

MEMORANDUM

Date: June 8, 2022 Project #: 24369/26747/26748

To: Dan Fricke & Arielle Ferber, PE, ODOT Region 2

Cc: Tom Schauer, AICP, & Heather Richards, PCED, City of McMinnville
Josh Anderson, PE, PTOE, & Andrew Mortenson, David Evans and Associates, Inc.
Ken Friday & Mark Lago, Yamhill County
Michael Strahs, Kimco Realty
Alan Roodhouse, RPS Development Company
Stewart Kircher & Dan Bansen, DRS Land LLC
Bryan Hays & Fee Stubblefield, The Springs Living
Ken Sandblast, Westlake Consultants, Inc.

From: Kristine Connolly, PE, Marc Butorac, PE, PTOE, PMP, & Alec Kauffman

Project: Three Mile Lane Rezone (McMinnville, OR)

Subject: Response to Transportation Planning Rule Sensitivity Analysis Review Comments

Kittelison & Associates, Inc. (Kittelison) prepared this memorandum to respond to the Oregon Department of Transportation (ODOT) May 23, 2022 review comments on the Three Mile Lane Area Plan Sensitivity Analysis. *Italics text* represent ODOT's comment followed by regular text for Kittelison's response. ODOT's comments were provided in two sections "Analysis items to note" and "proposed mitigation comments", therefore Kittelison's response will follow the same format.

Analysis Items to Note:

- 1. In the Year 2041 Background Traffic Volumes and Conditions section (page 3) the memo notes that buildout of the industrial lane subject to the zone change could result in higher volumes than were included in the 3MLAP and that additional industrial trips were assigned to the network to account for this. However, in Appendix E, some intersection turn movements have reduced volumes (3rd Street at Johnson Street, Three Mile Lane at 1st Street, and Three Mile Lane at Nehemiah Lane/Cumulus Avenue/Pacific Street). It is recommended additional discussion be added to explain the need for reduced volumes at these turn movements.*

The change in volume at the three intersections (3rd Street at Johnson Street, Three Mile Lane at 1st Street, and Three Mile Lane at Nehemiah Lane/Cumulus Avenue/Pacific Street) is due to the re-allocation of existing trips to/from and within the downtown area to the Three Mile Lane Area Plan area. Summing all movements at these intersections there are 65 net new trips at Three Mile Lane at 1st Street and Three Mile Lane at Nehemiah Lane/Cumulus Avenue/Pacific Street. There are 33 net new trips at 3rd Street at Johnson Street; however, the westbound right turn volumes do not appear in Appendix E as stated in the appendix "Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson". Additional discussion of the redistribution is included in the trip generation and assignment section on pages 17 and 18 of the Three Mile Lane Rezone TIA, which was submitted December 2020.

2. *During our review some minor typographical errors were noted as follows:*

a. *Table 1:*

- i. *Three Mile Lane at 1st Street critical movement should be EB not WB*
- ii. *Three Mile Lane at Nehemiah Ln/Cumulus Ave/Pacific St critical movement should be WB not EB*

b. *Table 3:*

- i. *Three Mile Lane at Nehemiah Ln/Cumulus Ave/Pacific St critical movement should be WB not EB*
- ii. *Norton Lane at Stratus Avenue critical movement should be EB not WB*

c. *Table 4:*

- i. *Three Mile Lane at 1st Street 2041 Background critical movement should be EB not WB*
- ii. *Three Mile Lane at Nehemiah Ln/Cumulus Ave/Pacific St 2041 Total critical movement should be WB not EB*
- iii. *Norton Lane at Stratus Avenue critical movement should be EB not WB*

Please see the revised tables, updated to reflect the minor typographical corrections in red:

Table 1. Estimated 2041 Background Traffic Operations for Weekday PM Peak Hour

Study Intersection		Mobility Target (V/C) ¹	CM	V/C
1	NE 3 rd Street/NE Johnson Street	0.90	-	0.86
2	NE Three Mile Lane/NE 1 st Street	0.90	EB	1.40 ²
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WB	1.27 ²
4	SE Norton Lane/NE Cumulus Avenue	0.90	EB	0.48
5	OR-18/SE Norton Lane	0.80	-	0.80
6	OR-18/NE Cumulus Avenue	0.80	-	0.98
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NB	0.29
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SB	0.39
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NB	1.64
10	OR-18/Lafayette Highway	major approaches = 0.70 minor approaches = 0.75	EB	0.53
11	OR-18/Ash Road	major approaches = 0.70 minor approaches = 0.80	Closed	
12	SE Norton Lane/SE Stratus Avenue	0.90	WB	0.36

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #5 through #11 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

²Results from Sidra 8 analysis are reported in verification of Vistro analysis. Both Sidra and Vistro results are included in Appendix G.

Table 3. Estimated 2041 Total Traffic Operations for Weekday PM Peak Hour

Study Intersection		Mobility Target (V/C) ¹	CM	V/C
1	NE 3 rd Street/NE Johnson Street	0.90	-	0.93
2	NE Three Mile Lane/NE 1 st Street	0.90	EB	1.83²
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WB	1.14³
4	SE Norton Lane/NE Cumulus Avenue	0.90	EB	0.50
5	OR-18/SE Norton Lane	0.80	-	0.79 ⁴
6	OR-18/NE Cumulus Avenue	0.80	-	1.33
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NB	0.31
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SB	0.48
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NB	1.63⁵
10	OR-18/Lafayette Highway	major approaches = 0.70 minor approaches = 0.75	WB	0.54
11	OR-18/Ash Road	major approaches = 0.70 minor approaches = 0.80	Closed	
12	SE Norton Lane/SE Stratus Avenue	0.90	EB	0.54

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #5 through #11 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

²Results from Sidra 8 analysis are reported in verification of Vistro analysis. Both Sidra and Vistro results are included in Appendix I. Under 2041 total traffic conditions in Vistro, the delay for the critical westbound left-turn movement is so high that it is not reported. It can be assumed that with higher delay, the true V/C under 2041 total traffic conditions is also higher if Vistro were capable of reporting it. Sidra 8 was used to verify this assumption.

³Results from Sidra 8 analysis are reported in verification of Vistro analysis. Both Sidra and Vistro results are included in Appendix I. Under 2041 total traffic conditions in Vistro, the rezone from industrial to commercial site use increases inbound (southbound) and decreases outbound (northbound) flow from the site through Intersection #3, resulting in improved capacity for the critical eastbound left-turn movement compared to 2041 background traffic conditions. Sidra 8 was used to verify this condition.

⁴Pass-by trips associated with the rezone from industrial to commercial site use decrease eastbound and westbound through volumes on OR-18, resulting in improved capacity compared to 2041 background traffic conditions.

⁵The rezone from industrial to commercial site use increases inbound (westbound) and decreases outbound (eastbound) flow from the site through Intersection #9, resulting in improved capacity for the critical northbound left-turn movement compared to 2041 background traffic conditions.

Table 4. Comparison of 2041 Background and Total Traffic Operations for Weekday PM Peak Hour

Study Intersection	Mobility Target (V/C) ¹	2041 Background		2041 Total		V/C Change > 0.03?	
		CM	V/C	CM	V/C		
1 NE 3 rd Street/NE Johnson Street	0.90	-	0.86	-	0.93	Yes	
2 NE Three Mile Lane/NE 1 st Street	0.90	EB	1.40 ²	EB	1.83 ²	Yes	
3 NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	EB	1.27 ³	WB	1.14 ³	No	
4 SE Norton Lane/NE Cumulus Avenue	0.90	EB	0.48	EB	0.50	No	
5 OR-18/SE Norton Lane	0.80	-	0.80	-	0.79 ⁴	No	
6 OR-18/NE Cumulus Avenue	0.80	-	0.98	-	1.33	Yes	
7 OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NB	0.29	NB	0.31	No	
8 OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SB	0.39	SB	0.48	No	
9 OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NB	1.64	NB	1.63 ⁵	No	
10 OR-18/Lafayette Highway	major approaches = 0.70 minor approaches = 0.75	EB	0.53	WB	0.54	No	
11 OR-18/Ash Road	major approaches = 0.70 minor approaches = 0.80	Closed					
12 SE Norton Lane/NE Stratus Avenue	0.90	WB	0.36	EB	0.54	Yes	

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #5 through #11 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

²Results from Sidra 8 analysis are reported in verification of Vistro analysis. Both Sidra and Vistro results are included in Appendix G and Appendix I. Under 2041 total traffic conditions in Vistro, the delay for the critical westbound left-turn movement is so high that it is not reported. It can be assumed that with higher delay, the true V/C under 2041 total traffic conditions is also higher if Vistro were capable of reporting it. Sidra 8 was used to verify this assumption.

³Results from Sidra 8 analysis are reported in verification of Vistro analysis. Both Sidra and Vistro results are included in Appendix G and Appendix I. Under 2041 total traffic conditions in Vistro, the rezone from industrial to commercial site use increases inbound (southbound) and decreases outbound (northbound) flow from the site through Intersection #3, resulting in improved capacity for the critical eastbound left-turn movement compared to 2041 background traffic conditions. Sidra 8 was used to verify this condition.

⁴Pass-by trips associated with the rezone from industrial to commercial site use decrease eastbound and westbound through volumes on OR-18, resulting in improved capacity compared to 2041 background traffic conditions.

⁵The rezone from industrial to commercial site use increases inbound (westbound) and decreases outbound (eastbound) flow from the site through Intersection #9, resulting in slightly improved capacity for the critical northbound left-turn movement compared to 2041 background traffic conditions.

- When reporting the 95th percentile queues, it is recommended that queue lengths are consistently rounded up to the next 25 feet. This primarily impacts the northbound left turn movement at the OR 18 at Norton Lane intersection in the 2041 Total with Mitigation conditions. A queue length of 225 feet slightly exceeds the available queue storage, however, this is still an improvement over the 2041 Background condition.

Table 5 has been revised with queues rounded up to the nearest 25 feet, modified values are shown in red.

Table 5. Comparison of 2041 Background, Total and Mitigated Total Traffic 95th Percentile Queues at OR-18/SE Norton Lane for Weekday PM Peak Hour

Study Intersection	Movement	Available Queue Storage (feet)	2041 Background		2041 Total		2041 Total with Mitigation	
			95 th Percentile Queue (feet)	Queue Storage Adequate?	95 th Percentile Queue (feet)	Queue Storage Adequate?	95 th Percentile Queue (feet)	Queue Storage Adequate?
5 OR-18/SE Norton Lane	NBL	225' (dual)	275'	No	325'	No	225'	Yes
	NBTR	Continuous	200'	Yes	225'	Yes	225'	Yes
	SBL	125'	175'	No	200'	No	125'	Yes
	SBT	Continuous	150'	Yes	175'	Yes	25'	Yes
	SBR	New	-	Yes	-	Yes	100'	Yes
	EBL	150'	50'	Yes	75'	Yes	50'	Yes
	EBT	Continuous	575'	Yes	750'	Yes	500'	Yes
	EBR	100'	50'	Yes	125'	No	50'	Yes
	WBL	150'	100'	Yes	125'	Yes	75'	Yes
	WBT	Continuous	925'	Yes	825'	Yes	700'	Yes
	WBR	175'	25'	Yes	50'	Yes	25'	Yes

Where: EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left-turn, T = through, R = right-turn
¹Measured between the crosswalks at OR-18 and SE Stratus Avenue

4. Appendix E — Base Volume Adjustments

- d. North Frontage Road Adjustments: It appears that the NBR and WBL volumes of 7 and 5, respectively, should instead be 5 and 7, respectively.

The volumes have been updated as noted in ODOT’s comment and the updated analysis is shown in Attachment A. This change does not impact the finding or recommendations of the sensitivity analysis.

Proposed mitigation comments:

- 1. ODOT maintains jurisdiction of the Salmon River Highway No. 39 (OR 18) and ODOT approval shall be required for all proposed mitigation measures to this facility.

Noted.

- 2. Region 2 Traffic has the following comments regarding proposed mitigation measures:
 - a. OR 18 at Cumulus Avenue recommendations include protected/permissive left-turn phasing on all approaches. However, as OR 18 has a posted speed in excess of 45 MPH protected phasing is recommended for the left-turn phasing on the eastbound and westbound approaches (OR 18).

The mitigation has been modified to include protected phasing for eastbound and westbound left-turns on OR 18. In order to maintain acceptable operating standards, a second northbound left-turn lane has also been added to the mitigation proposed in the

sensitivity analysis for the OR 18 / Cumulus Avenue intersection. This is consistent with the mitigation proposed in the TIAs, which included dual northbound left-turn lanes at the intersection. The updated mitigation operations results can be found in Attachment B.

- b. *ODOT recommends installation of northbound and southbound left-turn pockets at the Three Mile Lane at Nehemiah Ln/Cumulus Ave/Pacific St intersection as opposed to the fee-in-lieu payments toward future relocation and signalization of the intersection.*

Noted.

- c. *Mitigation at the Three Mile Lane at 1st Street intersection includes signalization. While reported v/c values are shown to improve over the 2041 Background unsignalized operations (1.40 vs 1.05) it appears that the northbound left-turn movement is not served well with the analyzed signal timings. In particular, the movement is shown with an average delay of 805 seconds and an average queue length of 750 feet (approximately 30 vehicles). This queue length exceeds the available storage length of 400 feet and would have impacts to the northbound through movement. It is recommended that the exclusive eastbound right—turn lane as analyzed in the Year 2041 Further Mitigation be included as mitigation to ensure all movements are served appropriately.*

The proposed signalization was identified as mitigation to comply with TPR requirements by avoiding further degradation by improving the v/c under Year 2041 background conditions, as specified in the Oregon Highway Plan (OHP) Policy Action 1F.5. Though not required for compliance with TPR, an eastbound right-turn lane was identified in the sensitivity analysis as further mitigation to meet the mobility target. In reviewing the projected queues at the intersection, it was determined that additional signal timing modifications at the intersection may further reduce queues from what was presented in the sensitivity analysis. This updated analysis is included in Attachment C.

The eastbound right turn lane as defined in the further mitigation will be included as a voluntary condition in the mitigation package for the sensitivity analysis.

3. *All proposed intersection and/or signal modifications (new installations or changes to existing phasing or timing), changes to lane configuration, and additional turn or receiving lanes at ODOT jurisdiction intersections will require ODOT approval. Both the City and the applicant shall be aware no approval for any proposed mitigations have been issued at this time and proposed mitigations shall not be considered approved for installation until formal written approval has been issued. Approval request will need to be submitted to Region 2 Traffic and be accompanied by the appropriate analysis justifying such request. The approval process takes time and any approval could possibly have added features required to obtain such approval.*

Noted.

We trust that these responses adequately address ODOT's Transportation Planning Rule TIA Review Comments. Please contact us if you have any questions and/or comments at kconnolly@kittelsohn.com or 503.535.7448.

DRAFT

Attachment A Supplemental Material for
Analysis Comment 4d

Intersection Level Of Service Report
Intersection 4: NE Cumulus Ave/ NE Norton Ln

Control Type:	Two-way stop	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.391

Intersection Setup

Name	NE Norton Ln			NE Norton Ln			NE Cumulus Ave					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⬆️⬆️			⬆️			⬆️			⬆️		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	NE Norton Ln			NE Norton Ln			NE Cumulus Ave					
Base Volume Input [veh/h]	29	135	5	35	135	205	140	7	55	7	66	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	2.00	2.00	3.00	1.00	0.00	2.00	10.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	135	5	35	135	205	140	7	55	7	66	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	36	1	9	36	54	37	2	14	2	17	3
Total Analysis Volume [veh/h]	31	142	5	37	142	216	147	7	58	7	69	11
Pedestrian Volume [ped/h]	0			0			0			0		

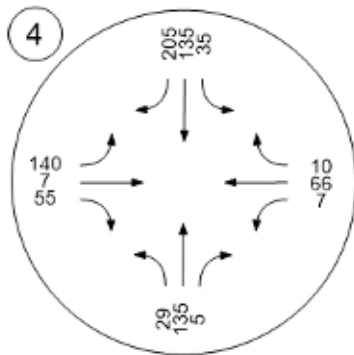
Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			Yes	No
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.03	0.00	0.00	0.39	0.02	0.07	0.01	0.19	0.01
d_M, Delay for Movement [s/veh]	8.14	0.00	0.00	7.58	0.00	0.00	19.25	18.16	14.13	14.86	17.12	11.06
Movement LOS	A	A	A	A	A	A	C	C	B	B	C	B
95th-Percentile Queue Length [veh/ln]	0.08	0.04	0.00	0.08	0.08	0.08	1.96	1.96	1.96	0.80	0.80	0.80
95th-Percentile Queue Length [ft/ln]	2.03	1.01	0.00	1.99	1.99	1.99	49.07	49.07	49.07	19.88	19.88	19.88
d_A, Approach Delay [s/veh]	1.42			0.71			17.81			16.17		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	6.56											
Intersection LOS	C											

Traffic Volume - Future Total Volume



Intersection Level Of Service Report
Intersection 4: NE Cumulus Ave/ NE Norton Ln

Control Type:	Two-way stop	Delay (sec / veh):	20.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.411

Intersection Setup

Name	NE Norton Ln			NE Norton Ln			NE Cumulus Ave					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↑↑↑			↑			↑			↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			Yes		

Volumes

Name	NE Norton Ln			NE Norton Ln			NE Cumulus Ave					
Base Volume Input [veh/h]	29	135	5	35	135	205	140	7	55	7	66	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	2.00	2.00	3.00	1.00	0.00	2.00	10.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	12	0	0	18	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	147	5	35	153	205	140	7	55	7	66	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	39	1	9	40	54	37	2	14	2	17	3
Total Analysis Volume [veh/h]	31	155	5	37	161	216	147	7	58	7	69	11
Pedestrian Volume [ped/h]	0			0			0			0		

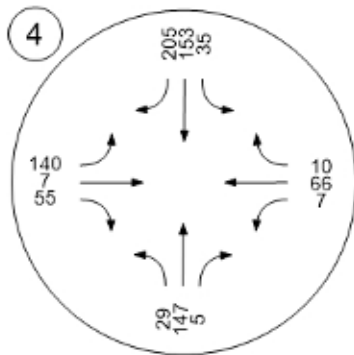
Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			Yes	No
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.03	0.00	0.00	0.41	0.02	0.07	0.02	0.20	0.01
d_M, Delay for Movement [s/veh]	8.20	0.00	0.00	7.61	0.00	0.00	20.41	19.21	14.86	15.40	17.79	11.33
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.08	0.04	0.00	0.08	0.08	0.08	2.12	2.12	2.12	0.84	0.84	0.84
95th-Percentile Queue Length [ft/ln]	2.06	1.03	0.00	2.01	2.01	2.01	53.03	53.03	53.03	20.93	20.93	20.93
d_A, Approach Delay [s/veh]	1.33			0.68			18.85			16.78		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	6.63											
Intersection LOS	C											

Traffic Volume - Future Total Volume



Attachment B Supplemental Material for
Mitigation Comment 2a

Intersection Level Of Service Report
Intersection 6: Cumulus Ave/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	39.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.759

Intersection Setup

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	345	2	260	135	1	143	115	1097	120	76	1130	106
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	80	0	157	0	0	0	0	-178	325	292	-167	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	209	0	0	72	0	0	223	0	0	53
Total Hourly Volume [veh/h]	425	2	208	135	1	71	115	919	222	368	963	53
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	111	1	54	35	0	18	30	239	58	96	251	14
Total Analysis Volume [veh/h]	443	2	217	141	1	74	120	957	231	383	1003	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protect	Permis	Overla	ProtPer	Permis	Overla	Protect	Permis	Overla	Protect	Permis	Overla
Signal Group	3	8	8	7	4	5	5	2	2	1	6	6
Auxiliary Signal Groups			1,8			4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	5	5	5	5	5	10	10	5	10	10
Maximum Green [s]	20	30	30	20	30	20	20	60	60	20	60	60
Amber [s]	3.0	4.5	4.5	3.0	4.5	4.5	4.5	5.0	5.0	4.5	5.0	5.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	2.5	2.5	3.0	2.5	2.5	2.5	4.0	4.0	2.5	4.0	4.0
Walk [s]	0	7	7	0	7	0	0	7	7	0	7	7
Pedestrian Clearance [s]	0	26	26	0	26	0	0	15	15	0	25	25
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.5	3.5	2.0	3.5	3.5	3.5	4.0	4.0	3.5	4.0	4.0
Minimum Recall	No	No	No	No	No	No	No	Yes	Yes	No	Yes	Yes
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	98	98	98	98	98	98	98	98	98	98	98	98
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.50	5.50	5.50	5.50	6.00	4.00	5.50	6.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	0.00	0.00	3.50	0.00	3.50	4.00	0.00	3.50	4.00	0.00
g_i, Effective Green Time [s]	17	12	37	25	4	19	9	36	59	20	47	62
g / C, Green / Cycle	0.17	0.12	0.38	0.25	0.04	0.20	0.10	0.37	0.60	0.20	0.48	0.63
(v / s)_i Volume / Saturation Flow Rate	0.14	0.00	0.15	0.10	0.00	0.05	0.08	0.30	0.16	0.24	0.32	0.04
s, saturation flow rate [veh/h]	3163	1710	1453	1411	1710	1408	1551	3179	1453	1629	3179	1454
c, Capacity [veh/h]	533	203	549	463	76	276	148	1177	872	331	1519	921
d1, Uniform Delay [s]	39.55	38.28	22.40	30.06	44.94	33.57	43.62	27.92	9.37	39.19	19.59	6.86
k, delay calibration	0.11	0.08	0.19	0.08	0.08	0.08	0.08	0.15	0.15	0.49	0.15	0.15
l, Upstream Filtering 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
d2, Incremental Delay [s]	3.43	0.01	0.79	0.27	0.05	0.38	7.61	2.00	0.23	98.59	0.71	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression 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

Lane Group Results

X, volume / capacity	0.83	0.01	0.40	0.30	0.01	0.27	0.81	0.81	0.26	1.16	0.66	0.06
d, Delay for Lane Group [s/veh]	42.98	38.29	23.19	30.34	44.99	33.95	51.23	29.92	9.60	137.78	20.29	6.90
Lane Group LOS	D	D	C	C	D	C	D	C	A	F	C	A
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.36	0.04	3.72	2.74	0.02	1.52	3.15	10.13	2.27	16.90	8.47	0.42
50th-Percentile Queue Length [ft/ln]	133.93	1.08	92.88	68.51	0.61	37.96	78.73	253.13	56.67	422.44	211.73	10.41
95th-Percentile Queue Length [veh/ln]	9.15	0.08	6.69	4.93	0.04	2.73	5.67	15.34	4.08	25.46	13.24	0.75
95th-Percentile Queue Length [ft/ln]	228.82	1.94	167.19	123.33	1.09	68.32	141.72	383.60	102.01	636.45	331.05	18.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.98	38.29	23.19	30.34	44.99	33.95	51.23	29.92	9.60	137.78	20.29	6.90
Movement LOS	D	D	C	C	D	C	D	C	A	F	C	A
d_A, Approach Delay [s/veh]	36.48			31.64			28.29			51.01		
Approach LOS	D			C			C			D		
d_I, Intersection Delay [s/veh]	39.01											
Intersection LOS	D											
Intersection V/C	0.759											

Other Modes

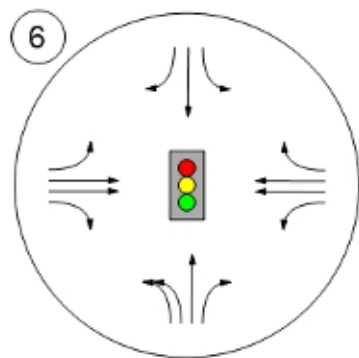
g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_comer, Corner Circulation Area [ft²/ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	38.74			38.74			38.74			38.74		
I_p,int, Pedestrian LOS Score for Intersection	2.934			2.364			3.282			3.050		
Crosswalk LOS	C			B			C			C		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	611			611			1222			1222		
d_b, Bicycle Delay [s]	23.70			23.70			7.44			7.44		
I_b,int, Bicycle LOS Score for Intersection	2.997			2.035			2.823			2.792		
Bicycle LOS	C			B			C			C		

Sequence

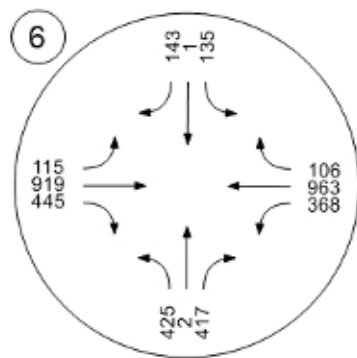
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Attachment C Supplemental Material for
Mitigation Comment 2c

Intersection Level Of Service Report
Intersection 2: NE Three Mile Ln/SE 1st St

Control Type:	Signalized	Delay (sec / veh):	22.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.826

Intersection Setup

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↻			↵↻			↵↻			↻		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	373	855	5	5	851	5	5	1	291	1	1	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	-45	-73	0	0	111	0	0	0	42	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	167	0	0	0
Total Hourly Volume [veh/h]	328	782	5	5	962	5	5	1	166	1	1	2
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	88	210	1	1	259	1	1	0	45	0	0	1
Total Analysis Volume [veh/h]	353	841	5	5	1034	5	5	1	178	1	1	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	ProtPer	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Overla	Permis	Permis	Permis
Signal Group	1	6	0	0	2	0	0	8	8	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	5	0	5	0
Maximum Green [s]	10	78	0	0	63	0	0	6	6	0	6	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No			No			No	No		No	
Maximum Recall	No	No			No			No	No		No	
Pedestrian Recall	No	No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	R	C
C, Cycle Length [s]	79	79	79	79	79	79	79
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	65	65	51	51	6	20	6
g / C, Green / Cycle	0.82	0.82	0.64	0.64	0.08	0.25	0.08
(v / s)_i Volume / Saturation Flow Rate	0.99	0.50	0.01	0.62	0.00	0.12	0.00
s, saturation flow rate [veh/h]	355	1681	501	1682	1459	1442	1526
c, Capacity [veh/h]	384	1382	314	1083	195	367	174
d1, Uniform Delay [s]	24.48	2.51	12.30	13.04	33.66	24.93	33.62
k, delay calibration	0.50	0.11	0.11	0.30	0.11	0.35	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	29.54	0.44	0.02	13.63	0.06	3.20	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.61	0.02	0.96	0.03	0.49	0.02
d, Delay for Lane Group [s/veh]	54.02	2.95	12.32	26.67	33.72	28.13	33.68
Lane Group LOS	D	A	B	C	C	C	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.50	1.50	0.05	16.79	0.11	3.04	0.07
50th-Percentile Queue Length [ft/ln]	87.55	37.38	1.19	419.63	2.68	76.04	1.79
95th-Percentile Queue Length [veh/ln]	6.30	2.69	0.09	23.50	0.19	5.48	0.13
95th-Percentile Queue Length [ft/ln]	157.59	67.29	2.13	587.60	4.83	136.88	3.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.02	2.95	2.95	12.32	26.67	26.67	33.72	33.72	28.13	33.68	33.68	33.68
Movement LOS	D	A	A	B	C	C	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	17.99			26.60			28.31			33.68		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	22.49											
Intersection LOS	C											
Intersection V/C	0.826											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_comer, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			30.78			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.659			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1986			1604			153			153		
d_b, Bicycle Delay [s]	0.00			1.54			33.49			33.49		
I_b,int, Bicycle LOS Score for Intersection	3.538			3.282			2.139			1.566		
Bicycle LOS	D			C			B			A		

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Lane Configuration and Traffic Control

