelley Boulevard, North Attleborough, Massachusetts

MDM Transportation Consultants, Inc. (MDM) has prepared the following responses to transportation-related comments as issued in a letter by Pare Corporation (Pare) dated January 16, 2024. To facilitate review, specific comments are paraphrased with corresponding responses.

Comment 1: "Study Area: Based on the size and type of development, the study area included appears to be generally appropriate. However, it appears there may be a significant amount of cut-through traffic along Man-Mar Drive and Wilkins Drive. With improved capacity at the intersection of Kelley Boulevard and Messenger Street, some of the cut-through traffic may stay on Kelley Boulevard and Messenger Street. It may be helpful to understand the scope of this activity when determining traffic signal timings at the Kelley/Messenger intersection."

Response: Intersection improvements at the signalized intersection of Route 152 at Route 106 are being developed by BETA. The proponent worked with the Town of North Attleborough to identify mitigation needs and secure funding for the proposed intersection improvements. It is unknown whether improvements at the signalized intersection may or may not result in a reduction in cut-through traffic along Man-Mar Drive and Wilkins Drive. The vehicles along Man-Mar Drive, Wilkins Drive and along the various cut-cuts along Kelley Boulevard are likely to continue to use these patterns if they are traveling to/from a specific location or if this route is more advantageous in terms of travel time, orientation, or preference. The future conditions analysis does build in general background growth that inherently accounts for some level of shift in travel patterns. The traffic signal timings at Kelley Boulevard and Messenger Street should be designed by BETA to accommodate the projected Design Year conditions which in the opinion of MDM should not include a significant shift in travel patterns. That said, no matter the design and potential hypothetical future shift in traffic patterns, the proposed development results in a negligible impact to operations at the signalized intersection and has contributed more than its fair share to the adjacent Town of Plainville.

Comment 2: *“Study Area Roadway Network: The existing conditions of the study area roadways and intersections appears to be accurate.”*

Response: No Response Required.

Comment 3: *“Baseline Traffic Volume:*

- a. *Traffic counts were taken on Wednesday, August 7, 2024, and Thursday, August 8, 2024. Based on the MassDOT TIAS guidelines, traffic counts taken during the summer months when school is not in session should be avoided if possible. There are two elementary schools located on Messenger Street (Route 106) less than one half mile from the site in Plainville. In addition, Martin School is located approximately three quarters of a mile south of the site just off Kelley Boulevard on Landry Avenue.*
- b. *The method used to determine seasonal variations in this area appears reasonable, and it is acceptable to leave the counted volumes without further seasonal adjustment.*
- c. *While taking counts during the summer may not impact the overall conclusions of the study, it is recommended that additional traffic counts be taken during the school year for purposes of developing signal timings at the proposed new or reconstructed traffic signals, as the balance of turning movements and peak hour factors may be different during the school year versus during the summer months, especially during the morning peak hours.*
- d. *The traffic volumes between intersections appear to be generally consistent and well balanced, with a few exceptions:*
 - i. *There is a significant difference between volumes at Plain Street and Messenger Street along Kelley Boulevard, but these differences appear to be consistent with cut-through activity via Man-Mar Drive.*
 - ii. *There is a significant difference in volume between Kelley Boulevard and the site driveway along George Leven Drive.”*

Response:

- a. Traffic counts for the project and the mitigation agreement with the Town of North Attleborough for the project was based on traffic counts collected in January 2022 which were then both seasonally adjusted and pandemic adjusted to reflect pre-pandemic conditions. As part of this response, supplemental traffic counts were conducted in December 2024 to reflect conditions with schools in session and within the preferred traffic volume window of 2-years. A review of the traffic volume counts indicates that the seasonally adjusted December traffic volumes are approximately 0% to 6% higher during the weekday morning peak hour and 8% to 9% higher during the weekday evening peak hour than the August traffic volume data. The traffic volume networks, and analysis based on the adjusted 2022 Baseline volumes are approximately 18% higher

during the weekday morning peak hour and 6% higher during the weekday evening peak hour compared to the seasonally adjusted December 2024 traffic volumes. Calculations are provided in the **Attachments**.

- b. No Response Required.
- c. Updated traffic volume networks using the seasonally adjusted December 2024 data are provided in the **Attachments**. The revised traffic volume networks were then utilized to provide updated capacity analysis which is summarized under **Response 10** and **Response 12** below.
- d. The traffic volume counts were all conducted on the same day and each individual peak hour was used for each study intersection. In addition to Man-Mar Drive, there are eight separate driveways including several fast-food restaurants (Dunkin, McDonalds, and Burger Kings) and two gasoline service stations contributing the difference in volume along Kelley boulevard between Plain Street and Messenger Street. Likewise, there are also several commercial driveways between Kelley Boulevard and the proposed site driveway along George Leven Drive. It is anticipated that under future conditions these differences in traffic volumes will generally remain unchanged.

Comment 4: *“Safety: Pare agrees that the proposed improvements to the intersection of Routes 106 and 152 should help reduce the crash rate at that intersection and also agrees that safety-related mitigation measures are not warranted at the other two study intersections along Kelley Boulevard.”*

Response: No Response Required.

Comment 5: *“Site Line Analysis:*

- a. *While Pare would prefer to see the sight distance analysis performed using 85th percentile speeds used as the operating speed rather than the posted speed limit, sight distances appear to be adequate regardless of the operating speeds used for the analyses.*
- b. *It is noted that the sight distance looking toward the west from George Leven Drive is currently less than the 500+ feet listed in the report. However, with the anticipated clearing of the brush near this access, it is anticipated that the listed distance can be achieved.”*

Response:

- a. Under the approved site plan access to Kelley Boulevard will be gated for emergency access and all access will be provided via George Leven Drive which is proposed to be signalized under the MassWorks improvement project.
- b. MDM concurs, No Response Required.

Comment 6: *“Planned Roadway Improvements: It is Pare’s understanding that there is an alternative plan of proposed improvements in the area being developed by BETA Engineering, who was hired by the Town’s Department of Public Works. It is Pare’s understanding that there may be some differences between the plan in the traffic study and BETA’s plans, specifically at the Kelley Boulevard at George Leven Drive intersection. If possible, the applicant’s engineer should coordinate with the Town and BETA to get the updated design information as it stands. If those changes are made after completion and acceptance of the applicant’s traffic study, BETA will conduct updated traffic analyses to correspond to the revised plans.”*

Response: The proposed improvements being developed for the Kelley Boulevard at George Leven Drive intersection include minor differences between the plan in the traffic study and BETA’s plans, primarily turning lane lengths (see **Attachments**). Based on feedback from the Town the alternative plan may include modifications to several islands and the TWLTL which will have no material impact on the project. Therefore, the findings of the traffic study remain valid. That said, the revised analysis summarized in response to Comment 10 also takes into account several minor changes to date. MDM concurs that the responsibility for any changes and updated traffic analysis should be provided by BETA.

Comment 7: *“Background Traffic Growth/No-Build Traffic Volumes: The methodology utilized to adjust existing traffic volumes to a 2031 design horizon year is acceptable.”*

Response: No Response Required.

Comment 8: *“Site-Generated Traffic – ITE Basis: It appears the applicant’s engineer used the average rate of trip generation versus the fitted curve to estimate the number of trips. While these two rates result in the same number of anticipated trips during the afternoon peak hour, using the fitted curve would result in ten additional trips during the morning peak hour, including two entering vehicles and eight exiting vehicles. While Pare would prefer the applicant use the more conservatively high number, these numbers are close enough that we do not believe it will have any material effect on the analysis’s conclusions.”*

Response: MDM concurs, using slightly more conservative numbers would not result in any material change in the capacity analysis provided in the traffic study, therefore, the methodology, recommendations, and conclusions provided in the traffic study remains valid.

Comment 9: *“Trip Generation – Existing vs. Proposed Uses: As the Stix Fun Center was operational until earlier this year, using the trip generation difference between the proposed residential use and the former use as the trip generation for the purposes of the study is acceptable.”*

Response: MDM concurs, No Response Required.

Comment 10: “Trip Distribution and Assignment/Build Traffic Volumes: In the current version of the site plan, the Kelley Boulevard access is an emergency access driveway only, and all regular traffic would be routed through the George Leven Drive access. As a result, the distribution, build condition traffic volumes, and build condition analyses along George Leven Drive should be revised. Driveway assignments aside, the distribution as presented is acceptable.”

Response: MDM concurs that the overall distribution presented in the TIAS is appropriate for planning purposes. To reflect the modification of the Kelley Boulevard driveway to emergency only, the traffic volume networks, and capacity analysis have been revised for the shift in access/egress. Furthermore, as indicated in **Response 3**, updated traffic volume networks were prepared using the seasonally adjusted December 2024 data. The 2031 No-Build, Site Generated Trip Tracings and 2031 Build traffic volume networks have been revised accordingly (see **Attachments**). The revised traffic volume networks were then utilized to provide updated capacity analysis which is summarized in **Table R1** and **Table R2**.

**TABLE R1
INTERSECTION CAPACITY ANALYSIS RESULTS - REVISED
WEEKDAY MORNING PEAK HOUR**

Intersection	Approach	2024 Baseline			2031 No-Build			2031 Build		
		v/c ¹	Delay ²	LOS ³	v/c	Delay	LOS	v/c	Delay	LOS
Taunton Street at Messenger Street	Eastbound	0.80	37	D	0.59	32	C	0.60	33	C
	Westbound	0.56	25	C	0.60	24	C	0.61	24	C
	Northbound	0.83	33	C	0.70	28	C	0.74	29	C
	<u>Southbound</u>	<u>0.66</u>	<u>33</u>	<u>C</u>	<u>0.44</u>	<u>29</u>	<u>C</u>	<u>0.44</u>	<u>29</u>	<u>C</u>
	OVERALL	0.83	32	C	0.70	28	C	0.74	29	C
Kelley Boulevard at Plain Street	WB Left	0.12	19	C	0.13	20	C	0.14	21	C
	WB Right	0.43	19	C	0.49	22	C	0.51	24	C
	Northbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
	Southbound	0.13	10	A	0.15	<5	A	0.15	<5	A
Kelley Boulevard at Site Driveway	Eastbound	0.01	13	B	0.01	13	B	0.01	13	B
	Northbound	0.01	<5	A	0.00	<5	A	0.00	<5	A
	Southbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
Kelley Boulevard at George Leven Drive	Eastbound	0.16	17	C	0.16	16	B	0.28	14	B
	Westbound	n/a ⁴	n/a	n/a	0.01	<5	A	0.01	<5	A
	Northbound	0.03	<5	A	0.55	6	A	0.55	8	A
	<u>Southbound</u>	<u>0.00</u>	<u><5</u>	<u>A</u>	<u>0.47</u>	<u>9</u>	<u>A</u>	<u>0.54</u>	<u>11</u>	<u>B</u>
	OVERALL	n/a	n/a	n/a	0.55	9	A	0.55	10	A
George Leven Drive at Site Driveway	Eastbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
	Westbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
	Southbound	0.00	<5	A	0.00	<5	A	0.09	10	A

¹ Volume-to-capacity ratio

² Average control delay per vehicle (in seconds)

³ Level of service

⁴ n/a = not applicable

**TABLE R2
INTERSECTION CAPACITY ANALYSIS RESULTS - REVISED
WEEKDAY EVENING PEAK HOUR**

Intersection	Approach	2024 Baseline			2031 No-Build			2031 Build		
		v/c ¹	Delay ²	LOS ³	v/c	Delay	LOS	v/c	Delay	LOS
<i>Taunton Street at Messenger Street</i>	Eastbound	0.92	54	D	0.69	34	C	0.70	34	C
	Westbound	0.88	49	D	0.73	33	C	0.74	34	C
	Northbound	0.64	28	C	0.56	27	C	0.58	27	C
	<u>Southbound</u>	<u>0.86</u>	<u>43</u>	<u>D</u>	<u>0.64</u>	<u>33</u>	<u>C</u>	<u>0.65</u>	<u>33</u>	<u>C</u>
	OVERALL	0.92	43	D	0.73	32	C	0.74	32	C
<i>Kelley Boulevard at Plain Street</i>	WB Left	0.24	39	E	0.30	47	E	0.32	50	E
	WB Right	0.45	19	C	0.51	22	C	0.53	23	C
	Northbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
	Southbound	0.27	<5	A	0.30	<5	A	0.31	<5	A
<i>Kelley Boulevard at Site Driveway</i>	Eastbound	0.16	20	C	0.17	22	C	0.18	23	C
	Northbound	0.04	<5	A	0.00	<5	A	0.00	<5	A
	Southbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
<i>Kelley Boulevard at George Leven Drive</i>	Eastbound	0.12	21	C	0.15	11	B	0.20	13	B
	Westbound	n/a ⁴	n/a	n/a	0.02	<5	A	0.02	<5	A
	Northbound	0.04	<5	A	0.44	<5	A	0.47	6	A
	<u>Southbound</u>	<u>0.00</u>	<u><5</u>	<u>A</u>	<u>0.79</u>	<u>17</u>	<u>B</u>	<u>0.87</u>	<u>24</u>	<u>C</u>
	OVERALL	n/a	n/a	n/a	0.79	12	B	0.87	16	B
<i>George Leven Drive at Site Driveway</i>	Eastbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
	Westbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
	Southbound	0.00	<5	A	0.00	8	A	0.07	9	A

¹ Volume-to-capacity ratio

² Average control delay per vehicle (in seconds)

³ Level of service

⁴n/a = not applicable

As summarized in **Table R1** and **Table R2**, the proposed development does not result in any significant change in operations at intersections within the study area compared to No-Build conditions. Based on the analysis using the seasonally adjusted December 2024 traffic counts, the methodology, recommendations, and conclusions provided in the traffic study remains valid. The mitigation commitments for the project as outlined under the Development Agreement with the Town also remain valid.

Comment 11: *“Capacity Analysis Procedures:*

- a. *The use of Synchro software to conduct capacity analyses is acceptable.*
- b. *Peak hour factors should be calculated by approach, not by the intersection as a whole. Further, for capacity analysis purposes, the peak hour factors utilized should not exceed the default value of 0.92.*
- c. *An adjustment on lost time has been made that is not consistent with default values at signalized intersections. Please explain this adjustment and provide backup material justifying this adjustment.*
- d. *Pedestrian phases do not appear to have been included in the signalized analyses. These should be added, and a minimum of five calls per hour should be assumed.*
- e. *Based on comments 11.b-d above, all capacity analyses should be revised and the report updated.”*

Response:

- a. No Response Required.
- b. The use of peak hour factors by intersection is appropriate and is an accepted methodology that is in conformance with the Highway Capacity Manual (HCM) procedures. As outlined in the HCM,

“The use of a single peak hour factor for the entire intersection is intended to avoid the likelihood of creating demand scenarios with conflicting volumes that are disproportionate to the actual volumes during the 15-minute analysis period. If peak hour factors for each individual approach or movement are used, they are likely to generate demand volume from one 15-minute period that are in apparent conflict with demand volumes from another 15-minute period, whereas in reality these peak volumes do not occur at the same time.”

Additionally, The *Highway Capacity Manual* (HCM) suggests a design value of 0.92 for congested urban areas and 0.88 for rural areas, if no field measurements are available. In this case the peak hour factors for the study intersections were measured based on the traffic counts conducted. It does not make sense to lower the peak hour factors arbitrarily to 0.92 for future year condition, which would lower the capacity of the intersection when actual field measurements are available.

Accordingly, it is the opinion and experience of MDM that the methodology used in the TIAS and these response to comments document are appropriate for planning purposes and no further analysis is warranted.

- c. The adjustment to the lost time was to better represent actual operating conditions at the intersections and the use of all or a portion of the clearance times (yellow and all red) to clear vehicles from the intersection. Field observations and video observations indicate that vehicles generally utilize all of the yellow phase and some of all red phase which was approximately 5 seconds of the lost time to clear the signalized intersection. To remain conservative for planning purposes, the lost time adjustment was held at half of the total clearance period (2.5 seconds).
- d. Count data included both pedestrian and bicycles. The pedestrian and bike volumes in the study area even under the summer conditions were nominal; therefore, the pedestrian phase was excluded from the analysis provided in the TIAS. A sensitivity analysis including a conservative 5 hourly pedestrian calls at the signalized Route 152 at Route 106 intersection has been performed (see **Attachments**). Consistent with TIAS findings, operations at the signalized intersection are at LOS D or better overall during each of the analysis periods with no material change in delays as a result of modest project traffic increases.
- e. Revised capacity analysis has been conducted and is summarized under **Response 10**.

Comment 12: *“Intersection Capacity Analysis Results:*

- a. *The information presented in the tables, figures and analysis worksheets appears to be consistent.*
- b. *The existing conditions analyses, particularly at the intersection of Kelley Boulevard at Messenger Street, do not match observed and experienced existing conditions.”*

Response:

- a. No Response Required.
- b. The traffic signal setting from the signalized Route 106 at Route 152 signalized intersection used in the TIAS were obtained from field and video observations. As part of this response the capacity settings and timing plans have been adjusted slightly to reflect the traffic signal timing plans prepared by BETA in 2019 (see **Attachments**). That said, MDM agrees that there are inherent limitations to traffic modeling software, specifically, the calculated vs actual queues observed on the northbound Kelley Boulevard approach. The model is limited in its calculations of spill back and blockage of the storage lanes at the intersection. This results in queue spill back which can extend through the Plain Street intersection under Baseline conditions during the weekday morning peak periods. Notwithstanding modeling limitations, the proposed development will result in no material impact at the intersection of Kelley Boulevard at Messenger Street between the No-Build and Build conditions. Furthermore, as part of a development agreement with the Town of North Attleborough, the Proponent has identified the long-term mitigation needs for the Messenger Street at Kelley Boulevard signalized intersection and along

Kelley Boulevard between Messenger Street and George Levin Drive, assisted the Town in preparing preliminary design plans and a MassWorks application, secured MassWorks funding, and has an agreement in place to contribute additional funding prior to occupancy. As shown in **Response 10**, with the improvements in place the capacity and operations of the intersection will be significantly enhanced compared to Baseline conditions. The MassWorks project as currently shown on the BETA plan set will enhance operations with enhanced capacity and queue storage at the Messenger Street intersection with Kelley Boulevard.

Given the timeline of the project and MassWorks funding requirements, it is expected that the proposed intersection improvements will be implemented under the future No-Build and Build 2031 conditions. As shown in **Response 10**, the proposed development results in a negligible impact on operations at the signalized intersection. Furthermore, MDM has conducted a sensitivity analysis under the future 2031 No-Build and Build conditions if the proposed intersection improvements are not in place prior to the buildout of the proposed development. As summarized in **Table R3**, under a condition with the existing geometry in place at the signalized intersection, the proposed development would result in a nominal change in operations between the future No-Build and Build Conditions with the overall intersection level of service remaining at LOS D during the weekday morning and weekday evening peak hours. That said, time of day queue spillback as observed under Baseline conditions would continue to occur with no major increase due to the project.

TABLE R3
INTERSECTION CAPACITY ANALYSIS RESULTS
ROUTE 106 AT ROUTE 152

Period	Approach	2024 Baseline (Existing Geometry)			2031 No-Build (Existing Geometry)			2031 Build (Existing Geometry)		
		v/c ¹	Delay ²	LOS ³	v/c	Delay	LOS	v/c	Delay	LOS
<i>Weekday Morning</i>	Eastbound	0.80	37	D	0.84	39	D	0.85	40	D
	Westbound	0.56	25	C	0.63	27	C	0.65	28	C
<i>Peak Hour</i>	Northbound	0.83	33	C	0.89	38	D	0.91	38	D
	Southbound	<u>0.66</u>	<u>33</u>	<u>C</u>	<u>0.71</u>	<u>36</u>	<u>D</u>	<u>0.71</u>	<u>36</u>	<u>D</u>
	OVERALL	0.83	32	C	0.89	35	D	0.91	36	D
<i>Weekday Evening</i>	Eastbound	0.92	54	D	0.97	63	E	1.00	69	E
	Westbound	0.88	49	D	0.94	57	E	0.94	58	E
<i>Peak Hour</i>	Northbound	0.64	28	C	0.71	30	C	0.74	31	C
	Southbound	<u>0.86</u>	<u>43</u>	<u>D</u>	<u>0.91</u>	<u>49</u>	<u>D</u>	<u>0.93</u>	<u>52</u>	<u>D</u>
	OVERALL	0.92	43	D	0.97	49	D	1.00	52	D

¹ Volume-to-capacity ratio

² Average control delay per vehicle (in seconds)

³ Level of service

⁴n/a = not applicable

Comment 13: *“Proposed Access Improvements: Pare generally agrees with the recommendations, however, there is no description or graphic in either the report or the plans that specifically defines where the limits of the sight triangle areas are at the accesses.”*

Response: Sight line triangles will be added to the final plan set to be prepared by Bohler.

Comment 14: *“Pedestrian and Bicycle Accommodations: Pare generally agrees with the recommendations. See Comment 17 below.”*

Response: No Response Required.

Comment 15: *“Travel Demand Management Program: The strategies listed are fairly standard for multifamily residential developments and are acceptable.”*

Response: No Response Required.

Comment 16: *“Conclusions: As the existing conditions capacity analyses do not coincide with observed and experienced conditions, Pare’s position is that the analyses need to be revised such that they reflect actual conditions. Until that is true, it is unfortunately difficult to have confidence in the future analysis results and therefore Pare cannot make a statement agreeing or disagreeing with the report’s conclusions.”*

Response: See **Response 12**. As part of its development agreement with the Town of North Attleborough the Proponent has worked with the Town to secure funding to implement improvements for the Messenger Street at Kelley Boulevard signalized intersection and along Kelley Boulevard between Messenger Street and George Levin Drive. The limitations of the analysis software include the ability for a static model to adequately estimate the queue spill back along the Kelley Boulevard northbound approach. The proposed MassWorks improvements that have been identified through the Proponent working with the Town are being designed by BETA to enhance capacity, queue storage, and operations. The report’s conclusions remain valid.

The incremental traffic associated with the proposed development is not expected to materially degrade operating conditions at the study intersections. There will be no degradation in the level of service at any of the study intersections due to the project. However, as outlined under the TIAS’s *Planned Area Roadway Improvements*, the Applicant worked with the Town of Plainville and Town of North Attleborough to develop a 10% design and MassWorks application for multi-modal transportation improvements that will support development of the property and provide the basis for future development in the area. The Town successfully secured funding through a MassWorks grant in October 2022. The project will enhance safety and/or operations through the study area for pedestrians, bicycles, and motorized vehicles along Route 152 including at the signalized intersections of Route 152 at Route 106 (Plainville)

and Route 152 and George Leven Drive (North Attleborough). Proposed access-related improvements are consistent with long-range corridor improvements outlined in the 2014 SRPEDD Corridor Study.

As outlined in the TIAS, the implementation of access/egress improvements, proposed pedestrian and bicycle accommodations, off-site improvements, and a Transportation Demand Management (TDM) program with formal commitments under the projects Development Agreement will establish a framework of minimizing Site traffic impacts by encouraging non-motorized travel modes and pedestrian/bicycle accommodation that is compatible with other projects in the study area.

Comment 17: "Site Plan Review: From a usability standpoint, would it be more advantageous to have the proposed sidewalk out to George Leven Drive be on the east side of the driveway rather than the west? Would it not be expected that most people walking from the development to George Leven Drive would then turn east toward Kelley Boulevard, and vice versa?"

Response: The Proponent will continue to work with the Town of North Attleborough with regards to the most desirable location of the proposed sidewalk. MDM concurs that most people walking from the development to George Leven Drive would then turn east toward Kelley Boulevard, and vice versa; however, we see advantages to keeping the sidewalk on the western side of the driveway as currently shown. MDM does recommend as outlined in the TIAS, that ADA compliant ramps and a marked crosswalk should be provided at the intersection of George Levin Drive at the proposed site driveway and the sidewalk should be extended to connect to the existing sidewalk along the northern side of George Leven Drive, which currently ends at the Koko Fit driveway.

ATTACHMENTS

- Traffic Volume Data
- Revised Traffic Volume Networks
- Design Plans
- Capacity Analysis
 - Revised Analysis
 - Existing Geometry
 - Pedestrian Phase

□ Traffic Volume Data

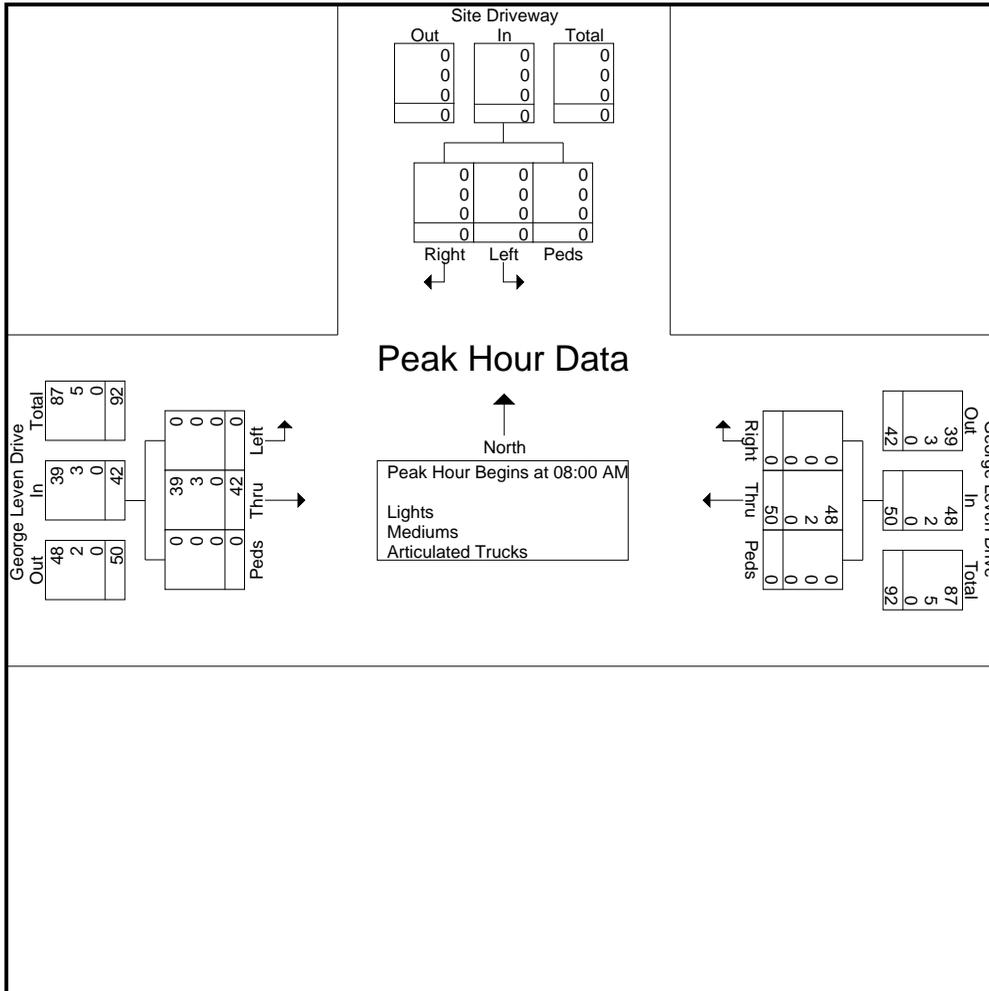
MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

North: Site Driveway
E/W: George Leven Drive
North Attleborough, MA

File Name : 1188 George Leven Drive at Site (Dec 24')
Site Code : 1188
Start Date : 12/17/2024
Page No : 2

Start Time	Site Driveway From North				George Leven Drive From East				George Leven Drive From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	0	0	0	0	0	21	0	21	11	0	0	11	32
08:15 AM	0	0	0	0	0	8	0	8	10	0	0	10	18
08:30 AM	0	0	0	0	0	8	0	8	10	0	0	10	18
08:45 AM	0	0	0	0	0	13	0	13	11	0	0	11	24
Total Volume	0	0	0	0	0	50	0	50	42	0	0	42	92
% App. Total	0	0	0	0	0	100	0	100	100	0	0	100	92
PHF	.000	.000	.000	.000	.000	.595	.000	.595	.955	.000	.000	.955	.719
Lights	0	0	0	0	0	48	0	48	39	0	0	39	87
% Lights	0	0	0	0	0	96.0	0	96.0	92.9	0	0	92.9	94.6
Mediums	0	0	0	0	0	2	0	2	3	0	0	3	5
% Mediums	0	0	0	0	0	4.0	0	4.0	7.1	0	0	7.1	5.4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0



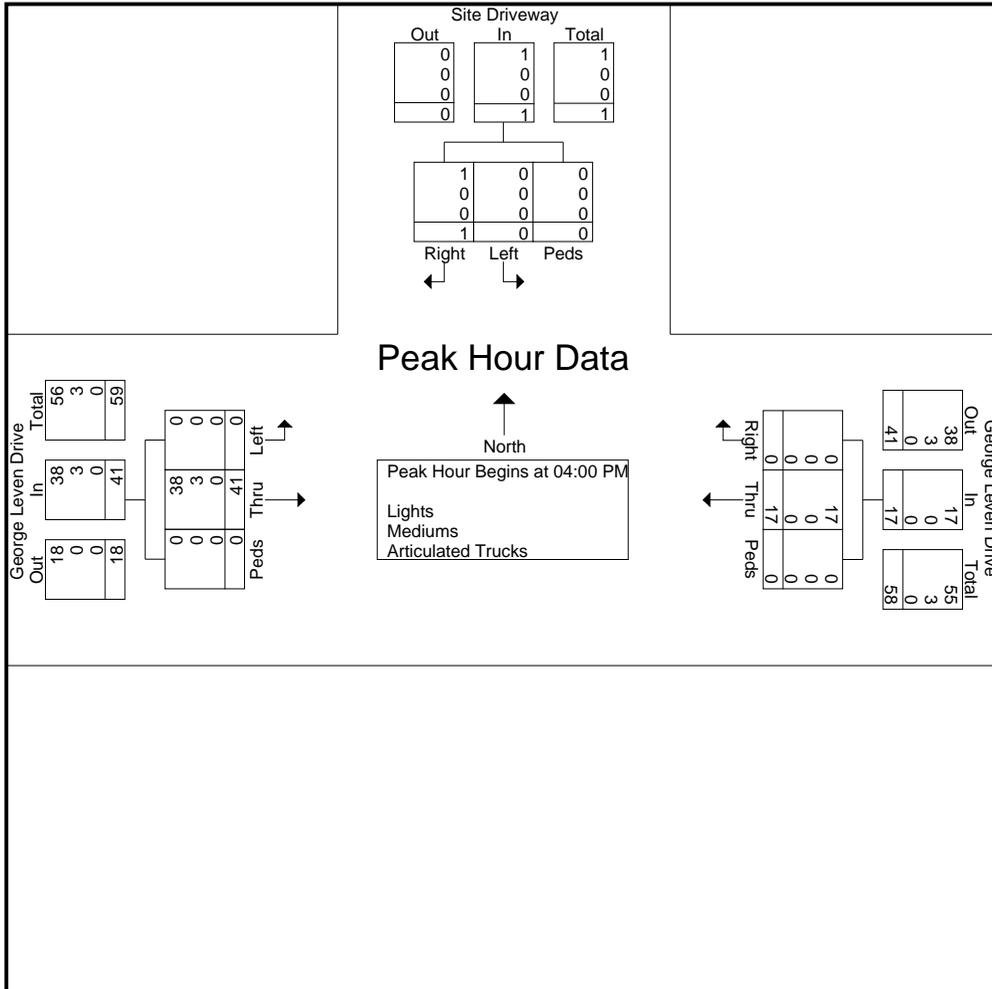
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28 Lord Rd, Suite 280
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North: Site Driveway
E/W: George Leven Drive
North Attleborough, MA

File Name : 1188 George Leven Drive at Site (Dec 24')
Site Code : 1188
Start Date : 12/17/2024
Page No : 3

Start Time	Site Driveway From North				George Leven Drive From East				George Leven Drive From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	1	0	0	1	0	3	0	3	13	0	0	13	17
04:15 PM	0	0	0	0	0	3	0	3	7	0	0	7	10
04:30 PM	0	0	0	0	0	4	0	4	10	0	0	10	14
04:45 PM	0	0	0	0	0	7	0	7	11	0	0	11	18
Total Volume	1	0	0	1	0	17	0	17	41	0	0	41	59
% App. Total	100	0	0	100	0	100	0	100	92.7	0	0	92.7	94.9
PHF	.250	.000	.000	.250	.000	.607	.000	.607	.788	.000	.000	.788	.819
Lights	1	0	0	1	0	17	0	17	38	0	0	38	56
% Lights	100	0	0	100	0	100	0	100	92.7	0	0	92.7	94.9
Mediums	0	0	0	0	0	0	0	0	3	0	0	3	3
% Mediums	0	0	0	0	0	0	0	0	7.3	0	0	7.3	5.1
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0



MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
West: George Leven Drive
North Attleborough, MA

File Name : 1188 taunton street at george leven drive (dec 24')
Site Code : 1188
Start Date : 12/17/2024
Page No : 1

Groups Printed- Lights - Mediums - Articulated Trucks

Start Time	Taunton Street From North				Taunton Street From South				George Leven Drive From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
07:00 AM	8	96	0	104	165	8	0	173	2	4	0	6	283
07:15 AM	13	109	0	122	141	9	0	150	4	13	0	17	289
07:30 AM	9	95	0	104	171	12	0	183	6	7	0	13	300
07:45 AM	8	97	0	105	167	14	0	181	4	10	0	14	300
Total	38	397	0	435	644	43	0	687	16	34	0	50	1172
08:00 AM	18	91	0	109	170	15	0	185	8	12	0	20	314
08:15 AM	8	124	0	132	154	3	0	157	6	10	0	16	305
08:30 AM	8	105	0	113	139	5	0	144	3	8	0	11	268
08:45 AM	12	119	0	131	188	6	0	194	9	11	0	20	345
Total	46	439	0	485	651	29	0	680	26	41	0	67	1232
04:00 PM	6	237	0	243	164	7	0	171	11	11	0	22	436
04:15 PM	5	212	0	217	126	6	0	132	11	2	0	13	362
04:30 PM	8	210	0	218	160	2	0	162	14	3	0	17	397
04:45 PM	10	216	0	226	150	10	0	160	19	8	0	27	413
Total	29	875	0	904	600	25	0	625	55	24	0	79	1608
05:00 PM	2	247	0	249	167	7	0	174	13	16	0	29	452
05:15 PM	9	210	0	219	130	3	0	133	3	7	3	13	365
05:30 PM	4	198	0	202	135	7	0	142	10	6	0	16	360
05:45 PM	9	191	0	200	128	4	0	132	13	6	0	19	351
Total	24	846	0	870	560	21	0	581	39	35	3	77	1528
Grand Total	137	2557	0	2694	2455	118	0	2573	136	134	3	273	5540
Apprch %	5.1	94.9	0		95.4	4.6	0		49.8	49.1	1.1		
Total %	2.5	46.2	0	48.6	44.3	2.1	0	46.4	2.5	2.4	0.1	4.9	
Lights	131	2487	0	2618	2402	116	0	2518	132	125	3	260	5396
% Lights	95.6	97.3	0	97.2	97.8	98.3	0	97.9	97.1	93.3	100	95.2	97.4
Mediums	6	56	0	62	48	2	0	50	4	9	0	13	125
% Mediums	4.4	2.2	0	2.3	2	1.7	0	1.9	2.9	6.7	0	4.8	2.3
Articulated Trucks	0	14	0	14	5	0	0	5	0	0	0	0	19
% Articulated Trucks	0	0.5	0	0.5	0.2	0	0	0.2	0	0	0	0	0.3

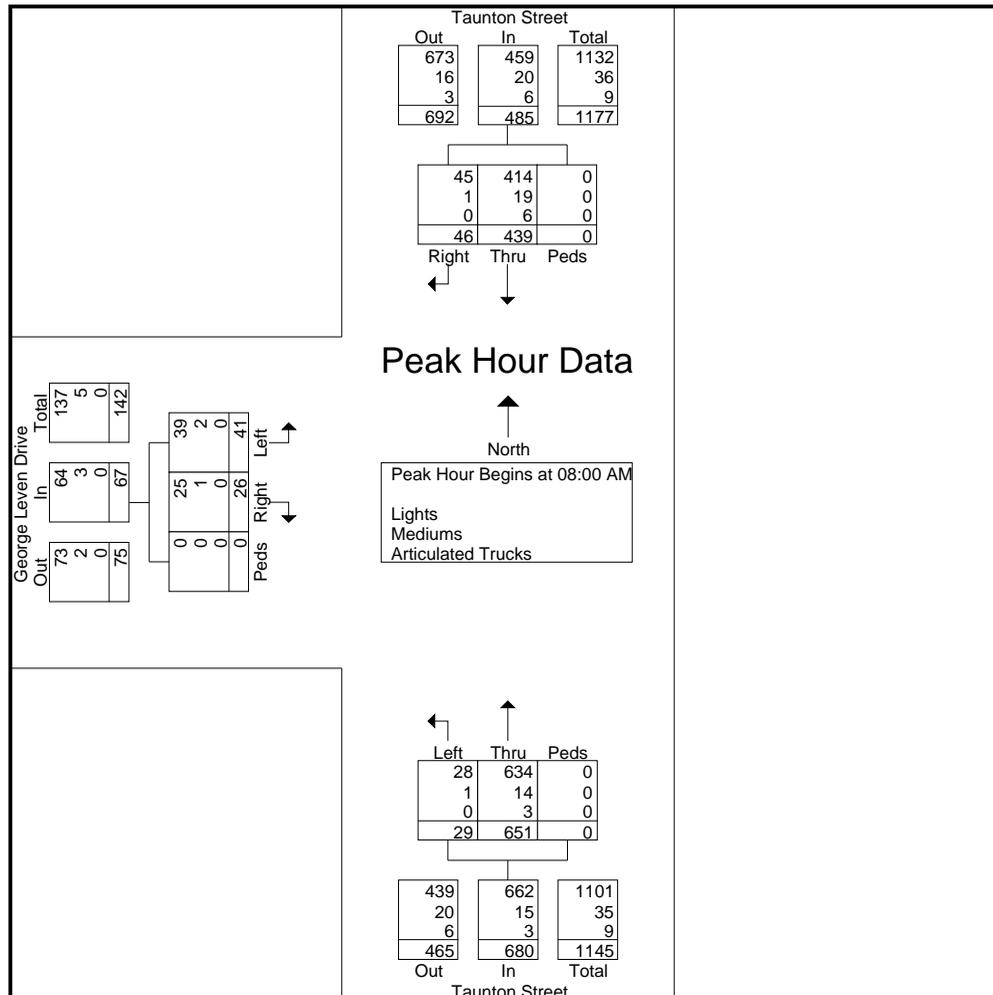
MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
West: George Leven Drive
North Attleborough, MA

File Name : 1188 taunton street at george leven drive (dec 24')
Site Code : 1188
Start Date : 12/17/2024
Page No : 2

Start Time	Taunton Street From North				Taunton Street From South				George Leven Drive From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	18	91	0	109	170	15	0	185	8	12	0	20	314
08:15 AM	8	124	0	132	154	3	0	157	6	10	0	16	305
08:30 AM	8	105	0	113	139	5	0	144	3	8	0	11	268
08:45 AM	12	119	0	131	188	6	0	194	9	11	0	20	345
Total Volume	46	439	0	485	651	29	0	680	26	41	0	67	1232
% App. Total	9.5	90.5	0		95.7	4.3	0		38.8	61.2	0		
PHF	.639	.885	.000	.919	.866	.483	.000	.876	.722	.854	.000	.838	.893
Lights	45	414	0	459	634	28	0	662	25	39	0	64	1185
% Lights	97.8	94.3	0	94.6	97.4	96.6	0	97.4	96.2	95.1	0	95.5	96.2
Mediums	1	19	0	20	14	1	0	15	1	2	0	3	38
% Mediums	2.2	4.3	0	4.1	2.2	3.4	0	2.2	3.8	4.9	0	4.5	3.1
Articulated Trucks	0	6	0	6	3	0	0	3	0	0	0	0	9
% Articulated Trucks	0	1.4	0	1.2	0.5	0	0	0.4	0	0	0	0	0.7



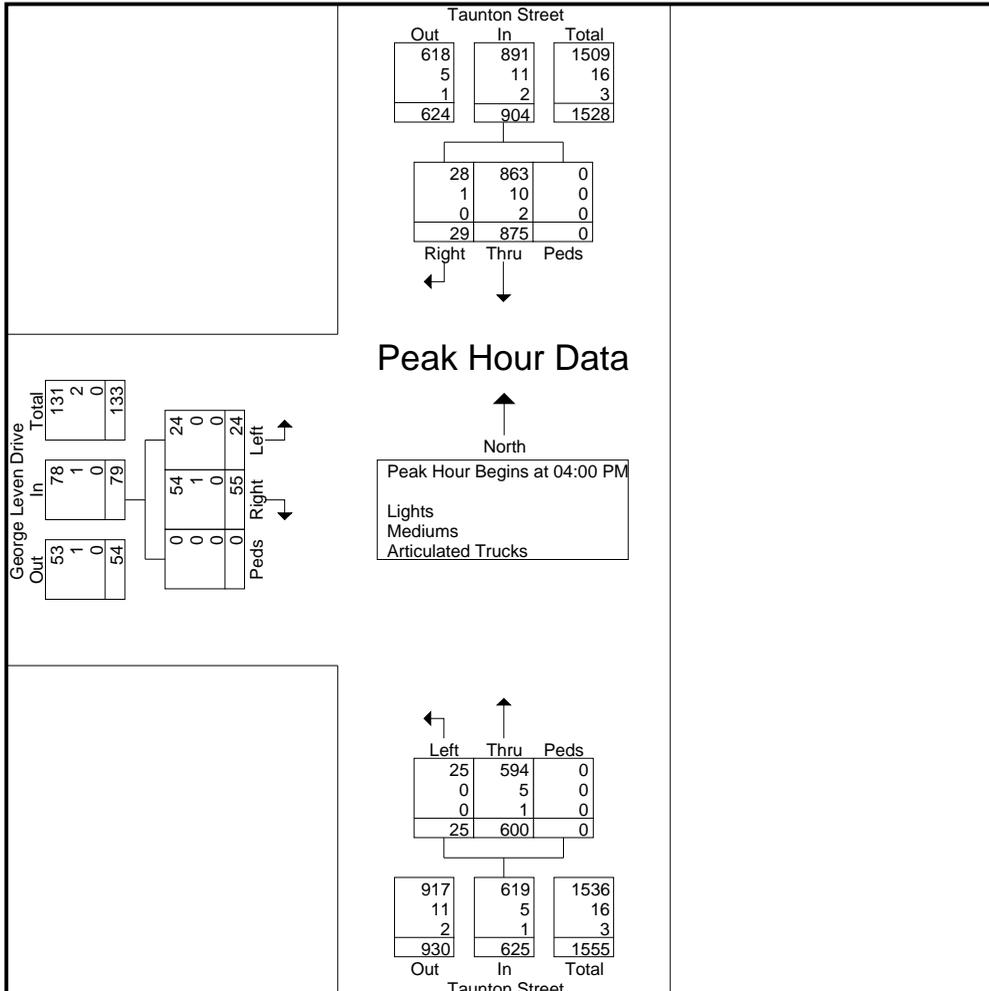
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28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
West: George Leven Drive
North Attleborough, MA

File Name : 1188 taunton street at george leven drive (dec 24')
Site Code : 1188
Start Date : 12/17/2024
Page No : 3

Start Time	Taunton Street From North				Taunton Street From South				George Leven Drive From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	6	237	0	243	164	7	0	171	11	11	0	22	436
04:15 PM	5	212	0	217	126	6	0	132	11	2	0	13	362
04:30 PM	8	210	0	218	160	2	0	162	14	3	0	17	397
04:45 PM	10	216	0	226	150	10	0	160	19	8	0	27	413
Total Volume	29	875	0	904	600	25	0	625	55	24	0	79	1608
% App. Total	3.2	96.8	0		96	4	0		69.6	30.4	0		
PHF	.725	.923	.000	.930	.915	.625	.000	.914	.724	.545	.000	.731	.922
Lights	28	863	0	891	594	25	0	619	54	24	0	78	1588
% Lights	96.6	98.6	0	98.6	99.0	100	0	99.0	98.2	100	0	98.7	98.8
Mediums	1	10	0	11	5	0	0	5	1	0	0	1	17
% Mediums	3.4	1.1	0	1.2	0.8	0	0	0.8	1.8	0	0	1.3	1.1
Articulated Trucks	0	2	0	2	1	0	0	1	0	0	0	0	3
% Articulated Trucks	0	0.2	0	0.2	0.2	0	0	0.2	0	0	0	0	0.2



MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
E/W: Messenger Street
North Attleborough, MA

File Name : 1188 taunton street at messenger street (dec 24')
Site Code : 1188
Start Date : 12/17/2024
Page No : 1

Groups Printed- Lights - Mediums - Articulated Trucks

Start Time	Taunton Street From North					Messenger Street From East					Taunton Street From South					Messenger Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	6	72	6	0	84	28	21	39	0	88	33	140	15	0	188	18	78	28	0	124	484
07:15 AM	5	50	9	0	64	32	28	25	0	85	42	141	7	0	190	10	102	25	0	137	476
07:30 AM	9	50	16	0	75	27	35	43	0	105	34	147	10	0	191	5	105	31	0	141	512
07:45 AM	5	64	20	1	90	38	59	34	0	131	51	127	19	0	197	19	115	34	0	168	586
Total	25	236	51	1	313	125	143	141	0	409	160	555	51	0	766	52	400	118	0	570	2058
08:00 AM	13	64	19	0	96	19	28	30	0	77	55	127	26	0	208	17	80	24	0	121	502
08:15 AM	9	80	26	0	115	27	33	45	0	105	43	98	26	0	167	19	84	20	0	123	510
08:30 AM	15	63	38	0	116	33	51	44	0	128	37	104	21	0	162	16	94	30	0	140	546
08:45 AM	13	82	11	0	106	47	69	56	0	172	46	114	28	0	188	20	75	39	0	134	600
Total	50	289	94	0	433	126	181	175	0	482	181	443	101	0	725	72	333	113	0	518	2158
04:00 PM	10	131	19	0	160	13	110	53	0	176	45	105	32	0	182	39	80	26	0	145	663
04:15 PM	7	117	21	0	145	26	115	66	0	207	42	90	36	0	168	48	63	35	0	146	666
04:30 PM	21	111	22	0	154	15	111	63	0	189	32	99	39	2	172	47	67	32	0	146	661
04:45 PM	13	115	31	0	159	30	105	82	0	217	43	99	48	0	190	41	64	36	0	141	707
Total	51	474	93	0	618	84	441	264	0	789	162	393	155	2	712	175	274	129	0	578	2697
05:00 PM	11	111	33	1	156	27	111	70	0	208	44	111	41	0	196	33	65	32	0	130	690
05:15 PM	13	111	23	0	147	37	118	59	0	214	37	98	43	0	178	39	55	23	0	117	656
05:30 PM	25	118	21	1	165	14	94	66	0	174	36	66	33	0	135	28	52	21	0	101	575
05:45 PM	33	119	38	0	190	21	85	63	0	169	25	93	49	0	167	38	36	31	0	105	631
Total	82	459	115	2	658	99	408	258	0	765	142	368	166	0	676	138	208	107	0	453	2552
Grand Total	208	1458	353	3	2022	434	1173	838	0	2445	645	1759	473	2	2879	437	1215	467	0	2119	9465
Apprch %	10.3	72.1	17.5	0.1		17.8	48	34.3	0		22.4	61.1	16.4	0.1		20.6	57.3	22	0		
Total %	2.2	15.4	3.7	0	21.4	4.6	12.4	8.9	0	25.8	6.8	18.6	5	0	30.4	4.6	12.8	4.9	0	22.4	
Lights	202	1425	344	3	1974	426	1157	815	0	2398	620	1733	467	2	2822	423	1194	453	0	2070	9264
% Lights	97.1	97.7	97.5	100	97.6	98.2	98.6	97.3	0	98.1	96.1	98.5	98.7	100	98	96.8	98.3	97	0	97.7	97.9
Mediums	4	28	9	0	41	8	16	21	0	45	25	25	4	0	54	13	19	13	0	45	185
% Mediums	1.9	1.9	2.5	0	2	1.8	1.4	2.5	0	1.8	3.9	1.4	0.8	0	1.9	3	1.6	2.8	0	2.1	2
Articulated Trucks																					
% Articulated Trucks	1	0.3	0	0	0.3	0	0	0.2	0	0.1	0	0.1	0.4	0	0.1	0.2	0.2	0.2	0	0.2	0.2

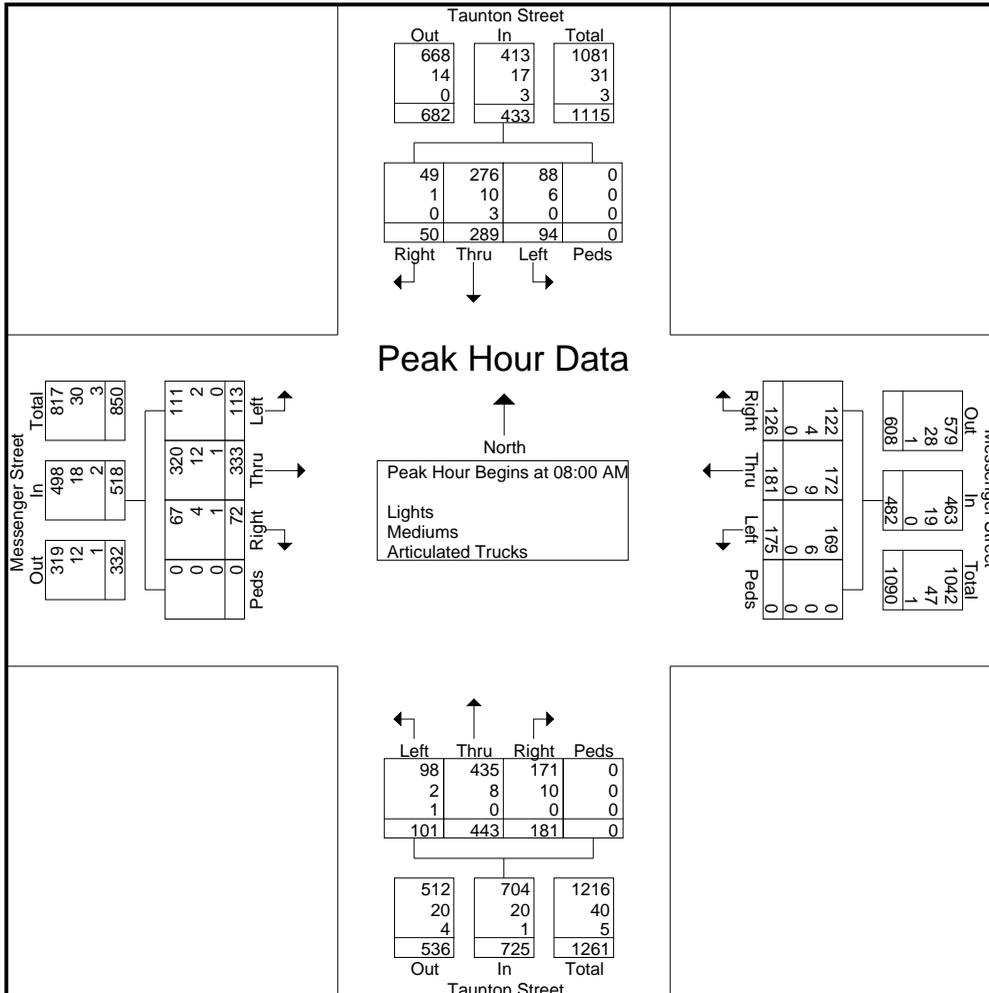
MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
E/W: Messenger Street
North Attleborough, MA

File Name : 1188 taunton street at messenger street (dec 24')
Site Code : 1188
Start Date : 12/17/2024
Page No : 2

Start Time	Taunton Street From North					Messenger Street From East					Taunton Street From South					Messenger Street From West					Int. Total	
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total		
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 08:00 AM																						
08:00 AM	13	64	19	0	96	19	28	30	0	77	55	127	26	0	208	17	80	24	0	121	502	
08:15 AM	9	80	26	0	115	27	33	45	0	105	43	98	26	0	167	19	84	20	0	123	510	
08:30 AM	15	63	38	0	116	33	51	44	0	128	37	104	21	0	162	16	94	30	0	140	546	
08:45 AM	13	82	11	0	106	47	69	56	0	172	46	114	28	0	188	20	75	39	0	134	600	
Total Volume	50	289	94	0	433	126	181	175	0	482	181	443	101	0	725	72	333	113	0	518	2158	
% App. Total	11.5	66.7	21.7	0		26.1	37.6	36.3	0		25	61.1	13.9	0		13.9	64.3	21.8	0			
PHF	.833	.881	.618	.000	.933	.670	.656	.781	.000	.701	.823	.872	.902	.000	.871	.900	.886	.724	.000	.925	.899	
Lights	49	276	88	0	413	122	172	169	0	463	171	435	98	0	704	67	320	111	0	498	2078	
% Lights	98.0	95.5	93.6	0	95.4	96.8	95.0	96.6	0	96.1	94.5	98.2	97.0	0	97.1	93.1	96.1	98.2	0	96.1	96.3	
Mediums	1	10	6	0	17	4	9	6	0	19	10	8	2	0	20	4	12	2	0	18	74	
% Mediums	2.0	3.5	6.4	0	3.9	3.2	5.0	3.4	0	3.9	5.5	1.8	2.0	0	2.8	5.6	3.6	1.8	0	3.5	3.4	
Articulated Trucks	0	3	0	0	3	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	2	6
% Articulated Trucks	0	1.0	0	0	0.7	0	0	0	0	0	0	0	1.0	0	0.1	1.4	0.3	0	0	0.4	0.3	



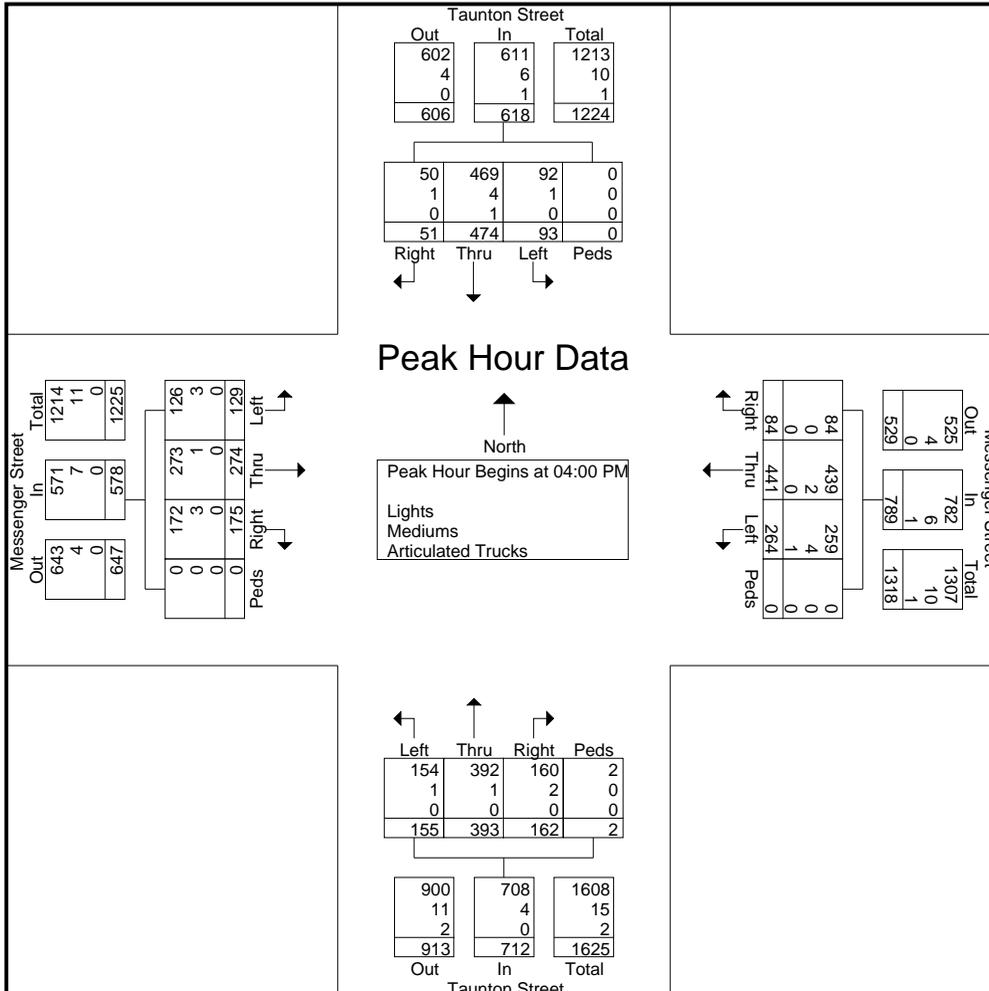
MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
E/W: Messenger Street
North Attleborough, MA

File Name : 1188 taunton street at messenger street (dec 24')
Site Code : 1188
Start Date : 12/17/2024
Page No : 3

Start Time	Taunton Street From North					Messenger Street From East					Taunton Street From South					Messenger Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	10	131	19	0	160	13	110	53	0	176	45	105	32	0	182	39	80	26	0	145	663
04:15 PM	7	117	21	0	145	26	115	66	0	207	42	90	36	0	168	48	63	35	0	146	666
04:30 PM	21	111	22	0	154	15	111	63	0	189	32	99	39	2	172	47	67	32	0	146	661
04:45 PM	13	115	31	0	159	30	105	82	0	217	43	99	48	0	190	41	64	36	0	141	707
Total Volume	51	474	93	0	618	84	441	264	0	789	162	393	155	2	712	175	274	129	0	578	2697
% App. Total	8.3	76.7	15	0		10.6	55.9	33.5	0		22.8	55.2	21.8	0.3		30.3	47.4	22.3	0		
PHF	.607	.905	.750	.000	.966	.700	.959	.805	.000	.909	.900	.936	.807	.250	.937	.911	.856	.896	.000	.990	.954
Lights	50	469	92	0	611	84	439	259	0	782	160	392	154	2	708	172	273	126	0	571	2672
% Lights	98.0	98.9	98.9	0	98.9	100	99.5	98.1	0	99.1	98.8	99.7	99.4	100	99.4	98.3	99.6	97.7	0	98.8	99.1
Mediums	1	4	1	0	6	0	2	4	0	6	2	1	1	0	4	3	1	3	0	7	23
% Mediums	2.0	0.8	1.1	0	1.0	0	0.5	1.5	0	0.8	1.2	0.3	0.6	0	0.6	1.7	0.4	2.3	0	1.2	0.9
Articulated Trucks	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
% Articulated Trucks	0	0.2	0	0	0.2	0	0	0.4	0	0.1	0	0	0	0	0	0	0	0	0	0	0.1



MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
East: Plain Street
North Attleborough, MA

File Name : 1188_Plain_Street_at_Taunton_Street_1258480_12-17-2024
Site Code : 1188
Start Date : 12/17/2024
Page No : 1

Groups Printed- Lights - Mediums - Articulated Trucks

Start Time	Taunton Street From North				Plain Street From East				Taunton Street From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
07:00 AM	94	14	0	108	40	7	3	50	12	155	0	167	325
07:15 AM	122	6	0	128	42	6	0	48	2	168	0	170	346
07:30 AM	108	3	0	111	50	5	1	56	0	155	0	155	322
07:45 AM	110	19	0	129	51	4	0	55	3	178	0	181	365
Total	434	42	0	476	183	22	4	209	17	656	0	673	1358
08:00 AM	107	19	0	126	38	7	0	45	13	185	0	198	369
08:15 AM	122	28	0	150	49	11	1	61	9	146	0	155	366
08:30 AM	112	27	0	139	40	4	0	44	11	147	0	158	341
08:45 AM	135	29	0	164	46	10	1	57	4	156	0	160	381
Total	476	103	0	579	173	32	2	207	37	634	0	671	1457
04:00 PM	247	58	0	305	44	3	0	47	12	162	0	174	526
04:15 PM	205	46	0	251	51	10	1	62	11	129	0	140	453
04:30 PM	206	56	0	262	44	10	0	54	9	133	0	142	458
04:45 PM	227	58	0	285	47	8	0	55	14	157	0	171	511
Total	885	218	0	1103	186	31	1	218	46	581	0	627	1948
05:00 PM	226	41	0	267	41	16	2	59	19	164	0	183	509
05:15 PM	203	43	0	246	54	4	1	59	13	138	0	151	456
05:30 PM	196	37	0	233	29	5	0	34	3	140	0	143	410
05:45 PM	199	32	0	231	35	4	0	39	7	127	0	134	404
Total	824	153	0	977	159	29	3	191	42	569	0	611	1779
Grand Total	2619	516	0	3135	701	114	10	825	142	2440	0	2582	6542
Apprch %	83.5	16.5	0		85	13.8	1.2		5.5	94.5	0		
Total %	40	7.9	0	47.9	10.7	1.7	0.2	12.6	2.2	37.3	0	39.5	
Lights	2558	495	0	3053	678	100	10	788	127	2393	0	2520	6361
% Lights	97.7	95.9	0	97.4	96.7	87.7	100	95.5	89.4	98.1	0	97.6	97.2
Mediums	54	17	0	71	20	8	0	28	10	41	0	51	150
% Mediums	2.1	3.3	0	2.3	2.9	7	0	3.4	7	1.7	0	2	2.3
Articulated Trucks	7	4	0	11	3	6	0	9	5	6	0	11	31
% Articulated Trucks	0.3	0.8	0	0.4	0.4	5.3	0	1.1	3.5	0.2	0	0.4	0.5

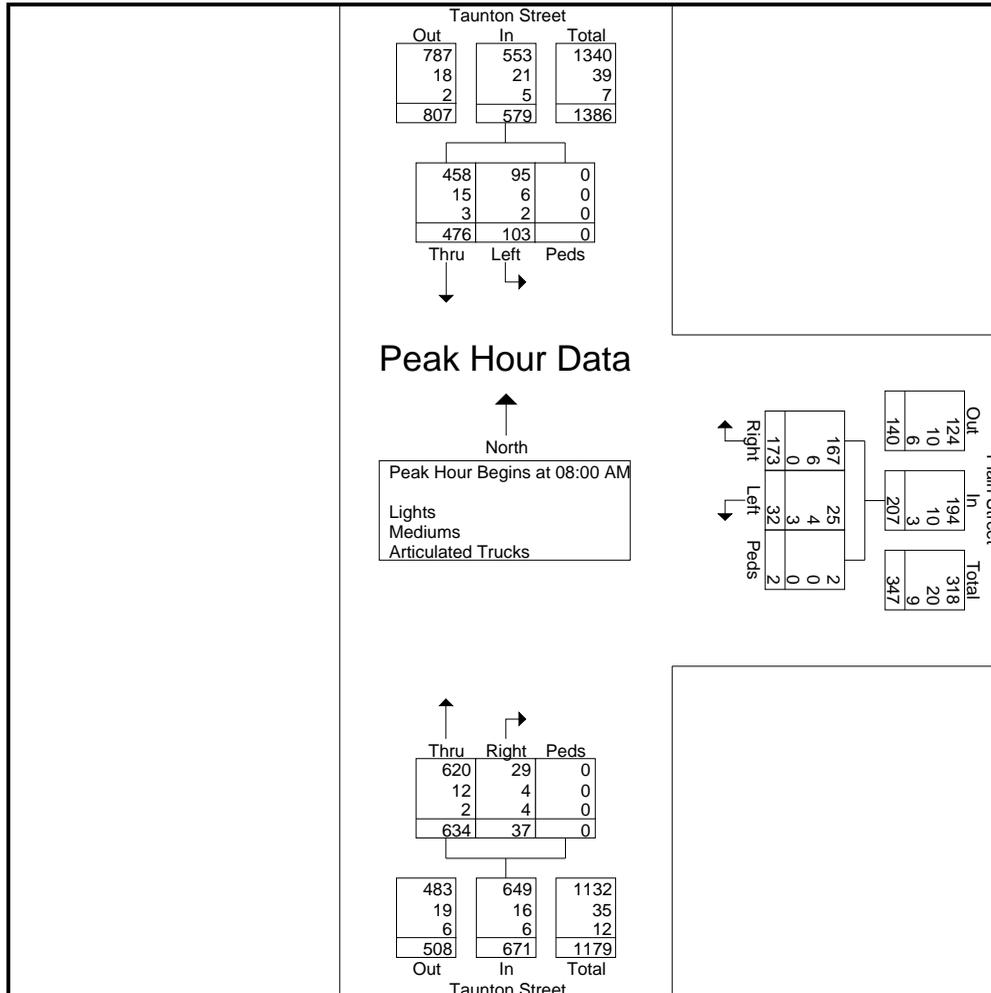
MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
East: Plain Street
North Attleborough, MA

File Name : 1188_Plain_Street_at_Taunton_Street_1258480_12-17-2024
Site Code : 1188
Start Date : 12/17/2024
Page No : 2

Start Time	Taunton Street From North				Plain Street From East				Taunton Street From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	107	19	0	126	38	7	0	45	13	185	0	198	369
08:15 AM	122	28	0	150	49	11	1	61	9	146	0	155	366
08:30 AM	112	27	0	139	40	4	0	44	11	147	0	158	341
08:45 AM	135	29	0	164	46	10	1	57	4	156	0	160	381
Total Volume	476	103	0	579	173	32	2	207	37	634	0	671	1457
% App. Total	82.2	17.8	0		83.6	15.5	1		5.5	94.5	0		
PHF	.881	.888	.000	.883	.883	.727	.500	.848	.712	.857	.000	.847	.956
Lights	458	95	0	553	167	25	2	194	29	620	0	649	1396
% Lights	96.2	92.2	0	95.5	96.5	78.1	100	93.7	78.4	97.8	0	96.7	95.8
Mediums	15	6	0	21	6	4	0	10	4	12	0	16	47
% Mediums	3.2	5.8	0	3.6	3.5	12.5	0	4.8	10.8	1.9	0	2.4	3.2
Articulated Trucks	3	2	0	5	0	3	0	3	4	2	0	6	14
% Articulated Trucks	0.6	1.9	0	0.9	0	9.4	0	1.4	10.8	0.3	0	0.9	1.0



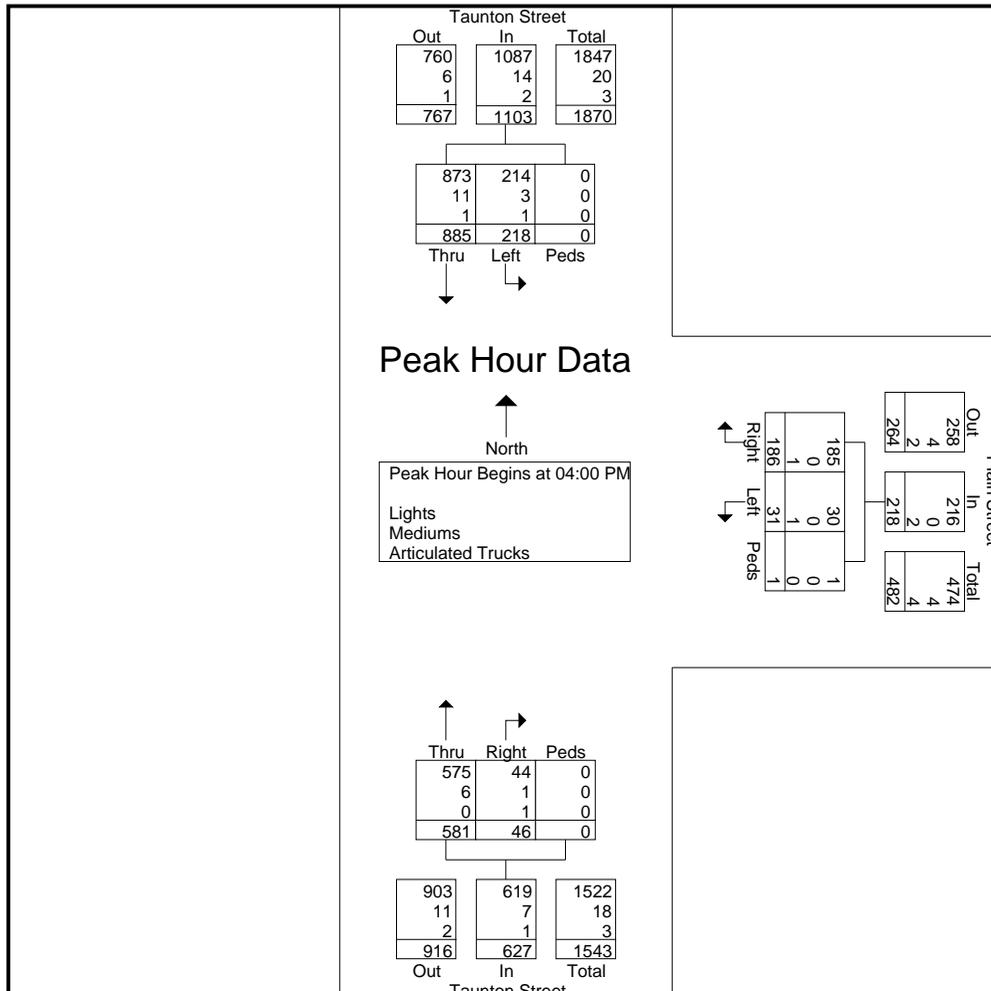
MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
East: Plain Street
North Attleborough, MA

File Name : 1188_Plain_Street_at_Taunton_Street_1258480_12-17-2024
Site Code : 1188
Start Date : 12/17/2024
Page No : 3

Start Time	Taunton Street From North				Plain Street From East				Taunton Street From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	247	58	0	305	44	3	0	47	12	162	0	174	526
04:15 PM	205	46	0	251	51	10	1	62	11	129	0	140	453
04:30 PM	206	56	0	262	44	10	0	54	9	133	0	142	458
04:45 PM	227	58	0	285	47	8	0	55	14	157	0	171	511
Total Volume	885	218	0	1103	186	31	1	218	46	581	0	627	1948
% App. Total	80.2	19.8	0		85.3	14.2	0.5		7.3	92.7	0		
PHF	.896	.940	.000	.904	.912	.775	.250	.879	.821	.897	.000	.901	.926
Lights	873	214	0	1087	185	30	1	216	44	575	0	619	1922
% Lights	98.6	98.2	0	98.5	99.5	96.8	100	99.1	95.7	99.0	0	98.7	98.7
Mediums	11	3	0	14	0	0	0	0	1	6	0	7	21
% Mediums	1.2	1.4	0	1.3	0	0	0	0	2.2	1.0	0	1.1	1.1
Articulated Trucks	1	1	0	2	1	1	0	2	1	0	0	1	5
% Articulated Trucks	0.1	0.5	0	0.2	0.5	3.2	0	0.9	2.2	0	0	0.2	0.3



MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
West: Strip Mall Parking Lot
North Attleborough, MA

File Name : 1188 taunton street at strip mall parking lot (dec 24')
Site Code : 1188
Start Date : 12/17/2024
Page No : 1

Groups Printed- Lights - Mediums - Articulated Trucks

Start Time	Taunton Street From North				Taunton Street From South				Strip Mall Parking Lot From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
07:00 AM	1	124	0	125	159	1	0	160	1	0	0	1	286
07:15 AM	2	105	0	107	168	0	0	168	2	0	0	2	277
07:30 AM	1	121	0	122	154	0	0	154	1	0	0	1	277
07:45 AM	0	106	0	106	179	0	0	179	1	1	1	3	288
Total	4	456	0	460	660	1	0	661	5	1	1	7	1128
08:00 AM	0	116	0	116	180	0	0	180	1	1	1	3	299
08:15 AM	0	137	0	137	175	3	0	178	2	0	1	3	318
08:30 AM	1	102	0	103	141	2	0	143	0	0	0	0	246
08:45 AM	4	146	0	150	174	2	0	176	1	0	0	1	327
Total	5	501	0	506	670	7	0	677	4	1	2	7	1190
04:00 PM	0	234	0	234	170	3	0	173	5	1	0	6	413
04:15 PM	3	227	0	230	142	2	0	144	5	3	1	9	383
04:30 PM	3	215	0	218	154	7	0	161	4	1	0	5	384
04:45 PM	5	233	0	238	169	10	0	179	17	5	0	22	439
Total	11	909	0	920	635	22	0	657	31	10	1	42	1619
05:00 PM	3	224	0	227	183	4	0	187	9	3	0	12	426
05:15 PM	1	197	0	198	141	5	0	146	2	5	0	7	351
05:30 PM	1	213	0	214	138	3	0	141	2	4	0	6	361
05:45 PM	1	191	0	192	136	1	0	137	9	2	0	11	340
Total	6	825	0	831	598	13	0	611	22	14	0	36	1478
Grand Total	26	2691	0	2717	2563	43	0	2606	62	26	4	92	5415
Apprch %	1	99	0		98.3	1.7	0		67.4	28.3	4.3		
Total %	0.5	49.7	0	50.2	47.3	0.8	0	48.1	1.1	0.5	0.1	1.7	
Lights	21	2625	0	2646	2506	42	0	2548	60	26	4	90	5284
% Lights	80.8	97.5	0	97.4	97.8	97.7	0	97.8	96.8	100	100	97.8	97.6
Mediums	5	54	0	59	48	0	0	48	2	0	0	2	109
% Mediums	19.2	2	0	2.2	1.9	0	0	1.8	3.2	0	0	2.2	2
Articulated Trucks	0	12	0	12	9	1	0	10	0	0	0	0	22
% Articulated Trucks	0	0.4	0	0.4	0.4	2.3	0	0.4	0	0	0	0	0.4

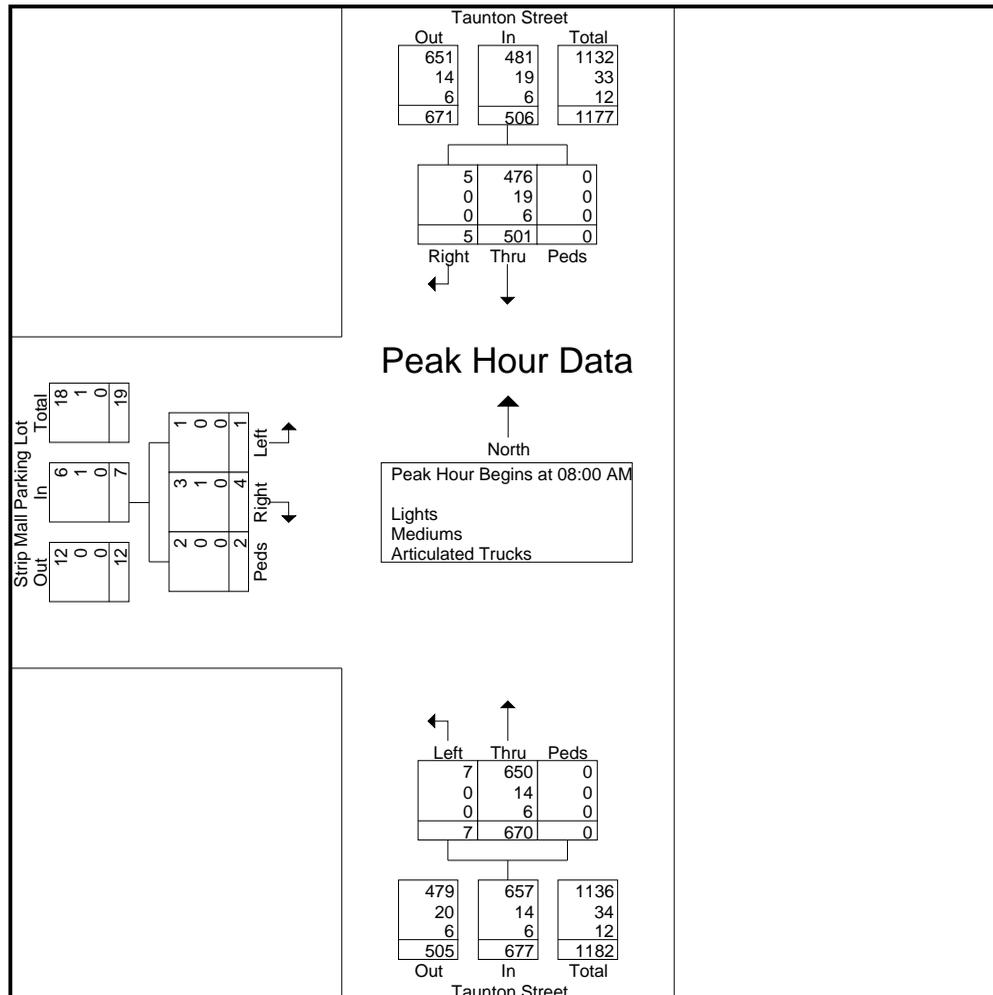
MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
West: Strip Mall Parking Lot
North Attleborough, MA

File Name : 1188 taunton street at strip mall parking lot (dec 24')
Site Code : 1188
Start Date : 12/17/2024
Page No : 2

Start Time	Taunton Street From North				Taunton Street From South				Strip Mall Parking Lot From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 08:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	0	116	0	116	180	0	0	180	1	1	1	3	299
08:15 AM	0	137	0	137	175	3	0	178	2	0	1	3	318
08:30 AM	1	102	0	103	141	2	0	143	0	0	0	0	246
08:45 AM	4	146	0	150	174	2	0	176	1	0	0	1	327
Total Volume	5	501	0	506	670	7	0	677	4	1	2	7	1190
% App. Total	1	99	0		99	1	0		57.1	14.3	28.6		
PHF	.313	.858	.000	.843	.931	.583	.000	.940	.500	.250	.500	.583	.910
Lights	5	476	0	481	650	7	0	657	3	1	2	6	1144
% Lights	100	95.0	0	95.1	97.0	100	0	97.0	75.0	100	100	85.7	96.1
Mediums	0	19	0	19	14	0	0	14	1	0	0	1	34
% Mediums	0	3.8	0	3.8	2.1	0	0	2.1	25.0	0	0	14.3	2.9
Articulated Trucks	0	6	0	6	6	0	0	6	0	0	0	0	12
% Articulated Trucks	0	1.2	0	1.2	0.9	0	0	0.9	0	0	0	0	1.0



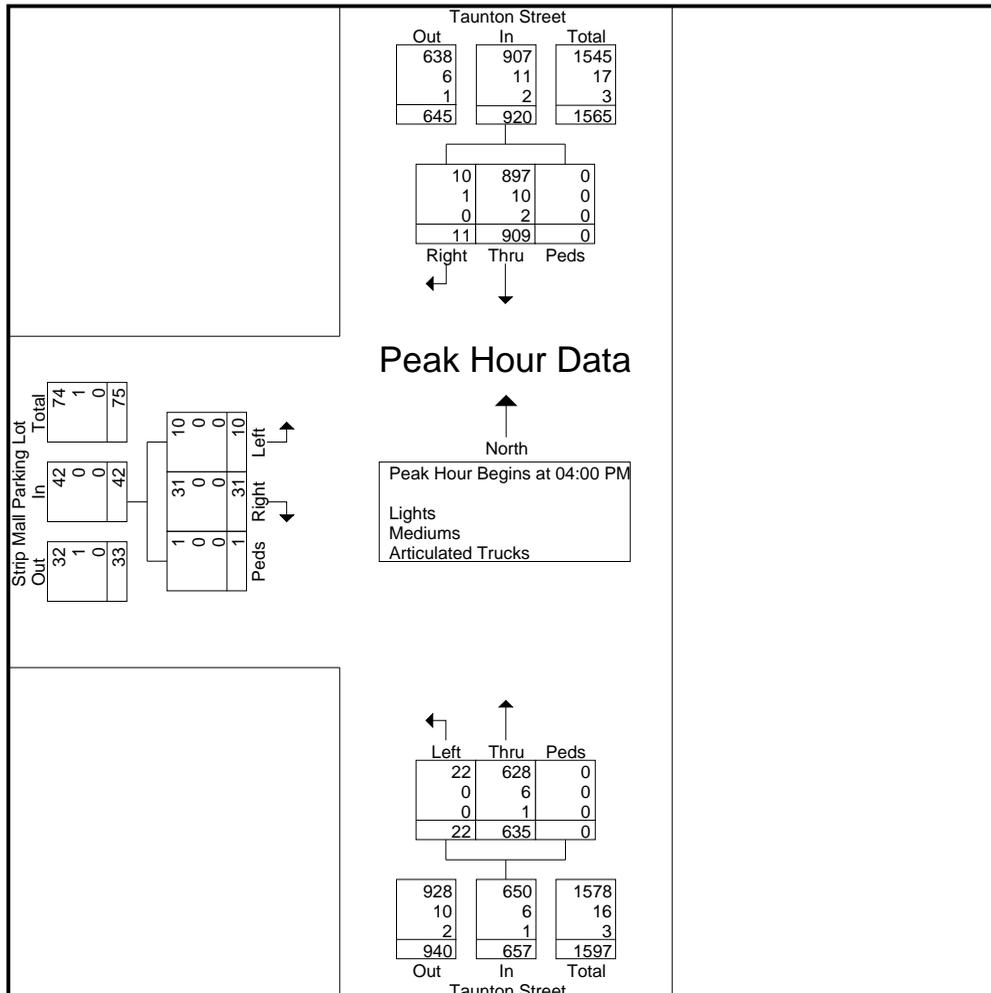
MDM Transportation Consultants, Inc.

28 Lord Rd, Suite 280
Marlborough, MA, 01752

N/S: Taunton Street
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File Name : 1188 taunton street at strip mall parking lot (dec 24')
Site Code : 1188
Start Date : 12/17/2024
Page No : 3

Start Time	Taunton Street From North				Taunton Street From South				Strip Mall Parking Lot From West				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	0	234	0	234	170	3	0	173	5	1	0	6	413
04:15 PM	3	227	0	230	142	2	0	144	5	3	1	9	383
04:30 PM	3	215	0	218	154	7	0	161	4	1	0	5	384
04:45 PM	5	233	0	238	169	10	0	179	17	5	0	22	439
Total Volume	11	909	0	920	635	22	0	657	31	10	1	42	1619
% App. Total	1.2	98.8	0		96.7	3.3	0		73.8	23.8	2.4		
PHF	.550	.971	.000	.966	.934	.550	.000	.918	.456	.500	.250	.477	.922
Lights	10	897	0	907	628	22	0	650	31	10	1	42	1599
% Lights	90.9	98.7	0	98.6	98.9	100	0	98.9	100	100	100	100	98.8
Mediums	1	10	0	11	6	0	0	6	0	0	0	0	17
% Mediums	9.1	1.1	0	1.2	0.9	0	0	0.9	0	0	0	0	1.1
Articulated Trucks	0	2	0	2	1	0	0	1	0	0	0	0	3
% Articulated Trucks	0	0.2	0	0.2	0.2	0	0	0.2	0	0	0	0	0.2



□ Revised Traffic Volume Networks

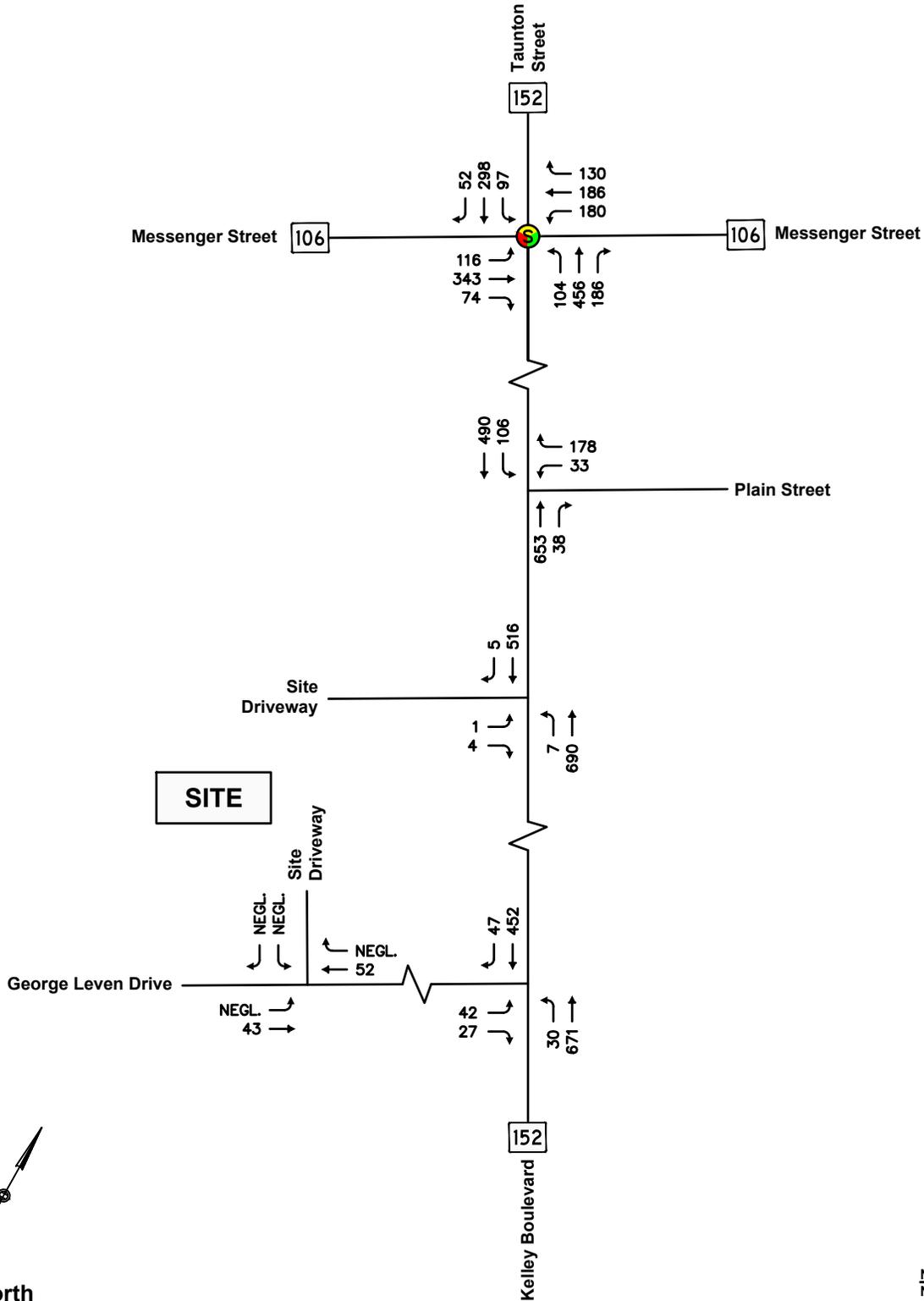
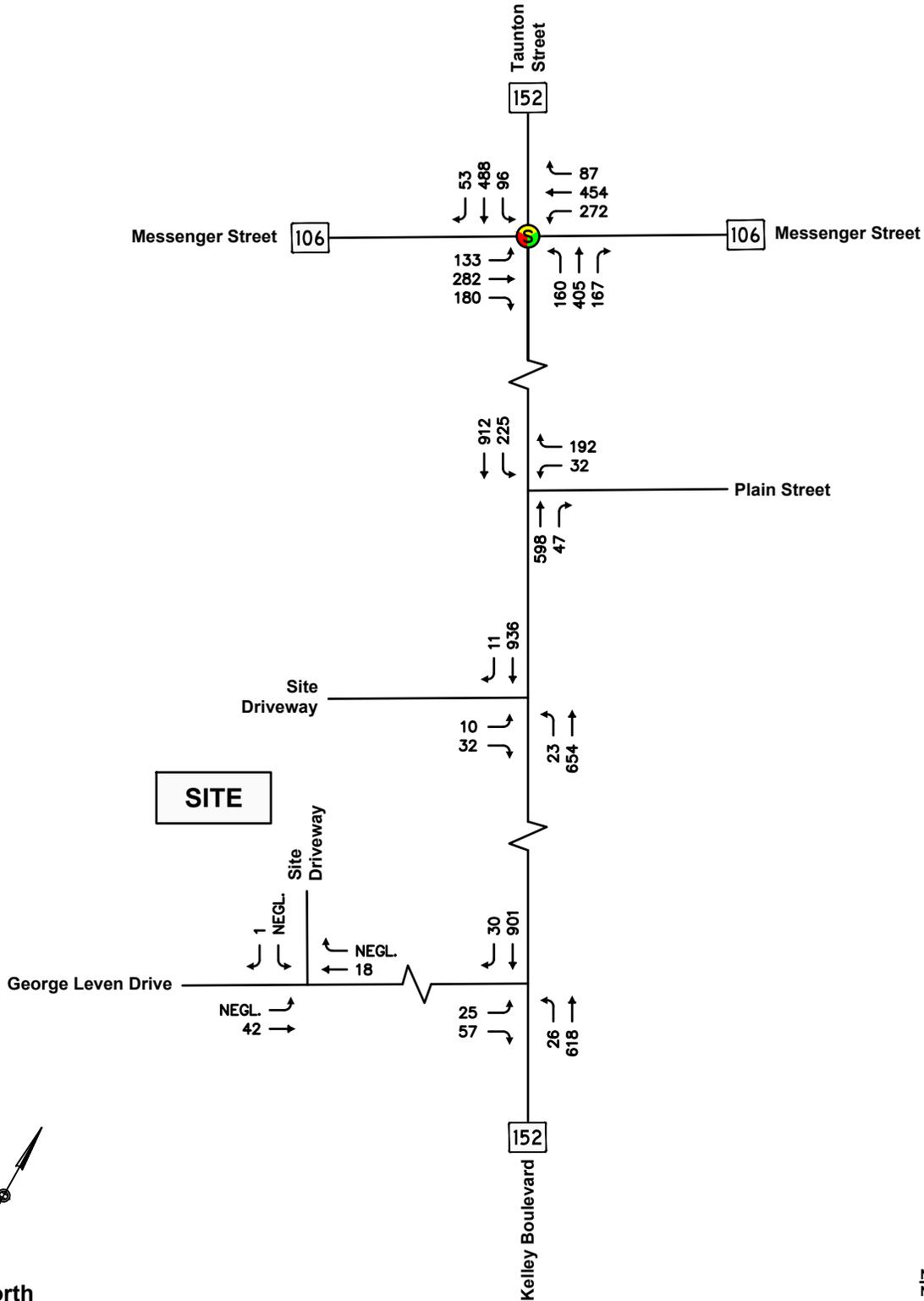


Figure 3 (Revised)



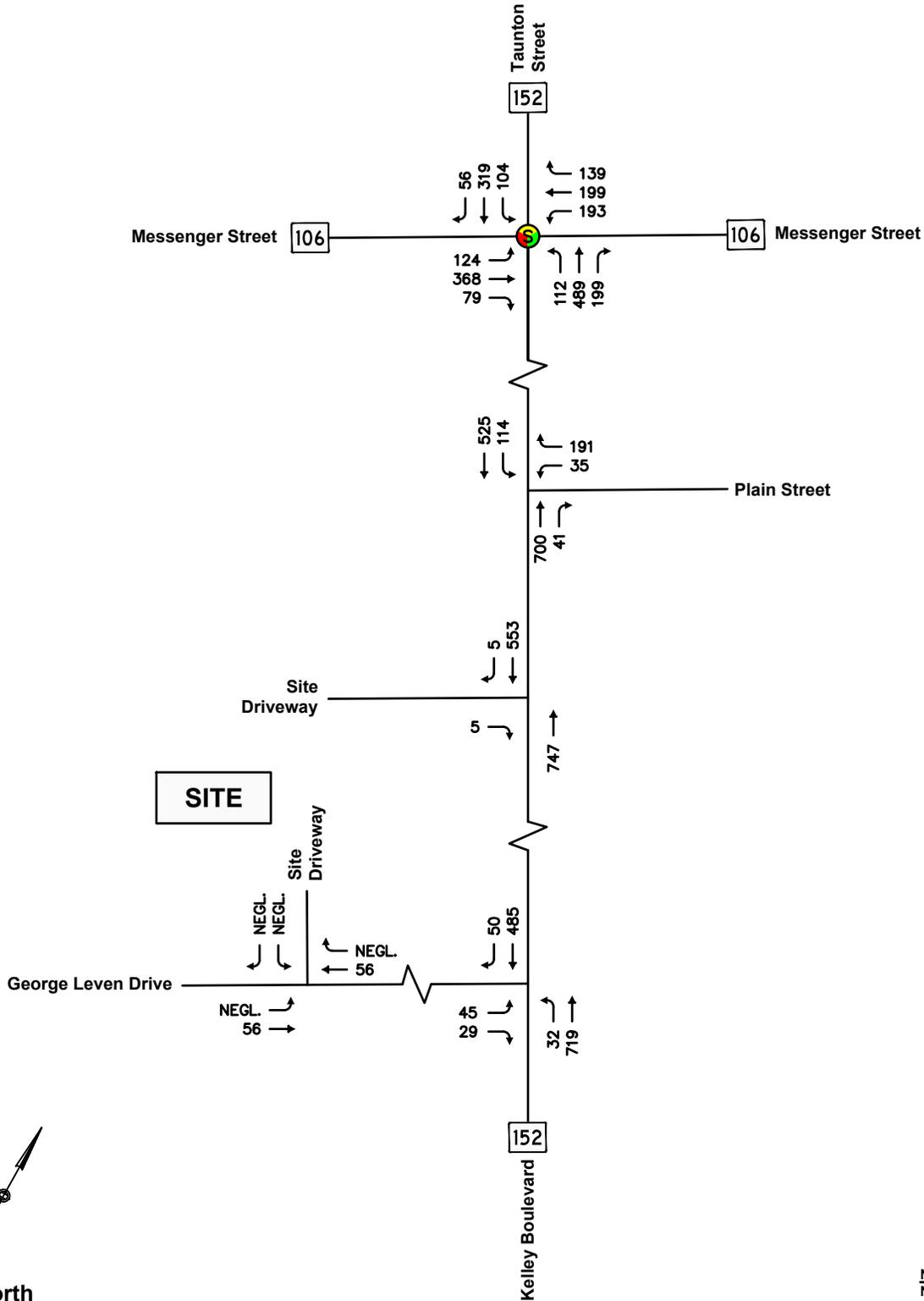
North

Scale: Not to Scale

NOTES:
 NEGL. = Negligible
 = Signalized Intersection

Figure 4 (Revised)

2024 Baseline Condition
 Weekday Evening Peak Hour Volumes

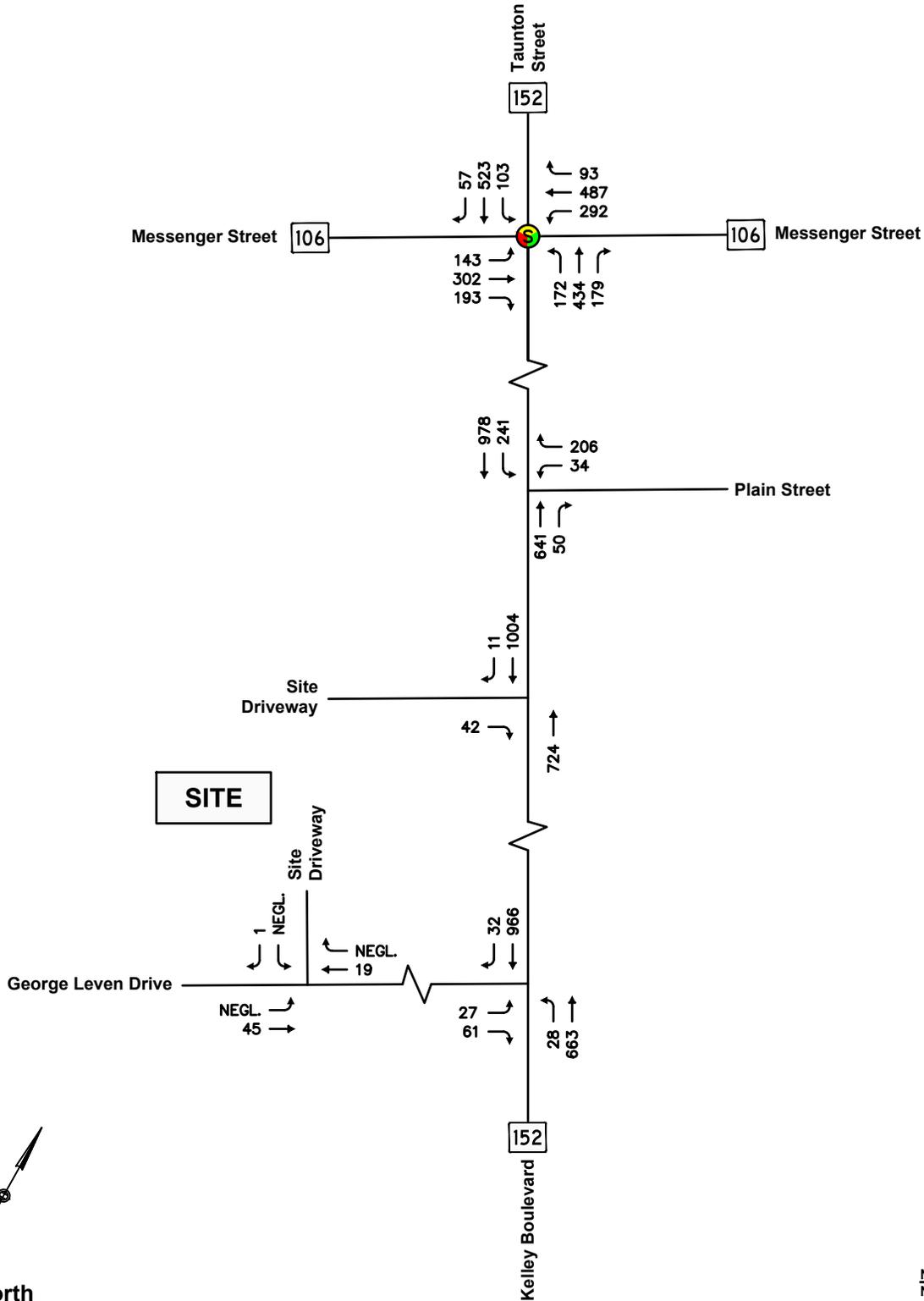


North

Scale: Not to Scale

Figure 5 (Revised)

**2031 No-Build Condition
 Weekday Morning Peak Hour Volumes**



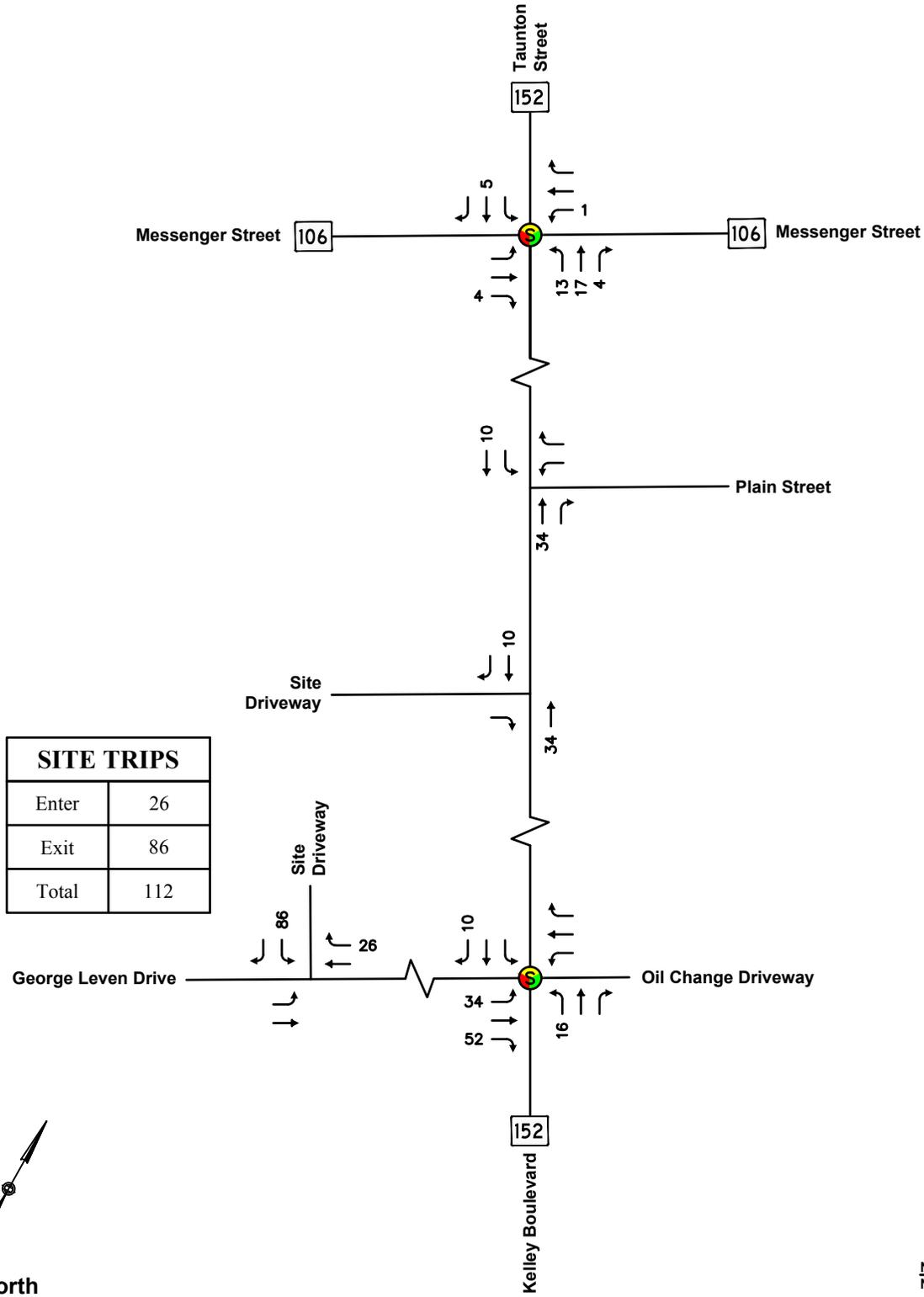
North

Scale: Not to Scale

NOTES:
 NEGL. = Negligible
 = Signalized Intersection

Figure 6 (Revised)

**2031 No-Build Condition
 Weekday Evening Peak Hour Volumes**



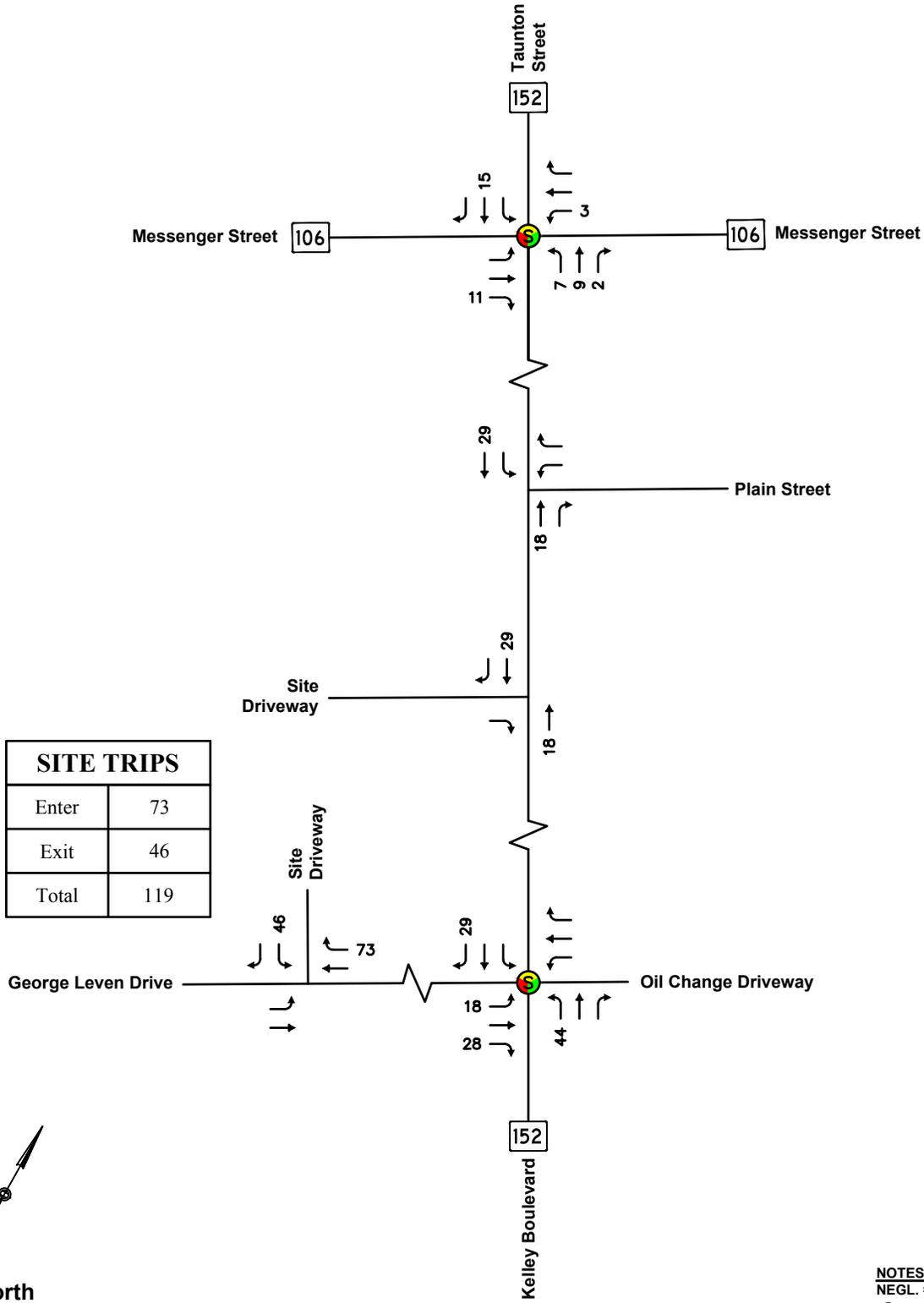
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Scale: Not to Scale

NOTES:
 NEGL. = Negligible
 = Signalized Intersection

Figure 8 (Revised)

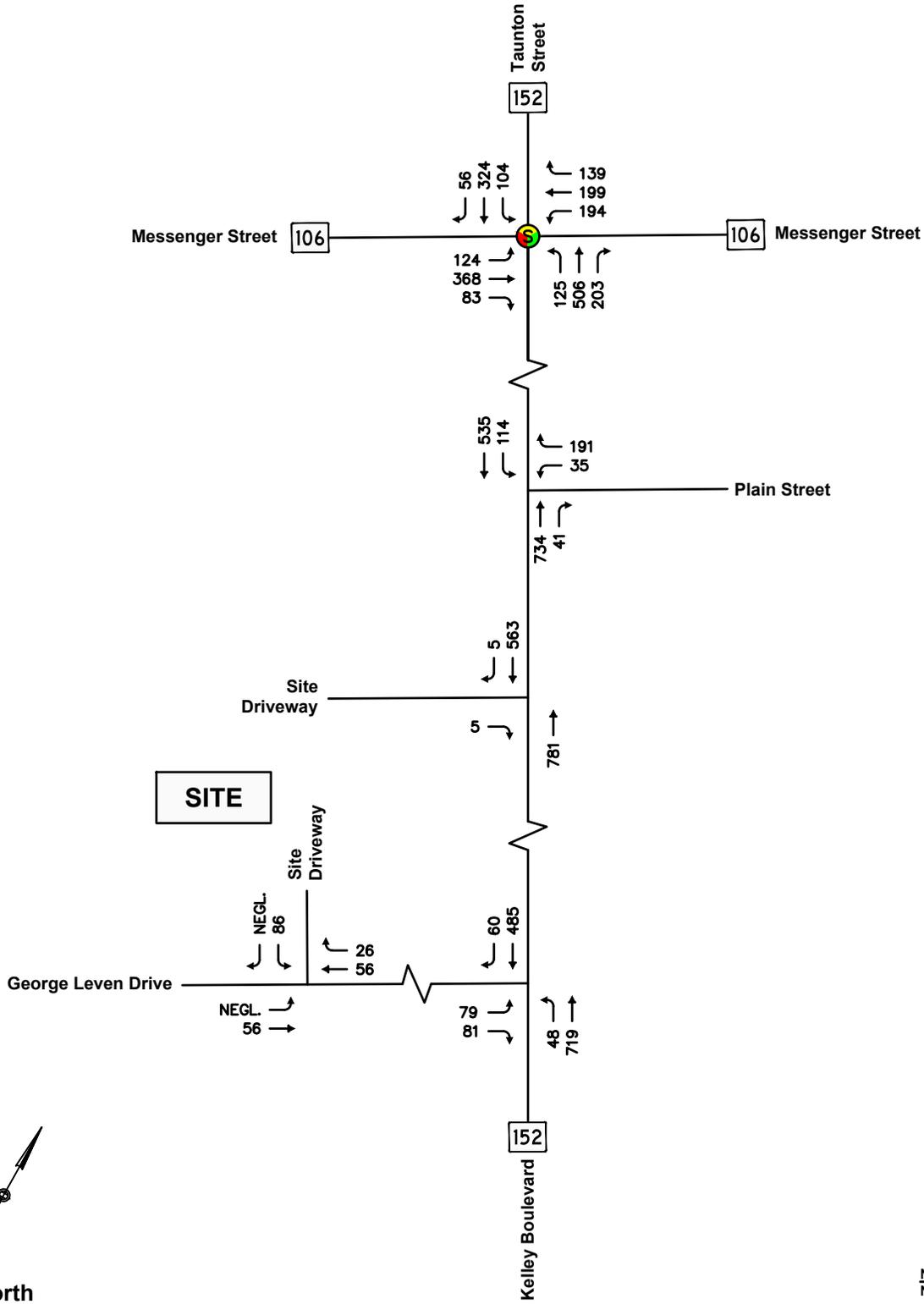
**Trip Generation
 Weekday Morning Peak Hour Volumes**



North
 Scale: Not to Scale

Figure 9 (Revised)

**Trip Generation
 Weekday Evening Peak Hour Volumes**



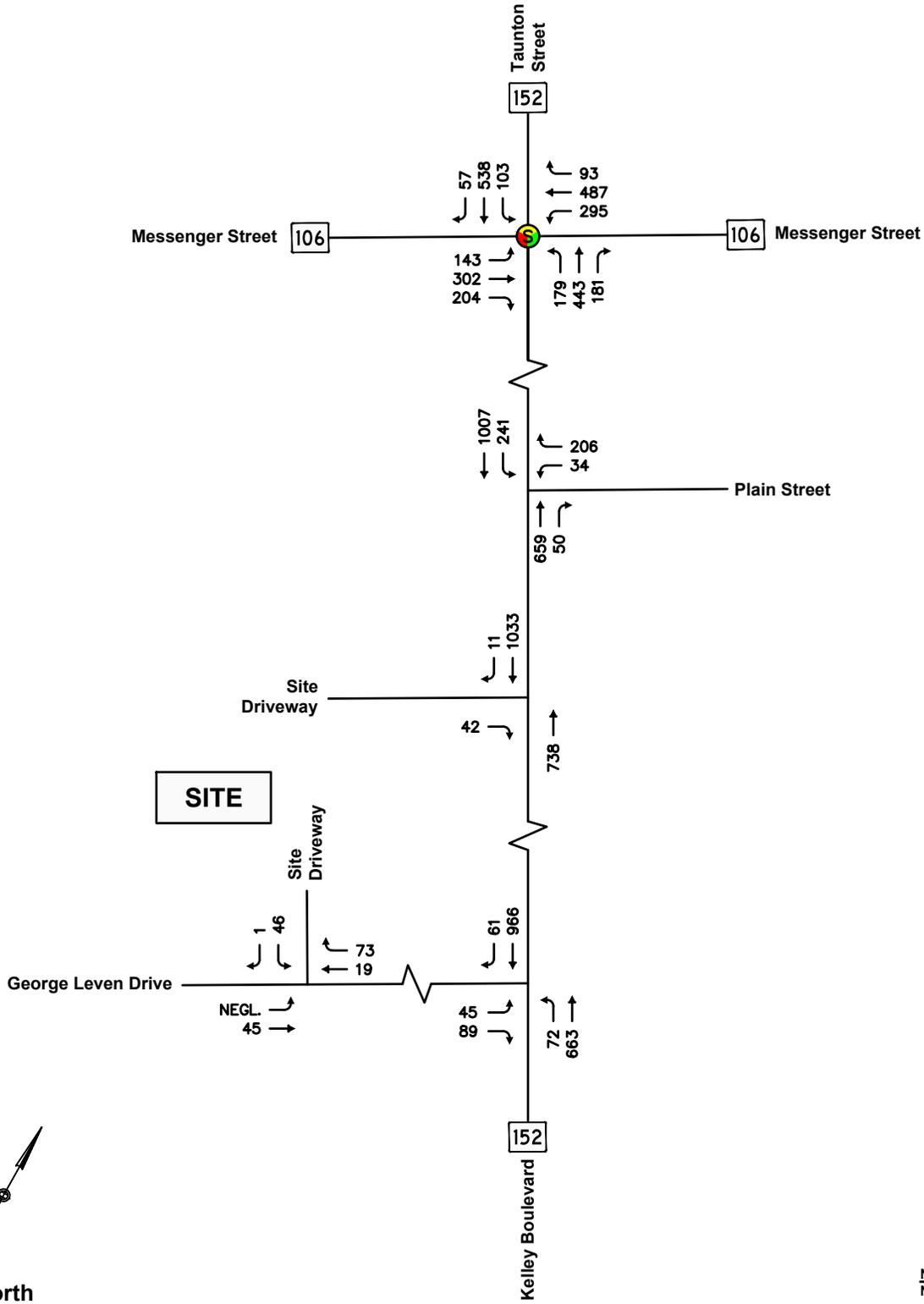
North

Scale: Not to Scale

NOTES:
 NEGL. = Negligible
 = Signalized Intersection

Figure 10 (Revised)

**2031 Build Condition
 Weekday Morning Peak Hour Volumes**



North

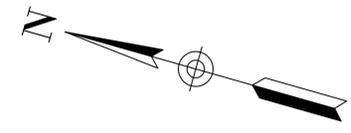
Scale: Not to Scale

NOTES:
 NEGL. = Negligible
 = Signalized Intersection

Figure 11 (Revised)

**2031 Build Condition
 Weekday Evening Peak Hour Volumes**

□ Design Plans



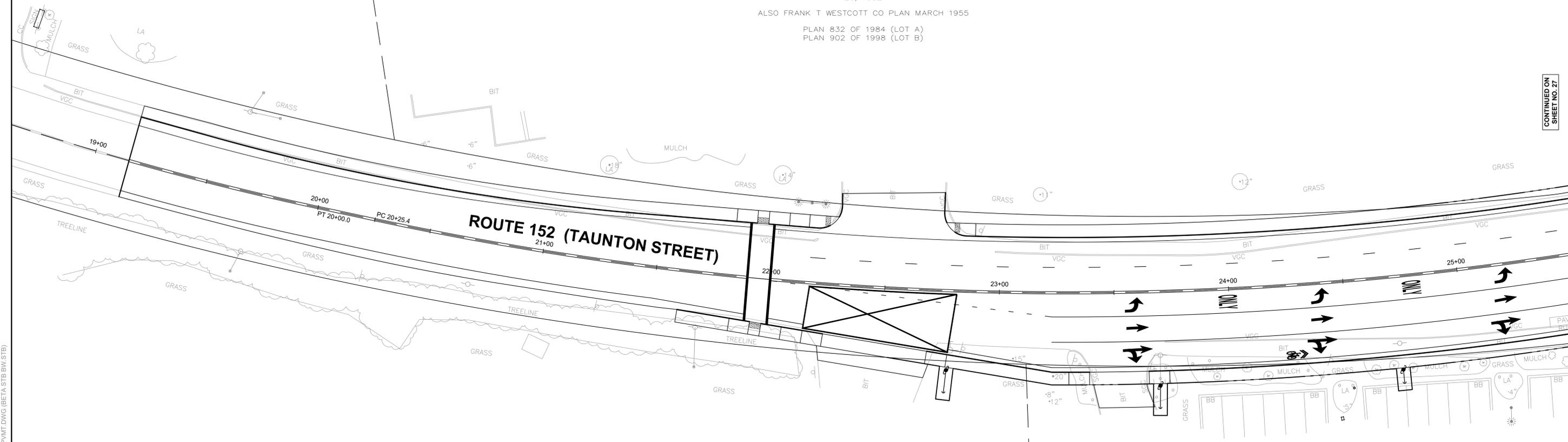
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 SCF RC FUNDING IV LLC
 600 PROVIDENCE HIGHWAY - DEDHAM, MA
 ASSESS. MAP 6 - PARCEL ID: 6_12C
 DEED BK 37600 / PAGE 103 (107)
 PLAN 832 OF 1984 (LOT B)

N/F
 PLAINVILLE CROSSING LTD PART.
 651 WASHINGTON ST SUITE 200 - BROOKLINE, MA
 ASSESS. MAP 6 - PARCEL ID: 6_12
 DEED BK 21689 / PAGE 512
 PARCEL 1 ON PLAN BY JOHN VANCE JR, APRIL
 26, 1982
 ALSO FRANK T WESTCOTT CO PLAN MARCH 1955
 PLAN 832 OF 1984 (LOT A)
 PLAN 902 OF 1998 (LOT B)

N/F
 18 TAUNTON OWNER, LLC
 C/O THE BROADWAY COMPANY
 136 NEWBURY STREET - BOSTON, MA
 ASSESS. MAP 6 - PARCEL ID: 6_1
 DEED BK 40841 / PAGE 579
 PLAN BOOK 241 PAGE 1710

N/F
 STURDY MEMORIAL FOUNDATION, INC
 211 PARK STREET - ATTLEBORO, MA
 ASSESS. MAP 6 - PARCEL ID: 6_124
 DEED BK 33521 / PAGE 471
 PLAN BOOK 316, #1309 OF 1984
 PLAN BOOK 241 PAGE 1710

ROUTE 152 (TAUNTON STREET)
 21+00



CONTINUED ON SHEET NO. 27

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CT / SD

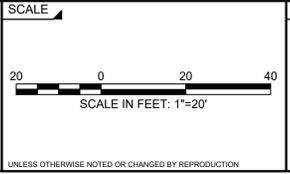
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DM

REGISTERED PROFESSIONAL

Not for Construction



SUBCONSULTANT



TITLE

**NORTH ATTLEBOROUGH
 KELLEY BLVD ROADWAY IMPROVEMENTS
 SIGN & PAVEMENT
 MARKINGS PLAN**

BETA JOB NO. 10847

ISSUE DATE 12/30/2024

SHEET NO. **26 of 34**

N/F
 PLAINVILLE CROSSING LTD PART.
 651 WASHINGTON ST SUITE 200 - BROOKLINE, MA
 ASSESS. MAP 6 - PARCEL ID: 6_12
 DEED BK 21689 / PAGE 512
 PARCEL 1 ON PLAN BY JOHN VANCE JR, APRIL
 26, 1982
 ALSO FRANK T WESTCOTT CO PLAN MARCH 1955
 PLAN 832 OF 1984 (LOT A)
 PLAN 902 OF 1998 (LOT B)

CONTINUED ON
 SHEET NO. 32

N/F
 MCDONALDS CORPORATION #3542
 10 OCEANA WAY SUITE #2 - NORWOOD, MA
 ASSESS. MAP 10 - PARCEL ID: 10_11
 DEED BK 502 / PAGE 37
 LAND COURT PLAN 25921-C

N/F
 MARIKO REALTY LLC
 11 TAUNTON ST - PLAINVILLE, MA
 ASSESS. MAP 6 - PARCEL ID: 6_53
 DEED BK / PAGE 1-427889
 CERT#185116
 LAND COURT PLAN 25921-B

N/F
 WESTWOOD PROPERTY MANAGEMENT, LLC
 10 TAUNTON STREET - PLAINVILLE, MA
 ASSESS. MAP 6 - PARCEL ID: 6_125
 DEED BK 34007 / PAGE 314
 PLAN BOOK 415 PAGE 471
 PLAN BOOK 285 PAGE 936 (AP 6 LOT 125)

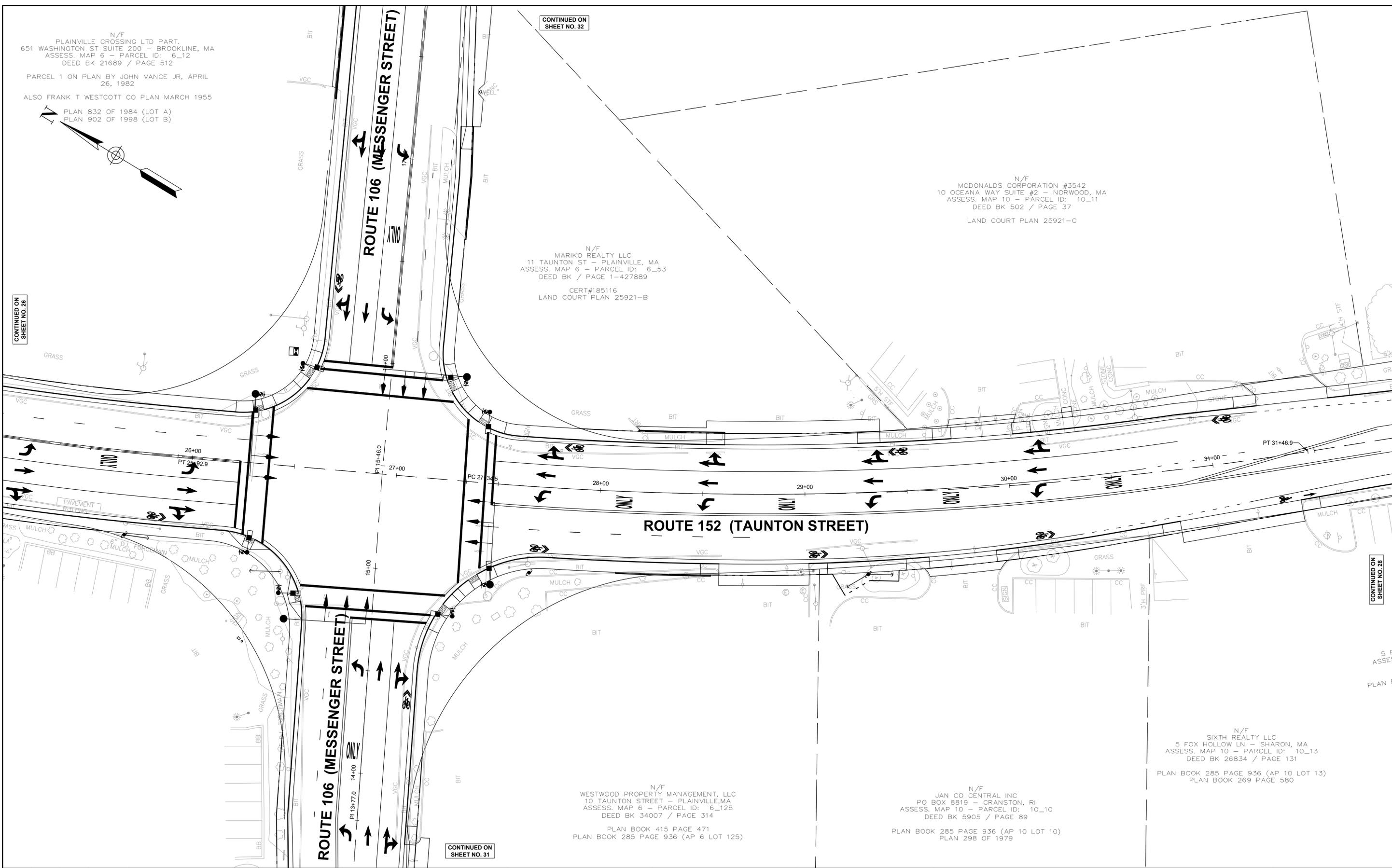
N/F
 JAN CO CENTRAL INC
 PO BOX 8819 - CRANSTON, RI
 ASSESS. MAP 10 - PARCEL ID: 10_10
 DEED BK 5905 / PAGE 89
 PLAN BOOK 285 PAGE 936 (AP 10 LOT 10)
 PLAN 298 OF 1979

N/F
 SIXTH REALTY LLC
 5 FOX HOLLOW LN - SHARON, MA
 ASSESS. MAP 10 - PARCEL ID: 10_13
 DEED BK 26834 / PAGE 131
 PLAN BOOK 285 PAGE 936 (AP 10 LOT 13)
 PLAN BOOK 269 PAGE 580

CONTINUED ON
 SHEET NO. 31

CONTINUED ON
 SHEET NO. 28

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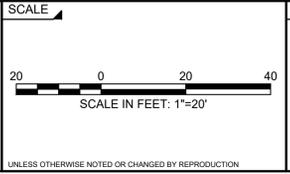
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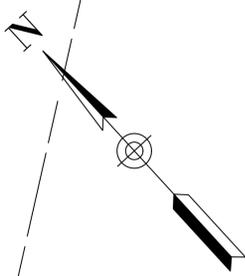


SUBCONSULTANT



TITLE
**NORTH ATTLEBOROUGH
 KELLEY BLVD ROADWAY IMPROVEMENTS
 SIGN & PAVEMENT
 MARKINGS PLAN**

BETA JOB NO. 10847
 ISSUE DATE 12/30/2024
 SHEET NO. **27 of 34**

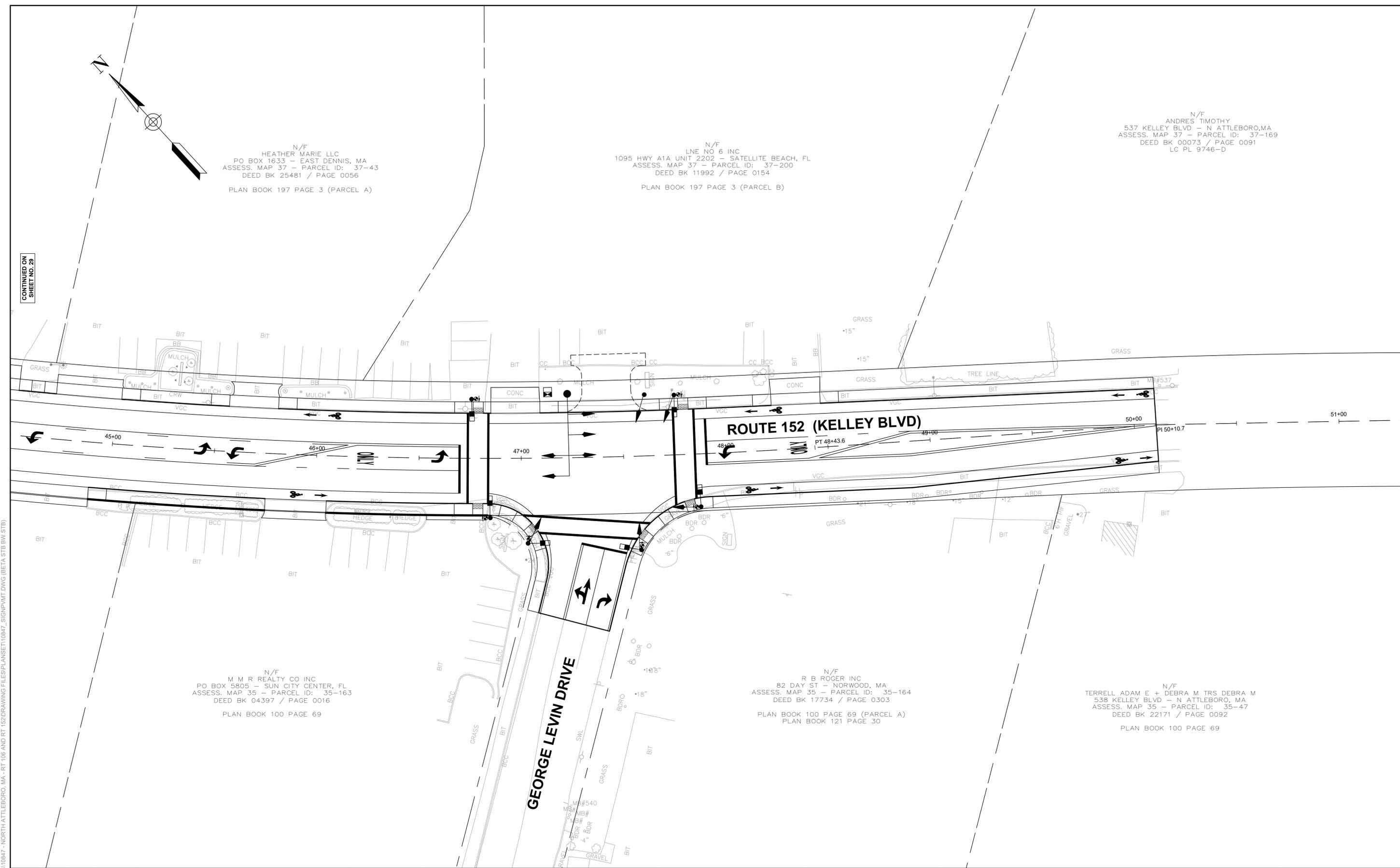


N/F
HEATHER MARIE LLC
PO BOX 1633 - EAST DENNIS, MA
ASSESS. MAP 37 - PARCEL ID: 37-43
DEED BK 25481 / PAGE 0056
PLAN BOOK 197 PAGE 3 (PARCEL A)

N/F
LNE NO 6 INC
1095 HWY A1A UNIT 2202 - SATELLITE BEACH, FL
ASSESS. MAP 37 - PARCEL ID: 37-200
DEED BK 11992 / PAGE 0154
PLAN BOOK 197 PAGE 3 (PARCEL B)

N/F
ANDRES TIMOTHY
537 KELLEY BLVD - N ATTLEBORO, MA
ASSESS. MAP 37 - PARCEL ID: 37-169
DEED BK 00073 / PAGE 0091
LC PL 9746-D

CONTINUED ON SHEET NO. 29



N/F
M M R REALTY CO INC
PO BOX 5805 - SUN CITY CENTER, FL
ASSESS. MAP 35 - PARCEL ID: 35-163
DEED BK 04397 / PAGE 0016
PLAN BOOK 100 PAGE 69

N/F
R B ROGER INC
82 DAY ST - NORWOOD, MA
ASSESS. MAP 35 - PARCEL ID: 35-164
DEED BK 17734 / PAGE 0303
PLAN BOOK 100 PAGE 69 (PARCEL A)
PLAN BOOK 121 PAGE 30

N/F
TERRELL ADAM E + DEBRA M TRS DEBRA M
538 KELLEY BLVD - N ATTLEBORO, MA
ASSESS. MAP 35 - PARCEL ID: 35-47
DEED BK 22171 / PAGE 0092
PLAN BOOK 100 PAGE 69

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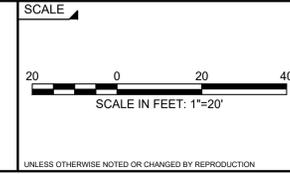
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SUBCONSULTANT



TITLE
**NORTH ATTLEBOROUGH
KELLEY BLVD ROADWAY IMPROVEMENTS
SIGN & PAVEMENT
MARKINGS PLAN**

BETA JOB NO. 10847
ISSUE DATE 12/30/2024
SHEET NO. 30 of 34

□ Capacity Analysis

- Revised Analysis

Lanes, Volumes, Timings

2024 Baseline Conditions - Revised

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	343	74	180	186	130	104	456	186	97	298	52
Future Volume (vph)	116	343	74	180	186	130	104	456	186	97	298	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	450		0	200		200	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973			0.938				0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1769	0	1752	1711	0	1752	1863	1524	1703	1777	0
Flt Permitted	0.377			0.166			0.274			0.133		
Satd. Flow (perm)	702	1769	0	306	1711	0	505	1863	1524	238	1777	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			37				173		8	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	4%	7%	3%	5%	3%	3%	2%	6%	6%	5%	2%
Adj. Flow (vph)	129	381	82	200	207	144	116	507	207	108	331	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	463	0	200	351	0	116	507	207	108	389	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Prot	pm+pt	NA	
Protected Phases	1	6		5	2		7	8	8	7	8	

Lanes, Volumes, Timings

2024 Baseline Conditions - Revised

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			8			8		
Detector Phase	1	6		5	2		7	8	8	7	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		1.0	10.0		1.0	5.0	5.0	1.0	5.0	
Minimum Split (s)	10.0	15.0		5.0	15.0		6.0	10.0	10.0	6.0	10.0	
Total Split (s)	14.0	42.0		17.0	45.0		15.0	37.0	37.0	15.0	37.0	
Total Split (%)	12.6%	37.8%		15.3%	40.5%		13.5%	33.3%	33.3%	13.5%	33.3%	
Maximum Green (s)	10.0	37.0		13.0	40.0		10.0	32.0	32.0	10.0	32.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	-2.5	-2.5	-2.5	
Total Lost Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)	44.6	32.1		49.1	35.0		44.0	32.7	32.7	44.0	32.7	
Actuated g/C Ratio	0.45	0.32		0.49	0.35		0.44	0.33	0.33	0.44	0.33	
v/c Ratio	0.30	0.80		0.56	0.56		0.32	0.83	0.34	0.40	0.66	
Control Delay	16.1	42.3		21.0	27.4		19.5	45.7	8.5	21.6	36.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.1	42.3		21.0	27.4		19.5	45.7	8.5	21.6	36.2	
LOS	B	D		C	C		B	D	A	C	D	
Approach Delay		36.6			25.1			32.8			33.0	
Approach LOS		D			C			C			C	
90th %ile Green (s)	10.0	37.0		13.0	40.0		10.0	32.0	32.0	10.0	32.0	
90th %ile Term Code	Max	Max		Max	Hold		Max	Max	Max	Max	Max	
70th %ile Green (s)	10.0	37.0		13.0	40.0		10.0	32.0	32.0	10.0	32.0	
70th %ile Term Code	Max	Max		Max	Hold		Max	Max	Max	Max	Max	
50th %ile Green (s)	9.6	31.5		13.0	34.9		9.4	32.0	32.0	9.4	32.0	
50th %ile Term Code	Gap	Gap		Max	Hold		Gap	Max	Max	Gap	Max	
30th %ile Green (s)	8.4	25.9		11.7	29.2		7.9	32.0	32.0	7.9	32.0	
30th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Max	Max	Gap	Max	
10th %ile Green (s)	6.7	18.4		8.7	20.4		6.3	22.5	22.5	6.3	22.5	
10th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Gap	Gap	Gap	Gap	
Queue Length 50th (ft)	45	275		74	167		43	312	16	40	218	
Queue Length 95th (ft)	79	404		119	260		85	#530	74	80	351	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200		200	200		
Base Capacity (vph)	460	722		380	766		388	659	650	295	633	
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	0.28	0.64		0.53	0.46		0.30	0.77	0.32	0.37	0.61	

Intersection Summary

Area Type: Other

Cycle Length: 111

Actuated Cycle Length: 99.7

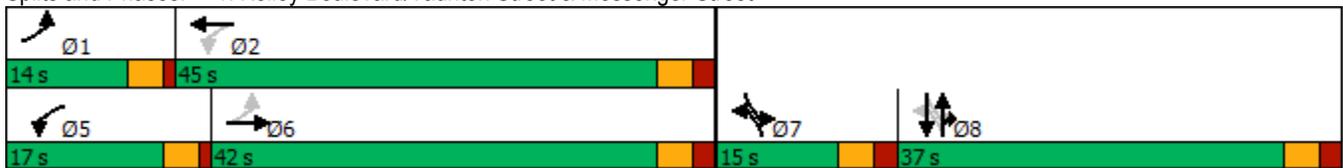
Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2024 Baseline Conditions - Revised
 Weekday Morning Peak Hour

Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 32.0
 Intersection Capacity Utilization 75.2%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 111
 70th %ile Actuated Cycle: 111
 50th %ile Actuated Cycle: 104.9
 30th %ile Actuated Cycle: 96.5
 10th %ile Actuated Cycle: 74.9
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



HCM 6th TWSC
 2: Kelley Boulevard & Plain Street

2024 Baseline Conditions - Revised
 Weekday Morning Peak Hour

Intersection

Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↖		↙	↗
Traffic Vol, veh/h	33	178	653	38	106	490
Future Vol, veh/h	33	178	653	38	106	490
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	0	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	22	4	2	22	8	4
Mvmt Flow	34	185	680	40	110	510

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1430	700	0	0	720
Stage 1	700	-	-	-	-
Stage 2	730	-	-	-	-
Critical Hdwy	6.62	6.24	-	-	4.18
Critical Hdwy Stg 1	5.62	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-
Follow-up Hdwy	3.698	3.336	-	-	2.272
Pot Cap-1 Maneuver	134	436	-	-	855
Stage 1	458	-	-	-	-
Stage 2	443	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	117	436	-	-	855
Mov Cap-2 Maneuver	300	-	-	-	-
Stage 1	458	-	-	-	-
Stage 2	386	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.1	0	1.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	300	436	855
HCM Lane V/C Ratio	-	-	0.115	0.425	0.129
HCM Control Delay (s)	-	-	18.5	19.2	9.8
HCM Lane LOS	-	-	C	C	A
HCM 95th %tile Q(veh)	-	-	0.4	2.1	0.4

HCM 6th TWSC
 3: Kelley Boulevard & Site Driveway

2024 Baseline Conditions - Revised
 Weekday Morning Peak Hour

Intersection

Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	7	690	516	5
Future Vol, veh/h	1	4	7	690	516	5
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	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	25	0	3	5	0
Mvmt Flow	1	4	8	758	567	5

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1344	570	572	0	0
Stage 1	570	-	-	-	-
Stage 2	774	-	-	-	-
Critical Hdwy	6.4	6.45	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.525	2.2	-	-
Pot Cap-1 Maneuver	169	480	1011	-	-
Stage 1	570	-	-	-	-
Stage 2	458	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	168	480	1011	-	-
Mov Cap-2 Maneuver	370	-	-	-	-
Stage 1	565	-	-	-	-
Stage 2	458	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1011	-	453	-	-
HCM Lane V/C Ratio	0.008	-	0.012	-	-
HCM Control Delay (s)	8.6	-	13	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC
4: Kelley Boulevard & George Leven Drive

2024 Baseline Conditions - Revised
Weekday Morning Peak Hour

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations	↙	↗	↙	↑	↗	
Traffic Vol, veh/h	42	27	30	671	452	47
Future Vol, veh/h	42	27	30	671	452	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	100	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	4	3	3	6	2
Mvmt Flow	47	30	34	754	508	53

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	1357	535	561	0	-	0
Stage 1	535	-	-	-	-	-
Stage 2	822	-	-	-	-	-
Critical Hdwy	6.45	6.24	4.13	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.336	2.227	-	-	-
Pot Cap-1 Maneuver	162	541	1005	-	-	-
Stage 1	581	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	156	541	1005	-	-	-
Mov Cap-2 Maneuver	291	-	-	-	-	-
Stage 1	561	-	-	-	-	-
Stage 2	427	-	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, s	16.7	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
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Capacity (veh/h)	1005	-	291	541	-	-
HCM Lane V/C Ratio	0.034	-	0.162	0.056	-	-
HCM Control Delay (s)	8.7	-	19.8	12	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	0.2	-	-

HCM 6th TWSC
 5: George Leven Drive & Site Driveway

2024 Baseline Conditions - Revised
 Weekday Morning Peak Hour

Intersection

Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		←	→		←	→
Traffic Vol, veh/h	0	43	52	0	0	0
Future Vol, veh/h	0	43	52	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	7	4	0	0	0
Mvmt Flow	0	60	72	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	72	0	-	0	132
Stage 1	-	-	-	-	72
Stage 2	-	-	-	-	60
Critical Hdwy	4.1	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.2	-	-	-	3.5
Pot Cap-1 Maneuver	1541	-	-	-	867
Stage 1	-	-	-	-	956
Stage 2	-	-	-	-	968
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1541	-	-	-	867
Mov Cap-2 Maneuver	-	-	-	-	867
Stage 1	-	-	-	-	956
Stage 2	-	-	-	-	968

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1541	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lanes, Volumes, Timings

2024 Baseline Conditions - Revised

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Evening Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	282	180	272	454	87	160	405	167	96	488	53
Future Volume (vph)	133	282	180	272	454	87	160	405	167	96	488	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	450		0	200		200	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.942			0.976				0.850		0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1776	0	1770	1839	0	1787	1900	1599	1787	1851	0
Flt Permitted	0.124			0.119			0.104			0.260		
Satd. Flow (perm)	231	1776	0	222	1839	0	196	1900	1599	489	1851	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			9				176		5	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	0%	2%	2%	1%	0%	1%	0%	1%	1%	1%	2%
Adj. Flow (vph)	140	297	189	286	478	92	168	426	176	101	514	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	486	0	286	570	0	168	426	176	101	570	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Prot	pm+pt	NA	
Protected Phases	1	6		5	2		7	8	8	7	8	

Lanes, Volumes, Timings

2024 Baseline Conditions - Revised

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			8			8		
Detector Phase	1	6		5	2		7	8	8	7	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		1.0	10.0		1.0	5.0	5.0	1.0	5.0	
Minimum Split (s)	10.0	15.0		5.0	15.0		6.0	10.0	10.0	6.0	10.0	
Total Split (s)	14.0	36.0		21.0	43.0		15.0	45.0	45.0	15.0	45.0	
Total Split (%)	12.0%	30.8%		17.9%	36.8%		12.8%	38.5%	38.5%	12.8%	38.5%	
Maximum Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	-2.5	-2.5	-2.5	
Total Lost Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)	45.0	32.2		53.2	38.9		52.0	39.9	39.9	52.0	39.9	
Actuated g/C Ratio	0.40	0.29		0.48	0.35		0.47	0.36	0.36	0.47	0.36	
v/c Ratio	0.55	0.92		0.79	0.88		0.64	0.63	0.26	0.28	0.86	
Control Delay	28.7	60.7		43.4	51.5		32.5	35.0	4.8	18.0	47.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	28.7	60.7		43.4	51.5		32.5	35.0	4.8	18.0	47.6	
LOS	C	E		D	D		C	D	A	B	D	
Approach Delay		53.6			48.8			27.6				43.2
Approach LOS		D			D			C				D
90th %ile Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Max	Max	Max	Max	
70th %ile Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
70th %ile Term Code	Max	Max		Max	Max		Max	Max	Max	Max	Max	
50th %ile Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
50th %ile Term Code	Max	Max		Max	Max		Max	Max	Max	Max	Max	
30th %ile Green (s)	9.4	31.0		16.5	38.1		10.0	40.0	40.0	10.0	40.0	
30th %ile Term Code	Gap	Max		Gap	Hold		Max	Max	Max	Max	Max	
10th %ile Green (s)	7.1	24.5		12.2	29.6		7.6	27.8	27.8	7.6	27.8	
10th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Gap	Gap	Gap	Gap	
Queue Length 50th (ft)	59	339		151	398		69	261	0	40	388	
Queue Length 95th (ft)	110	#543		#282	#606		138	371	46	72	#581	
Internal Link Dist (ft)		420			420			920				420
Turn Bay Length (ft)	250			450			200		200	200		
Base Capacity (vph)	268	556		378	679		272	730	722	376	714	
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	0.52	0.87		0.76	0.84		0.62	0.58	0.24	0.27	0.80	

Intersection Summary

Area Type: Other

Cycle Length: 117

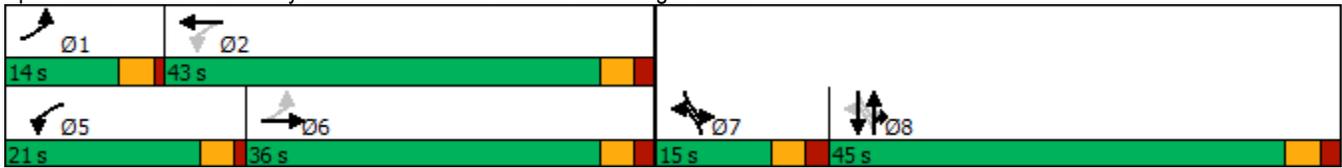
Actuated Cycle Length: 111.7

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2024 Baseline Conditions - Revised
 Weekday Evening Peak Hour

Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 42.9
 Intersection Capacity Utilization 92.0%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 117
 70th %ile Actuated Cycle: 117
 50th %ile Actuated Cycle: 117
 30th %ile Actuated Cycle: 116.5
 10th %ile Actuated Cycle: 91.1
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



HCM 6th TWSC
2: Kelley Boulevard & Plain Street

2024 Baseline Conditions - Revised
Weekday Evening Peak Hour

Intersection

Int Delay, s/veh 3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↖		↘	↗
Traffic Vol, veh/h	32	192	598	47	225	912
Future Vol, veh/h	32	192	598	47	225	912
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	0	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	1	1	4	2	1
Mvmt Flow	34	206	643	51	242	981

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2134	669	0
Stage 1	669	-	-
Stage 2	1465	-	-
Critical Hdwy	6.43	6.21	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.309	-
Pot Cap-1 Maneuver	54	459	-
Stage 1	507	-	-
Stage 2	211	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	39	459	-
Mov Cap-2 Maneuver	141	-	-
Stage 1	507	-	-
Stage 2	154	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.9	0	2.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	141	459	901
HCM Lane V/C Ratio	-	-	0.244	0.45	0.269
HCM Control Delay (s)	-	-	38.6	19.1	10.5
HCM Lane LOS	-	-	E	C	B
HCM 95th %tile Q(veh)	-	-	0.9	2.3	1.1

HCM 6th TWSC
 3: Kelley Boulevard & Site Driveway

2024 Baseline Conditions - Revised
 Weekday Evening Peak Hour

Intersection

Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙↘		↙	↑	↗	
Traffic Vol, veh/h	10	32	23	654	936	11
Future Vol, veh/h	10	32	23	654	936	11
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	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	9
Mvmt Flow	11	35	25	711	1017	12

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1784	1023	1029	0	0
Stage 1	1023	-	-	-	-
Stage 2	761	-	-	-	-
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	91	289	683	-	-
Stage 1	350	-	-	-	-
Stage 2	465	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	88	289	683	-	-
Mov Cap-2 Maneuver	271	-	-	-	-
Stage 1	337	-	-	-	-
Stage 2	465	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	683	-	285	-	-
HCM Lane V/C Ratio	0.037	-	0.16	-	-
HCM Control Delay (s)	10.5	-	20	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

HCM 6th TWSC
 4: Kelley Boulevard & George Leven Drive

2024 Baseline Conditions - Revised
 Weekday Evening Peak Hour

Intersection

Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	57	26	618	901	30
Future Vol, veh/h	25	57	26	618	901	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	100	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	1	1	3
Mvmt Flow	27	62	28	672	979	33

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1724	996	1012	0	0
Stage 1	996	-	-	-	-
Stage 2	728	-	-	-	-
Critical Hdwy	6.4	6.22	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.318	2.2	-	-
Pot Cap-1 Maneuver	99	297	693	-	-
Stage 1	360	-	-	-	-
Stage 2	482	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	95	297	693	-	-
Mov Cap-2 Maneuver	226	-	-	-	-
Stage 1	346	-	-	-	-
Stage 2	482	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.2	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	693	-	226	297	-	-
HCM Lane V/C Ratio	0.041	-	0.12	0.209	-	-
HCM Control Delay (s)	10.4	-	23.1	20.3	-	-
HCM Lane LOS	B	-	C	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	0.8	-	-

HCM 6th TWSC
 5: George Leven Drive & Site Driveway

2024 Baseline Conditions - Revised
 Weekday Evening Peak Hour

Intersection

Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	0	42	18	0	0	1
Future Vol, veh/h	0	42	18	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	7	0	0	0	0
Mvmt Flow	0	51	22	0	0	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	22	0	-	0	73
Stage 1	-	-	-	-	22
Stage 2	-	-	-	-	51
Critical Hdwy	4.1	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.2	-	-	-	3.5
Pot Cap-1 Maneuver	1607	-	-	-	936
Stage 1	-	-	-	-	1006
Stage 2	-	-	-	-	977
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1607	-	-	-	936
Mov Cap-2 Maneuver	-	-	-	-	936
Stage 1	-	-	-	-	1006
Stage 2	-	-	-	-	977

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1607	-	-	-	1061
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	0	-	-	-	8.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes, Volumes, Timings

2031 No-Build Conditions - Revised

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	368	79	193	199	139	112	489	199	104	319	56
Future Volume (vph)	124	368	79	193	199	139	112	489	199	104	319	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	450		450	200		200	200		200
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.973			0.938			0.957			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3360	0	1752	3250	0	1752	3349	0	1703	3377	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3360	0	1752	3250	0	1752	3349	0	1703	3377	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			154			70			21	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	4%	7%	3%	5%	3%	3%	2%	6%	6%	5%	2%
Adj. Flow (vph)	138	409	88	214	221	154	124	543	221	116	354	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	497	0	214	375	0	124	764	0	116	416	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA										
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings

2031 No-Build Conditions - Revised

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	15.0		12.0	15.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	25.0		20.0	30.0		20.0	30.0		15.0	25.0	
Total Split (%)	16.7%	27.8%		22.2%	33.3%		22.2%	33.3%		16.7%	27.8%	
Maximum Green (s)	10.0	20.0		15.0	25.0		15.0	25.0		10.0	20.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	12.3	19.1		16.0	26.8		13.9	24.5		12.1	22.7	
Actuated g/C Ratio	0.16	0.24		0.20	0.34		0.18	0.31		0.15	0.29	
v/c Ratio	0.50	0.59		0.60	0.31		0.40	0.70		0.44	0.42	
Control Delay	42.0	29.8		39.6	14.4		36.5	26.9		40.9	25.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.0	29.8		39.6	14.4		36.5	26.9		40.9	25.2	
LOS	D	C		D	B		D	C		D	C	
Approach Delay		32.4			23.5			28.2			28.7	
Approach LOS		C			C			C			C	
90th %ile Green (s)	10.0	20.0		15.0	25.0		15.0	25.0		10.0	20.0	
90th %ile Term Code	Max	Max		Max	Hold		Max	Max		Max	Max	
70th %ile Green (s)	10.0	20.0		15.0	25.0		13.5	25.0		10.0	21.5	
70th %ile Term Code	Max	Max		Max	Hold		Gap	Max		Max	Hold	
50th %ile Green (s)	10.0	17.4		15.0	22.4		11.4	24.9		10.0	23.5	
50th %ile Term Code	Max	Gap		Max	Hold		Gap	Gap		Max	Hold	
30th %ile Green (s)	9.8	14.6		12.7	17.5		9.3	21.1		9.1	20.9	
30th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Gap		Gap	Hold	
10th %ile Green (s)	0.0	10.2		8.5	23.7		0.0	13.1		0.0	13.1	
10th %ile Term Code	Skip	Gap		Gap	Hold		Skip	Gap		Skip	Hold	
Queue Length 50th (ft)	72	123		108	48		63	175		60	90	
Queue Length 95th (ft)	134	175		187	85		114	250		116	146	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200			200		
Base Capacity (vph)	300	1046		416	1311		416	1295		289	1093	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.46	0.48		0.51	0.29		0.30	0.59		0.40	0.38	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 78.3

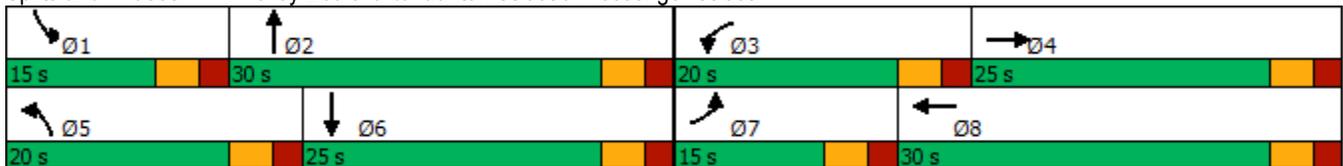
Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 No-Build Conditions - Revised
 Weekday Morning Peak Hour

Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 28.3
 Intersection Capacity Utilization 62.4%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 90
 70th %ile Actuated Cycle: 90
 50th %ile Actuated Cycle: 87.3
 30th %ile Actuated Cycle: 77.5
 10th %ile Actuated Cycle: 46.8

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



Lanes, Volumes, Timings
4: Kelley Boulevard & George Leven Drive

2031 No-Build Conditions - Revised
Weekday Morning Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	0	29	1	0	4	32	719	2	5	485	50
Future Volume (vph)	45	0	29	1	0	4	32	719	2	5	485	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	70		0	70		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.892						0.986	
Flt Protected		0.950			0.990		0.950			0.950		
Satd. Flow (prot)	0	1719	1553	0	1678	0	1752	1845	0	1805	1774	0
Flt Permitted		0.754			0.936		0.318			0.261		
Satd. Flow (perm)	0	1364	1553	0	1586	0	587	1845	0	496	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33		109						11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		350			232			329			900	
Travel Time (s)		8.0			5.3			7.5			20.5	
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
Heavy Vehicles (%)	5%	0%	4%	0%	0%	0%	3%	3%	0%	0%	6%	2%
Adj. Flow (vph)	51	0	33	1	0	4	36	808	2	6	545	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	33	0	5	0	36	810	0	6	601	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5		8		5	2		1	6	

Lanes, Volumes, Timings
4: Kelley Boulevard & George Leven Drive

2031 No-Build Conditions - Revised
Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	15.0	15.0	15.0	15.0		15.0	40.0		15.0	40.0	
Total Split (%)	21.4%	21.4%	21.4%	21.4%	21.4%		21.4%	57.1%		21.4%	57.1%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0		10.0	35.0		10.0	35.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.5	-2.5		-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)		2.5	2.5		2.5		2.5	2.5		2.5	2.5	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)		11.2	17.2		11.2		38.9	39.0		38.0	34.8	
Actuated g/C Ratio		0.23	0.35		0.23		0.80	0.80		0.78	0.71	
v/c Ratio		0.16	0.06		0.01		0.05	0.55		0.01	0.47	
Control Delay		22.2	5.8		0.0		2.4	7.8		2.4	9.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		22.2	5.8		0.0		2.4	7.8		2.4	9.4	
LOS		C	A		A		A	A		A	A	
Approach Delay		15.7						7.6			9.3	
Approach LOS		B						A			A	
90th %ile Green (s)	10.0	10.0	7.0	10.0	10.0		7.0	35.0		7.0	35.0	
90th %ile Term Code	Max	Max	Min	Hold	Hold		Min	Max		Min	Max	
70th %ile Green (s)	8.8	8.8	7.0	8.8	8.8		7.0	40.7		0.0	28.7	
70th %ile Term Code	Gap	Gap	Min	Hold	Hold		Min	Hold		Skip	Gap	
50th %ile Green (s)	7.4	7.4	7.0	7.4	7.4		7.0	34.7		0.0	22.7	
50th %ile Term Code	Gap	Gap	Min	Hold	Hold		Min	Hold		Skip	Gap	
30th %ile Green (s)	0.0	0.0	0.0	0.0	0.0		0.0	29.0		0.0	29.0	
30th %ile Term Code	Skip	Skip	Skip	Skip	Skip		Skip	Dwell		Skip	Dwell	
10th %ile Green (s)	0.0	0.0	0.0	0.0	0.0		0.0	26.2		0.0	26.2	
10th %ile Term Code	Skip	Skip	Skip	Skip	Skip		Skip	Dwell		Skip	Dwell	
Queue Length 50th (ft)		13	0		0		2	90		1	129	
Queue Length 95th (ft)		45	15		0		8	378		3	233	
Internal Link Dist (ft)		270			152			249			820	
Turn Bay Length (ft)							70			70		
Base Capacity (vph)		383	670		524		799	1478		767	1389	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.13	0.05		0.01		0.05	0.55		0.01	0.43	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 48.8

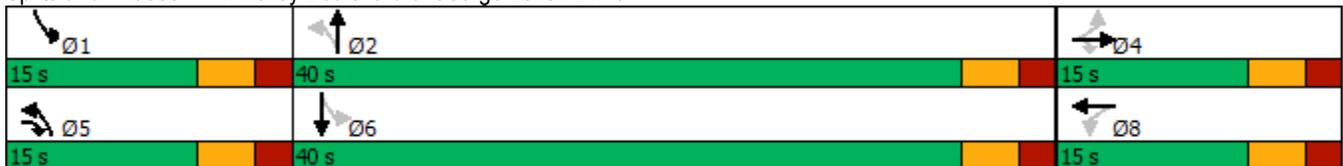
Lanes, Volumes, Timings
 4: Kelley Boulevard & George Leven Drive

2031 No-Build Conditions - Revised
 Weekday Morning Peak Hour

Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 8.7
 Intersection Capacity Utilization 53.8%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 67
 70th %ile Actuated Cycle: 59.5
 50th %ile Actuated Cycle: 52.1
 30th %ile Actuated Cycle: 34
 10th %ile Actuated Cycle: 31.2

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 4: Kelley Boulevard & George Leven Drive



HCM 6th TWSC
 2: Kelley Boulevard & Plain Street

2031 No-Build Conditions - Revised
 Weekday Morning Peak Hour

Intersection

Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↖		↙	↗
Traffic Vol, veh/h	35	191	700	41	114	525
Future Vol, veh/h	35	191	700	41	114	525
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	0	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	22	4	2	22	8	4
Mvmt Flow	36	199	729	43	119	547

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1536	751	0	0	772
Stage 1	751	-	-	-	-
Stage 2	785	-	-	-	-
Critical Hdwy	6.62	6.24	-	-	4.18
Critical Hdwy Stg 1	5.62	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-
Follow-up Hdwy	3.698	3.336	-	-	2.272
Pot Cap-1 Maneuver	115	408	-	-	817
Stage 1	432	-	-	-	-
Stage 2	416	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	98	408	-	-	817
Mov Cap-2 Maneuver	276	-	-	-	-
Stage 1	432	-	-	-	-
Stage 2	355	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.6	0	1.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	276	408	817	-
HCM Lane V/C Ratio	-	-	0.132	0.488	0.145	-
HCM Control Delay (s)	-	-	20	21.9	10.2	-
HCM Lane LOS	-	-	C	C	B	-
HCM 95th %tile Q(veh)	-	-	0.5	2.6	0.5	-

HCM 6th TWSC
 3: Kelley Boulevard & Site Driveway

2031 No-Build Conditions - Revised
 Weekday Morning Peak Hour

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
----------	-----	-----	-----	-----	-----	-----

Lane Configurations		↗		↑	↘	
Traffic Vol, veh/h	0	5	0	747	553	5
Future Vol, veh/h	0	5	0	747	553	5
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, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	25	0	3	5	0
Mvmt Flow	0	5	0	821	608	5

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	-	611	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.45	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.525	-	-	-	-
Pot Cap-1 Maneuver	0	454	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	454	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
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Capacity (veh/h)	-	454	-	-
HCM Lane V/C Ratio	-	0.012	-	-
HCM Control Delay (s)	-	13	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

HCM 6th TWSC
 5: George Leven Drive & Site Driveway

2031 No-Build Conditions - Revised
 Weekday Morning Peak Hour

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
----------	-----	-----	-----	-----	-----	-----

Lane Configurations		4	1		4	
Traffic Vol, veh/h	0	46	56	0	0	0
Future Vol, veh/h	0	46	56	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	7	4	0	0	0
Mvmt Flow	0	64	78	0	0	0

Major/Minor	Major1	Major2	Minor2
-------------	--------	--------	--------

Conflicting Flow All	78	0	0	142	78
Stage 1	-	-	-	78	-
Stage 2	-	-	-	64	-
Critical Hdwy	4.1	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	3.5	3.3
Pot Cap-1 Maneuver	1533	-	-	856	988
Stage 1	-	-	-	950	-
Stage 2	-	-	-	964	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1533	-	-	856	988
Mov Cap-2 Maneuver	-	-	-	856	-
Stage 1	-	-	-	950	-
Stage 2	-	-	-	964	-

Approach	EB	WB	SB
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HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
-----------------------	-----	-----	-----	-----	-------

Capacity (veh/h)	1533	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 No-Build Conditions
 Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	302	193	292	487	93	172	434	179	103	523	57
Future Volume (vph)	143	302	193	292	487	93	172	434	179	103	523	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	450		450	200		200	200		200
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.942			0.976			0.956			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3374	0	1770	3494	0	1787	3441	0	1787	3517	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3374	0	1770	3494	0	1787	3441	0	1787	3517	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		133			23			72			12	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	0%	2%	2%	1%	0%	1%	0%	1%	1%	1%	2%
Adj. Flow (vph)	151	318	203	307	513	98	181	457	188	108	551	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	521	0	307	611	0	181	645	0	108	611	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 No-Build Conditions
 Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	15.0		12.0	15.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	20.0		25.0	30.0		20.0	35.0		15.0	30.0	
Total Split (%)	15.8%	21.1%		26.3%	31.6%		21.1%	36.8%		15.8%	31.6%	
Maximum Green (s)	10.0	15.0		20.0	25.0		15.0	30.0		10.0	25.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	12.2	16.2		20.3	24.3		15.3	29.5		11.7	22.7	
Actuated g/C Ratio	0.14	0.19		0.24	0.29		0.18	0.35		0.14	0.27	
v/c Ratio	0.59	0.69		0.73	0.60		0.56	0.52		0.44	0.64	
Control Delay	47.8	30.2		42.6	28.6		41.2	22.6		42.9	31.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	47.8	30.2		42.6	28.6		41.2	22.6		42.9	31.0	
LOS	D	C		D	C		D	C		D	C	
Approach Delay		34.2			33.3			26.7			32.7	
Approach LOS		C			C			C			C	
90th %ile Green (s)	10.0	15.0		20.0	25.0		15.0	30.0		10.0	25.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Hold		Max	Max	
70th %ile Green (s)	10.0	15.0		20.0	25.0		15.0	29.9		10.0	24.9	
70th %ile Term Code	Max	Max		Max	Hold		Max	Hold		Max	Gap	
50th %ile Green (s)	10.0	15.0		20.0	25.0		14.3	25.6		10.0	21.3	
50th %ile Term Code	Max	Max		Max	Hold		Gap	Hold		Max	Gap	
30th %ile Green (s)	10.0	13.2		17.1	20.3		11.7	21.1		8.8	18.2	
30th %ile Term Code	Max	Gap		Gap	Hold		Gap	Hold		Gap	Gap	
10th %ile Green (s)	7.7	10.0		11.9	14.2		8.2	26.0		0.0	12.8	
10th %ile Term Code	Gap	Min		Gap	Hold		Gap	Hold		Skip	Gap	
Queue Length 50th (ft)	83	108		160	147		95	143		58	161	
Queue Length 95th (ft)	#166	174		#286	216		169	197		114	219	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200			200		
Base Capacity (vph)	267	819		481	1177		378	1396		270	1177	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.57	0.64		0.64	0.52		0.48	0.46		0.40	0.52	

Intersection Summary

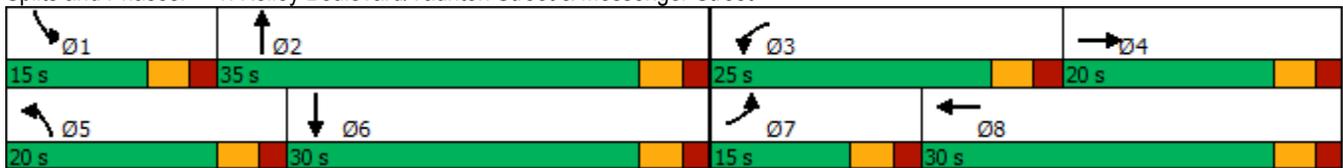
Area Type: Other
 Cycle Length: 95
 Actuated Cycle Length: 84.7

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 No-Build Conditions
 Weekday Evening Peak Hour

Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 31.6
 Intersection Capacity Utilization 69.8%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 95
 70th %ile Actuated Cycle: 94.9
 50th %ile Actuated Cycle: 90.6
 30th %ile Actuated Cycle: 80.2
 10th %ile Actuated Cycle: 62.9
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



Lanes, Volumes, Timings
4: Kelley Boulevard & George Leven Drive

2031 No-Build Conditions
Weekday Evening Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	0	61	4	0	3	28	663	1	2	966	32
Future Volume (vph)	27	0	61	4	0	3	28	663	1	2	966	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	70		0	70		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.942						0.995	
Flt Protected		0.950			0.972		0.950			0.950		
Satd. Flow (prot)	0	1805	1583	0	1740	0	1805	1881	0	1805	1871	0
Flt Permitted		0.753			0.811		0.099			0.353		
Satd. Flow (perm)	0	1431	1583	0	1452	0	188	1881	0	671	1871	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66		109						4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		350			238			329			900	
Travel Time (s)		8.0			5.4			7.5			20.5	
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
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%	1%	0%	0%	1%	3%
Adj. Flow (vph)	29	0	66	4	0	3	30	721	1	2	1050	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	66	0	7	0	30	722	0	2	1085	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5		8		5	2		1	6	

Lanes, Volumes, Timings
4: Kelley Boulevard & George Leven Drive

2031 No-Build Conditions
Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	15.0	15.0	15.0	15.0		15.0	40.0		15.0	40.0	
Total Split (%)	21.4%	21.4%	21.4%	21.4%	21.4%		21.4%	57.1%		21.4%	57.1%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0		10.0	35.0		10.0	35.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.5	-2.5		-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)		2.5	2.5		2.5		2.5	2.5		2.5	2.5	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)		10.1	14.6		10.1		53.1	52.9		51.6	44.6	
Actuated g/C Ratio		0.17	0.24		0.17		0.87	0.87		0.85	0.73	
v/c Ratio		0.12	0.15		0.02		0.07	0.44		0.00	0.79	
Control Delay		23.9	5.3		0.2		1.9	5.1		2.0	16.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		23.9	5.3		0.2		1.9	5.1		2.0	16.9	
LOS		C	A		A		A	A		A	B	
Approach Delay		11.0			0.2			4.9			16.9	
Approach LOS		B			A			A			B	
90th %ile Green (s)	8.9	8.9	7.0	8.9	8.9		7.0	35.0		7.0	35.0	
90th %ile Term Code	Gap	Gap	Min	Hold	Hold		Min	Max		Min	Max	
70th %ile Green (s)	7.6	7.6	7.0	7.6	7.6		7.0	47.0		0.0	35.0	
70th %ile Term Code	Gap	Gap	Min	Hold	Hold		Min	Hold		Skip	Max	
50th %ile Green (s)	0.0	0.0	7.0	0.0	0.0		7.0	47.5		0.0	35.5	
50th %ile Term Code	Skip	Skip	Min	Skip	Skip		Min	Dwell		Skip	Dwell	
30th %ile Green (s)	0.0	0.0	7.0	0.0	0.0		7.0	62.0		0.0	50.0	
30th %ile Term Code	Skip	Skip	Min	Skip	Skip		Min	Dwell		Skip	Dwell	
10th %ile Green (s)	0.0	0.0	0.0	0.0	0.0		0.0	50.0		0.0	50.0	
10th %ile Term Code	Skip	Skip	Skip	Skip	Skip		Skip	Dwell		Skip	Dwell	
Queue Length 50th (ft)		8	0		0		1	0		0	153	
Queue Length 95th (ft)		30	22		0		7	295		1	#698	
Internal Link Dist (ft)		270			158			249			820	
Turn Bay Length (ft)							70			70		
Base Capacity (vph)		296	503		386		499	1631		823	1369	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.10	0.13		0.02		0.06	0.44		0.00	0.79	

Intersection Summary

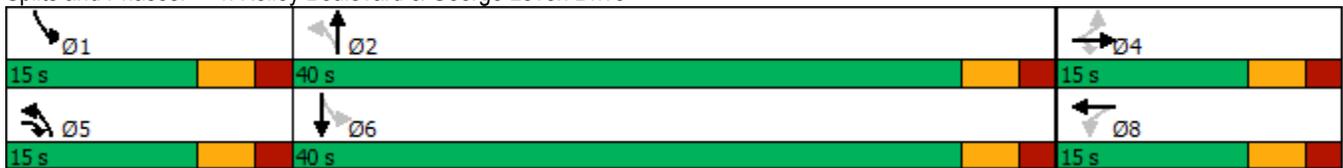
Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 61

Lanes, Volumes, Timings
 4: Kelley Boulevard & George Leven Drive

2031 No-Build Conditions
 Weekday Evening Peak Hour

Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 11.9
 Intersection Capacity Utilization 74.4%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 65.9
 70th %ile Actuated Cycle: 64.6
 50th %ile Actuated Cycle: 52.5
 30th %ile Actuated Cycle: 67
 10th %ile Actuated Cycle: 55
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Kelley Boulevard & George Leven Drive



HCM 6th TWSC
 2: Kelley Boulevard & Plain Street

2031 No-Build Conditions
 Weekday Evening Peak Hour

Intersection

Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖		↖	↗
Traffic Vol, veh/h	34	206	641	50	241	978
Future Vol, veh/h	34	206	641	50	241	978
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	0	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	1	1	4	2	1
Mvmt Flow	37	222	689	54	259	1052

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2286	716	0	0	743
Stage 1	716	-	-	-	-
Stage 2	1570	-	-	-	-
Critical Hdwy	6.43	6.21	-	-	4.12
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.309	-	-	2.218
Pot Cap-1 Maneuver	43	432	-	-	864
Stage 1	482	-	-	-	-
Stage 2	187	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	~ 30	432	-	-	864
Mov Cap-2 Maneuver	121	-	-	-	-
Stage 1	482	-	-	-	-
Stage 2	131	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.4	0	2.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	121	432	864
HCM Lane V/C Ratio	-	-	0.302	0.513	0.3
HCM Control Delay (s)	-	-	47.1	21.8	10.9
HCM Lane LOS	-	-	E	C	B
HCM 95th %tile Q(veh)	-	-	1.2	2.8	1.3

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
 3: Kelley Boulevard & Site Driveway

2031 No-Build Conditions
 Weekday Evening Peak Hour

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑	↘	
Traffic Vol, veh/h	0	42	0	724	1004	11
Future Vol, veh/h	0	42	0	724	1004	11
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, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	9
Mvmt Flow	0	46	0	787	1091	12

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	1097	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.2	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	262	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	262	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 262	-	-
HCM Lane V/C Ratio	- 0.174	-	-
HCM Control Delay (s)	- 21.6	-	-
HCM Lane LOS	- C	-	-
HCM 95th %tile Q(veh)	- 0.6	-	-

HCM 6th TWSC
 5: George Leven Drive & Site Driveway

2031 No-Build Conditions
 Weekday Evening Peak Hour

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	45	19	0	0	1
Future Vol, veh/h	0	45	19	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	7	0	0	0	0
Mvmt Flow	0	55	23	0	0	1

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	23	0	78
Stage 1	-	-	23
Stage 2	-	-	55
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1605	-	930
Stage 1	-	-	1005
Stage 2	-	-	973
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1605	-	930
Mov Cap-2 Maneuver	-	-	930
Stage 1	-	-	1005
Stage 2	-	-	973

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1605	-	-	-	1060
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	0	-	-	-	8.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes, Volumes, Timings

2031 Build Conditions - Revised

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	368	83	194	199	139	125	506	230	104	324	56
Future Volume (vph)	124	368	83	194	199	139	125	506	230	104	324	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	450		450	200		200	200		200
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.972			0.938			0.953			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3356	0	1752	3250	0	1752	3332	0	1703	3377	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3356	0	1752	3250	0	1752	3332	0	1703	3377	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			154			84			21	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	4%	7%	3%	5%	3%	3%	2%	6%	6%	5%	2%
Adj. Flow (vph)	138	409	92	216	221	154	139	562	256	116	360	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	501	0	216	375	0	139	818	0	116	422	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA										
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions - Revised
 Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	15.0		12.0	15.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	25.0		20.0	30.0		20.0	30.0		15.0	25.0	
Total Split (%)	16.7%	27.8%		22.2%	33.3%		22.2%	33.3%		16.7%	27.8%	
Maximum Green (s)	10.0	20.0		15.0	25.0		15.0	25.0		10.0	20.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	12.3	19.2		16.1	27.0		14.3	24.9		12.1	22.7	
Actuated g/C Ratio	0.16	0.24		0.20	0.34		0.18	0.32		0.15	0.29	
v/c Ratio	0.50	0.60		0.61	0.31		0.44	0.74		0.44	0.43	
Control Delay	42.2	30.0		40.0	14.5		36.9	27.7		41.1	25.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.2	30.0		40.0	14.5		36.9	27.7		41.1	25.7	
LOS	D	C		D	B		D	C		D	C	
Approach Delay		32.6			23.8			29.0			29.0	
Approach LOS		C			C			C			C	
90th %ile Green (s)	10.0	20.0		15.0	25.0		15.0	25.0		10.0	20.0	
90th %ile Term Code	Max	Max		Max	Hold		Max	Max		Max	Max	
70th %ile Green (s)	10.0	20.0		15.0	25.0		14.3	25.0		10.0	20.7	
70th %ile Term Code	Max	Max		Max	Hold		Gap	Max		Max	Hold	
50th %ile Green (s)	10.0	17.4		15.0	22.4		12.2	25.0		10.0	22.8	
50th %ile Term Code	Max	Gap		Max	Hold		Gap	Max		Max	Hold	
30th %ile Green (s)	9.9	14.9		13.0	18.0		10.0	22.4		9.2	21.6	
30th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Gap		Gap	Hold	
10th %ile Green (s)	0.0	10.3		8.6	23.9		0.0	13.7		0.0	13.7	
10th %ile Term Code	Skip	Gap		Gap	Hold		Skip	Gap		Skip	Hold	
Queue Length 50th (ft)	72	124		109	48		70	189		60	93	
Queue Length 95th (ft)	134	176		189	85		126	269		116	148	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200			200		
Base Capacity (vph)	297	1035		412	1299		412	1285		286	1077	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.46	0.48		0.52	0.29		0.34	0.64		0.41	0.39	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 78.9

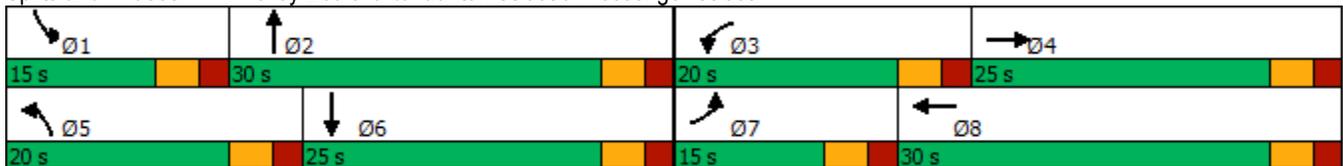
Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions - Revised
 Weekday Morning Peak Hour

Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 28.7
 Intersection Capacity Utilization 64.1%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 90
 70th %ile Actuated Cycle: 90
 50th %ile Actuated Cycle: 87.4
 30th %ile Actuated Cycle: 79.5
 10th %ile Actuated Cycle: 47.6

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



Lanes, Volumes, Timings
4: Kelley Boulevard & George Leven Drive

2031 Build Conditions - Revised
Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	0	81	1	0	4	48	719	2	5	485	60
Future Volume (vph)	79	0	81	1	0	4	48	719	2	5	485	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	70		0	70		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.892						0.984	
Flt Protected		0.950			0.990		0.950			0.950		
Satd. Flow (prot)	0	1719	1553	0	1678	0	1752	1845	0	1805	1771	0
Flt Permitted		0.754			0.933		0.294			0.273		
Satd. Flow (perm)	0	1364	1553	0	1581	0	542	1845	0	519	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			91		109						14	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		350			232			329			900	
Travel Time (s)		8.0			5.3			7.5			20.5	
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
Heavy Vehicles (%)	5%	0%	4%	0%	0%	0%	3%	3%	0%	0%	6%	2%
Adj. Flow (vph)	89	0	91	1	0	4	54	808	2	6	545	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	89	91	0	5	0	54	810	0	6	612	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5		8		5	2		1	6	

Lanes, Volumes, Timings
4: Kelley Boulevard & George Leven Drive

2031 Build Conditions - Revised
Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	15.0	15.0	15.0	15.0		15.0	40.0		15.0	40.0	
Total Split (%)	21.4%	21.4%	21.4%	21.4%	21.4%		21.4%	57.1%		21.4%	57.1%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0		10.0	35.0		10.0	35.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.5	-2.5		-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)		2.5	2.5		2.5		2.5	2.5		2.5	2.5	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)		11.8	17.6		11.7		39.9	40.0		38.4	31.9	
Actuated g/C Ratio		0.23	0.35		0.23		0.79	0.80		0.76	0.63	
v/c Ratio		0.28	0.15		0.01		0.08	0.55		0.01	0.54	
Control Delay		23.6	4.4		0.0		2.6	8.1		2.4	10.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		23.6	4.4		0.0		2.6	8.1		2.4	10.9	
LOS		C	A		A		A	A		A	B	
Approach Delay		13.9						7.8			10.9	
Approach LOS		B						A			B	
90th %ile Green (s)	10.0	10.0	7.0	10.0	10.0		7.0	35.0		7.0	35.0	
90th %ile Term Code	Max	Max	Min	Hold	Hold		Min	Max		Min	Max	
70th %ile Green (s)	10.0	10.0	7.0	10.0	10.0		7.0	41.8		0.0	29.8	
70th %ile Term Code	Max	Max	Min	Hold	Hold		Min	Hold		Skip	Gap	
50th %ile Green (s)	9.0	9.0	7.0	9.0	9.0		7.0	36.1		0.0	24.1	
50th %ile Term Code	Gap	Gap	Min	Hold	Hold		Min	Hold		Skip	Gap	
30th %ile Green (s)	0.0	0.0	7.0	0.0	0.0		7.0	31.6		0.0	19.6	
30th %ile Term Code	Skip	Skip	Min	Skip	Skip		Min	Hold		Skip	Gap	
10th %ile Green (s)	0.0	0.0	0.0	0.0	0.0		0.0	26.2		0.0	26.2	
10th %ile Term Code	Skip	Skip	Skip	Skip	Skip		Skip	Dwell		Skip	Dwell	
Queue Length 50th (ft)		25	0		0		4	106		1	142	
Queue Length 95th (ft)		70	25		0		11	378		3	239	
Internal Link Dist (ft)		270			152			249			820	
Turn Bay Length (ft)							70			70		
Base Capacity (vph)		370	698		508		763	1467		765	1366	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.24	0.13		0.01		0.07	0.55		0.01	0.45	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 50.3

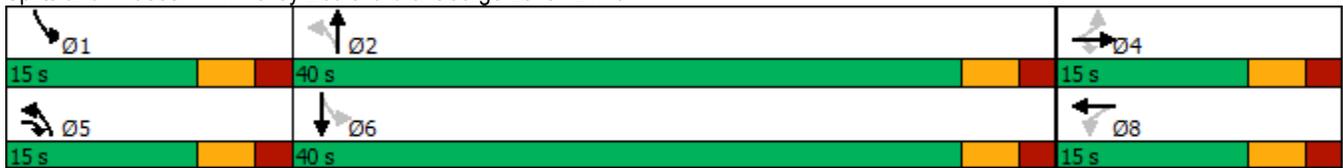
Lanes, Volumes, Timings
 4: Kelley Boulevard & George Leven Drive

2031 Build Conditions - Revised
 Weekday Morning Peak Hour

Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 9.5
 Intersection Capacity Utilization 57.6%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 67
 70th %ile Actuated Cycle: 61.8
 50th %ile Actuated Cycle: 55.1
 30th %ile Actuated Cycle: 36.6
 10th %ile Actuated Cycle: 31.2

Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 4: Kelley Boulevard & George Leven Drive



HCM 6th TWSC
2: Kelley Boulevard & Plain Street

2031 Build Conditions - Revised
Weekday Morning Peak Hour

Intersection

Int Delay, s/veh 3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↗		↘	↗
Traffic Vol, veh/h	35	191	734	41	114	535
Future Vol, veh/h	35	191	734	41	114	535
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	0	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	22	4	2	22	8	4
Mvmt Flow	36	199	765	43	119	557

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1582	787	0	0	808
Stage 1	787	-	-	-	-
Stage 2	795	-	-	-	-
Critical Hdwy	6.62	6.24	-	-	4.18
Critical Hdwy Stg 1	5.62	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-
Follow-up Hdwy	3.698	3.336	-	-	2.272
Pot Cap-1 Maneuver	107	389	-	-	792
Stage 1	415	-	-	-	-
Stage 2	412	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	91	389	-	-	792
Mov Cap-2 Maneuver	268	-	-	-	-
Stage 1	415	-	-	-	-
Stage 2	350	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.1	0	1.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	268	389	792	-
HCM Lane V/C Ratio	-	-	0.136	0.511	0.15	-
HCM Control Delay (s)	-	-	20.5	23.6	10.3	-
HCM Lane LOS	-	-	C	C	B	-
HCM 95th %tile Q(veh)	-	-	0.5	2.8	0.5	-

HCM 6th TWSC
 3: Kelley Boulevard & Site Driveway

2031 Build Conditions - Revised
 Weekday Morning Peak Hour

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑	↘	
Traffic Vol, veh/h	0	5	0	781	563	5
Future Vol, veh/h	0	5	0	781	563	5
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, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	25	0	3	5	0
Mvmt Flow	0	5	0	858	619	5

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	622	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.45	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.525	-
Pot Cap-1 Maneuver	0	447	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	447	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 447	-	-
HCM Lane V/C Ratio	- 0.012	-	-
HCM Control Delay (s)	- 13.2	-	-
HCM Lane LOS	- B	-	-
HCM 95th %tile Q(veh)	- 0	-	-

HCM 6th TWSC
 5: George Leven Drive & Site Driveway

2031 Build Conditions - Revised
 Weekday Morning Peak Hour

Intersection

Int Delay, s/veh 4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	46	56	26	86	0
Future Vol, veh/h	0	46	56	26	86	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	7	4	0	0	0
Mvmt Flow	0	64	78	36	119	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	114	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1488	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1488	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1488	-	-	-	836
HCM Lane V/C Ratio	-	-	-	-	0.143
HCM Control Delay (s)	0	-	-	-	10
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions
 Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	302	204	295	487	93	179	443	181	103	538	57
Future Volume (vph)	143	302	204	295	487	93	179	443	181	103	538	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	450		450	200		200	200		200
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.939			0.976			0.956			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3363	0	1770	3494	0	1787	3441	0	1787	3521	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3363	0	1770	3494	0	1787	3441	0	1787	3521	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		151			23			71			12	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	0%	2%	2%	1%	0%	1%	0%	1%	1%	1%	2%
Adj. Flow (vph)	151	318	215	311	513	98	188	466	191	108	566	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	533	0	311	611	0	188	657	0	108	626	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions
 Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	15.0		12.0	15.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	20.0		25.0	30.0		20.0	35.0		15.0	30.0	
Total Split (%)	15.8%	21.1%		26.3%	31.6%		21.1%	36.8%		15.8%	31.6%	
Maximum Green (s)	10.0	15.0		20.0	25.0		15.0	30.0		10.0	25.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	12.2	16.2		20.4	24.4		15.5	30.0		11.7	23.0	
Actuated g/C Ratio	0.14	0.19		0.24	0.29		0.18	0.35		0.14	0.27	
v/c Ratio	0.60	0.70		0.74	0.60		0.58	0.52		0.44	0.65	
Control Delay	48.3	29.7		43.4	28.8		41.8	22.8		43.2	31.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	48.3	29.7		43.4	28.8		41.8	22.8		43.2	31.3	
LOS	D	C		D	C		D	C		D	C	
Approach Delay		33.8			33.7			27.0			33.0	
Approach LOS		C			C			C			C	
90th %ile Green (s)	10.0	15.0		20.0	25.0		15.0	30.0		10.0	25.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Hold		Max	Max	
70th %ile Green (s)	10.0	15.0		20.0	25.0		15.0	30.0		10.0	25.0	
70th %ile Term Code	Max	Max		Max	Hold		Max	Hold		Max	Max	
50th %ile Green (s)	10.0	15.0		20.0	25.0		14.8	26.6		10.0	21.8	
50th %ile Term Code	Max	Max		Max	Hold		Gap	Hold		Max	Gap	
30th %ile Green (s)	10.0	13.2		17.5	20.7		12.0	21.9		8.8	18.7	
30th %ile Term Code	Max	Gap		Gap	Hold		Gap	Hold		Gap	Gap	
10th %ile Green (s)	7.7	10.0		12.1	14.4		8.4	26.5		0.0	13.1	
10th %ile Term Code	Gap	Min		Gap	Hold		Gap	Hold		Skip	Gap	
Queue Length 50th (ft)	84	109		165	150		100	147		58	166	
Queue Length 95th (ft)	#166	173		#293	216		175	202		114	225	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200			200		
Base Capacity (vph)	265	825		477	1167		375	1384		268	1169	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.57	0.65		0.65	0.52		0.50	0.47		0.40	0.54	

Intersection Summary

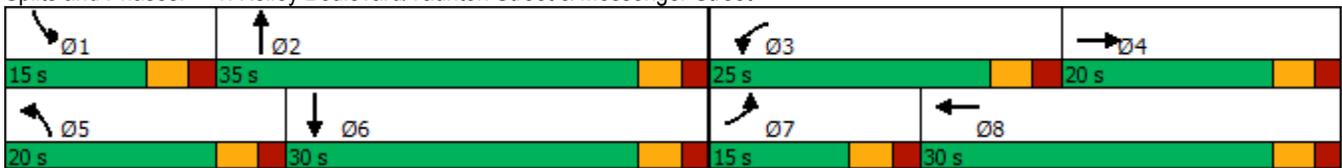
Area Type: Other
 Cycle Length: 95
 Actuated Cycle Length: 85.3

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions
 Weekday Evening Peak Hour

Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 31.8
 Intersection Capacity Utilization 71.2%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 95
 70th %ile Actuated Cycle: 95
 50th %ile Actuated Cycle: 91.6
 30th %ile Actuated Cycle: 81.4
 10th %ile Actuated Cycle: 63.6
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



Lanes, Volumes, Timings
4: Kelley Boulevard & George Leven Drive

2031 Build Conditions
Weekday Evening Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	0	89	4	0	3	72	663	1	2	966	61
Future Volume (vph)	45	0	89	4	0	3	72	663	1	2	966	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	70		0	70		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.942						0.991	
Flt Protected		0.950			0.972		0.950			0.950		
Satd. Flow (prot)	0	1805	1583	0	1740	0	1805	1881	0	1805	1862	0
Flt Permitted		0.753			0.841		0.085			0.343		
Satd. Flow (perm)	0	1431	1583	0	1505	0	162	1881	0	652	1862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80		109						7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		350			238			329			900	
Travel Time (s)		8.0			5.4			7.5			20.5	
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
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%	1%	0%	0%	1%	3%
Adj. Flow (vph)	49	0	97	4	0	3	78	721	1	2	1050	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	97	0	7	0	78	722	0	2	1116	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5		8		5	2		1	6	

Lanes, Volumes, Timings
4: Kelley Boulevard & George Leven Drive

2031 Build Conditions
Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	15.0	15.0	15.0	15.0		15.0	40.0		15.0	40.0	
Total Split (%)	21.4%	21.4%	21.4%	21.4%	21.4%		21.4%	57.1%		21.4%	57.1%	
Maximum Green (s)	10.0	10.0	10.0	10.0	10.0		10.0	35.0		10.0	35.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.5	-2.5		-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)		2.5	2.5		2.5		2.5	2.5		2.5	2.5	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)		10.6	17.5		10.6		51.0	50.3		49.2	42.3	
Actuated g/C Ratio		0.17	0.28		0.17		0.83	0.82		0.80	0.69	
v/c Ratio		0.20	0.19		0.02		0.20	0.47		0.00	0.87	
Control Delay		25.6	6.3		0.2		3.9	6.1		2.0	24.0	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		25.6	6.3		0.2		3.9	6.1		2.0	24.0	
LOS		C	A		A		A	A		A	C	
Approach Delay		12.8			0.2			5.9			24.0	
Approach LOS		B			A			A			C	
90th %ile Green (s)	10.0	10.0	7.2	10.0	10.0		7.2	35.2		7.0	35.0	
90th %ile Term Code	Max	Max	Gap	Hold	Hold		Gap	Hold		Min	Max	
70th %ile Green (s)	8.7	8.7	8.0	8.7	8.7		8.0	48.0		0.0	35.0	
70th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Hold		Skip	Max	
50th %ile Green (s)	7.6	7.6	7.4	7.6	7.6		7.4	47.4		0.0	35.0	
50th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Hold		Skip	Max	
30th %ile Green (s)	0.0	0.0	7.0	0.0	0.0		7.0	49.3		0.0	37.3	
30th %ile Term Code	Skip	Skip	Min	Skip	Skip		Min	Dwell		Skip	Dwell	
10th %ile Green (s)	0.0	0.0	0.0	0.0	0.0		0.0	50.0		0.0	50.0	
10th %ile Term Code	Skip	Skip	Skip	Skip	Skip		Skip	Dwell		Skip	Dwell	
Queue Length 50th (ft)		17	4		0		5	74		0	~489	
Queue Length 95th (ft)		44	31		0		19	307		1	#750	
Internal Link Dist (ft)		270			158			249			820	
Turn Bay Length (ft)							70			70		
Base Capacity (vph)		293	574		394		471	1537		779	1279	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.17	0.17		0.02		0.17	0.47		0.00	0.87	

Intersection Summary

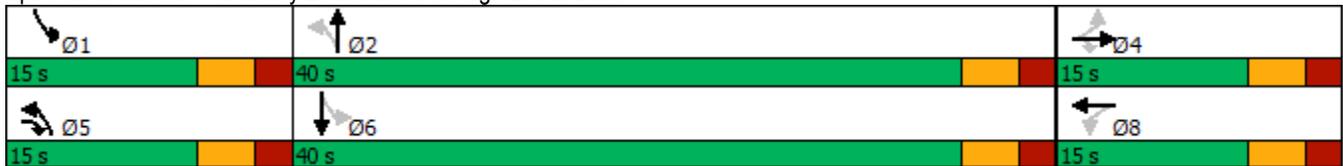
Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 61.6

Lanes, Volumes, Timings
 4: Kelley Boulevard & George Leven Drive

2031 Build Conditions
 Weekday Evening Peak Hour

Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 16.1
 Intersection Capacity Utilization 76.2%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 67.2
 70th %ile Actuated Cycle: 66.7
 50th %ile Actuated Cycle: 65
 30th %ile Actuated Cycle: 54.3
 10th %ile Actuated Cycle: 55
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Kelley Boulevard & George Leven Drive



HCM 6th TWSC
 2: Kelley Boulevard & Plain Street

2031 Build Conditions
 Weekday Evening Peak Hour

Intersection

Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖		↖	↗
Traffic Vol, veh/h	34	206	659	50	241	1007
Future Vol, veh/h	34	206	659	50	241	1007
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	0	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	1	1	4	2	1
Mvmt Flow	37	222	709	54	259	1083

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2337	736	0	0	763
Stage 1	736	-	-	-	-
Stage 2	1601	-	-	-	-
Critical Hdwy	6.43	6.21	-	-	4.12
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.309	-	-	2.218
Pot Cap-1 Maneuver	40	421	-	-	850
Stage 1	472	-	-	-	-
Stage 2	181	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	~ 28	421	-	-	850
Mov Cap-2 Maneuver	116	-	-	-	-
Stage 1	472	-	-	-	-
Stage 2	126	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.5	0	2.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	116	421	850
HCM Lane V/C Ratio	-	-	0.315	0.526	0.305
HCM Control Delay (s)	-	-	49.7	22.7	11.1
HCM Lane LOS	-	-	E	C	B
HCM 95th %tile Q(veh)	-	-	1.2	3	1.3

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
 3: Kelley Boulevard & Site Driveway

2031 Build Conditions
 Weekday Evening Peak Hour

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑	↘	
Traffic Vol, veh/h	0	42	0	742	1033	11
Future Vol, veh/h	0	42	0	742	1033	11
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, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	9
Mvmt Flow	0	46	0	807	1123	12

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 1129	-	0 - 0
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	- 6.2	-	- - -
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	- 3.3	-	- - -
Pot Cap-1 Maneuver	0 251	0	- - -
Stage 1	0	0	- - -
Stage 2	0	0	- - -
Platoon blocked, %			- - -
Mov Cap-1 Maneuver	- 251	-	- - -
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	NB	SB
HCM Control Delay, s	22.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 251	-	-
HCM Lane V/C Ratio	- 0.182	-	-
HCM Control Delay (s)	- 22.5	-	-
HCM Lane LOS	- C	-	-
HCM 95th %tile Q(veh)	- 0.7	-	-

HCM 6th TWSC
5: George Leven Drive & Site Driveway

2031 Build Conditions
Weekday Evening Peak Hour

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
----------	-----	-----	-----	-----	-----	-----

Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	45	19	73	46	1
Future Vol, veh/h	0	45	19	73	46	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	7	0	0	0	0
Mvmt Flow	0	55	23	89	56	1

Major/Minor	Major1	Major2	Minor2
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Conflicting Flow All	112	0	0	123	68
Stage 1	-	-	-	68	-
Stage 2	-	-	-	55	-
Critical Hdwy	4.1	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	3.5	3.3
Pot Cap-1 Maneuver	1490	-	-	877	1001
Stage 1	-	-	-	960	-
Stage 2	-	-	-	973	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1490	-	-	877	1001
Mov Cap-2 Maneuver	-	-	-	877	-
Stage 1	-	-	-	960	-
Stage 2	-	-	-	973	-

Approach	EB	WB	SB
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HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
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Capacity (veh/h)	1490	-	-	-	879
HCM Lane V/C Ratio	-	-	-	-	0.065
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

- Existing Geometry

Lanes, Volumes, Timings

2031 No-Build Conditions - Existing Geometry

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	368	79	193	199	139	112	489	199	104	319	56
Future Volume (vph)	124	368	79	193	199	139	112	489	199	104	319	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	450		0	200		200	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973			0.938				0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1769	0	1752	1711	0	1752	1863	1524	1703	1777	0
Flt Permitted	0.352			0.141			0.238			0.119		
Satd. Flow (perm)	656	1769	0	260	1711	0	439	1863	1524	213	1777	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			37				172		8	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	4%	7%	3%	5%	3%	3%	2%	6%	6%	5%	2%
Adj. Flow (vph)	138	409	88	214	221	154	124	543	221	116	354	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	497	0	214	375	0	124	543	221	116	416	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Prot	pm+pt	NA	
Protected Phases	1	6		5	2		7	8	8	7	8	

Lanes, Volumes, Timings

2031 No-Build Conditions - Existing Geometry

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			8			8		
Detector Phase	1	6		5	2		7	8	8	7	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		1.0	10.0		1.0	5.0	5.0	1.0	5.0	
Minimum Split (s)	10.0	15.0		5.0	15.0		6.0	10.0	10.0	6.0	10.0	
Total Split (s)	14.0	42.0		17.0	45.0		15.0	37.0	37.0	15.0	37.0	
Total Split (%)	12.6%	37.8%		15.3%	40.5%		13.5%	33.3%	33.3%	13.5%	33.3%	
Maximum Green (s)	10.0	37.0		13.0	40.0		10.0	32.0	32.0	10.0	32.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	-2.5	-2.5	-2.5	
Total Lost Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)	46.8	34.1		51.3	37.1		45.2	33.8	33.8	45.2	33.8	
Actuated g/C Ratio	0.45	0.33		0.50	0.36		0.44	0.33	0.33	0.44	0.33	
v/c Ratio	0.33	0.84		0.63	0.59		0.37	0.89	0.36	0.45	0.71	
Control Delay	16.5	45.5		25.4	28.3		20.8	53.0	9.6	23.4	39.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.5	45.5		25.4	28.3		20.8	53.0	9.6	23.4	39.1	
LOS	B	D		C	C		C	D	A	C	D	
Approach Delay		39.2			27.2			37.7				35.7
Approach LOS		D			C			D				D
90th %ile Green (s)	10.0	37.0		13.0	40.0		10.0	32.0	32.0	10.0	32.0	
90th %ile Term Code	Max	Max		Max	Hold		Max	Max	Max	Max	Max	
70th %ile Green (s)	10.0	37.0		13.0	40.0		10.0	32.0	32.0	10.0	32.0	
70th %ile Term Code	Max	Max		Max	Hold		Max	Max	Max	Max	Max	
50th %ile Green (s)	10.0	35.2		13.0	38.2		10.0	32.0	32.0	10.0	32.0	
50th %ile Term Code	Max	Gap		Max	Hold		Max	Max	Max	Max	Max	
30th %ile Green (s)	8.7	28.8		12.4	32.5		8.3	32.0	32.0	8.3	32.0	
30th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Max	Max	Gap	Max	
10th %ile Green (s)	7.0	21.4		9.4	23.8		6.5	27.4	27.4	6.5	27.4	
10th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Gap	Gap	Gap	Gap	
Queue Length 50th (ft)	49	307		80	186		50	366	24	46	254	
Queue Length 95th (ft)	84	442		147	282		89	#588	85	85	380	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200		200	200		
Base Capacity (vph)	440	692		356	735		357	630	630	277	606	
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	0.72		0.60	0.51		0.35	0.86	0.35	0.42	0.69	

Intersection Summary

Area Type: Other

Cycle Length: 111

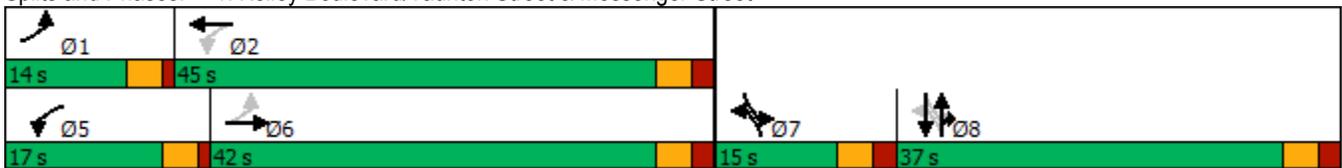
Actuated Cycle Length: 103.1

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 No-Build Conditions - Existing Geometry
 Weekday Morning Peak Hour

Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 35.3
 Intersection Capacity Utilization 79.7%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 111
 70th %ile Actuated Cycle: 111
 50th %ile Actuated Cycle: 109.2
 30th %ile Actuated Cycle: 100.5
 10th %ile Actuated Cycle: 83.7
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



Lanes, Volumes, Timings

2031 No-Build Conditions - Existing Geometry

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Evening Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	302	193	292	487	93	172	434	179	103	523	57
Future Volume (vph)	143	302	193	292	487	93	172	434	179	103	523	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	450		0	200		200	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.942			0.976				0.850		0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1776	0	1770	1839	0	1787	1900	1599	1787	1851	0
Flt Permitted	0.119			0.114			0.097			0.228		
Satd. Flow (perm)	222	1776	0	212	1839	0	182	1900	1599	429	1851	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			9				179		5	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	0%	2%	2%	1%	0%	1%	0%	1%	1%	1%	2%
Adj. Flow (vph)	151	318	203	307	513	98	181	457	188	108	551	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	521	0	307	611	0	181	457	188	108	611	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Prot	pm+pt	NA	
Protected Phases	1	6		5	2		7	8	8	7	8	

Lanes, Volumes, Timings

2031 No-Build Conditions - Existing Geometry

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			8			8		
Detector Phase	1	6		5	2		7	8	8	7	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		1.0	10.0		1.0	5.0	5.0	1.0	5.0	
Minimum Split (s)	10.0	15.0		5.0	15.0		6.0	10.0	10.0	6.0	10.0	
Total Split (s)	14.0	36.0		21.0	43.0		15.0	45.0	45.0	15.0	45.0	
Total Split (%)	12.0%	30.8%		17.9%	36.8%		12.8%	38.5%	38.5%	12.8%	38.5%	
Maximum Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	-2.5	-2.5	-2.5	
Total Lost Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)	46.5	33.6		54.9	40.5		53.6	41.4	41.4	53.6	41.4	
Actuated g/C Ratio	0.40	0.29		0.48	0.35		0.47	0.36	0.36	0.47	0.36	
v/c Ratio	0.60	0.97		0.86	0.94		0.71	0.67	0.27	0.31	0.91	
Control Delay	32.4	71.4		52.4	59.4		39.3	36.9	5.4	18.7	54.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	32.4	71.4		52.4	59.4		39.3	36.9	5.4	18.7	54.8	
LOS	C	E		D	E		D	D	A	B	D	
Approach Delay		62.6			57.1			30.3				49.4
Approach LOS		E			E			C				D
90th %ile Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Max	Max	Max	Max	
70th %ile Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
70th %ile Term Code	Max	Max		Max	Max		Max	Max	Max	Max	Max	
50th %ile Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
50th %ile Term Code	Max	Max		Max	Max		Max	Max	Max	Max	Max	
30th %ile Green (s)	9.7	31.0		17.0	38.3		10.0	40.0	40.0	10.0	40.0	
30th %ile Term Code	Gap	Max		Max	Hold		Max	Max	Max	Max	Max	
10th %ile Green (s)	7.6	31.0		14.0	37.4		8.6	34.7	34.7	8.6	34.7	
10th %ile Term Code	Gap	Max		Gap	Hold		Gap	Gap	Gap	Gap	Gap	
Queue Length 50th (ft)	64	374		172	441		78	286	4	43	430	
Queue Length 95th (ft)	126	#602		#325	#676		#175	404	52	76	#652	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200		200	200		
Base Capacity (vph)	259	537		365	654		260	702	703	348	687	
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	0.58	0.97		0.84	0.93		0.70	0.65	0.27	0.31	0.89	

Intersection Summary

Area Type: Other

Cycle Length: 117

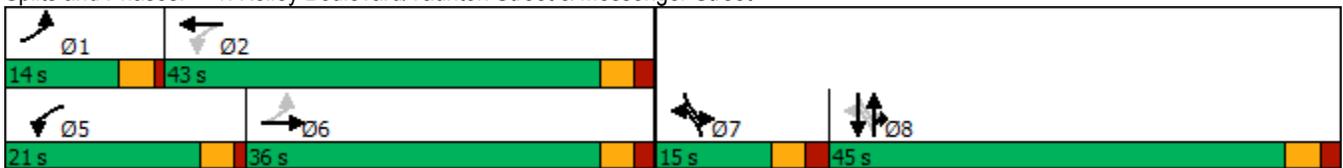
Actuated Cycle Length: 115.1

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 No-Build Conditions - Existing Geometry
 Weekday Evening Peak Hour

Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 49.4
 Intersection Capacity Utilization 97.7%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 117
 70th %ile Actuated Cycle: 117
 50th %ile Actuated Cycle: 117
 30th %ile Actuated Cycle: 117
 10th %ile Actuated Cycle: 107.3
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



Lanes, Volumes, Timings

2031 Build Conditions - Existing Geometry

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	368	83	194	199	139	125	506	230	104	324	56
Future Volume (vph)	124	368	83	194	199	139	125	506	230	104	324	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	450		0	200		200	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.938				0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1766	0	1752	1711	0	1752	1863	1524	1703	1777	0
Flt Permitted	0.351			0.132			0.236			0.115		
Satd. Flow (perm)	654	1766	0	243	1711	0	435	1863	1524	206	1777	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			37				193		8	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	4%	7%	3%	5%	3%	3%	2%	6%	6%	5%	2%
Adj. Flow (vph)	138	409	92	216	221	154	139	562	256	116	360	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	501	0	216	375	0	139	562	256	116	422	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Prot	pm+pt	NA	
Protected Phases	1	6		5	2		7	8	8	7	8	

Lanes, Volumes, Timings

2031 Build Conditions - Existing Geometry

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			8			8		
Detector Phase	1	6		5	2		7	8	8	7	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		1.0	10.0		1.0	5.0	5.0	1.0	5.0	
Minimum Split (s)	10.0	15.0		5.0	15.0		6.0	10.0	10.0	6.0	10.0	
Total Split (s)	14.0	42.0		17.0	45.0		15.0	37.0	37.0	15.0	37.0	
Total Split (%)	12.6%	37.8%		15.3%	40.5%		13.5%	33.3%	33.3%	13.5%	33.3%	
Maximum Green (s)	10.0	37.0		13.0	40.0		10.0	32.0	32.0	10.0	32.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	-2.5	-2.5	-2.5	
Total Lost Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)	47.0	34.4		51.6	37.5		46.3	34.7	34.7	46.3	34.7	
Actuated g/C Ratio	0.45	0.33		0.49	0.36		0.44	0.33	0.33	0.44	0.33	
v/c Ratio	0.33	0.85		0.65	0.59		0.41	0.91	0.40	0.45	0.71	
Control Delay	16.7	46.9		27.8	28.6		21.5	55.4	10.3	23.7	39.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.7	46.9		27.8	28.6		21.5	55.4	10.3	23.7	39.2	
LOS	B	D		C	C		C	E	B	C	D	
Approach Delay		40.4			28.3			38.4				35.9
Approach LOS		D			C			D				D
90th %ile Green (s)	10.0	37.0		13.0	40.0		10.0	32.0	32.0	10.0	32.0	
90th %ile Term Code	Max	Max		Max	Hold		Max	Max	Max	Max	Max	
70th %ile Green (s)	10.0	37.0		13.0	40.0		10.0	32.0	32.0	10.0	32.0	
70th %ile Term Code	Max	Max		Max	Hold		Max	Max	Max	Max	Max	
50th %ile Green (s)	10.0	35.7		13.0	38.7		10.0	32.0	32.0	10.0	32.0	
50th %ile Term Code	Max	Gap		Max	Hold		Max	Max	Max	Max	Max	
30th %ile Green (s)	8.7	29.4		12.6	33.3		8.8	32.0	32.0	8.8	32.0	
30th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Max	Max	Gap	Max	
10th %ile Green (s)	7.0	21.9		9.5	24.4		6.8	32.0	32.0	6.8	32.0	
10th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Max	Max	Gap	Max	
Queue Length 50th (ft)	49	311		81	186		57	387	32	47	260	
Queue Length 95th (ft)	84	#454		156	282		99	#619	100	86	387	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200		200	200		
Base Capacity (vph)	434	678		345	722		354	619	635	272	595	
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	0.32	0.74		0.63	0.52		0.39	0.91	0.40	0.43	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 111

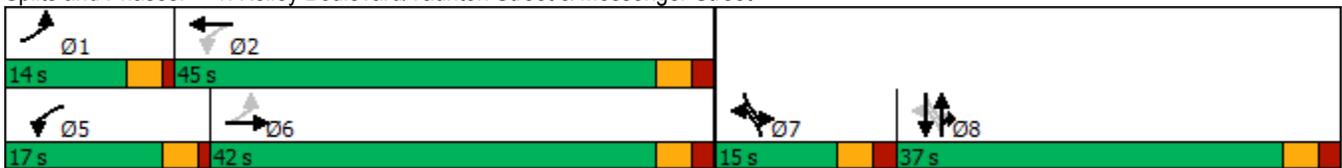
Actuated Cycle Length: 104.5

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions - Existing Geometry
 Weekday Morning Peak Hour

Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 36.2
 Intersection LOS: D
 Intersection Capacity Utilization 80.9%
 ICU Level of Service D
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 111
 70th %ile Actuated Cycle: 111
 50th %ile Actuated Cycle: 109.7
 30th %ile Actuated Cycle: 101.8
 10th %ile Actuated Cycle: 89.2
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



Lanes, Volumes, Timings

2031 Build Conditions - Existing Geometry

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Evening Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	302	204	295	487	93	179	443	181	103	538	57
Future Volume (vph)	143	302	204	295	487	93	179	443	181	103	538	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	450		0	200		200	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939			0.976				0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1770	0	1770	1839	0	1787	1900	1599	1787	1853	0
Flt Permitted	0.119			0.114			0.096			0.220		
Satd. Flow (perm)	222	1770	0	212	1839	0	181	1900	1599	414	1853	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			9				178		5	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	0%	2%	2%	1%	0%	1%	0%	1%	1%	1%	2%
Adj. Flow (vph)	151	318	215	311	513	98	188	466	191	108	566	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	533	0	311	611	0	188	466	191	108	626	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Prot	pm+pt	NA	
Protected Phases	1	6		5	2		7	8	8	7	8	

Lanes, Volumes, Timings

2031 Build Conditions - Existing Geometry

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			8			8		
Detector Phase	1	6		5	2		7	8	8	7	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		1.0	10.0		1.0	5.0	5.0	1.0	5.0	
Minimum Split (s)	10.0	15.0		5.0	15.0		6.0	10.0	10.0	6.0	10.0	
Total Split (s)	14.0	36.0		21.0	43.0		15.0	45.0	45.0	15.0	45.0	
Total Split (%)	12.0%	30.8%		17.9%	36.8%		12.8%	38.5%	38.5%	12.8%	38.5%	
Maximum Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	-2.5	-2.5	-2.5	
Total Lost Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)	46.4	33.5		55.0	40.6		54.1	41.8	41.8	54.1	41.8	
Actuated g/C Ratio	0.40	0.29		0.48	0.35		0.47	0.36	0.36	0.47	0.36	
v/c Ratio	0.61	1.00		0.87	0.94		0.74	0.68	0.28	0.32	0.93	
Control Delay	32.6	78.6		54.1	60.0		42.0	37.3	5.7	18.8	57.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	32.6	78.6		54.1	60.0		42.0	37.3	5.7	18.8	57.4	
LOS	C	E		D	E		D	D	A	B	E	
Approach Delay		68.5			58.0			31.2				51.7
Approach LOS		E			E			C				D
90th %ile Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Max	Max	Max	Max	
70th %ile Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
70th %ile Term Code	Max	Max		Max	Max		Max	Max	Max	Max	Max	
50th %ile Green (s)	10.0	31.0		17.0	38.0		10.0	40.0	40.0	10.0	40.0	
50th %ile Term Code	Max	Max		Max	Max		Max	Max	Max	Max	Max	
30th %ile Green (s)	9.7	31.0		17.0	38.3		10.0	40.0	40.0	10.0	40.0	
30th %ile Term Code	Gap	Max		Max	Hold		Max	Max	Max	Max	Max	
10th %ile Green (s)	7.6	31.0		14.6	38.0		9.0	36.6	36.6	9.0	36.6	
10th %ile Term Code	Gap	Max		Gap	Hold		Gap	Gap	Gap	Gap	Gap	
Queue Length 50th (ft)	64	~393		175	441		84	294	6	43	446	
Queue Length 95th (ft)	126	#625		#333	#676		#189	414	55	76	#677	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200		200	200		
Base Capacity (vph)	257	533		363	651		258	698	700	343	684	
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	0.59	1.00		0.86	0.94		0.73	0.67	0.27	0.31	0.92	

Intersection Summary

Area Type: Other

Cycle Length: 117

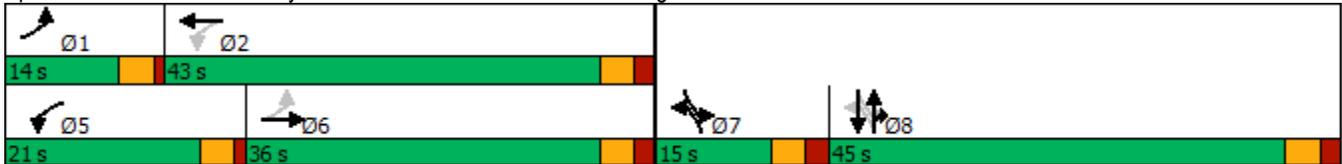
Actuated Cycle Length: 115.6

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions - Existing Geometry
 Weekday Evening Peak Hour

Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 51.7
 Intersection Capacity Utilization 99.7%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 117
 70th %ile Actuated Cycle: 117
 50th %ile Actuated Cycle: 117
 30th %ile Actuated Cycle: 117
 10th %ile Actuated Cycle: 110.2
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



- Pedestrian Phase

Lanes, Volumes, Timings

2031 No-Build Conditions - Ped Phase

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	368	79	193	199	139	112	489	199	104	319	56
Future Volume (vph)	124	368	79	193	199	139	112	489	199	104	319	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	450		450	200		200	200		200
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.973			0.938			0.957			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3360	0	1752	3250	0	1752	3349	0	1703	3377	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3360	0	1752	3250	0	1752	3349	0	1703	3377	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			147			51			16	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	4%	7%	3%	5%	3%	3%	2%	6%	6%	5%	2%
Adj. Flow (vph)	138	409	88	214	221	154	124	543	221	116	354	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	497	0	214	375	0	124	764	0	116	416	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA										
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9

Lanes, Volumes, Timings

2031 No-Build Conditions - Ped Phase

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	15.0		12.0	15.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	25.0		20.0	30.0		20.0	30.0		15.0	25.0	
Total Split (%)	13.3%	22.1%		17.7%	26.5%		17.7%	26.5%		13.3%	22.1%	
Maximum Green (s)	10.0	20.0		15.0	25.0		15.0	25.0		10.0	20.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	12.3	19.7		16.8	24.1		13.8	26.5		12.1	24.7	
Actuated g/C Ratio	0.14	0.22		0.19	0.27		0.16	0.30		0.14	0.28	
v/c Ratio	0.56	0.65		0.65	0.38		0.46	0.74		0.50	0.44	
Control Delay	49.3	36.3		46.4	17.9		42.7	33.1		47.7	29.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	49.3	36.3		46.4	17.9		42.7	33.1		47.7	29.7	
LOS	D	D		D	B		D	C		D	C	
Approach Delay		39.1			28.3			34.4			33.6	
Approach LOS		D			C			C			C	
90th %ile Green (s)	10.0	20.0		15.0	25.0		15.0	25.0		10.0	20.0	
90th %ile Term Code	Max	Max		Max	Hold		Max	Max		Max	Max	
70th %ile Green (s)	10.0	20.0		15.0	25.0		13.1	25.0		10.0	21.9	
70th %ile Term Code	Max	Max		Max	Hold		Gap	Max		Max	Hold	
50th %ile Green (s)	10.0	17.5		15.0	22.5		11.5	25.0		10.0	23.5	
50th %ile Term Code	Max	Gap		Max	Hold		Gap	Max		Max	Hold	
30th %ile Green (s)	10.0	15.6		14.6	20.2		9.9	24.6		9.8	24.5	
30th %ile Term Code	Max	Gap		Gap	Hold		Gap	Gap		Gap	Hold	
10th %ile Green (s)	8.2	12.5		10.9	15.2		7.3	18.7		7.3	18.7	
10th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Gap		Gap	Hold	
Queue Length 50th (ft)	72	125		108	50		63	181		60	92	
Queue Length 95th (ft)	#188	233		#272	117		143	#377		#151	194	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200			200		
Base Capacity (vph)	254	886		353	1130		353	1096		245	964	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.54	0.56		0.61	0.33		0.35	0.70		0.47	0.43	

Intersection Summary

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 No-Build Conditions - Ped Phase
 Weekday Morning Peak Hour

Lane Group	Ø9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	23.0
Total Split (s)	23.0
Total Split (%)	20%
Maximum Green (s)	21.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	5
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
90th %ile Green (s)	21.0
90th %ile Term Code	Ped
70th %ile Green (s)	0.0
70th %ile Term Code	Skip
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

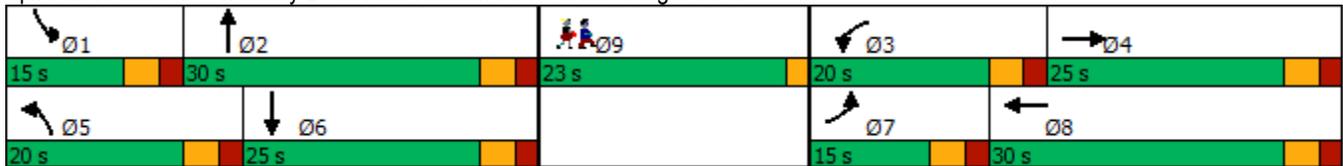
Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 No-Build Conditions - Ped Phase
 Weekday Morning Peak Hour

Area Type: Other
 Cycle Length: 113
 Actuated Cycle Length: 88.9
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 34.0
 Intersection Capacity Utilization 62.4%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 113
 70th %ile Actuated Cycle: 90
 50th %ile Actuated Cycle: 87.5
 30th %ile Actuated Cycle: 84.6
 10th %ile Actuated Cycle: 69.4
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



Lanes, Volumes, Timings

2031 No-Build Conditions - Ped Phase

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Evening Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	302	193	292	487	93	172	434	179	103	523	57
Future Volume (vph)	143	302	193	292	487	93	172	434	179	103	523	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	450		450	200		200	200		200
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.942			0.976			0.956			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3374	0	1770	3494	0	1787	3441	0	1787	3517	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3374	0	1770	3494	0	1787	3441	0	1787	3517	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		102			17			52			9	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	0%	2%	2%	1%	0%	1%	0%	1%	1%	1%	2%
Adj. Flow (vph)	151	318	203	307	513	98	181	457	188	108	551	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	521	0	307	611	0	181	645	0	108	611	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA										
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9

Lanes, Volumes, Timings

2031 No-Build Conditions - Ped Phase

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	15.0		12.0	15.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	20.0		25.0	30.0		20.0	35.0		15.0	30.0	
Total Split (%)	12.7%	16.9%		21.2%	25.4%		16.9%	29.7%		12.7%	25.4%	
Maximum Green (s)	10.0	15.0		20.0	25.0		15.0	30.0		10.0	25.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	12.7	17.4		22.1	26.8		16.0	27.7		11.9	23.6	
Actuated g/C Ratio	0.14	0.19		0.24	0.29		0.17	0.30		0.13	0.25	
v/c Ratio	0.63	0.73		0.73	0.60		0.59	0.61		0.47	0.68	
Control Delay	54.2	37.2		46.8	32.5		46.8	29.3		48.9	36.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.2	37.2		46.8	32.5		46.8	29.3		48.9	36.4	
LOS	D	D		D	C		D	C		D	D	
Approach Delay		41.0			37.3			33.2			38.3	
Approach LOS		D			D			C			D	
90th %ile Green (s)	10.0	15.0		20.0	25.0		15.0	30.0		10.0	25.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	10.0	15.0		20.0	25.0		15.0	29.7		10.0	24.7	
70th %ile Term Code	Max	Max		Max	Hold		Max	Hold		Max	Gap	
50th %ile Green (s)	10.0	15.0		20.0	25.0		15.0	26.5		10.0	21.5	
50th %ile Term Code	Max	Max		Max	Hold		Max	Hold		Max	Gap	
30th %ile Green (s)	10.0	15.0		20.0	25.0		12.6	22.5		9.4	19.3	
30th %ile Term Code	Max	Max		Max	Hold		Gap	Hold		Gap	Gap	
10th %ile Green (s)	9.5	12.9		16.4	19.8		9.5	17.4		7.0	14.9	
10th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Hold		Min	Gap	
Queue Length 50th (ft)	84	120		163	152		95	149		58	163	
Queue Length 95th (ft)	#227	#264		#396	288		#223	275		140	291	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200			200		
Base Capacity (vph)	243	732		438	1069		344	1264		246	1070	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.62	0.71		0.70	0.57		0.53	0.51		0.44	0.57	

Intersection Summary

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 No-Build Conditions - Ped Phase
 Weekday Evening Peak Hour

Lane Group	Ø9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	23.0
Total Split (s)	23.0
Total Split (%)	19%
Maximum Green (s)	21.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	5
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
90th %ile Green (s)	21.0
90th %ile Term Code	Ped
70th %ile Green (s)	0.0
70th %ile Term Code	Skip
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

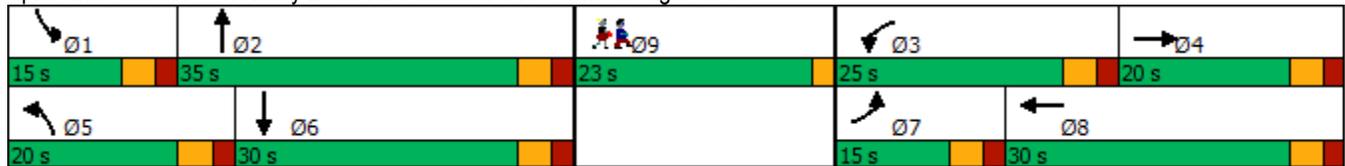
Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 No-Build Conditions - Ped Phase
 Weekday Evening Peak Hour

Area Type: Other
 Cycle Length: 118
 Actuated Cycle Length: 93
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 37.2
 Intersection Capacity Utilization 69.8%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 118
 70th %ile Actuated Cycle: 94.7
 50th %ile Actuated Cycle: 91.5
 30th %ile Actuated Cycle: 86.9
 10th %ile Actuated Cycle: 73.7
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Intersection LOS: D
 ICU Level of Service C

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



Lanes, Volumes, Timings

2031 Build Conditions - Ped Phase

1: Kelley Boulevard/Taunton Street & Messenger Street

Weekday Morning Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	368	83	194	199	139	125	506	230	104	324	56
Future Volume (vph)	124	368	83	194	199	139	125	506	230	104	324	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	450		450	200		200	200		200
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.972			0.938			0.953			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3356	0	1752	3250	0	1752	3332	0	1703	3377	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3356	0	1752	3250	0	1752	3332	0	1703	3377	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			147			62			15	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	4%	7%	3%	5%	3%	3%	2%	6%	6%	5%	2%
Adj. Flow (vph)	138	409	92	216	221	154	139	562	256	116	360	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	501	0	216	375	0	139	818	0	116	422	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA										
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions - Ped Phase
 Weekday Morning Peak Hour

Lane Group												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	15.0		12.0	15.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	25.0		20.0	30.0		20.0	30.0		15.0	25.0	
Total Split (%)	13.3%	22.1%		17.7%	26.5%		17.7%	26.5%		13.3%	22.1%	
Maximum Green (s)	10.0	20.0		15.0	25.0		15.0	25.0		10.0	20.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	12.3	19.8		16.8	24.3		14.4	27.3		12.0	25.0	
Actuated g/C Ratio	0.14	0.22		0.19	0.27		0.16	0.30		0.13	0.28	
v/c Ratio	0.57	0.66		0.66	0.38		0.50	0.77		0.51	0.44	
Control Delay	49.7	36.7		47.1	18.0		43.3	34.0		48.0	30.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	49.7	36.7		47.1	18.0		43.3	34.0		48.0	30.2	
LOS	D	D		D	B		D	C		D	C	
Approach Delay		39.5			28.6			35.3			34.0	
Approach LOS		D			C			D			C	
90th %ile Green (s)	10.0	20.0		15.0	25.0		15.0	25.0		10.0	20.0	
90th %ile Term Code	Max	Max		Max	Hold		Max	Max		Max	Max	
70th %ile Green (s)	10.0	20.0		15.0	25.0		14.0	25.0		10.0	21.0	
70th %ile Term Code	Max	Max		Max	Hold		Gap	Max		Max	Hold	
50th %ile Green (s)	10.0	17.6		15.0	22.6		12.2	25.0		10.0	22.8	
50th %ile Term Code	Max	Gap		Max	Hold		Gap	Max		Max	Hold	
30th %ile Green (s)	10.0	15.7		14.7	20.4		10.5	25.0		9.8	24.3	
30th %ile Term Code	Max	Gap		Gap	Hold		Gap	Max		Gap	Hold	
10th %ile Green (s)	8.2	12.7		11.1	15.6		7.9	22.0		7.3	21.4	
10th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Gap		Gap	Hold	
Queue Length 50th (ft)	72	126		110	50		70	196		60	95	
Queue Length 95th (ft)	#188	234		#275	117		159	#418		#151	197	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200			200		
Base Capacity (vph)	251	873		348	1116		348	1083		241	949	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.55	0.57		0.62	0.34		0.40	0.76		0.48	0.44	

Intersection Summary

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions - Ped Phase
 Weekday Morning Peak Hour

Lane Group	Ø9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	23.0
Total Split (s)	23.0
Total Split (%)	20%
Maximum Green (s)	21.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	5
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
90th %ile Green (s)	21.0
90th %ile Term Code	Ped
70th %ile Green (s)	0.0
70th %ile Term Code	Skip
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

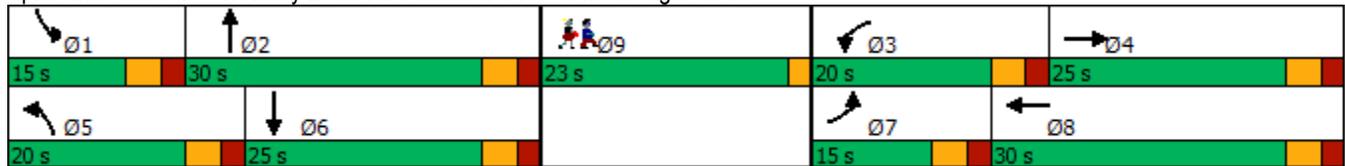
Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions - Ped Phase
 Weekday Morning Peak Hour

Area Type: Other
 Cycle Length: 113
 Actuated Cycle Length: 89.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 34.6
 Intersection Capacity Utilization 64.1%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 113
 70th %ile Actuated Cycle: 90
 50th %ile Actuated Cycle: 87.6
 30th %ile Actuated Cycle: 85.2
 10th %ile Actuated Cycle: 73.1
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street



Lanes, Volumes, Timings
1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions - Ped Phase
Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	302	204	295	487	93	179	443	181	103	538	57
Future Volume (vph)	143	302	204	295	487	93	179	443	181	103	538	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	450		450	200		200	200		200
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.939			0.976			0.956			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3363	0	1770	3494	0	1787	3441	0	1787	3521	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3363	0	1770	3494	0	1787	3441	0	1787	3521	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		117			17			52			9	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			500			1000			500	
Travel Time (s)		9.7			9.7			22.7			11.4	
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
Heavy Vehicles (%)	2%	0%	2%	2%	1%	0%	1%	0%	1%	1%	1%	2%
Adj. Flow (vph)	151	318	215	311	513	98	188	466	191	108	566	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	533	0	311	611	0	188	657	0	108	626	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group Ø9

Lane Configurations
Traffic Volume (vph)
Future Volume (vph)
Ideal Flow (vphpl)
Storage Length (ft)
Storage Lanes
Taper Length (ft)
Lane Util. Factor
Frt
Flt Protected
Satd. Flow (prot)
Flt Permitted
Satd. Flow (perm)
Right Turn on Red
Satd. Flow (RTOR)
Link Speed (mph)
Link Distance (ft)
Travel Time (s)
Peak Hour Factor
Heavy Vehicles (%)
Adj. Flow (vph)
Shared Lane Traffic (%)
Lane Group Flow (vph)
Enter Blocked Intersection
Lane Alignment
Median Width(ft)
Link Offset(ft)
Crosswalk Width(ft)
Two way Left Turn Lane
Headway Factor
Turning Speed (mph)
Number of Detectors
Detector Template
Leading Detector (ft)
Trailing Detector (ft)
Detector 1 Position(ft)
Detector 1 Size(ft)
Detector 1 Type
Detector 1 Channel
Detector 1 Extend (s)
Detector 1 Queue (s)
Detector 1 Delay (s)
Detector 2 Position(ft)
Detector 2 Size(ft)
Detector 2 Type
Detector 2 Channel
Detector 2 Extend (s)
Turn Type
Protected Phases 9

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions - Ped Phase
 Weekday Evening Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	12.0	15.0		12.0	15.0		12.0	15.0		12.0	15.0	
Total Split (s)	15.0	20.0		25.0	30.0		20.0	35.0		15.0	30.0	
Total Split (%)	12.7%	16.9%		21.2%	25.4%		16.9%	29.7%		12.7%	25.4%	
Maximum Green (s)	10.0	15.0		20.0	25.0		15.0	30.0		10.0	25.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.5	-2.5		-2.5	-2.5		-2.5	-2.5		-2.5	-2.5	
Total Lost Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	12.7	17.4		22.3	26.9		16.2	28.2		11.9	23.9	
Actuated g/C Ratio	0.14	0.19		0.24	0.29		0.17	0.30		0.13	0.26	
v/c Ratio	0.63	0.74		0.74	0.60		0.61	0.61		0.48	0.69	
Control Delay	54.7	36.8		47.5	32.7		47.6	29.4		49.2	36.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.7	36.8		47.5	32.7		47.6	29.4		49.2	36.8	
LOS	D	D		D	C		D	C		D	D	
Approach Delay		40.8			37.7			33.5			38.6	
Approach LOS		D			D			C			D	
90th %ile Green (s)	10.0	15.0		20.0	25.0		15.0	30.0		10.0	25.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	10.0	15.0		20.0	25.0		15.0	30.0		10.0	25.0	
70th %ile Term Code	Max	Max		Max	Hold		Max	Hold		Max	Max	
50th %ile Green (s)	10.0	15.0		20.0	25.0		15.0	26.9		10.0	21.9	
50th %ile Term Code	Max	Max		Max	Hold		Max	Hold		Max	Gap	
30th %ile Green (s)	10.0	15.0		20.0	25.0		13.2	23.5		9.4	19.7	
30th %ile Term Code	Max	Max		Max	Hold		Gap	Hold		Gap	Gap	
10th %ile Green (s)	9.6	12.9		17.1	20.4		9.9	18.2		7.0	15.3	
10th %ile Term Code	Gap	Gap		Gap	Hold		Gap	Hold		Min	Gap	
Queue Length 50th (ft)	84	120		166	153		100	153		59	168	
Queue Length 95th (ft)	#227	#266		#404	288		#237	282		140	300	
Internal Link Dist (ft)		420			420			920			420	
Turn Bay Length (ft)	250			450			200			200		
Base Capacity (vph)	241	736		434	1060		341	1253		244	1062	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.63	0.72		0.72	0.58		0.55	0.52		0.44	0.59	

Intersection Summary

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions - Ped Phase
 Weekday Evening Peak Hour

Lane Group	Ø9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	23.0
Total Split (s)	23.0
Total Split (%)	19%
Maximum Green (s)	21.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	5
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
90th %ile Green (s)	21.0
90th %ile Term Code	Ped
70th %ile Green (s)	0.0
70th %ile Term Code	Skip
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
 1: Kelley Boulevard/Taunton Street & Messenger Street

2031 Build Conditions - Ped Phase
 Weekday Evening Peak Hour

Area Type: Other
 Cycle Length: 118
 Actuated Cycle Length: 93.6
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 37.5
 Intersection Capacity Utilization 71.2%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 118
 70th %ile Actuated Cycle: 95
 50th %ile Actuated Cycle: 91.9
 30th %ile Actuated Cycle: 87.9
 10th %ile Actuated Cycle: 75.2
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Intersection LOS: D
 ICU Level of Service C

Splits and Phases: 1: Kelley Boulevard/Taunton Street & Messenger Street

