Traffic Engineering Report

TRAFFIC IMPACT ANALYSIS
PROPOSED "GATESWAY AFFORDABLE HOUSING"
SITE DEVELOPMENT
BROKEN ARROW, OKLAHOMA

Prepared by:

Seratran

November 18, 2024

Traffic Engineering Report

TRAFFIC IMPACT ANALYSIS
PROPOSED "GATESWAY AFFORDABLE HOUSING"
SITE DEVELOPMENT
BROKEN ARROW, OKLAHOMA

Prepared for:

SOCAYR, INC

1244 S. 4th Street
Louisville, KY 40203

Prepared by:

Seratran, LLC

Oklahoma Registered Engineering Firm CA-9325
15303 E. 104th St. N., Owasso, Oklahoma 74055
(918) 720-7625 | www.seratran.com

Seratran Project No. 240003

Jimmie A. Sitz, PE, PTOE, PTP
November 18, 2024

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References

1. Access Management Manual, TRBNAS
2. A Policy on Geometric Design of Highways and Streets, AASHTO
3. Highway Capacity Manual, TRBNAS
4. Highway Performance Monitoring System Field Manual, FHWA
5. Manual of Transportation Engineering Studies, ITE
6. Manual on Uniform Traffic Control Devices for Streets and Highways, FHWA
7. Roadway Design Manual, ODOT

8. Transportation Impact Analyses for Site Development, ITE
9. Traffic Engineering Handbook, ITE
10. Transportation Planning Handbook, ITE
11. Trip Generation Handbook, ITE
12. Trip Generation Manual, ITE
13. Urban Street Design Guide, NACTO

Abbreviations

ADT	Average Daily Traffic
AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
AGR	Annual Growth Rate
AM	Ante Meridiem (before midday)
Ave	Avenue
AWSC	All-Way Stop Control
Drwy	Driveway
DU	Dwelling Unit
EB	Eastbound
FHWA	Federal Highway Administration
Ft	Feet
HCM	Highway Capacity Manual
ISD	Intersection Sight Distance
ITE	Institute of Transportation Engineers
KSF	1,000 Square Feet
LOS	Level-of-Service
MPH	Miles per hour
MUTCD	Manual of Uniform Traffic Control Devices
NACTO	National Association of City Transportation Officials
N, S, E, W	North, South, East, West
NB	Northbound
NTS	Not-to-scale
OK	Oklahoma
ODOT	Oklahoma Department of Transportation
PHF	Peak Hour Factor
PM	Post Meridiem (after midday)
SF	Square Feet
SB	Southbound
St	Street
TIA	Traffic Impact Analysis
TMC	Turning Movement Count
TRBNAS	Transportation Research Board of the National Academy of Sciences
TWLTL	Two-Way Left-Turn Lane
TWSC	Two-Way Stop Control
V/C	Volume/Capacity
VPH	Vehicles Per Hour
WB	Westbound

Executive Summary

Seratran, LLC (Seratran) was retained by SOCAYR, Inc. to conduct a Traffic Impact Analysis (TIA) for the proposed "Gatesway Affordable Housing" site development in Broken Arrow, Oklahoma. The purpose of this TIA is to determine if the site traffic, generated by this proposed development, will require any modifications of the adjacent transportation system and, if necessary, develop conceptual improvements to maintain acceptable operational performance. The TIA evaluated the operational performance of each intersection within the study area using 2024 (current year), 2028 (opening year) and 2034 (horizon year) peak hour background traffic volumes plus computed peak hour traffic volumes associated with the proposed development.

The study methodology included field investigations, data collection, site trip generation and distribution, analysis of base study scenarios and development and analysis of conceptual modifications for scenarios which failed to meet acceptable performance criteria. The Institute of Transportation Engineers (ITE) 11th Edition Trip Generation web-based "TripGen" application was used for site trip generation and Synchro 12 software was used to perform intersection capacity analysis using the Highway Capacity Manual (HCM) 7th edition methodology.

The following findings were noted:

1. All the development driveways operate at an acceptable level-of-service during the peak weekday travel time for both the planned 2028 opening year and the 2034 horizon year.
2. The additional traffic associated with the proposed development does not degrade any of the study intersections below an acceptable level.
3. The study intersection at N. 14th Street and E. Kenosha Street is currently operating below an acceptable level-of-service during the weekday peak hour.
4. The left-side intersection sight-distance (ISD) at Driveway 1 is less than the minimum required distance for trucks as defined by ODOT.
5. The 85th percentile speed along E. College Street adjacent to the proposed development is 34 mph.
6. No collisions were reported at the two existing development driveways between January 1, 2017 and December 31, 2021.
7. Auxiliary lanes are not required for any of the development driveways according to ODOT's warranting criteria.
8. The layout of the driveways meets ODOT's criteria for driveway spacing and corner clearance.

The following modifications are recommended regardless of whether the proposed development moves forward:

1. As a first attempt to minimize issues with truck Intersection Sight Distance at Driveway 1 and to mitigate speeding and associated collisions on E. College Street, Intersection Warning Signs (W2-7R) should be placed adjacent to the westbound lanes approximately 100 feet east of N. 15th Street and adjacent to the eastbound lanes approximately 100 feet west of Wesley Drive. A follow-up speed study should be completed within two

years. Traffic calming devices should be considered if this signage doesn't effectively address the speeding issue.

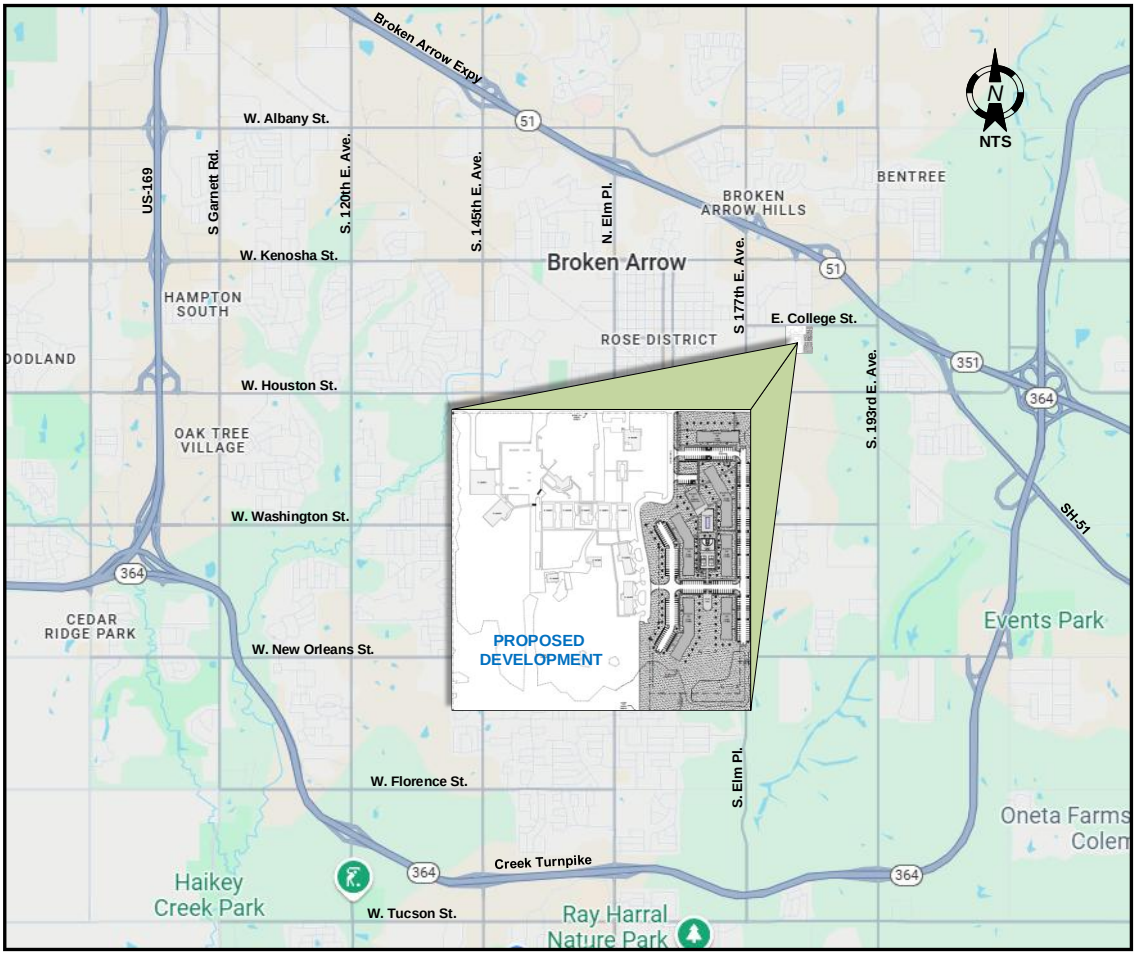
   a. An Intersection Warning Sign is not typically considered a traffic calming device; however, when used in conjunction with other traffic calming measures, can enhance the overall effectiveness of a traffic calming strategy.

2. To correct existing operational issues and effectively facilitate future projected traffic volumes, the intersection of N. 14th Street and E. Kenosha Street should be modified to include dual southbound left-turn lanes and either a southbound through-right lane or exclusive southbound and right-turn lanes.

1.0 Introduction

Seratran, LLC (Seratran) was retained by SOCAYR, Inc. to conduct a Traffic Impact Analysis (TIA) for the proposed "Gatesway Affordable Housing" site development in Broken Arrow, Oklahoma. The proposed development is located on the south side of E. College Street near the intersection of N. 14th Street as shown on Figure 1. Figure 2 shows the preliminary site plan.

Figure 1 – Site Location Map



Source: Seratran

The purpose of this TIA is to determine if the additional traffic generated by the proposed development will require modifications to the adjacent transportation system and to identify effective traffic control measures for site access points. It evaluates how the increased traffic will affect roadways, intersections, and overall traffic flow within the study area. The analysis identifies necessary improvements or mitigation actions, such as traffic signal adjustments, the addition of turn lanes, and the implementation of traffic control measures which will minimize negative impacts on the local transportation network and ensure safe and efficient traffic operations. Figure 3 shows the TIA study area which was approved by Broken Arrow.

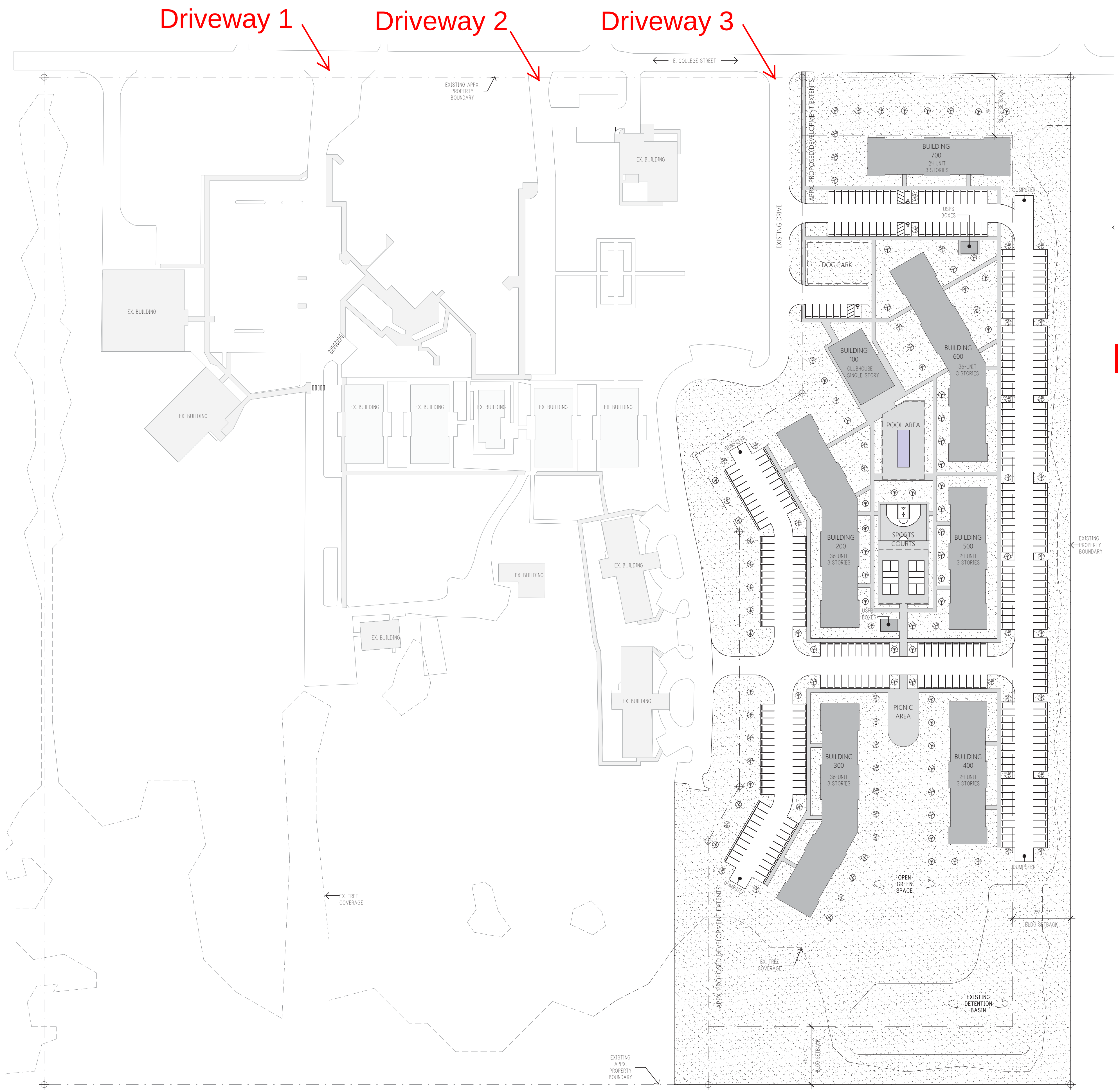


Figure 2
Preliminary Site Plan

CONCEPT SITE PLAN NOTES

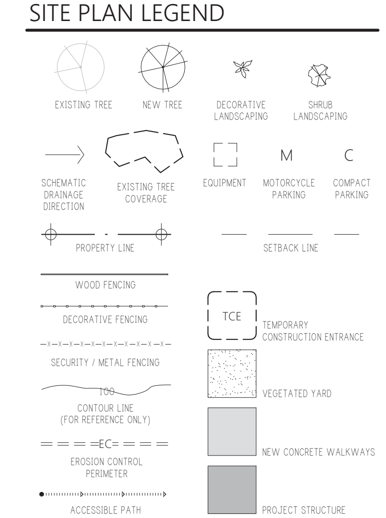
THIS ARCHITECTURAL SITE PLAN IS CONCEPTUAL IN NATURE, AND IS BASED IN PART ON LIMITED PUBLICLY AVAILABLE MEASUREMENTS AND IMAGERY.

1. SITE PLAN DOES NOT ACCOUNT FOR POTENTIAL BELOW-GRADE AND GEOTECHNICAL CONDITIONS
2. SITE PLAN WILL BE COORDINATED WITH OWNER-PROVIDED ALTA SURVEY, AND MAY CHANGE BASED ON EASEMENTS OR OTHER PROPERTY-SPECIFIC LIMITATIONS, TO BE IDENTIFIED AT TIME OF SURVEY.
3. SITE PLAN IS BASED ON ASSUMED RE-ZONING, TO BE COORDINATED WITH CIVIL ENGINEERING CONSULTANT.
4. SITE PLAN TOPOGRAPHIC CONDITIONS ARE CONCEPTUAL IN NATURE AND MAY CHANGE BASED ON TOPOGRAPHIC SURVEY PROVIDED BY OTHERS.

UNIT TYPE MATRIX - OPT 1

1 BED, 1 BATH	45
2 BED, 2 BATH	90
3 BED, 2 BATH	45
TOTAL	180

SITE PLAN LEGEND



WORK ARCHITECTURE + DESIGN

Louisville, KY 502.632.3232 | Northern, KY 859.287.0707 | information @WRKarc.com

CONCEPT DESIGN

S.O.C.A.Y.R.

1244 S 4th St., Louisville KY 40203

ARCHITECTURAL SITE PLAN

BROKEN ARROW, OK

09.25.2024

SUBMISSION	DATE

BEA2404

CO-1

MULTI-FAMILY **BEA2404** Broken Arrow, OK

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TRAFFIC IMPACT ANALYSIS STUDY AREA MAP

PROPOSED GATESWAY AFFORDABLE HOUSING SITE DEVELOPMENT

BROKEN ARROW, OKLAHOMA

Project No. 240009

Date: September, 2024

Prepared by: JAS

FIGURE 3

The TIA study area includes the estimated extent of adjacent transportation system that may be measurably impacted by the proposed development and may require associated modifications to facilitate traffic at an acceptable level. The TIA scope of work, outlined below, adheres to the ODOT Policy, *Policy on Driveway Regulations for Oklahoma Highways*, referenced as the approved TIA guidance in Broken Arrow's Engineering Design Criteria Manual. It also closely conforms to the Institute of Transportation Engineers (ITE) recommended practice, "Transportation Impact Analysis for Site Development." The TIA study tasks were as follows:

1. Coordinate with CLIENT and Review Agency to gain approval of study area and scope.
2. Acquire and review study data (traffic counts, development plans, archive plans, traffic signal timing plans, accident history, etc.).
3. Complete site reconnaissance.
4. Observe peak hour traffic conditions during a typical weekday with no planned special events.
5. Collect existing traffic data (turning movement and through counts).
6. Develop future background traffic volumes to opening (build) year(s), as phased, and horizon (planning) year.
7. Complete trip generation and distribution of the proposed development (ITE Trip Generation and/or observed/estimated trips).
8. Develop no-build and build traffic models.
9. Analyze no-build current year, phased opening(s) year(s) and horizon year intersection performance.
10. Analyze Phase 1 opening year intersection performance (background plus Phase 1 site traffic).
11. Analyze horizon year intersection performance (background plus all phased site traffic).
12. Complete signal warrant analysis at proposed drives and study intersections.
13. Identify necessary no-build improvements to meet acceptable performance requirements for current year traffic.
14. Identify necessary no-build improvements to meet acceptable performance requirements for horizon year background traffic.
15. Identify necessary build improvements to meet acceptable performance requirements for opening year site plus background traffic.
16. Identify necessary build improvements to meet acceptable performance requirements for horizon year site plus background traffic.
17. Complete a roadway link analysis.
18. Complete auxiliary lanes, intersection sight distance, spacing and safety analysis.
19. Prepare and submit TIA Report.
20. Review report with CLIENT and others as requested (assume virtual meeting).

This TIA used the Institute of Transportation Engineers (ITE) 11th Edition Trip Generation web-based "TripGen" application for site trip generation, Synchro 12 software from CUBIC/Trafficware to complete intersection capacity analysis using the Highway Capacity Manual (HCM) 7th edition methodology.

2.0 Existing Conditions


Looking West at Driveway 1

The TIA study area extends along E. College Street (Helen Gates Way) from S. 177th E. Avenue to S. 193rd E. Avenue and along N. 14th Street from E. College Street to E. Kenosha Street. East College Street is classified as a Residential Collector on the Major Street and Highway Plan (MSHP). East College Street is a twenty-foot wide (two ten-foot travel lanes), two-way two-lane roadway with no shoulders, grass-lined ditches and no pedestrian or bicycle features except for a three-foot sidewalk on the south side starting at Driveway Two and extending east approximately 480 feet. The pavement present serviceability rating (PSR)[4] for E. College Street was estimated to range from 1.5.to 2.5, see Appendix G for PSR descriptions. The study area includes the following six existing roadway intersections:

1. E. College St. and N. 14th St. (Node 1)
2. E. College St. and Driveway 2 (Node 2)
3. E. College St. and Driveway 1 (Node 3)
4. E. College St. and S. 177th E. Ave. (Node 4)
5. E. Kenosha St. and N. 14th St. (Node 5)
6. E. College St. and E. 193rd E. Ave. (Node 6)

Peak hour multimodal turning movement counts (TMC) were collected at each of the six study area intersections. The daily weekday peak hours at each location varied slightly but were typically at 7:30 AM and 4:30 PM. A normal weekday (schools-in-session) 24-hour two-way traffic count near the intersection of E. College Street and N. 14th Street observed 569 vehicles on E. College Street adjacent to the proposed development site with 290 and 279 eastbound and westbound vehicles respectively. East College Street has a posted speed limit of 25 MPH along the extent of the proposed development; however, the 85th percentile speed at this location was measured to be 34 MPH.

The properties adjacent to E. College Street are currently zoned as residential and agricultural and include no major traffic generators. A collision history report for the study area was obtained from ODOT. The report indicated 51 collisions were reported throughout the study area between 2017 and 2021, of which 27 included injuries/possible injuries and 24 included property damage. No fatality collisions were reported. One collision involved a pedestrian, and no bicycle collisions were reported. The three primary reported collision types were Rear-End (45.1%), Angle Turning (27.5%), and Right Angle (7.8%). Of the 51 collisions reported during this period, only three occurred at or near the proposed development on East College Street. Other detailed information can be found in the collision history report, see Appendix F.

3.0 Proposed Development

The proposed affordable housing development includes six low-rise multi-family apartment buildings with a combined 180 dwelling units and a single-story clubhouse. The development is primarily served by Driveway 3, as shown in Figure 2, and is planned to be built in one phase, opening in 2028.

3.1 Site Trips Generation

Site trip generation is computed in terms of trip ends. An entering (inbound) trip end is a destination trip end; an exiting (outbound) trip end is an origin trip end. The estimated trip ends generated by the proposed development, as indicated in Table 1 were computed using trip generation rates acquired from ITE's 11th Edition Trip Generation web-based "TripGen" application for Land Use 223.

Table 1 – Estimated Weekday Site Trips

Trip End Description		Independent Variable		Standard Deviation	Average Rate	STD/AR < 0.55	Coeff of Det. (R^2)	R2 > 0.75	Trip Ends	Percent Entering	Percent Exiting
No.	Time Period	Description	Value								
1	Weekday AM Peak Hour of Generator	Dwelling Units	180	0.40	0.50	No	0.72	No	90	26%	74%
2	Weekday PM Peak Hour of Generator	Dwelling Units	180	0.27	0.50	No	0.67	No	90	58%	42%
3	Weekday AM Peak Hour of Adjacent Street	Dwelling Units	180	0.39	0.50	No	0.73	No	90	29%	71%
4	Weekday PM Peak Hour of Adjacent Street	Dwelling Units	180	0.28	0.46	No	0.67	No	83	59%	41%
5	Weekday	Dwelling Units	180	2.03	4.81	Yes	0.98	Yes	866	50%	50%

Source: ITE Trip Generation Data

The ITE trip generation rates were computed based on dwelling units. The average daily trip ends were distributed into and out of the site to correspond with existing traffic patterns and reported ITE peak hour inbound/outbound percentages for the proposed generator. A detailed description of the development generator(s) and trip end charts, associated with the various time periods and independent variables, can be found in Appendix A.

3.2 Site Trips Distribution and Assignment

According to ITE Trip Generation guidance, 58% of weekday PM peak hour site trips were entering, while 42% were exiting. The estimated distribution of site traffic into the surrounding transportation network, as shown in Figure 4, was based on the proximity and scale of surrounding population densities and the associated concentration of trip generators. This approach, commonly known as the gravity model, suggests that the interaction between two locations is directly proportional to their masses (i.e., population in this case) and inversely

proportional to the distance between them. Figure 5 illustrates the estimated directional assignments of computed trip ends at the site driveways and study area intersections.

4.0 Traffic Operational Analysis

4.1 Intersection Capacity Analysis

Intersection capacity analysis included the following tasks:

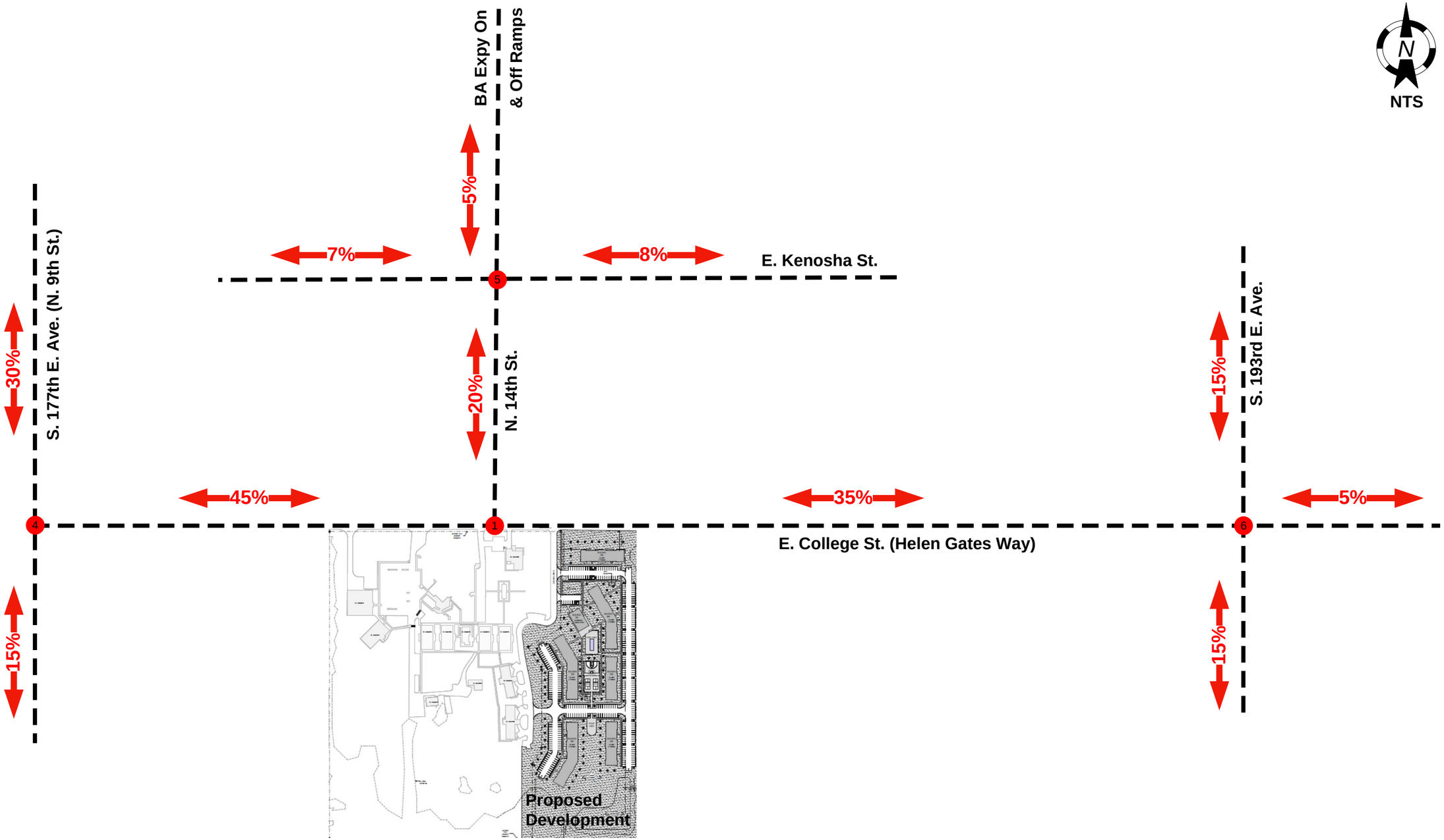
1. Computation of average annual growth rate (AGR) to estimate future peak hour background traffic volumes, see Appendix B.
2. Distribution and assignment of peak hour site trip ends into the study intersections.
3. Computation of peak hour traffic volumes by movement for each base study scenario at each study intersection, see Appendix B.
4. Preparation of Synchro traffic models to match the existing and proposed geometric conditions and, for signalized intersections, to match existing timing plans.
5. Evaluation and tabulation of analysis results for each of the base study scenarios, see Appendix C.

An annual growth rate (AGR) of 2.2% was computed by using INCOG's AADT counts at eight locations surrounding the study corridor, as indicated in Appendix B. This AGR was used to project peak hour traffic volumes for the 2028 opening year and the 2034 horizon year study scenarios. Since the AM and PM peak hours of the generator are expected to regularly overlap the peak hours of the adjacent street, the distributed peak hour trip ends of the generator were applied to both current and projected peak hour turning movements for intersection capacity analysis. Weekday PM peak hour trip ends were used for the analysis, as recorded turning movements during the PM peak were significantly higher than those during the AM peak. The base study scenarios included:

1. Current 2024 peak weekday traffic.
2. Projected 2028 (opening year) peak weekday traffic (no-build).
3. Projected 2034 (horizon year) peak weekday traffic (no-build).
4. Projected 2028 (opening year) peak weekday traffic (build).
5. Projected 2034 (horizon year) peak weekday traffic (build)

Capacity analysis was completed for each study scenario at each of the following intersections, as shown on Figures 2 and 3:

1. E. College St. and N. 14th St. (Node 1)
2. E. College St. and Driveway 2 (Node 2)
3. E. College St. and Driveway 1 (Node 3)
4. E. College St. and S. 177th E. Ave. (Node 4)
5. E. Kenosha St. and N. 14th St. (Node 5)
6. E. College St. and E. 193rd E. Ave. (Node 6)
7. E. College St. and Driveway 3 (Node 7)



NTS

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SITE TRIP DISTRIBUTIONS

PROPOSED GATESWAY AFFORDABLE HOUSING SITE DEVELOPMENT

BROKEN ARROW, OKLAHOMA

Project No. 240009

Date: October, 2024

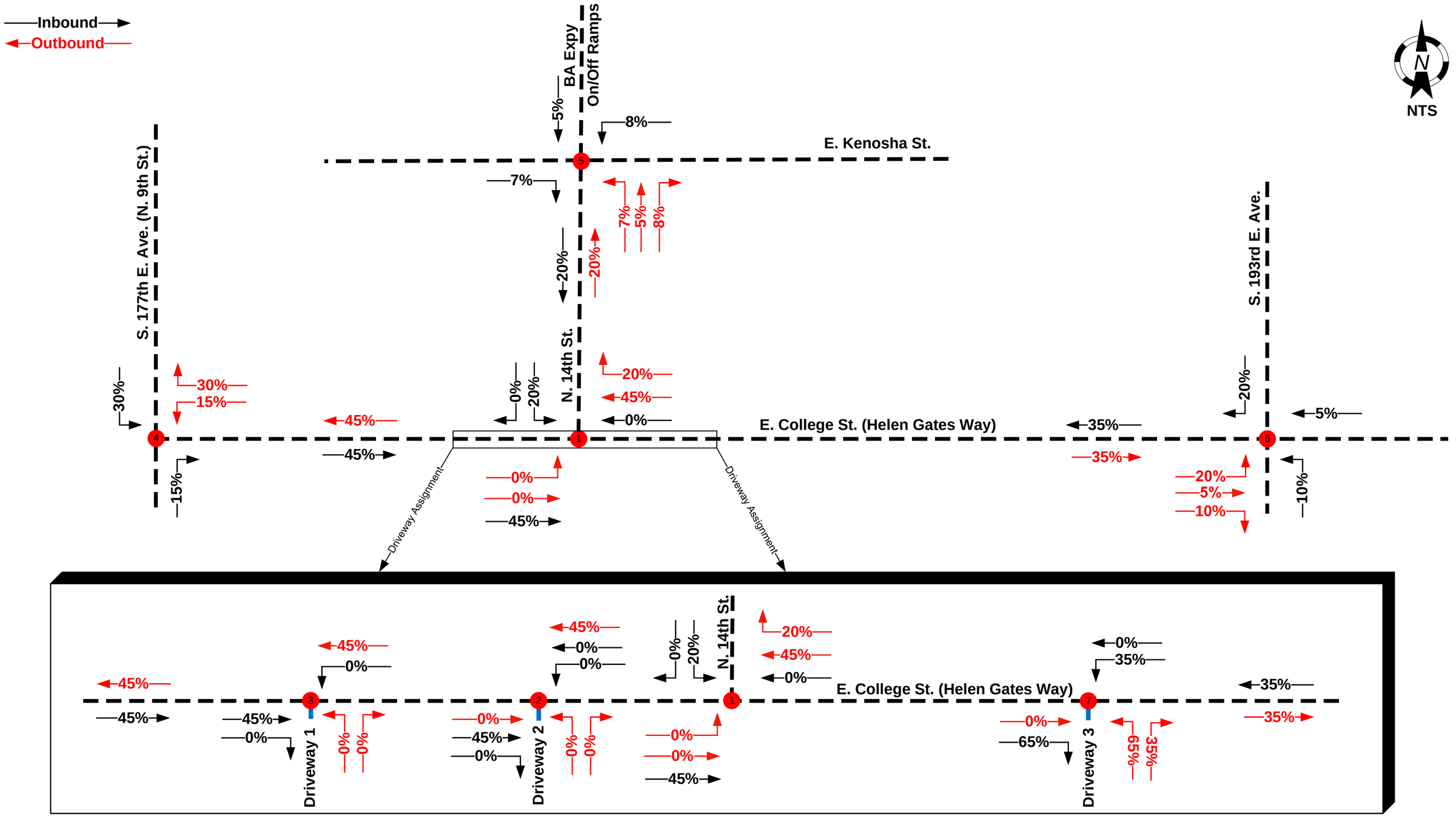
Prepared by: JAS

FIGURE
4

Inbound
Outbound

N
NTS

BA Expy On/Off Ramps
E. Kenosha St.
S. 177th E. Ave. (N. 9th St.)
N. 14th St.
S. 193rd E. Ave.
E. College St. (Helen Gates Way)
Driveway Assignment
Driveway Assignment
Driveway 1
Driveway 2
Driveway 3



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SITE TRIP ASSIGNMENTS

PROPOSED GATESWAY AFFORDABLE HOUSING SITE DEVELOPMENT

BROKEN ARROW, OKLAHOMA

Project No. 240009
Date: October, 2024
Prepared by: JAS

FIGURE
5

The study scenarios were evaluated in Synchro 12 using the Highway Capacity Manual (HCM) 7th Edition Methodology for capacity analysis of signalized intersections. The HCM Methodology, which considers numerous characteristics of a transportation system, is an industry standard and best practice for operational analysis of roadway intersections. The HCM qualifies intersection operational performance as level-of-service (LOS) using letter grades from A to F. The intersection operating conditions, associated with each of these letter grades, are described in Table 2.

Table 2 – Description of Intersection Operating Conditions

LOS	Intersection Conditions
A	Very short delay and most vehicles do not stop as a result of favorable progression or short cycle length
B	Short delay and many vehicles do not stop or stop for a short time as a result of short cycle lengths or good progression
C	Moderate delay, many vehicles have to stop; occasional individual cycle failures as a result of insufficient capacity during a cycle
D	Longer delays; many vehicles have to stop; and a noticable number of individual cycle failures as a result of long cycle lengths, high volume-to-capacity ratios, and/or unfavorable progression
E	Long delays and frequent individual cycle failures result from one or both of the following: long cycle lengths or high volume-to-capacity ratios, which in turn, result in poor progression
F	Delays considered unacceptable to most drivers occur when the vehicle arrival rate is greater than the capacity of the intersection for extended periods of time

Source: A Policy on Geometric Design of Highways and Streets, 7th Edition (AASHTO)

For signalized and unsignalized intersections, the HCM 7th Edition Methodology defines LOS scores based upon the calculated average seconds of control delay per vehicle as indicated in Table 3.

Table 3 – Intersection Level-of-Service (LOS)

Level of Service	Average Control Delay per Vehicle (seconds)	
	Unsignalized Intersection	Signalized Intersection
A	$X \leq 10$	$X \leq 10$
B	$10 < X \leq 15$	$10 < X \leq 20$
C	$15 < X \leq 25$	$20 < X \leq 35$
D	$25 < X \leq 35$	$35 < X \leq 55$
E	$35 < X \leq 50$	$55 < X \leq 80$
F	$X > 50$	$X > 80$

Source: Highway Capacity Manual (HCM)

In most urban settings, LOS C is desirable for peak hour flows; however, LOS D is normally considered acceptable. Short periods of LOS E or F are not uncommon, especially near major traffic generators with concentrated arrival/departure times such as schools, theaters, and sports

arenas. A significant modification of a transportation facility may be required to improve operational performance at locations where prolonged periods of unacceptable LOS are commonly experienced. The findings of the operational analysis are discussed in Section 5. A complete summary of the Synchro results and associated HCM 7th Edition Intersection Capacity Analysis Reports can be found in Appendix C. These results were obtained directly from the software output and may differ slightly from actual traffic operations.

4.2 Sight Distance Analysis

A Sight Distance Analysis included both Stopping Sight Distance (SSD) and Intersection Sight Distance (ISD) for the proposed development driveways. Both SSD and ISD are critical concepts in roadway design, but they serve different purposes:

1. Stopping Sight Distance (SSD):
    a. Definition: The minimum distance a driver needs to see ahead to stop safely without colliding with an obstacle in the path.
    b. Purpose: Ensures that a driver can bring their vehicle to a complete stop when necessary, based on reaction time and braking distance.
    c. Components:
        i. Perception-reaction time: The time it takes for a driver to perceive a hazard and initiate braking.
        ii. Braking distance: The distance required for the vehicle to come to a complete stop after the brakes are applied.
    d. Usage: Applied on straight sections of roads and curves to ensure safe stopping if an obstruction appears.
2. Intersection Sight Distance (ISD):
    a. Definition: The minimum sight distance needed at intersections to allow drivers to safely enter or cross the intersection.
    b. Purpose: Ensures that drivers approaching or waiting at an intersection have adequate visibility of oncoming traffic to make safe decisions, such as entering or crossing.
    c. Components:
        i. The time required for a driver to perceive oncoming traffic, make a decision, and execute a maneuver (e.g., crossing, merging, or turning).
        ii. The speed and distance of oncoming vehicles that could pose a conflict.
    d. Usage: Applied at intersections (e.g., where roads cross or where a road meets a driveway) to provide safe gaps for vehicles to enter or cross the traffic flow.
3. Key Differences:
    a. Application: SSD is used for general roadway segments to prevent collisions, while ISD is specific to intersections to facilitate safe vehicle movement.
    b. Purpose: SSD ensures a vehicle can stop within a visible distance, whereas ISD provides sufficient sight for drivers to judge gaps in traffic at intersections.

4. In summary, SSD is about ensuring a safe stopping capability on a roadway, while ISD focuses on allowing safe decision-making at intersections.

The SSD was measured to the back of the 95th percentile queue as determined in the operational analysis. The available SSD and ISD, as shown on Figure 6, were measured using the preliminary site plan and Google Earth based on associated AASHTO criteria regarding driver eye and object height. The respective measurements, as summarized in Tables 4 and 5, were compared to the minimum allowable values indicated in Broken Arrow's Engineering Design Criteria Manual and ODOT's Roadway Design Manual. The findings of the sight distance analysis are discussed in Section 5.

Table 4 – Stopping Sight Distance Summary

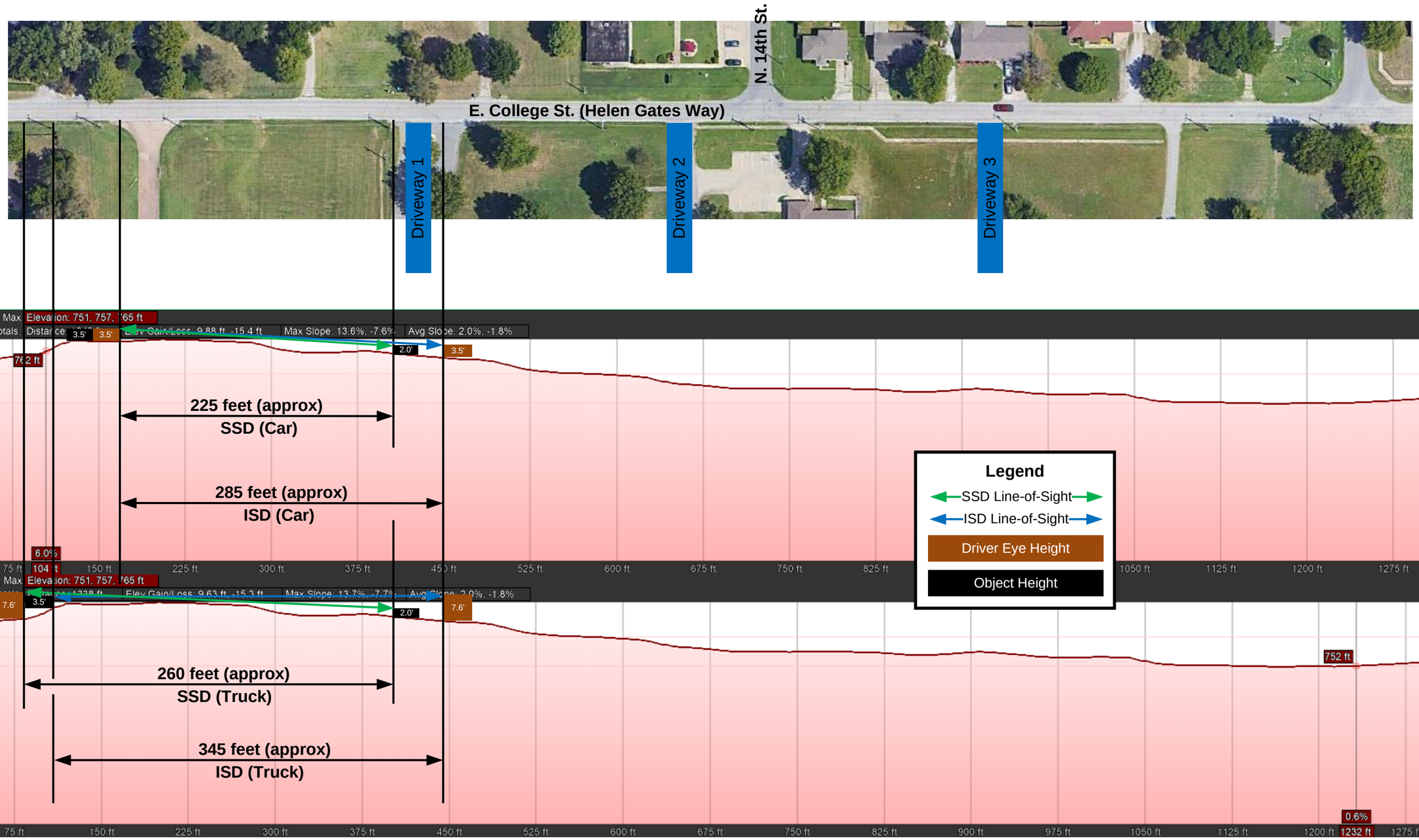
Intersection	Node	Approach Direction	Roadway Speed Limit (mph)	95th Percentile Queue (ft)	Minimum SSD (ft)		SSD (to back of queue)		Exceeds Minimum SSD
					Passenger Car	Trucks	Passenger Car	Trucks	
Driveway 1	3	Eastbound	25	0	200	224	> 200	> 224	Yes
		Westbound	25	1	200	224	> 200	> 224	Yes
Driveway 2	2	Eastbound	25	0	200	224	> 200	> 224	Yes
		Westbound	25	0	200	224	> 200	> 224	Yes
Driveway 3	7	Eastbound	25	0	200	224	> 200	> 224	Yes
		Westbound	25	1	200	224	> 200	> 224	Yes

Criteria Source: City of Broken Arrow Engineering Design Criteria Manual and ODOT Design Manual, Chapter 5, Section 5.7.

Table 5 – Intersection Sight Distance Summary

Intersection	Node	ISD	Roadway Speed Limit (mph)	Minimum ISD (Ft)		Provided ISD (Ft)		Exceeds Minimum ISD
				Passenger Car	Trucks	Passenger Car	Trucks	
Driveway 1	3	Left	25	280	400	> 280	< 400	No
		Right	25	280	400	> 280	> 400	Yes
Driveway 2	2	Left	25	280	400	> 280	> 400	Yes
		Right	25	280	400	> 280	> 400	Yes
Driveway 3	7	Left	25	280	400	> 280	> 400	Yes
		Right	25	280	400	> 280	> 400	Yes

Criteria Source: ODOT Design Manual, Chapter 9, Section 9.2.



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SIGHT DISTANCE MEASUREMENTS

PROPOSED GATESWAY AFFORDABLE HOUSING SITE DEVELOPMENT

BROKEN ARROW, OKLAHOMA

Project No. 240009

Date: October, 2024

Prepared by: JAS

FIGURE 6

4.3 Auxiliary Lane Analysis

Section 9.3 of ODOT's Roadway Design Manual, see Appendix G, provides four conditions in which exclusive right-turn lanes should be considered and six conditions in which exclusive left-turn conditions should be considered at roadway and driveway intersections. Based on these qualifying conditions, none of the driveways for the proposed development require auxiliary left or right turn lanes.

4.4 Driveway Spacing Review

Section 9.9.1.2 of ODOT's Roadway Design Manual indicates that the minimum spacing between residential drives and the desirable corner clearance for residential driveways in urban areas is 3-feet and 20-feet respectively. The proposed driveway layout, as shown on Figure 2, meets both of these criteria.

5.0 Findings

The following findings were noted:

1. All the development driveways operate at an acceptable level-of-service during the peak weekday travel time for both the planned 2028 opening year and the 2034 horizon year.
2. The additional traffic associated with the proposed development does not degrade any of the study intersections below an acceptable level.
3. The study intersection at N. 14th Street and E. Kenosha Street is currently operating below an acceptable level-of-service during the weekday peak hour.
4. The left-side intersection sight-distance (ISD) at Driveway 1 is less than the minimum required distance for trucks as defined by ODOT.
5. The 85th percentile speed along E. College Street adjacent to the proposed development is 34 mph.
6. No collisions were reported at the two existing development driveways between January 1, 2017 and December 31, 2021.
7. Auxiliary lanes are not required for any of the development driveways according to ODOT's warranting criteria.
8. The layout of the driveways meets ODOT's criteria for driveway spacing and corner clearance.

6.0 Recommendations

The following modifications are recommended regardless of whether the proposed development moves forward:

1. As a first attempt to minimize issues with truck Intersection Sight Distance at Driveway 1 and to mitigate speeding and associated collisions on E. College Street, Intersection Warning Signs (W2-7R) should be placed adjacent to the westbound lanes approximately 100 feet east of N. 15th Street and adjacent to the eastbound lanes approximately 100 feet west of Wesley Drive. Traffic calming devices should be considered if this signage doesn't effectively address the speeding issue.
    a. An Intersection Warning Sign is not typically considered a traffic calming device; however, when used in conjunction with other traffic calming measures, can enhance the overall effectiveness of a traffic calming strategy.
2. To correct existing operational issues and effectively facilitate future projected traffic volumes, the intersection of N. 14th Street and E. Kenosha Street should be modified to include dual southbound left-turn lanes and either a southbound through-right lane or exclusive southbound and right-turn lanes.

Appendix A
TripGen Summary
& Reports

Peak Hour Site Trip Ends
ITE Land Use: 223 (Affordable Residential)

Trip End Description		Independent Variable		Standard Deviation	Average Rate	STD/AR < 0.5	Coeff of Det. (R^2)	R2 > 0.75	Trip Ends	Percent Entering	Percent Exiting
No.	Time Period	Description	Value								
1	Weekday AM Peak Hour of Generator	Dwelling Units	180	0.40	0.50	No	0.72	No	90	26%	74%
2	Weekday PM Peak Hour of Generator	Dwelling Units	180	0.27	0.50	No	0.67	No	90	58%	42%
3	Weekday AM Peak Hour of Adjacent Street	Dwelling Units	180	0.39	0.50	No	0.73	No	90	29%	71%
4	Weekday PM Peak Hour of Adjacent Street	Dwelling Units	180	0.28	0.46	No	0.67	No	83	59%	41%
5	Weekday	Dwelling Units	180	2.03	4.81	Yes	0.98	Yes	866	50%	50%

Land Use: 223
Affordable Housing

Description

Affordable housing includes all multifamily housing that is rented at below market rate to households that include at least one employed member. Eligibility to live in affordable housing can be a function of limited household income and resident age. Multifamily housing (low-rise) (Land Use 220), multifamily housing (mid-rise) (Land Use 221), and multifamily housing (high-rise) (Land Use 222) are related land uses.

Land Use Subcategory

Data are presented for three subcategories for this land use: (1) sites with income limitations for its tenants (denoted as income limits in the data plots), (2) sites with both minimum age thresholds and income limitations for its tenants (denoted as senior in the data plots), and (3) sites designed for and occupied by residents with special needs, such as persons with physical and mental impairments, single mothers, recovering addicts and others living in a group setting.

Additional Data

For most study sites contained in this land use, all dwelling units in the development are classified as affordable units. For residential study sites that provide a mix of market value and affordable units, the study sites with at least 75 percent of the dwelling units designated as affordable are also included in this land use database.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1980s and 2010s in California, Ontario (CAN), and New Jersey.

Source Numbers

237, 918, 1003, 1004, 1046, 1057

Affordable Housing - Income Limits
(223)

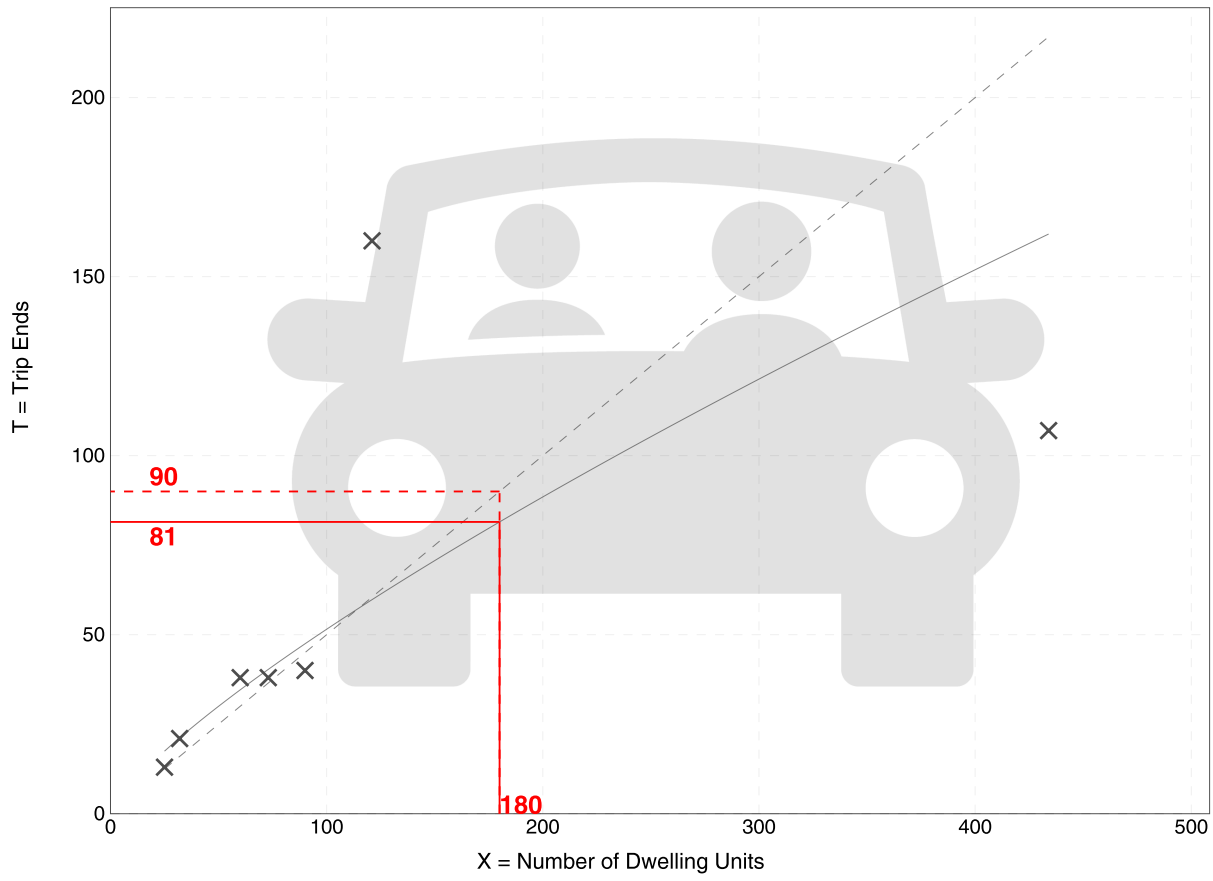
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. Num. of Dwelling Units: 119
Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.50	0.25 - 1.32	0.40

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.78 Ln(X) + 0.35 **R^2= 0.72**

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Affordable Housing - Income Limits
(223)

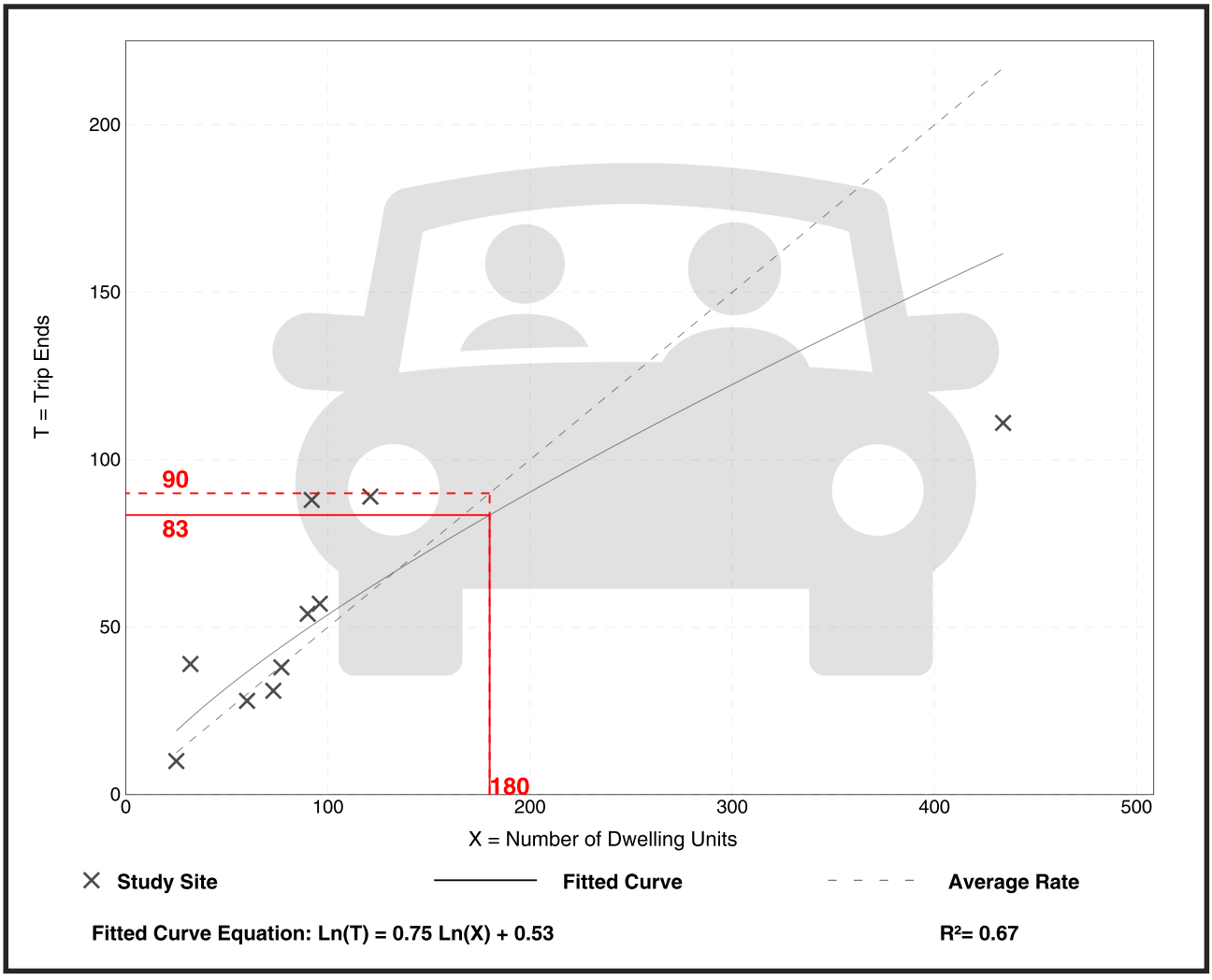
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 10
Avg. Num. of Dwelling Units: 110
Directional Distribution: 58% entering, 42% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.50	0.26 - 1.22	0.27

Data Plot and Equation



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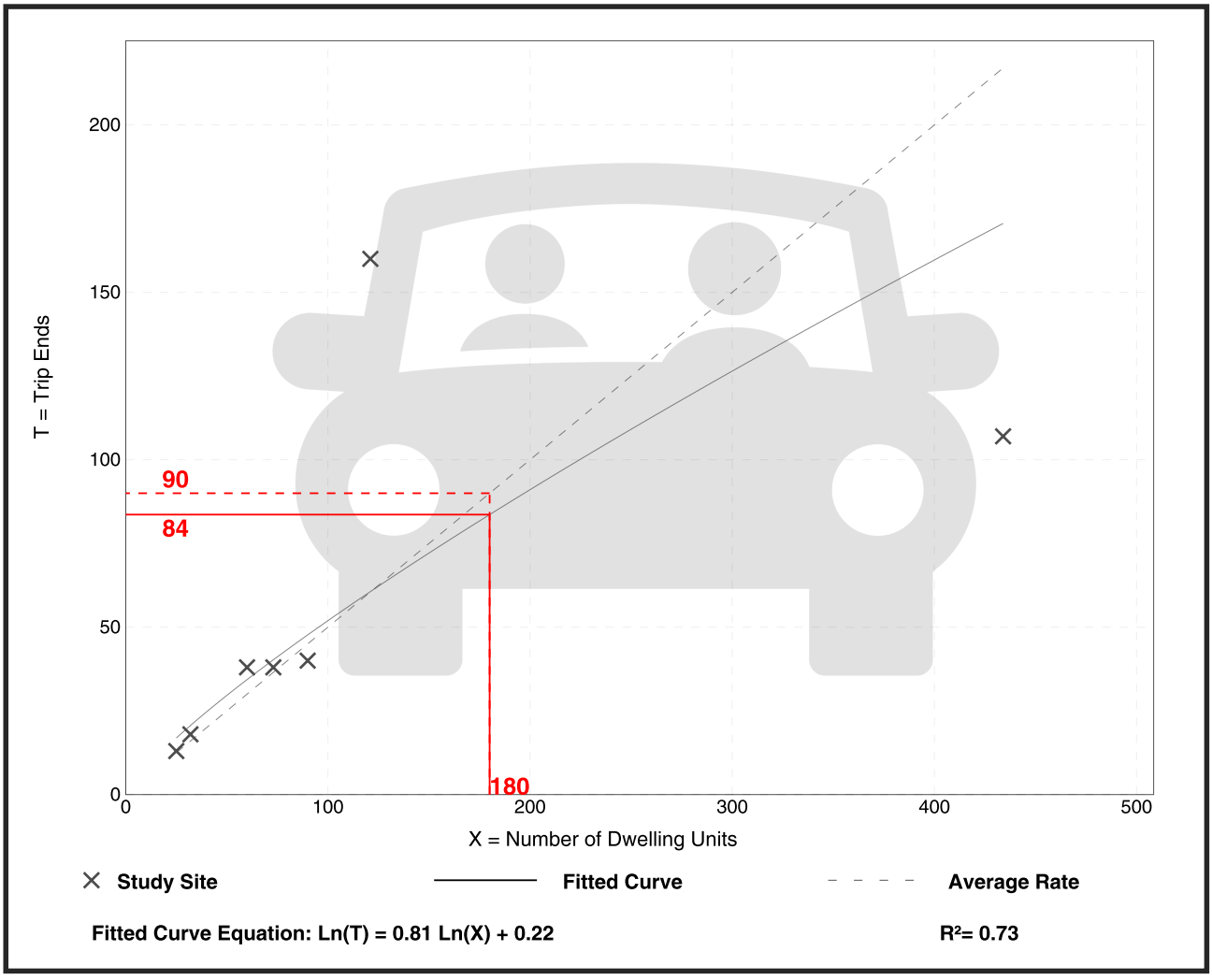
Affordable Housing - Income Limits
(223)

Vehicle Trip Ends vs: **Dwelling Units**
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: 7
Avg. Num. of Dwelling Units: 119
Directional Distribution: 29% entering, 71% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.50	0.25 - 1.32	0.39

Data Plot and Equation



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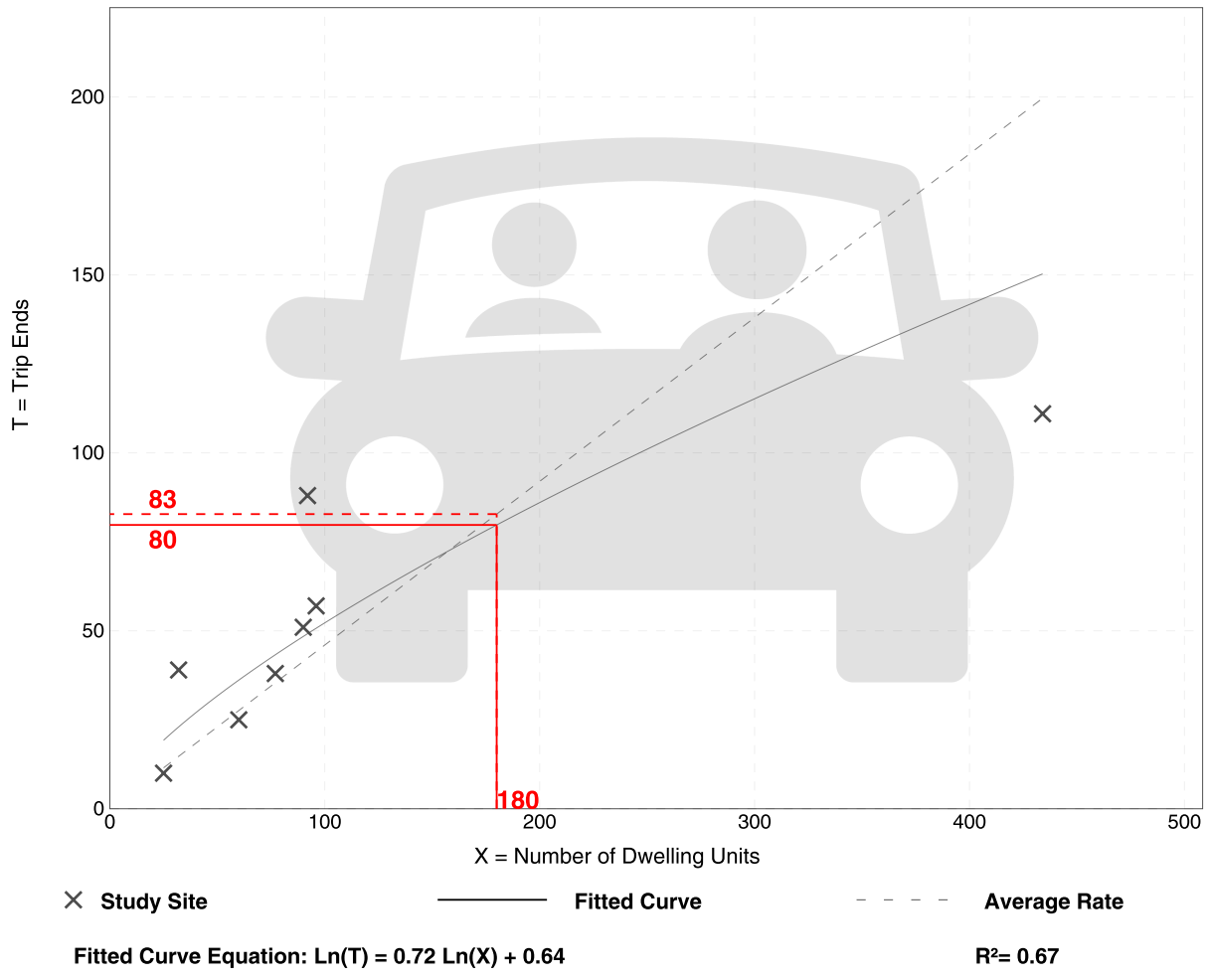
Affordable Housing - Income Limits
(223)

Vehicle Trip Ends vs: **Dwelling Units**
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: 8
Avg. Num. of Dwelling Units: 113
Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.26 - 1.22	0.28

Data Plot and Equation



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Affordable Housing - Income Limits
(223)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

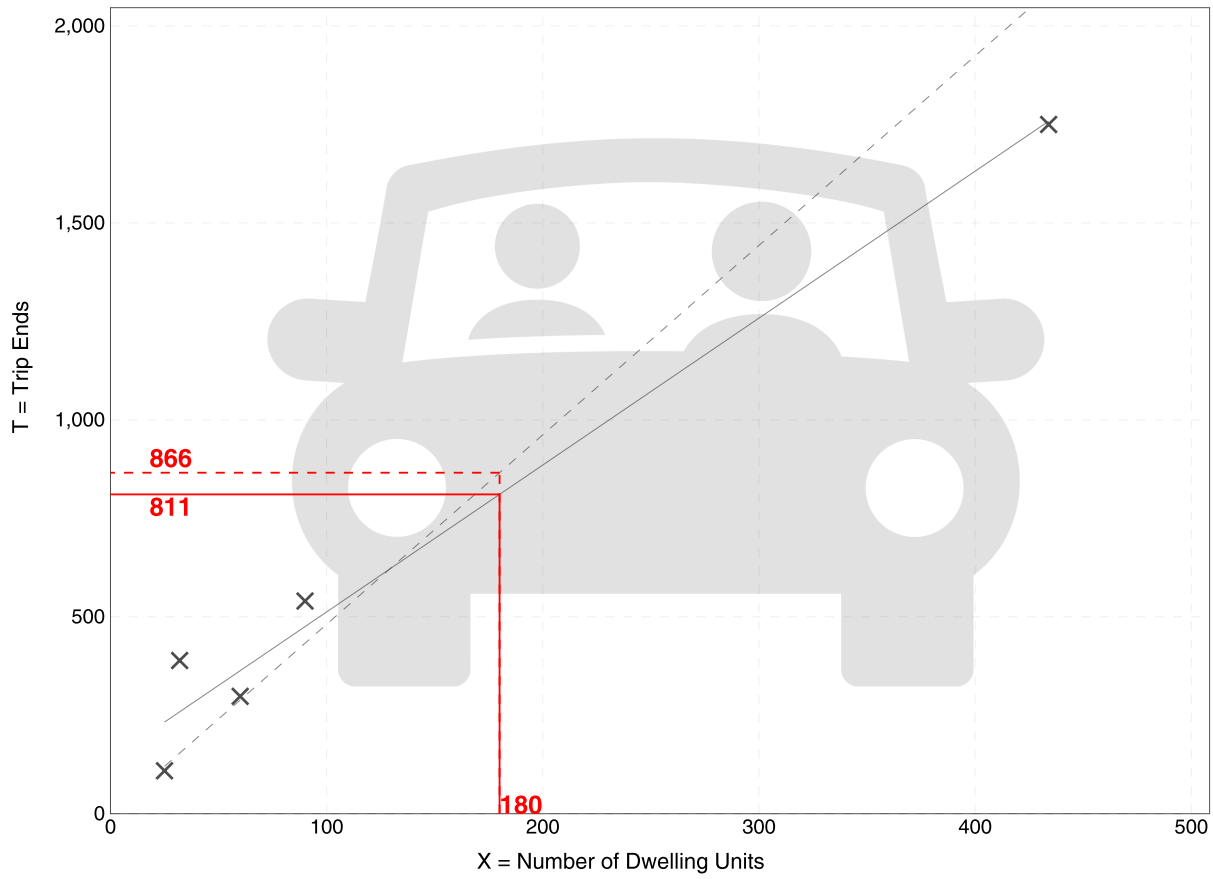
Setting/Location: **General Urban/Suburban**
Number of Studies: 5
Avg. Num. of Dwelling Units: 128
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.81	4.03 - 12.16	2.03

Data Plot and Equation

Caution – Small Sample Size



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Appendix B
Annual Growth Rate &
Peak Hour Traffic Volumes

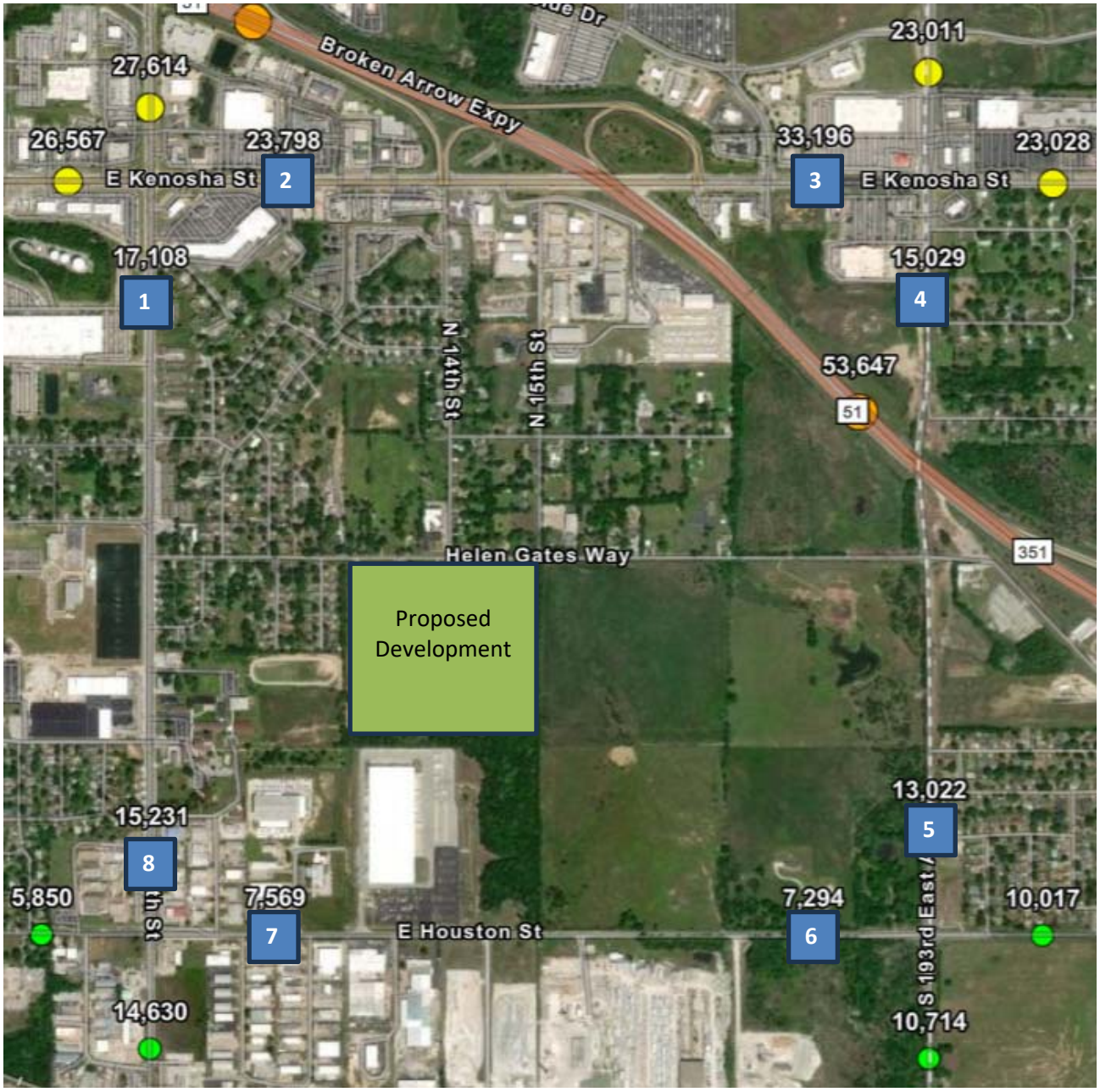
Annual Growth Rate and Projection Year Growth Factors

Annual Growth Rate (AGR)				
INCOG Historic AADT Location	Year	AADT	AGR	Average AGR
1	2022	17,108	7.6%	8.7%
	2021	15,898	9.7%	
	2019	13,201		
2	2022	23,798	4.5%	0.5%
	2021	22,763	-3.6%	
	2019	24,488		
3	2022	33,196	5.8%	2.4%
	2021	31,382	-1.0%	
	2019	32,000		
4	2022	15,029	4.4%	0.9%
	2021	14,400	-2.5%	
	2019	15,150		
5	2022	13,022	1.2%	-0.5%
	2021	12,871	-2.1%	
	2019	13,430		
6	2022	7,294	6.5%	3.3%
	2021	6,852	0.2%	
	2019	6,819		
7	2022	7,569	2.5%	0.7%
	2021	7,382	-1.2%	
	2019	7,563		
8	2022	15,231	8.8%	12.3%
	2021	13,995	15.7%	
	2019	10,455		
			Average AGR:	**3.5%**
			Average AGR (less high & low values):	**2.8%**

Projection Year Growth Factors	
Projection Year	**Growth Factor**
1	**1.03**
2	**1.06**
3	**1.08**
4	**1.11**
5	**1.15**
6	**1.18**
7	**1.21**
8	**1.24**
9	**1.28**
10	**1.31**

Annual Growth Rate and Projection Year Growth Factors

INCOG Historic AADT Count Location for AGR Computation



Study Scenario PM Peak Hour of Generator Traffic Volumes
Node 1 - N. 14th Street and E. College Street Intersection

Intersection Approach	Assignment (%)		Peak Hour Site Trips		Study Scenario Peak Hour Traffic Volumes											
	Inbound	Outbound	Wkday	Wkend	1	2	3	4	5	6	7	8	9	10	11	12
NBL	0%	0%	0		0	0	0	0	0							
NBT	0%	0%	0		0	0	0	0	0							
NBR	0%	0%	0		0	0	0	0	0							
Total NB	**0%**	**0%**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SBL	20%	0%	11		10	11	13	22	24							
SBT	0%	0%	0		0	0	0	0	0							
SBR	0%	0%	0		30	33	39	33	39							
Total SB	**20%**	**0%**	**11**	**0**	**40**	**44**	**52**	**55**	**63**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
EBL	0%	0%	0		12	13	16	13	16							
EBT	45%	0%	24		52	58	68	82	92							
EBR	0%	0%	0		0	0	0	0	0							
Total EB	**45%**	**0%**	**24**	**0**	**64**	**71**	**84**	**95**	**108**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
WBL	0%	0%	0		0	0	0	0	0							
WBT	0%	45%	18		57	63	75	81	93							
WBR	0%	20%	8		6	7	8	15	16							
Total WB	**0%**	**65%**	**26**	**0**	**63**	**70**	**83**	**96**	**109**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Int.	**65%**	**65%**	**61**	**0**	**167**	**185**	**219**	**246**	**280**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Study Scenario PM Peak Hour of Generator Traffic Volumes
Node 2 - Driveway 2 and E. College Street

Intersection Approach	Assignment (%)		Peak Hour Site Trips		Study Scenario Peak Hour Traffic Volumes											
	Inbound	Outbound	Wkday	Wkend	1	2	3	4	5	6	7	8	9	10	11	12
NBL	0%	0%	0		7	8	9	8	9							
NBT	0%	0%	0		0	0	0	0	0							
NBR	0%	0%	0		2	2	3	2	3							
Total NB	**0%**	**0%**	**0**	**0**	**9**	**10**	**12**	**10**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SBL	0%	0%	0		0	0	0	0	0							
SBT	0%	0%	0		0	0	0	0	0							
SBR	0%	0%	0		0	0	0	0	0							
Total SB	**0%**	**0%**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
EBL	0%	0%	0		0	0	0	0	0							
EBT	45%	0%	24		63	70	83	94	107							
EBR	0%	0%	0		6	7	8	7	8							
Total EB	**45%**	**0%**	**24**	**0**	**69**	**77**	**90**	**101**	**114**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
WBL	0%	0%	0		2	2	3	2	3							
WBT	0%	45%	18		85	94	111	112	129							
WBR	0%	0%	0		0	0	0	0	0							
Total WB	**0%**	**45%**	**18**	**0**	**87**	**97**	**114**	**115**	**132**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Int.	**45%**	**45%**	**42**	**0**	**165**	**183**	**216**	**225**	**258**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Study Scenario PM Peak Hour of Generator Traffic Volumes
Node 3 - Driveway 1 and E. College Street

Intersection Approach	Assignment (%)		Peak Hour Site Trips		Study Scenario Peak Hour Traffic Volumes											
	Inbound	Outbound	Wkday	Wkend	1	2	3	4	5	6	7	8	9	10	11	12
NBL	0%	0%	0		3	3	4	3	4							
NBT	0%	0%	0		0	0	0	0	0							
NBR	0%	0%	0		4	4	5	4	5							
Total NB	**0%**	**0%**	**0**	**0**	**7**	**8**	**9**	**8**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SBL	0%	0%	0		0	0	0	0	0							
SBT	0%	0%	0		0	0	0	0	0							
SBR	0%	0%	0		0	0	0	0	0							
Total SB	**0%**	**0%**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
EBL	0%	0%	0		0	0	0	0	0							
EBT	45%	0%	24		65	72	85	96	109							
EBR	0%	0%	0		1	1	1	1	1							
Total EB	**45%**	**0%**	**24**	**0**	**66**	**73**	**86**	**97**	**110**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
WBL	0%	0%	0		7	8	9	8	9							
WBT	0%	45%	18		85	94	111	112	129							
WBR	0%	0%	0		0	0	0	0	0							
Total WB	**0%**	**45%**	**18**	**0**	**92**	**102**	**121**	**120**	**139**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Int.	**45%**	**45%**	**42**	**0**	**165**	**183**	**216**	**225**	**258**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Study Scenario PM Peak Hour of Generator Traffic Volumes
Node 4 - S. 177th E. Avenue and E. College Street Intersection

Intersection Approach	Assignment (%)		Peak Hour Site Trips		Study Scenario Peak Hour Traffic Volumes											
	Inbound	Outbound	Wkday	Wkend	1	2	3	4	5	6	7	8	9	10	11	12
NBL	0%	0%	0		0	0	0	0	0							
NBT	0%	0%	0		645	716	845	716	845							
NBR	15%	0%	8		49	54	64	62	72							
Total NB	**15%**	**0%**	**8**	**0**	**694**	**770**	**909**	**778**	**917**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SBL	30%	0%	16		48	53	63	69	79							
SBT	0%	0%	0		736	817	964	817	964							
SBR	0%	0%	0		0	0	0	0	0							
Total SB	**30%**	**0%**	**16**	**0**	**784**	**870**	**1,027**	**886**	**1,043**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
EBL	0%	0%	0		0	0	0	0	0							
EBT	0%	0%	0		0	0	0	0	0							
EBR	0%	0%	0		0	0	0	0	0							
Total EB	**0%**	**0%**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
WBL	0%	15%	6		28	31	37	37	43							
WBT	0%	0%	0		0	0	0	0	0							
WBR	0%	30%	12		37	41	48	53	60							
Total WB	**0%**	**45%**	**18**	**0**	**65**	**72**	**85**	**90**	**103**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Int.	**45%**	**45%**	**42**	**0**	**1,543**	**1,713**	**2,021**	**1,755**	**2,063**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Study Scenario PM Peak Hour of Generator Traffic Volumes
Node 5 - N. 14th Street and E. Kenosha Street Intersection

Intersection Approach	Assignment (%)		Peak Hour Site Trips		Study Scenario Peak Hour Traffic Volumes											
	Inbound	Outbound	Wkday	Wkend	1	2	3	4	5	6	7	8	9	10	11	12
NBL	0%	7%	3		31	34	41	37	44							
NBT	0%	5%	2		13	14	17	16	19							
NBR	0%	8%	4		53	59	69	63	73							
Total NB	**0%**	**20%**	**9**	**0**	**97**	**108**	**127**	**117**	**136**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SBL	0%	0%	0		632	702	828	702	828							
SBT	5%	0%	3		59	65	77	68	80							
SBR	0%	0%	0		70	78	92	78	92							
Total SB	**5%**	**0%**	**3**	**0**	**761**	**845**	**997**	**848**	**1,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
EBL	0%	0%	0		231	256	303	256	303							
EBT	0%	0%	0		901	1,000	1,180	1,000	1,180							
EBR	7%	0%	4		34	38	45	42	49							
Total EB	**7%**	**0%**	**4**	**0**	**1,166**	**1,294**	**1,527**	**1,298**	**1,531**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
WBL	8%	0%	5		94	104	123	109	128							
WBT	0%	0%	0		676	750	886	750	886							
WBR	0%	0%	0		92	102	121	102	121							
Total WB	**8%**	**0%**	**5**	**0**	**862**	**957**	**1,129**	**962**	**1,134**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Int.	**20%**	**20%**	**21**	**0**	**2,886**	**3,203**	**3,781**	**3,224**	**3,802**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Study Scenario PM Peak Hour of Generator Traffic Volumes
Node 6 - S. 193rd E. Avenue and E. College Street Intersection

Intersection Approach	Assignment (%)		Peak Hour Site Trips		Study Scenario Peak Hour Traffic Volumes											
	Inbound	Outbound	Wkday	Wkend	1	2	3	4	5	6	7	8	9	10	11	12
NBL	10%	0%	6		6	7	8	13	14							
NBT	0%	0%	0		413	458	541	458	541							
NBR	0%	0%	0		1	1	1	1	1							
Total NB	**10%**	**0%**	**6**	**0**	**420**	**466**	**550**	**472**	**556**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SBL	0%	0%	0		49	54	64	54	64							
SBT	0%	0%	0		522	579	684	579	684							
SBR	20%	0%	11		16	18	21	29	32							
Total SB	**20%**	**0%**	**11**	**0**	**587**	**652**	**769**	**663**	**780**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
EBL	0%	20%	8		9	10	12	18	20							
EBT	0%	5%	2		7	8	9	10	11							
EBR	0%	10%	4		30	33	39	37	43							
Total EB	**0%**	**35%**	**14**	**0**	**46**	**51**	**60**	**65**	**74**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
WBL	0%	0%	0		0	0	0	0	0							
WBT	5%	0%	3		10	11	13	14	16							
WBR	0%	0%	0		29	32	38	32	38							
Total WB	**5%**	**0%**	**3**	**0**	**39**	**43**	**51**	**46**	**54**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Int.	**35%**	**35%**	**34**	**0**	**1,092**	**1,212**	**1,431**	**1,246**	**1,465**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Study Scenario PM Peak Hour of Generator Traffic Volumes
Node 7 - Driveway 3 and E. College Street

Intersection Approach	Assignment (%)		Peak Hour Site Trips		Study Scenario Peak Hour Traffic Volumes											
	Inbound	Outbound	Wkday	Wkend	1	2	3	4	5	6	7	8	9	10	11	12
NBL	0%	65%	25			0	0	25	25							
NBT	0%	0%	0			0	0	0	0							
NBR	0%	35%	14			0	0	14	14							
Total NB	**0%**	**100%**	**39**	**0**	**0**	**0**	**0**	**39**	**39**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SBL	0%	0%	0			0	0	0	0							
SBT	0%	0%	0			0	0	0	0							
SBR	0%	0%	0			0	0	0	0							
Total SB	**0%**	**0%**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
EBL	0%	0%	0			0	0	0	0							
EBT	0%	0%	0		62	69	81	69	81							
EBR	65%	0%	34			0	0	34	34							
Total EB	**65%**	**0%**	**34**	**0**	**62**	**69**	**81**	**103**	**115**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
WBL	35%	0%	19			0	0	19	19							
WBT	0%	0%	0		32	36	42	36	42							
WBR	0%	0%	0			0	0	0	0							
Total WB	**35%**	**0%**	**19**	**0**	**32**	**36**	**42**	**55**	**61**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Int.	**100%**	**100%**	**92**	**0**	**94**	**104**	**123**	**196**	**215**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix C
Synchro Summaries and Reports

Scenario Performance Summary
Node 1 - N. 14th Street and E. College Street Intersection

Scenario Number & Name		Scenario Description	Int. LOS	Approach LOS (1)				Notes/Findings
				EB	WB	NB	SB	
1- 1.0	2024 WD Peak	Current 2024 weekday peak hour traffic	A	A	A	N/A	A	Acceptable
1- 2.0	2028 WD Peak NB	Projected 2028 (opening year) weekday peak hour traffic (no-build)	A	A	A	N/A	A	Acceptable
1- 3.0	2034 WD Peak NB	Projected 2034 (horizon year) weekday peak hour traffic (no-build)	A	A	A	N/A	A	Acceptable
1- 4.0	2028 WD Peak B	Projected 2028 (opening year) weekday peak hour traffic (build)	A	A	A	N/A	A	Acceptable
1- 5.0	2034 WD Peak B	Projected 2034 (horizon year) weekday peak hour traffic (build)	A	A	A	N/A	A	Acceptable

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Scenario Performance Summary
Node 2 - Driveway 2 and E. College Street

Scenario Number & Name		Scenario Description	Int. LOS	Approach LOS (1)				Notes/Findings
				EB	WB	NB	SB	
2- 1.0	2024 WD Peak	Current 2024 weekday peak hour traffic	A	A	A	A	N/A	Acceptable
2- 2.0	2028 WD Peak NB	Projected 2028 (opening year) weekday peak hour traffic (no-build)	A	A	A	A	N/A	Acceptable
2- 3.0	2034 WD Peak NB	Projected 2034 (horizon year) weekday peak hour traffic (no-build)	A	A	A	A	N/A	Acceptable
2- 4.0	2028 WD Peak B	Projected 2028 (opening year) weekday peak hour traffic (build)	A	A	A	A	N/A	Acceptable
2- 5.0	2034 WD Peak B	Projected 2034 (horizon year) weekday peak hour traffic (build)	A	A	A	A	N/A	Acceptable

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Scenario Performance Summary
Node 3 - Driveway 1 and E. College Street

Scenario Number & Name		Scenario Description	Int. LOS	Approach LOS (1)				Notes/Findings
				EB	WB	NB	SB	
3- 1.0	2024 WD Peak	Current 2024 weekday peak hour traffic	A	A	A	A	N/A	Acceptable
3- 2.0	2028 WD Peak NB	Projected 2028 (opening year) weekday peak hour traffic (no-build)	A	A	A	A	N/A	Acceptable
3- 3.0	2034 WD Peak NB	Projected 2034 (horizon year) weekday peak hour traffic (no-build)	A	A	A	A	N/A	Acceptable
3- 4.0	2028 WD Peak B	Projected 2028 (opening year) weekday peak hour traffic (build)	A	A	A	A	N/A	Acceptable
3- 5.0	2034 WD Peak B	Projected 2034 (horizon year) weekday peak hour traffic (build)	A	A	A	A	N/A	Acceptable

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Scenario Performance Summary
Node 4 - S. 177th E. Avenue and E. College Street Intersection

Scenario Number & Name		Scenario Description	Int. LOS	Approach LOS (1)				Notes/Findings
				EB	WB	NB	SB	
4- 1.0	2024 WD Peak	Current 2024 weekday peak hour traffic	A	N/A	B	A	A	Acceptable
4- 2.0	2028 WD Peak NB	Projected 2028 (opening year) weekday peak hour traffic (no-build)	A	N/A	C	A	A	Acceptable
4- 3.0	2034 WD Peak NB	Projected 2034 (horizon year) weekday peak hour traffic (no-build)	A	N/A	C	A	A	Acceptable
4- 4.0	2028 WD Peak B	Projected 2028 (opening year) weekday peak hour traffic (build)	A	N/A	C	A	A	Acceptable
4- 5.0	2034 WD Peak B	Projected 2034 (horizon year) weekday peak hour traffic (build)	A	N/A	C	A	A	Acceptable

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Scenario Performance Summary
Node 5 - N. 14th Street and E. Kenosha Street Intersection

Scenario Number & Name		Scenario Description	Int. LOS	Approach LOS (1)				Notes/Findings
				EB	WB	NB	SB	
5- 1.0	2024 WD Peak	Current 2024 weekday peak hour traffic	E	E	E	E	D	Unacceptable
5- 2.0	2028 WD Peak NB	Projected 2028 (opening year) weekday peak hour traffic (no-build)	E	E	E	F	F	Unacceptable
5- 3.0	2034 WD Peak NB	Projected 2034 (horizon year) weekday peak hour traffic (no-build)	F	F	E	F	F	Unacceptable
5- 4.0	2028 WD Peak B	Projected 2028 (opening year) weekday peak hour traffic (build)	E	E	E	F	F	Unacceptable
5- 5.0	2034 WD Peak B	Projected 2034 (horizon year) weekday peak hour traffic (build)	F	F	E	F	F	Unacceptable
5- 1.1	Scenario 5-1.0 w/ Mod 1	Scenario 5-1.0 with optimized timing settings	D	D	D	D	D	Acceptable
5- 2.1	Scenario 5-2.0 w/ Mod 1	Scenario 5-2.0 with optimized timing settings	E	E	E	D	E	Unacceptable
5- 3.1	Scenario 5-3.0 w/ Mod 1	Scenario 5-3.0 with optimized timing settings	F	F	E	E	F	Unacceptable
5- 4.1	Scenario 5-4.0 w/ Mod 1	Scenario 5-4.0 with optimized timing settings	E	E	E	D	E	Unacceptable
5- 5.1	Scenario 5-5.0 w/ Mod 1	Scenario 5-5.0 with optimized timing settings	F	F	E	E	F	Unacceptable
5- 2.2	Scenario 5-2.1 w/ Mod 2	Scenario 5-2.1 with dual SB LT lanes plus new SB TR lane	D	D	C	C	C	Acceptable
5- 3.2	Scenario 5-3.1 w/ Mod 2	Scenario 5-3.1 with dual SB LT lanes plus new SB TR lane	D	D	D	E	D	Acceptable (NB 1.3 Sec. over D)
5- 4.2	Scenario 5-4.1 w/ Mod 2	Scenario 5-4.1 with dual SB LT lanes plus new SB TR lane	D	D	C	C	C	Acceptable
5- 5.2	Scenario 5-5.1 w/ Mod 2	Scenario 5-5.1 with dual SB LT lanes plus new SB TR lane	D	D	D	E	D	Acceptable (NB 3.2 Sec. over D)
5- 2.3	Scenario 5-2.1 w/ Mod 3	Scenario 5-2.1 with shared LTR in SB outside lane	D	D	D	D	E	Acceptable (SB 0.6 Sec. over D)
5- 3.3	Scenario 5-3.1 w/ Mod 3	Scenario 5-3.1 with shared LTR in SB outside lane	E	D	E	E	E	Unacceptable
5- 2.4	Scenario 5-2.1 w/ Mod 4	Scenario 5-2.1 with TL on existing outside SB lane plus new SB RT lane	D	D	D	D	D	Acceptable
5- 3.4	Scenario 5-3.1 w/ Mod 4	Scenario 5-3.1 with TL on existing outside SB lane plus new SB RT lane	D	D	D	E	E	Unacceptable
5- 5.5	Scenario 5-5.1 w/ Mod 5	Scenario 5-5.1 with dual SB LT lanes plus new SB Thru and RT lanes	D	D	D	E	D	Acceptable (NB 3.2 Sec. over D)

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Scenario Performance Summary
Node 6 - S. 193rd E. Avenue and E. College Street Intersection

Scenario Number & Name		Scenario Description	Int. LOS	Approach LOS (1)				Notes/Findings
				EB	WB	NB	SB	
6- 1.0	2024 WD Peak	Current 2024 weekday peak hour traffic	A	B	B	A	A	Acceptable
6- 2.0	2028 WD Peak NB	Projected 2028 (opening year) weekday peak hour traffic (no-build)	A	B	B	A	A	Acceptable
6- 3.0	2034 WD Peak NB	Projected 2034 (horizon year) weekday peak hour traffic (no-build)	A	D	C	A	A	Acceptable
6- 4.0	2028 WD Peak B	Projected 2028 (opening year) weekday peak hour traffic (build)	A	C	C	A	A	Acceptable
6- 5.0	2034 WD Peak B	Projected 2034 (horizon year) weekday peak hour traffic (build)	A	E	C	A	A	Acceptable (EB 0.9 Sec. over D)

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Scenario Performance Summary
Node 7 - Driveway 3 and E. College Street

Scenario Number & Name		Scenario Description	Int. LOS	Approach LOS (1)				Notes/Findings
				EB	WB	NB	SB	
7- 1.0	2024 WD Peak	Current 2024 weekday peak hour traffic	N/A	N/A	N/A	N/A	N/A	N/A
7- 2.0	2028 WD Peak NB	Projected 2028 (opening year) weekday peak hour traffic (no-build)	N/A	N/A	N/A	N/A	N/A	N/A
7- 3.0	2034 WD Peak NB	Projected 2034 (horizon year) weekday peak hour traffic (no-build)	N/A	N/A	N/A	N/A	N/A	N/A
7- 4.0	2028 WD Peak B	Projected 2028 (opening year) weekday peak hour traffic (build)	A	A	A	A	N/A	Acceptable
7- 5.0	2034 WD Peak B	Projected 2034 (horizon year) weekday peak hour traffic (build)	A	A	A	A	N/A	Acceptable

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Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	52	57	6	10	30
Future Vol, veh/h	12	52	57	6	10	30
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	57	62	7	11	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	68	0	-	0	148	65
Stage 1	-	-	-	-	65	-
Stage 2	-	-	-	-	83	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1533	-	-	-	844	999
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	941	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1533	-	-	-	837	999
Mov Cap-2 Maneuver	-	-	-	-	837	-
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	941	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.38	0	8.96
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	338	-	-	-	953
HCM Lane V/C Ratio	0.009	-	-	-	0.046
HCM Control Delay (s/veh)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	52	57	6	10	30
Future Vol, veh/h	12	52	57	6	10	30
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	63	69	7	12	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	76	0	-	0	164	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	92	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1523	-	-	-	827	990
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	932	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1523	-	-	-	818	990
Mov Cap-2 Maneuver	-	-	-	-	818	-
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	932	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.38	0	9.03
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	338	-	-	-	941
HCM Lane V/C Ratio	0.01	-	-	-	0.051
HCM Control Delay (s/veh)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	52	57	6	10	30
Future Vol, veh/h	12	52	57	6	10	30
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	74	81	9	14	43

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	90	0	-	0	194	85
Stage 1	-	-	-	-	85	-
Stage 2	-	-	-	-	108	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1506	-	-	-	795	973
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	916	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1506	-	-	-	786	973
Mov Cap-2 Maneuver	-	-	-	-	786	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	916	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.39	0	9.18
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	338	-	-	-	919
HCM Lane V/C Ratio	0.011	-	-	-	0.062
HCM Control Delay (s/veh)	7.4	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	82	81	15	22	33
Future Vol, veh/h	13	82	81	15	22	33
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	89	88	16	24	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	104	0	-	0	214	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	117	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1487	-	-	-	775	960
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	908	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1487	-	-	-	767	960
Mov Cap-2 Maneuver	-	-	-	-	767	-
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	908	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.02	0	9.43
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	246	-	-	-	872
HCM Lane V/C Ratio	0.01	-	-	-	0.069
HCM Control Delay (s/veh)	7.4	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	92	93	16	24	39
Future Vol, veh/h	16	92	93	16	24	39
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	100	101	17	26	42

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	118	0	-	0	245	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1470	-	-	-	744	944
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	892	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1470	-	-	-	734	944
Mov Cap-2 Maneuver	-	-	-	-	734	-
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	892	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.11	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	267	-	-	-	851
HCM Lane V/C Ratio	0.012	-	-	-	0.08
HCM Control Delay (s/veh)	7.5	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	6	2	85	7	2
Future Vol, veh/h	63	6	2	85	7	2
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	7	2	92	8	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	75	0	168	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	97	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1524	-	822	991
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	927	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1524	-	821	991
Mov Cap-2 Maneuver	-	-	-	-	821	-
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	926	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.17	9.27
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	853	-	-	41	-
HCM Lane V/C Ratio	0.011	-	-	0.001	-
HCM Control Delay (s/veh)	9.3	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	6	2	85	7	2
Future Vol, veh/h	63	6	2	85	7	2
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	7	2	103	8	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	83	0	187	80
Stage 1	-	-	-	-	80	-
Stage 2	-	-	-	-	107	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1514	-	802	981
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	917	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1514	-	801	981
Mov Cap-2 Maneuver	-	-	-	-	801	-
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	915	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.17	9.37
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	835	-	-	41	-
HCM Lane V/C Ratio	0.013	-	-	0.002	-
HCM Control Delay (s/veh)	9.4	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	6	2	85	7	2
Future Vol, veh/h	63	6	2	85	7	2
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	90	9	3	121	10	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	98	0	221	94
Stage 1	-	-	-	-	94	-
Stage 2	-	-	-	-	127	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1495	-	767	963
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	899	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1495	-	766	963
Mov Cap-2 Maneuver	-	-	-	-	766	-
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	897	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.17	9.56
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	802	-	-	41	-
HCM Lane V/C Ratio	0.016	-	-	0.002	-
HCM Control Delay (s/veh)	9.6	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	94	7	2	112	8	2
Future Vol, veh/h	94	7	2	112	8	2
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	8	2	122	9	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	110	0	232	106
Stage 1	-	-	-	-	106	-
Stage 2	-	-	-	-	126	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1480	-	756	948
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	900	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1480	-	755	948
Mov Cap-2 Maneuver	-	-	-	-	755	-
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	898	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.13	9.64
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	787	-	-	32	-
HCM Lane V/C Ratio	0.014	-	-	0.001	-
HCM Control Delay (s/veh)	9.6	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	107	8	3	129	9	3
Future Vol, veh/h	107	8	3	129	9	3
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	9	3	140	10	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	125	0	267	121
Stage 1	-	-	-	-	121	-
Stage 2	-	-	-	-	147	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1462	-	722	931
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	881	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1462	-	720	931
Mov Cap-2 Maneuver	-	-	-	-	720	-
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	879	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.17	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	763	-	-	41	-
HCM Lane V/C Ratio	0.017	-	-	0.002	-
HCM Control Delay (s/veh)	9.8	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	65	1	7	85	3	4
Future Vol, veh/h	65	1	7	85	3	4
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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	71	1	8	92	3	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	72	0	179	71
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	108	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1528	-	811	991
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	917	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1528	-	807	991
Mov Cap-2 Maneuver	-	-	-	-	807	-
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	912	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.56	9.01
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	807	991	-	-	137	-
HCM Lane V/C Ratio	0.004	0.004	-	-	0.005	-
HCM Control Delay (s/veh)	9.5	8.6	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	65	1	7	85	3	4
Future Vol, veh/h	65	1	7	85	3	4
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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	1	8	103	4	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	80	0	198	79
Stage 1	-	-	-	-	79	-
Stage 2	-	-	-	-	119	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1518	-	790	981
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	906	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1518	-	786	981
Mov Cap-2 Maneuver	-	-	-	-	786	-
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	900	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.56	9.08
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	786	981	-	-	137	-
HCM Lane V/C Ratio	0.005	0.005	-	-	0.006	-
HCM Control Delay (s/veh)	9.6	8.7	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	65	1	7	85	3	4
Future Vol, veh/h	65	1	7	85	3	4
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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	1	10	121	4	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	94	0	234	93
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	141	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1500	-	754	964
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	886	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1500	-	749	964
Mov Cap-2 Maneuver	-	-	-	-	749	-
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	880	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.56	9.22
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	749	964	-	-	137	-
HCM Lane V/C Ratio	0.006	0.006	-	-	0.007	-
HCM Control Delay (s/veh)	9.8	8.8	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	96	1	8	112	3	4
Future Vol, veh/h	96	1	8	112	3	4
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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	104	1	9	122	3	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	105	0	244	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	139	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1486	-	744	950
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	888	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1486	-	740	950
Mov Cap-2 Maneuver	-	-	-	-	740	-
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	882	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.5	9.27
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	740	950	-	-	120	-
HCM Lane V/C Ratio	0.004	0.005	-	-	0.006	-
HCM Control Delay (s/veh)	9.9	8.8	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	109	1	9	129	4	5
Future Vol, veh/h	109	1	9	129	4	5
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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	118	1	10	140	4	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	120	0	279	119
Stage 1	-	-	-	-	119	-
Stage 2	-	-	-	-	160	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1468	-	711	933
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	869	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1468	-	706	933
Mov Cap-2 Maneuver	-	-	-	-	706	-
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	863	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.49	9.44
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	706	933	-	-	117	-
HCM Lane V/C Ratio	0.006	0.006	-	-	0.007	-
HCM Control Delay (s/veh)	10.1	8.9	-	-	7.5	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	37	645	49	48	736
Future Vol, veh/h	28	37	645	49	48	736
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	-	-	-	60	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	40	701	53	52	800

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1232	377	0	0	754	0
Stage 1	728	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	169	620	-	-	852	-
Stage 1	439	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	159	620	-	-	852	-
Mov Cap-2 Maneuver	292	-	-	-	-	-
Stage 1	439	-	-	-	-	-
Stage 2	537	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	15.36	0	0.58
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	418	852	-
HCM Lane V/C Ratio	-	-	0.169	0.061	-
HCM Control Delay (s/veh)	-	-	15.4	9.5	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	37	645	49	48	736
Future Vol, veh/h	28	37	645	49	48	736
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	-	-	-	60	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	45	778	59	58	888

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1368	419	0	0	837	0
Stage 1	808	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	138	583	-	-	793	-
Stage 1	399	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	128	583	-	-	793	-
Mov Cap-2 Maneuver	259	-	-	-	-	-
Stage 1	399	-	-	-	-	-
Stage 2	496	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	16.95	0	0.61
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	379	793	-
HCM Lane V/C Ratio	-	-	0.207	0.073	-
HCM Control Delay (s/veh)	-	-	17	9.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.2	-

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	37	645	49	48	736
Future Vol, veh/h	28	37	645	49	48	736
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	-	-	-	60	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	53	918	70	68	1048

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1614	494	0	0	988	0
Stage 1	953	-	-	-	-	-
Stage 2	661	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	95	521	-	-	695	-
Stage 1	335	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	85	521	-	-	695	-
Mov Cap-2 Maneuver	210	-	-	-	-	-
Stage 1	335	-	-	-	-	-
Stage 2	429	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	20.91	0	0.66
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	318	695	-
HCM Lane V/C Ratio	-	-	0.291	0.098	-
HCM Control Delay (s/veh)	-	-	20.9	10.7	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	1.2	0.3	-

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	53	716	62	69	817
Future Vol, veh/h	37	53	716	62	69	817
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	-	-	-	60	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	58	778	67	75	888

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1406	423	0	0	846	0
Stage 1	812	-	-	-	-	-
Stage 2	594	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	130	580	-	-	787	-
Stage 1	397	-	-	-	-	-
Stage 2	514	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	118	580	-	-	787	-
Mov Cap-2 Maneuver	249	-	-	-	-	-
Stage 1	397	-	-	-	-	-
Stage 2	465	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	17.97	0	0.78
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	375	787	-
HCM Lane V/C Ratio	-	-	0.261	0.095	-
HCM Control Delay (s/veh)	-	-	18	10.1	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	1	0.3	-

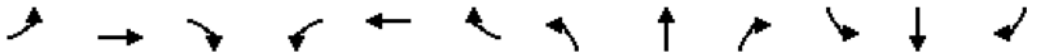
Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	60	845	72	79	964
Future Vol, veh/h	43	60	845	72	79	964
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	-	-	-	60	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	65	918	78	86	1048

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1653	498	0	0	997	0
Stage 1	958	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	89	517	-	-	690	-
Stage 1	333	-	-	-	-	-
Stage 2	456	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	78	517	-	-	690	-
Mov Cap-2 Maneuver	201	-	-	-	-	-
Stage 1	333	-	-	-	-	-
Stage 2	399	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	22.83	0	0.83
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	312	690	-
HCM Lane V/C Ratio	-	-	0.358	0.124	-
HCM Control Delay (s/veh)	-	-	22.8	11	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	1.6	0.4	-

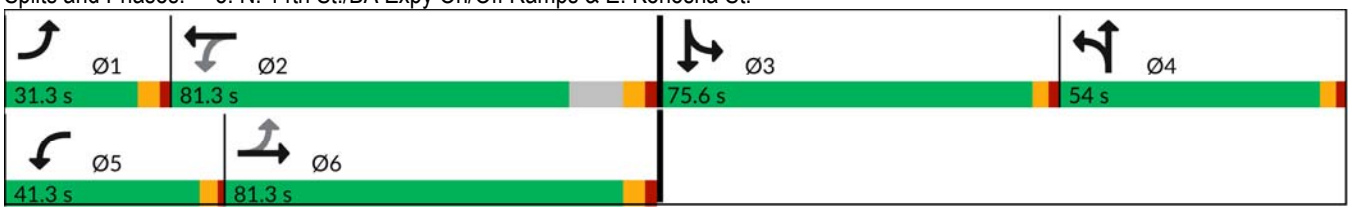


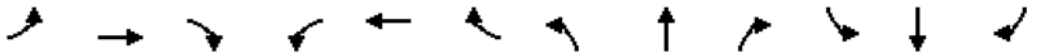
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.982			0.926			0.919	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1697	0	1770	1712	0
Flt Permitted	0.114			0.166				0.984		0.950		
Satd. Flow (perm)	212	5060	0	309	4994	0	0	1697	0	1770	1712	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			10			21			24	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
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
Adj. Flow (vph)	251	979	37	102	735	100	34	14	58	687	64	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	251	1016	0	102	835	0	0	106	0	687	140	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	31.3	81.3		41.3	81.3		54.0	54.0		75.6	75.6	
Total Split (%)	12.4%	32.2%		16.4%	32.2%		21.4%	21.4%		30.0%	30.0%	
Maximum Green (s)	25.0	75.0		36.8	75.0		49.0	49.0		70.6	70.6	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	62.8	45.9		48.7	34.5			14.2		71.0	71.0	
Actuated g/C Ratio	0.38	0.28		0.30	0.21			0.09		0.43	0.43	
v/c Ratio	0.87	0.72		0.51	0.79			0.64		0.90	0.19	
Control Delay (s/veh)	72.0	56.9		42.5	67.2			77.0		60.4	26.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	72.0	56.9		42.5	67.2			77.0		60.4	26.7	
LOS	E	E		D	E			E		E	C	
Approach Delay (s/veh)		59.9			64.5			77.0			54.7	
Approach LOS		E			E			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 252.2			
Actuated Cycle Length: 164.4			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 60.5		Intersection LOS: E	
Intersection Capacity Utilization 84.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



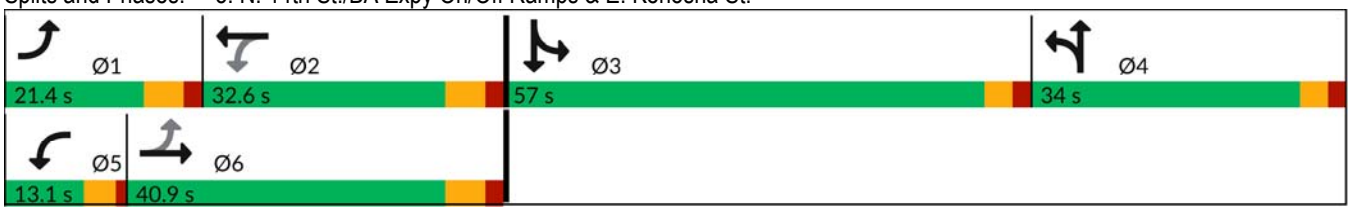


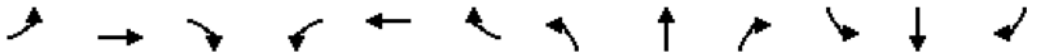
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.982			0.926			0.919	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1697	0	1770	1712	0
Flt Permitted	0.126			0.174				0.984		0.950		
Satd. Flow (perm)	235	5060	0	324	4994	0	0	1697	0	1770	1712	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			15			38			46	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
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
Adj. Flow (vph)	251	979	37	102	735	100	34	14	58	687	64	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	251	1016	0	102	835	0	0	106	0	687	140	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	21.4	40.9		13.1	32.6		34.0	34.0		57.0	57.0	
Total Split (%)	14.8%	28.2%		9.0%	22.5%		23.4%	23.4%		39.3%	39.3%	
Maximum Green (s)	15.1	34.6		8.6	26.3		29.0	29.0		52.0	52.0	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	46.8	34.0		35.5	25.4			10.5		52.1	52.1	
Actuated g/C Ratio	0.37	0.27		0.28	0.20			0.08		0.41	0.41	
v/c Ratio	0.92	0.74		0.55	0.82			0.60		0.94	0.19	
Control Delay (s/veh)	71.8	45.9		38.3	54.9			50.3		57.6	17.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	71.8	45.9		38.3	54.9			50.3		57.6	17.1	
LOS	E	D		D	D			D		E	B	
Approach Delay (s/veh)		51.1			53.1			50.3			50.7	
Approach LOS		D			D			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 125.7			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay (s/veh): 51.6		Intersection LOS: D	
Intersection Capacity Utilization 84.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



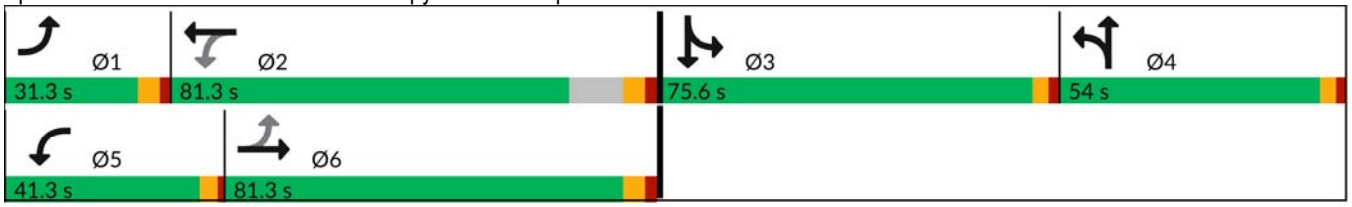


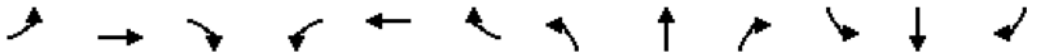
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.982			0.926			0.919	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1697	0	1770	1712	0
Flt Permitted	0.096			0.139				0.984		0.950		
Satd. Flow (perm)	179	5060	0	259	4994	0	0	1697	0	1770	1712	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			10			21			23	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	279	1087	41	113	816	111	37	16	64	763	71	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	279	1128	0	113	927	0	0	117	0	763	155	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2								
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	31.3	81.3		41.3	81.3		54.0	54.0		75.6	75.6	
Total Split (%)	12.4%	32.2%		16.4%	32.2%		21.4%	21.4%		30.0%	30.0%	
Maximum Green (s)	25.0	75.0		36.8	75.0		49.0	49.0		70.6	70.6	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	71.2	52.9		55.5	39.9			15.9		70.9	70.9	
Actuated g/C Ratio	0.41	0.30		0.32	0.23			0.09		0.41	0.41	
v/c Ratio	0.93	0.73		0.56	0.81			0.67		1.06	0.22	
Control Delay (s/veh)	85.8	58.3		44.4	69.1			82.6		99.4	31.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	85.8	58.3		44.4	69.1			82.6		99.4	31.4	
LOS	F	E		D	E			F		F	C	
Approach Delay (s/veh)		63.8			66.4			82.6			87.9	
Approach LOS		E			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 252.2			
Actuated Cycle Length: 174.4			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay (s/veh): 71.5		Intersection LOS: E	
Intersection Capacity Utilization 91.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



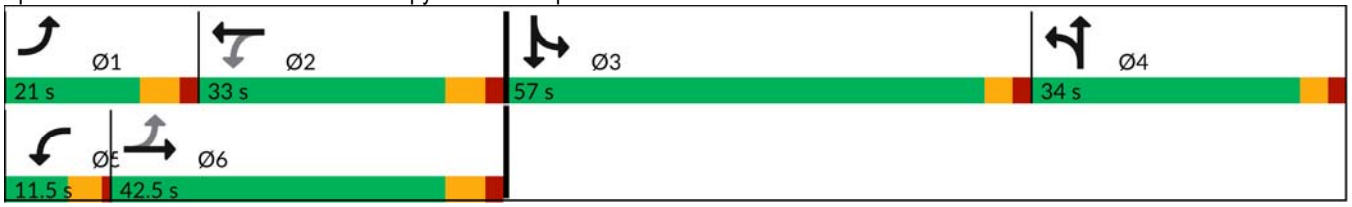


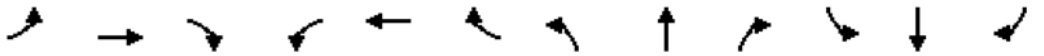
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.982			0.926			0.919	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1697	0	1770	1712	0
Flt Permitted	0.121			0.150				0.984		0.950		
Satd. Flow (perm)	225	5060	0	279	4994	0	0	1697	0	1770	1712	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			15			37			46	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	279	1087	41	113	816	111	37	16	64	763	71	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	279	1128	0	113	927	0	0	117	0	763	155	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2								
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	21.0	42.5		11.5	33.0		34.0	34.0		57.0	57.0	
Total Split (%)	14.5%	29.3%		7.9%	22.8%		23.4%	23.4%		39.3%	39.3%	
Maximum Green (s)	14.7	36.2		7.0	26.7		29.0	29.0		52.0	52.0	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	47.8	36.2		35.5	26.7			11.5		52.1	52.1	
Actuated g/C Ratio	0.37	0.28		0.28	0.21			0.09		0.41	0.41	
v/c Ratio	1.06	0.78		0.71	0.88			0.63		1.06	0.21	
Control Delay (s/veh)	108.1	46.9		53.8	58.7			53.0		86.8	18.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	108.1	46.9		53.8	58.7			53.0		86.8	18.5	
LOS	F	D		D	E			D		F	B	
Approach Delay (s/veh)		59.0			58.2			53.0			75.3	
Approach LOS		E			E			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 127.6			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay (s/veh): 62.9		Intersection LOS: E	
Intersection Capacity Utilization 91.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



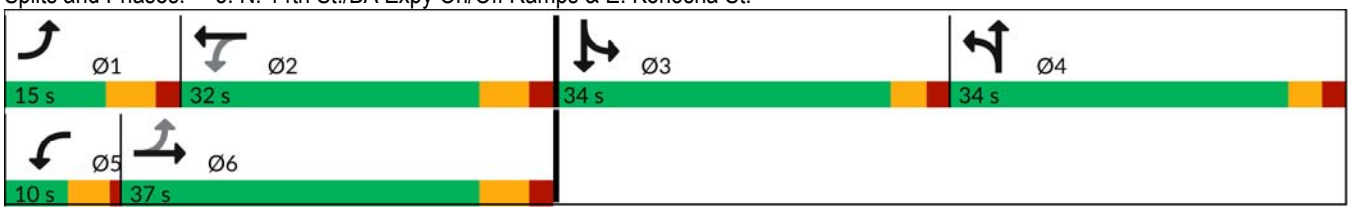


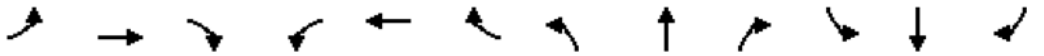
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	250		0
Storage Lanes	1		0	1		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.995			0.982			0.926			0.919	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1697	0	3433	1712	0
Flt Permitted	0.144			0.175				0.984		0.950		
Satd. Flow (perm)	268	5060	0	326	4994	0	0	1697	0	3433	1712	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			20			51			50	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			256	
Travel Time (s)		7.3			8.7			5.8			5.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	279	1087	41	113	816	111	37	16	64	763	71	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	279	1128	0	113	927	0	0	117	0	763	155	0
Enter Blocked Intersection	No	No	No	No	No	No	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			24			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2								
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	15.0	37.0		10.0	32.0		34.0	34.0		34.0	34.0	
Total Split (%)	13.0%	32.2%		8.7%	27.8%		29.6%	29.6%		29.6%	29.6%	
Maximum Green (s)	8.7	30.7		5.5	25.7		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	36.6	27.8		30.1	22.7			9.2		26.2	26.2	
Actuated g/C Ratio	0.41	0.31		0.34	0.25			0.10		0.29	0.29	
v/c Ratio	1.09	0.72		0.57	0.73			0.53		0.76	0.29	
Control Delay (s/veh)	106.8	31.0		30.3	34.3			33.4		35.4	19.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	106.8	31.0		30.3	34.3			33.4		35.4	19.1	
LOS	F	C		C	C			C		D	B	
Approach Delay (s/veh)		46.0			33.8			33.4			32.6	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 89.8			
Natural Cycle: 115			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay (s/veh): 38.4		Intersection LOS: D	
Intersection Capacity Utilization 76.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



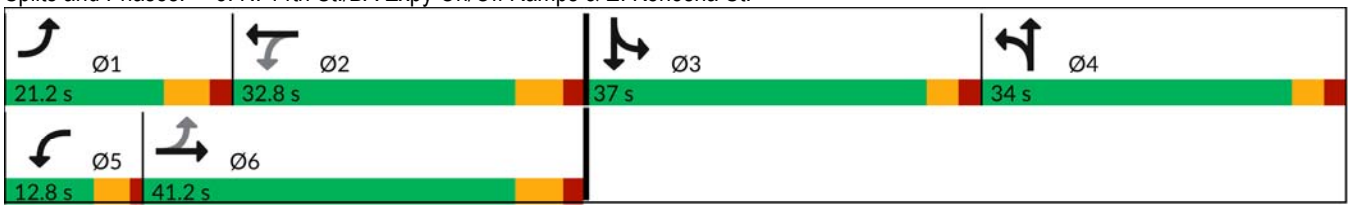


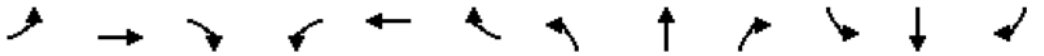
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.995			0.982			0.926			0.972	
Flt Protected	0.950			0.950				0.984		0.950	0.968	
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1697	0	1681	1665	0
Flt Permitted	0.129			0.181				0.984		0.950	0.968	
Satd. Flow (perm)	240	5060	0	337	4994	0	0	1697	0	1681	1665	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			18			45			9	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	279	1087	41	113	816	111	37	16	64	763	71	84
Shared Lane Traffic (%)										39%		
Lane Group Flow (vph)	279	1128	0	113	927	0	0	117	0	465	453	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2								
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	21.2	41.2		12.8	32.8		34.0	34.0		37.0	37.0	
Total Split (%)	17.0%	33.0%		10.2%	26.2%		27.2%	27.2%		29.6%	29.6%	
Maximum Green (s)	14.9	34.9		8.3	26.5		29.0	29.0		32.0	32.0	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	45.8	33.3		34.3	24.5			9.9		32.1	32.1	
Actuated g/C Ratio	0.44	0.32		0.33	0.24			0.10		0.31	0.31	
v/c Ratio	0.86	0.70		0.51	0.78			0.58		0.90	0.87	
Control Delay (s/veh)	50.8	33.9		26.9	42.0			40.4		57.6	53.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	50.8	33.9		26.9	42.0			40.4		57.6	53.6	
LOS	D	C		C	D			D		E	D	
Approach Delay (s/veh)		37.3			40.4			40.4			55.6	
Approach LOS		D			D			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 104.1			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 43.1		Intersection LOS: D	
Intersection Capacity Utilization 79.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



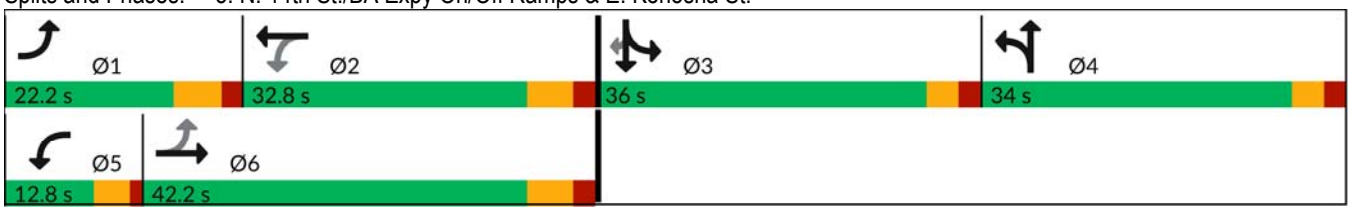


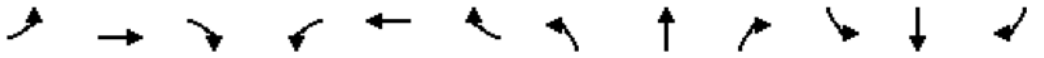
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		200
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.995			0.982			0.926				0.850
Flt Protected	0.950			0.950				0.984		0.950	0.960	
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1697	0	1681	1699	1583
Flt Permitted	0.129			0.193				0.984		0.950	0.960	
Satd. Flow (perm)	240	5060	0	360	4994	0	0	1697	0	1681	1699	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			18			45				167
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			251	
Travel Time (s)		7.3			8.7			5.8			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%
Adj. Flow (vph)	279	1087	41	113	816	111	37	16	64	763	71	84
Shared Lane Traffic (%)										46%		
Lane Group Flow (vph)	279	1128	0	113	927	0	0	117	0	412	422	84
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
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	6	20
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		Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2								3
Detector Phase	1	6		5	2		4	4		3	3	3
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	34.0
Total Split (s)	22.2	42.2		12.8	32.8		34.0	34.0		36.0	36.0	36.0
Total Split (%)	17.8%	33.8%		10.2%	26.2%		27.2%	27.2%		28.8%	28.8%	28.8%
Maximum Green (s)	15.9	35.9		8.3	26.5		29.0	29.0		31.0	31.0	31.0
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Min		None	Min		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	46.8	34.3		34.3	24.5			9.9		31.1	31.1	31.1
Actuated g/C Ratio	0.45	0.33		0.33	0.24			0.10		0.30	0.30	0.30
v/c Ratio	0.82	0.68		0.50	0.78			0.58		0.82	0.83	0.14
Control Delay (s/veh)	44.6	32.8		25.8	42.0			40.4		50.1	51.0	0.5
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Delay (s/veh)	44.6	32.8		25.8	42.0			40.4		50.1	51.0	0.5
LOS	D	C		C	D			D		D	D	A
Approach Delay (s/veh)		35.1			40.3			40.4			46.0	
Approach LOS		D			D			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 104.1			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay (s/veh): 39.7		Intersection LOS: D	
Intersection Capacity Utilization 73.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



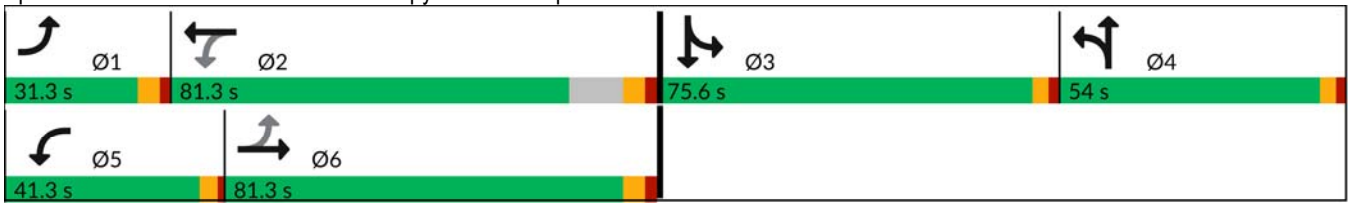


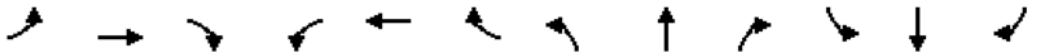
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.982			0.927			0.918	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1699	0	1770	1710	0
Flt Permitted	0.082			0.076				0.984		0.950		
Satd. Flow (perm)	153	5060	0	142	4994	0	0	1699	0	1770	1710	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			10			21			24	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%
Adj. Flow (vph)	329	1283	48	134	963	131	44	19	75	900	84	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	329	1331	0	134	1094	0	0	138	0	900	184	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2								
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	31.3	81.3		41.3	81.3		54.0	54.0		75.6	75.6	
Total Split (%)	12.4%	32.2%		16.4%	32.2%		21.4%	21.4%		30.0%	30.0%	
Maximum Green (s)	25.0	75.0		36.8	75.0		49.0	49.0		70.6	70.6	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	83.4	61.9		72.5	52.8			19.3		71.2	71.2	
Actuated g/C Ratio	0.44	0.32		0.38	0.28			0.10		0.37	0.37	
v/c Ratio	1.18	0.81		0.65	0.79			0.73		1.37	0.28	
Control Delay (s/veh)	159.4	64.4		59.0	67.8			93.6		218.6	40.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	159.4	64.4		59.0	67.8			93.6		218.6	40.7	
LOS	F	E		E	E			F		F	D	
Approach Delay (s/veh)		83.2			66.8			93.6			188.4	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 252.2			
Actuated Cycle Length: 191.3			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.37			
Intersection Signal Delay (s/veh): 106.4		Intersection LOS: F	
Intersection Capacity Utilization 103.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



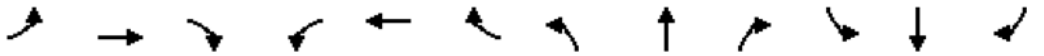


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.982			0.927			0.918	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1699	0	1770	1710	0
Flt Permitted	0.114			0.139				0.984		0.950		
Satd. Flow (perm)	212	5060	0	259	4994	0	0	1699	0	1770	1710	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			15			37			46	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%
Adj. Flow (vph)	329	1283	48	134	963	131	44	19	75	900	84	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	329	1331	0	134	1094	0	0	138	0	900	184	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2								
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	20.0	44.0		11.0	35.0		34.0	34.0		56.0	56.0	
Total Split (%)	13.8%	30.3%		7.6%	24.1%		23.4%	23.4%		38.6%	38.6%	
Maximum Green (s)	13.7	37.7		6.5	28.7		29.0	29.0		51.0	51.0	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	48.8	37.8		37.0	28.7			13.1		51.1	51.1	
Actuated g/C Ratio	0.38	0.29		0.29	0.22			0.10		0.40	0.40	
v/c Ratio	1.34	0.90		0.89	0.98			0.67		1.29	0.26	
Control Delay (s/veh)	209.8	53.4		82.7	71.0			56.7		174.1	21.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	209.8	53.4		82.7	71.0			56.7		174.1	21.3	
LOS	F	D		F	E			E		F	C	
Approach Delay (s/veh)		84.4			72.3			56.7			148.2	
Approach LOS		F			E			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 129.3			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.34			
Intersection Signal Delay (s/veh): 96.7		Intersection LOS: F	
Intersection Capacity Utilization 103.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.

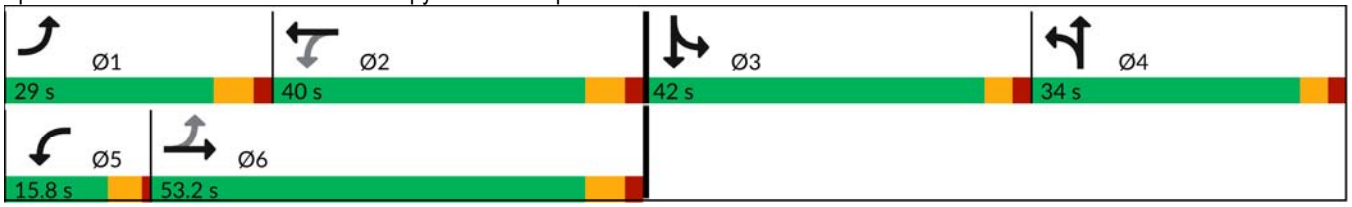


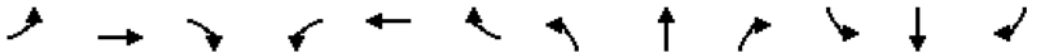
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	250		0
Storage Lanes	1		0	1		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.995			0.982			0.927			0.918	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1699	0	3433	1710	0
Flt Permitted	0.103			0.137				0.984		0.950		
Satd. Flow (perm)	192	5060	0	255	4994	0	0	1699	0	3433	1710	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			16			37			40	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			253	
Travel Time (s)		7.3			8.7			5.8			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%
Adj. Flow (vph)	329	1283	48	134	963	131	44	19	75	900	84	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	329	1331	0	134	1094	0	0	138	0	900	184	0
Enter Blocked Intersection	No	No	No	No	No	No	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			24			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2								
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	29.0	53.2		15.8	40.0		34.0	34.0		42.0	42.0	
Total Split (%)	20.0%	36.7%		10.9%	27.6%		23.4%	23.4%		29.0%	29.0%	
Maximum Green (s)	22.7	46.9		11.3	33.7		29.0	29.0		37.0	37.0	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	61.7	46.9		44.7	32.6			13.1		37.1	37.1	
Actuated g/C Ratio	0.48	0.37		0.35	0.25			0.10		0.29	0.29	
v/c Ratio	0.88	0.72		0.64	0.85			0.67		0.91	0.35	
Control Delay (s/veh)	60.3	38.1		38.0	52.6			56.3		58.1	31.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	60.3	38.1		38.0	52.6			56.3		58.1	31.2	
LOS	E	D		D	D			E		E	C	
Approach Delay (s/veh)		42.5			51.0			56.3			53.5	
Approach LOS		D			D			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 128.2			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay (s/veh): 48.4		Intersection LOS: D	
Intersection Capacity Utilization 86.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



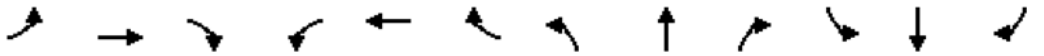


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.995			0.982			0.927			0.972	
Flt Protected	0.950			0.950				0.984		0.950	0.968	
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1699	0	1681	1665	0
Flt Permitted	0.111			0.134				0.984		0.950	0.968	
Satd. Flow (perm)	207	5060	0	250	4994	0	0	1699	0	1681	1665	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			15			37			8	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%
Adj. Flow (vph)	329	1283	48	134	963	131	44	19	75	900	84	100
Shared Lane Traffic (%)										39%		
Lane Group Flow (vph)	329	1331	0	134	1094	0	0	138	0	549	535	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2								
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	26.9	49.8		13.2	36.1		34.0	34.0		48.0	48.0	
Total Split (%)	18.6%	34.3%		9.1%	24.9%		23.4%	23.4%		33.1%	33.1%	
Maximum Green (s)	20.6	43.5		8.7	29.8		29.0	29.0		43.0	43.0	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	56.8	43.6		40.4	29.8			13.1		43.1	43.1	
Actuated g/C Ratio	0.44	0.34		0.31	0.23			0.10		0.33	0.33	
v/c Ratio	0.97	0.78		0.74	0.94			0.67		0.98	0.96	
Control Delay (s/veh)	78.1	42.8		52.1	63.9			56.7		77.1	71.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	78.1	42.8		52.1	63.9			56.7		77.1	71.0	
LOS	E	D		D	E			E		E	E	
Approach Delay (s/veh)		49.8			62.6			56.7			74.1	
Approach LOS		D			E			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 129.3			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay (s/veh): 60.2		Intersection LOS: E	
Intersection Capacity Utilization 90.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.

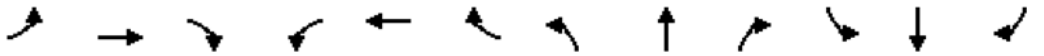


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Future Volume (vph)	231	901	34	94	676	92	31	13	53	632	59	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		200
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.995			0.982			0.927				0.850
Flt Protected	0.950			0.950				0.984		0.950	0.960	
Satd. Flow (prot)	1770	5060	0	1770	4994	0	0	1699	0	1681	1699	1583
Flt Permitted	0.105			0.126				0.984		0.950	0.960	
Satd. Flow (perm)	196	5060	0	235	4994	0	0	1699	0	1681	1699	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			15			37				144
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			248	
Travel Time (s)		7.3			8.7			5.8			4.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%	131%
Adj. Flow (vph)	329	1283	48	134	963	131	44	19	75	900	84	100
Shared Lane Traffic (%)										46%		
Lane Group Flow (vph)	329	1331	0	134	1094	0	0	138	0	486	498	100
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
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	6	20
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		Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2								3
Detector Phase	1	6		5	2		4	4		3	3	3
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	34.0
Total Split (s)	28.0	50.6		15.4	38.0		34.0	34.0		45.0	45.0	45.0
Total Split (%)	19.3%	34.9%		10.6%	26.2%		23.4%	23.4%		31.0%	31.0%	31.0%
Maximum Green (s)	21.7	44.3		10.9	31.7		29.0	29.0		40.0	40.0	40.0
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Min		None	Min		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	59.8	45.1		43.7	31.7			13.1		40.1	40.1	40.1
Actuated g/C Ratio	0.46	0.35		0.34	0.25			0.10		0.31	0.31	0.31
v/c Ratio	0.93	0.75		0.67	0.88			0.67		0.93	0.95	0.17
Control Delay (s/veh)	68.7	40.9		43.3	56.3			56.7		70.3	72.3	2.1
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Delay (s/veh)	68.7	40.9		43.3	56.3			56.7		70.3	72.3	2.1
LOS	E	D		D	E			E		E	E	A
Approach Delay (s/veh)		46.5			54.9			56.7			64.9	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 129.3			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay (s/veh): 54.2		Intersection LOS: D	
Intersection Capacity Utilization 82.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.

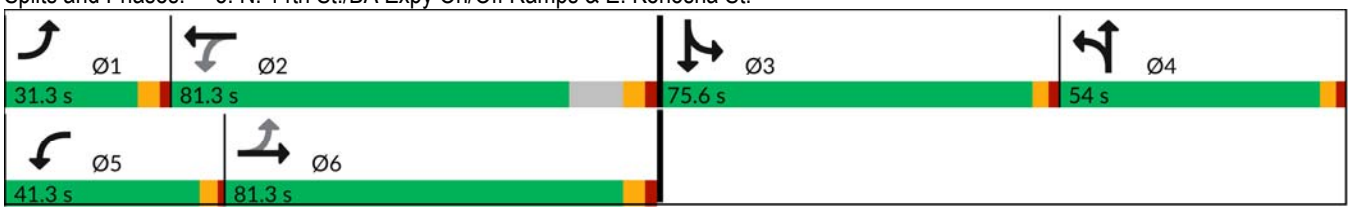


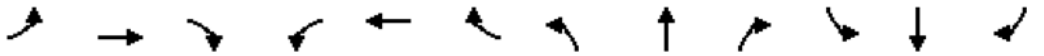
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	1000	42	109	750	102	37	16	63	702	68	78
Future Volume (vph)	256	1000	42	109	750	102	37	16	63	702	68	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.982			0.927			0.920	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5055	0	1770	4994	0	0	1699	0	1770	1714	0
Flt Permitted	0.097			0.131				0.984		0.950		
Satd. Flow (perm)	181	5055	0	244	4994	0	0	1699	0	1770	1714	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			10			21			23	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
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
Adj. Flow (vph)	278	1087	46	118	815	111	40	17	68	763	74	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	278	1133	0	118	926	0	0	125	0	763	159	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	31.3	81.3		41.3	81.3		54.0	54.0		75.6	75.6	
Total Split (%)	12.4%	32.2%		16.4%	32.2%		21.4%	21.4%		30.0%	30.0%	
Maximum Green (s)	25.0	75.0		36.8	75.0		49.0	49.0		70.6	70.6	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	71.6	52.8		56.6	40.4			16.9		71.0	71.0	
Actuated g/C Ratio	0.41	0.30		0.32	0.23			0.10		0.40	0.40	
v/c Ratio	0.93	0.75		0.58	0.80			0.69		1.07	0.23	
Control Delay (s/veh)	86.9	59.6		45.6	69.2			84.1		102.5	32.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	86.9	59.6		45.6	69.2			84.1		102.5	32.4	
LOS	F	E		D	E			F		F	C	
Approach Delay (s/veh)		65.0			66.5			84.1			90.4	
Approach LOS		E			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 252.2			
Actuated Cycle Length: 175.9			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay (s/veh): 72.8		Intersection LOS: E	
Intersection Capacity Utilization 91.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



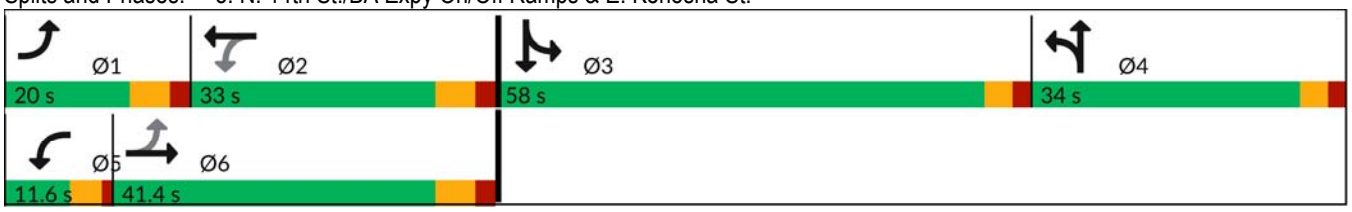


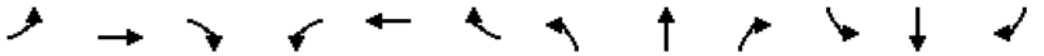
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	1000	42	109	750	102	37	16	63	702	68	78
Future Volume (vph)	256	1000	42	109	750	102	37	16	63	702	68	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.982			0.927			0.920	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5055	0	1770	4994	0	0	1699	0	1770	1714	0
Flt Permitted	0.121			0.150				0.984		0.950		
Satd. Flow (perm)	225	5055	0	279	4994	0	0	1699	0	1770	1714	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			15			37			45	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
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
Adj. Flow (vph)	278	1087	46	118	815	111	40	17	68	763	74	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	278	1133	0	118	926	0	0	125	0	763	159	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	20.0	41.4		11.6	33.0		34.0	34.0		58.0	58.0	
Total Split (%)	13.8%	28.6%		8.0%	22.8%		23.4%	23.4%		40.0%	40.0%	
Maximum Green (s)	13.7	35.1		7.1	26.7		29.0	29.0		53.0	53.0	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	46.7	35.1		35.6	26.7			12.1		53.0	53.0	
Actuated g/C Ratio	0.36	0.27		0.28	0.21			0.09		0.41	0.41	
v/c Ratio	1.13	0.82		0.74	0.88			0.65		1.04	0.22	
Control Delay (s/veh)	128.3	49.4		57.4	59.3			54.5		82.0	18.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	128.3	49.4		57.4	59.3			54.5		82.0	18.6	
LOS	F	D		E	E			D		F	B	
Approach Delay (s/veh)		65.0			59.1			54.5			71.1	
Approach LOS		E			E			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 128.2			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.13			
Intersection Signal Delay (s/veh): 64.5		Intersection LOS: E	
Intersection Capacity Utilization 91.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



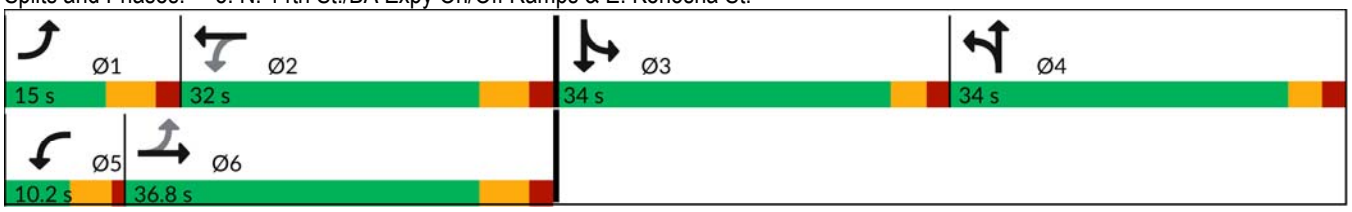


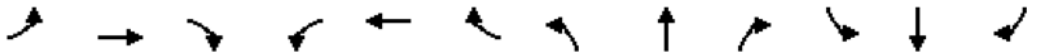
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	1000	42	109	750	102	37	16	63	702	68	78
Future Volume (vph)	256	1000	42	109	750	102	37	16	63	702	68	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	250		0
Storage Lanes	1		0	1		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.994			0.982			0.927			0.920	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5055	0	1770	4994	0	0	1699	0	3433	1714	0
Flt Permitted	0.145			0.175				0.984		0.950		
Satd. Flow (perm)	270	5055	0	326	4994	0	0	1699	0	3433	1714	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			20			50			48	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			249	
Travel Time (s)		7.3			8.7			5.8			4.9	
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
Adj. Flow (vph)	278	1087	46	118	815	111	40	17	68	763	74	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	278	1133	0	118	926	0	0	125	0	763	159	0
Enter Blocked Intersection	No	No	No	No	No	No	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			24			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	15.0	36.8		10.2	32.0		34.0	34.0		34.0	34.0	
Total Split (%)	13.0%	32.0%		8.9%	27.8%		29.6%	29.6%		29.6%	29.6%	
Maximum Green (s)	8.7	30.5		5.7	25.7		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	36.4	27.6		30.3	22.7			9.6		26.2	26.2	
Actuated g/C Ratio	0.40	0.31		0.34	0.25			0.11		0.29	0.29	
v/c Ratio	1.09	0.73		0.59	0.73			0.55		0.77	0.30	
Control Delay (s/veh)	108.1	31.8		31.3	34.6			34.8		35.8	19.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	108.1	31.8		31.3	34.6			34.8		35.8	19.9	
LOS	F	C		C	C			C		D	B	
Approach Delay (s/veh)		46.8			34.2			34.8			33.1	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 90.3			
Natural Cycle: 115			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay (s/veh): 39.0		Intersection LOS: D	
Intersection Capacity Utilization 76.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



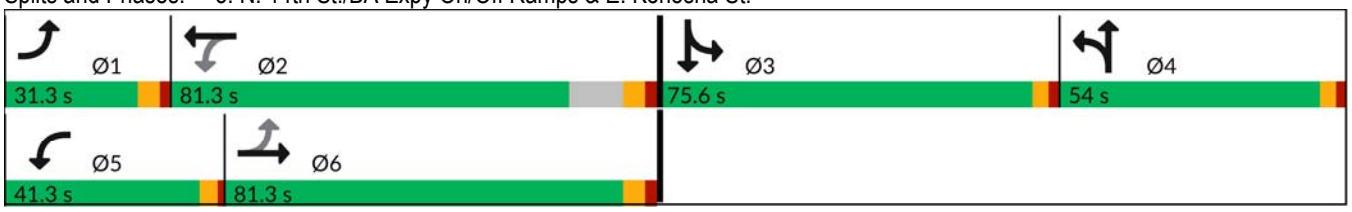


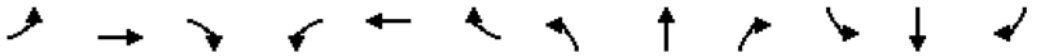
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	303	1180	49	128	886	121	44	19	73	828	80	92
Future Volume (vph)	303	1180	49	128	886	121	44	19	73	828	80	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.982			0.928			0.920	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5055	0	1770	4994	0	0	1701	0	1770	1714	0
Flt Permitted	0.083			0.074				0.984		0.950		
Satd. Flow (perm)	155	5055	0	138	4994	0	0	1701	0	1770	1714	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			11			20			23	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
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
Adj. Flow (vph)	329	1283	53	139	963	132	48	21	79	900	87	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	329	1336	0	139	1095	0	0	148	0	900	187	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	31.3	81.3		41.3	81.3		54.0	54.0		75.6	75.6	
Total Split (%)	12.4%	32.2%		16.4%	32.2%		21.4%	21.4%		30.0%	30.0%	
Maximum Green (s)	25.0	75.0		36.8	75.0		49.0	49.0		70.6	70.6	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	84.2	62.4		74.4	54.0			20.7		71.3	71.3	
Actuated g/C Ratio	0.43	0.32		0.38	0.28			0.11		0.37	0.37	
v/c Ratio	1.19	0.82		0.67	0.78			0.74		1.38	0.29	
Control Delay (s/veh)	163.3	66.1		61.7	68.0			96.1		226.4	42.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	163.3	66.1		61.7	68.0			96.1		226.4	42.4	
LOS	F	E		E	E			F		F	D	
Approach Delay (s/veh)		85.3			67.3			96.1			194.7	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 252.2			
Actuated Cycle Length: 194			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay (s/veh): 109.1		Intersection LOS: F	
Intersection Capacity Utilization 103.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



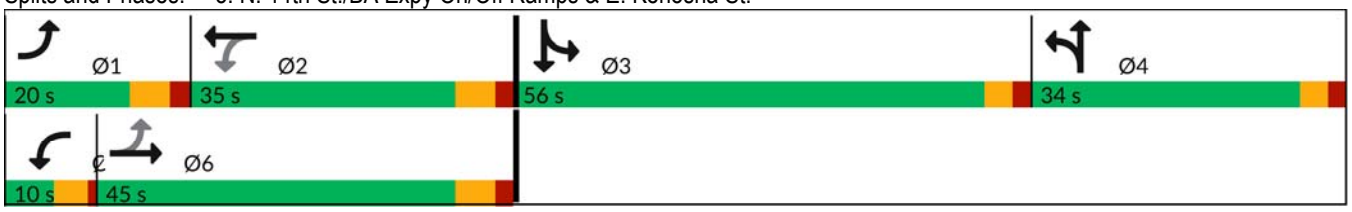


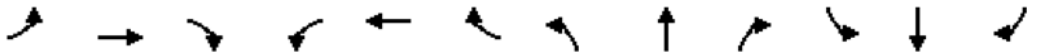
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	303	1180	49	128	886	121	44	19	73	828	80	92
Future Volume (vph)	303	1180	49	128	886	121	44	19	73	828	80	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.982			0.928			0.920	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5055	0	1770	4994	0	0	1701	0	1770	1714	0
Flt Permitted	0.114			0.139				0.984		0.950		
Satd. Flow (perm)	212	5055	0	259	4994	0	0	1701	0	1770	1714	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			15			36			44	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			261	
Travel Time (s)		7.3			8.7			5.8			5.1	
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
Adj. Flow (vph)	329	1283	53	139	963	132	48	21	79	900	87	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	329	1336	0	139	1095	0	0	148	0	900	187	0
Enter Blocked Intersection	No	No	No	No	No	No	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			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	20.0	45.0		10.0	35.0		34.0	34.0		56.0	56.0	
Total Split (%)	13.8%	31.0%		6.9%	24.1%		23.4%	23.4%		38.6%	38.6%	
Maximum Green (s)	13.7	38.7		5.5	28.7		29.0	29.0		51.0	51.0	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	48.7	38.7		36.0	28.7			14.0		51.0	51.0	
Actuated g/C Ratio	0.37	0.30		0.28	0.22			0.11		0.39	0.39	
v/c Ratio	1.35	0.89		1.03	0.98			0.69		1.30	0.27	
Control Delay (s/veh)	213.6	52.1		120.4	73.0			58.5		178.1	22.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	213.6	52.1		120.4	73.0			58.5		178.1	22.2	
LOS	F	D		F	E			E		F	C	
Approach Delay (s/veh)		84.0			78.4			58.5			151.3	
Approach LOS		F			E			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 130.1			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.35			
Intersection Signal Delay (s/veh): 99.1		Intersection LOS: F	
Intersection Capacity Utilization 103.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



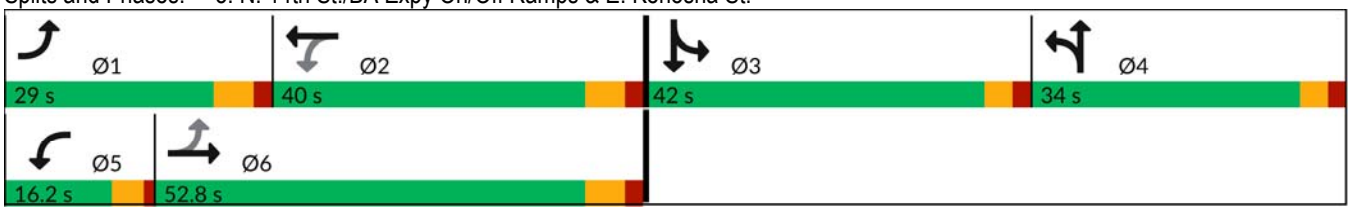


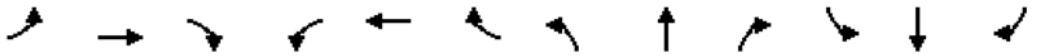
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	303	1180	49	128	886	121	44	19	73	828	80	92
Future Volume (vph)	303	1180	49	128	886	121	44	19	73	828	80	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	250		0
Storage Lanes	1		0	1		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.994			0.982			0.928			0.920	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5055	0	1770	4994	0	0	1701	0	3433	1714	0
Flt Permitted	0.103			0.132				0.984		0.950		
Satd. Flow (perm)	192	5055	0	246	4994	0	0	1701	0	3433	1714	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			16			36			38	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			233	
Travel Time (s)		7.3			8.7			5.8			4.5	
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
Adj. Flow (vph)	329	1283	53	139	963	132	48	21	79	900	87	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	329	1336	0	139	1095	0	0	148	0	900	187	0
Enter Blocked Intersection	No	No	No	No	No	No	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			24			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	
Total Split (s)	29.0	52.8		16.2	40.0		34.0	34.0		42.0	42.0	
Total Split (%)	20.0%	36.4%		11.2%	27.6%		23.4%	23.4%		29.0%	29.0%	
Maximum Green (s)	22.7	46.5		11.7	33.7		29.0	29.0		37.0	37.0	
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	61.7	46.7		45.0	32.7			14.0		37.1	37.1	
Actuated g/C Ratio	0.48	0.36		0.35	0.25			0.11		0.29	0.29	
v/c Ratio	0.89	0.73		0.66	0.86			0.69		0.91	0.36	
Control Delay (s/veh)	61.6	39.1		40.6	53.5			58.2		59.3	32.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay (s/veh)	61.6	39.1		40.6	53.5			58.2		59.3	32.3	
LOS	E	D		D	D			E		E	C	
Approach Delay (s/veh)		43.6			52.0			58.2			54.7	
Approach LOS		D			D			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 129.1			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay (s/veh): 49.5		Intersection LOS: D	
Intersection Capacity Utilization 87.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



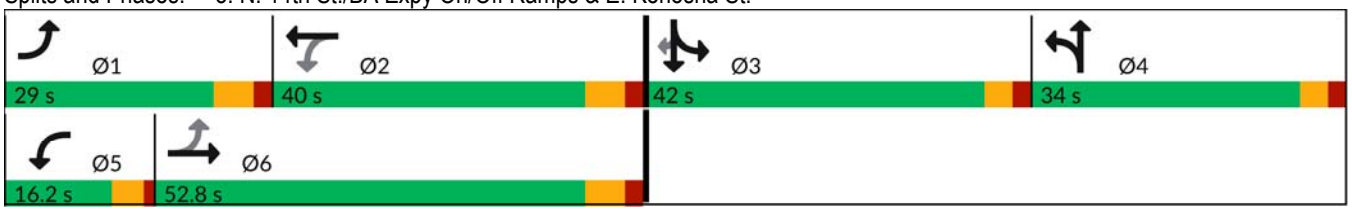


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	303	1180	49	128	886	121	44	19	73	828	80	92
Future Volume (vph)	303	1180	49	128	886	121	44	19	73	828	80	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	200		0	0		0	250		200
Storage Lanes	1		0	1		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.994			0.982			0.928				0.850
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	5055	0	1770	4994	0	0	1701	0	3433	1863	1583
Flt Permitted	0.103			0.132				0.984		0.950		
Satd. Flow (perm)	192	5055	0	246	4994	0	0	1701	0	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			16			36				144
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		480			576			214			267	
Travel Time (s)		7.3			8.7			5.8			5.2	
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
Adj. Flow (vph)	329	1283	53	139	963	132	48	21	79	900	87	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	329	1336	0	139	1095	0	0	148	0	900	87	100
Enter Blocked Intersection	No	No	No	No	No	No	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			24			15	
Link Offset(ft)		0			0			0			12	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
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	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
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	6	20
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		Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2								3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	3
Switch Phase												
Minimum Initial (s)	8.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	14.3	31.3		9.5	31.3		34.0	34.0		34.0	34.0	34.0
Total Split (s)	29.0	52.8		16.2	40.0		34.0	34.0		42.0	42.0	42.0
Total Split (%)	20.0%	36.4%		11.2%	27.6%		23.4%	23.4%		29.0%	29.0%	29.0%
Maximum Green (s)	22.7	46.5		11.7	33.7		29.0	29.0		37.0	37.0	37.0
Yellow Time (s)	4.3	4.3		3.5	4.3		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3		4.5	6.3			5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Min		None	Min		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Don't Walk (s)		18.0			18.0		22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	61.7	46.7		45.0	32.7			14.0		37.1	37.1	37.1
Actuated g/C Ratio	0.48	0.36		0.35	0.25			0.11		0.29	0.29	0.29
v/c Ratio	0.89	0.73		0.66	0.86			0.69		0.91	0.16	0.18
Control Delay (s/veh)	61.6	39.1		40.6	53.5			58.2		59.3	37.0	2.3
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Delay (s/veh)	61.6	39.1		40.6	53.5			58.2		59.3	37.0	2.3
LOS	E	D		D	D			E		E	D	A
Approach Delay (s/veh)		43.6			52.0			58.2			52.3	
Approach LOS		D			D			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 129.1			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay (s/veh): 48.9		Intersection LOS: D	
Intersection Capacity Utilization 81.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: N. 14th St./BA Expy On/Off Ramps & E. Kenosha St.



Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	7	30	0	10	29	6	413	1	49	522	16
Future Vol, veh/h	9	7	30	0	10	29	6	413	1	49	522	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	8	33	0	11	32	7	449	1	53	567	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	926	1146	292	857	1154	225	585	0	0	450	0	0
Stage 1	683	683	-	463	463	-	-	-	-	-	-	-
Stage 2	243	463	-	394	691	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	224	198	704	251	196	778	986	-	-	1107	-	-
Stage 1	406	448	-	549	563	-	-	-	-	-	-	-
Stage 2	739	562	-	602	444	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	192	187	704	218	185	778	986	-	-	1107	-	-
Mov Cap-2 Maneuver	192	187	-	218	185	-	-	-	-	-	-	-
Stage 1	386	426	-	545	559	-	-	-	-	-	-	-
Stage 2	691	559	-	537	422	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	16.52	14.35	0.12	0.7
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	986	-	-	362	427	1107	-	-
HCM Lane V/C Ratio	0.007	-	-	0.138	0.099	0.048	-	-
HCM Control Delay (s/veh)	8.7	-	-	16.5	14.4	8.4	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.3	0.2	-	-

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	9	7	30	0	10	29	6	413	1	49	522	16
Future Vol, veh/h	9	7	30	0	10	29	6	413	1	49	522	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	8	36	0	12	35	7	498	1	59	630	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1027	1272	325	951	1281	250	649	0	0	500	0	0
Stage 1	758	758	-	513	513	-	-	-	-	-	-	-
Stage 2	270	514	-	437	767	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	188	166	671	214	164	750	933	-	-	1061	-	-
Stage 1	366	414	-	512	534	-	-	-	-	-	-	-
Stage 2	713	534	-	568	409	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	156	156	671	180	154	750	933	-	-	1061	-	-
Mov Cap-2 Maneuver	156	156	-	180	154	-	-	-	-	-	-	-
Stage 1	345	391	-	508	530	-	-	-	-	-	-	-
Stage 2	659	530	-	496	387	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	19	15.92	0.13	0.72
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	933	-	-	312	376	1061	-	-
HCM Lane V/C Ratio	0.008	-	-	0.178	0.125	0.056	-	-
HCM Control Delay (s/veh)	8.9	-	-	19	15.9	8.6	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.4	0.2	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	7	30	0	10	29	6	413	1	49	522	16
Future Vol, veh/h	9	7	30	0	10	29	6	413	1	49	522	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	10	43	0	14	41	9	588	1	70	743	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1212	1501	383	1122	1511	295	766	0	0	590	0	0
Stage 1	894	894	-	606	606	-	-	-	-	-	-	-
Stage 2	318	607	-	516	906	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	138	121	615	161	119	702	843	-	-	982	-	-
Stage 1	302	358	-	451	485	-	-	-	-	-	-	-
Stage 2	668	485	-	510	353	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	105	111	615	126	109	702	843	-	-	982	-	-
Mov Cap-2 Maneuver	105	111	-	126	109	-	-	-	-	-	-	-
Stage 1	281	332	-	446	480	-	-	-	-	-	-	-
Stage 2	603	480	-	428	328	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	26.41	20.08	0.13	0.75
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	843	-	-	233	294	982	-	-
HCM Lane V/C Ratio	0.01	-	-	0.281	0.189	0.071	-	-
HCM Control Delay (s/veh)	9.3	-	-	26.4	20.1	8.9	-	-
HCM Lane LOS	A	-	-	D	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.1	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	10	37	0	14	32	13	458	1	54	579	29
Future Vol, veh/h	18	10	37	0	14	32	13	458	1	54	579	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	11	40	0	15	35	14	498	1	59	629	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1047	1290	330	964	1305	249	661	0	0	499	0	0
Stage 1	763	763	-	527	527	-	-	-	-	-	-	-
Stage 2	285	527	-	437	778	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	182	162	665	210	159	750	923	-	-	1061	-	-
Stage 1	363	411	-	503	527	-	-	-	-	-	-	-
Stage 2	698	526	-	568	405	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	146	151	665	171	148	750	923	-	-	1061	-	-
Mov Cap-2 Maneuver	146	151	-	171	148	-	-	-	-	-	-	-
Stage 1	343	389	-	495	519	-	-	-	-	-	-	-
Stage 2	637	518	-	490	382	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	23.43	17.62	0.25	0.7
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	923	-	-	265	335	1061	-	-
HCM Lane V/C Ratio	0.015	-	-	0.266	0.149	0.055	-	-
HCM Control Delay (s/veh)	9	-	-	23.4	17.6	8.6	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1	0.5	0.2	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	11	43	0	16	38	14	541	1	64	684	32
Future Vol, veh/h	20	11	43	0	16	38	14	541	1	64	684	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	12	47	0	17	41	15	588	1	70	743	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1233	1520	389	1136	1536	295	778	0	0	589	0	0
Stage 1	900	900	-	619	619	-	-	-	-	-	-	-
Stage 2	333	620	-	517	917	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	133	118	610	157	115	702	834	-	-	982	-	-
Stage 1	300	355	-	443	478	-	-	-	-	-	-	-
Stage 2	654	478	-	509	349	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	97	107	610	119	105	702	834	-	-	982	-	-
Mov Cap-2 Maneuver	97	107	-	119	105	-	-	-	-	-	-	-
Stage 1	279	330	-	435	470	-	-	-	-	-	-	-
Stage 2	582	469	-	421	324	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	35.9	22.73	0.24	0.73
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	834	-	-	195	261	982	-	-
HCM Lane V/C Ratio	0.018	-	-	0.413	0.225	0.071	-	-
HCM Control Delay (s/veh)	9.4	-	-	35.9	22.7	8.9	-	-
HCM Lane LOS	A	-	-	E	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.9	0.8	0.2	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	62	0	0	32	0	0
Future Vol, veh/h	62	0	0	32	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	0	0	35	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	67	0	102	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	35	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1534	-	896	996
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	988	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1534	-	896	996
Mov Cap-2 Maneuver	-	-	-	-	896	-
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	988	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1534	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s/veh)	0	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	62	0	0	32	0	0
Future Vol, veh/h	62	0	0	32	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	0	0	39	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	75	0	113	75
Stage 1	-	-	-	-	75	-
Stage 2	-	-	-	-	39	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1525	-	883	987
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	984	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1525	-	883	987
Mov Cap-2 Maneuver	-	-	-	-	883	-
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	984	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1525	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s/veh)	0	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	62	0	0	32	0	0
Future Vol, veh/h	62	0	0	32	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	0	0	46	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	88	0	134	88
Stage 1	-	-	-	-	88	-
Stage 2	-	-	-	-	46	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1507	-	860	970
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	977	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1507	-	860	970
Mov Cap-2 Maneuver	-	-	-	-	860	-
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	977	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1507	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s/veh)	0	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	69	34	19	36	25	14
Future Vol, veh/h	69	34	19	36	25	14
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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	37	21	39	27	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	112	0	174	93
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	80	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1478	-	816	964
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	943	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1478	-	804	964
Mov Cap-2 Maneuver	-	-	-	-	804	-
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	929	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	2.58	9.33
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	804	964	-	-	622	-
HCM Lane V/C Ratio	0.034	0.016	-	-	0.014	-
HCM Control Delay (s/veh)	9.6	8.8	-	-	7.5	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	81	34	19	42	25	14
Future Vol, veh/h	81	34	19	42	25	14
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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	37	21	46	27	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	125	0	193	107
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	87	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1462	-	795	948
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	936	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1462	-	784	948
Mov Cap-2 Maneuver	-	-	-	-	784	-
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	923	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	2.34	9.44
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	784	948	-	-	561	-
HCM Lane V/C Ratio	0.035	0.016	-	-	0.014	-
HCM Control Delay (s/veh)	9.8	8.9	-	-	7.5	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Appendix D
Traffic Count Data

National Data & Surveying Services

Intersection Turning Movement Count

Location: N 14th St & E College St
City: Broken Arrow
Control: 1-Way Stop(SB)

Project ID: 24-470301-001
Date: 9/25/2024

Data - Totals

NS/EW Streets:	N 14th St				N 14th St				E College St				E College St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	2	0	8	0	6	7	0	0	0	2	0	0	25
7:15 AM	0	0	0	0	1	0	4	0	1	6	0	0	0	5	0	0	17
7:30 AM	0	0	0	0	0	0	2	0	4	6	0	0	0	8	2	0	22
7:45 AM	0	0	0	0	0	0	7	0	0	8	0	0	0	7	2	0	24
8:00 AM	0	0	0	0	0	0	3	0	7	5	0	0	0	6	0	0	21
8:15 AM	0	0	0	0	0	0	3	0	1	11	0	0	0	6	1	0	22
8:30 AM	0	0	0	0	0	0	2	0	4	9	0	0	0	4	1	0	20
8:45 AM	0	0	0	0	0	0	6	0	3	4	0	0	0	8	1	0	22
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	3	0	35	0	26	56	0	0	0	46	7	0	173
APPROACH %'s :					7.89%	0.00%	92.11%	0.00%	31.71%	68.29%	0.00%	0.00%	0.00%	86.79%	13.21%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	15	0	12	30	0	0	0	27	5	0	89
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.536	0.000	0.429	0.682	0.000	0.000	0.000	0.844	0.625	0.000	0.927
					0.536				0.875				0.800				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	2	0	8	0	8	12	0	0	0	5	0	0	35
4:15 PM	0	0	0	0	3	0	2	0	3	9	0	0	0	8	2	0	27
4:30 PM	0	0	0	0	2	0	5	0	3	24	0	0	0	9	2	0	45
4:45 PM	0	0	0	0	2	0	8	0	5	11	0	0	0	13	2	0	41
5:00 PM	0	0	0	0	4	0	11	0	2	7	0	0	0	20	2	0	46
5:15 PM	0	0	0	0	2	0	6	0	2	10	0	0	0	15	0	0	35
5:30 PM	0	0	0	0	2	0	6	0	3	3	0	0	0	15	0	0	29
5:45 PM	0	0	0	0	3	0	3	0	1	5	0	0	0	7	0	0	19
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	20	0	49	0	27	81	0	0	0	92	8	0	277
APPROACH %'s :					28.99%	0.00%	71.01%	0.00%	25.00%	75.00%	0.00%	0.00%	0.00%	92.00%	8.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	10	0	30	0	12	52	0	0	0	57	6	0	167
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.625	0.000	0.682	0.000	0.600	0.542	0.000	0.000	0.000	0.713	0.750	0.000	0.908
					0.667				0.593				0.716				

Prepared by National Data & Surveying Services

N 14th St & E College St

Peak Hour Turning Movement Count

ID: 24-470301-001
City: Broken Arrow

Day: Wednesday
Date: 9/25/2024

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (N 14th St)

AM	15	0	0	0	17	AM
NOON	0	0	0	0	0	NOON
PM	30	0	10	0	18	PM

EASTBOUND (E College St)

AM	NOON	PM	
42	0	87	
0	0	0	0
12	0	12	0
30	0	52	1
0	0	0	0

WESTBOUND (E College St)

	PM	NOON	AM
0	6	0	5
1	57	0	27
0	0	0	0
0	0	0	0
	62	0	30

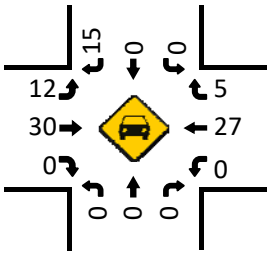
NORTHBOUND (N 14th St)

PM	0	0	0	0	PM
NOON	0	0	0	0	NOON
AM	0	0	0	0	AM

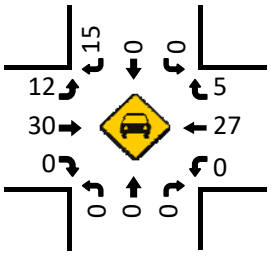
CONTROL: 1-Way Stop(SB)

TEV	89 AM	0 NOON	167 PM
PHF	0.93		0.91

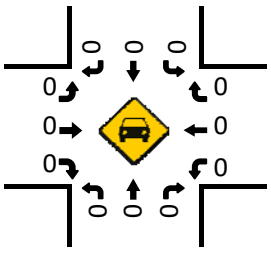
Totals (AM)



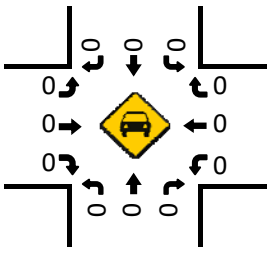
Totals (AM)



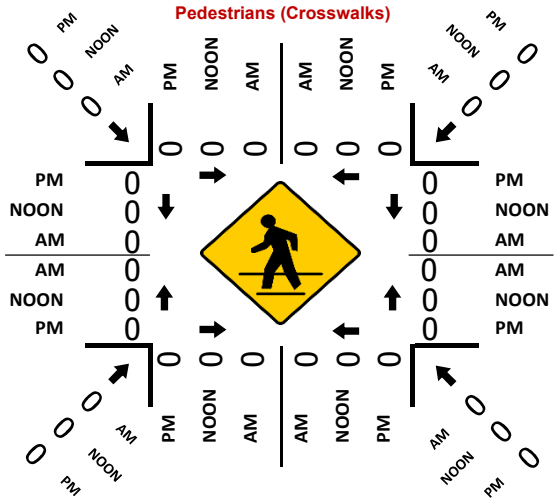
Totals (NOON)



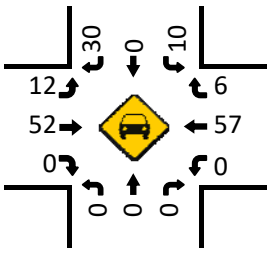
Totals (NOON)



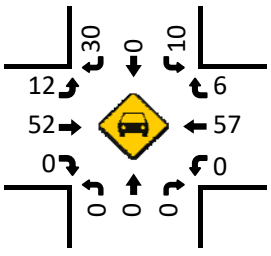
Pedestrians (Crosswalks)



Totals (PM)



Totals (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Gatesway Foundation E Dwy & E College St
City: Broken Arrow
Control: No Control

Project ID: 24-470301-002
Date: 9/25/2024

Data - Totals

NS/EW Streets:	Gatesway Foundation E Dwy				Gatesway Foundation E Dwy				E College St				E College St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	0	0	0	0	0	0	0	13	0	0	0	10	0	0	24
7:15 AM	0	0	0	0	0	0	0	0	0	7	0	0	1	8	0	0	16
7:30 AM	0	0	1	0	0	0	0	0	0	9	0	0	1	9	0	0	20
7:45 AM	0	0	0	0	0	0	0	0	0	8	2	0	0	14	0	0	24
8:00 AM	2	0	2	0	0	0	0	0	0	10	3	0	3	6	0	0	26
8:15 AM	2	0	0	0	0	0	0	0	0	12	0	0	1	8	0	0	23
8:30 AM	1	0	0	0	0	0	0	0	0	13	0	0	1	5	0	0	20
8:45 AM	1	0	0	0	0	0	0	0	0	7	1	0	1	13	0	0	23
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	0	3	0	0	0	0	0	0	79	6	0	8	73	0	0	176
APPROACH %'s :	70.00%	0.00%	30.00%	0.00%					0.00%	92.94%	7.06%	0.00%	9.88%	90.12%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	5	0	2	0	0	0	0	0	0	43	5	0	5	33	0	0	93
PEAK HR FACTOR :	0.625	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.827	0.417	0.000	0.417	0.589	0.000	0.000	0.894
	0.438								0.923				0.679				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	5	0	3	0	0	0	0	0	0	16	1	0	1	12	0	0	38
4:15 PM	1	0	0	0	0	0	0	0	0	12	0	0	0	10	0	0	23
4:30 PM	1	0	0	0	0	0	0	0	0	27	3	0	0	14	0	0	45
4:45 PM	4	0	0	0	0	0	0	0	0	16	3	0	0	21	0	0	44
5:00 PM	1	0	0	0	0	0	0	0	0	9	0	0	2	29	0	0	41
5:15 PM	1	0	2	0	0	0	0	0	0	11	0	0	0	21	0	0	35
5:30 PM	3	0	1	0	0	0	0	0	0	4	1	0	0	21	0	0	30
5:45 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	10	0	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	16	0	6	0	0	0	0	0	0	101	8	0	3	138	0	0	272
APPROACH %'s :	72.73%	0.00%	27.27%	0.00%					0.00%	92.66%	7.34%	0.00%	2.13%	97.87%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	7	0	2	0	0	0	0	0	0	63	6	0	2	85	0	0	165
PEAK HR FACTOR :	0.438	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.500	0.000	0.250	0.733	0.000	0.000	0.917
	0.563								0.575				0.702				

Prepared by National Data & Surveying Services

Gatesway Foundation E Dwy & E College St

Peak Hour Turning Movement Count

ID: 24-470301-002
City: Broken Arrow

Day: Wednesday
Date: 9/25/2024

PEAK HOURS

AM: 07:45 AM - 08:45 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Gatesway Foundation E Dwy)

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND (E College St)

AM	NOON	PM	
38	0	92	⇦
0	0	0	↶ 0
0	0	0	↱ 0
43	0	63	→ 1
5	0	6	↷ 0

WESTBOUND (E College St)

PM	NOON	AM	
0	0	0	↶ 0
85	0	33	← 1
2	0	5	↰ 0
0	0	0	↷ 0
65	0	45	⇨

NORTHBOUND (Gatesway Foundation E Dwy)

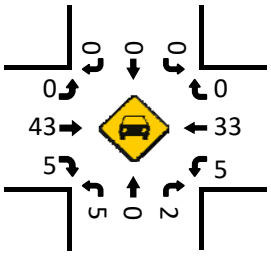
PM	8	0	7	0	2	PM
NOON	0	0	0	0	0	NOON
AM	10	0	5	0	2	AM

CONTROL

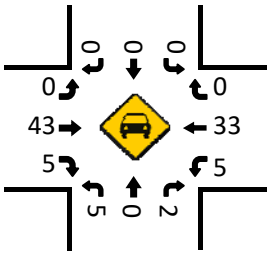
No Control

TEV	93 AM	0 NOON	165 PM
PHF	0.89		0.92

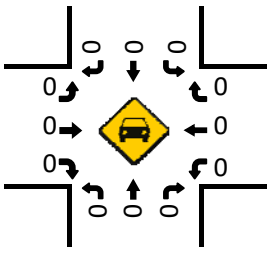
Totals (AM)



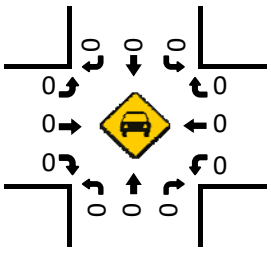
Totals (AM)



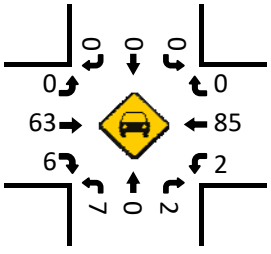
Totals (NOON)



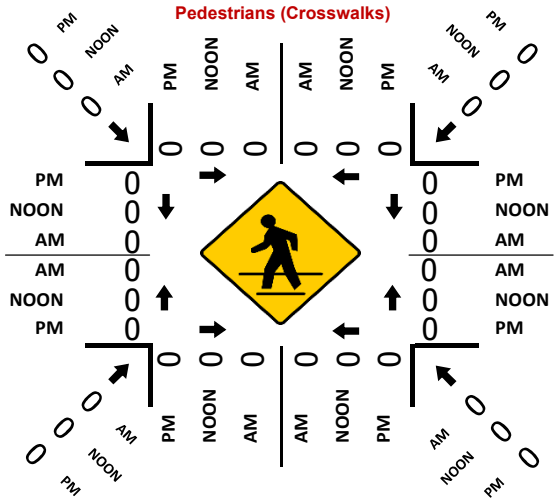
Totals (NOON)



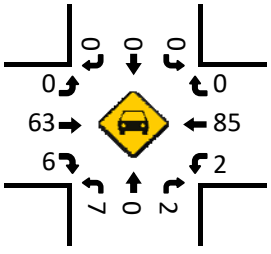
Totals (PM)



Pedestrians (Crosswalks)



Totals (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Gatesway Foundation W Dwy & E College St
City: Broken Arrow
Control: No Control

Project ID: 24-470301-003
Date: 9/25/2024

Data - Totals

NS/EW Streets: Gatesway Foundation W Dwy | Gatesway Foundation W Dwy | E College St | E College St

AM

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	1	0	0	0	0	0	0	12	0	0	1	9	0	0	24
7:15 AM	0	0	1	0	0	0	0	0	0	6	1	0	1	8	0	0	17
7:30 AM	0	0	0	0	0	0	0	0	0	9	0	0	0	9	0	0	18
7:45 AM	0	0	0	0	0	0	0	0	0	10	2	0	2	12	0	0	26
8:00 AM	1	0	0	0	0	0	0	0	0	13	2	0	0	8	0	0	24
8:15 AM	1	0	1	0	0	0	0	0	0	11	2	0	2	8	0	0	25
8:30 AM	1	0	0	0	0	0	0	0	0	13	1	0	1	5	0	0	21
8:45 AM	2	0	1	0	0	0	0	0	0	7	2	0	1	13	0	0	26
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	0	4	0	0	0	0	0	0	81	10	0	8	72	0	0	181
APPROACH %'s :	60.00%	0.00%	40.00%	0.00%					0.00%	89.01%	10.99%	0.00%	10.00%	90.00%	0.00%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	5	0	2	0	0	0	0	0	0	44	7	0	4	34	0	0	96
PEAK HR FACTOR :	0.625	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.846	0.875	0.000	0.500	0.654	0.000	0.000	0.923
	0.583								0.850				0.679				

PM

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	2	0	0	0	0	0	0	15	0	0	1	16	0	0	35
4:15 PM	1	0	1	0	0	0	0	0	0	11	2	0	0	11	0	0	26
4:30 PM	0	0	0	0	0	0	0	0	0	30	0	0	3	12	0	0	45
4:45 PM	1	0	2	0	0	0	0	0	0	18	1	0	1	24	0	0	47
5:00 PM	2	0	2	0	0	0	0	0	0	6	0	0	2	28	0	0	40
5:15 PM	0	0	0	0	0	0	0	0	0	11	0	0	1	21	0	0	33
5:30 PM	1	0	0	0	0	0	0	0	0	5	1	0	4	20	0	0	31
5:45 PM	0	0	0	0	0	0	0	0	0	6	1	0	4	6	0	0	17
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	0	7	0	0	0	0	0	0	102	5	0	16	138	0	0	274
APPROACH %'s :	46.15%	0.00%	53.85%	0.00%					0.00%	95.33%	4.67%	0.00%	10.39%	89.61%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	3	0	4	0	0	0	0	0	0	65	1	0	7	85	0	0	165
PEAK HR FACTOR :	0.375	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.542	0.250	0.000	0.583	0.759	0.000	0.000	0.878
	0.438								0.550				0.767				

Prepared by National Data & Surveying Services

Gatesway Foundation W Dwy & E College St

Peak Hour Turning Movement Count

ID: 24-470301-003
City: Broken Arrow

Day: Wednesday
Date: 9/25/2024

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND — Gatesway Foundation W Dwy

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND — E College St

AM	39	0	88
NOON	0	0	0
PM	0	0	0
AM	0	0	0
NOON	44	0	65
PM	7	0	1

WESTBOUND — E College St

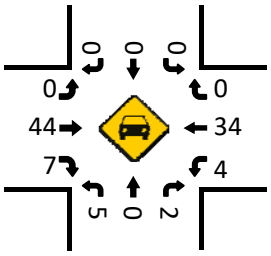
PM	0	0	0
NOON	85	0	34
AM	7	0	4
PM	0	0	0
NOON	69	0	46
AM	8	0	3	0	4
NOON	0	0	0	0	0
AM	11	0	5	0	2

NORTHBOUND — Gatesway Foundation W Dwy

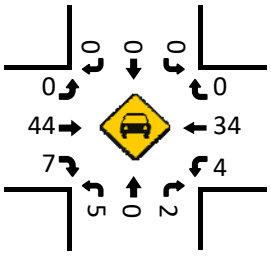
CONTROL: No Control

	AM	NOON	PM
TEV	96	0	165
PHF	0.92	NOON	0.88

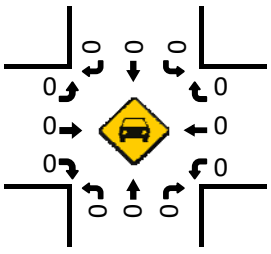
Totals (AM)



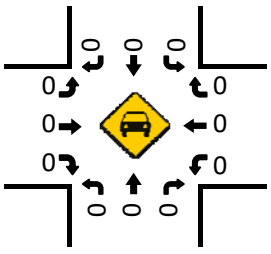
Totals (AM)



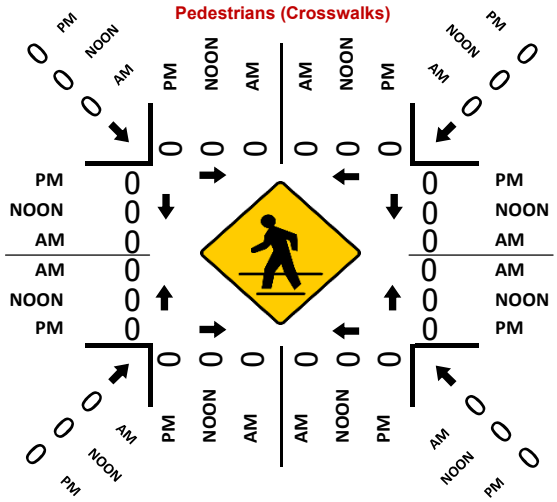
Totals (NOON)



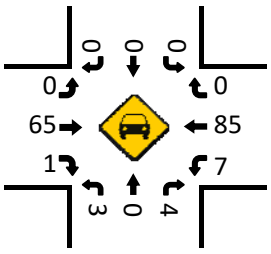
Totals (NOON)



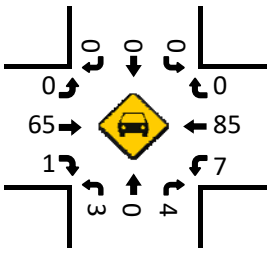
Pedestrians (Crosswalks)



Totals (PM)



Totals (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: S 177th E Ave & E College St
City: Broken Arrow
Control: 1-Way Stop(WB)

Project ID: 24-470301-004
Date: 9/25/2024

Data - Totals

NS/EW Streets:	S 177th E Ave				S 177th E Ave				E College St				E College St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	177	4	0	3	104	0	0	0	0	0	0	0	0	7	0	295
7:15 AM	0	204	3	0	5	152	0	0	0	0	0	0	2	0	12	0	378
7:30 AM	0	191	7	0	2	141	0	0	0	0	0	0	2	0	12	0	355
7:45 AM	0	150	9	0	4	187	0	0	0	0	0	0	4	0	11	0	365
8:00 AM	0	215	9	0	5	169	0	0	0	0	0	0	4	0	7	0	409
8:15 AM	0	148	10	0	2	135	0	0	0	0	0	0	4	0	5	0	304
8:30 AM	0	154	5	0	6	123	0	0	0	0	0	0	1	0	5	0	294
8:45 AM	0	152	9	0	6	119	0	0	0	0	0	0	5	0	12	0	303
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1391	56	0	33	1130	0	0	0	0	0	0	22	0	71	0	2703
APPROACH %'s :	0.00%	96.13%	3.87%	0.00%	2.84%	97.16%	0.00%	0.00%					23.66%	0.00%	76.34%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	760	28	0	16	649	0	0	0	0	0	0	12	0	42	0	1507
PEAK HR FACTOR :	0.000	0.884	0.778	0.000	0.800	0.868	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.875	0.000	0.921
		0.879				0.870								0.900			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	179	9	0	15	187	0	0	0	0	0	0	5	0	14	0	409
4:15 PM	0	144	7	0	9	188	0	0	0	0	0	0	7	0	7	0	362
4:30 PM	0	169	22	0	13	183	0	0	0	0	0	0	5	0	6	0	398
4:45 PM	0	153	11	0	11	178	0	0	0	0	0	0	11	0	10	0	374
5:00 PM	0	171	2	0	11	193	0	0	0	0	0	0	12	0	11	0	400
5:15 PM	0	125	6	0	9	185	0	0	0	0	0	0	10	0	11	0	346
5:30 PM	0	148	5	0	6	216	0	0	0	0	0	0	10	0	9	0	394
5:45 PM	0	125	9	0	1	180	0	0	0	0	0	0	5	0	7	0	327
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1214	71	0	75	1510	0	0	0	0	0	0	65	0	75	0	3010
APPROACH %'s :	0.00%	94.47%	5.53%	0.00%	4.73%	95.27%	0.00%	0.00%					46.43%	0.00%	53.57%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	645	49	0	48	736	0	0	0	0	0	0	28	0	37	0	1543
PEAK HR FACTOR :	0.000	0.901	0.557	0.000	0.800	0.979	0.000	0.000	0.000	0.000	0.000	0.000	0.636	0.000	0.661	0.000	0.943
		0.908				0.970								0.774			

Prepared by National Data & Surveying Services

S 177th E Ave & E College St

Peak Hour Turning Movement Count

ID: 24-470301-004
City: Broken Arrow

Day: Wednesday
Date: 9/25/2024

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (S 177th E Ave)

AM	0	649	16	0	802	AM
NOON	0	0	0	0	0	NOON
PM	0	736	48	0	682	PM
	0	2	1	0		

EASTBOUND (E College St)

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

WESTBOUND (E College St)

PM	NOON	AM	
37	0	42	0
0	0	0	1
28	0	12	0
0	0	0	0
97	0	44	
PM	NOON	AM	

CONTROL

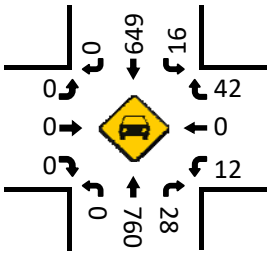
1-Way Stop(WB)

TEV	1507 AM	0 NOON	1543 PM
PHF	0.92		0.94

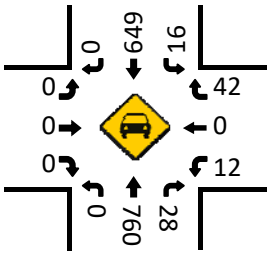
NORTHBOUND (S 177th E Ave)

PM	764	0	0	645	49	PM
NOON	0	0	0	0	0	NOON
AM	661	0	0	760	28	AM
		0	0	2	0	

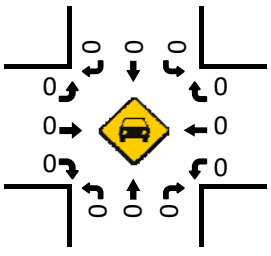
Totals (AM)



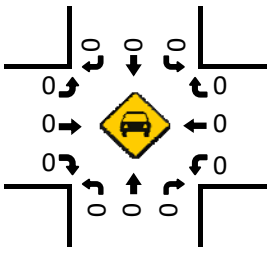
Totals (AM)



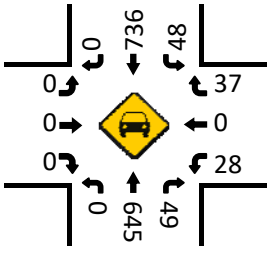
Totals (NOON)



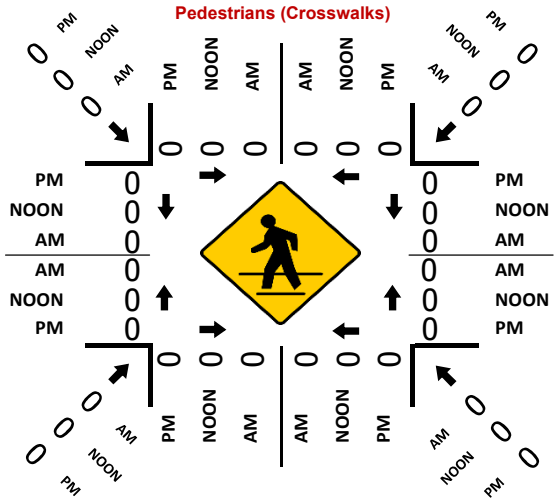
Totals (NOON)



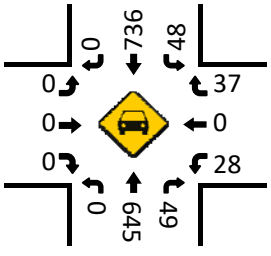
Totals (PM)



Pedestrians (Crosswalks)



Totals (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: N 14th St/SR 51/Broken Arrow Expy Ramps & E Kenosha St
City: Broken Arrow
Control: Signalized

Project ID: 24-470301-005
Date: 9/25/2024

Data - Totals

NS/EW Streets:	N 14th St/SR 51/Broken Arrow Expy Ramps				N 14th St/SR 51/Broken Arrow Expy Ramps				E Kenosha St				E Kenosha St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.3	0.3	0.3	0	1	0.5	0.5	0	1	3	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	8	5	15	0	69	6	4	0	25	62	4	0	5	86	6	0	295
7:15 AM	11	2	15	0	70	13	3	0	25	66	3	0	6	138	10	0	362
7:30 AM	6	4	28	0	88	7	7	0	28	69	4	0	7	177	12	0	437
7:45 AM	10	3	14	0	73	11	6	0	29	87	8	0	7	189	23	0	460
8:00 AM	12	3	9	0	67	7	2	0	27	108	7	0	4	167	12	0	425
8:15 AM	11	3	12	0	87	5	4	0	35	90	7	0	5	125	11	0	395
8:30 AM	12	2	12	0	78	3	6	0	25	93	10	0	10	133	11	0	395
8:45 AM	10	2	26	0	78	6	7	0	22	101	10	0	12	145	16	0	435
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	80	24	131	0	610	58	39	0	216	676	53	0	56	1160	101	0	3204
APPROACH %'s :	34.04%	10.21%	55.74%	0.00%	86.28%	8.20%	5.52%	0.00%	22.86%	71.53%	5.61%	0.00%	4.25%	88.08%	7.67%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	39	13	63	0	315	30	19	0	119	354	26	0	23	658	58	0	1717
PEAK HR FACTOR :	0.813	0.813	0.563	0.000	0.895	0.682	0.679	0.000	0.850	0.819	0.813	0.000	0.821	0.870	0.630	0.000	0.933
	0.757				0.892				0.879				0.844				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.3	0.3	0.3	0	1	0.5	0.5	0	1	3	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	2	14	0	156	17	11	0	65	202	10	0	7	142	27	0	661
4:15 PM	7	8	11	0	170	16	17	0	53	236	8	0	17	183	25	0	751
4:30 PM	3	5	14	0	165	14	21	0	60	179	10	0	35	162	28	0	696
4:45 PM	9	2	14	0	168	8	12	0	62	241	8	0	22	159	23	0	728
5:00 PM	6	4	9	0	159	19	12	0	58	219	11	0	23	146	22	0	688
5:15 PM	13	2	16	0	140	18	25	0	51	262	5	0	14	209	19	0	774
5:30 PM	11	1	13	0	173	12	16	0	49	189	9	0	9	174	13	0	669
5:45 PM	12	5	7	0	149	10	16	0	58	185	5	0	3	177	14	0	641
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	69	29	98	0	1280	114	130	0	456	1713	66	0	130	1352	171	0	5608
APPROACH %'s :	35.20%	14.80%	50.00%	0.00%	83.99%	7.48%	8.53%	0.00%	20.40%	76.64%	2.95%	0.00%	7.86%	81.79%	10.34%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	31	13	53	0	632	59	70	0	231	901	34	0	94	676	92	0	2886
PEAK HR FACTOR :	0.596	0.650	0.828	0.000	0.940	0.776	0.700	0.000	0.931	0.860	0.773	0.000	0.671	0.809	0.821	0.000	0.932
	0.782				0.951				0.917				0.890				

Prepared by National Data & Surveying Services

N 14th St/SR 51/Broken Arrow Expy Ramps & E Kenosha St

Peak Hour Turning Movement Count

ID: 24-470301-005
City: Broken Arrow

Day: Wednesday
Date: 9/25/2024

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (N 14th St/SR 51/Broken Arrow Expy Ramps)

AM	19	30	315	0	190	AM
NOON	0	0	0	0	0	NOON
PM	70	59	632	0	336	PM
	0.5	0.5	1	0		

EASTBOUND (E Kenosha St)

AM	NOON	PM	
716	0	777	
0	0	0	0
119	0	231	1
354	0	901	3
26	0	34	0

WESTBOUND (E Kenosha St)

PM	NOON	AM	
92	0	58	0
676	0	658	3
94	0	23	1
0	0	0	0
1586	0	732	

NORTHBOUND (N 14th St/SR 51/Broken Arrow Expy Ramps)

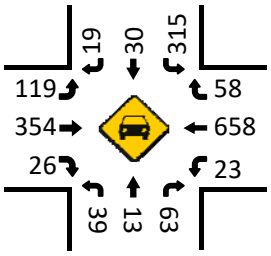
	0	0.3	0.3	0.3		
PM	187	0	31	13	53	PM
NOON	0	0	0	0	0	NOON
AM	79	0	39	13	63	AM

CONTROL

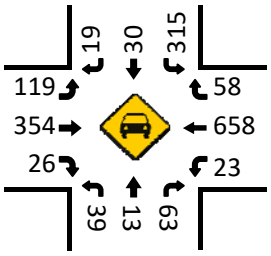
Signalized

TEV	1717 AM	0 NOON	2886 PM
PHF	0.93		0.93

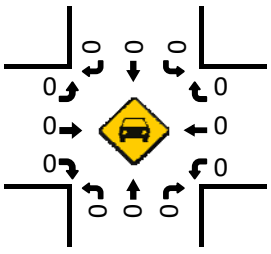
Totals (AM)



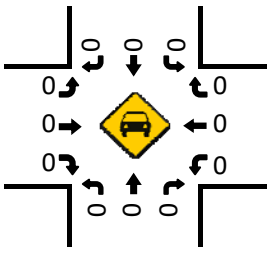
Totals (AM)



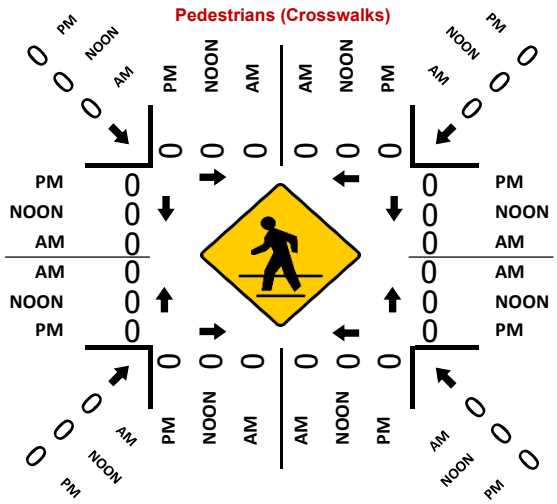
Totals (NOON)



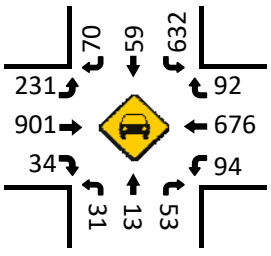
Totals (NOON)



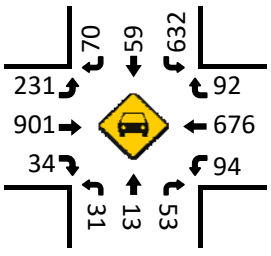
Pedestrians (Crosswalks)



Totals (PM)



Totals (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: N 23rd St/County Line Rd & E College St
City: Broken Arrow
Control: 2-Way Stop(EB/WB)

Project ID: 24-470301-006
Date: 9/25/2024

Data - Totals

NS/EW Streets:	N 23rd St/County Line Rd				N 23rd St/County Line Rd				E College St				E College St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	84	0	0	1	69	1	0	1	2	1	0	0	3	6	0	170
7:15 AM	4	111	0	0	1	110	2	0	1	1	3	0	0	0	6	0	239
7:30 AM	4	116	0	0	1	130	2	0	2	1	2	0	0	0	6	0	264
7:45 AM	4	73	1	0	10	141	3	0	1	0	0	0	0	4	4	0	241
8:00 AM	2	52	0	0	0	70	1	0	2	1	3	0	0	0	3	0	134
8:15 AM	5	57	0	0	3	78	1	0	2	0	2	0	0	1	3	0	152
8:30 AM	3	66	0	0	1	58	1	0	1	3	2	0	0	1	0	0	136
8:45 AM	2	51	1	0	2	72	5	0	0	0	0	0	0	0	4	0	137
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	26	610	2	0	19	728	16	0	10	8	13	0	0	9	32	0	1473
APPROACH %'s :	4.08%	95.61%	0.31%	0.00%	2.49%	95.41%	2.10%	0.00%	32.26%	25.81%	41.94%	0.00%	0.00%	21.95%	78.05%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	14	384	1	0	13	450	8	0	5	4	6	0	0	7	22	0	914
PEAK HR FACTOR :	0.875	0.828	0.250	0.000	0.325	0.798	0.667	0.000	0.625	0.500	0.500	0.000	0.000	0.438	0.917	0.000	0.866
	0.831				0.765				0.750				0.806				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	90	0	0	5	147	3	0	4	2	6	0	0	2	8	0	270
4:15 PM	3	90	0	0	9	140	5	0	1	3	6	0	0	0	6	0	263
4:30 PM	1	98	0	0	7	137	5	0	3	3	9	0	0	1	8	0	272
4:45 PM	4	89	0	0	8	132	6	0	0	1	3	0	0	0	2	0	245
5:00 PM	1	116	1	0	20	124	3	0	3	2	12	0	0	3	11	0	296
5:15 PM	0	110	0	0	14	129	2	0	3	1	6	0	0	6	8	0	279
5:30 PM	1	90	0	0	6	132	5	0	3	1	3	0	1	0	11	0	253
5:45 PM	0	92	0	0	6	102	4	0	3	1	5	0	0	1	12	0	226
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	775	1	0	75	1043	33	0	20	14	50	0	1	13	66	0	2104
APPROACH %'s :	1.65%	98.23%	0.13%	0.00%	6.52%	90.62%	2.87%	0.00%	23.81%	16.67%	59.52%	0.00%	1.25%	16.25%	82.50%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	6	413	1	0	49	522	16	0	9	7	30	0	0	10	29	0	1092
PEAK HR FACTOR :	0.375	0.890	0.250	0.000	0.613	0.953	0.667	0.000	0.750	0.583	0.625	0.000	0.000	0.417	0.659	0.000	0.922
	0.890				0.985				0.676				0.696				

Prepared by National Data & Surveying Services

N 23rd St/County Line Rd & E College St

Peak Hour Turning Movement Count

ID: 24-470301-006
City: Broken Arrow

Day: Wednesday
Date: 9/25/2024

PEAK HOURS

AM: 07:00 AM - 08:00 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (N 23rd St/County Line Rd)

AM	8	450	13	0	411	AM
NOON	0	0	0	0	0	NOON
PM	16	522	49	0	451	PM
	0	2	1	0		

EASTBOUND (E College St)

AM	NOON	PM	
29	0	32	
0	0	0	0
5	0	9	0
4	0	7	1
6	0	30	0

WESTBOUND (E College St)

PM	NOON	AM	
29	0	22	0
10	0	7	1
0	0	0	0
0	0	0	0
57	0	18	

CONTROL

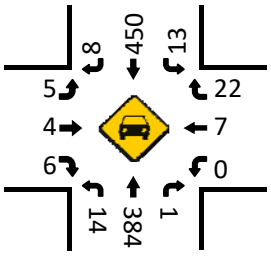
2-Way Stop(EB/WB)

	AM	NOON	PM
TEV	914	0	1092
PHF	0.87	NOON	0.92

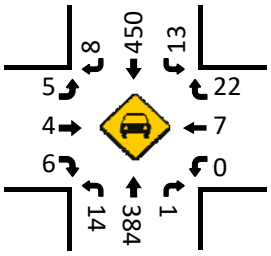
NORTHBOUND (N 23rd St/County Line Rd)

PM	552	0	6	413	1	PM
NOON	0	0	0	0	0	NOON
AM	456	0	14	384	1	AM
		0	1	2	0	

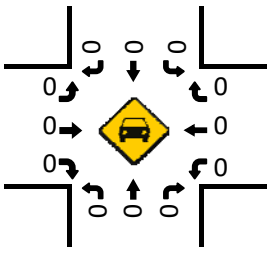
Totals (AM)



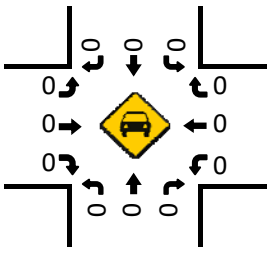
Totals (AM)



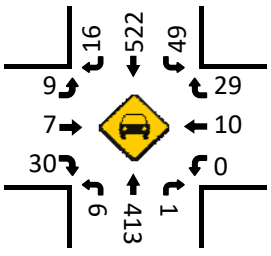
Totals (NOON)



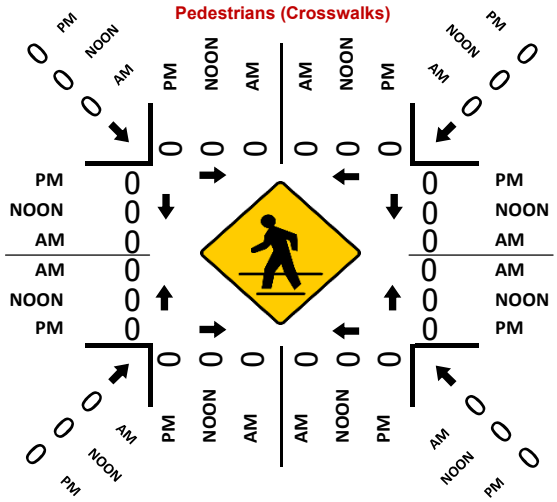
Totals (NOON)



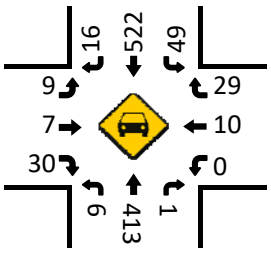
Totals (PM)



Pedestrians (Crosswalks)



Totals (PM)



Prepared by National Data & Surveying Services

VOLUME

E Kenosha St E/O S 177th E Ave

Day: Wednesday
Date: 9/25/2024

City: Broken Arrow
Project #: OK24_470300_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	11,699	9,435	21,134

DAILY TOTALS

15-Minutes Interval

TIME	NB	SB	EB	WB	TOTAL	TIME	NB	SB	EB	WB	TOTAL
0:00			21	13	34	12:00			245	186	431
0:15			23	12	35	12:15			220	224	444
0:30			17	12	29	12:30			233	192	425
0:45			9	6	15	12:45			234	185	419
1:00			7	8	15	13:00			212	153	365
1:15			4	4	8	13:15			213	133	346
1:30			10	6	16	13:30			183	146	329
1:45			8	4	12	13:45			195	148	343
2:00			6	7	13	14:00			212	148	360
2:15			5	7	12	14:15			223	156	379
2:30			8	3	11	14:30			191	168	359
2:45			6	4	10	14:45			197	222	419
3:00			7	3	10	15:00			231	154	385
3:15			2	3	5	15:15			213	155	368
3:30			5	5	10	15:30			242	160	402
3:45			6	1	7	15:45			252	140	392
4:00			10	9	19	16:00			266	147	413
4:15			10	7	17	16:15			265	166	431
4:30			7	12	19	16:30			234	170	404
4:45			22	18	40	16:45			272	180	452
5:00			21	11	32	17:00			236	152	388
5:15			21	18	39	17:15			251	210	461
5:30			24	25	49	17:30			235	169	404
5:45			49	30	79	17:45			202	184	386
6:00			28	49	77	18:00			225	180	405
6:15			33	47	80	18:15			237	167	404
6:30			52	94	146	18:30			186	169	355
6:45			61	92	153	18:45			193	154	347

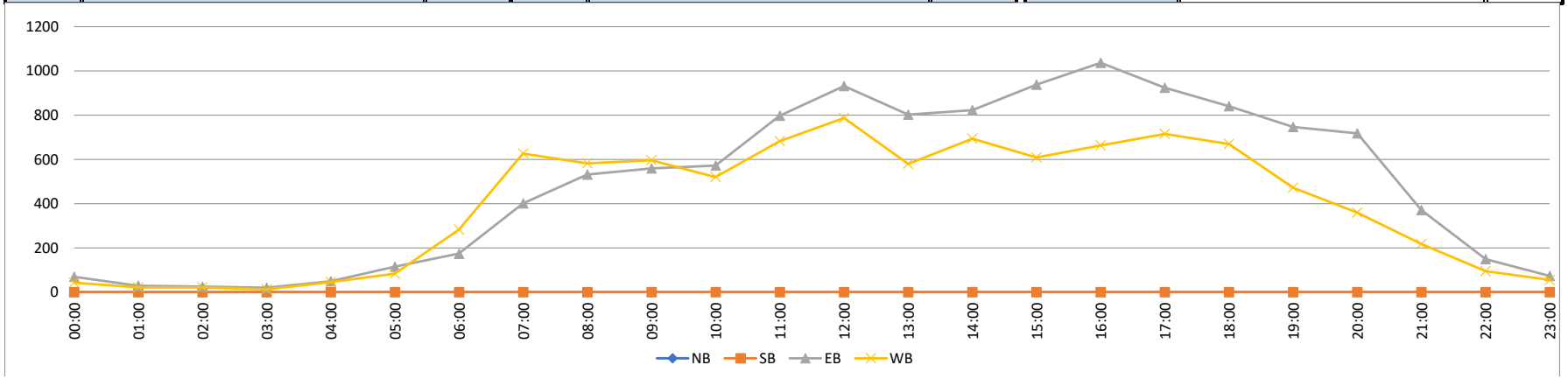
Hourly Intervals

TIME		NB	SB	EB	WB	TOTAL
00:00	01:00			70	43	113
01:00	02:00			29	22	51
02:00	03:00			25	21	46
03:00	04:00			20	12	32
04:00	05:00			49	46	95
05:00	06:00			115	84	199
06:00	07:00			174	282	456
07:00	08:00			401	627	1028
08:00	09:00			531	582	1113
09:00	10:00			560	596	1156
10:00	11:00			572	520	1092
11:00	12:00			797	682	1479
12:00	13:00			932	787	1719
13:00	14:00			803	580	1383
14:00	15:00			823	694	1517
15:00	16:00			938	609	1547
16:00	17:00			1037	663	1700
17:00	18:00			924	715	1639
18:00	19:00			841	670	1511
19:00	20:00			747	472	1219
20:00	21:00			718	360	1078
21:00	22:00			371	218	589
22:00	23:00			149	95	244
23:00	00:00			73	55	128

STATISTICS

	NB	SB	EB	WB	TOTAL
Peak Period	00:00	to	12:00		
Volume			3343	3517	6860

7:00			88	98	**186**	**19:00**			208	151	**359**	**Peak Hour**			11:00	7:15	11:00
7:15			97	149	**246**	**19:15**			193	130	**323**	**Peak Volume**			797	693	1479
7:30			97	177	**274**	**19:30**			154	118	**272**	**Peak Hour Factor**			0.817	0.853	0.868
7:45			119	203	**322**	**19:45**			192	73	**265**						
8:00			140	164	**304**	**20:00**			194	82	**276**	**Peak Period**	**12:00**	**to**	**00:00**		
8:15			133	137	**270**	**20:15**			189	114	**303**	**Volume**			8356	5918	14274
8:30			127	137	**264**	**20:30**			166	96	**262**	**Peak Hour**			16:00	12:00	12:00
8:45			131	144	**275**	**20:45**			169	68	**237**	**Peak Volume**			1037	787	1719
9:00			146	171	**317**	**21:00**			114	65	**179**	**Peak Hour Factor**			0.953	0.878	0.968
9:15			147	134	**281**	**21:15**			87	47	**134**						
9:30			145	140	**285**	**21:30**			90	60	**150**	**Peak Period**	**07:00**	**to**	**09:00**		
9:45			122	151	**273**	**21:45**			80	46	**126**	**Volume**			932	1209	2141
10:00			131	124	**255**	**22:00**			52	20	**72**	**Peak Hour**			8:00	7:15	7:30
10:15			153	128	**281**	**22:15**			41	26	**67**	**Peak Volume**			531	693	1170
10:30			115	117	**232**	**22:30**			36	28	**64**	**Peak Hour Factor**			0.948	0.853	0.908
10:45			173	151	**324**	**22:45**			20	21	**41**						
11:00			172	153	**325**	**23:00**			20	17	**37**	**Peak Period**	**16:00**	**to**	**18:00**		
11:15			185	144	**329**	**23:15**			23	13	**36**	**Volume**			1961	1378	3339
11:30			244	182	**426**	**23:30**			21	14	**35**	**Peak Hour**			16:00	17:00	16:30
11:45			196	203	**399**	**23:45**			9	11	**20**	**Peak Volume**			1037	715	1705
TOTALS	**0**	**0**	**3343**	**3517**	**6860**	**TOTALS**	**0**	**0**	**8356**	**5918**	**14274**	**Peak Hour Factor**			0.953	0.851	0.925
SPLIT %	**0%**	**0%**	**49%**	**51%**	**32%**	**SPLIT %**	**0%**	**0%**	**59%**	**41%**	**68%**						



Prepared by National Data & Surveying Services

VOLUME

S 177th E Ave S/O E lola St

Day: Wednesday
Date: 9/25/2024

City: Broken Arrow
Project #: OK24_470300_002

DAILY TOTALS	NB	SB	EB	WB	Total
	9,290	10,019	0	0	19,309

DAILY TOTALS

15-Minutes Interval

TIME	NB	SB	EB	WB	TOTAL	TIME	NB	SB	EB	WB	TOTAL
0:00	27	16			43	12:00	166	152			318
0:15	14	9			23	12:15	158	165			323
0:30	19	6			25	12:30	149	162			311
0:45	6	11			17	12:45	121	181			302
1:00	6	4			10	13:00	129	151			280
1:15	4	6			10	13:15	118	166			284
1:30	10	3			13	13:30	106	131			237
1:45	4	5			9	13:45	147	159			306
2:00	2	4			6	14:00	144	155			299
2:15	5	9			14	14:15	133	178			311
2:30	5	7			12	14:30	195	163			358
2:45	3	6			9	14:45	159	234			393
3:00	8	9			17	15:00	181	175			356
3:15	7	5			12	15:15	159	196			355
3:30	10	6			16	15:30	251	219			470
3:45	8	4			12	15:45	192	185			377
4:00	6	13			19	16:00	212	178			390
4:15	10	19			29	16:15	161	196			357
4:30	13	27			40	16:30	224	201			425
4:45	19	45			64	16:45	182	204			386
5:00	28	33			61	17:00	205	206			411
5:15	31	32			63	17:15	157	205			362
5:30	41	43			84	17:30	164	224			388
5:45	47	57			104	17:45	138	199			337
6:00	58	55			113	18:00	193	201			394
6:15	58	70			128	18:15	146	177			323
6:30	121	108			229	18:30	145	164			309
6:45	105	169			274	18:45	131	144			275

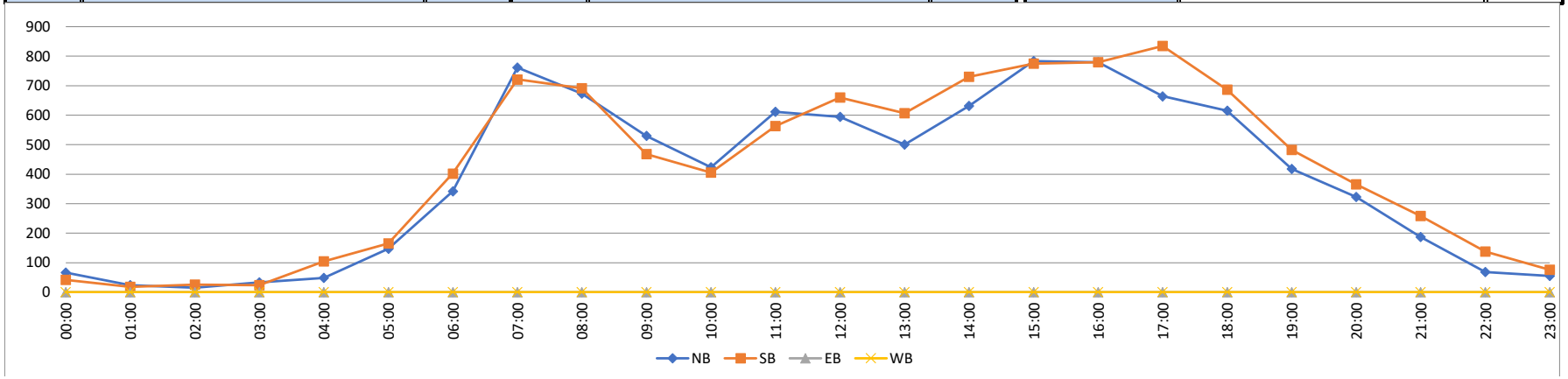
Hourly Intervals

TIME		NB	SB	EB	WB	TOTAL
00:00	01:00	66	42			108
01:00	02:00	24	18			42
02:00	03:00	15	26			41
03:00	04:00	33	24			57
04:00	05:00	48	104			152
05:00	06:00	147	165			312
06:00	07:00	342	402			744
07:00	08:00	761	721			1482
08:00	09:00	673	691			1364
09:00	10:00	530	468			998
10:00	11:00	423	405			828
11:00	12:00	611	563			1174
12:00	13:00	594	660			1254
13:00	14:00	500	607			1107
14:00	15:00	631	730			1361
15:00	16:00	783	775			1558
16:00	17:00	779	779			1558
17:00	18:00	664	834			1498
18:00	19:00	615	686			1301
19:00	20:00	418	482			900
20:00	21:00	323	365			688
21:00	22:00	187	258			445
22:00	23:00	68	138			206
23:00	00:00	55	76			131

STATISTICS

	NB	SB	EB	WB	TOTAL
Peak Period	00:00	to	12:00		
Volume	3673	3629			7302

7:00	172	132			**304**	**19:00**	120	137			**257**	**Peak Hour**	7:15	7:15		7:15
7:15	222	178			**400**	**19:15**	90	124			**214**	**Peak Volume**	803	816		1619
7:30	217	181			**398**	**19:30**	110	117			**227**	**Peak Hour Factor**	0.904	0.887		0.918
7:45	150	230			**380**	**19:45**	98	104			**202**					
8:00	214	227			**441**	**20:00**	86	100			**186**	**Peak Period**	**12:00**	**to**	**00:00**	
8:15	170	173			**343**	**20:15**	77	106			**183**	**Volume**	5617	6390		12007
8:30	148	144			**292**	**20:30**	89	81			**170**	**Peak Hour**	15:30	16:45		15:30
8:45	141	147			**288**	**20:45**	71	78			**149**	**Peak Volume**	816	839		1594
9:00	147	106			**253**	**21:00**	64	100			**164**	**Peak Hour Factor**	0.813	0.936		0.848
9:15	141	111			**252**	**21:15**	46	57			**103**					
9:30	119	122			**241**	**21:30**	41	66			**107**	**Peak Period**	**07:00**	**to**	**09:00**	
9:45	123	129			**252**	**21:45**	36	35			**71**	**Volume**	1434	1412		2846
10:00	101	91			**192**	**22:00**	15	36			**51**	**Peak Hour**	7:15	7:15		7:15
10:15	106	105			**211**	**22:15**	22	34			**56**	**Peak Volume**	803	816		1619
10:30	105	94			**199**	**22:30**	18	35			**53**	**Peak Hour Factor**	0.904	0.887		0.918
10:45	111	115			**226**	**22:45**	13	33			**46**					
11:00	140	128			**268**	**23:00**	19	23			**42**	**Peak Period**	**16:00**	**to**	**18:00**	
11:15	144	107			**251**	**23:15**	9	19			**28**	**Volume**	1443	1613		3056
11:30	174	162			**336**	**23:30**	18	14			**32**	**Peak Hour**	16:00	16:45		16:30
11:45	153	166			**319**	**23:45**	9	20			**29**	**Peak Volume**	779	839		1584
TOTALS	**3673**	**3629**	**0**	**0**	**7302**	**TOTALS**	**5617**	**6390**	**0**	**0**	**12007**	**Peak Hour Factor**	0.869	0.936		0.932
SPLIT %	**50%**	**50%**	**0%**	**0%**	**38%**	**SPLIT %**	**47%**	**53%**	**0%**	**0%**	**62%**					



Prepared by National Data & Surveying Services

CLASSIFICATION

E College St W/O N 14th St

Day: Wednesday
Date: 9/25/2024

City: Broken Arrow
Project #: OK24_470300_003

HOURLY BREAKDOWN

Time	EASTBOUND													Total	WESTBOUND													Total	TOTALS													Total
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	
0:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	5	1	0	0	0	0	0	0	0	0	0	0	6	0	7	1	0	0	0	0	0	0	0	0	0	0	8
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
4:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4	0	3	1	0	0	0	0	0	0	0	0	0	0	4	0	6	2	0	0	0	0	0	0	0	0	0	0	8
5:00	0	23	8	0	0	0	0	1	0	0	0	0	0	32	0	6	2	0	0	0	0	1	0	0	0	0	0	9	0	29	10	0	0	0	0	2	0	0	0	0	0	41
6:00	0	20	8	0	0	0	0	0	0	0	0	0	0	28	0	7	13	0	1	0	0	0	0	0	0	0	0	21	0	27	21	0	1	0	0	0	0	0	0	0	0	49
7:00	0	26	10	1	2	0	0	0	0	0	0	0	0	39	0	26	13	2	1	0	0	0	0	0	0	0	0	42	0	52	23	3	3	0	0	0	0	0	0	0	0	81
8:00	0	32	11	1	1	1	0	0	0	0	0	0	0	46	0	32	6	0	0	0	0	0	0	0	0	0	0	38	0	64	17	1	1	1	0	0	0	0	0	0	0	84
9:00	0	18	12	19	4	1	0	0	0	0	0	0	0	54	0	32	12	0	1	1	0	0	0	0	0	0	0	46	0	50	24	19	5	2	0	0	0	0	0	0	0	100
10:00	0	22	10	2	2	1	0	0	0	0	0	0	0	37	0	30	11	2	4	0	0	0	0	0	0	0	0	47	0	52	21	4	6	1	0	0	0	0	0	0	0	84
11:00	0	29	12	4	2	0	0	0	1	0	0	0	0	48	0	40	21	0	2	0	0	0	0	0	0	0	0	63	0	69	33	4	4	0	0	0	1	0	0	0	0	111
12:00	0	25	14	3	2	0	0	1	0	0	0	0	0	45	0	24	15	0	1	0	0	0	0	0	0	0	0	40	0	49	29	3	3	0	0	1	0	0	0	0	0	85
13:00	0	42	23	2	3	0	0	0	0	0	0	0	0	70	0	31	9	0	0	0	0	0	0	0	0	0	0	40	0	73	32	2	3	0	0	0	0	0	0	0	0	110
14:00	0	23	14	0	2	1	0	1	0	0	0	0	0	41	1	39	9	3	1	0	0	0	0	0	0	0	0	53	1	62	23	3	3	1	0	1	0	0	0	0	0	94
15:00	0	33	11	1	0	0	0	0	0	0	0	0	0	45	0	46	20	1	2	0	0	0	0	0	0	0	0	69	0	79	31	2	2	0	0	0	0	0	0	0	0	114
16:00	2	42	12	21	1	0	0	0	0	0	0	0	0	78	0	50	17	1	0	0	0	0	0	0	0	0	0	68	2	92	29	22	1	0	0	0	0	0	0	0	0	146
17:00	0	24	5	2	0	0	0	0	0	0	0	0	0	31	0	67	19	0	0	0	0	0	0	0	0	0	0	86	0	91	24	2	0	0	0	0	0	0	0	0	0	117
18:00	0	23	5	0	1	0	0	0	0	0	0	0	0	29	0	26	16	0	0	0	0	0	0	0	0	0	0	42	0	49	21	0	1	0	0	0	0	0	0	0	0	71
19:00	0	24	8	0	0	0	0	0	0	0	0	0	0	32	0	28	5	0	0	0	0	0	0	0	0	0	0	33	0	52	13	0	0	0	0	0	0	0	0	0	0	65
20:00	0	11	1	0	0	0	0	0	0	0	0	0	0	12	0	17	1	0	0	0	0	0	0	0	0	0	0	18	0	28	2	0	0	0	0	0	0	0	0	0	0	30
21:00	0	13	2	0	0	0	0	0	0	0	0	0	0	15	0	10	3	0	0	0	0	0	0	0	0	0	0	13	0	23	5	0	0	0	0	0	0	0	0	0	0	28
22:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0	12	0	0	0	0	0	0	0	0	0	0	0	12
23:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6	0	4	1	0	0	0	0	0	0	0	0	0	0	5	0	8	3	0	0	0	0	0	0	0	0	0	0	11
Totals	**2**	**447**	**169**	**56**	**20**	**4**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**702**	**1**	**529**	**196**	**9**	**13**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**750**	**3**	**976**	**365**	**65**	**33**	**5**	**0**	**4**	**1**	**0**	**0**	**0**	**0**	**1,452**
% of Totals	0%	64%	24%	8%	3%	1%		0%	0%					100%	0%	71%	26%	1%	2%	0%		0%						100%	0%	67%	25%	4%	2%	0%		0%	0%					100%

FHWA

CLASSIFICATION DEFINITIONS

#1 Motorcycles

#2 Passenger Cars

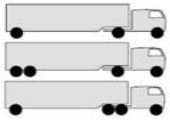
#3 2-Axle, 4-Tire Single Unit

#4 Buses

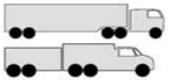
#5 2-Axle, 6-Tire Single Units

#6 3-Axle Single Units

#7 >=4-Axle Single Units



#8 <=4-Axle Single Trailers



#9 5-Axle Single Trailers

#10 >=6-Axle Single Trailers

#11 <=5-Axle Multi-Trailers

#12 6-Axle Multi-Trailers

#13 >=7-Axle Multi-Trailers

STATISTICS

00:00 - 12:00	0	175	72	27	11	3	0	1	1	0	0	0	0	290	0	183	81	4	9	1	0	1	0	0	0	0	0	279	0	358	153	31	20	4	0	2	1	0	0	0	0	569
%	0%	25%	10%	4%	2%	0%	0%	0%	0%	0%	0%	0%	0%	41%	0%	24%	11%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	37%	0%	25%	11%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	39%
Peak Hour	0:00	7:30	10:15	8:45	8:45	9:30	0:00	4:30	11:00	0:00	0:00	0:00	0:00	8:30	0:00	10:45	11:00	7:00	10:00	9:00	0:00	4:15	0:00	0:00	0:00	0:00	0:00	10:45	0:00	11:00	10:45	8:45	10:30	9:30	0:00	4:30	11:00	0:00	0:00	0:00	0:00	11:00
Peak Volume	0	35	15	20	4	2	0	1	1	0	0	0	0	57	0	43	21	2	4	1	0	1	0	0	0	0	0	64	0	69	34	20	8	3	0	2	1	0	0	0	0	111
12:00 - 24:00	2	272	97	29	9	1	0	2	0	0	0	0	0	412	1	346	115	5	4	0	0	0	0	0	0	0	0	471	3	618	212	34	13	1	0	2	0	0	0	0	0	883
%	0%	39%	14%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	59%	0%	46%	15%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	63%	0%	43%	15%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	61%
Peak Hour	15:45	13:15	12:45	16:00	12:15	13:45	12:00	12:00	12:00	12:00	12:00	12:00	12:00	16:00	13:30	16:45	16:15	13:30	14:15	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	16:45	15:45	16:30	13:00	16:00	12:15	13:45	12:00	12:00	12:00	12:00	12:00	12:00	12:00	16:30
Peak Volume	2	43	24	21	3	1	0	1	0	0	0	0	0	78	1	79	22	3	3	0	0	0	0	0	0	0	0	101	2	110	32	22	4	1	0	1	0	0	0	0	0	161
07:00 - 09:00	0	58	21	2	3	1	0	0	0	0	0	0	0	85	0	58	19	2	1	0	0	0	0	0	0	0	0	80	0	116	40	4	4	1	0	0	0	0	0	0	0	165
%	0%	8%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%	8%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	8%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%
Peak Hour	7:00	7:30	7:45	7:00	7:00	7:45	7:00	7:00	7:00	7:00	7:00	7:00	7:00	7:45	7:00	8:00	7:15	7:00	7:00	7:00	7:00	7:00	7:00	7:00	7:00	7:00	7:00	7:00	7:00	8:00	7:00	7:00	7:00	7:45	7:00	7:00	7:00	7:00	7:00	7:00	7:00	7:45
Peak Volume	0	35	11	1	2	1	0	0	0	0	0	0	0	48	0	32	15	2	1	0	0	0	0	0	0	0	0	42	0	64	23	3	3	1	0	0	0	0	0	0	0	86
16:00 - 18:00	2	66	17	23	1	0	0	0	0	0	0	0	0	109	0	117	36	1	0	0	0	0	0	0	0	0	0	154	2	183	53	24	1	0	0	0	0	0	0	0	0	263
%	0%	9%	2%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%	0%	16%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	13%	4%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%
Peak Hour	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:45	16:15	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:45	16:00	16:30	16:30	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:30
Peak Volume	2	42	12	21	1	0	0	0	0	0	0	0	0	78	0	79	22	1	0	0	0	0	0	0	0	0	0	101	2	110	31	22	1	0	0	0	0	0	0	0	0	161

Prepared by National Data & Surveying Services

CLASSIFICATION

E College St W/O N 14th St

Day: Wednesday
Date: 9/25/2024

City: Broken Arrow
Project #: OK24_470300_003

15-MINUTE BREAKDOWN

Time	EASTBOUND														WESTBOUND														TOTALS												
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
0:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	5	1	0	0	0	0	0	0	0	0	0	0	6	0	6	1	0	0	0	0	0	0	0	0	0	0	7
0:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:45	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
1:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
2:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
4:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	2
4:45	0	2	1	0	0	0	0	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	4	1	0	0	0	0	0	0	0	0	0	0	5
5:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	0	0	0	0	3
5:15	0	1	3	0	0	0	0	1	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	1	0	0	0	0	0	5
5:30	0	4	2	0	0	0	0	0	0	0	0	0	0	6	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0	5	3	0	0	0	0	0	0	0	0	0	0	8
5:45	0	17	3	0	0	0	0	0	0	0	0	0	0	20	0	4	1	0	0	0	0	0	0	0	0	0	0	5	0	21	4	0	0	0	0	0	0	0	0	0	0	25
6:00	0	8	2	0	0	0	0	0	0	0	0	0	0	10	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0	9	3	0	0	0	0	0	0	0	0	0	0	12
6:15	0	3	2	0	0	0	0	0	0	0	0	0	0	5	0	1	8	0	0	0	0	0	0	0	0	0	0	9	0	4	10	0	0	0	0	0	0	0	0	0	0	14
6:30	0	5	2	0	0	0	0	0	0	0	0	0	0	7	0	1	3	0	1	0	0	0	0	0	0	0	0	5	0	6	5	0	1	0	0	0	0	0	0	0	0	12
6:45	0	4	2	0	0	0	0	0	0	0	0	0	0	6	0	4	1	0	0	0	0	0	0	0	0	0	0	5	0	8	3	0	0	0	0	0	0	0	0	0	0	11
7:00	0	6	6	0	1	0	0	0	0	0	0	0	0	13	0	9	1	0	0	0	0	0	0	0	0	0	0	10	0	15	7	0	1	0	0	0	0	0	0	0	0	23
7:15	0	4	2	1	0	0	0	0	0	0	0	0	0	7	0	5	4	0	0	0	0	0	0	0	0	0	0	9	0	9	6	1	0	0	0	0	0	0	0	0	0	16
7:30	0	8	0	0	1	0	0	0	0	0	0	0	0	9	0	6	2	1	0	0	0	0	0	0	0	0	0	9	0	14	2	1	1	0	0	0	0	0	0	0	0	18
7:45	0	8	2	0	0	0	0	0	0	0	0	0	0	10	0	6	6	1	1	0	0	0	0	0	0	0	0	14	0	14	8	1	1	0	0	0	0	0	0	0	0	24
8:00	0	10	2	0	1	0	0	0	0	0	0	0	0	13	0	5	3	0	0	0	0	0	0	0	0	0	0	8	0	15	5	0	1	0	0	0	0	0	0	0	0	21
8:15	0	9	3	0	0	0	0	0	0	0	0	0	0	12	0	9	1	0	0	0	0	0	0	0	0	0	0	10	0	18	4	0	0	0	0	0	0	0	0	0	0	22
8:30	0	8	4	0	0	1	0	0	0	0	0	0	0	13	0	6	0	0	0	0	0	0	0	0	0	0	0	6	0	14	4	0	0	1	0	0	0	0	0	0	0	19
8:45	0	5	2	1	0	0	0	0	0	0	0	0	0	8	0	12	2	0	0	0	0	0	0	0	0	0	0	14	0	17	4	1	0	0	0	0	0	0	0	0	0	22
9:00	0	7	2	10	3	0	0	0	0	0	0	0	0	22	0	5	1	0	0	0	0	0	0	0	0	0	0	6	0	12	3	10	3	0	0	0	0	0	0	0	0	28
9:15	0	3	4	7	0	0	0	0	0	0	0	0	0	14	0	13	3	0	1	0	0	0	0	0	0	0	0	17	0	16	7	7	1	0	0	0	0	0	0	0	0	31
9:30	0	5	4	2	1	0	0	0	0	0	0	0	0	12	0	7	3	0	0	0	0	0	0	0	0	0	0	10	0	12	7	2	1	0	0	0	0	0	0	0	0	22
9:45	0	3	2	0	0	1	0	0	0	0	0	0	0	6	0	7	5	0	0	1	0	0	0	0	0	0	0	13	0	10	7	0	0	2	0	0	0	0	0	0	0	19
10:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5	0	3	3	2	0	0	0	0	0	0	0	0	0	8	0	7	4	2	0	0	0	0	0	0	0	0	0	13
10:15	0	6	1	1	0	1	0	0	0	0	0	0	0	9	0	7	4	0	1	0	0	0	0	0	0	0	0	12	0	13	5	1	1	1	0	0	0	0	0	0	0	21
10:30	0	6	2	0	1	0	0	0	0	0	0	0	0	9	0	9	1	0	2	0	0	0	0	0	0	0	0	12	0	15	3	0	3	0	0	0	0	0	0	0	0	21
10:45	0	6	6	1	1	0	0	0	0	0	0	0	0	14	0	11	3	0	1	0	0	0	0	0	0	0	0	15	0	17	9	1	2	0	0	0	0	0	0	0	0	29
11:00	0	6	6	1	1	0	0	0	0	0	0	0	0	14	0	14	6	0	0	0	0	0	0	0	0	0	0	20	0	20	12	1	1	0	0	0	0	0	0	0	0	34
11:15	0	6	1	0	1	0	0	0	0	0	0	0	0	8	0	8	6	0	1	0	0	0	0	0	0	0	0	15	0	14	7	0	2	0	0	0	0	0	0	0	0	23
11:30	0	5	2	1	0	0	0	0	0	0	0	0	0	8	0	10	4	0	0	0	0	0	0	0	0	0	0	14	0	15	6	1	0	0	0	0	0	0	0	0	0	22
11:45	0	12	3	2	0	0	0	0	1	0	0	0	0	18	0	8	5	0	1	0	0	0	0	0	0	0	0	14	0	20	8	2	1	0	0	0	1	0	0	0	0	32

Prepared by National Data & Surveying Services

CLASSIFICATION

E College St W/O N 14th St

Day: Wednesday
Date: 9/25/2024

City: Broken Arrow
Project #: OK24_470300_003

15-MINUTE BREAKDOWN

Time	EASTBOUND													Total	WESTBOUND													Total	TOTALS												Total
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	
12:00	0	6	2	1	0	0	0	0	0	0	0	0	0	9	0	7	4	0	0	0	0	0	0	0	0	0	0	11	0	13	6	1	0	0	0	0	0	0	0	0	0	20
12:15	0	6	4	1	0	0	0	0	0	0	0	0	0	11	0	2	8	0	0	0	0	0	0	0	0	0	0	10	0	8	12	1	0	0	0	0	0	0	0	0	0	21
12:30	0	7	2	1	1	0	0	0	0	0	0	0	0	11	0	13	3	0	1	0	0	0	0	0	0	0	0	17	0	20	5	1	2	0	0	0	0	0	0	0	0	28
12:45	0	6	6	0	1	0	0	1	0	0	0	0	0	14	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	8	6	0	1	0	0	1	0	0	0	0	0	16
13:00	0	5	4	0	1	0	0	0	0	0	0	0	0	10	0	10	4	0	0	0	0	0	0	0	0	0	0	14	0	15	8	0	1	0	0	0	0	0	0	0	0	24
13:15	0	19	7	0	0	0	0	0	0	0	0	0	0	26	0	9	2	0	0	0	0	0	0	0	0	0	0	11	0	28	9	0	0	0	0	0	0	0	0	0	0	37
13:30	0	10	7	0	1	0	0	0	0	0	0	0	0	18	0	7	1	0	0	0	0	0	0	0	0	0	0	8	0	17	8	0	1	0	0	0	0	0	0	0	0	26
13:45	0	8	5	2	1	0	0	0	0	0	0	0	0	16	0	5	2	0	0	0	0	0	0	0	0	0	0	7	0	13	7	2	1	0	0	0	0	0	0	0	0	23
14:00	0	6	4	0	1	0	0	0	0	0	0	0	0	11	0	10	3	2	0	0	0	0	0	0	0	0	0	15	0	16	7	2	1	0	0	0	0	0	0	0	0	26
14:15	0	5	3	0	0	0	0	1	0	0	0	0	0	9	1	11	3	1	0	0	0	0	0	0	0	0	0	16	1	16	6	1	0	0	0	1	0	0	0	0	0	25
14:30	0	8	3	0	0	1	0	0	0	0	0	0	0	12	0	8	1	0	1	0	0	0	0	0	0	0	0	10	0	16	4	0	1	1	0	0	0	0	0	0	0	22
14:45	0	4	4	0	1	0	0	0	0	0	0	0	0	9	0	10	2	0	0	0	0	0	0	0	0	0	0	12	0	14	6	0	1	0	0	0	0	0	0	0	0	21
15:00	0	9	1	1	0	0	0	0	0	0	0	0	0	11	0	12	7	0	2	0	0	0	0	0	0	0	0	21	0	21	8	1	2	0	0	0	0	0	0	0	0	32
15:15	0	8	2	0	0	0	0	0	0	0	0	0	0	10	0	9	3	0	0	0	0	0	0	0	0	0	0	12	0	17	5	0	0	0	0	0	0	0	0	0	0	22
15:30	0	9	5	0	0	0	0	0	0	0	0	0	0	14	0	11	4	0	0	0	0	0	0	0	0	0	0	15	0	20	9	0	0	0	0	0	0	0	0	0	0	29
15:45	0	7	3	0	0	0	0	0	0	0	0	0	0	10	0	14	6	1	0	0	0	0	0	0	0	0	0	21	0	21	9	1	0	0	0	0	0	0	0	0	0	31
16:00	0	9	5	3	0	0	0	0	0	0	0	0	0	17	0	13	3	1	0	0	0	0	0	0	0	0	0	17	0	22	8	4	0	0	0	0	0	0	0	0	0	34
16:15	1	8	1	2	0	0	0	0	0	0	0	0	0	12	0	6	5	0	0	0	0	0	0	0	0	0	0	11	1	14	6	2	0	0	0	0	0	0	0	0	0	23
16:30	1	15	3	11	0	0	0	0	0	0	0	0	0	30	0	10	5	0	0	0	0	0	0	0	0	0	0	15	1	25	8	11	0	0	0	0	0	0	0	0	0	45
16:45	0	10	3	5	1	0	0	0	0	0	0	0	0	19	0	21	4	0	0	0	0	0	0	0	0	0	0	25	0	31	7	5	1	0	0	0	0	0	0	0	0	44
17:00	0	6	1	2	0	0	0	0	0	0	0	0	0	9	0	22	8	0	0	0	0	0	0	0	0	0	0	30	0	28	9	2	0	0	0	0	0	0	0	0	0	39
17:15	0	8	3	0	0	0	0	0	0	0	0	0	0	11	0	18	4	0	0	0	0	0	0	0	0	0	0	22	0	26	7	0	0	0	0	0	0	0	0	0	0	33
17:30	0	4	1	0	0	0	0	0	0	0	0	0	0	5	0	18	6	0	0	0	0	0	0	0	0	0	0	24	0	22	7	0	0	0	0	0	0	0	0	0	0	29
17:45	0	6	0	0	0	0	0	0	0	0	0	0	0	6	0	9	1	0	0	0	0	0	0	0	0	0	0	10	0	15	1	0	0	0	0	0	0	0	0	0	0	16
18:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0	8	7	0	0	0	0	0	0	0	0	0	0	15	0	13	7	0	0	0	0	0	0	0	0	0	0	20
18:15	0	7	2	0	1	0	0	0	0	0	0	0	0	10	0	5	1	0	0	0	0	0	0	0	0	0	0	6	0	12	3	0	1	0	0	0	0	0	0	0	0	16
18:30	0	5	2	0	0	0	0	0	0	0	0	0	0	7	0	7	4	0	0	0	0	0	0	0	0	0	0	11	0	12	6	0	0	0	0	0	0	0	0	0	0	18
18:45	0	6	1	0	0	0	0	0	0	0	0	0	0	7	0	6	4	0	0	0	0	0	0	0	0	0	0	10	0	12	5	0	0	0	0	0	0	0	0	0	0	17
19:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	11	0	0	0	0	0	0	0	0	0	0	0	11	0	14	0	0	0	0	0	0	0	0	0	0	0	14
19:15	0	7	2	0	0	0	0	0	0	0	0	0	0	9	0	4	1	0	0	0	0	0	0	0	0	0	0	5	0	11	3	0	0	0	0	0	0	0	0	0	0	14
19:30	0	8	4	0	0	0	0	0	0	0	0	0	0	12	0	10	4	0	0	0	0	0	0	0	0	0	0	14	0	18	8	0	0	0	0	0	0	0	0	0	0	26
19:45	0	6	2	0	0	0	0	0	0	0	0	0	0	8	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	9	2	0	0	0	0	0	0	0	0	0	0	11
20:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	7	0	0	0	0	0	0	0	0	0	0	0	7
20:15	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	5	1	0	0	0	0	0	0	0	0	0	0	6	0	8	1	0	0	0	0	0	0	0	0	0	0	9
20:30	0	2	1	0	0	0	0	0	0	0	0	0	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0	7	1	0	0	0	0	0	0	0	0	0	0	8
20:45	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0	6	0	0	0	0	0	0	0	0	0	0	0	6
21:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0	2	1	0	0	0	0	0	0	0	0	0	0	3	0	6	1	0	0	0	0	0	0	0	0	0	0	7
21:15	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0	4	2	0	0	0	0	0	0	0	0	0	0	6	0	5	3	0	0	0	0	0	0	0	0	0	0	8
21:30	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	6	0	0	0	0	0	0	0	0	0	0	0	6
21:45	0	4	1	0	0	0	0	0	0	0	0	0	0	5	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	6	1	0	0	0	0	0	0	0	0	0	0	7
22:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4
22:15	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	3
22:30	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2
22:45	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	3
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	4	0	0	0	0	0	0	0	0	0	0	0	4
23:15	0	2	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	3
23:30	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
23:45	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0	2	1	0	0	0	0	0	0	0	0	0	0	3
Totals	2	447	169	56	20	4	0	3	1	0	0	0	0	702	1	529	196	9	13	1	0	1	0	0	0	0	0	750	3	976	365	65	33	5	0	4	1	0	0	0	0	1,452
% of Totals	0%	64%	24%	8%	3%	1%		0%	0%					100%	0%	71%	26%	1%	2%	0%		0%						100%	0%	67%	25%	4%	2%	0%		0%	0%					100%

Prepared by National Data & Surveying Services

VOLUME

E College St W/O N 14th St

Day: Wednesday
Date: 9/25/2024

City: Broken Arrow
Project #: OK24_470300_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	702	750	1,452

DAILY TOTALS

15-Minutes Interval

TIME	NB	SB	EB	WB	TOTAL	TIME	NB	SB	EB	WB	TOTAL
0:00			1	6	7	12:00			9	11	20
0:15			0	0	0	12:15			11	10	21
0:30			0	0	0	12:30			11	17	28
0:45			1	0	1	12:45			14	2	16
1:00			0	0	0	13:00			10	14	24
1:15			0	1	1	13:15			26	11	37
1:30			0	0	0	13:30			18	8	26
1:45			0	0	0	13:45			16	7	23
2:00			0	0	0	14:00			11	15	26
2:15			0	0	0	14:15			9	16	25
2:30			0	1	1	14:30			12	10	22
2:45			0	0	0	14:45			9	12	21
3:00			0	1	1	15:00			11	21	32
3:15			0	0	0	15:15			10	12	22
3:30			0	0	0	15:30			14	15	29
3:45			0	0	0	15:45			10	21	31
4:00			0	1	1	16:00			17	17	34
4:15			0	0	0	16:15			12	11	23
4:30			1	1	2	16:30			30	15	45
4:45			3	2	5	16:45			19	25	44
5:00			1	2	3	17:00			9	30	39
5:15			5	0	5	17:15			11	22	33
5:30			6	2	8	17:30			5	24	29
5:45			20	5	25	17:45			6	10	16
6:00			10	2	12	18:00			5	15	20
6:15			5	9	14	18:15			10	6	16
6:30			7	5	12	18:30			7	11	18
6:45			6	5	11	18:45			7	10	17

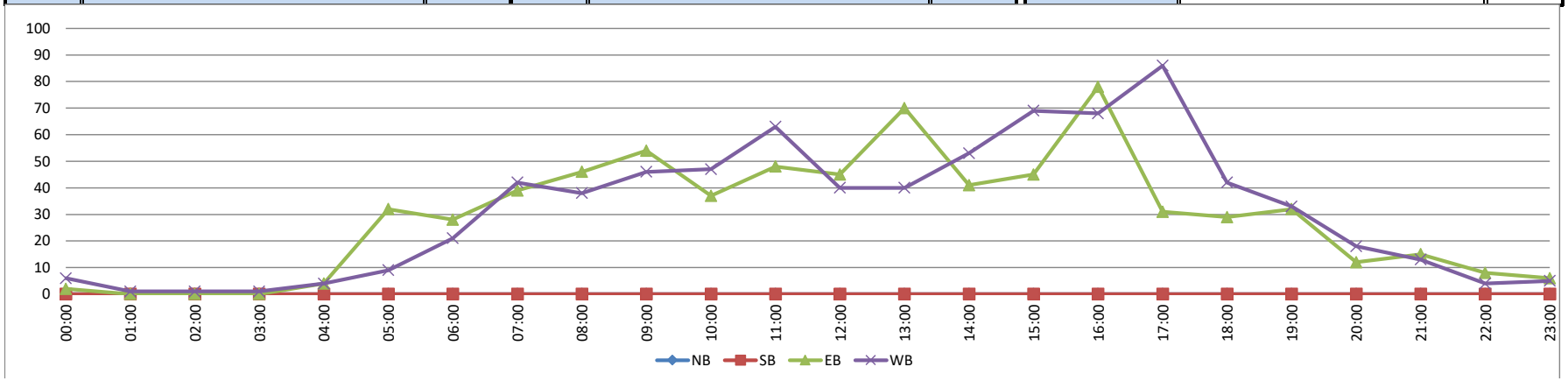
Hourly Intervals

TIME		NB	SB	EB	WB	TOTAL
00:00	01:00			2	6	8
01:00	02:00			0	1	1
02:00	03:00			0	1	1
03:00	04:00			0	1	1
04:00	05:00			4	4	8
05:00	06:00			32	9	41
06:00	07:00			28	21	49
07:00	08:00			39	42	81
08:00	09:00			46	38	84
09:00	10:00			54	46	100
10:00	11:00			37	47	84
11:00	12:00			48	63	111
12:00	13:00			45	40	85
13:00	14:00			70	40	110
14:00	15:00			41	53	94
15:00	16:00			45	69	114
16:00	17:00			78	68	146
17:00	18:00			31	86	117
18:00	19:00			29	42	71
19:00	20:00			32	33	65
20:00	21:00			12	18	30
21:00	22:00			15	13	28
22:00	23:00			8	4	12
23:00	00:00			6	5	11

STATISTICS

	NB	SB	EB	WB	TOTAL
Peak Period	00:00	to	12:00		
Volume			290	279	569

7:00			13	10	**23**	**19:00**			3	11	**14**	**Peak Hour**			8:30	10:45	11:00
7:15			7	9	**16**	**19:15**			9	5	**14**	**Peak Volume**			57	64	111
7:30			9	9	**18**	**19:30**			12	14	**26**	**Peak Hour Factor**			0.648	0.800	0.816
7:45			10	14	**24**	**19:45**			8	3	**11**						
8:00			13	8	**21**	**20:00**			5	2	**7**	**Peak Period**	**12:00**	**to**	**00:00**		
8:15			12	10	**22**	**20:15**			3	6	**9**	**Volume**			412	471	883
8:30			13	6	**19**	**20:30**			3	5	**8**	**Peak Hour**			16:00	16:45	16:30
8:45			8	14	**22**	**20:45**			1	5	**6**	**Peak Volume**			78	101	161
9:00			22	6	**28**	**21:00**			4	3	**7**	**Peak Hour Factor**			0.650	0.842	0.894
9:15			14	17	**31**	**21:15**			2	6	**8**						
9:30			12	10	**22**	**21:30**			4	2	**6**	**Peak Period**	**07:00**	**to**	**09:00**		
9:45			6	13	**19**	**21:45**			5	2	**7**	**Volume**			85	80	165
10:00			5	8	**13**	**22:00**			4	0	**4**	**Peak Hour**			7:45	7:00	7:45
10:15			9	12	**21**	**22:15**			2	1	**3**	**Peak Volume**			48	42	86
10:30			9	12	**21**	**22:30**			1	1	**2**	**Peak Hour Factor**			0.923	0.750	0.896
10:45			14	15	**29**	**22:45**			1	2	**3**						
11:00			14	20	**34**	**23:00**			1	3	**4**	**Peak Period**	**16:00**	**to**	**18:00**		
11:15			8	15	**23**	**23:15**			3	0	**3**	**Volume**			109	154	263
11:30			8	14	**22**	**23:30**			1	0	**1**	**Peak Hour**			16:00	16:45	16:30
11:45			18	14	**32**	**23:45**			1	2	**3**	**Peak Volume**			78	101	161
TOTALS	**0**	**0**	**290**	**279**	**569**	**TOTALS**	**0**	**0**	**412**	**471**	**883**	**Peak Hour Factor**			0.650	0.842	0.894
SPLIT %	**0%**	**0%**	**51%**	**49%**	**39%**	**SPLIT %**	**0%**	**0%**	**47%**	**53%**	**61%**						



Prepared by National Data & Surveying Services

SPEED

E College St W/O N 14th St

Day: Wednesday
Date: 9/25/2024

City: Broken Arrow
Project #: OK24_470300_003

HOURLY BREAKDOWN

Time	EASTBOUND 5 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 99	Total
0:00	0	0	0	0	0	0	2	0	0	0	0	0	0	**2**
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4:00	0	0	0	4	0	0	0	0	0	0	0	0	0	**4**
5:00	0	1	1	17	11	2	0	0	0	0	0	0	0	**32**
6:00	0	0	5	11	7	5	0	0	0	0	0	0	0	**28**
7:00	1	4	9	13	9	2	0	1	0	0	0	0	0	**39**
8:00	1	6	11	15	8	4	1	0	0	0	0	0	0	**46**
9:00	1	10	25	9	6	3	0	0	0	0	0	0	0	**54**
10:00	0	5	13	13	5	1	0	0	0	0	0	0	0	**37**
11:00	0	9	21	10	6	2	0	0	0	0	0	0	0	**48**
12:00	0	4	24	16	0	1	0	0	0	0	0	0	0	**45**
13:00	1	14	22	25	8	0	0	0	0	0	0	0	0	**70**
14:00	1	6	11	16	6	1	0	0	0	0	0	0	0	**41**
15:00	1	7	10	11	10	4	2	0	0	0	0	0	0	**45**
16:00	3	7	11	27	19	9	1	1	0	0	0	0	0	**78**
17:00	0	4	6	10	4	5	2	0	0	0	0	0	0	**31**
18:00	0	3	1	13	6	6	0	0	0	0	0	0	0	**29**
19:00	2	8	6	5	8	3	0	0	0	0	0	0	0	**32**
20:00	0	0	9	2	1	0	0	0	0	0	0	0	0	**12**
21:00	0	0	4	8	3	0	0	0	0	0	0	0	0	**15**
22:00	1	3	1	2	0	1	0	0	0	0	0	0	0	**8**
23:00	0	3	1	2	0	0	0	0	0	0	0	0	0	**6**
Totals	**12**	**94**	**191**	**229**	**117**	**49**	**8**	**2**	**0**	**0**	**0**	**0**	**0**	**702**
% of Totals	2%	13%	27%	33%	17%	7%	1%	0%						100%

Time	WESTBOUND 5 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 99	Total
0:00	1	2	3	0	0	0	0	0	0	0	0	0	0	**6**
1:00	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**
2:00	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
3:00	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**
4:00	0	0	0	1	1	2	0	0	0	0	0	0	0	**4**
5:00	1	0	1	4	1	2	0	0	0	0	0	0	0	**9**
6:00	0	2	5	8	4	2	0	0	0	0	0	0	0	**21**
7:00	1	4	12	11	9	4	0	1	0	0	0	0	0	**42**
8:00	0	3	10	9	10	5	0	1	0	0	0	0	0	**38**
9:00	0	2	12	19	11	1	1	0	0	0	0	0	0	**46**
10:00	4	1	17	15	9	1	0	0	0	0	0	0	0	**47**
11:00	2	3	16	19	15	6	2	0	0	0	0	0	0	**63**
12:00	2	5	8	13	7	4	1	0	0	0	0	0	0	**40**
13:00	0	2	11	13	10	4	0	0	0	0	0	0	0	**40**
14:00	1	6	10	18	12	3	3	0	0	0	0	0	0	**53**
15:00	0	3	18	26	15	5	2	0	0	0	0	0	0	**69**
16:00	1	8	16	16	17	6	4	0	0	0	0	0	0	**68**
17:00	0	10	11	26	29	7	2	1	0	0	0	0	0	**86**
18:00	2	1	7	16	9	5	1	1	0	0	0	0	0	**42**
19:00	0	1	5	13	10	4	0	0	0	0	0	0	0	**33**
20:00	0	2	2	8	4	1	1	0	0	0	0	0	0	**18**
21:00	0	0	4	4	3	2	0	0	0	0	0	0	0	**13**
22:00	0	1	3	0	0	0	0	0	0	0	0	0	0	**4**
23:00	0	0	4	1	0	0	0	0	0	0	0	0	0	**5**
Totals	**15**	**56**	**177**	**241**	**176**	**64**	**17**	**4**	**0**	**0**	**0**	**0**	**0**	**750**
% of Totals	2%	7%	24%	32%	23%	9%	2%	1%						100%

Time	TOTALS 5 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 99	Total
0:00	1	2	3	0	0	0	2	0	0	0	0	0	0	**8**
1:00	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**
2:00	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
3:00	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**
4:00	0	0	0	5	1	2	0	0	0	0	0	0	0	**8**
5:00	1	1	2	21	12	4	0	0	0	0	0	0	0	**41**
6:00	0	2	10	19	11	7	0	0	0	0	0	0	0	**49**
7:00	2	8	21	24	18	6	0	2	0	0	0	0	0	**81**
8:00	1	9	21	24	18	9	1	1	0	0	0	0	0	**84**
9:00	1	12	37	28	17	4	1	0	0	0	0	0	0	**100**
10:00	4	6	30	28	14	2	0	0	0	0	0	0	0	**84**
11:00	2	12	37	29	21	8	2	0	0	0	0	0	0	**111**
12:00	2	9	32	29	7	5	1	0	0	0	0	0	0	**85**
13:00	1	16	33	38	18	4	0	0	0	0	0	0	0	**110**
14:00	2	12	21	34	18	4	3	0	0	0	0	0	0	**94**
15:00	1	10	28	37	25	9	4	0	0	0	0	0	0	**114**
16:00	4	15	27	43	36	15	5	1	0	0	0	0	0	**146**
17:00	0	14	17	36	33	12	4	1	0	0	0	0	0	**117**
18:00	2	4	8	29	15	11	1	1	0	0	0	0	0	**71**
19:00	2	9	11	18	18	7	0	0	0	0	0	0	0	**65**
20:00	0	2	11	10	5	1	1	0	0	0	0	0	0	**30**
21:00	0	0	8	12	6	2	0	0	0	0	0	0	0	**28**
22:00	1	4	4	2	0	1	0	0	0	0	0	0	0	**12**
23:00	0	3	5	3	0	0	0	0	0	0	0	0	0	**11**
Totals	**27**	**150**	**368**	**470**	**293**	**113**	**25**	**6**	**0**	**0**	**0**	**0**	**0**	**1,452**
% of Totals	2%	10%	25%	32%	20%	8%	2%	0%						100%

STATISTICS

	00:00 - 12:00	12:00 - 24:00	07:00 - 09:00	16:00 - 18:00
EASTBOUND	290	412	85	109
%	41%	59%	12%	16%
Peak Hour	8:30	16:00	7:45	16:00
Peak Volume	57	78	48	78
WESTBOUND	279	471	80	154
%	40%	67%	11%	22%
Peak Hour	10:45	16:45	7:00	16:45
Peak Volume	64	101	42	101
TOTALS	569	883	165	263
%	81%	126%	24%	37%
Peak Hour	11:00	16:30	7:45	16:30
Peak Volume	111	161	86	161

Direction	Percentiles 15th	50th	Average	85th	95th	ADT
EASTBOUND	20	26	26	33	37	702
WESTBOUND	21	28	28	34	39	750
TOTALS	21	27	27	34	38	1452

Prepared by National Data & Surveying Services

SPEED

E College St W/O N 14th St

Day: Wednesday

Date: 9/25/2024

City: Broken Arrow

Project #: OK24_470300_003

15-MINUTE BREAKDOWN

Time	EASTBOUND														WESTBOUND														TOTALS											
	5	15	20	25	30	35	40	45	50	55	60	65	70	Total	5	15	20	25	30	35	40	45	50	55	60	65	70	Total	5	15	20	25	30	35	40	45	50	55	60	65	70	Total
	15	20	25	30	35	40	45	50	55	60	65	70	99		15	20	25	30	35	40	45	50	55	60	65	70	99		15	20	25	30	35	40	45	50	55	60	65	70	99	
0:00	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	2	3	0	0	0	0	0	0	0	0	0	0	6	1	2	3	0	0	0	1	0	0	0	0	0	0	7
0:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:45	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
1:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1
2:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	2
4:45	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	1	0	0	0	0	0	0	0	2	0	0	0	4	0	1	0	0	0	0	0	0	0	5
5:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	0	1	0	1	0	0	0	0	0	0	0	3
5:15	0	1	0	4	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	5
5:30	0	0	0	4	2	0	0	0	0	0	0	0	0	6	0	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0	1	4	3	0	0	0	0	0	0	0	0	8
5:45	0	0	1	8	9	2	0	0	0	0	0	0	0	20	0	0	0	4	0	1	0	0	0	0	0	0	0	5	0	0	1	12	9	3	0	0	0	0	0	0	0	25
6:00	0	0	2	5	2	1	0	0	0	0	0	0	0	10	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	1	2	6	2	1	0	0	0	0	0	0	0	12
6:15	0	0	1	1	3	0	0	0	0	0	0	0	0	5	0	0	2	3	2	2	0	0	0	0	0	0	0	9	0	0	3	4	5	2	0	0	0	0	0	0	0	14
6:30	0	0	2	3	1	1	0	0	0	0	0	0	0	7	0	1	3	1	0	0	0	0	0	0	0	0	0	5	0	1	5	4	1	1	0	0	0	0	0	0	0	12
6:45	0	0	0	2	1	3	0	0	0	0	0	0	0	6	0	0	0	3	2	0	0	0	0	0	0	0	0	5	0	0	0	5	3	3	0	0	0	0	0	0	0	11
7:00	1	1	3	7	0	1	0	0	0	0	0	0	0	13	0	1	5	2	2	0	0	0	0	0	0	0	0	10	1	2	8	9	2	1	0	0	0	0	0	0	0	23
7:15	0	1	2	2	2	0	0	0	0	0	0	0	0	7	0	1	2	3	3	0	0	0	0	0	0	0	0	9	0	2	4	5	5	0	0	0	0	0	0	0	0	16
7:30	0	0	3	2	4	0	0	0	0	0	0	0	0	9	0	1	0	4	2	2	0	0	0	0	0	0	0	9	0	1	3	6	6	2	0	0	0	0	0	0	0	18
7:45	0	2	1	2	3	1	0	1	0	0	0	0	0	10	1	1	5	2	2	2	0	1	0	0	0	0	0	14	1	3	6	4	5	3	0	2	0	0	0	0	0	24
8:00	0	2	3	6	1	1	0	0	0	0	0	0	0	13	0	0	3	1	1	2	0	1	0	0	0	0	0	8	0	2	6	7	2	3	0	1	0	0	0	0	0	21
8:15	0	1	3	3	5	0	0	0	0	0	0	0	0	12	0	1	1	3	4	1	0	0	0	0	0	0	0	10	0	2	4	6	9	1	0	0	0	0	0	0	0	22
8:30	0	0	4	4	2	2	1	0	0	0	0	0	0	13	0	1	0	1	2	2	0	0	0	0	0	0	0	6	0	1	4	5	4	4	1	0	0	0	0	0	0	19
8:45	1	3	1	2	0	1	0	0	0	0	0	0	0	8	0	1	6	4	3	0	0	0	0	0	0	0	0	14	1	4	7	6	3	1	0	0	0	0	0	0	0	22
9:00	0	2	11	4	3	2	0	0	0	0	0	0	0	22	0	0	1	0	4	0	1	0	0	0	0	0	0	6	0	2	12	4	7	2	1	0	0	0	0	0	0	28
9:15	0	3	8	3	0	0	0	0	0	0	0	0	0	14	0	2	3	10	1	1	0	0	0	0	0	0	0	17	0	5	11	13	1	1	0	0	0	0	0	0	0	31
9:30	0	4	4	2	2	0	0	0	0	0	0	0	0	12	0	0	4	2	4	0	0	0	0	0	0	0	0	10	0	4	8	4	6	0	0	0	0	0	0	0	0	22
9:45	1	1	2	0	1	1	0	0	0	0	0	0	0	6	0	0	4	7	2	0	0	0	0	0	0	0	0	13	1	1	6	7	3	1	0	0	0	0	0	0	0	19
10:00	0	1	1	3	0	0	0	0	0	0	0	0	0	5	1	0	4	2	1	0	0	0	0	0	0	0	0	8	1	1	5	5	1	0	0	0	0	0	0	0	0	13
10:15	0	3	4	1	1	0	0	0	0	0	0	0	0	9	1	1	2	5	3	0	0	0	0	0	0	0	0	12	1	4	6	6	4	0	0	0	0	0	0	0	0	21
10:30	0	1	1	4	3	0	0	0	0	0	0	0	0	9	1	0	7	2	1	1	0	0	0	0	0	0	0	12	1	1	8	6	4	1	0	0	0	0	0	0	0	21
10:45	0	0	7	5	1	1	0	0	0	0	0	0	0	14	1	0	4	6	4	0	0	0	0	0	0	0	0	15	1	0	11	11	5	1	0	0	0	0	0	0	0	29
11:00	0	1	9	2	2	0	0	0	0	0	0	0	0	14	0	0	4	8	6	1	1	0	0	0	0	0	0	20	0	1	13	10	8	1	1	0	0	0	0	0	0	34
11:15	0	3	3	1	1	0	0	0	0	0	0	0	0	8	0	2	4	4	4	0	1	0	0	0	0	0	0	15	0	5	7	5	5	0	1	0	0	0	0	0	0	23
11:30	0	2	2	1	2	1	0	0	0	0	0	0	0	8	0	1	2	4	3	4	0	0	0	0	0	0	0	14	0	3	4	5	5	5	0	0	0	0	0	0	0	22
11:45	0	3	7	6	1	1	0	0	0	0	0	0	0	18	2	0	6	3	2	1	0	0	0	0	0	0	0	14	2	3	13	9	3	2	0	0	0	0	0	0	0	32

Prepared by National Data & Surveying Services

SPEED

E College St W/O N 14th St

Day: Wednesday

Date: 9/25/2024

City: Broken Arrow

Project #: OK24_470300_003

15-MINUTE BREAKDOWN

Time	EASTBOUND														WESTBOUND														TOTALS												
	5	15	20	25	30	35	40	45	50	55	60	65	70	Total	5	15	20	25	30	35	40	45	50	55	60	65	70	Total	5	15	20	25	30	35	40	45	50	55	60	65	70	Total
	15	20	25	30	35	40	45	50	55	60	65	70	99		15	20	25	30	35	40	45	50	55	60	65	70	99		15	20	25	30	35	40	45	50	55	60	65	70	99	
12:00	0	0	6	3	0	0	0	0	0	0	0	0	0	**9**	0	0	3	4	3	1	0	0	0	0	0	0	0	**11**	0	0	9	7	3	1	0	0	0	0	0	0	0	**20**
12:15	0	2	5	4	0	0	0	0	0	0	0	0	0	**11**	1	0	2	2	4	1	0	0	0	0	0	0	0	**10**	1	2	7	6	4	1	0	0	0	0	0	0	0	**21**
12:30	0	1	6	4	0	0	0	0	0	0	0	0	0	**11**	1	4	2	7	0	2	1	0	0	0	0	0	0	**17**	1	5	8	11	0	2	1	0	0	0	0	0	0	**28**
12:45	0	1	7	5	0	1	0	0	0	0	0	0	0	**14**	0	1	1	0	0	0	0	0	0	0	0	0	0	**2**	0	2	8	5	0	1	0	0	0	0	0	0	0	**16**
13:00	1	0	4	4	1	0	0	0	0	0	0	0	0	**10**	0	1	4	5	4	0	0	0	0	0	0	0	0	**14**	1	1	8	9	5	0	0	0	0	0	0	0	0	**24**
13:15	0	3	10	10	3	0	0	0	0	0	0	0	0	**26**	0	0	3	5	2	1	0	0	0	0	0	0	0	**11**	0	3	13	15	5	1	0	0	0	0	0	0	0	**37**
13:30	0	5	3	8	2	0	0	0	0	0	0	0	0	**18**	0	1	1	1	3	2	0	0	0	0	0	0	0	**8**	0	6	4	9	5	2	0	0	0	0	0	0	0	**26**
13:45	0	6	5	3	2	0	0	0	0	0	0	0	0	**16**	0	0	3	2	1	1	0	0	0	0	0	0	0	**7**	0	6	8	5	3	1	0	0	0	0	0	0	0	**23**
14:00	0	1	2	6	2	0	0	0	0	0	0	0	0	**11**	0	1	2	6	4	1	1	0	0	0	0	0	0	**15**	0	2	4	12	6	1	1	0	0	0	0	0	0	**26**
14:15	0	2	2	3	1	1	0	0	0	0	0	0	0	**9**	1	4	3	5	3	0	0	0	0	0	0	0	0	**16**	1	6	5	8	4	1	0	0	0	0	0	0	0	**25**
14:30	0	2	5	3	2	0	0	0	0	0	0	0	0	**12**	0	1	2	5	1	0	1	0	0	0	0	0	0	**10**	0	3	7	8	3	0	1	0	0	0	0	0	0	**22**
14:45	1	1	2	4	1	0	0	0	0	0	0	0	0	**9**	0	0	3	2	4	2	1	0	0	0	0	0	0	**12**	1	1	5	6	5	2	1	0	0	0	0	0	0	**21**
15:00	0	2	4	2	3	0	0	0	0	0	0	0	0	**11**	0	1	5	8	5	1	1	0	0	0	0	0	0	**21**	0	3	9	10	8	1	1	0	0	0	0	0	0	**32**
15:15	0	0	0	4	2	3	1	0	0	0	0	0	0	**10**	0	2	5	5	0	0	0	0	0	0	0	0	0	**12**	0	2	5	9	2	3	1	0	0	0	0	0	0	**22**
15:30	0	1	4	4	3	1	1	0	0	0	0	0	0	**14**	0	0	4	7	2	2	0	0	0	0	0	0	0	**15**	0	1	8	11	5	3	1	0	0	0	0	0	0	**29**
15:45	1	4	2	1	2	0	0	0	0	0	0	0	0	**10**	0	0	4	6	8	2	1	0	0	0	0	0	0	**21**	1	4	6	7	10	2	1	0	0	0	0	0	0	**31**
16:00	1	0	4	3	5	3	0	1	0	0	0	0	0	**17**	1	1	8	1	4	2	0	0	0	0	0	0	0	**17**	2	1	12	4	9	5	0	1	0	0	0	0	0	**34**
16:15	0	0	3	3	2	3	1	0	0	0	0	0	0	**12**	0	1	2	2	3	1	2	0	0	0	0	0	0	**11**	0	1	5	5	5	4	3	0	0	0	0	0	0	**23**
16:30	1	3	3	11	9	3	0	0	0	0	0	0	0	**30**	0	2	2	6	4	0	1	0	0	0	0	0	0	**15**	1	5	5	17	13	3	1	0	0	0	0	0	0	**45**
16:45	1	4	1	10	3	0	0	0	0	0	0	0	0	**19**	0	4	4	7	6	3	1	0	0	0	0	0	0	**25**	1	8	5	17	9	3	1	0	0	0	0	0	0	**44**
17:00	0	2	2	3	1	1	0	0	0	0	0	0	0	**9**	0	2	6	8	12	2	0	0	0	0	0	0	0	**30**	0	4	8	11	13	3	0	0	0	0	0	0	0	**39**
17:15	0	1	1	4	3	1	1	0	0	0	0	0	0	**11**	0	1	2	8	8	3	0	0	0	0	0	0	0	**22**	0	2	3	12	11	4	1	0	0	0	0	0	0	**33**
17:30	0	1	1	0	0	2	1	0	0	0	0	0	0	**5**	0	5	2	6	7	1	2	1	0	0	0	0	0	**24**	0	6	3	6	7	3	3	1	0	0	0	0	0	**29**
17:45	0	0	2	3	0	1	0	0	0	0	0	0	0	**6**	0	2	1	4	2	1	0	0	0	0	0	0	0	**10**	0	2	3	7	2	2	0	0	0	0	0	0	0	**16**
18:00	0	2	0	2	0	1	0	0	0	0	0	0	0	**5**	0	1	3	6	4	1	0	0	0	0	0	0	0	**15**	0	3	3	8	4	2	0	0	0	0	0	0	0	**20**
18:15	0	0	0	5	1	4	0	0	0	0	0	0	0	**10**	0	0	1	2	2	1	0	0	0	0	0	0	0	**6**	0	0	1	7	3	5	0	0	0	0	0	0	0	**16**
18:30	0	1	0	4	2	0	0	0	0	0	0	0	0	**7**	0	0	2	4	2	1	1	1	0	0	0	0	0	**11**	0	1	2	8	4	1	1	1	0	0	0	0	0	**18**
18:45	0	0	1	2	3	1	0	0	0	0	0	0	0	**7**	2	0	1	4	1	2	0	0	0	0	0	0	0	**10**	2	0	2	6	4	3	0	0	0	0	0	0	0	**17**
19:00	0	0	1	1	1	0	0	0	0	0	0	0	0	**3**	0	0	0	4	3	4	0	0	0	0	0	0	0	**11**	0	0	1	5	4	4	0	0	0	0	0	0	0	**14**
19:15	1	2	2	1	1	2	0	0	0	0	0	0	0	**9**	0	0	3	1	1	0	0	0	0	0	0	0	0	**5**	1	2	5	2	2	2	0	0	0	0	0	0	0	**14**
19:30	1	4	1	2	3	1	0	0	0	0	0	0	0	**12**	0	1	2	7	4	0	0	0	0	0	0	0	0	**14**	1	5	3	9	7	1	0	0	0	0	0	0	0	**26**
19:45	0	2	2	1	3	0	0	0	0	0	0	0	0	**8**	0	0	0	1	2	0	0	0	0	0	0	0	0	**3**	0	2	2	2	5	0	0	0	0	0	0	0	0	**11**
20:00	0	0	4	0	1	0	0	0	0	0	0	0	0	**5**	0	0	0	0	1	1	0	0	0	0	0	0	0	**2**	0	0	4	0	2	1	0	0	0	0	0	0	0	**7**
20:15	0	0	3	0	0	0	0	0	0	0	0	0	0	**3**	0	0	0	4	2	0	0	0	0	0	0	0	0	**6**	0	0	3	4	2	0	0	0	0	0	0	0	0	**9**
20:30	0	0	1	2	0	0	0	0	0	0	0	0	0	**3**	0	1	0	3	1	0	0	0	0	0	0	0	0	**5**	0	1	1	5	1	0	0	0	0	0	0	0	0	**8**
20:45	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**	0	1	2	1	0	0	1	0	0	0	0	0	0	**5**	0	1	3	1	0	0	1	0	0	0	0	0	0	**6**
21:00	0	0	1	2	1	0	0	0	0	0	0	0	0	**4**	0	0	1	2	0	0	0	0	0	0	0	0	0	**3**	0	0	2	4	1	0	0	0	0	0	0	0	0	**7**
21:15	0	0	0	0	2	0	0	0	0	0	0	0	0	**2**	0	0	2	1	2	1	0	0	0	0	0	0	0	**6**	0	0	2	1	4	1	0	0	0	0	0	0	0	**8**
21:30	0	0	2	2	0	0	0	0	0	0	0	0	0	**4**	0	0	0	1	0	1	0	0	0	0	0	0	0	**2**	0	0	2	3	0	1	0	0	0	0	0	0	0	**6**
21:45	0	0	1	4	0	0	0	0	0	0	0	0	0	**5**	0	0	1	0	1	0	0	0	0	0	0	0	0	**2**	0	0	2	4	1	0	0	0	0	0	0	0	0	**7**
22:00	0	1	1	2	0	0	0	0	0	0	0	0	0	**4**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	1	1	2	0	0	0	0	0	0	0	0	0	**4**
22:15	0	1	0	0	0	1	0	0	0	0	0	0	0	**2**	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**	0	2	0	0	0	1	0	0	0	0	0	0	0	**3**
22:30	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**	0	1	1	0	0	0	0	0	0	0	0	0	0	**2**
22:45	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	2	0	0	0	0	0	0	0	0	0	0	**2**	1	0	2	0	0	0	0	0	0	0	0	0	0	**3**
23:00	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**	0	0	2	1	0	0	0	0	0	0	0	0	0	**3**	0	0	3	1	0	0	0	0	0	0	0	0	0	**4**
23:15	0	1	0	2	0	0	0	0	0	0	0	0	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	1	0	2	0	0	0	0	0	0	0	0	0	**3**
23:30	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
23:45	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	2	0	0	0	0	0	0	0	0	0	0	**2**	0	1	2	0	0	0	0	0	0	0	0	0	0	**3**
Totals	**12**	**94**	**191**	**229**	**117**	**49**	**8**	**2**	**0**	**0**	**0**	**0**	**0**	**702**	**15**	**56**	**177**	**241**	**176**	**64**	**17**	**4**	**0**	**0**	**0**	**0**	**0**	**750**	**27**	**150**	**368**	**470**	**293**	**113**	**25**	**6**	**0**	**0**	**0**	**0**	**0**	**1,452**
% of Totals	2%	13%	27%	33%	17%	7%	1%	0%	0%	0%	0%	0%	0%	**100%**	2%	7%	24%	32%	23%	9%	2%	1%	0%	0%	0%	0%	0%	**100%**	2%	10%	25%	32%	20%	8%	2%	0%	0%	0%	0%	0%	0%	**100%**

Prepared by National Data & Surveying Services

VOLUME

E College St W/O N 14th St

Day: Wednesday
Date: 9/25/2024

City: Broken Arrow
Project #: OK24_470300_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	702	750	1,452

DAILY TOTALS

15-Minutes Interval

TIME	NB	SB	EB	WB	TOTAL	TIME	NB	SB	EB	WB	TOTAL
0:00			1	6	7	12:00			9	11	20
0:15			0	0	0	12:15			11	10	21
0:30			0	0	0	12:30			11	17	28
0:45			1	0	1	12:45			14	2	16
1:00			0	0	0	13:00			10	14	24
1:15			0	1	1	13:15			26	11	37
1:30			0	0	0	13:30			18	8	26
1:45			0	0	0	13:45			16	7	23
2:00			0	0	0	14:00			11	15	26
2:15			0	0	0	14:15			9	16	25
2:30			0	1	1	14:30			12	10	22
2:45			0	0	0	14:45			9	12	21
3:00			0	1	1	15:00			11	21	32
3:15			0	0	0	15:15			10	12	22
3:30			0	0	0	15:30			14	15	29
3:45			0	0	0	15:45			10	21	31
4:00			0	1	1	16:00			17	17	34
4:15			0	0	0	16:15			12	11	23
4:30			1	1	2	16:30			30	15	45
4:45			3	2	5	16:45			19	25	44
5:00			1	2	3	17:00			9	30	39
5:15			5	0	5	17:15			11	22	33
5:30			6	2	8	17:30			5	24	29
5:45			20	5	25	17:45			6	10	16
6:00			10	2	12	18:00			5	15	20
6:15			5	9	14	18:15			10	6	16
6:30			7	5	12	18:30			7	11	18
6:45			6	5	11	18:45			7	10	17

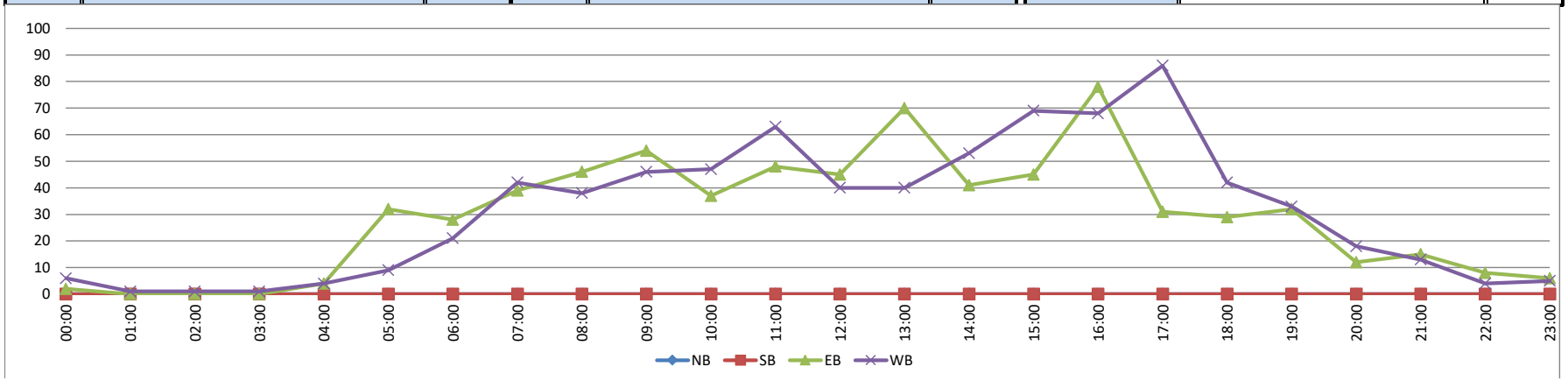
Hourly Intervals

TIME		NB	SB	EB	WB	TOTAL
00:00	01:00			2	6	8
01:00	02:00			0	1	1
02:00	03:00			0	1	1
03:00	04:00			0	1	1
04:00	05:00			4	4	8
05:00	06:00			32	9	41
06:00	07:00			28	21	49
07:00	08:00			39	42	81
08:00	09:00			46	38	84
09:00	10:00			54	46	100
10:00	11:00			37	47	84
11:00	12:00			48	63	111
12:00	13:00			45	40	85
13:00	14:00			70	40	110
14:00	15:00			41	53	94
15:00	16:00			45	69	114
16:00	17:00			78	68	146
17:00	18:00			31	86	117
18:00	19:00			29	42	71
19:00	20:00			32	33	65
20:00	21:00			12	18	30
21:00	22:00			15	13	28
22:00	23:00			8	4	12
23:00	00:00			6	5	11

STATISTICS

	NB	SB	EB	WB	TOTAL
Peak Period	00:00	to	12:00		
Volume			290	279	569

7:00			13	10	**23**	**19:00**			3	11	**14**	**Peak Hour**			8:30	10:45	11:00
7:15			7	9	**16**	**19:15**			9	5	**14**	**Peak Volume**			57	64	111
7:30			9	9	**18**	**19:30**			12	14	**26**	**Peak Hour Factor**			0.648	0.800	0.816
7:45			10	14	**24**	**19:45**			8	3	**11**						
8:00			13	8	**21**	**20:00**			5	2	**7**	**Peak Period**	**12:00**	**to**	**00:00**		
8:15			12	10	**22**	**20:15**			3	6	**9**	**Volume**			412	471	883
8:30			13	6	**19**	**20:30**			3	5	**8**	**Peak Hour**			16:00	16:45	16:30
8:45			8	14	**22**	**20:45**			1	5	**6**	**Peak Volume**			78	101	161
9:00			22	6	**28**	**21:00**			4	3	**7**	**Peak Hour Factor**			0.650	0.842	0.894
9:15			14	17	**31**	**21:15**			2	6	**8**						
9:30			12	10	**22**	**21:30**			4	2	**6**	**Peak Period**	**07:00**	**to**	**09:00**		
9:45			6	13	**19**	**21:45**			5	2	**7**	**Volume**			85	80	165
10:00			5	8	**13**	**22:00**			4	0	**4**	**Peak Hour**			7:45	7:00	7:45
10:15			9	12	**21**	**22:15**			2	1	**3**	**Peak Volume**			48	42	86
10:30			9	12	**21**	**22:30**			1	1	**2**	**Peak Hour Factor**			0.923	0.750	0.896
10:45			14	15	**29**	**22:45**			1	2	**3**						
11:00			14	20	**34**	**23:00**			1	3	**4**	**Peak Period**	**16:00**	**to**	**18:00**		
11:15			8	15	**23**	**23:15**			3	0	**3**	**Volume**			109	154	263
11:30			8	14	**22**	**23:30**			1	0	**1**	**Peak Hour**			16:00	16:45	16:30
11:45			18	14	**32**	**23:45**			1	2	**3**	**Peak Volume**			78	101	161
TOTALS	**0**	**0**	**290**	**279**	**569**	**TOTALS**	**0**	**0**	**412**	**471**	**883**	**Peak Hour Factor**			0.650	0.842	0.894
SPLIT %	**0%**	**0%**	**51%**	**49%**	**39%**	**SPLIT %**	**0%**	**0%**	**47%**	**53%**	**61%**						



Appendix E
Signal Timing Data

TRAFFIC SIGNAL MASTER TIME SHEET

Location: Kenosha & 14th W Side Date: 1/9/2024

Technician: Cody Morris

Controller: Eagle 2070E

Conflict Monitor: 2010ECL

Remarks: Phases 2 & 6 are in MIN RECALL, Phases 1 & 5 are SWITCHED PHASE

Special Features: OPTICOM, ALPHA UPS, ITERIS VIDEO, TALKING PEDS

IP: 172.20.25.8/24 type:3 Gate: 172.20.25.108

Preempt 1: N/A

Preempt 2: N/A

Preempt 3: PH4 NB

Preempt 4: PH1 & PH6 EB

Preempt 5: PH3 SB

Preempt 6: PH2 & PH5 WB

Direction:	EBLT	WB	SBLT	NB	WBLT	EB	NBLT	SB
Phase:	1	2	3	4	5	6	7	8
Min. Green	8	10	5	5	5	10		
Walk		7		7		7		7
Ped. Clear		18		22		18		22
Min. Gap	2.5	4.0	4.5	2.5	2.0	4.0		
Max 1	25	50	70	20	35	50		
Max 2								
Yellow	4.3	4.3	3.6	3.0	4.3	4.3		
All Red	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Cond. Service								

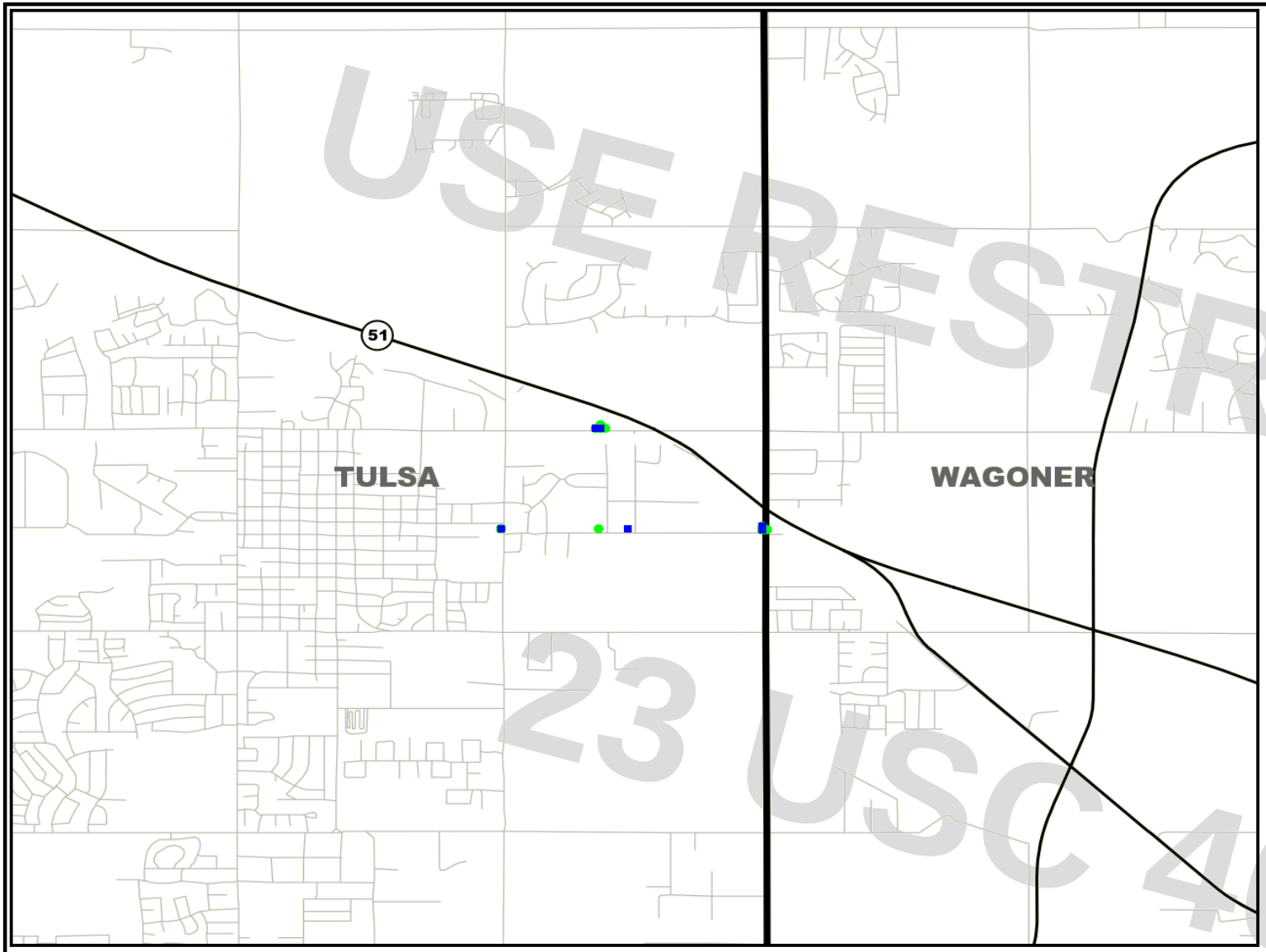
Signal Timing Data
N. 14th Street and E. Kenosha Street Intersection

Phase	Direction	Min. Green	Max 1	Yellow Clearance	All Red Clearance	Red Revert	Passage Gap	*Walk Time*	*Flash Don't Walk*	*Min Split (1)*	*Max Split*
1	EBLT	8	25	4.3	2		2.5			*14.3*	*31.3*
2	WB	10	50	4.3	2		4.0	*7*	*18*	*31.3*	*81.3*
3	SBLT	5	70	3.6	2		4.5			*10.6*	*75.6*
4	NB	5	20	3.0	2		2.5	*7*	*22*	*34.0*	*54.0*
5	WBLT	5	35	4.3	2		2.0			*11.3*	*41.3*
6	EB	10	50	4.3	2		4.0	*7*	*18*	*31.3*	*81.3*
7	NBLT				2					*2.0*	*2.0*
8	SB				2			*7*	*22*	*31.0*	*31.0*

(1) See Minimum Split definition in Synchro Manual

Split Phases

Appendix F
Collision Report



Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 09/25/2024
by Stephen Waldrop

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

N
W E
S

Remarks:

NONE

Date Range: 01-01-2017 thru 12-31-2021

	2017						2018						2019					
	Fat	SRS Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	SRS Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	SRS Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions			2	2	12	16		1	1	2	4	8		1	6	4	4	15
Persons			2	5		7		1	1	3		5		1	7	8		16

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 09/25/2024 by Stephen Waldrop

	2020						2021*					
	Fat	SRS Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	SRS Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions					3	3		1	5	2	1	9
Persons						0			6	2		8

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Suspected Serious Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions		3	14	10	24	51
Persons		2	16	18		36

STUDY TOTALS - BY CITY AND HWY CLASS

Date Range: 01-01-2017 Thru 12-31-2021

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 09/25/2024 by Stephen Waldrop

STUDY TOTALS

	HIGHWAY COLLISIONS				CITY STREET COLLISIONS				COUNTY ROAD COLLISIONS				TOTAL COLLISIONS			
Year	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
2017						4	12	16						4	12	16
2018						4	4	8						4	4	8
2019						11	4	15						11	4	15
2020							3	3							3	3
2021 *						8	1	9						8	1	9
Total:				0		27	24	51				0		27	24	51

*** DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.**

County: (72) TULSA

	HIGHWAY COLLISIONS				CITY STREET COLLISIONS				COUNTY ROAD COLLISIONS				TOTAL COLLISIONS			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
(60) BROKEN ARROW						25	24	49						25	24	49

County: (73) WAGONER

	HIGHWAY COLLISIONS				CITY STREET COLLISIONS				COUNTY ROAD COLLISIONS				TOTAL COLLISIONS			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
(60) BROKEN ARROW						2		2						2		2

*** INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.**

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 09/25/2024 by Stephen Waldrop

Collisions By Type Of Collision

Type Of Collision	2017				2018				2019				2020				2021*			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
Rear-End (front-to-rear)			8	8		3	1	4		4	4	8						2	1	3
Head-On (front-to-front)						1		1		1		1								
Right Angle (front-to-side)										1		1						3		3
Angle Turning		2	2	4			2	2		4		4			2	2		2		2
Other Angle																				
Sideswipe Same Direction			1	1																
Sideswipe Opposite Direction																				
Fixed Object		1	1	2														1		1
Pedestrian										1		1								
Pedal Cycle																				
Animal																				
Overturn/Rollover		1		1			1	1												
Vehicle-Train																				
Other Single Vehicle Crash																				
Other															1	1				
Total		4	12	16		4	4	8		11	4	15			3	3		8	1	9
Percent		7.8	23.5	31.4		7.8	7.8	15.7		21.6	7.8	29.4			5.9	5.9		15.7	2.0	17.6

Collisions By Type Of Collision

Type Of Collision	Total				
	Fat	Inj *	PD	Tot	Pct
Rear-End (front-to-rear)		9	14	23	45.1
Head-On (front-to-front)		2		2	3.9
Right Angle (front-to-side)		4		4	7.8
Angle Turning		8	6	14	27.5
Other Angle					
Sideswipe Same Direction			1	1	2.0
Sideswipe Opposite Direction					
Fixed Object		2	1	3	5.9
Pedestrian		1		1	2.0
Pedal Cycle					
Animal					
Overturn/Rollover		1	1	2	3.9
Vehicle-Train					
Other Single Vehicle Crash					
Other			1	1	2.0
Total		27	24	51	100
Percent		52.9	47.1	100	

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 09/25/2024 by Stephen Waldrop

Units By Unit Type

Unit Type	2017				2018				2019				2020				2021*			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
Train																				
Pedestrian										1		1								
Animal																				
Pedal Cycle																				
Parked Vehicle																				
CMV										2		2								
Other Single Vehicle		2	1	3			1	1		1		1						1		1
Other Multi-Vehicle		4	24	28		8	6	14		19	10	29			7	7		14	3	17
Total		6	25	31		8	7	15		23	10	33			7	7		15	3	18
Percent		5.8	24.0	29.8		7.7	6.7	14.4		22.1	9.6	31.7			6.7	6.7		14.4	2.9	17.3

Units By Unit Type

Unit Type	Total				
	Fat	Inj *	PD	Tot	Pct
Train					
Pedestrian		1		1	1.0
Animal					
Pedal Cycle					
Parked Vehicle					
CMV		2		2	1.9
Other Single Vehicle		4	2	6	5.8
Other Multi-Vehicle		45	50	95	91.3
Total		52	52	104	100
Percent		50.0	50.0	100	

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 09/25/2024 by Stephen Waldrop

Vehicles By Vehicle Type

Vehice Type	2017				2018				2019				2020				2021*			
	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot	Fat	Inj *	PD	Tot
Passenger Vehicle-2 Door		1	1	2		1		1							1	1		1	1	2
Passenger Vehicle-4 Door		2	15	17		2	4	6		3	8	11			3	3		5	5	10
Passenger Vehicle-Convertible																				
Pickup Truck			5	5			1	1		2	1	3			1	1		1		1
Single-Unit Truck (2 axles)																				
Single-Unit Truck (3 or more axles)																				
School Bus										1		1			1	1				
Truck/Trailer											1	1								
Truck-Tractor (bobtail)																				
Truck-Tractor/Semi-Trailer																				
Truck-Tractor/Double																				
Truck-Tractor/Triple																				
Bus/Large Van (9-15 seats)																				
Bus (16+ seats)																				
Motorcycle										1		1								
Motor Scooter/Moped																				
Motor Home																				
Farm Machinery																				
ATV																				
Sport Utility Vehicle (SUV)		1	4	5	1	4	5		6	7	13				1	1		1	4	5
Passenger Van		1	1	2			1	1		1		1								
Truck More Than 10,000 lbs.							1	1												
Van (10,000 lbs. or less)																				
Other											1	1								
Total		5	26	31		4	11	15		14	18	32			7	7		8	10	18
Percent		4.9	25.2	30.1		3.9	10.7	14.6		13.6	17.5	31.1			6.8	6.8		7.8	9.7	17.5

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
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Vehicles By Vehicle Type

Vehice Type	Total				
	Fat	Inj *	PD	Tot	Pct
Passenger Vehicle-2 Door		3	3	6	5.8
Passenger Vehicle-4 Door		12	35	47	45.6
Passenger Vehicle-Convertible					
Pickup Truck		3	8	11	10.7
Single-Unit Truck (2 axles)					
Single-Unit Truck (3 or more axles)					
School Bus		1	1	2	1.9
Truck/Trailer			1	1	1.0
Truck-Tractor (bobtail)					
Truck-Tractor/Semi-Trailer					
Truck-Tractor/Double					
Truck-Tractor/Triple					
Bus/Large Van (9-15 seats)					
Bus (16+ seats)					
Motorcycle		1		1	1.0
Motor Scooter/Moped					
Motor Home					
Farm Machinery					
ATV					
Sport Utility Vehicle (SUV)		9	20	29	28.2
Passenger Van		2	2	4	3.9
Truck More Than 10,000 lbs.			1	1	1.0
Van (10,000 lbs. or less)					
Other			1	1	1.0
Total		31	72	103	100
Percent		30.1	69.9	100	

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 09/25/2024 by Stephen Waldrop

Day And Time Of Occurrence Of Collisions

Day	Hour Of The Day																									
	AM															PM										
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	Tot	Pcnt
Sunday		1													1				1						3	5.9
Monday											2	1	1	2	1		1	1							9	17.6
Tuesday							1	1		1	1	1			2	2		1							10	19.6
Wednesday								1				1		2		1									5	9.8
Thursday										2			1	1	2	1	3	2				1			13	25.5
Friday							1						1	1	2										5	9.8
Saturday												1				2			1		1	1			6	11.8
	Early Morning - Sunrise						Morning Peak			Mid Morning/Afternoon						PM Peak			Evening - Late Night						Tot	100
Total	1						4			27						14			5						51	
Percent	2.0						7.8			52.9						27.5			9.8						100	

Roadway/Lighting

Roadway Conditions	Lighting Conditions					Total	Percent
	Daylight	Darkness	Twilight	Lighted	Unknown		
Dry	28	3	1	2		34	66.7
Wet (Water)	13	3		1		17	33.3
Ice, Snow, or Slush							
Mud, Dirt, Gravel, or Sand							
Other							
Total	41	6	1	3		51	100
Percent	80.4	11.8	2.0	5.9		100	

Weather Conditions

Weather Conditions	Total	Percent
Clear	30	58.8
Clouds Present	7	13.7
Raining/Fog	13	25.5
Snowing/Sleet/Hail	1	2.0
Other		
Total	51	100

TABULATION OF COLLISIONS

Date Range: 01-01-2017 Thru 12-31-2021

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 09/25/2024 by Stephen Waldrop

Drivers By Driver Conditions

Unsafe/Unlawful	Apparently Normal			Alcohol Involved						Sleep Suspected			Drug Use Indicated			Unknown Condition			Total				
				Ability Impaired			Odor Detected																
	Fat	Inj *	PD	Fat	Inj *	PD	Fat	Inj *	PD	Fat	Inj *	PD	Fat	Inj *	PD	Fat	Inj *	PD	Fat	Inj *	PD	Total	Pcnt
Failed to Yield		10	6																	10	6	16	15.8
Failed to Stop		3	4																	3	4	7	6.9
Failed to Signal																							
Improper Turn		2	1																	2	1	3	3.0
Improper Start																							
Improper Stop																							
Improper Backing																							
Improper Parking																							
Improper Passing																							
Improper Lane Change			1																		1	1	1.0
Left of Center		1																		1		1	1.0
Following Too Close		3	7																	3	7	10	9.9
Unsafe Speed		3	3															1		3	4	7	6.9
DWI														1						1		1	1.0
Inattention		1	2																	1	2	3	3.0
Negligent Driving																							
Defective Vehicle																							
Wrong Way																							
No Improper Action		23	27																	23	27	50	49.5
Other		1															1			2		2	2.0
Total		47	51											1			1	1		49	52	101	100
Percent		46.5	50.5											1.0			1.0	1.0		48.5	51.5	100	

Severities Indicate Highest Severity in Collision

Collisions By Special Feature

Special Feature	Total			
	Fat	Inj *	PD	Tot
Bridge		1		1
Work Zone				
Cross Median				
Train Collision				

*** INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.**

Program Provided by:
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Cnty	City	CS #	Int. #	Mile Post	Location	Features	Int. Related	On Map	Dir. 1	Dir. 2	# Veh.	# Inj.*	# Fat.	Type of Collision	Unsafe Unlawful	Lighting Cond.	Roadway Cond.	Severity	Date

-No Highway Collisions Found-

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

Street One	Intersecting Street	Int. Relation	UFC/ RFC	U/R MP	Features	On Map	Dir1	Dir2	# Veh.	# Inj*	# Fat.	Type Of Collision	Unsafe Unlawful	Lighting Cond.	Roadway Cond.	Severity	Date
5700-9 ST. (1	2655-COLLEGE ST.	YES	54U	4.51		Y	W	N	2			ANGLE-TURNING	F-YIELD	DYLGT	DRY	PDO	2017-02-23
5700-9 ST. (1	2655-COLLEGE ST.	YES	54U	4.51		Y	S	S	2			REAR-END	FOL-CLOSE	DYLGT	WET	PDO	2017-05-10
5700-9 ST. (1	2655-COLLEGE ST.	YES	54U	4.51		Y	S	W	2	1		ANGLE-TURNING	F-YIELD	DYLGT	DRY	N-I INJ	2017-10-09
5700-9 ST. (1	2655-COLLEGE ST.	YES	54U	4.51		Y	W	N	2			ANGLE-TURNING	F-YIELD	DYLGT	WET	PDO	2017-12-19
5700-9 ST. (1	2655-COLLEGE ST.	YES	54U	4.51		Y	S	S	2	1		REAR-END	INATT	DYLGT	DRY	P INJ	2018-01-04
5700-9 ST. (1	2655-COLLEGE ST.	YES	54U	4.51		Y	W	N	2			ANGLE-TURNING	F-YIELD	DYLGT	DRY	PDO	2018-01-22
5700-9 ST. (1	2655-COLLEGE ST.	YES	54U	4.51		Y	N	W	2			RIGHT-ANGLE	IMP-TURN	DYLGT	WET	SS INJ	2021-05-04
5700-9 ST. (1	2657-COLLEGE AVE.	YES	54U	4.51	UNL ACCIDENT UNVERIFIED	Y	W	S	2			OTHER	F-YIELD	DYLGT	DRY	PDO	2020-10-15
5740-14 ST.	2655-COLLEGE ST.	WEST				Y	E	-	1			F-O OTHER	UNSAF-SPD	DARK	WET	PDO	2017-05-11
5740-14 ST.	2800-KENOSHA ST.	NORTH			UNL ACCIDENT UNVERIFIED	Y	W	W	2			REAR-END	FOL-CLOSE	DYLGT	DRY	PDO	2019-05-26
5740-14 ST.	2800-KENOSHA ST.	EAST	22U	14.39	TRAFFIC BACKUP	Y	W	W	2			REAR-END	FOL-CLOSE	DARK	DRY	PDO	2017-12-07
5740-14 ST.	2800-KENOSHA ST.	WEST	22U	14.36		Y	E	E	2			SIDESWIPE-SAME	IMP-LN-CHG	DYLGT	DRY	PDO	2017-03-21
5740-14 ST.	2800-KENOSHA ST.	WEST	22U	14.36	DRIVEWAY	Y	N	E	2			ANGLE-TURNING	F-YIELD	DUSK	DRY	PDO	2018-02-08
5740-14 ST.	2800-KENOSHA ST.	WEST	22U	14.36	DRIVEWAY	Y	S	W	2	2		ANGLE-TURNING	F-YIELD	DYLGT	DRY	N-I INJ	2019-05-27
5740-14 ST.	2800-KENOSHA ST.	WEST	22U	14.36	DRIVEWAY	Y	N	E	2	1		ANGLE-TURNING	F-YIELD	DYLGT	DRY	SS INJ	2019-09-26
5740-14 ST.	2800-KENOSHA ST.	WEST	22U	14.36	DRIVEWAY	Y	S	E	2	1		ANGLE-TURNING	F-YIELD	DYLGT	DRY	N-I INJ	2021-09-14
5740-14 ST.	2800-KENOSHA ST.	WEST	22U	14.36	DRIVEWAY	Y	W	W	2	1		REAR-END	OTHER	DYLGT	DRY	N-I INJ	2021-09-24
5740-14 ST.	2800-KENOSHA ST.	WEST	22U	14.36	DRIVEWAY	Y	S	E	2	1		ANGLE-TURNING	F-YIELD	DARK	DRY	N-I INJ	2021-12-21
5740-14 ST.	2800-KENOSHA ST.	YES	22U	14.37		Y	E	E	2			REAR-END	FOL-CLOSE	DYLGT	DRY	PDO	2017-04-15

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

Street One	Intersecting Street	Int. Relation	UFC/ RFC	U/R MP	Features	On Map	Dir1	Dir2	# Veh.	# Inj*	# Fat.	Type Of Collision	Unsafe Unlawful	Lighting Cond.	Roadway Cond.	Severity	Date
5740-14 ST.	2800-KENOSHA ST.	YES	22U	14.37	UNL ACCIDENT UNVERIFIED	Y	E	E	2			REAR-END	IMP-TURN	DYLGT	DRY	PDO	2019-06-29
5740-14 ST.	2800-KENOSHA ST.	YES	22U	14.37		Y	E	E	2			REAR-END	INATT	DYLGT	DRY	PDO	2019-08-17
5740-14 ST.	2800-KENOSHA ST.	YES	22U	14.37		Y	E	E	2	1		REAR-END	F-STOP	DARK	DRY	P INJ	2019-11-18
5745-15 ST. @K	2655-COLLEGE ST.	WEST				Y	E	-	1	1		PEDESTRIAN	OTHER	DYLGT	DRY	N-I INJ	2019-10-01
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	S	S	2			REAR-END	F-STOP	DYLGT	DRY	PDO	2017-01-25
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	S	S	3			REAR-END	F-STOP	DYLGT	DRY	PDO	2017-02-15
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	S	S	2			REAR-END	INATT	DYLGT	DRY	PDO	2017-02-17
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	S	N	2	4		ANGLE-TURNING	IMP-TURN	DYLGT	WET	P INJ	2017-05-19
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	W	-	1	1		F-O OTHER	IMP-TURN	DARK	DRY	N-I INJ	2017-06-04
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	S	S	2			REAR-END	UNSAF-SPD	DYLGT	WET	PDO	2017-09-19
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	S	-	1			ROLLOVER	UNSAF-SPD	DYLGT	DRY	PDO	2018-01-25
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	S	S	2	1		REAR-END	F-STOP	DARK	WET	N-I INJ	2018-11-08
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	S	S	2	1		REAR-END	FOL-CLOSE	DYLGT	WET	N-I INJ	2019-02-19
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	E	S	2	2		ANGLE-TURNING	F-YIELD	DYLGT	WET	N-I INJ	2019-02-27
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	S	S	3	4		REAR-END	FOL-CLOSE	DYLGT	DRY	P INJ	2019-02-28
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	S	S	4			REAR-END	F-STOP	DYLGT	DRY	PDO	2019-04-02
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	W	N	2	1		ANGLE-TURNING	F-YIELD	DYLGT	DRY	P INJ	2019-05-16
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	W	S	2	1		RIGHT-ANGLE	F-YIELD	DARK	DRY	P INJ	2021-01-02
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	W	S	2	2		RIGHT-ANGLE	F-YIELD	DYLGT	DRY	N-I INJ	2021-04-12
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	YES	55U	7.51		Y	S	S	2	1		REAR-END	UNSAF-SPD	DYLGT	WET	P INJ	2021-05-20
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	NORTH	55U	7.53		Y	S	N	2	1		HEAD-ON	FOL-CLOSE	DYLGT	DRY	N-I INJ	2019-01-21
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	NORTH	55U	7.53	BRIDGE	Y	S	-	1	1		F-O GUARDRL-FACE	D-W-I	DARK	WET	N-I INJ	2021-01-24
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	NORTH	55U	7.53	UNVERIFIED UNL ACCIDENT	Y	N	N	3			REAR-END	FOL-CLOSE	DYLGT	WET	PDO	2021-05-20
5900-193 E. AVE-CO. LN(	2655-COLLEGE ST.	EAST				Y	S	S	3			REAR-END	FOL-CLOSE	DYLGT	DRY	PDO	2017-03-06

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

Street One	Intersecting Street	Int. Relation	UFC/ RFC	U/R MP	Features	On Map	Dir1	Dir2	# Veh.	# Inj*	# Fat.	Type Of Collision	Unsafe Unlawful	Lighting Cond.	Roadway Cond.	Severity	Date
5900-193 E. AVE-CO. LN(	2657-COLLEGE AVE.	YES	55U	7.51	UNL ACCIDENT UNVERIFIED	Y	S	S	2			REAR-END	UNSAF-SPD	DYLGT	WET	PDO	2018-08-13
5900-193 E. AVE-CO. LN(	2657-COLLEGE AVE.	YES	55U	7.51		Y	S	S	2	1		REAR-END	UNSAF-SPD	DYLGT	WET	N-I INJ	2019-05-29
5900-193 E. AVE-CO. LN(	2657-COLLEGE AVE.	YES	55U	7.51		Y	W	S	2	1		RIGHT-ANGLE	F-YIELD	DYLGT	DRY	P INJ	2019-06-29
5900-193 E. AVE-CO. LN(	2657-COLLEGE AVE.	YES	55U	7.51		Y	E	W	2			ANGLE-TURNING	F-YIELD	DYLGT	DRY	PDO	2020-02-07
5900-193 E. AVE-CO. LN(	2657-COLLEGE AVE.	YES	55U	7.51	UNL ACCIDENT UNVERIFIED	Y	S	S	3			ANGLE-TURNING	FOL-CLOSE	DYLGT	WET	PDO	2020-02-25
5900-193 E. AVE-CO. LN(	2657-COLLEGE AVE.	NORTH	55U	7.53		Y	N	S	2	2		HEAD-ON	L-CENTER	DARK	WET	SS INJ	2018-11-03

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

Street One	Intersecting Street	Int. Relation	UFC/ RFC	U/R MP	Features	On Map	Dir1	Dir2	# Veh.	# Inj*	# Fat.	Type Of Collision	Unsafe Unlawful	Lighting Cond.	Roadway Cond.	Severity	Date
0500-193 AVE.- CO-LINE(	0551-OLD HWY. 51	YES				Y	S	-	1	1		ROLLOVER	UNSAF-SPD	DYLGT	WET	P INJ	2017-06-30
0500-193 AVE.- CO-LINE(	0551-OLD HWY. 51	YES				Y	S	S	2	1		REAR-END	F-STOP	DYLGT	DRY	P INJ	2018-12-17

* INCLUDES SUSPECTED SERIOUS, NON-INCAPACITATING, AND POSSIBLE INJURIES.

Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 09/25/2024 by Stephen Waldrop

ROADWAY / REGION

QUERY OVER	SELECTIONS
Draw Area on Map	User Selection on Map

DATE

Date Range	01-01-2017 to 12-31-2021

REPORT SECTIONS

Collision Map & Study Totals	(Included)
Collision Analysis Tables	(Included)
- Totals By City, Hwy Class	Checked
- Other Analysis Tables	Checked
Collision Listing	(Included)
- Highway Collision Listing	Checked, By Control Section
- City Street Collision Listing	Checked
- County Road Collision Listing	Checked
Query Criteria	(Included)

FILTER COLLISIONS

Roadway Type	All Collision Data
Incl. Crashes Assoc. w/ Every Int.	Checked
Environment Fields	

REPORT FORMAT OPTIONS

Print Watermark	Checked
Print DPS Case Numbers	Unchecked

Appendix G
Excerpts from Key Guidance Documents

CITY OF BROKEN ARROW

ENGINEERING DESIGN CRITERIA MANUAL

ADOPTED BY CITY COUNCIL ON FEBRUARY 20, 2024

BROKEN ARROW CITY COUNCIL

Debra Wimpee, Mayor
Christi Gillespie, Vice-Mayor
Johnnie Parks, Council Member
Lisa Ford, Council Member
Justin Green, Council Member

Michael Spurgeon, City Manager
Kenneth D. Schwab, CFM, PE, SE, Assitant City Manager - Operations

7.5 TRAFFIC IMPACT ANALYSIS:

A Traffic Impact Analysis (TIA) shall be performed by a proposed development if the development meets the criteria of 100 vph or based upon the Oklahoma Department of Transportation Policy on Driveway Regulations for Oklahoma Highways 1996 edition, or later as approved by the Director of Engineering and Construction.

7.6 LEVEL OF SERVICE CRITERIA:

7.6.1 Intersections Analysis – The Level of Service (LOS) analysis for existing intersections shall comply with the processes and procedures identified in Chapter 16 of the Transportation Research Board Highway Capacity Manual 16th edition, or latest edition as approved by the Director of Engineering and Construction.

7.6.2 Arterial Analysis - The Level of Service (LOS) analysis for existing arterial roadways shall comply with the processes and procedures identified in Chapter 15 of the Transportation Research Board Highway Capacity Manual 16th edition or latest edition as approved by the Director of Engineering and Construction.

A. Arterial roadways shall be classified as urban arterials.

B. Other roads shall be classified in accordance with their specific use.

7.7 TRAFFIC COUNT DATA:

7.7.1 Arterial Traffic Count Data:

A. Annual Average Daily Traffic (AADT) Volume – Arterial AADT may be used from the City of Broken Arrow traffic count data performed for the appropriate intersection. This data is generally conducted around November of each year.

B. Peak Hour (PH) Volume – Arterial PH volume shall be either:

1. Calculated from generally accepted relations between peak hour volumes for an arterial and AADT, or
2. Statistically determined from field collected data.

7.7.2 Intersection Traffic Count Data:

A. Annual Average Daily Traffic Volume – AADT shall include the appropriate turning movements and be statistically generated from field collected data.

B. Peak Hour Traffic Volume – PHV shall include the appropriate turning movements and be statistically generated from field collected data.

7.8 TRIP GENERATION PROJECTIONS:

Trip generation for the specific type of development as well as the peak time, weekday versus weekend and morning versus evening, if appropriate, shall be estimated using the statistical data generated in the Institute of Traffic Engineers Trip Generation Manual 2017 edition, or latest as approved by the Director of Engineering and Construction.

TABLE 6.1 - STREET DESIGN STANDARDS

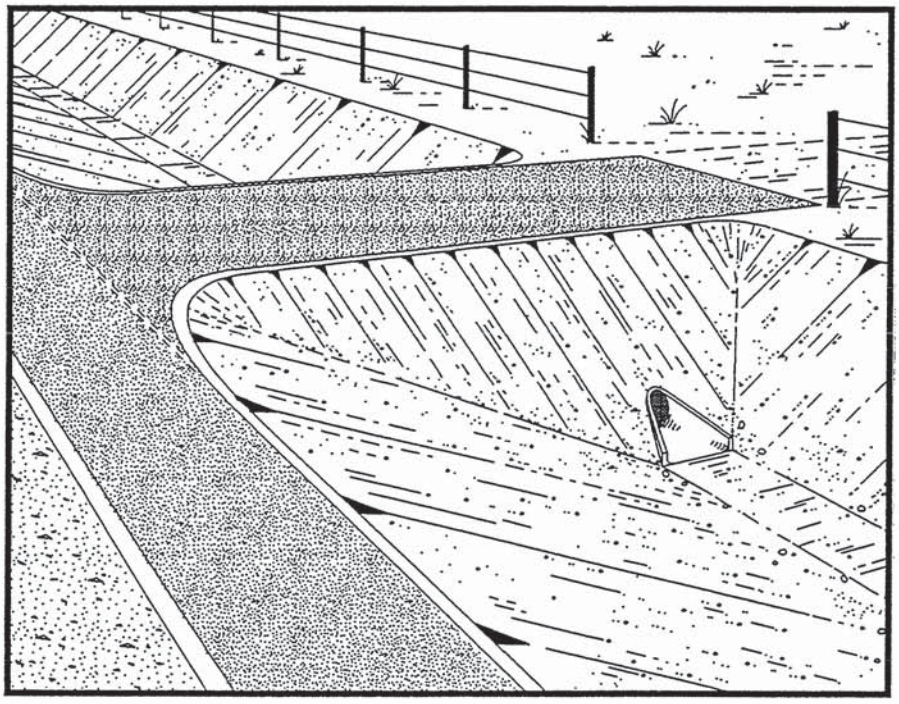
Roadway Design Item	Notes	Arterial		Commercial		Industrial		Residential			Section Reference
		Primary	Secondary	Collector	Minor	Collector	Minor	Collector	Major	Minor	
Right-of-Way											
Widths	1, 2, 7	120'	100'	80'	60'	80'	60'	60'	50'	50'	6.4.2.
Pavement Width											
7-Lane Section		85'	NA	NA	NA	NA	NA	NA	NA	NA	6.5.1.
6-Lane Section		72'	NA	NA	NA	NA	NA	NA	NA	NA	6.5.1.
5-Lane Section		61'	61'	NA	NA	NA	NA	NA	NA	NA	6.5.1.
4-Lane Section		48'	48'	NA	NA	NA	NA	NA	NA	NA	6.5.1.
3-Lane Section	3	37'	37'	41'	41'	41'	41'	41'	41'	41'	6.5.1.
2-Lane Section		26'	26'	36'	30'	38'	32'	30'	26'	24'	6.5.1.
Pavement Design											
Assumed Tandem Axle Load		65 kips	65 kips	56 kips	56 kips	65 kips	65 kips	56 kips	36 kips	36 kips	
Assumed Single Axle Load		40 kips	40 kips	30 kips	30 kips	40 kips	40 kips	30 kips	20 kips	20 kips	
Assumed Average Daily Traffic	4	Traffic	Traffic	2000-6000	2000-6000	2000-6000	2000-6000	2000-6000	300-700	300-700	
Design Speed		50 mph	45 mph	40 mph	35 mph	40 mph	35 mph	30 mph	30 mph	25 mph	6.4.1.
Concrete Design											
Min PCC Pavement Thickness	5	9"	9"	8"	7"	8"	7"	7"	6"	6"	6.5.2.
Min Aggregate Base Thickness	6	8"	8"	8"	8"	8"	8"	6"	N/A	N/A	6.5.2.
Min Subgrade Modification	6	8"	8"	8"	8"	8"	8"	8"	8"	8"	6.5.2.
Asphalt Design											
Min AC Wearing Course		2"	2"	2"	2"	2"	2"	2"	1 1/2"	1 1/2"	6.5.2.
Min AC Base Thickness		8"	8"	7"	7"	7"	7"	7"	6"	6"	6.5.2.
Min Aggregate Base Thickness	6	8"	8"	8"	8"	8"	8"	6"	6"	6"	6.5.2.
Min Subgrade Modification	6	8"	8"	8"	8"	8"	8"	8"	8"	8"	6.5.2.
Geometric Design											
Min Grade		0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	6.4.4.
Max Grade		6.0%	6.0%	6.0%	6.0%	4.0%	4.0%	6.0%	8.0%	8.0%	6.4.4.
Min Centerline Radius		1125'	1125'	821'	544'	821'	544'	208'	208'	208'	
Min Stopping Sight Distance		425'	360'	305'	250'	305'	250'	200'	200'	155	

Notes

1. Right of Way at Arterial/Arterial Intersections is 130' for the first 350', measured from section line.
2. Right of Way at all street intersections, except for residential streets, to include corner clip of 25' by 25'.
3. Three lane section for Commercial, Industrial and Residential are at intersections with Arterial. Width Includes 4' median.
4. Average Daily Traffic for Arterials is determined from actual traffic counts.
5. Dowel Jointed PC Concrete Pavement on all except Residential
6. With Separator Fabric.

Oklahoma Department of Transportation

Policy on
Driveway Regulations For Oklahoma Highways



Revised Edition
May 1996

3.1.2 Traffic Impact Analysis (TIA)

A Traffic Impact Analysis (TIA) is a specialized study of the impact a certain type and size of development will have on the surrounding transportation system. Depending on the type and size of development, the TIA for minor developments may include an inspection of the site and projected traffic volumes for the site and adjacent streets. A TIA for major developments should include an analysis of alternatives that includes projected traffic for adjacent streets and regional thoroughfares. The Traffic Impact Analysis should be an integral part of the development impact review process. It is specifically concerned with the generation, distribution, and assignment of traffic to and from a proposed development. The purpose of a TIA is to determine what impact that traffic will have on the existing and proposed road network, and what impact the existing and projected traffic on the roadway system will have on the proposed development. A complete Traffic Impact Analysis should be provided by the developer and performed by a traffic consultant in each of the following situations:

1. Any development which can be expected to generate more traffic than some specific threshold (i.e., 100 vehicles in the peak hour of the adjacent street or generator) or for a lesser volume when review of the site plan indicates that such additional data is desirable.

2. Cases in which the original TIA is more than two years old or where increased land use intensity will result in an increase in the traffic generation by more than 15% or a directional distribution in the site traffic by more than 20%.

The specific content of a TIA will vary depending upon the site and the prevailing conditions. The guidelines for preparing a TIA should specify the format and general contents. The following suggested guidelines represent items normally included in a TIA.

a. Existing Conditions
b. Trip Generation and Design Hour Volumes
c. Trip Distribution and Traffic Assignment
d. Existing and Projected Traffic Volumes
e. Capacity Analysis
f. Traffic Accidents
g. Traffic Improvements
h. Conclusions
I. Summary of Findings and Recommendations

To assist O.D.O.T. in reviewing a TIA, Form TE-2001 should be completed and included with the *Driveway Agreement* application.

The traffic consultant should discuss the project with O.D.O.T., city and /or county officials at a very early stage in the study. Topics which should be discussed include: available traffic data, any city or county plans for street improvements in the vicinity of the site, traffic counts to the made, intersections at which capacity using critical lane analysis is appropriate, and projected volumes when the area becomes fully developed.

3.1.3 Locations of Driveways

Driveways should be located as to result in no undue interference with, or hazards to, the free movement of normal highway traffic and so that areas of traffic congestion will not be created on the highway. In accordance with this principle, driveways should be located where the highway alignment and profile are favorable, i.e., where there are no sharp curves, or steep grades, and where sight distance in conjunction with the driveway access would be adequate for safe traffic operation. Driveway locations are prohibited within intersections, round-about, acceleration or deceleration lanes, interchanges, ramps, ramp tapers or on the highway immediately approaching them. Also to be avoided are locations that would interfere with the placement and proper functioning of highway signs, signals, lighting, or other devices that affect traffic operation.

ODOT

ROADWAY

DESIGN MANUAL

Oklahoma Department of Transportation

R.B. Hankins - Assistant Director Design

Bob Rose - Chief Engineer

Bobby G. Green - Director

Federal Highway Administration

Abraham Wong - District Engineer

Gary E. Larsen - Division Administrator

5.7 SIGHT DISTANCE

5.7.1 Stopping Sight Distance

Stopping sight distance (SSD) is a basic design control which has a critical effect on the safety and serviceability of the highway facility. The following sections present various SSD criteria.

5.7.1.1 Passenger Cars (Level Grade)

Table 5.7A presents SSD criteria for passenger cars on level grades for various assumptions within the SSD model. Except for the last column, these criteria are for information only and should not normally be used directly for design. The last column in Table 5.7A presents the AASHTO SSD criteria (desirable and minimum). These values will normally be used in design.

5.7.1.2 Trucks (Level Grade)

Table 5.7B presents SSD criteria for trucks on level grades. The designer should consider using these criteria at the following sites:

1. facilities with high truck volumes,
2. facilities with a high incidence of truck accidents,
3. railroad/highway grade crossings, and
4. special use facilities (e.g., truck weigh stations).

5.7.1.3 Passenger Cars (Grade Adjusted)

Table 5.7C presents the AASHTO SSD criteria adjusted for downgrades. If the downgrade is 3% or steeper, the designer should consider using these SSD values.

5.7.1.4 Trucks (Grade Adjusted)

Table 5.7D presents the truck SSD values from Table 5.7B adjusted for grades. The designer should consider using these criteria at the sites listed in Section 5.7.1.2 and where the downgrade is 3% or steeper.

5.7.1.5 SSD Application

The application of the SSD to a specific geometric element (e.g., crest vertical curve) is discussed in the applicable section of the *ODOT Roadway Design Manual.*

5.7.2 Decision Sight Distance

Drivers may be required to make decisions where information is difficult to perceive or where unexpected maneuvers are required. These are areas of concentrated demand where the roadway elements, traffic volumes and traffic control devices may all compete for the driver's attention. This may increase the required driver perception/reaction time beyond that provided by the AASHTO SSD values (2.5 seconds). Examples of these locations include:

1. freeway exits,
2. freeway lane drops,
3. left-side entrances or exits,
4. at-grade intersections near a horizontal curve,
5. railroad/highway grade crossings,
6. detours,
7. along high-speed, high-volume urban arterials with considerable roadside friction, or

Table 5.7A

STOPPING SIGHT DISTANCE[e]
(Passenger Cars – Level Grade)

Initial Vehicular Speed (V_i)[a] (mph)	Perception/ Reaction Time[b] (seconds)	Distance Traveled (feet)	Braking Action[c]	Braking Distances (feet)	Total Calculated SSD (feet)	AASHTO Rounded for Design[d] (feet)
20	1.0	29	Locked-Wheel	33	62	--
			Comfort	33	62	--
	2.5	73	Locked-Wheel	33	106	Des: 125 Min: 125
			Comfort	33	106	--
25	1.0	37	Locked-Wheel	55	92	--
			Comfort	55	92	--
	2.5	92	Locked-Wheel	55	147	Des: 150 Min: 150
			Comfort	55	147	--
30	1.0	44	Locked-Wheel	77	121	--
			Comfort	86	130	--
	2.5	110	Locked-Wheel	77	187	Des: 200 Min: 200
			Comfort	86	196	--
35	1.0	51	Locked-Wheel	120	171	--
			Comfort	147	198	--
	2.5	128	Locked-Wheel	120	248	Des: 250 Min: 225
			Comfort	147	275	--
40	1.0	59	Locked-Wheel	167	226	--
			Comfort	216	275	--
	2.5	147	Locked-Wheel	167	314	Des: 325 Min: 275
			Comfort	216	363	--
45	1.0	66	Locked-Wheel	218	284	--
			Comfort	298	364	--
	2.5	165	Locked-Wheel	218	383	Des: 400 Min: 325
			Comfort	298	463	--
50	1.0	73	Locked-Wheel	278	351	--
			Comfort	380	453	--
	2.5	183	Locked-Wheel	278	461	Des: 475 Min: 400
			Comfort	380	563	-

Table 5.7A

STOPPING SIGHT DISTANCE[e]
(Passenger Cars -- Level Grade)
(Continued)

Initial Vehicular Speed (V_i)[a] (mph)	Perception/ Reaction Time[b] (seconds)	Distance Traveled (feet)	Braking Action[c]	Braking Distances (feet)	Total Calculated SSD (feet)	AASHTO Rounded for Design[d] (feet)
55	1.0	81	Locked-Wheel	336	417	--
			Comfort	500	581	--
	2.5	202	Locked-Wheel	336	538	Des.: 550 Min: 450
			Comfort	500	702	--
60	1.0	88	Locked-Wheel	414	502	--
			Comfort	619	707	--
	2.5	220	Locked-Wheel	414	634	Des: 650 Min: 525
			Comfort	619	839	--
65	1.0	95	Locked-Wheel	486	581	--
			Comfort	781	876	--
	2.5	238	Locked-Wheel	486	724	Des: 725 Min: 550
			Comfort	781	1019	--
70	1.0	103	Locked-Wheel	583	686	--
			Comfort	943	1046	--
	2.5	257	Locked-Wheel	583	840	Des: 850 Min: 625
			Comfort	943	1200	--

a. V_i is the speed of the vehicle when the object in the road is first perceptible to the driver.

b. Perception/reaction time is the time needed by the driver, from the moment the object is perceptible, to comprehend the nature of the object and to apply the brakes. The 1.0-second time is considered adequate for most drivers in a panic situation; i.e., if the hazard is serious and obvious, most drivers react quickly. The 2.5-second time is the perception/reaction time adopted by the AASHTO *A Policy on Geometric Design of Highways and Streets*. It is considered adequate for 90% of drivers in simple to moderately complex environments.

c. AASHTO assumes a locked-wheel, emergency braking maneuver on a wet pavement in *A Policy on Geometric Design of Highways and Streets*. "Comfort" braking action assumes that the brakes never lock and assumes that the average driver is unable to fully use the vehicle's braking power. The numerical values are from NCHRP 270 *Parameters Affecting Stopping Sight Distance*.

d. These are the SSD values presented for use in design by AASHTO in *A Policy on Geometric Design of Highways and Streets*, where V_i = design speed on a project. Desirable SSD values are based on the design speed; minimum SSD values are based on an assumed initial speed equal to the low-volume average running speed.

e. Use 3.5-ft height of eye and 0.5-ft height of object. See Chapters Six and Seven.

Table 5.7B

STOPPING SIGHT DISTANCE[d]
(Trucks – Level Grade)

Initial Vehicular Speed (V_i)[a] (mph)	Perception/ Reaction Time[b] (seconds)	Distance Traveled (feet)	Braking Action[c]	Braking Distances[c] (feet)	Total Calculated SSD (feet)
20	1.0	29	Comfort	77	106
	2.5	73	Comfort	77	150
25	1.0	37	Comfort	132	169
	2.5	92	Comfort	132	224
30	1.0	44	Comfort	186	230
	2.5	110	Comfort	186	296
35	1.0	51	Comfort	265	316
	2.5	128	Comfort	265	393
40	1.0	59	Comfort	344	403
	2.5	147	Comfort	344	491
45	1.0	66	Comfort	441	507
	2.5	165	Comfort	441	606
50	1.0	73	Comfort	538	611
	2.5	183	Comfort	538	721
55	1.0	81	Comfort	641	722
	2.5	202	Comfort	641	843

Table 5.7B

STOPPING SIGHT DISTANCE[d]
(Trucks – Level Grade)
(Continued)

Initial Vehicular Speed (V_i)[a] (mph)	Perception/ Reaction Time[b] (seconds)	Distance Traveled (feet)	Braking Action[c]	Braking Distances[c] (feet)	Total Calculated SSD (feet)
60	1.0	88	Comfort	744	832
	2.5	220	Comfort	744	964
65	1.0	95	Comfort	879	974
	2.5	238	Comfort	879	1117
70	1.0	103	Comfort	1013	1116
	2.5	257	Comfort	1013	1270

a. V_i is the speed of the vehicle when the object in the road is first perceptible to the driver.

b. Perception/reaction time is the time needed by the driver, from the moment the object is perceptible, to comprehend the nature of the object and to apply the brakes. The 1.0-second time is considered adequate for most drivers in a panic situation; i.e., if the hazard is serious and obvious, most drivers react quickly. The 2.5-second time is the perception/reaction time adopted by the AASHTO *A Policy on Geometric Design of Highways and Streets*. It is considered adequate for 90% of drivers in simple to moderately complex environments.

c. For trucks, only a "comfort" braking action is assumed; a "locked-wheel" stop is considered inappropriate for trucks. The numerical values are from TRR 1208 in a paper entitled "Stopping Sight Distance Design for Large Trucks" (Table 5). The values are based on a driver control efficiency of 0.62, considered a worst-performing driver.

d. Use 8.0-ft height of eye and 0.5-ft height of object. See Chapters Six and Seven.

Table 5.7C

STOPPING SIGHT DISTANCE[4]
(Passenger Cars – Grade Adjusted)

Design Speed (mph)	3% Downgrade		6% Downgrade		9% Downgrade	
	Desirable (feet)	Minimum (feet)	Desirable (feet)	Minimum (feet)	Desirable (feet)	Minimum (feet)
20	125	125	130	130	135	135
25	155	155	160	160	170	170
30	210	210	220	220	230	230
35	265	240	280	255	300	275
40	345	295	365	315	395	345
45	425	350	455	380	490	415
50	505	430	545	470	595	520
55	590	490	640	540	---	---
60	700	575	760	635	---	---
65	785	610	855	680	---	---
70	920	695	1010	785	---	---

Source: (1) Revised

Notes:
1. The grade-adjusted SSD's are calculated from the AASHTO formula for vehicular breaking distances on grades ($d = V^2/30(f \pm G)$). The perception/reaction time is 2.5 seconds. See *A Policy on Geometric Design of Highways and Streets.*
2. The grade-adjusted values are calculated by assuming V equals the design speed for the SSD grade increase for both the desirable and minimum SSD values.
3. For downgrades intermediate between 3%, 6% and 9%, use a straight-line interpolation to calculate SSD.
4. Use 3.5-ft height of eye and 0.5-ft height of object. See Chapters Six and Seven.

Table 5.7D

STOPPING SIGHT DISTANCE[3]
(Trucks – Grade Adjusted)

Design Speed (mph)	3% Downgrade (feet)	6% Downgrade (feet)	9% Downgrade (feet)
20	166	191	234
25	255	305	398
30	339	407	533
35	457	562	766
40	574	708	968
45	714	891	1236
50	850	1060	1465
55	996	1242	1707
60	1136	1408	1910
65	1321	1646	2250
70	1504	1874	2557

Notes:

1. The grade-adjusted SSD's for trucks are calculated by first determining the average coefficient of friction (f) from the truck braking values on level grade in Table 5.7B ($f = V^2/30d$). The value of f is then used to calculate the truck braking distance on grade using the AASHTO formula ($d = V^2/30\ (f \pm G)$). This braking value is then added to the distance traveled in 2.5 seconds of perception/reaction time to produce the grade-adjusted truck SSD's.

2. For downgrades intermediate between 3%, 6% and 9%, use a straight-line interpolation to calculate SSD.

3. Use 8.0-ft height of eye and 0.5-ft height of object. See Chapters Six and Seven.

8. traffic signals on high-speed rural highways.

Table 5.7E presents the decision sight distance criteria. The application of the criteria will depend upon the rural/urban location and on the type of avoidance maneuver.

5.7.3 Passing Sight Distance

Passing sight distance considerations are limited to two-lane, two-way highways. On these facilities, vehicles may overtake slower-moving vehicles, and the passing maneuver must be accomplished on a lane used by opposing traffic.

Passing sight distance values provided in Table 5.7F are based on the distance needed to safely complete a normal passing maneuver. Table 5.7F also presents the MUTCD (11) values used by the Traffic Engineering Division for marking no-passing zones. The MUTCD values are based on a different set of assumptions than the passing sight distance criteria. Also note that the MUTCD pavement marking criteria are used for capacity adjustments on two-lane, two-way highways (percent no-passing zones).

The designer should note that, on existing highways, it will rarely be warranted to improve the existing passing sight distance on the highway. On new construction/ reconstruction projects, the designer should provide passing sight distance over as high a proportion of the highway as practical. However, it will not likely be warranted to make significant improvements to the horizontal and vertical alignment solely to increase the available passing sight distance.

9.2 INTERSECTION SIGHT DISTANCE (ISD)

For an at-grade intersection to operate properly, adequate sight distance needs to be provided. The designer should provide sufficient sight distance for a driver to perceive potential conflicts and to perform the actions needed to negotiate the intersection safely.

The additional costs and impacts of removing sight obstructions are often justified. If it is impractical to remove an obstruction blocking the sight distance, the designer should consider providing traffic control devices or design applications (warning signs, traffic signals or turn lanes) which may not otherwise be warranted.

The following sections present ISD criteria for various intersection conditions. Where practical, longer sight distances are always preferred.

9.2.1 No Traffic Control

Intersections between low-volume and low-speed roads/streets may have no traffic control. Drivers approaching these intersections should have sufficient corner sight distance to adjust speed to avoid a collision.

Figure 9.2A presents the applicable ISD criteria for intersections with no traffic control. These criteria are based on that distance needed by a driver approaching the intersection to perceive another vehicle approaching from a crossing road and to avoid a collision. Specifically, the ISD distances represent that distance traveled by either vehicle in 3 seconds at the roadway design speed -- 2 seconds for perception/ reaction time and 1 second for brake actuation.

9.2.2 Stop-Control (Desirable ISD)

Where traffic on the minor road of an intersection is controlled by stop signs, the driver of the vehicle on the minor road must have sufficient sight distance for a safe departure from the stopped position without being overtaken by an approaching vehicle on the major road.

This section presents desirable ISD criteria which should apply, where practical, to stop-controlled intersections. Section 9.2.3 presents minimum ISD criteria, which will apply to restricted locations.

9.2.2.1 Theoretical Discussion

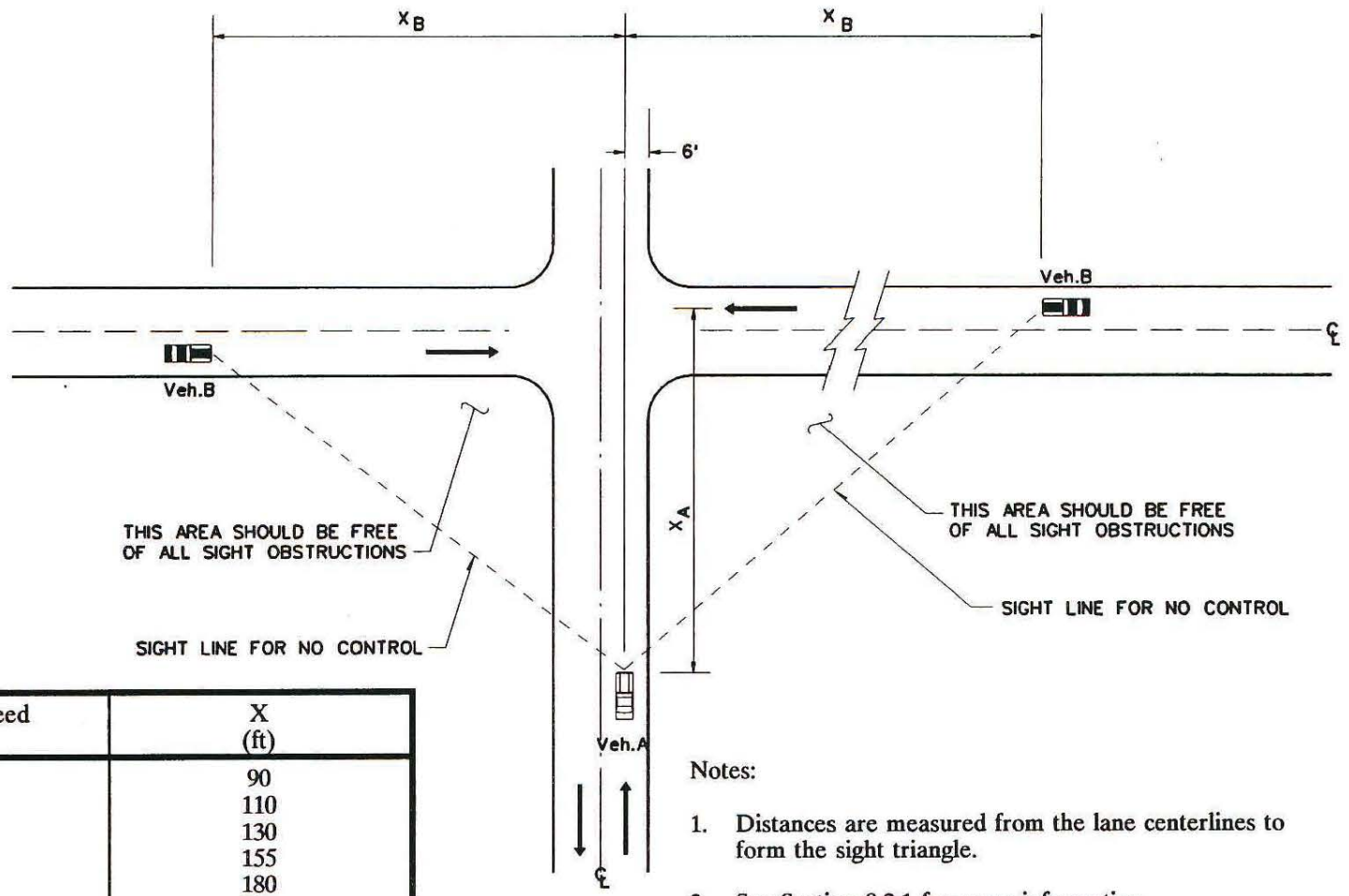
Figure 9.2B illustrates the application of the ISD criteria for stop-controlled intersections. The ISD model, in summary, assumes that a mainline driver approaches an intersection at the design speed as a vehicle enters the highway from a side road ahead of the mainline driver. The driver reacts to the vehicle by letting his foot off the accelerator and/or slightly touching the brake. He decelerates until he reaches a speed 85% (or for trucks 65%) of the design speed to a point where he is a safe following distance away from the accelerating (entering) vehicle.

The calculations for the ISD values are based on the following equations:

$$ISD = Q - H \qquad \text{(Equation 9-1)}$$

$$Q = 1.47Vt_{ds} + D_{dec} + 1.47(0.85V)t_{85} \qquad \text{(Equation 9-2)}$$

$$H = P - D_{np} + R - FD - L \qquad \text{(Equation 9-3)}$$



Design Speed (mph)	X (ft)
20	90
25	110
30	130
35	155
40	180
45	200
50	220
55	245
60	265

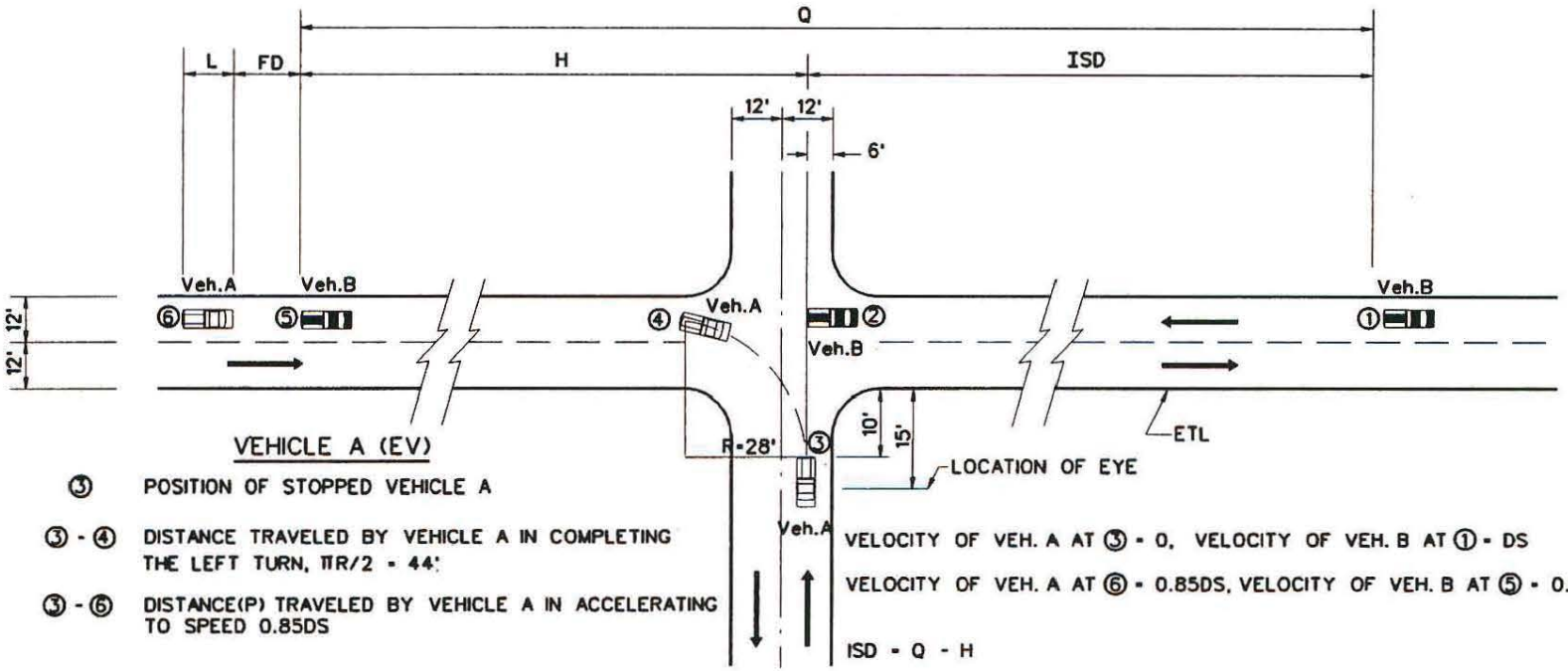
Notes:

1. Distances are measured from the lane centerlines to form the sight triangle.
2. See Section 9.2.1 for more information.

Source: (1) Revised

INTERSECTION SIGHT DISTANCE
(No Traffic Control)

Figure 9.2A



Notes:
1. See Section 9.2.2 for definition of terms.
2. ISD for right-turning vehicle is determined in a similar manner.

Source: (1) & (3)

INTERSECTION SIGHT DISTANCE AT A STOP-CONTROLLED INTERSECTION (Theoretical)

Figure 9.2B

Where:

ISD = sight distance along major road to the right or to the left of the entering vehicle needed for the turning maneuver, ft

Q = distance traveled by major-road or mainline vehicle (MV) during entry maneuver by minor-road vehicle (EV), ft

H = major road vehicle's distance from intersection when at the assumed following distance from minor road vehicle, ft

V = design speed of major road, mph

D_{dec} = distance MV travels during deceleration from design speed to 85% of design speed, ft

t_{dec} = time MV is decelerating, sec

$t_{dec} = (2 \times D_{dec})/1.47(V + 0.85V)$

t_{85} = time MV is at 85% of design speed during entry maneuver by EV, sec

$t_{85} = t_{as} - t_{ds} - t_{dec}$

t_{as} = total time for entering vehicle (EV) on minor road to enter major road and reach 85% of design speed (including driver perception/reaction time), sec

$t_{as} = t_{ar} + J$

t_{ar} = time for EV on minor road to accelerate from a stop to 85% of design speed, sec

J = EV driver perception time and reaction time (assume 2 seconds) required to actuate clutch or automatic shift, sec

t_{ds} = time major road vehicle is at design speed, sec

$t_{ds} = J + t_{pr}$

t_{pr} = perception/reaction time (assume 2 seconds) for MV driver, sec

D_{np} = π R/2 = radial distance traveled by EV in negotiating a 90° turn onto major road, ft

R = radius of turn for EV (assumed to be 28 ft for passenger cars and 60 ft for trucks)

P = total distance traveled by EV from stopped position to location where 85% of design speed is reached, ft

FD = safe following distance for MV to trail the EV entering from the minor road, ft

$FD = 1.47 \times 0.85V \times t_{FD}$

t_{FD} = 2 seconds

L = length of passenger car, ft

The ISD criteria used by the ODOT are intended to provide both an acceptable level of safety and an economical, constructible design for intersections. The model is intended to assign a reasonable level of responsibility to both the entering vehicle (EV) and mainline vehicle (MV). The following summarizes the major assumptions within the ISD model:

1. Design Vehicle. The selected design vehicle greatly affects the ISD values. The recommended minimum ISD numbers are based on a passenger car;

however, there may be sites where it is desirable to use truck acceleration rates to determine the ISD values.

2. Design Vehicle Length (L). For passenger cars the vehicle length is 20 ft. For trucks, the WB-67 truck length of 74 ft is used. If the WB-50 is used as the design vehicle, then 19 ft can be subtracted from the truck ISD values.

3. Reaction Time of EV (J). The model assumes 2 seconds for the EV driver to release the brake and depress the accelerator.

4. Acceleration Rate of EV. Both the passenger car and truck acceleration rates are from the 1990 *Green Book*; Table 9.2A reproduces these rates.

5. Reaction Time of MV(t_{pr}). This is the time required from the moment the entering vehicle begins its maneuver until the mainline driver releases his foot from the accelerator. This is assumed to be 2 seconds.

6. MV Deceleration (D_{dec}). The MV must decelerate from the mainline design speed to 85% of the mainline design speed (for a turning passenger car) or to 65% of the mainline design speed (for a turning truck). Deceleration is assumed to be 3.3 mph/sec to 55 mph. Deceleration rates to speeds of 50 mph and below are based on Figure II-17 of the 1990 *Green Book*.

7. Reduced Speed of MV. For passenger cars, the ISD model assumes that the MV will reduce its speed to 85% of the mainline design speed. Likewise, this is the speed to which the EV will accelerate before being overtaken by the MV. For the truck ISD model, the reduced speed is 65% of the mainline design speed.

8. Following Distance (FD). This is the distance between the MV and the EV when the EV has accelerated to 85% or 65% of the design speed on the major road. The FD is based on providing two seconds of travel time at the design speed.

9. Eye Location. The ISD values will establish one leg of the sight triangle which needs to be visible to the entering vehicle. The leg on the stop-controlled road or street will be determined by the assumed location of the driver eye. This is established as 15 ft behind the edge of the travel lane (see Figure 9.2B), regardless of the location of the painted stop bar.

10. Height of Eye/Object. The height of eye is 3.5 ft for passenger cars and 8 ft for trucks. The height of object (an approaching passenger car) is 4.25 ft.

9.2.2.2 Application

Figure 9.2C illustrates the application of ISD to a stop-controlled intersection, and Table 9.2B provides the criteria for passenger car and truck ISD values. The designer should also consider the following when determining ISD criteria:

1. Multilane. Table 9.2B applies to both 2-lane and multilane facilities. However, also see Comment #3.

2. Turn Maneuver. Theoretically, there is only a minimal difference in the ISD values between a left- and right-turning vehicle. Consequently, only one value is provided in Table 9.2B.

3. Medians. For a multilane facility which does not have a median wide enough to store a stopped design vehicle, the criteria in Table 9.2B should be used directly. On

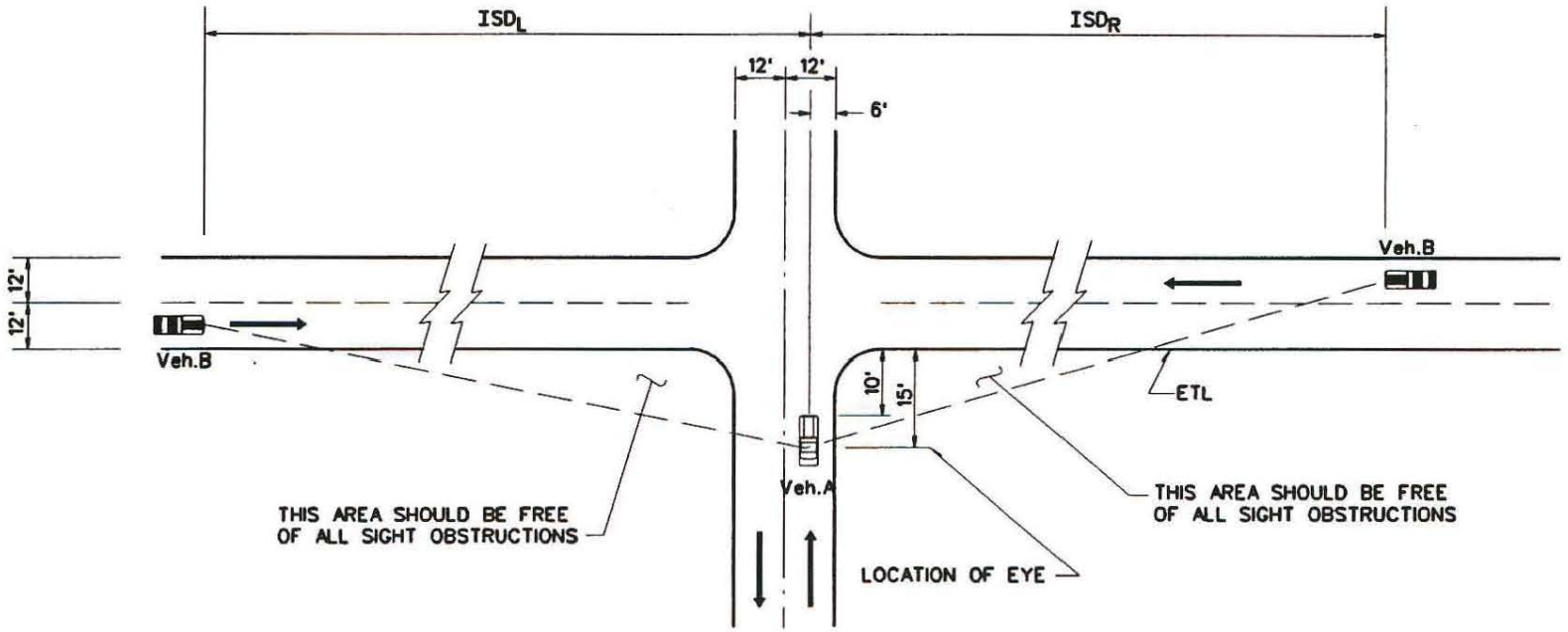
Table 9.2A

ACCELERATION RATES
(From a Stop)

Speed Reached (mph)	Passenger Cars		Trucks*	
	Distance (ft)	T_a (sec)	Distance (ft)	T_a (sec)
15	50	4.5	105	10.8
20	90	6.1	160	13.0
25	140	7.3	290	16.9
30	215	9.4	570	23.8
35	305	11.3	1080	34.5
40	420	13.5	1870	48.9
45	570	15.9	2900	65.4
50	760	18.6	4600	89.8
55	1000	21.7	-	-
60	1315	25.4	-	-
65	1735	30.0	-	-
70	2320	35.9	-	-

Source: (1)

* Acceleration rates based on a 300 lb/hp truck.



Note: See Section 9.2.2 for definition of terms.

INTERSECTION SIGHT DISTANCE AT A STOP-CONTROLLED INTERSECTION (Application)

Figure 9.2C

Table 9.2B

DESIRABLE INTERSECTION SIGHT DISTANCES
(For Stop-Controlled Intersections)

Mainline Design Speed (mph)	Passenger Cars* (ft)	Trucks** (ft)
20	220	325
25	280	400
30	355	495
35	440	595
40	525	705
45	635	845
50	765	995
55	895	1185
60	1035	1420
65	1190	-
70	1375	-

* Reaches 85% of Mainline Design Speed
** Reaches 65% of Mainline Design Speed

Note: See Figure 9.2B for specific application of ISD to intersections.

multilane facilities with a median wide enough to store a stopped design vehicle, the designer should evaluate the ISD requirements in two steps:

a. With the vehicle stopped on the side road, the ISD will be checked to the left on the mainline.

b. With the vehicle stopped in the median, the ISD will be checked to the right on the mainline.

4. Grades. The model assumes that the roadway is relatively level where the entering vehicle is accelerating. If this is not the case, the acceleration times in Table 9.2A may be adjusted. Use the AASHTO *Green Book* to determine the impacts of grades on ISD.

9.2.3 Stop Control (Minimum ISD)

In general, many intersections currently operate with sight distances less than those presented. For practical reasons, minimum ISD criteria should reflect actual field operations. These criteria may be based on typical gaps in the major road traffic that are accepted by the minor road driver.

Therefore, at restricted locations, the following minimum ISD criteria apply to stop-controlled intersections:

1. Passenger Cars. ISD should be available based on 8 seconds of travel time at the design speed.

2. Trucks. Where a truck is selected as the design vehicle, ISD should be available based on 12 seconds of travel time at the design speed.

Table 9.2C presents the minimum ISD criteria. Figure 9.2C illustrates their application. Note that, as indicated in the table at the lower design speeds, the ISD criteria based on an overtaking vehicle (Table 9.2B) are less than the criteria in Table 9.2C. In these cases, the minimum ISD criteria is the lower of the two numbers.

9.2.4 Yield Control

At intersections controlled by a yield sign, drivers on the minor road will typically:

1. slow down as they approach the major road,

2. based on their view of the major road, make a stop/accelerate decision, and

3. either brake to a stop or continue their turning maneuver onto the major road.

Figure 9.2D presents the applicable ISD criteria for intersections controlled by a yield sign. These criteria are based on the assumption that the stop/accelerate decision is made at 10 mph. Therefore, the leg of the sight triangle on the minor road is determined by the stopping sight distance (SSD) for 10 mph, or 50 ft. The leg of the sight triangle on the major road is based on many of the same assumptions used for stop-controlled intersections. See Section 9.2.2 for specific information. In summary, the assumptions for the major leg at a yield-controlled intersection are:

4. Design Vehicle. The passenger car is used.

5. Entering Vehicle (EV). The EV acceleration rate is from the 1990 AASHTO *Green Book*. The EV accelerates from 10 mph to 85% of the design speed of the major road.

Table 9.2C

MINIMUM INTERSECTION SIGHT DISTANCES
(For Stop-Controlled Intersections)

Mainline Design Speed (mph)	Passenger Cars (ft)	Trucks (ft)
20	235*	355*
25	295*	440*
30	355	530*
35	415	620*
40	470	705
45	530	795
50	590	880
55	645	970
60	705	1060
65	765	1145
70	825	1235

* These values exceed the desirable ISD criteria in Table 9.2B. Use lower value for minimum design.

Notes:

1. ISD criteria for passenger cars are based on 8 seconds of travel time at the design speed.
2. ISD criteria for trucks are based on 12 seconds of travel time at the design speed.
3. See Figure 9.2B for specific application of ISD to intersection.

9.3 AUXILIARY LANES

When the turning maneuver for left- and right-turning vehicles occurs in the through travel lanes, it disrupts the flow of through traffic. To minimize potential conflicts or increase capacity, the use of auxiliary lanes may be warranted for at-grade intersections to improve the level of service and safety at the intersection.

9.3.1 Warrants for Right-Turn Lanes

The use of right-turn lanes at intersections can significantly improve operations. Exclusive right-turn lanes should be considered:

1. at any unsignalized intersection on a 2-lane urban or rural highway which satisfies the criteria in Figure 9.3A;

2. at any intersection where a capacity analysis determines a right-turn lane is necessary to meet the level-of-service criteria;

3. as a general rule, at any signalized intersection where the right-turning volume is greater than 300 vph and where there is greater than 300 vphpl on the mainline; or

4. at any intersection where the accident experience, existing traffic operations or engineering judgment indicates that a right-turn lane will significantly improve operations.

9.3.2 Warrants for Left-Turn Lanes

The accommodation of left turns is often the critical factor in proper intersection design. Left-turn lanes can significantly improve both the level of service and intersection safety. Exclusive left-turn lanes should be considered:

1. at all free-flowing approaches on principal, high-speed rural highway intersections with other arterials or collectors;

2. at intersections on divided urban and rural highways with a median wide enough to accommodate a left-turn lane, regardless of traffic volumes;

3. at any unsignalized intersection on a 2-lane urban or rural highway which satisfies the criteria in Figures 9.3B, C or D;

4. at any intersection where a capacity analysis determines a left-turn lane is necessary to meet the level-of-service criteria;

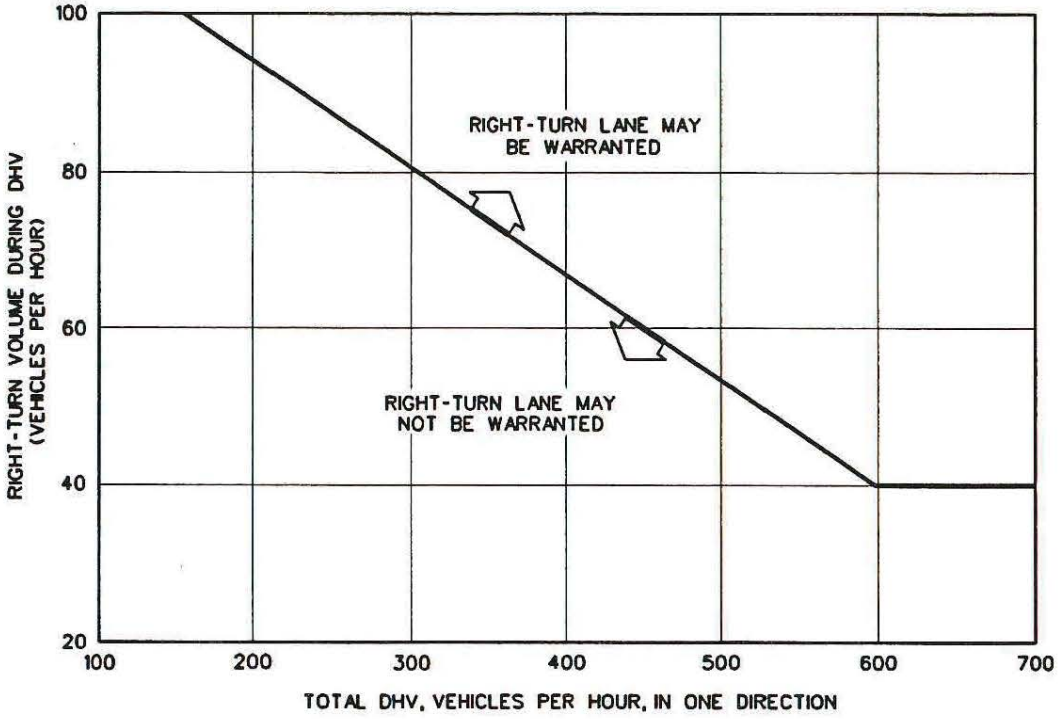
5. as a general rule, at any signalized intersection where the left-turning volume is 100-150 vph (for a single turn lane) or 300 vph (for a dual turn lane); or

6. at any intersection where the accident experience, traffic operations, sight distance restrictions (e.g., intersection beyond a crest vertical curve), or engineering judgment indicates that a left-turn lane will significantly improve operations.

9.3.3 Design of Auxiliary Turn Lanes

The following basic criteria will apply to the design of auxiliary turn lanes:

1. Length. Section 9.3.3.1 presents the criteria for determining the length of a turn lane.



Notes: For highways with a design speed below 50 mph *and* DHV <300 *and* Right Turns >40, an adjustment should be used. To read the vertical axis of the chart, subtract 20 from the actual number of right turns.

Example

Given: Design Speed = 40 mph
DHV = 250 vph
Right Turns = 100 vph

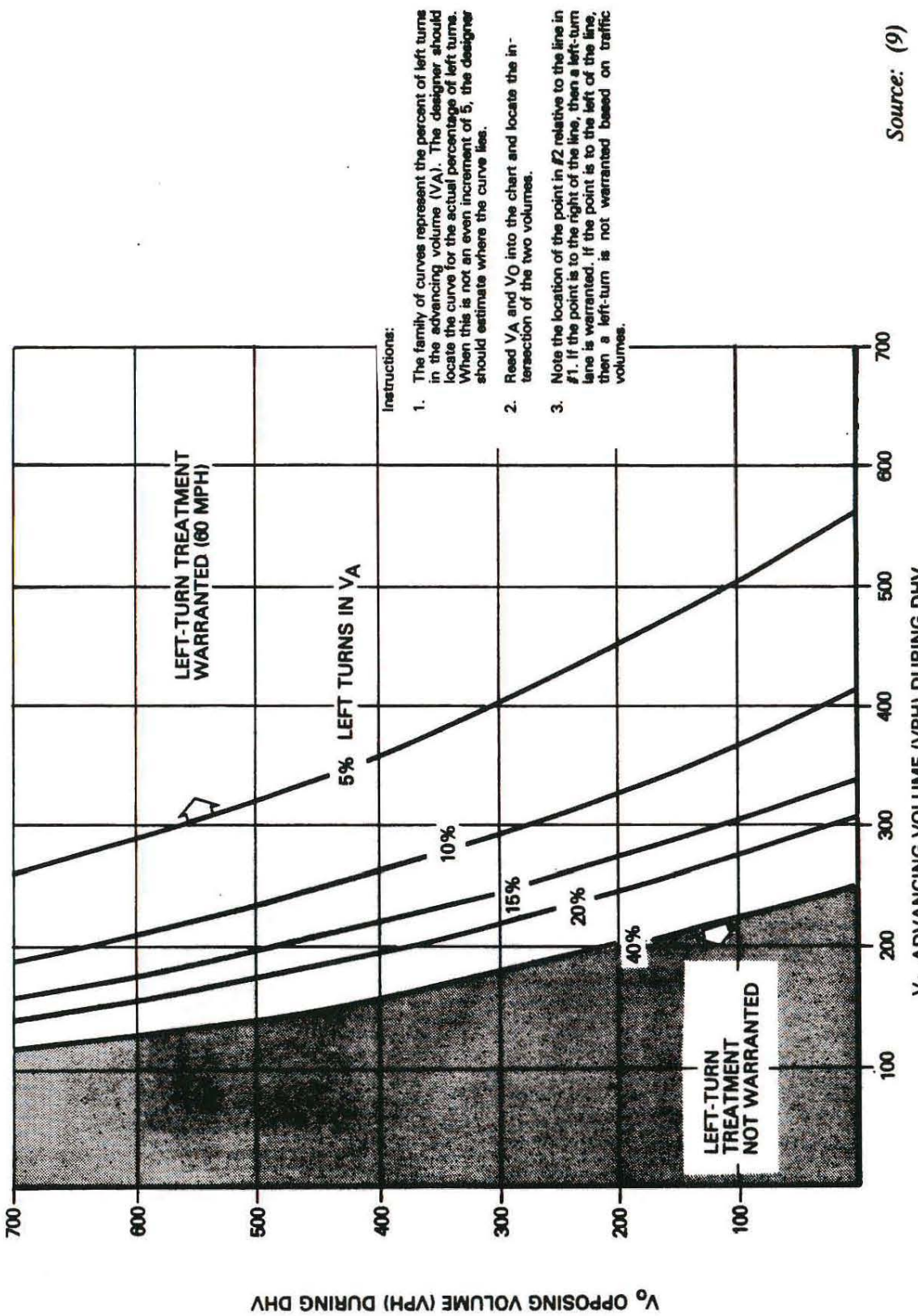
Problem: Determine if a right-turn lane is warranted.

Solution: To read the vertical axis, use 100 - 20 = 80 vph. The figure indicates that an exclusive right-turn lane is not warranted, unless other factors (e.g., high-accident rate) indicate a lane is needed.

Source: (5)

GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS

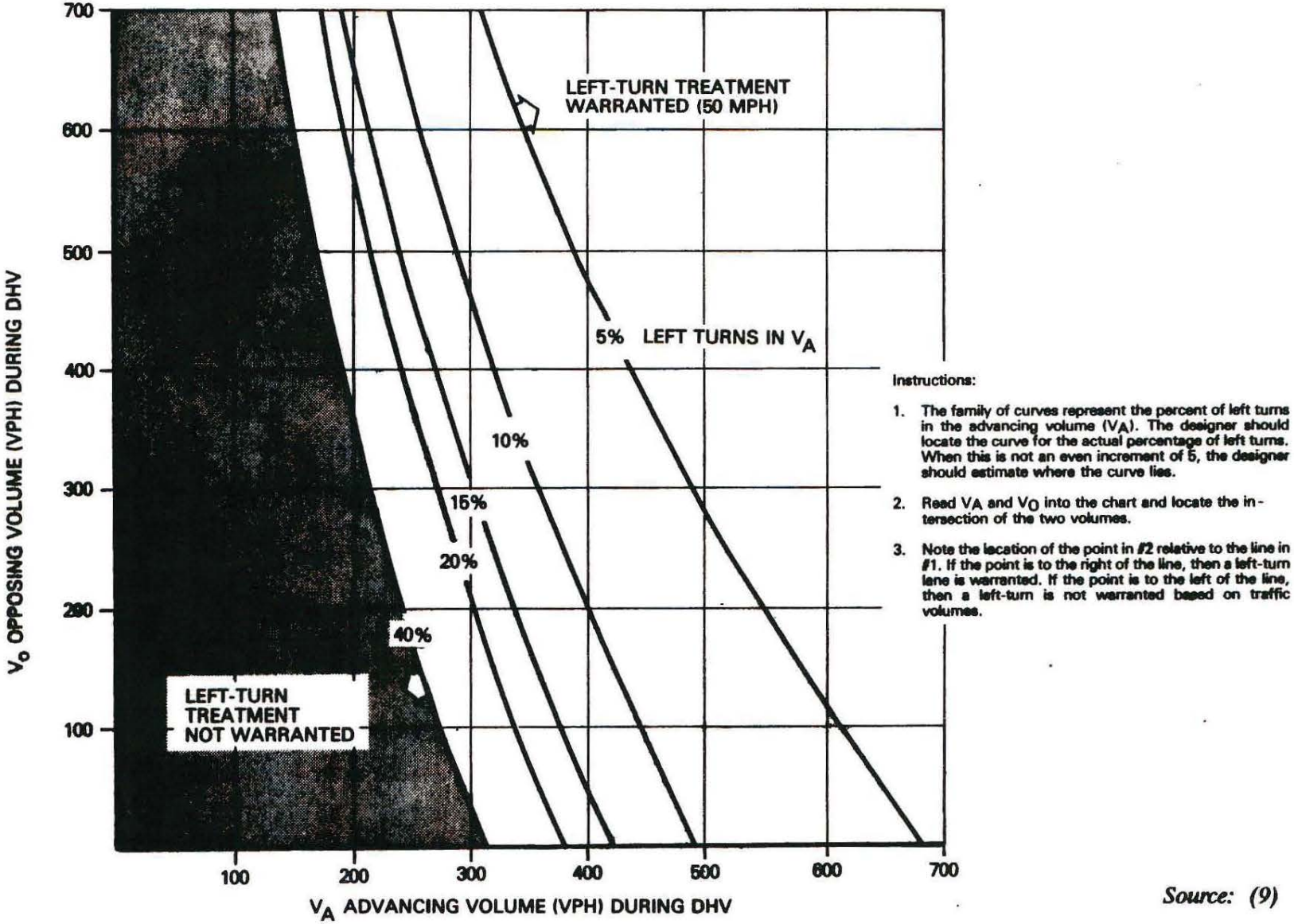
Figure 9.3A



Source: (9)

VOLUME WARRANTS FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS (60 MPH)

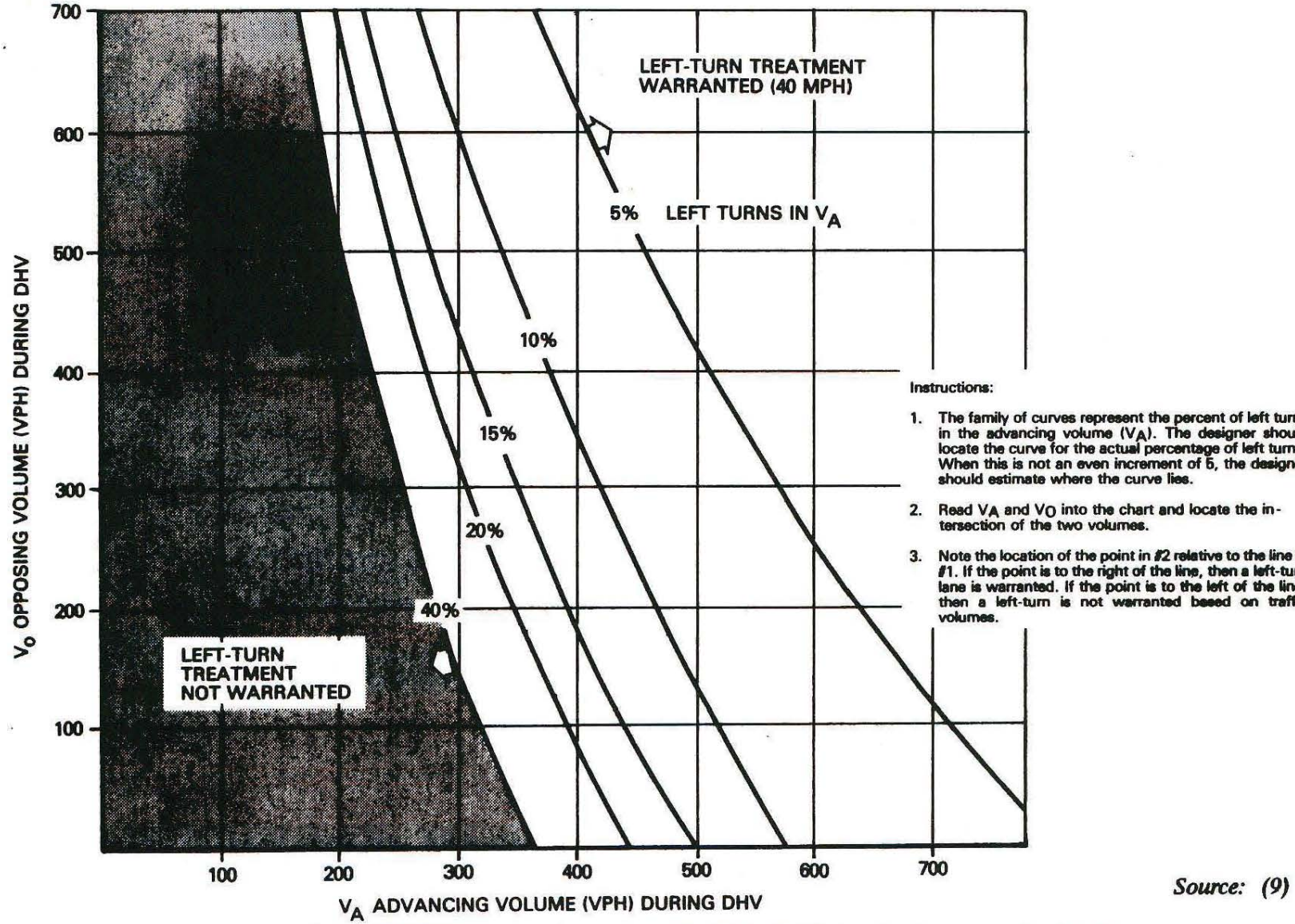
Figure 9.3B



Source: (9)

VOLUME WARRANTS FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS (50 MPH)

Figure 9.3C



Source: (9)

VOLUME WARRANTS FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS (40 MPH)

Figure 9.3D

2. Width. The width of the turn lane should be determined relative to the functional class, urban/rural location and project scope of work. Chapters Twelve and Thirteen present the applicable widths for auxiliary lanes; they also provide the criteria for the applicable shoulder widths adjacent to auxiliary lanes.

3. DHV. The volume of vehicles during the design hour (DHV) will impact several design elements for turn lanes (e.g., warrant, length). See Chapter Five for a discussion on traffic volumes. Chapters Twelve and Thirteen present applicable criteria for selection of a future design year.

9.3.3.1 Length of Auxiliary Turn Lanes

Desirably, the length of a right- or left-turn lane at an intersection should allow both safe vehicular deceleration and storage of turning vehicles outside of the through lanes. This improves safety and the intersection level of service. However, it is often not practical to provide a turn lane length which provides for deceleration. Therefore, in many cases, the full-width length will only be sufficient for storage.

The length of auxiliary turn lanes will be determined by some combination of its taper length (L_T), deceleration length (L_D) and storage length (L_S) and by the mainline functional classification. Table 9.3A presents the length considerations for the various speeds and traffic controls. Figure 9.3E illustrates a schematic of auxiliary lanes at an intersection. The following will apply:

1. Taper. ODOT typically uses the straight taper for entrance into a turn lane. Taper lengths (L_T) should be as long and as smooth as practical so that drivers will be encouraged to use the full length of the taper. Table 9.3B provides recommended taper rates for various design speeds.

2. Deceleration. Desirably, all vehicular deceleration will occur within the taper and full width of the turn lane; however, this is often impractical. Consequently, some or all deceleration may occur prior to the beginning of the taper. Table 9.3C provides various distances (L_D) for different speed reductions. The table allows the designer to determine the benefits and consequences of a given auxiliary turn lane length.

3. Storage (Signalized Intersections). The storage length (L_S) for turn lanes should be sufficient to store the number of vehicles likely to accumulate in the design hour. Note that traffic volumes are based on the future design year as indicated in the geometric design tables in Chapters Twelve and Thirteen. The recommended storage length criteria for signalized intersections follow:

   a. Figure 9.3F illustrates the method to determine the recommended storage length for turn lanes at a signalized intersection when the *v/c* ratio is known. The figure applies directly to all left-turn lanes and to right-turn lanes where there are no right turns on red. Where right turns on red are allowed, L_S will be determined from Figure 9.3F minus the number of right turns on red during the DHV.

      The values obtained from the figure are for a cycle length of 75 seconds and a *v/c* ratio of 0.80. For other values, the designer should multiply the length obtained in the figure by an adjustment factor found in the accompanying table with Figure 9.3F. The *v/c* ratio is determined by a ca-

Table 9.3A

FUNCTIONAL LENGTHS OF AUXILIARY TURN LANES

Type of Traffic Control	Highway Design Speed (mph)		
	50 - 60	40 - 45	30 - 35
Traffic Signal*	$L_D + L_S$	$L_D + L_S$	L_S
Stop Control (Stop Approach)	L_S	L_S	L_S
Stop Control (Free-flowing Approach)	High Vol: $L_D + L_S$ Low Vol: L_S	High Vol: $L_D + L_S$ Low Vol: L_S	L_S

Source: (4) Revised

* At signalized T-intersections, the functional length of turn lanes on the truncated leg is L_S.

L_T = Length of Bay Taper
L_D = Length of Deceleration (Full or Partial) (Table 9.3C)
L_S = Length of Storage

Note: See Figure 9.3E for a definition of terms.

Table 9.3B

RECOMMENDED BAY TAPER RATES

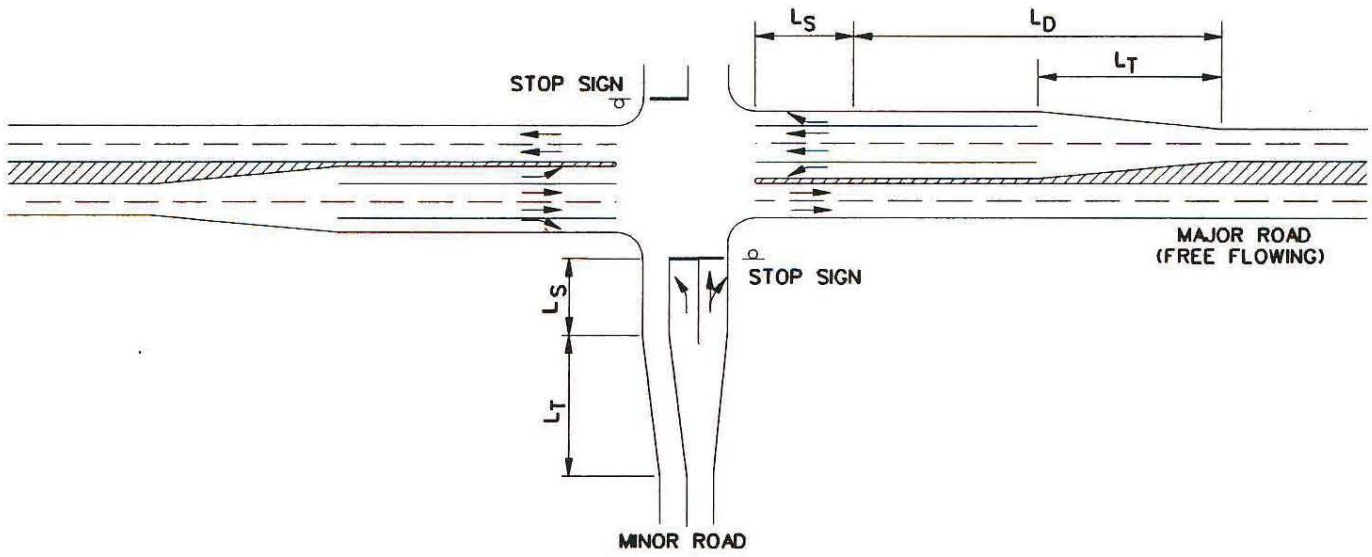
Design Speed (mph)	Taper Rate
$V \leq 30$	8:1
$30 < V < 50$	10:1
$50 \geq V$	15:1

Source: (1) Revised

The following minimum values may apply in restricted locations:

1. Right-Turn Lanes. A 4:1 bay taper may be used where painted channelization is used.

2. Left-Turn Lanes. In severely restricted locations, a 4:1 bay taper may be used where painted channelization is used.



Note: The schematic of the major road (free flowing) also applies to all legs of a signalized intersection.

Key: L_T = Taper length
L_D = Deceleration length (full or partial)
L_S = Storage length

FUNCTIONAL LENGTH OF AUXILIARY TURN LANES
(Typical Flared Intersection)

Figure 9.3E

Table 9.3C

DECELERATION DISTANCES FOR TURN LANES

Design Speed (mph)	Average Running Speed* (mph)	Vehicular Speed @ Beginning of Taper (mph)	L_D** (Taper plus Full Width Auxiliary Lane) (ft)
70	58	58	615
		50	355
		40	225
		30	130
		20	60
		10	35
60	52	52	530
		50	455
		40	230
		30	100
		20	55
		10	20
50	44	44	435
		40	260
		30	150
		20	65
		10	20
40	36	36	315
		30	160
		20	65
		10	20
30	28	28	235
		20	85
		10	35

* Average running speed assumed for calculations.

** This is the distance needed to allow the vehicle to reduce speed from "speed @ beginning of taper" to zero.

Notes:

1. This table was developed from criteria in Reference 16.

2. This table allows the designer to evaluate the consequences of a given length of turn lane. For example, if the mainline design speed is 50 mph and the length of turn lane plus taper is 150 ft (not including storage length), then the vehicle will decelerate from its travel speed on the mainline to 30 mph in the through travel lane. Whether or not this is reasonable will depend upon the through volumes, turning volumes, available space, construction costs, etc.

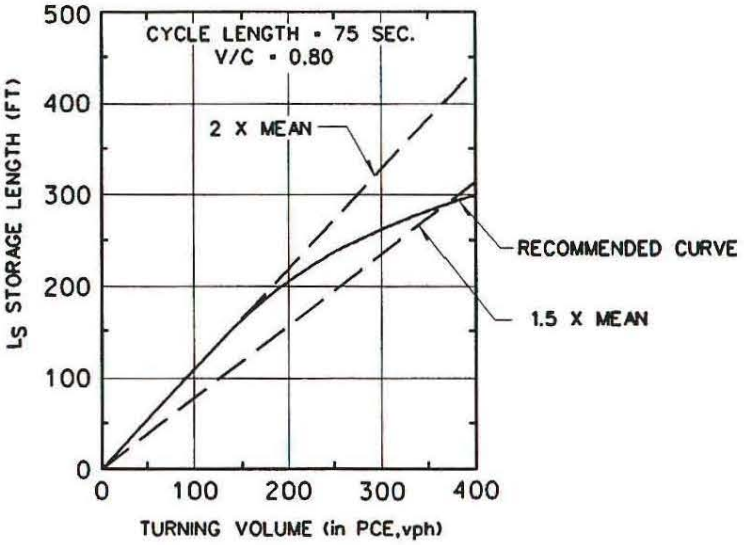
EXAMPLE:

Cycle: 90 secs
v/c : 0.85
Lt-turn Vol: 100 vph

Permitted Phase
Opposing Vol: 700 vph

SOLUTION:

PCE's = 100 x 3 = 300 vph
L_s = 260' (for v/c = 0.80 and Cycle = 75 secs)
L_s Adjustment Factor = 1.24'
L_s = (1.24)260 = 322'
L_s = 325' (for v/c = 0.85 and Cycle = 90 secs)



Storage Length Adjustment Factors

v/c RATIO, *X*	CYCLE LENGTH, *C* (SEC)				
	60	70	80	90	100
0.50	0.70	0.76	0.84	0.89	0.94
0.55	0.71	0.77	0.85	0.90	0.95
0.60	0.73	0.79	0.87	0.92	0.97
0.65	0.75	0.81	0.89	0.94	1.00
0.70	0.77	0.84	0.92	0.98	1.03
0.75	0.82	0.88	0.98	1.03	1.09
0.80	0.88	0.95	1.05	1.11	1.17
0.85	0.99	1.06	1.18	1.24	1.31
0.90	1.17	1.26	1.40	1.48	1.56
0.95	1.61	1.74	1.92	2.03	2.14

Passenger Car Equivalent (PCE's) (Left-Turn Lanes Only)

Type of Turn	Opposing Volume (vph)	Passenger Car Equivalent (PCE)
Protected	—	1.05
Permitted	0 to 199	1.1
	200 to 599	2.0
	600 to 799	3.0
	800 to 999	4.0
	≥ 1000	5.0

Source: (8) Revised

Notes:
1. Use this method when *v/c* is known.
2. Figure applies to exclusive left-turn lanes and exclusive right-turn lanes where there are no right turns on red. Where right turns on red occur, subtract their number from the right-turn volume before using figure.
3. See minimum storage length discussion in Section 9.3.3.1.
4. The values obtained from the graph at the top of this page are for a cycle length of 75 sec and a *v/c* ratio of 0.80. For other values of the *v/c* ratio and any other cycle length, the length of storage obtained from the graph should be multiplied by the storage length adjustment factor.

RECOMMENDED STORAGE LENGTH FOR SIGNALIZED INTERSECTIONS

Figure 9.3F

pacity analysis as described in the *Highway Capacity Manual.*

Figure 9.3F presents a recommended curve to determine L_S. This curve should be used regardless of cycle length. The curves labeled "1.5 x Mean" and "2 x Mean" are presented for informational purposes.

b. Figure 9.3G illustrates a method to determine the recommended storage length for turning lanes at a signalized intersection when the *v/c* ratio is not known or cannot be calculated. The storage length should be based on the cycle length and the traffic volumes during the design hour. For a 90-second cycle or less, the storage length should be based on 2 times the average number of vehicles that would store per cycle during the design hour (the desirable value). For cycle lengths mores than 90 seconds, the storage length should be based on 1.5 times the average number of vehicles that would store per cycle during the design hour (the minimum value).

c. The minimum turn lane length is 125 ft where the selected design vehicle is the WB-114 and 100 ft where the design vehicle is the WB-67. At other intersections, the minimum turn lane length is 50 ft on low-speed facilities (V≤45 mph) and/or where the turn lane is preceded by painted channelization. The minimum turn lane length for all other intersections is 100 ft.

d. The designer should ensure that the turn lane length exceeds the storage length of the adjacent through lane. Otherwise, a vehicular queue in the through lane will block entry into the turn lane by turning vehicles. L_S for the turn lane is calculated by the same method as that used for a turn lane.

4. Storage Length (Unsignalized Intersections). The storage length should be the number of turning vehicles likely to arrive in an average 2-minute period within the design hour. The following provides recommended storage lengths for right- and left-turn lanes at an unsignalized intersection, assuming 25 ft storage length per vehicle:

$$L_S = \frac{DHV}{30\ PHF} \times 25 = 0.833\ DHV/PHF$$

Where:

L_S = storage length, ft

DHV = design hourly volume for turns, vph

PHF = peak-hour factor

For example, if the turning volume DHV = 100 vph and PHF = 0.85, then:

$L_S = 0.833(100)/0.85$

L_S = 98′, subject to minimum storage requirements

The minimum storage requirements for turn lanes at unsignalized intersections is the same as that for signalized intersections (see Comment #3c).

9.3.3.2 Typical Treatments for Auxiliary Turn Lanes

The following presents typical treatments for right- and left-turn lanes:

1. Right-Turn Lanes. Figure 9.3H illustrates the typical development of an exclusive right-turn lane.

9.9 DRIVEWAYS

9.9.1 General

The following sections provide general guidelines for the designer to use when constructing driveways on new or major reconstruction projects. For driveways on 3R projects or for driveway permits on existing highways, the user is referred to ODOT's *Policy on Driveway Regulations for Oklahoma Highways* and the *ODOT Standard Drawings*.

9.9.1.1 Driveway Types (Definitions)

The following provides definitions for the various driveway types:

1. Residential. Drives providing access to a:
   a. single family residence,
   b. duplex, or
   c. an apartment building containing not more than four dwelling units.
2. Commercial. Drives providing access to an:
   a. office, retail or institutional building;
   b. an apartment building having five or more dwelling units; or
   c. industrial plant, whose primary function it is to serve administrative or employee parking lots.
3. Industrial. Drives directly serving substantial numbers of truck movements and drives accessing to and from loading docks of an industrial facility, warehouse or truck terminal. Also, drives serving a centralized retail development, such as a community or regional shopping center, may have one or more driveways especially designed, signed and located to provide access for trucks. These may also be classified as industrial driveways.

9.9.1.2 Driveway Spacing and Corner Clearance

The following criteria will apply to driveway spacing and corner clearance:

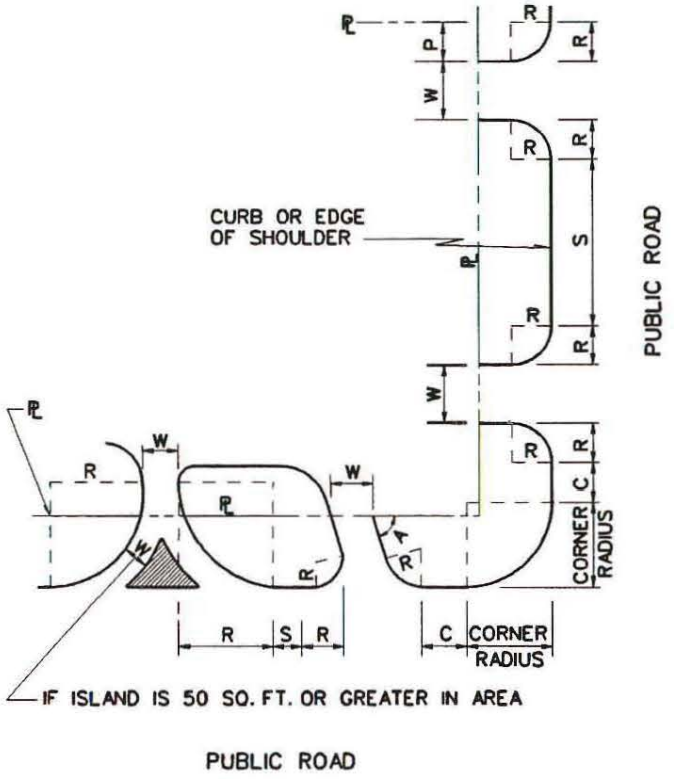
1. Guidelines. Table 9.9A presents criteria for driveway spacing and corner clearance. See Figure 9.9A for a definition of terms. These distances are measured along the curb or edge of pavement from the roadway end of the curb radius or flare. Desirable corner clearance is 40′ for rural areas and 20′ for urban areas.

Table 9.9A

DRIVEWAY SPACING AND CORNER CLEARANCE

Dimension	Term*	Type of Driveway		
		Residential	Commercial	Industrial
From Property Line	P	5′	15′	R
From Street Corner	C	5′	10′	10′
Between Driveways	S	3′	3′	10′

* See Figure 9.9A.



Source: (11)

Note: Driveway radius should be within the property line.

Key:
- R = Driveway radius
- W = Driveway width
- ℄ = Property line
- C = Corner clearance
- A = Driveway angle of intersection
- S = Spacing between two driveway radius points
- P = Spacing between driveway and property line radius point

DRIVEWAY DIMENSIONS

Figure 9.9A

2. Minimum. A driveway, including its entrance radius, should not be located within the radius of an intersection.

3. Future Control Accommodation. If these criteria cannot be met for properties in intersection corners, one possible solution is to relocate the driveway entrance from the major road to the minor road, if applicable.

4. Multiple Driveways. The number, arrangement and width of driveways are governed in part by the roadway frontage of abutting private property. The number of driveways provided should be the minimum number required to adequately serve the needs of the adjacent property. A frontage of 50 ft or less is generally limited to one driveway. Normally, not more than two driveway accesses are provided to any single property tract or business from any single roadway. Exceptions may be made where the frontage exceeds 600 to 1000 ft. In some cases, a single driveway serving two adjacent properties may best accommodate access to the properties. Joint-use driveways must be agreed to by both property owners.

   Where there are several commercial or residential properties, each with relatively limited frontage, or where there is the probability of such development, the designer may consider providing a frontage road for the several driveways. This would reduce the number of access points to the major roadway.

9.9.1.3 Driveway Sight Distance

Section 9.2 discusses intersection sight distance (ISD) criteria for intersections with public roads. Desirably, these criteria will also apply to sight distance at driveways. However, for driveways with low volumes, it may not be cost-effective to provide the desirable ISD values. Where the minimum ISD criteria cannot be met, directional driveways may be a solution. Another potential countermeasure is to prohibit turns for re-entry to the main road or to provide islands to discourage turns which may be a safety problem.

In general, the designer should check for sight obstructions in the vicinity of the driveway entrance (e.g., large trees, hedgerows) which may cause problems. To perform the check, it is reasonable to assume an eye location of approximately 10 ft from the edge of travel lane.

9.9.1.4 Auxiliary Lanes

Deceleration and acceleration lanes should be considered at high-volume driveway entrances, especially on high-speed, high-volume arterials. Section 9.3 further discusses the design and warrants for auxiliary lanes, and these also apply to high-volume driveways. In addition to traffic-volume considerations, it may be warranted to provide a right-turn lane into the driveway if the change in grade is abrupt at the driveway entrance.

9.9.2 Driveway Design Criteria

1. Tables. Table 9.9B presents design criteria for driveways. These apply to both urban and rural driveways.

2. Typical Driveway Profile Figures. Figure 9.9B presents design criteria for driveways where no curbs exist; Figure 9.9C applies to driveways where curbs are present.

3. Typical Driveway Plan Views. Typical plan views of driveway entrances are illustrated in ODOT's *Policy on Driveway Regulations for Oklahoma Highways* and in the *ODOT Standard Drawings*.

Table 9.9B

RECOMMENDED DESIGN CRITERIA FOR DRIVEWAYS

Driveway Design Element		Driveway Type	Functional Classification of Intersecting Road		
			Arterial	Collector	Local Road
Design Vehicle (1)		Residential	P	P	P
		Commercial	WB-50	SU	SU
		Industrial	WB-67	WB-50	WB-50
Turning Radii (R) (2)		Residential	15′	10′-15′	10′-15′
		Commercial/ Industrial	30′-50′	20′-30′	15′-30′
Width (W) (2)		Residential	12′-20′	12′-20′	12′-20′
		Commercial/ Industrial	35′ Maximum	35′ Maximum	35′ Maximum
Recommended Grades on Driveway Proper (G)		Residential	Desirable: 0 - 10%	Maximum: 15%	
		Commercial/ Industrial	Desirable: 0 - 5%	Maximum: 8%	
Change in Grade Without Vertical Curve (ΔG) (3)		All	Recommended: 8% or less	Recommended: 9% or less	Recommended: 15% or less
Driveway Side Slopes (without curbs)	Within Clear Zone (4)	All	See Chapter Eleven	See Chapter Eleven	See Chapter Eleven
	Outside Clear Zone	All	Maximum: 3:1	Maximum: 3:1	Maximum: 3:1

Note: See Figure 9.9A for application in plan view. See Figures 9.9B and 9.9C for application in profile view.

Table 4.4: Present Serviceability Rating

PSR	Description
4.0 – 5.0	Only new (or nearly new) superior pavements are likely to be smooth enough and distress free (sufficiently free of cracks and patches) to qualify for this category. Most pavements constructed or resurfaced during the data year would normally be rated in this category.
3.0 – 4.0	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any, visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
2.0 – 3.0	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high-speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and extensive patching. Rigid pavements in this group may have a few joint failures, faulting and/or cracking, and some pumping.
1.0 – 2.0	Pavements in this category have deteriorated to such an Extent that they affect the speed of free-flow traffic. Flexible pavement may have large potholes and deep cracks. Distress includes raveling, cracking, rutting and occurs over 50 percent of the surface. Rigid pavement distress includes joint spalling, patching, cracking, scaling, and may include pumping and faulting.
0.1 – 1.0	Pavements in this category are in an extremely deteriorated condition. The facility is passable only at reduced speeds, and with considerable ride discomfort. Large potholes and deep cracks exist. Distress occurs over 75 percent or more of the surface.

For LRS purposes, this Data Item can be reported independently for both directions of travel associated with divided highway sections, for which dual carriageway GIS network representation is required per guidance in Chapter 3, Section 3.3 and Table 3.5. NOTE: If this data item is being reported for both the inventory and non-inventory directional approaches associated with all divided Interstate roadway sections, then the following data items shall be reported in the same manner for these roadway sections (as specified in the Metadata; see Chapter 3, Sec. 3.3, Tables 3.18 and 3.19):

- Data Item 2 (Urban Code)
- Data Item 4 (Structure Type)
- Data Item 17 (Route Number)
- Data Item 47 (IRI)
- Data Item 49 (Surface Type)
- Data Item 50 (Rutting)
- Data Item 51 (Faulting)
- Data Item 52 (Cracking Percent)
- Data Item 70 (Directional Through Lanes)

Figure 2C-9. Reduced Speed Limit Ahead and Speed Zone Signs

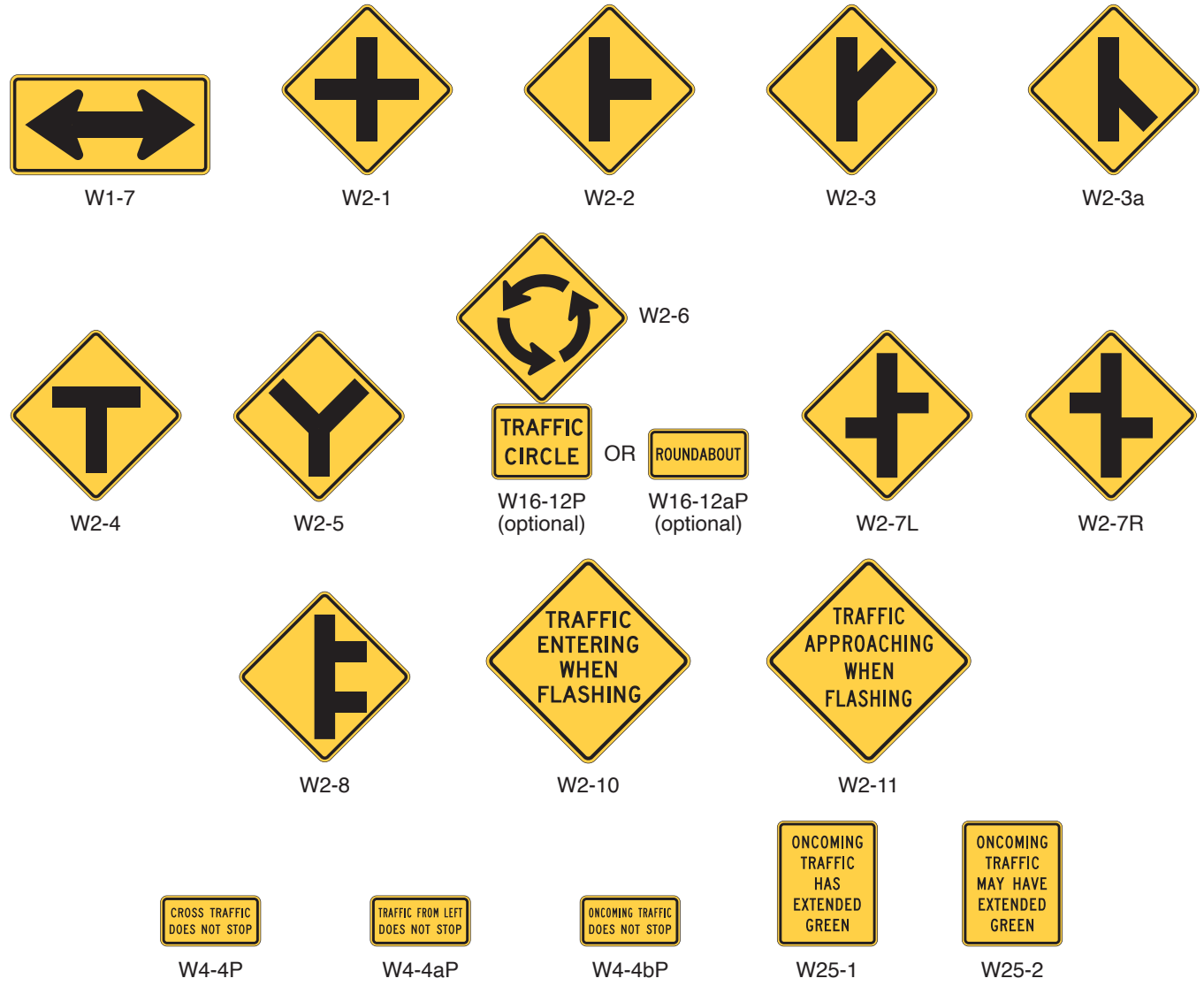
W3-5 W3-5a W3-5b W3-5c

Section 2C.41 Intersection Warning Signs (W2-1 through W2-8)

Option:

01 A Cross Road (W2-1), Side Road (W2-2, W2-3, or W2-3a), T-Intersection (W2-4), or Y-Intersection (W2-5) sign (see Figure 2C-10) may be used in advance of an intersection to indicate the presence of an intersection and the possibility of turning or entering traffic.

Figure 2C-10. Intersection Warning Signs and Plaques



W1-7 W2-1 W2-2 W2-3 W2-3a

W2-4 W2-5 W2-6 W16-12P (optional) W16-12aP (optional) W2-7L W2-7R

W2-8 W2-10 W2-11

W4-4P W4-4aP W4-4bP W25-1 W25-2