

February 19, 2024

Mr. Matthew Grush
City of Albuquerque Transportation Development Division
Plaza del Sol Building
600 Second St NW
Albuquerque, NM 87102

RE: RANDY'S DONUTS – 7717 MENAUL BLVD NE, ALBUQUERQUE, NM 87110

Dear Mr. Grush,

On behalf of Randy's Donuts, Tierra West, LLC has completed an operational analysis for the unsignalized intersections of 1) Menaul Boulevard/Tennessee Street and 2) Menaul Boulevard/Rhode Island Street. Based on the Scoping Meeting held on Thursday December 21, 2023, the analyses were performed to examine queuing/access issues at the two intersections following conversion of the property from a walk-in bank (ITE Land Use Code 911) to a coffee/donut shop with drive-thru window (ITE Land Use Code 937).

The analyses demonstrates that:

- **There are sufficient gaps for side street operation at both intersections to allow access to the main roadway.** Based on analysis of video footage and field observations at the two intersections during the AM (7am-9am) and PM (4pm-6pm) peak hours, vehicles turning left from the side streets have average delays of less than 29 seconds per vehicle (LOS=C or better). Right turning vehicles have delays less than 13.5 seconds per vehicle (LOS=B or better). Synchro analysis results are similar.
- **Queue capacities of the turn lanes at both intersections are adequate.** The calculated 95th-percentile queues for the full build condition based on Synchro HCM Unsignalized analysis are all less than 1-vehicle length. This is supported by video and field observations where one-vehicle queues are typical for the southbound approaches and the eastbound (westbound) left turn lanes at both intersections. The available queue capacities of the eastbound left-turn lanes are 3 vehicle lengths (75-ft) at Tennessee St. and 4 vehicle lengths (100-ft) at Rhode Island St.

Therefore, no mitigation of the intersections in the study area is recommended.

Please see the attached Scope of Work (Attachment 1) and Traffic Impact Report (Attachment 2) for a more detailed description of the project and the HCM analysis results.

To conclude, all turning queues, traffic gaps, and Level of Service assessed were found to be acceptable and they do not support a need for extension of deceleration lanes or other mitigations.

If you have any questions, please feel free to contact me at tbrown@tierrawestllc.com.

Sincerely,

Terry O. Brown

Terry O. Brown, P.E.
Enclosure/s: Scoping Letter & Traffic Impact Report

Attachment 1

Scope of Work

Randy's Donuts – Albuquerque, NM

SCOPE OF TRAFFIC IMPACT MEMO

TO: Ronald R. Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Pl. NE
Albuquerque, NM 87108

MEETING DATE: Thursday December 21, 2023

ATTENDEES: Matthew Grush, P.E. (City of Albuquerque), Nico Fricchione (ONETEN REI), Terry Brown, P.E. and Amanda Herrera, P.E., (Tierra West, LLC).

PROJECT: Randy's Donuts Development (Menaul Blvd. / Tennessee St.)

REQUESTED CITY ACTION: ☐ Zone Change ☒ Site Development Plan

☐ Subdivision ☐ Building Permit ☐ Sector Plan ☐ Sector Plan
Amendment

☐ Curb Cut Permit ☐ Conditional Use ☐ Annexation ☐ Site Plan Amendment

ASSOCIATED APPLICATION: Donut / Coffee Shop (approximately 1170 SF)

SCOPE OF REPORT:

The Traffic Impact should follow the standard report format, which is outlined in the DPM. This will not be a standard Traffic Impact Study. It will be only for the purposes of addressing queuing issues on Menaul Blvd. at Menaul Blvd. / Tennessee St., Menaul Blvd. / Rhode Island St., and access.

The following supplemental information is provided for the preparation of this specific study.

1. Trip Generation - Use Trip Generation Manual, 11th Edition.
Local data may be used for certain land use types as determined by staff.
Consultant to provide.
2. Appropriate study area:
Signalized Intersections; None
Unsignalized Intersections;
 - a. Menaul Blvd. / Tennessee St. (EBL to NB and median)
 - b. Menaul Blvd / Rhode Island
Driveway Intersections: Access driveway (1)
3. Intersection turning movement counts
Study Time – 7-9 a.m. peak hour, 4-6 p.m. peak hour
Consultant to provide for all intersections listed above.
(Intersection turning movements counts to be correlated with TAQA data)
4. Type of intersection progression and factors to be used.
Type III arrival type (see "Highway Capacity Manual, current edition" or equivalent as approved by staff). Unless otherwise justified, peak hour factors and % heavy commercial should be taken directly from the MRCOG turning movement data provided or as calculated from current count data by consultant.

5. Boundaries of area to be used for trip distribution.
City Wide - residential, office or industrial;
2 mile radius – commercial;
Interstate or to be determined by consultant - motel/hotel
APS district boundary mapping for each school and bus routes

6. Basis for trip distribution.

Residential – Use inverse relationship based upon distance and employment. Use employment data from 2040 Socioeconomic Forecasts, MRCOG – See MRCOG website for most current data.

Office/Industrial - Use inverse relationship based upon distance and population. Use population data from 2040 Socioeconomic Forecasts, MRCOG – See MRCOG website for most current data.

Commercial – Distribution will be based upon population within a two-mile radius of the project. Use population data from 2040 Socioeconomic Forecasts, MRCOG.

Residential - $T_s = (T_t) (S_e / D) / (S_e / D)$
 T_s = Development to Individual Subarea Trips
 T_t = Total Trips
 S_e = Subarea Employment
 D = Distance from Development to Subarea

Office/Industrial - $T_s = (T_t) (S_p / D) / (S_p / D)$
 T_s = Development to Individual Subarea Trips
 T_t = Total Trips
 S_p = Subarea Population
 D = Distance from Development to Subarea

Commercial -
 $T_s = (T_t) (S_p) / (S_p)$
 T_s = Development to Individual Subarea Trips
 T_t = Total Trips
 S_p = Subarea Population

7. Traffic Assignment. Logical routing on the major street system.

8. Proposed developments which have been approved but not constructed that are to be included in the analyses. Projects in the area include:

a. **N/A**

9. Method of intersection capacity analysis - planning or operational (see "2016 Highway Capacity Manual" or equivalent [i.e. HCS, Synchro, ~~Tranpac~~, etc.] as approved by staff). Must use latest version of design software and/or current edition of design manual.
Implementation Year: 2022
Horizon Year: 2032

10. Traffic conditions for analysis:

- a. Existing analysis __ yes X no - year (N/A);
b. Phase implementation year(s) without proposed development – **2023**

- c. Phase implementation year(s) with proposed development – 2023
 - d. Project completion year without proposed development – N/A
 - e. Project completion year with proposed development – N/A
 - f. Other –
11. Background traffic growth.
Method: use 10-year historical growth based on standard data from the MRCOG Traffic Flow Maps. Minimum growth rate to be used is 1/2%.
12. Planned (programmed) traffic improvements.
List planned CIP improvements in study area and projected project implementation year:
- a. Project – Location (Implementation Year) – N/A
13. Items to be included in the study:
- a. Intersection analysis. Yes
 - b. Signal progression - An analysis is required if the driveway analysis indicates a traffic signal is possibly warranted. Analysis Method: N/A
 - c. Arterial LOS analysis; No
 - d. Recommended street, intersection and signal improvements. Yes
 - e. Site design features such as turning lanes, median cuts, queuing requirements and site circulation, including driveway signalization and visibility. Yes
 - f. Transportation system impacts. Yes
 - g. Other mitigating measures.
 - h. Accident analyses ___ yes X no; Location(s):
 - i. Weaving analyses ___ yes X no; Location(s):
14. Other: Camera for analysis (2 day evaluation)
Eliminated 2/13/2024 based on Synchro Analysis Results and Field observations as discussed on the phone with Matt Grush. JB

SUBMITTAL REQUIREMENTS:

- 1. Number of copies of report required
 - a. 1 paper copy
 - b. 1 digital copy
- 2. Submittal Fee – \$1300 for up to 3 reviews (plus technology fee)

The Traffic Impact Study for this development proposal, project name, shall be performed in accordance with the above criteria. If there are any questions regarding the above items, please contact me at 924-3362.

Matt Grush, P.E., PTOE
Senior Engineer
City of Albuquerque, Planning
Transportation Development Section

Date

via: email

C: TIS Task Force Attendees, file

Attachment 2

Traffic Impact Report

Randy's Donuts – Albuquerque, NM

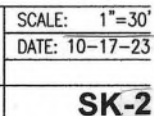
Site Location and Description

The site is located at 7717 Menaul Blvd. in Albuquerque, NM in the Northwest corners of Menaul Blvd./Tennessee St. on a fully developed parcel containing a 1170 square foot commercial building and associated paved parking area. No new structures are being proposed. The Zone Atlas map below shows the location of the project.



For more details about the Integrated Development Ordinance visit: <http://www.cabq.gov/planning/codes-policies-regulations/integrated-development-ordinance>





■ Fax. (505)890-1736

Trip Generation

Trips generated by the project are based on ITE Land Use Code 937, Coffee/Donut Shop w/drive-thru. To be conservative, no credit is given for trips generated by the current land use and no reduction was taken for pass-by trips. The project is expected to generate 100 Total AM Trips (51 Entry / 49 Exit) and 46 PM Trips (23 Entry / 23 Exit). See the AM and PM ITE Trip Generation Graphs below.

AM Peak Hour

PM Peak Hour

Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 78
Avg. 1000 Sq. Ft. GFA: 2
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
85.88	18.51 - 282.05	44.92

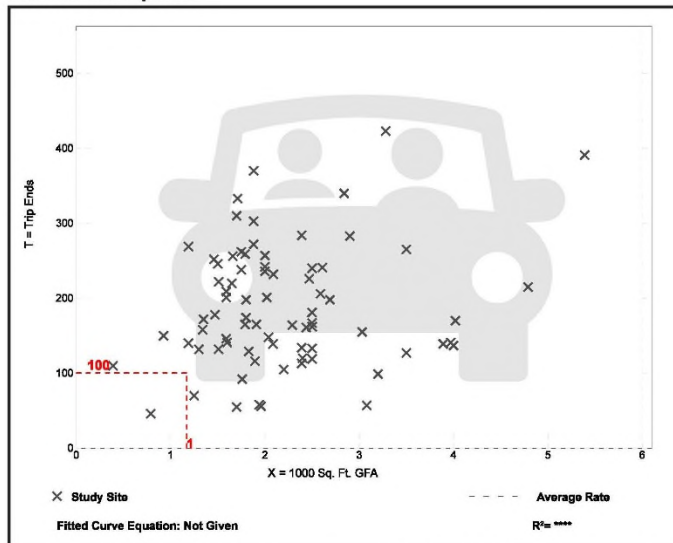
Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 36
Avg. 1000 Sq. Ft. GFA: 2
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
38.99	13.78 - 92.31	17.79

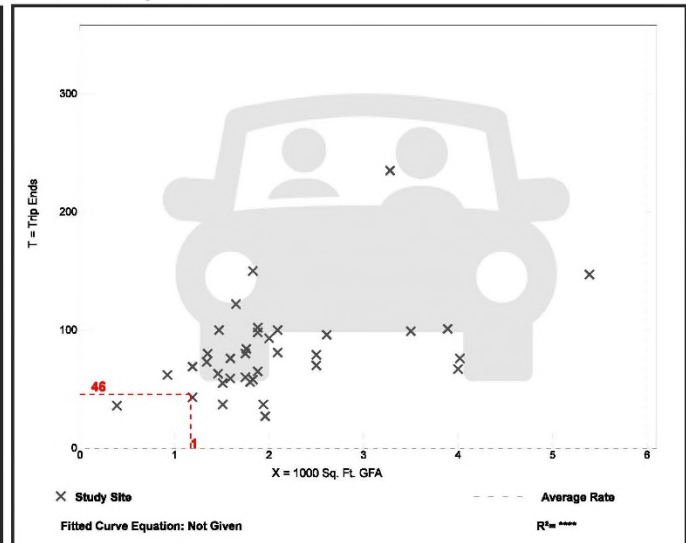
Data Plot and Equation



Trip Gen Manual, 11th Edition

• Institute of Transportation Engineers

Data Plot and Equation

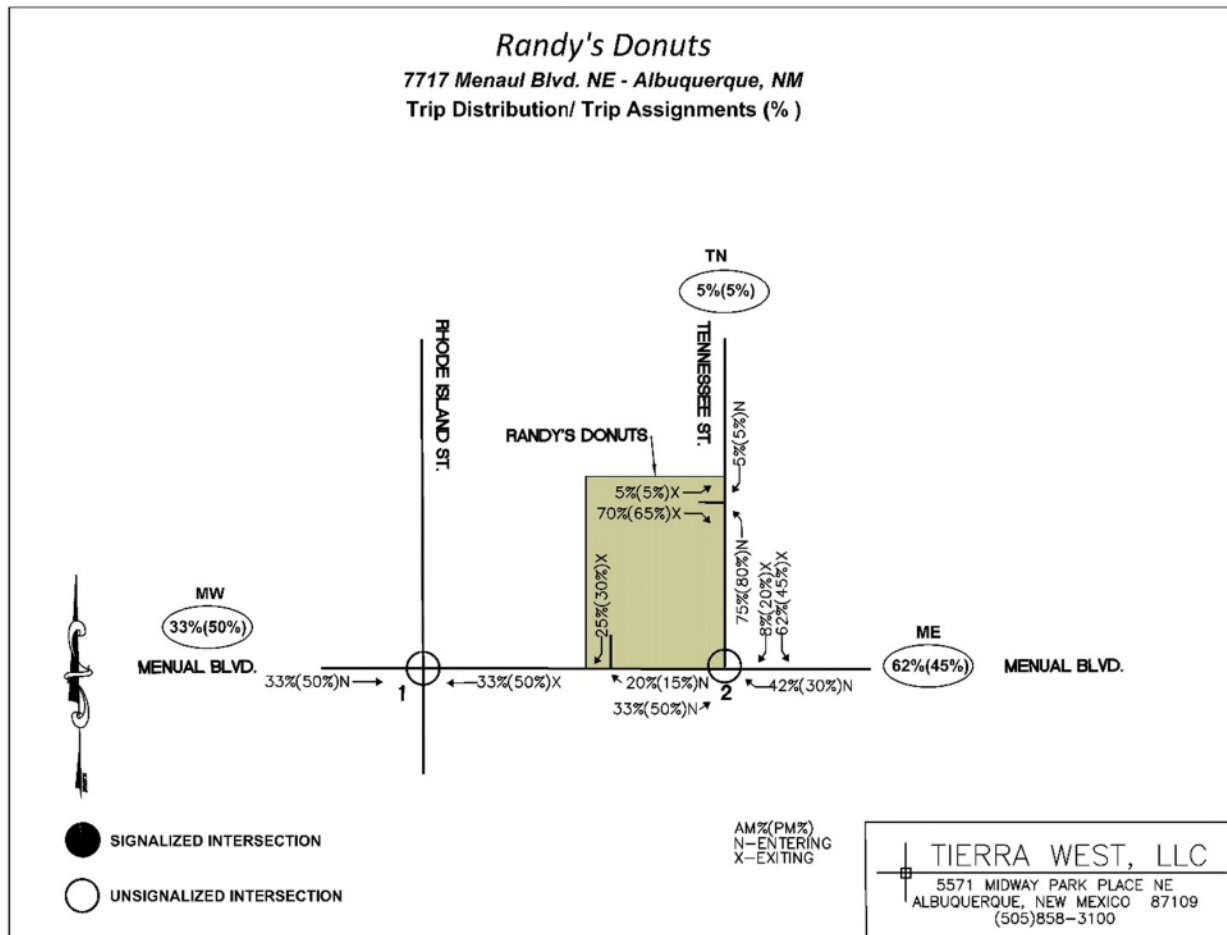


Trip Gen Manual, 11th Edition

• Institute of Transportation Engineers

Trip Distribution

Trip distribution is based upon population within a two-mile radius of the Project using population data from 2040 Socioeconomic Forecasts, MRCOG. Trip assignments are based on the most likely routing of those trips within the roadway network. A diagram showing the trip distribution and trip assignments is below.



Existing Traffic Counts and Projected Turning Movement Counts

Existing traffic volume counts at the Rhode Island and Tennessee intersections were taken in the field on Wednesday, January 10, 2024. See the first row of the table on the following page for the existing traffic counts.

The projected turning movement counts for the NO BUILD (existing plus background traffic) and BUILD (NO BUILD plus trips generated by the development) conditions at each intersection are based on the traffic volume counts, trip assignments percentages, historic growth rate of traffic in the study area, and trips generated by the development. The historic growth rate of the area is assumed to be 0% since the project will be built this year (existing counts=NO BUILD volumes). A summary of the projected turning movement counts used in the analysis is provided in the following table.

Randy's Donuts (Menaul Blvd & Tennessee Rd)

Projected Turning Movements SUMMARY PROPOSED DEVELOPMENT (2024) - 100% Development

INTERSECTION: Summary

Menaul Blvd / Rhode Island St												
1.00			1.00			1.00			1.00			PHF
(1)	Eastbound (Menaul Blvd)			Westbound (Menaul Blvd)			Northbound (Rhode Island St)			Southbound (Rhode Island St)		
3.0% Truck	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2024)	4	392	8	4	812	8	1	1	3	3	1	20
2024 (NO BUILD - A.M.)	4	392	8	4	812	8	1	1	3	3	1	20
2024 (BUILD - A.M.)	4	409	8	4	828	8	1	1	3	3	1	20
Menaul Blvd / Tennessee												
1.00			1.00			1.00			1.00			PHF
(2)	Eastbound (Menaul Blvd)			Westbound (Menaul Blvd)			Northbound (Rhode Island St)			Southbound (Rhode Island St)		
3.0% Truck	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2024)	20	616	8	4	568	8	8	4	1	4	1	16
2024 (NO BUILD - P.M.)	20	616	8	4	568	8	8	4	1	4	1	16
2024 (BUILD - P.M.)	20	628	8	4	580	8	8	4	1	4	1	16
Menaul Blvd / Tennessee												
1.00			1.00			1.00			1.00			PHF
(2)	Eastbound (Menaul Blvd)			Westbound (Menaul Blvd)			Northbound (Tennessee)			Southbound (Tennessee)		
3.0% Truck	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2024)	40	352	0	0	792	4	0	0	0	8	0	28
2024 (NO BUILD - A.M.)	40	352	0	0	792	4	0	0	0	8	0	28
2024 (BUILD - A.M.)	57	352	0	0	792	25	0	0	0	38	0	32
Menaul Blvd / Tennessee												
1.00			1.00			1.00			1.00			PHF
(2)	Eastbound (Menaul Blvd)			Westbound (Menaul Blvd)			Northbound (Tennessee)			Southbound (Tennessee)		
3.0% Truck	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2024)	24	604	0	0	552	4	0	0	0	0	0	4
2024 (NO BUILD - P.M.)	24	604	0	0	552	4	0	0	0	0	0	4
2024 (BUILD - P.M.)	36	604	0	0	552	11	0	0	0	10	0	9

HCM Capacity and Queuing Analysis

A capacity analysis of the study area intersections for the BUILD condition was conducted in accordance with the Highway Capacity Manual (HCM6) V.6. A single period analysis was conducted on the two driveway intersections using Synchro 11 (Build 11.1.2.9) modeling software. Summaries of the analysis results for the 2023 Implementation Year are presented in the following tables.

All movements have Level of Service of C or better with the worst movement being the southbound left-turn at the Menaul/Rhode Island Intersection during the AM peak hour. The project does not contribute traffic to this movement. Field observations and review of video footage taken during the AM peak hours (7-9am) and the PM peak hours (4-6pm) support the model results. The maximum average field measured delay for the southbound left-turn at both intersections (a Rank 4 movement which is subordinate to all other movements) is 29 seconds per vehicle (LOS=C) which occurred at the Menaul/Rhode Island Intersection. Right-turning vehicles had delays of less than 13.5 seconds per vehicle (LOS=B or better).

Queue lengths are less than 1 vehicle as calculated by the model and volume to capacity ratios are less than 1 for all movements indicating low levels of congestion. Field observations and review of the video footage support the model results. Maximum queues of 1 vehicle were observed in the turn lanes. Also, capacities of the turn lanes are 3 to 4-times greater than observed queue lengths; eastbound left-turn lanes are 3 vehicle lengths (75-ft) at Tennessee St. and 4 vehicle lengths (100-ft) at Rhode Island St.

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔ ↑↑↑			↔ ↑↑↑			↔			↔		
Traffic Vol, veh/h	4	409	8	4	828	8	1	1	3	3	1	20
Future Vol, veh/h	4	409	8	4	828	8	1	1	3	3	1	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	66	-	-	45	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	409	8	4	828	8	1	1	3	3	1	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	836	0	0	417	0	0	761	1265	209	1012	1265	418
Stage 1	-	-	-	-	-	-	421	421	-	840	840	-
Stage 2	-	-	-	-	-	-	340	844	-	172	425	-
Critical Hdwy	5.36	-	-	5.36	-	-	6.46	6.56	7.16	6.46	6.56	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	7.36	5.56	-	7.36	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.56	-	6.76	5.56	-
Follow-up Hdwy	3.13	-	-	3.13	-	-	3.83	4.03	3.93	3.83	4.03	3.93
Pot Cap-1 Maneuver	466	-	-	737	-	-	350	167	676	250	167	497
Stage 1	-	-	-	-	-	-	493	585	-	255	377	-
Stage 2	-	-	-	-	-	-	592	375	-	745	582	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	466	-	-	737	-	-	331	165	676	245	165	497
Mov Cap-2 Maneuver	-	-	-	-	-	-	331	165	-	245	165	-
Stage 1	-	-	-	-	-	-	489	580	-	253	375	-
Stage 2	-	-	-	-	-	-	564	373	-	734	577	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0			14.9			14.3		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	370	466	-	-	737	-	-	410
HCM Lane V/C Ratio	0.014	0.009	-	-	0.005	-	-	0.059
HCM Control Delay (s)	14.9	12.8	-	-	9.9	-	-	14.3
HCM Lane LOS	B	B	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

HCM 6th TWSC
2: Tennessee St & Menaul Blvd

2024 AM BUILD

02/14/2024

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵ ↑↑↑			↵ ↑↑↑			↕			↕		
Traffic Vol, veh/h	57	352	0	0	792	25	0	0	0	38	0	32
Future Vol, veh/h	57	352	0	0	792	25	0	0	0	38	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	45	-	-	66	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	57	352	0	0	792	25	0	0	0	38	0	32
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	817	0	0	352	0	0	783	1283	176	1060	1271	409
Stage 1	-	-	-	-	-	-	466	466	-	805	805	-
Stage 2	-	-	-	-	-	-	317	817	-	255	466	-
Critical Hdwy	5.36	-	-	5.36	-	-	6.46	6.56	7.16	6.46	6.56	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	7.36	5.56	-	7.36	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.56	-	6.76	5.56	-
Follow-up Hdwy	3.13	-	-	3.13	-	-	3.83	4.03	3.93	3.83	4.03	3.93
Pot Cap-1 Maneuver	476	-	-	791	-	-	340	162	709	234	165	503
Stage 1	-	-	-	-	-	-	460	558	-	270	391	-
Stage 2	-	-	-	-	-	-	611	386	-	665	558	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	476	-	-	791	-	-	289	143	709	212	145	503
Mov Cap-2 Maneuver	-	-	-	-	-	-	289	143	-	212	145	-
Stage 1	-	-	-	-	-	-	405	491	-	238	391	-
Stage 2	-	-	-	-	-	-	572	386	-	585	491	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.9			0			0			21.5		
HCM LOS							A			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	476	-	-	791	-	-	288				
HCM Lane V/C Ratio	-	0.12	-	-	-	-	-	0.243				
HCM Control Delay (s)	0	13.6	-	-	0	-	-	21.5				
HCM Lane LOS	A	B	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	-	0.4	-	-	0	-	-	0.9				

HCM 6th TWSC
1: Rhode Island St & Menaul Blvd

2024 PM BULD
02/14/2024

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗ ↘			↖ ↗ ↘				↖ ↗			↖ ↗	
Traffic Vol, veh/h	20	628	8	4	580	8	8	4	1	4	1	16
Future Vol, veh/h	20	628	8	4	580	8	8	4	1	4	1	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	66	-	-	45	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	20	628	8	4	580	8	8	4	1	4	1	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	588	0	0	636	0	0	913	1268	318	885	1268	294
Stage 1	-	-	-	-	-	-	672	672	-	592	592	-
Stage 2	-	-	-	-	-	-	241	596	-	293	676	-
Critical Hdwy	5.36	-	-	5.36	-	-	6.46	6.56	7.16	6.46	6.56	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	7.36	5.56	-	7.36	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.56	-	6.76	5.56	-
Follow-up Hdwy	3.13	-	-	3.13	-	-	3.83	4.03	3.93	3.83	4.03	3.93
Pot Cap-1 Maneuver	612	-	-	581	-	-	285	166	576	296	166	597
Stage 1	-	-	-	-	-	-	333	450	-	378	490	-
Stage 2	-	-	-	-	-	-	678	488	-	631	448	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	612	-	-	581	-	-	268	159	576	281	159	597
Mov Cap-2 Maneuver	-	-	-	-	-	-	268	159	-	281	159	-
Stage 1	-	-	-	-	-	-	322	435	-	366	487	-
Stage 2	-	-	-	-	-	-	654	485	-	604	433	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			21.7			13.5		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	229	612	-	-	581	-	-	444
HCM Lane V/C Ratio	0.057	0.033	-	-	0.007	-	-	0.047
HCM Control Delay (s)	21.7	11.1	-	-	11.2	-	-	13.5
HCM Lane LOS	C	B	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↱ ↲ ↲			↱ ↲ ↲			↱ ↲			↱ ↲		
Traffic Vol, veh/h	32	604	0	0	552	11	0	0	0	10	0	9
Future Vol, veh/h	32	604	0	0	552	11	0	0	0	10	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	45	-	-	66	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	32	604	0	0	552	11	0	0	0	10	0	9

Major/Minor	Major1		Major2		Minor1		Minor2	
Conflicting Flow All	563	0	0	604	0	0	889	1231
Stage 1	-	-	-	-	-	-	668	668
Stage 2	-	-	-	-	-	-	221	563
Critical Hdwy	5.36	-	-	5.36	-	-	6.46	6.56
Critical Hdwy Stg 1	-	-	-	-	-	-	7.36	5.56
Critical Hdwy Stg 2	-	-	-	-	-	-	6.76	5.56
Follow-up Hdwy	3.13	-	-	3.13	-	-	3.83	4.03
Pot Cap-1 Maneuver	629	-	-	602	-	-	295	175
Stage 1	-	-	-	-	-	-	335	452
Stage 2	-	-	-	-	-	-	697	505
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	629	-	-	602	-	-	279	166
Mov Cap-2 Maneuver	-	-	-	-	-	-	279	166
Stage 1	-	-	-	-	-	-	318	429
Stage 2	-	-	-	-	-	-	687	505

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0	0	14.8
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	629	-	-	602	-	-	388
HCM Lane V/C Ratio	-	0.051	-	-	-	-	-	0.049
HCM Control Delay (s)	0	11	-	-	0	-	-	14.8
HCM Lane LOS	A	B	-	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	0.2

Recommendations

In summary, since there are sufficient gaps for side street operation at both intersections to allow access to the main roadway and queue capacities of the turn lanes at both intersections are adequate, no mitigation of the study area intersections is necessary.