

Bryan Moyers, Councilmember
David Brundage, Councilmember
Holly Gray-Moore, Mayor Pro-Tem



Carl E. Gierisch, Jr., Mayor

Brian Darby, Councilmember
Hogan Page, Councilmember
David Thompson, Councilmember

ROANOKE CITY COUNCIL AGENDA WORKSHOP MEETING

**JANUARY 13, 2022
7:00 PM
500 S. OAK STREET
ROANOKE, TX 76262-6732**

A. CALL CITY COUNCIL TO ORDER

B. PUBLIC INPUT

This item is available for citizens to address the City Council on any issues that are not the subject of a public hearing. No action by law may be taken on the topic. The presiding officer reserves the right to impose a time limit on this portion of the agenda. In order to provide the highest quality cable broadcast, all speakers need to speak at the podium.

C. NEW BUSINESS

1. Discussion regarding proposed Ordinance No. 2021-123, amending the Comprehensive Zoning Ordinance, for approximately 18.504 acres of land located in the M.E. P. & P.R.R. Co. Survey, Abstract No. 923, City of Roanoke, Denton County, TX, by changing the zoning from Single-Family-7 District (SF-7) and Retail District (R) to Planned Development District with Multi-Family and Single Family Attached uses.

The City Council reserves the right to adjourn into Executive Session during the course of this meeting to discuss any item on the posted agenda as authorized by Chapter 551 of the Texas Government Code.

D. ADJOURNMENT

CERTIFICATION



**AGENDA FOR THE
REGULAR MEETING
OF THE ROANOKE CITY COUNCIL**

**January 13, 2022
Page 2 of 2**

I certify that the above notice was posted at City Hall, 500 South Oak Street, Roanoke, Texas, on Monday, January 10, 2022, by 5:00 pm, in accordance with Chapter 551, Texas Government Code.

A handwritten signature in blue ink, reading "April S. Hill".

April S. Hill, City Secretary

*Any person planning to attend this meeting that may require auxiliary aids or services should request accommodations two (2) days prior to the meeting by calling (817) 491-8152. **BRaille IS NOT AVAILABLE.**

📶 A public wireless network is now available in the Council Chambers for use during meetings. It is available from 7am to 11pm Monday thru Friday. The name of the network is: City Hall Guests



AGENDA ITEM

TO: Mayor and City Council

SUBJECT: ORD NO 2021-123

MEETING DATE: January 13, 2022

DEPARTMENT: Planning

ITEM SUMMARY:

Discussion regarding proposed Ordinance No. 2021-123, amending the Comprehensive Zoning Ordinance, for approximately 18.504 acres of land located in the M.E. P. & P.R.R. Co. Survey, Abstract No. 923, City of Roanoke, Denton County, TX, by changing the zoning from Single-Family-7 District (SF-7) and Retail District (R) to Planned Development District with Multi-Family and Single Family Attached uses.

INFORMATION:

Planning Analysis:

The applicant has initiated a re-zoning request for approximately 18.5 acres of what is currently retail and single-family residential (SF-7) at the corner of Hwy 114 Bypass and Lois St.

DIVISION 2. - PD, PLANNED DEVELOPMENT OVERLAY DISTRICT

Sec. 12.620. - General Purpose and Description

(a) The City Council of the City of Roanoke, Texas, after public hearing and proper notice to all parties affected and after recommendation from the Planning and Zoning Commission, may authorize the creation of a Planned Development (PD) overlay district.

(b) The Planned Development (PD) district is an overlay zoning district which accommodates planned associations of uses developed as integral land use units such as office parks, retail/commercial or service centers, shopping centers, residential developments having a mixture of housing options, or any appropriate combination of uses which may be planned, developed or operated as integral land use units either by a single owner or a combination of owners. A Planned Development district may be used to permit new or innovative concepts in land utilization not permitted by other zoning districts in this chapter, to ensure the compatibility of land uses, and to allow for the adjustment of changing demands to meet the current needs of the community by meeting one or more of the following purposes:



AGENDA ITEM

- (1) To provide for a superior design of lots/tracts or buildings;
- (2) To provide for increased recreation and open space opportunities for public use and enjoyment;
- (3) To provide amenities or features that would be of special benefit to the property users or to the overall community;
- (4) To protect or preserve natural amenities and environmental assets such as trees, creeks, ponds, floodplains, slopes, viewscales, or wildlife habitats;
- (5) To protect or preserve existing historical buildings, structures, features or places;
- (6) To provide an appropriate balance between the intensity of development and the ability to provide adequate supporting public facilities and services; and
- (7) To meet or exceed the standards of this chapter.

(c) While greater flexibility is given to allow special conditions or restrictions that would not otherwise allow the development to occur, procedures are established herein to ensure against misuse of increased flexibility.

[SHARE LINK](#)
[SECTION D](#)
[SECTIONS](#)
[VERSIONS](#)

Sec. 12.622. - Planned Development Requirements.

(a)

Any development requirements for a particular PD district that deviate from those of the base zoning district(s) shall be set forth in the amending ordinance granting the PD district. These shall include, but may not be limited to: allowed or additional uses, lot/tract area, lot/tract width, lot/tract depth, yard depths and widths, building height and size, building exterior construction, lot/tract coverage, floor area ratio, parking, access, screening, landscaping, accessory buildings, signs, lighting, project phasing or scheduling, property management associations, and other requirements as the City Council and Planning and Zoning Commission may deem appropriate.

Future Land Use:

The Future Land Use Plan shows this area to be designated as single-family residential. This plan, which was included as part of our 2020 Comprehensive Plan, includes Table 4-1, which shows the distribution of future land uses throughout the planning area. This table provides 69.8 acres to be distributed to multi-family development, roughly 1.6% of Roanoke's planned area. With the recent re-zoning of



AGENDA ITEM

the 14 acres off Cannon Parkway in PD 96-117, Roanoke currently sits at approximately 79.4 acres designated for multi-family development, exceeding the projected amount in the Future Land Use Plan. With the growing interest in multi-family development as an investment and an increasing need for housing in the area, staff regularly receive inquiries about re-zoning existing property to high density residential. If it is the City's intent to re-examine its goals in regards to the amount of multi-family housing or high density residential to be designated within our boundaries, a new study should be initiated by the City staff to take into consideration factors that influence overall development patterns that have an impact on the entire infrastructure system for the City, such as, densities, existing development, zoning patterns, anticipated land use, availability of land for future expansion, current growth trends in the surrounding area, anticipated projects, existing utilities availability, capacity and impact on local schools.

Traffic Study:

A traffic study was conducted by the applicant to analyze the potential traffic impact of the proposed Multi-Family Development. The study has been reviewed by the City's engineering consultant. The Traffic Study and comments are included and may be reviewed as an attachment to the item.

Proposed mitigation: Mitigation would be to widen and add a dedicated LT Turn lane at Lois and Dorman St. on the northbound approach and this is described in Mitigation Measures on Page 26.

Amenities:

The proposed plan in the PD includes one outdoor swimming pool amenity for the complex.

(e) A swimming pool shall be provided in multi-family developments of fifty (50) or more units, plus one (1) additional pool per one hundred (100) units. See [Chapter 6, article 6.300](#) of this Code, article VII of this Code, the International Residential Code, and the International Property Maintenance Code, as amended, for additional requirements for swimming pools.

Parking:

The applicant has proposed on-street parking within the PD to meet the required



AGENDA ITEM

amount of parking. Staff would recommend only non-required parking on-street. All required parking should be located on-site.

Planning and Zoning Commission:

The board recommended approval and recommendations included in the motion to address the onsite parking concerns, density and traffic. "Approve what is presented to City Council, with the recommendation that they focus on traffic, parking, and the amount of multifamily (multiple commissioners concerns with the amount of multifamily)."

STAFF RECOMMENDATION:

It is the staff's opinion that the current zoning classification for this location is the appropriate zoning with consideration to the existing single family residential uses and densities in the area and the proposed re-zoning request does not meet the intent of the Future Land Use Plan. It is also our opinion the proposed re-zoning submittal does not meet enough of the criteria listed above in Sec. 12.620 to establish a PD with much higher densities than the current classification of SF-7 Single Family Detached and R-Retail. City Council has approved Multi-Family zoning in strategic locations where it made sense and was more compatible with the surrounding residential uses. This was recently approved in the Homestead PD off Cannon Parkway to rezone light industrial to multi-family and townhomes at roughly 25 units per acre. This proposed PD is 24 units per acre. Our base zoning for MF allows a maximum of 12 units an acre. The ratio used to calculate land use for MF in our Future Land Use Plan is 18 units per acre.

Should the City Council choose a favorable action to this item, staff would offer the following conditions for consideration.

1. The densities for the proposed PD include 396 MF units total on 10.62 acres, equaling 37.3 units per acre. Tract 3 and 1 include 7.88 acres with 45 townhome units, equaling 5.7 units per acre. The entire proposed PD includes 441 total units on 18.504 acres, equaling 24 units per acre. This ratio doubles our current base zoning for MF at 12 units per acre. Tract 1 and 2 alone at 396 units equal 3 times the allowed number of units per acre in our current MF zoning standards. To meet our current MF



AGENDA ITEM

zoning standards at 12 units per acre, this property would be entitled a maximum of 222 units on 18.5 acres.

2. At least one swimming pool for each multi-family complex.
3. All single-family dwellings identified on Tract 3 should front a ROW that meets the minimum width for detached dwelling units, 50 ft.
4. Proposed traffic mitigation at Lois and Dorman St.

SPECIAL CONSIDERATION:

N/A

FINANCIAL CONSIDERATION:

N/A

ATTACHMENTS:

1. Roanoke North Signed Zoning Application_ERN (9.29.21)
2. ORD NO 2021-123 - Rezone - SF-7 and R to PD - 18.5 acre tract - 12032021
3. Roanoke North Concept Plan without Contours_11.09.21
4. Colored Elevations (1)_ERN
5. For-Sale Townhome Colored Elevation (8.23.21)
6. Landscape Plans_11.09.21
7. Tract Exhibit Roanoke North
8. Roanoke North Residential Development TIA #2 (10-6-21)
9. Roanoke North Trip Generation - Previous Configuration
10. Street Classification Exhibit_11.09.21
11. Comparision Table_revised
12. Development Standards_revised
13. Integrated - Roanoke City Council Workshop (01.12.22) - FINAL
14. Roanoke North Development - Appendix (12.06.21)



CITY OF ROANOKE
500 S. OAK STREET
ROANOKE, TEXAS 76262
(817) 491-2411 FAX (817) 491-2242

ZONING APPLICATION

Applicant/Agent Name IHS Real Estate Holdings, LLC		Home Phone (817) 742-1851	Mobile Phone
Address 3110 W. Southlake Blvd., Suite 120		City / State Southlake	Zip 76092
Property Owner(s) RONOLANDCO, LLC		Home Phone	Work Phone
Address, City, State, Zip 361 W. Bryon Nelson Blvd., Ste. 104 Roanoke, Texas 76262			
Present Zoning Classification SF-7 & Retail	Requested Zoning Classification PD	Acreage/Lot of Requested Zoning Classification 18.5 Acres	

Are any Deed restrictions in place that would prevent this property being used in the manner herein proposed?

☐ Yes ☒ No

If yes, list restrictions _____

Proposed use Mixed use development including single-family and multi-family uses.

Justification for requested zoning change: Please see letter of intent.

I authorize the City of Roanoke to place one change of zoning sign on the subject property to remain in place for the duration of the zoning change process.

[Signature] 7.30.2021
Applicant Signature and Date

Attach two (2) copies of the Metes & Bounds description of the property and a survey map (11x17) of the property. One electronic copy in a pdf format. Fees for Zoning Request is \$250.00 plus \$10.00 per acre. Fees are subject to change if amended by Ordinance.

Authorization:

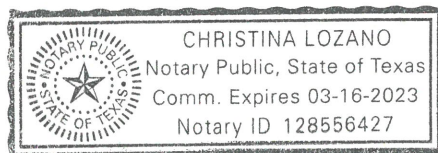
I/We RONOLANDCO, LLC owner(s) of the above described property do hereby authorize IHS Real Estate Holdings, LLC to act on my/our behalf in making and representing this zoning change application.

[Signature] 7.30.2021
Signature of owner Date

State of Texas Tarrant
County of Tarrant

Sworn to and subscribed before me on the 2nd day of August, 2021, by Kenneth W. Fambro, II
(year) (name of owner).

Notary Seal



[Signature]
Notary Public's Signature

08/23/2019



CITY OF ROANOKE
500 S. OAK STREET
ROANOKE, TEXAS 76262
(817) 491-2411 FAX (817) 491-2242

ZONING APPLICATION

Applicant/Agent Name IHS Real Estate Holdings, LLC		Home Phone (817) 742-1851	Mobile Phone
Address 3110 W. Southlake Blvd., Suite 120		City / State Southlake	Zip 76092
Property Owner(s) Billy R. Bowen		Home Phone	Work Phone
Address, City, State, Zip 1008 Walnut Street, Roanoke, Texas 76262			
Present Zoning Classification SF-7 & Retail	Requested Zoning Classification PD	Acreage/Lot of Requested Zoning Classification 18.5 Acres	

Are any Deed restrictions in place that would prevent this property being used in the manner herein proposed?

☐ Yes ☒ No

If yes, list restrictions _____

Proposed use Mixed use development including single-family and multi-family uses.

Justification for requested zoning change: Please see letter of intent.

I authorize the City of Roanoke to place one change of zoning sign on the subject property to remain in place for the duration of the zoning change process.

[Signature]
Applicant Signature and Date

Attach two (2) copies of the Metes & Bounds description of the property and a survey map (11x17) of the property. One electronic copy in a pdf format. Fees for Zoning Request is \$250.00 plus \$10.00 per acre. Fees are subject to change if amended by Ordinance.

Authorization:

I/We Billy R. Bowen
IHS Real Estate Holdings, LLC owner(s) of the above described property do hereby authorize _____ to act on my/our behalf in making and representing this zoning change application.

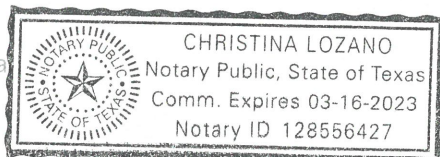
Billy R. Bowen
Signature of owner

8-2-21
Date

State of Texas
County of Tarrant

Sworn to and subscribed before me on the 2nd day of August 2021 by Billy R. Bowen
(year) (name of owner).

Notary Seal



[Signature]
Notary Public's Signature

08/23/2019



CITY OF ROANOKE
500 S. OAK STREET
ROANOKE, TEXAS 76262
(817) 491-2411 FAX (817) 491-2242

ZONING APPLICATION

Applicant/Agent Name IHS Real Estate Holdings, LLC		Home Phone (817) 742-1851	Mobile Phone
Address 3110 W. Southlake Blvd., Suite 120		City / State Southlake	Zip 76092
Property Owner(s) Bobwhite Properties, LP		Home Phone	Work Phone
Address, City, State, Zip A0923A MEP & PRR, TR 2a, OLD CDAD TR #6 (8A); TR 1, OLD DCAD TR #6 (16)			
Present Zoning Classification SF-7 & Retail	Requested Zoning Classification PD	Acreage/Lot of Requested Zoning Classification 18.5 Acres	

Are any Deed restrictions in place that would prevent this property being used in the manner herein proposed?
☐ Yes ☒ No

If yes, list restrictions _____

Proposed use Mixed use development including single-family and multi-family uses.

Justification for requested zoning change: Please see letter of intent.

I authorize the City of Roanoke to place one change of zoning sign on the subject property to remain in place for the duration of the zoning change process.

[Signature] 7.30.21
Applicant Signature and Date

Attach two (2) copies of the Metes & Bounds description of the property and a survey map (11x17) of the property. One electronic copy in a pdf format. Fees for Zoning Request is \$250.00 plus \$10.00 per acre. Fees are subject to change if amended by Ordinance.

Authorization:

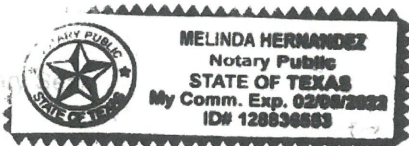
I/We Billie T. Ticknor, for
IHS Bobwhite Properties owner(s) of the above described property do hereby authorize
change application. to act on my/our behalf in making and representing this zoning

State of Texas Tarrant
County of

[Signature]
Signature of owner

7-30-21
Date

Sworn to and subscribed before me on the 30th day of July, 2021, by Billie Ticknor
(year) (name of owner)



[Signature]
Notary Public's Signature

08/23/2019



CITY OF ROANOKE
500 S. OAK STREET
ROANOKE, TEXAS 76262
(817) 491-2411 FAX (817) 491-2242

ZONING APPLICATION

Applicant/Agent Name IHS Real Estate Holdings, LLC		Home Phone (817) 742-1851	Mobile Phone
Address 3110 W. Southlake Blvd., Suite 120		City / State Southlake	Zip 76092
Property Owner(s) Ann French Clark Revocable Trust		Home Phone	Work Phone
Address, City, State, Zip 990 N Walnut Street; 411 Lois Street, Roanoke, Texas 76262			
Present Zoning Classification SF-7 & Retail	Requested Zoning Classification PD	Acreage/Lot of Requested Zoning Classification 18.5 Acres	

Are any Deed restrictions in place that would prevent this property being used in the manner herein proposed?

☐ Yes ☒ No

If yes, list restrictions _____

Proposed use Mixed use development including single-family and multi-family uses.

Justification for requested zoning change: Please see letter of intent.

I authorize the City of Roanoke to place one change of zoning sign on the subject property to remain in place for the duration of the zoning change process.

[Signature] 7/30/2021
Applicant Signature and Date

Attach two (2) copies of the Metes & Bounds description of the property and a survey map (11x17) of the property. One electronic copy in a pdf format. Fees for Zoning Request is \$250.00 plus \$10.00 per acre. Fees are subject to change if amended by Ordinance.

Authorization:

I/We Toni Clark Beckett, Trustee owner(s) of the above described property do hereby authorize IHS Real Estate Holdings, LLC to act on my/our behalf in making and representing this zoning change application.

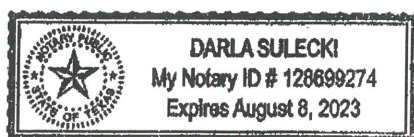
[Signature] 7/30/2021
Signature of owner Date

State of Texas

County of Tarrant

Sworn to and subscribed before me on the 30th day of July 2021, by Revocable Trust of (year) (name of owner).
Ann French Clark,
Toni Clark Beckett,
Trustee

Notary Seal



[Signature]
Notary Public's Signature

08/23/2019

ORDINANCE No. 2021-123

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF ROANOKE, TEXAS, AMENDING THE COMPREHENSIVE ZONING ORDINANCE OF THE CITY OF ROANOKE, TEXAS, FOR AN APPROXIMATELY 18.504-ACRE TRACT OR TRACTS OF LAND LOCATED IN THE M.E.P. & P.R.R. CO. SURVEY, ABSTRACT NO. 923, CITY OF ROANOKE, DENTON COUNTY, TEXAS, AND MORE PARTICULARLY DESCRIBED AND OR DEPICTED IN EXHIBIT "A" WHICH IS ATTACHED HERETO AND INCORPORATED HEREIN FOR ALL PURPOSES, BY CHANGING THE ZONING ON SAID TRACT OR TRACTS FROM SINGLE FAMILY-7 (SF-7) DISTRICT AND RETAIL (R) DISTRICT TO PLANNED DEVELOPMENT DISTRICT 17 (PD-17) WITH MULTI-FAMILY AND SINGLE-FAMILY ATTACHED USES; PRESCRIBING THE PERMISSIBLE USES THEREOF; PROVIDING A PENALTY CLAUSE; PROVIDING A SEVERABILITY CLAUSE; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, after public notice and public hearing as required by law, the Planning and Zoning Commission for the City of Roanoke, Texas, has recommended that the official zoning map of the City of Roanoke, Texas, be amended to reflect that the zoning on the approximately 18.504-acre tract or tracts located in the M.E.P. & P.R.R. Co. Survey, Abstract No. 923, City of Roanoke, Denton County, Texas, and being more particularly described and depicted in **Exhibit A** of this Ordinance, which is attached hereto and incorporated herein for all purposes, be changed from Single Family-7 District (SF-7) and Retail District (R) to Planned Development District 17(PD-17) with multi-family and single-family attached uses; and

WHEREAS, the Planning and Zoning Commission of the City of Roanoke, Texas, and the City Council of the City of Roanoke, Texas, in compliance with the laws of the State of Texas, have given the requisite notices by publication and otherwise, and have held due hearings and afforded a full and fair hearing to all property owners generally and to all persons interested, and the City Council of the City of Roanoke, Texas, is of the opinion and finds that said changes should be granted and that the Comprehensive Zoning Ordinance should be amended.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ROANOKE, TEXAS, THAT:

Section 1. FINDINGS INCORPORATED

The findings set forth above are incorporated into the body of this Ordinance as if fully set forth herein.

Section 2.

The approximately 18.504-acre tract or tracts located in the M.E.P. & P.R.R. Co. Survey, Abstract No. 923, City of Roanoke, Denton County, Texas, and being more particularly described and depicted in **Exhibit A** of this Ordinance, which is attached hereto and incorporated herein for all purposes, be changed from Single Family-7 District (SF-7) and Retail District (R) to Planned Development District 17 (PD-17) with multi-family and single-family attached uses.

Section 3.

The property shall be developed in strict accordance with the allowable land uses for the property being more particularly described and depicted in **Exhibit A** of this Ordinance, which is attached hereto and incorporated herein for all purposes.

Section 4.

The City Secretary is directed to engross and enroll this Ordinance in the Code of Ordinances of the City of Roanoke and to reflect this change of zoning on the official zoning map of the City of Roanoke, Texas.

Section 5. PENALTY CLAUSE

Any person, firm, or corporation violating any of the provisions or terms of this Ordinance shall be guilty of a misdemeanor and upon conviction, shall be fined a sum not to exceed \$2,000.00 for each offense, and each and every violation or day such violation shall continue or exist, shall be deemed a separate offense.

Section 6. SEVERABILITY CLAUSE

It is hereby declared to be the intention of the City Council that the phrases, clauses, sentences, paragraphs and sections of this Ordinance are severable, and if any phrase, clause, sentence, paragraph or section of this Ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs and sections of this Ordinance, since the same would have been enacted by the City Council without the incorporation of this Ordinance of any such unconstitutional phrase, clause, sentence, paragraph or section.

Section 7. EFFECTIVE DATE

This Ordinance shall become effective immediately upon its passage and publication as required by law.

PASSED, APPROVED AND ADOPTED by the City Council of the City of Roanoke, Texas, on this the 14th day of December, 2021.

APPROVED:

Carl E. Gierisch, Jr., Mayor

ATTEST:

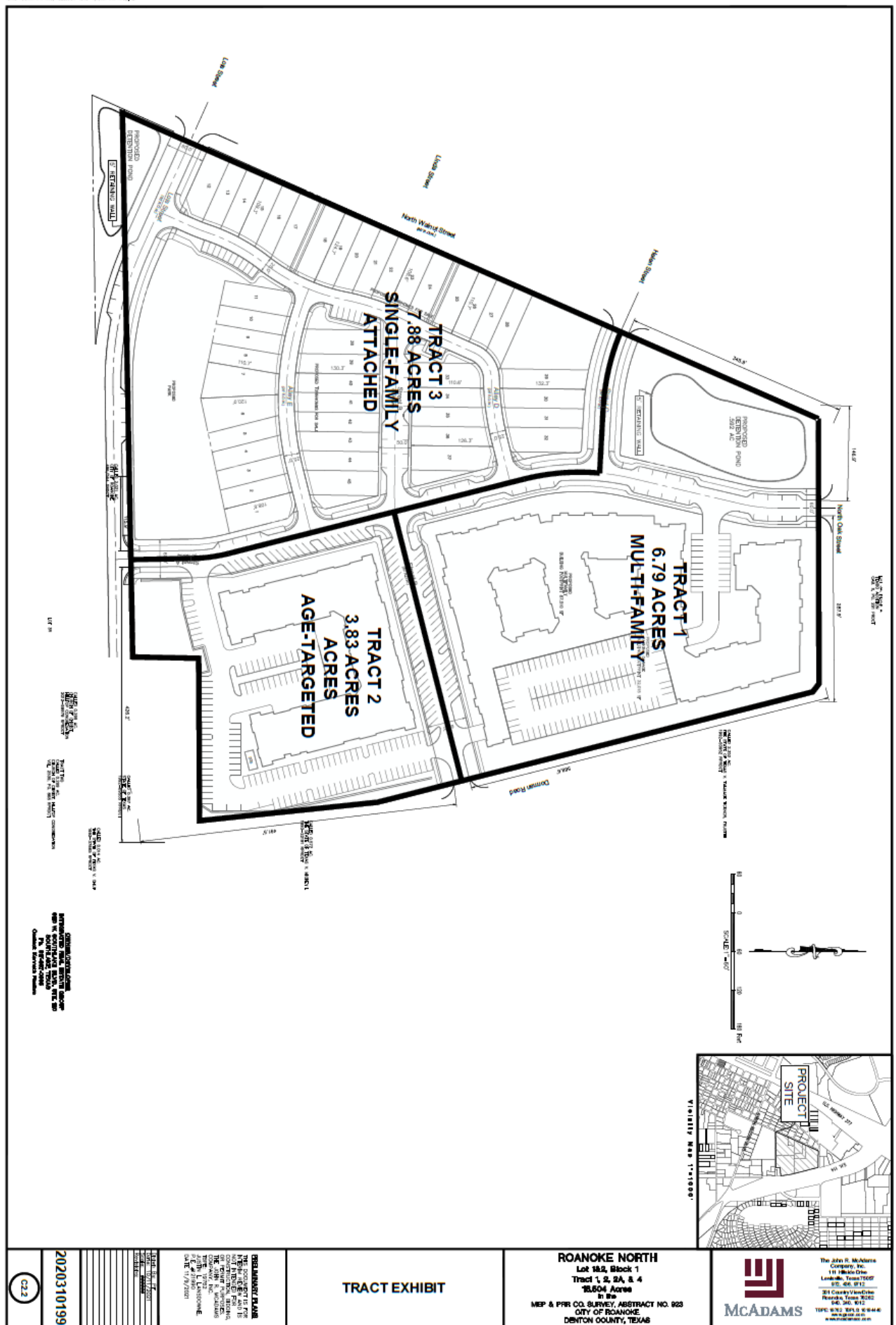
April S. Hill, City Secretary

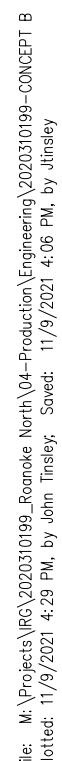
APPROVED AS TO FORM:

Jeff Moore, City Attorney

Exhibit A

Property Description and Depiction
of the
Approximately 18.504-Acre Tract of Land





SITE DATA TABLE			
PHYSICAL ADDRESS	NORTHWEST CORNER OF N WALNUT ST AND LOIS STREET		
GROSS SITE AREA	18.504 ACRES		
EXISTING ZONING	SINGLE FAMILY SF-7 & RETAIL		
PROPOSED ZONING	PLANNED DEVELOPMENT		
CURRENT USE	VACANT AND RESIDENTIAL		
PROPOSED USE	TOWNHOME, MULTI-FAMILY, AND AGE TARGETED		
BUILDING SUMMARY			
NUMBER OF MULTI-FAMILY UNITS	265 UNITS		
NUMBER OF AGE TARGETED UNITS	131 UNITS		
NUMBER OF TOWNHOME FOR SALE UNITS	45 UNITS		
MULTI-FAMILY NUMBER OF STORIES	4 STORIES		
AGE TARGETED NUMBER OF STORIES	4 STORIES		
TOWNHOME NUMBER OF STORIES	2 STORIES		
GROUND FLOOR BUILDING AREA FOR MF	87,510 SQUARE FEET		
GROUND FLOOR BUILDING AREA FOR AT	43,555 SQUARE FEET		
PARKING SUMMARY			
SPACES REQUIRED = (UNITSX1.5)	REQUIRED PARKING	PROVIDED PARKING	
MULTI-FAMILY	398 SPACES	516	TOTAL
		12	ONSITE
		34	ONSTREET
		470	P. GARAGE
AGE TARGETED	197 SPACES	182	TOTAL
		99	ONSITE
		22	CARPOR
		47	ONSTREET
		14	ATT. GARAGE



ROANOKE NORTH
Lot 1&2, Block 1
Tract 1, 2, 2A, & 4
18.504 Acres
 in the
 PRR CO. SURVEY, ABSTRACT 1
 CITY OF ROANOKE
 DENTON COUNTY, TEXAS

PRELIMINARY PLANS
THIS DOCUMENT IS FOR
INTERIM REVIEW AND IS
NOT INTENDED FOR
CONSTRUCTION, BIDDING,
OR PERMIT PURPOSES.
THE JOHN R. MCADAMS
COMPANY, INC.
TBPE: 19762
JUSTIN L. LANSDOWNE,
P.E. #121990
DATE 11/9/2021

Drawn By: JT
Date: 10/26/2021
Scale: 1"=60'
Revisions:

#####

C2.01b

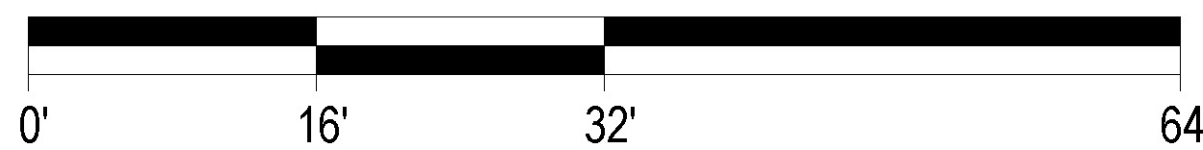
OWNER/DEVELOPER
INTEGRATED REAL ESTATE GROUP
3110 W. SOUTHLAKE BLVD., STE. 120
SOUTHLAKE, TEXAS
Ph. 817-837-0565
Contact: Kenneth Fambro



FRONT ELEVATION

81% MASONRY

SCALE: 3/32" = 1'-0" (24"x36" SHEET)



HUMPHREYS & PARTNERS ARCHITECTS, L.P.
5339 Alpha Rd., Suite 300, Dallas, TX 75240 | 972.701.9636 | www.humphreys.com

INTEGRATED REAL ESTATE GROUP

ELEVATIONS - BLDG I

August 24, 2021

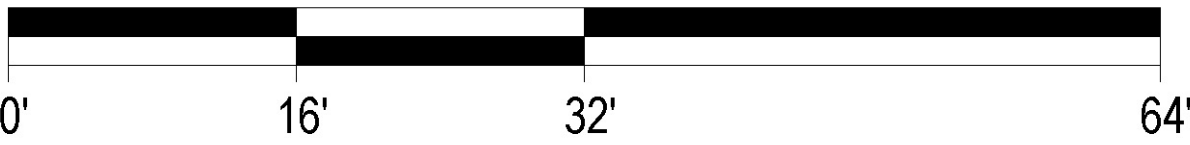
A41X

ROANOKE SITE
ROANOKE, TX
HPA# 21239



FRONT ELEVATION

SCALE: $\frac{3}{32}'' = 1'-0''$ (24"x36" SHEET)



HUMPHREYS & PARTNERS ARCHITECTS, L.P.
5339 Alpha Rd., Suite 300, Dallas, TX 75240 | 972.701.9636 | www.humphreys.com

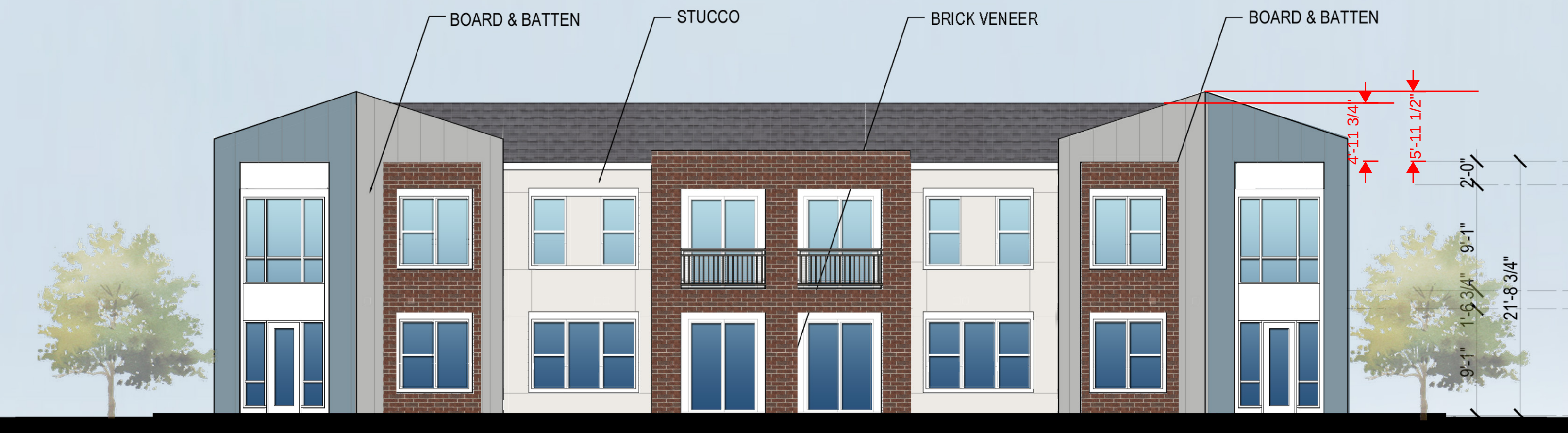
INTEGRATED REAL ESTATE GROUP

ELEVATIONS - BLDG II

August 24, 2021

A42X

ROANOKE SITE
ROANOKE, TX
HPA# 21239



SCALE: 1/8" = 1'-0" (24"x36" SHEET)

0' 8' 16' 32'

HUMPHREYS & PARTNERS ARCHITECTS, L.P.
5339 Alpha Rd., Suite 300, Dallas, TX 75240 | 972.701.9636 | www.humphreys.com

INTEGRATED REAL ESTATE GROUP

ELEVATIONS - TH
August 24, 2021

A43X
ROANOKE SITE
ROANOKE, TX
HPA# 21239

TOWNHOMES
ROANOKE, TEXAS
INTEGRATED REAL ESTATE GROUP

ISSUED FOR
REVIEW ONLY

NOT TO BE USED FOR
REGULATORY APPROVAL,
PERMITTING, OR
CONSTRUCTION

REVISIONS

PROJECT #

21000

DATE

08-23-2021

SHEET NO.

A.490

BUILDING
ELEVATIONS

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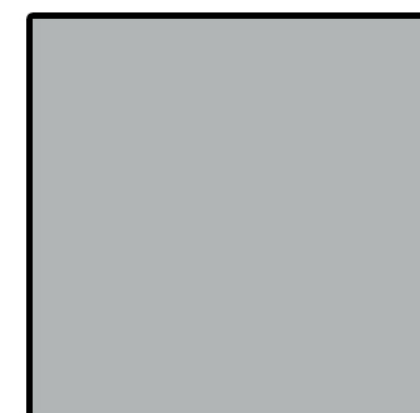
B1
MERIDIAN
BRICK MASONRY



B2
MERIDIAN
BRICK MASONRY



P1
SW 7004
SNOWBOUND



P2
SW 7072
ONLINE



P3
SW 7078
URBANE BRONZE



S1
GOLDEN OAK
STAIN



M1
BLACK
METAL



W1
CLAY
VINYL WINDOW



NO.	DESCRIPTION	DATE

Integrated Real Estate Group
3110 W Southlake Blvd #120,
Southlake, TX 76092



1. ALL TREES ARE TO BE NURSERY GROWN. ALL TREES TO BE BALL AND BURLAP OR CONTAINER GROWN AS SPECIFIED IN SCHEDULE.
2. COMPLETELY REMOVE ALL TREATED OR PLASTIC-COATED BURLAP, CONTAINERS, SHIPPING WIRE, OR NYLON TWINE FROM ROOTBALL PRIOR TO PLANTING.
3. INSTALL TOP OF PLANT BALL EVEN WITH OR 1" ABOVE EXISTING GRADE.
4. SOAK ROOT BALL AND PLANT PIT IMMEDIATELY AFTER INSTALLATION.
5. SET TREE IN VERTICAL POSITION PRIOR TO BACKFILL.
6. ALL STAKING TO BE REMOVED AFTER ONE YEAR.
7. REMOVE EXCESS SOIL FROM SITE AND DISPOSE OF IN A LEGAL MANNER.
8. RESEED UNMULCHED, DISTURBED AREAS.
9. DO NOT COVER ROOT WOUND.

ALL TREES SHALL MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2004)
 FOR EXAMPLE: CALIPER HEIGHT (RANGE) MAX. HEIGHT MIN. ROOT BALL DIA. MIN. ROOT BALL DEPTH

PLAN, SECTION

NTS

1. ALL TREES ARE TO BE NURSERY GROWN ALL TREES TO BE BURLAP (BAB) OR CONTAINER GROWN AND PLANTED IN SCHEDULE
2. COMPLETELY REMOVE ALL TREATED PLASTIC-COATED BURLAP, CONTAINERS, STRAPPING WIRE, OR NYLON TWINE FROM ROOT BALL PRIOR TO PLANTING.
3. INSTALL TOP OF PLANT BALL EVEN WITH OR 1" ABOVE EXISTING GRADE
4. SOAK ROOT BALL AND PLANT PIT IMMEDIATELY AFTER INSTALLATION.
5. SET TREE IN VERTICAL POSITION PRIOR TO STAKING.
6. ALL STAKING TO BE REMOVED AFTER ONE YEAR.
7. REMOVE EXCESS SOIL FROM SITE AND DISPOSE OF IN A LEGAL MANNER.
8. RESEED UNMULCHED, DISTURBED AREAS.
9. DO NOT COVER ROOT CROWN.

PLAN, SECTION

NTS

NOTES:

1. ALL TREES ARE TO BE NURSERY GROWN. ALL TREES TO BE BALL AND BURLAP (BBB) OR CONTAINER GROWN. TREES MUST BE PLANTED IN THE SAME POSITION AS THEY WERE IN THE NURSERY.
2. COMPLETELY REMOVE ALL TREATED PLASTIC-COATED BURLAP, CONTAINERS, STAKING WIRE OR NYLON TIE FROM ROOTBALL PRIOR TO PLANTING.
3. INSTALL TOP OF PLANT BALL EVEN WITH OR 1" ABOVE EXISTING GRADE.
4. SOAK ROOT BALL AND PLANT PIT IMMEDIATELY AFTER INSPECTION.
5. SET TREE IN VERTICAL POSITION PRIOR TO STAKING.
6. ALL STAKING TO BE REMOVED AFTER ONE YEAR.
7. REMOVE EXCESS SOIL FROM SITE AND DISPOSE OF IN A LEGAL MANNER.
8. RESEED UNMULCHED, DISTURBED AREAS.
9. DO NOT COVER ROOT CROWN.

PLAN, SECTION

NTS



1. SCURRY ROOT MASS OF CONTAINERIZED PLANT MATERIAL.
2. INSTALL CONTAINERIZED PLANTS AT FINISHED GRADE.
3. TAMP PLANTING MIX FIRMLY AS PIT IS FILLED AROUND EACH PLANT BALL.
4. OMIT COLLAR AROUND EACH SHRUB WHEN IRRIGATION SYSTEM IS PRESENT.
5. SOAK EACH PLANT BALL AND PIT IMMEDIATELY AFTER INSTALLATION.

PLAN, SECTION

NTS



PLANT SPACING CHART

SPACING "D"	ROW "A"	PLANTS / S.F.
6" O.C.	5 3/16" O.C.	4.61
8" O.C.	6 15/16" O.C.	2.60
10" O.C.	8 2/3" O.C.	1.66
12" O.C.	10 3/8" O.C.	1.15
15" O.C.	13" O.C.	0.73
18" O.C.	15 9/16" O.C.	0.51
24" O.C.	20 13/16" O.C.	0.29

PLAN

NTS

NOTES:

1. LAYOUT PLANTS IN PREPARED BED AS SHOWN.
2. SPACING AS SPECIFIED, PER SCHEDULE STAGGERED ROWS

PLAN, SECTION

NTS

NOTE:
1. MIX IN BONE MEAL AT BOTTOM OF BULB WHEN PLANTED

SECTION

NTS

TREE PROTECTION NOTES:

1. REFER TO THE TREE PRESERVATION PLAN FOR TREE LOCATIONS TO BE PRESERVED.
2. REFER TO LOCAL JURISDICTION'S TREE PRESERVATION AND PROTECTION FOR ADDITIONAL INFORMATION REGARDING TREE PROTECTION MEASURES.
3. REMOVE ALL TREE PROTECTION FENCING UPON COMPLETION OF PROJECT.
4. EXISTING TREES SHOWN TO REMAIN ARE TO BE PROTECTED DURING CONSTRUCTION. ALL SAFETY FENCING (MIN. 4" HEIGHT) SHALL BE INSTALLED AT THE DRIP LINE OF ALL TREES OR TREE GROUPS TO REMAIN.
5. DISPOSAL OF ANY WASTE MATERIAL SUCH AS, BUT NOT LIMITED TO PAINT, PAINT THIN, SOILS, CONCRETE, MORTAR, ETC. WITHIN THE CANOPY AREA OF THE EXISTING TREES SHALL NOT BE ALLOWED.
6. NO ATTACHMENTS OR WIRES OF ANY KIND, OTHER THAN THOSE OF A PROTECTIVE NATURE, SHALL BE ATTACHED TO ANY TREE.
7. NO REMOVAL OR EXCAVATION OF ANY NATURE SHALL OCCUR WITHIN THE DRIP LINE OF A TREE TO BE PRESERVED, UNLESS THERE IS A SPECIFIED WELD OR RETAINING WALL SHOWN ON THE GRADING PLAN. ALL MATERIAL SHALL BE STORED WITHIN THE DRIP LINE AREA OF A TREE TO BE PRESERVED.

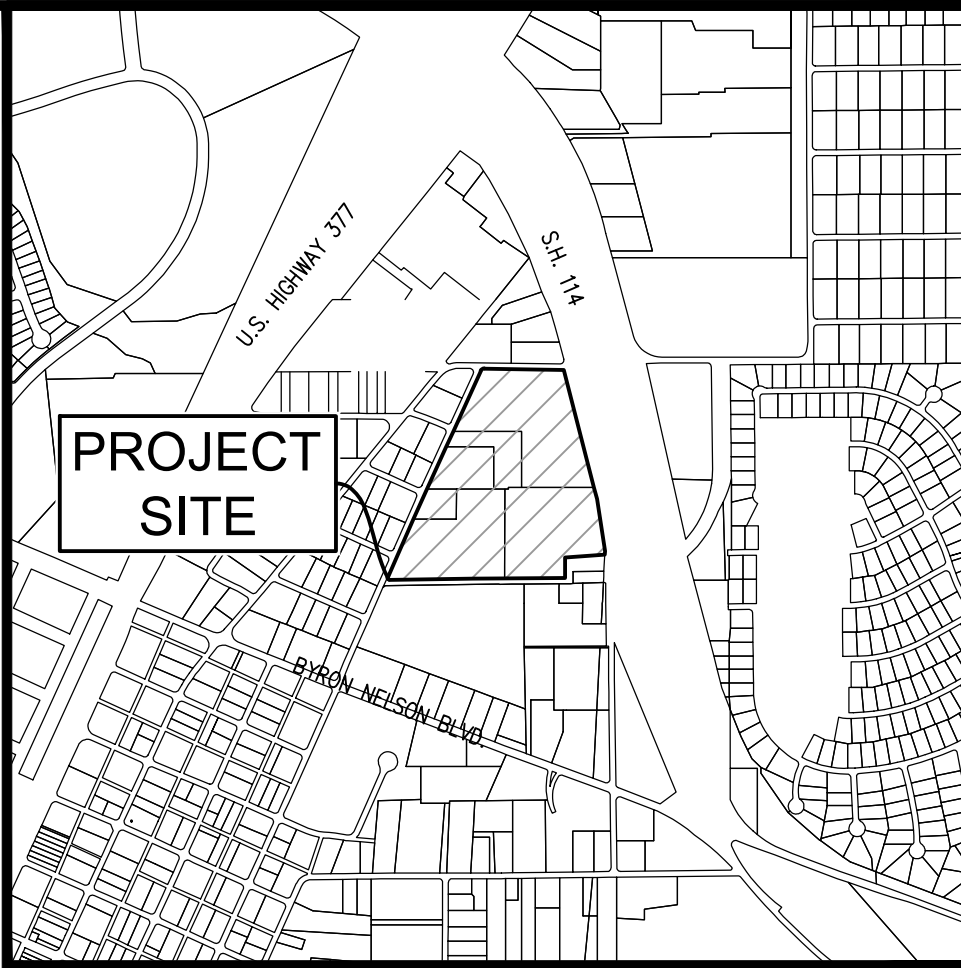
SECTION

NTS

LOT 3A, BLOCK A
TEMPO ADDITION
CAB. X, PG. 291 PRDCT

CALLED 2.352 AC.
THE STATE OF TEXAS V. TALMAGE TICKNOR, TRUSTEE
1992-50952 RPRDCT

60 0 60 120 180 Feet
SCALE: 1"=60'



Vicinity Map 1"=1000'

The John R. McAdams
Company, Inc.
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Lewisville, Texas 75057
972.435.9712
201 Country View Drive
Rockwall, Texas 75087
940.240.1812
TBPE: 19762 TBPLS: 1019440
www.mcadamsco.com



ROANOKE NORTH

Lot 1&2, Block 1
Tract 1, 2, 2A, & 4
18,504 Acres
in its

MEP & PRR CO. SURVEY, ABSTRACT NO. 923
CITY OF ROANOKE
DENTON COUNTY, TEXAS

TRACT EXHIBIT

PRELIMINARY PLANS
THIS DOCUMENT IS FOR
INTERIM REVIEW AND IS
NOT INTENDED FOR
CONSTRUCTION, BIDDING,
OR PERMIT PURPOSES.
THE JOHN R. MCADAMS
COMPANY, INC.
TBPE: 19762
JUSTIN L. LANSOWNE,
P.E. #121990
DATE 11/9/2021

Drawn By: PF
Date: 10/11/2021
Scale: #####
Revisions:

2020310199

C.2.2

ROANOKE NORTH

**TRAFFIC IMPACT ANALYSIS FOR
ROANOKE NORTH RESIDENTIAL DEVELOPMENT
ROANOKE, TEXAS
SUBMITTAL #2**

Prepared for:
Integrated Real Estate Group
3110 W. Southlake Blvd, Ste. 120
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Prepared by:



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Kelly D. P.

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PTOE
Date: 2021-10-06 16:
36:55

October 2021

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INTRODUCTION

This traffic study was conducted to analyze the potential traffic impacts of the proposed Roanoke North Residential Development located on the northwest corner of the intersection of SH 114 and Lois Street in Roanoke, Texas. A vicinity map of the study area is shown in **Figure 1** and a site plan for the multifamily development is shown in **Figure 2** and in the Appendix. The following elements were included in this study:

Data Collection

- Collected weekday AM and PM peak period turning movement volumes at the following 13 existing study intersections:
 - 1) SH 114 Eastbound Frontage Road (EBFR) and US 377
 - 2) SH 114 Westbound Frontage Road (WBFR) and US 377
 - 3) Oak Street and Dorman Street
 - 4) Oak Street and Commercial Driveway
 - 5) Oak Street and Walnut Street
 - 6) Walnut Street and Helen Street
 - 7) Walnut Street and Lois Street (North)
 - 8) Walnut Street and Lois Street (South)
 - 9) Lois Street and Joan Street
 - 10) Lois Street and Dorman Street
 - 11) US 377 and James Street
 - 12) Walnut Street and Byron Nelson Boulevard
 - 13) Dorman Street and Byron Nelson Boulevard
- Obtained historical traffic volumes near the proposed development for comparison to the existing traffic volumes collected.
- Obtained the proposed site plan, information related to the planned roadway improvements, and other relevant information.

Traffic Analysis

- Assessed the general accessibility of the site.
- Estimated the number of trips that will be generated by the proposed development
- Estimated the directional distribution of traffic approaching / departing the proposed development.
- Assigned the estimated traffic to the study area roadways and intersections.
- Performed capacity analyses for the critical intersections within the study area.
- Performed Roadway link capacity analysis for roadway segments adjacent to the proposed development.
- Performed access management analysis for the proposed site driveways.

Recommendations

- Determined if any roadway improvements are needed to accommodate projected traffic generated by the proposed development.

Documentation

- Prepared a report documenting the study procedures and results.

Figure 1: Vicinity Map of the Study Area



SITE ACCESSIBILITY

Site accessibility describes the ease with which vehicles can get to and from a development. A site's accessibility is affected by the geographical location of the development with respect to other activity areas, the roadway system and physical restraints such as rivers or lakes.

The existing lane configurations for the adjacent roadways are provided in **Figure 3**. A description of the study area roadways includes:

SH 114 Frontage Roads – SH 114 eastbound frontage road and SH 114 westbound frontage road are both east-west, two-lane frontage road east of the proposed facility with a posted speed limit of 60 mph.

US 377 – US 377 is to the west of the proposed development with a posted speed limit of 50 mph. The section between SH 114 eastbound frontage road and Byron Nelson Boulevard is currently under construction and is planned to be a five-lane undivided roadway with a two-way-left-turn lane in the middle with the completion of construction. US 377 is identified as a Type AA Major Arterial in the City of Roanoke Thoroughfare Plan.

Byron Nelson Boulevard – Byron Nelson Boulevard is to the south of the proposed development and is a three-lane undivided roadway with a two-way-left-turn lane in the middle. The posted speed limit on Byron Nelson Boulevard is 40 mph. Byron Nelson Boulevard is identified as a Type AA Major Arterial in the City of Roanoke Thoroughfare Plan.

Walnut Street – Walnut Street is adjacent to the proposed development to the west and is a two-lane undivided roadway. The posted speed limit on Walnut Street is 25 mph. It is identified as a Type C Major Collector in the City of Roanoke Thoroughfare Plan.

Lois Street – Lois Street is adjacent to the proposed development to the south and is a two-lane undivided roadway. The posted speed limit on Walnut Street is 25 mph. It is identified as a Type C Major Collector in the City of Roanoke Thoroughfare Plan.

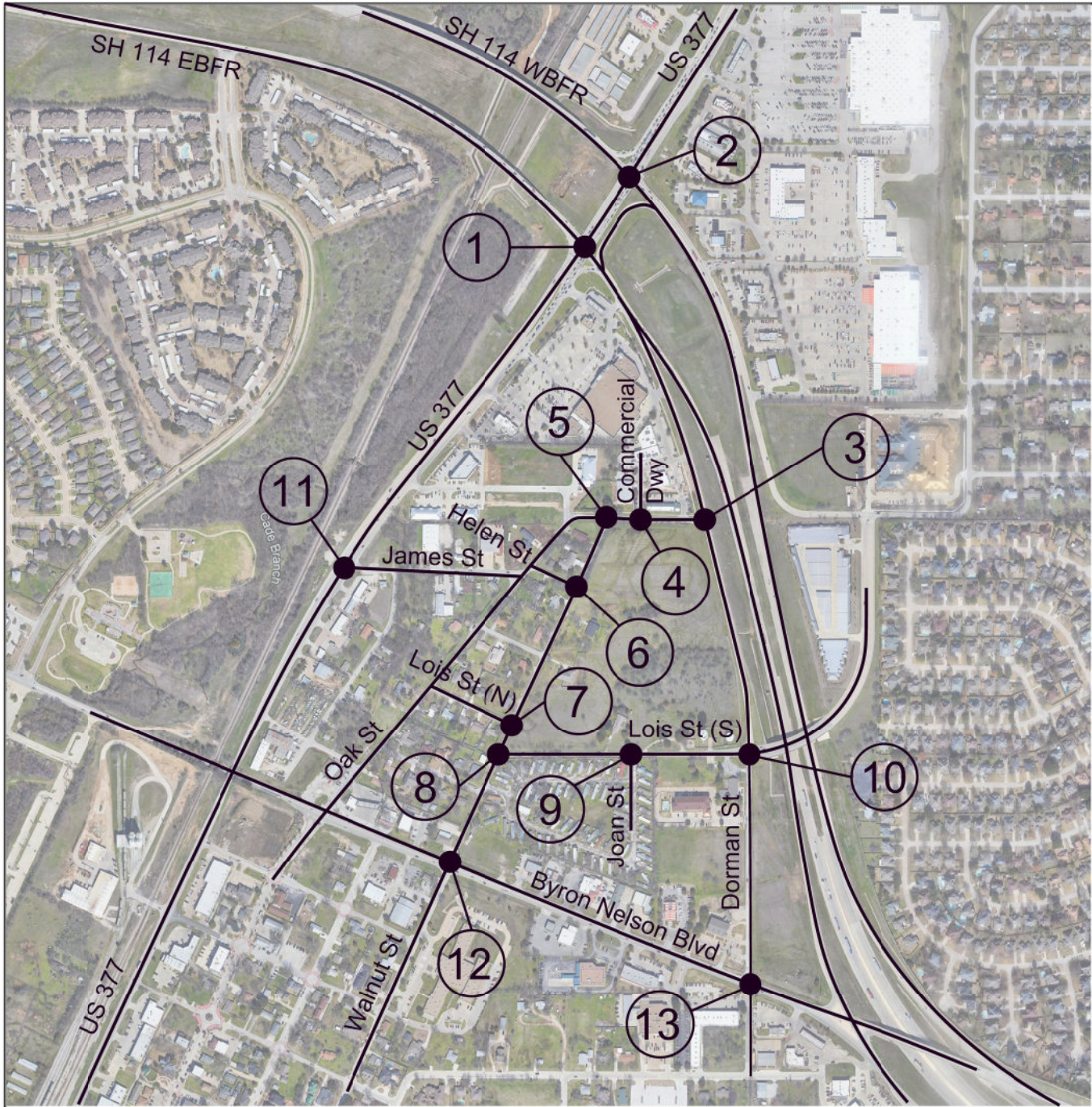
Oak Street – Oak Street is adjacent to the proposed development to the north and is a two-lane undivided roadway. The posted speed limit on Walnut Street is 25 mph. It is identified as a Type C Major Collector in the City of Roanoke Thoroughfare Plan.

James Street – James Street is to the west of the proposed development and is a two-lane undivided roadway. The posted speed limit on Walnut Street is 25 mph. It is identified as a Type C Major Collector in the City of Roanoke Thoroughfare Plan.

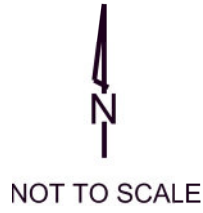
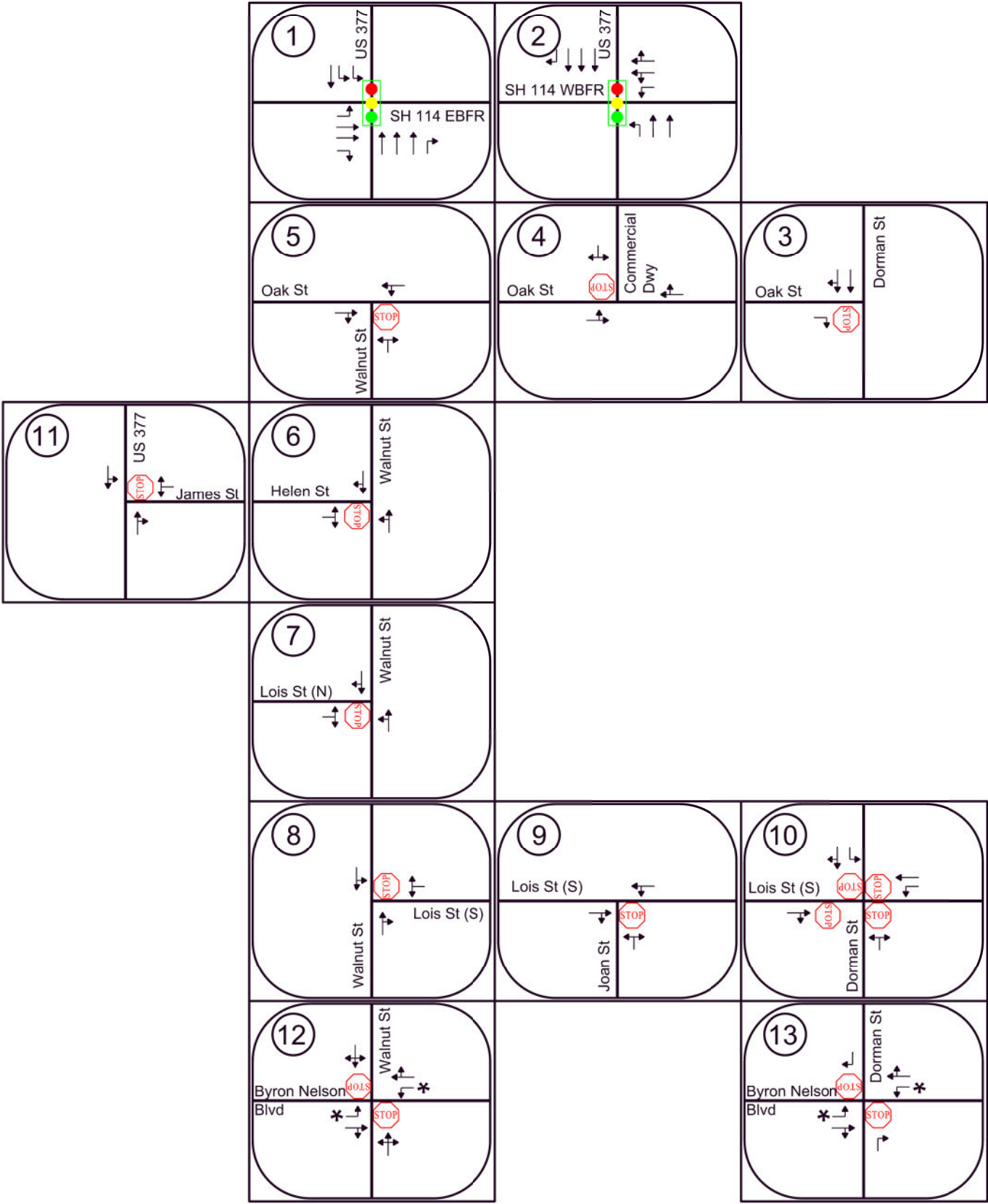
Access to the proposed multifamily development is proposed to be provided by:

- One full-access driveway (Street A) on the south side of Oak Street that will be aligned with the existing commercial driveway and will be located approximately 290 feet west of Dorman Street.
- One right-in-right-out driveway (Street B) on the west side of Dorman Street that will be located approximately 570 feet south of Oak Street.
- One full-access driveway (Street C) on the east side of Walnut Street that will be aligned with the existing Helen Street and will be located approximately 345 feet south of Oak Street.
- One full-access driveway (Alley E) on the north side of Lois Street that will be aligned with the existing Joan Street and will be located approximately 600 feet west of Dorman Street.
- One full-access driveway (Street A) on the north side of Lois Street that will be located approximately 115 feet east of the existing Joan Street and proposed Alley E.

The proposed site access driveway location and lane configurations are shown in **Figure 4**.

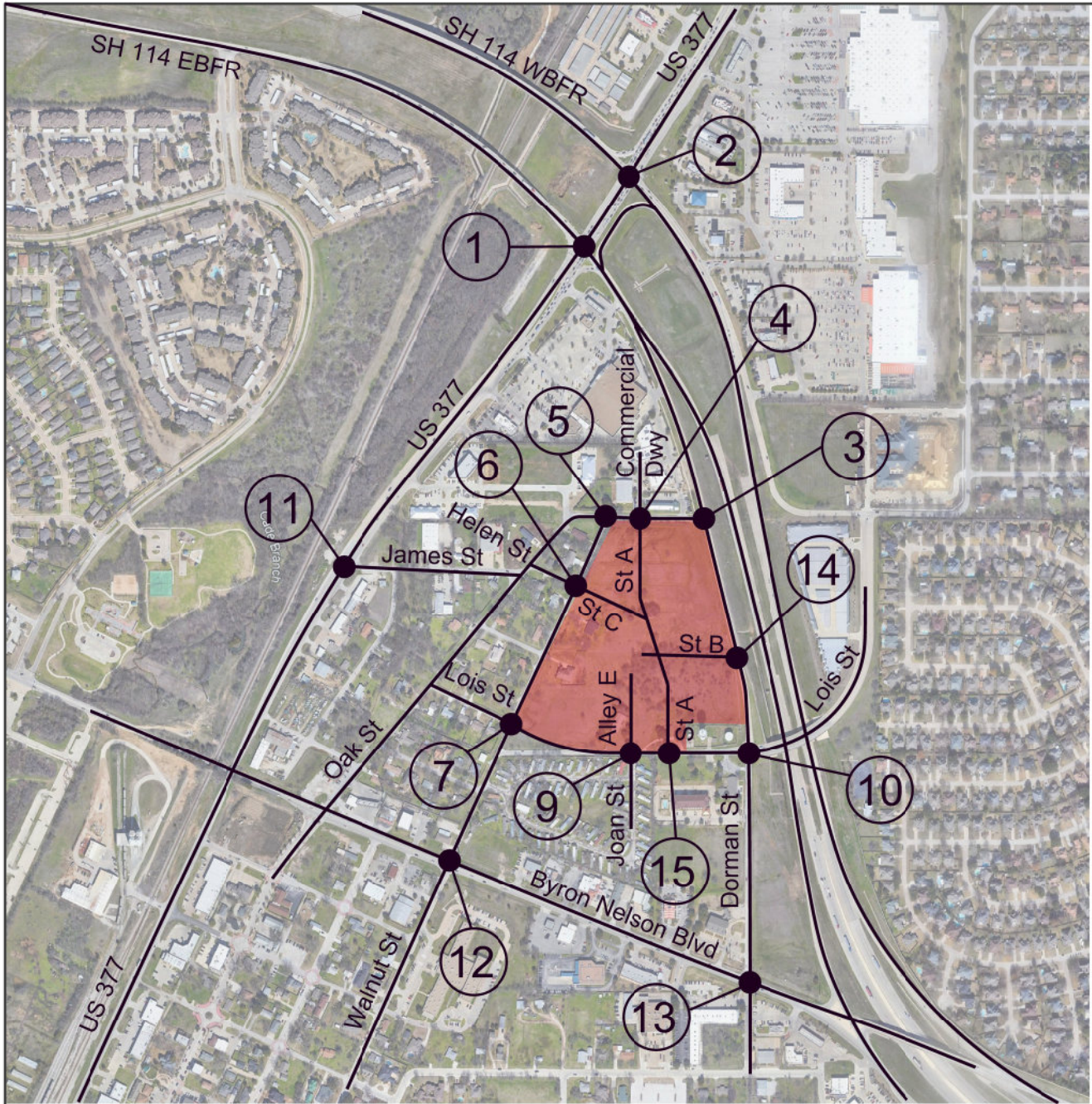


- LEGEND**
- STUDY INTERSECTION
 - SIGNALIZED INTERSECTION
 - STOP-CONTROLLED INTERSECTION
 - * Two-Way Left Turn Lane (TWLTL).



Existing Intersection Lane Configurations

Figure 3



LEGEND

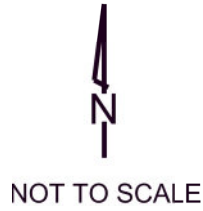
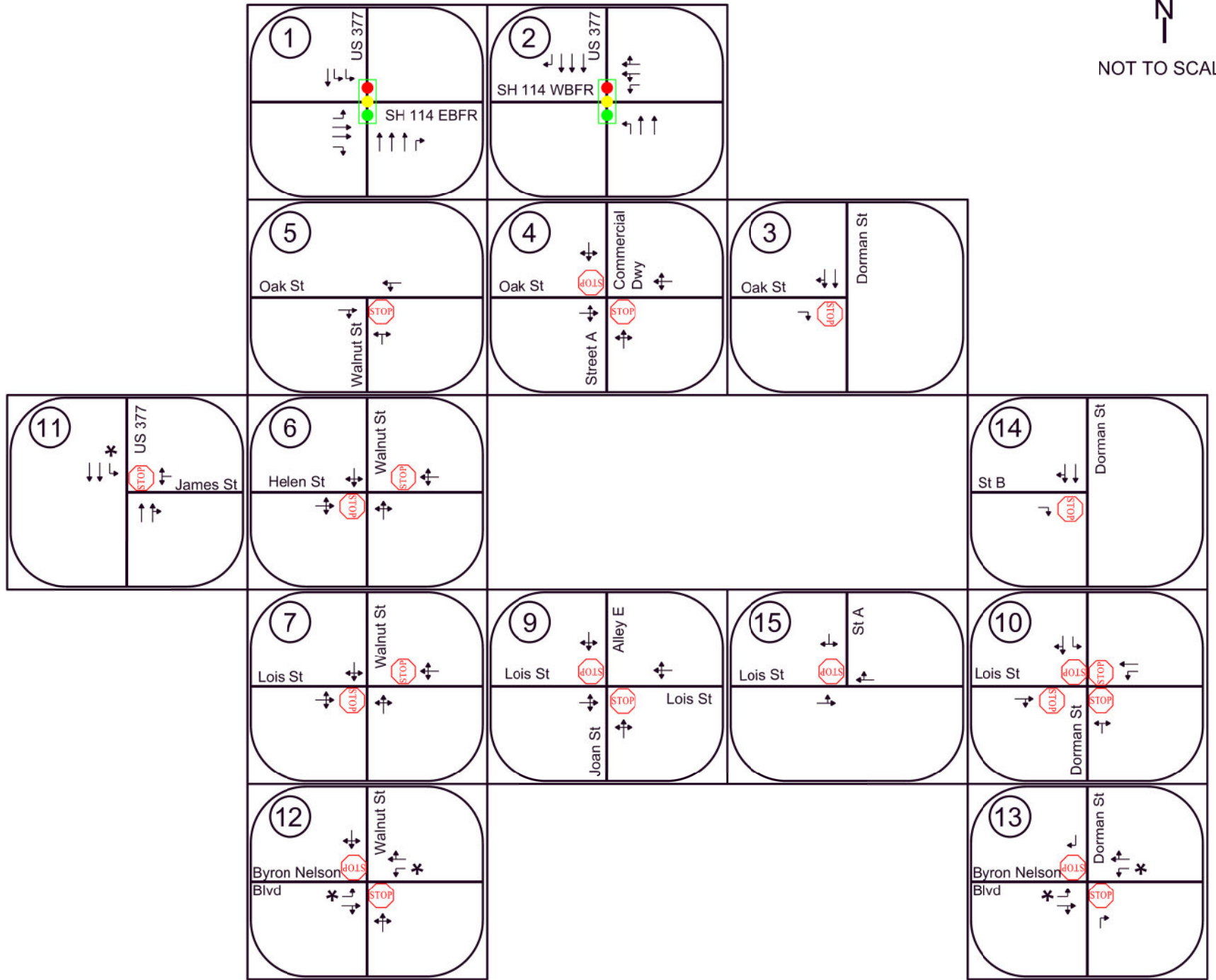
● STUDY INTERSECTION

● SIGNALIZED INTERSECTION

● STOP-CONTROLLED INTERSECTION

■ PROPOSED DEVELOPMENT

* Two-Way Left Turn Lane (TWLTL).



Proposed Intersection Lane Configurations

Figure 4

PROPOSED DEVELOPMENT

The proposed Roanoke North Residential Development is planned to consist of a mixture of residential uses including:

- 289 multifamily dwelling units
- 129 senior living dwelling units
- Nine (9) townhome dwelling units
- 41 single-family dwelling units.

Based on discussions with the developer's representative, the Build-Out Year of the proposed development is planned to occur in 2024. The property is currently undeveloped.

The number of trips generated by the proposed development is a function of the type and quantity of land uses within the development. The number of vehicle trips generated by the proposed development was estimated based on the trip generation rates and equations provided in the publication entitled *Trip Generation Manual, 10th Edition*, by the Institute of Transportation Engineers (ITE). Estimates of the number of trips generated by the site were made for the AM and PM peak hours, as well as on a daily basis. The trip generation characteristics for the proposed Roanoke North Residential Development at Build-Out are shown in **Table 1**.

Table 1: Trip Generation Characteristics for Proposed Roanoke North residential development

Land Use		Rates ¹								
Description	ITE Code	Average Weekday			AM Peak Hour			PM Peak Hour		
Multifamily Housing (Mid-Rise)	221	T = 5.45(X) – 1.75			Ln(T) = 0.98*Ln(X) – 0.98			Ln(T) = 0.96Ln*(X) – 0.63		
Senior Adult Housing - Attached	252	T = 4.02(X) - 25.37			T = 0.2(X) - 0.18			T = 0.26(X)		
Townhomes	220	T = 7.56(X) - 40.86			Ln(T) = 0.95*Ln(X) - 0.51			Ln(T) = 0.89*Ln(X) - 0.02		
Single-Family Detached Housing	210	Ln(T) = 0.92*Ln(X) + 2.71			T = 0.71(X) + 4.80			Ln(T) = 0.96*Ln(X) + 0.20		
Land Use		Directional Split ²								
Description	ITE Code	Average Weekday			AM Peak Hour			PM Peak Hour		
Multifamily Housing (Mid-Rise)	221	50 / 50			26 / 74			61 / 39		
Senior Adult Housing - Attached	252	50 / 50			35 / 65			55 / 45		
Townhomes	220	50 / 50			23 / 77			63 / 37		
Single-Family Detached Housing	210	50 / 50			25 / 75			63 / 37		
Land Use		Number of Trips								
Land Use	Variable ³	Average Weekday			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
Multifamily Housing (Mid-Rise)	289	1,574	787	787	97	25	72	123	75	48
Senior Adult Housing - Attached	129	494	247	247	26	9	17	34	19	15
Townhomes	9	28	14	14	5	1	4	7	4	3
Single-Family Detached Housing	41	458	229	229	34	9	25	43	27	16
TOTAL		2,554	1,277	1,277	162	44	118	207	125	82

¹T = Trips Ends; X = Number of Dwelling Units

²XX / YY = % entering vehicles / % exiting vehicles

³Number of Dwelling Units

TRAFFIC VOLUMES

Existing Traffic Volumes

Peak period turning movement volumes were collected at the existing study area intersections from 7:00-8:00 AM and 4:00-6:00 PM on Tuesday, August 31, 2021. **Figure 5** shows the existing traffic volumes collected for this traffic study. The raw traffic count data is provided in the Appendix.

To account for the COVID-19 pandemic impact on the traffic patterns and to present a more accurate representation of “typical” conditions, available historical traffic volumes (2019) were obtained near the proposed development from TxDOT’s online Traffic Count Database System (TCDS). These 2019 TCDS volumes were summarized, grown to existing (2021) conditions and compared to the existing traffic volume data collected (8/31/21). Based on the comparisons, the following correction factors were applied to the AM peak and PM peak hour volumes collected at the 13 study intersections:

- AM Peak Hour = 1.22
- PM Peak Hour = 1.10

The detailed methodology used in determining these adjustment factors is provided in the Appendix. **Figure 6** shows the Revised Existing (2021) peak hour traffic volumes.

Background Traffic Volumes

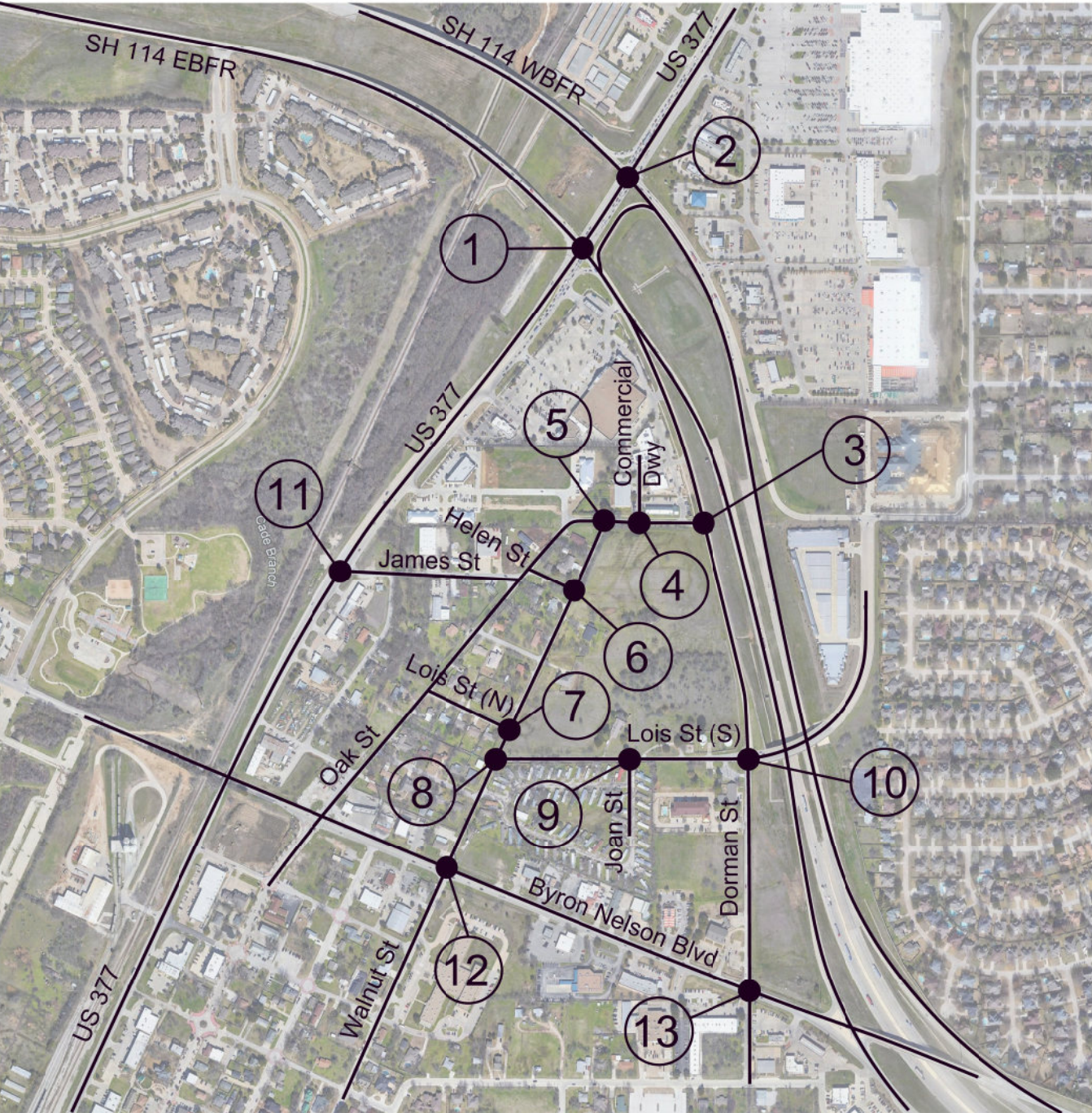
Historical 24-hour traffic volumes in the vicinity of the proposed multifamily development were obtained from TxDOT traffic count maps and are presented in **Table 2**. These volumes were used in estimating the annual growth percentage necessary to grow the existing background traffic volumes to future analysis years.

Table 2: Historical Traffic Count Database System Traffic Counts

YEAR	US 377 (S of SH 114)	Walnut St (Between Lois St and Byron Nelson Blvd)	Dorman St (Between Lois St and Oak St)
2009	13,700	940	--
2010	15,000	--	--
2011	16,800	--	--
2012	17,400	--	--
2013	16,311	--	--
2014	16,763	827	1,207
2015	15,820	--	--
2016	14,763	--	--
2017	17,431	--	898
2018	16,881	--	811
2019	16,963	1,077	1,062
Average Annual Growth Rate ¹	0.2% / 2%	5% / 1%	-3% / --

¹ Growth rate for 5-year period (2014 to 2019) / 10-year period (2009 to 2019)

As shown in Table 2, traffic volumes near the proposed development have fluctuated in the previous 5- and 10-year period. For this analysis, an annual growth rate of five percent (5%) was used for determining traffic conditions under the Build-Out Year (2024). **Figure 7** provides the resulting Build-Out Year (2024) Background peak hour traffic volumes.



LEGEND

● STUDY INTERSECTION

AM (PM) PEAK HOUR VOLUMES

* AM and PM Traffic volumes collected on Tuesday, August 31, 2021.

Initial Existing (2021) Peak Hour Traffic Volumes

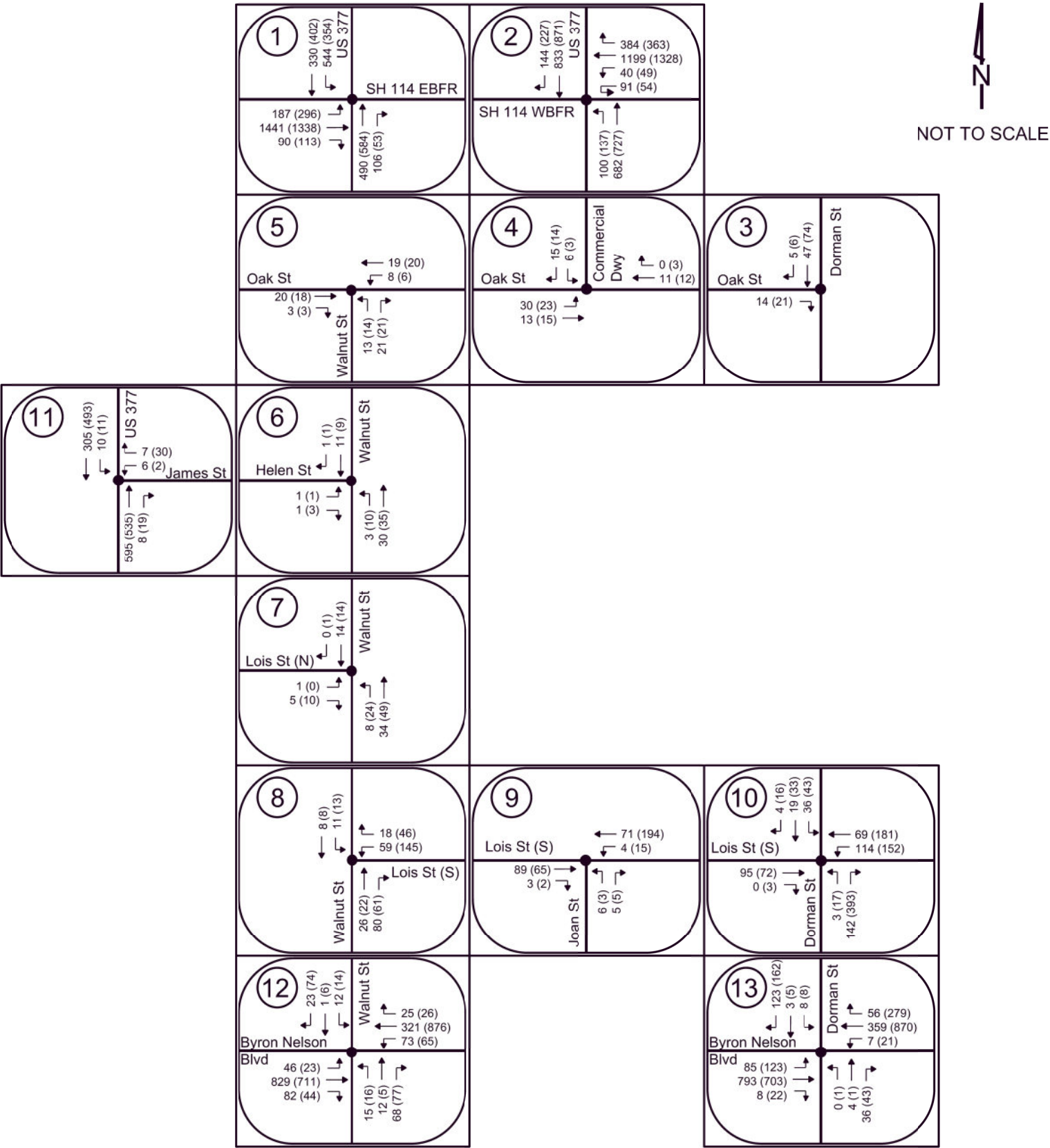
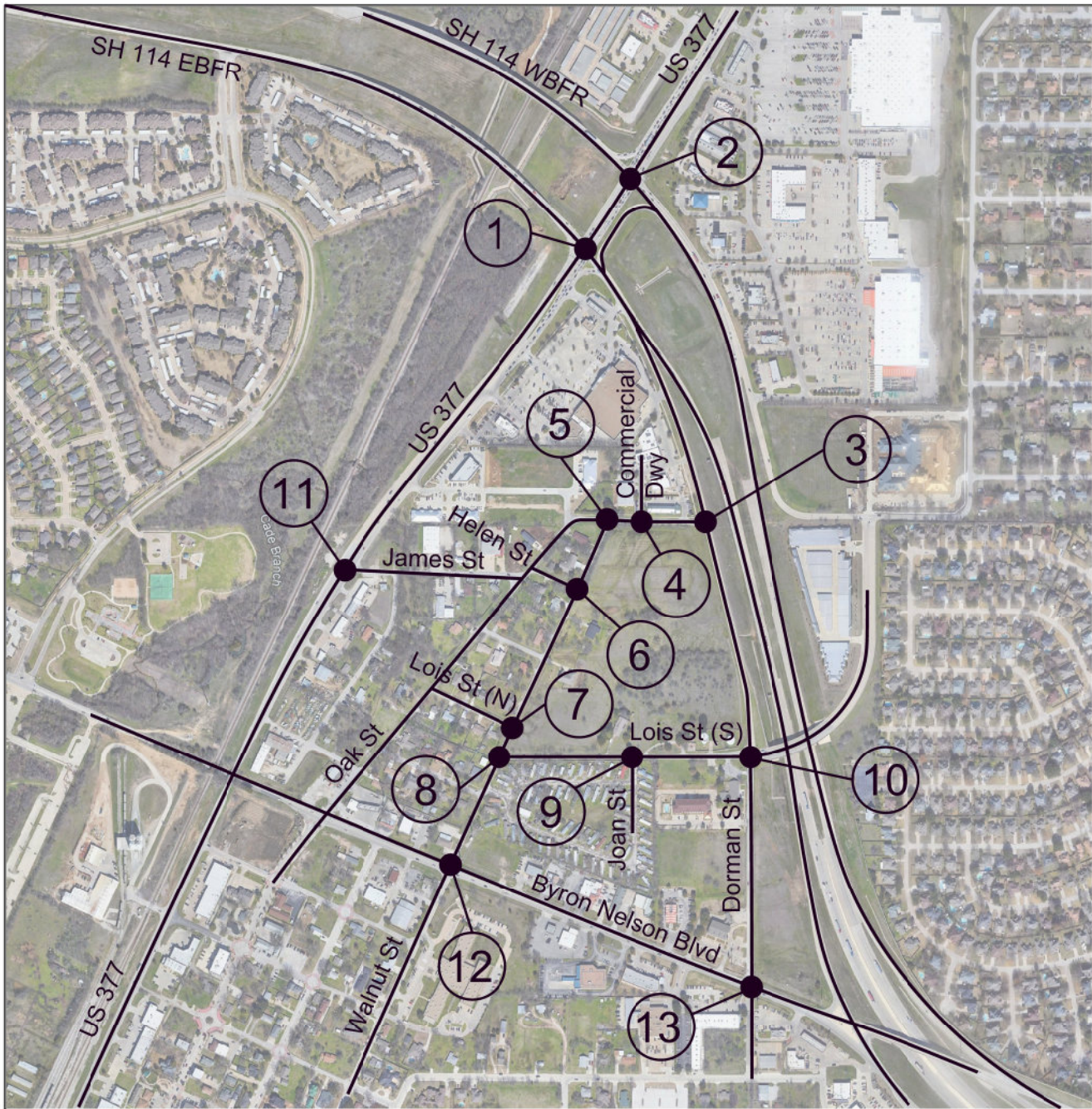


Figure 5



LEGEND

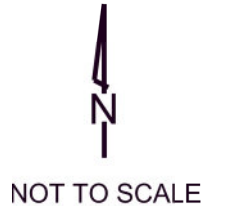
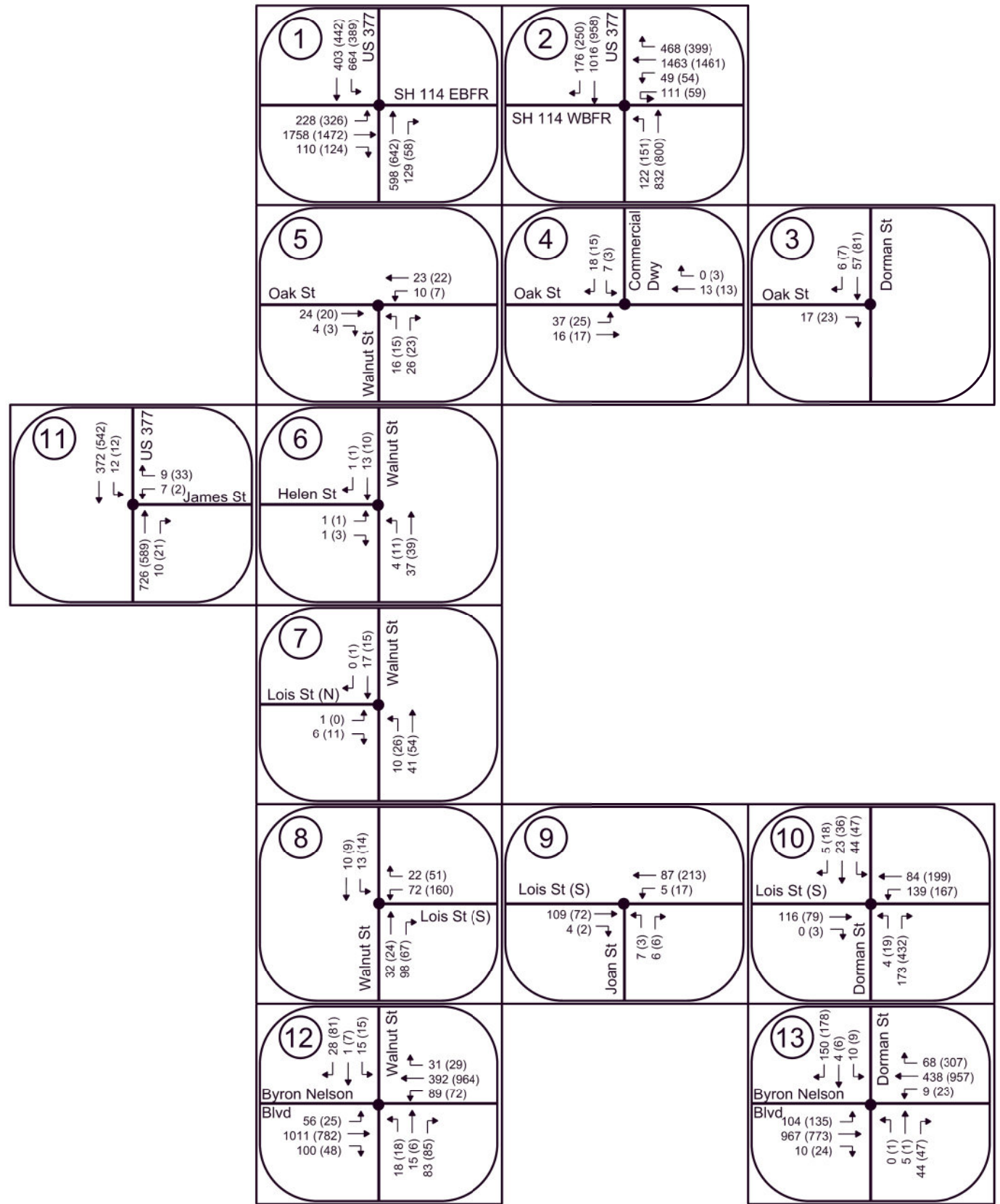
● STUDY INTERSECTION

AM (PM) PEAK HOUR VOLUMES

* The following adjustment factors were applied to the initial existing traffic volumes in Figure 5 in an attempt to reflect "typical" operations:

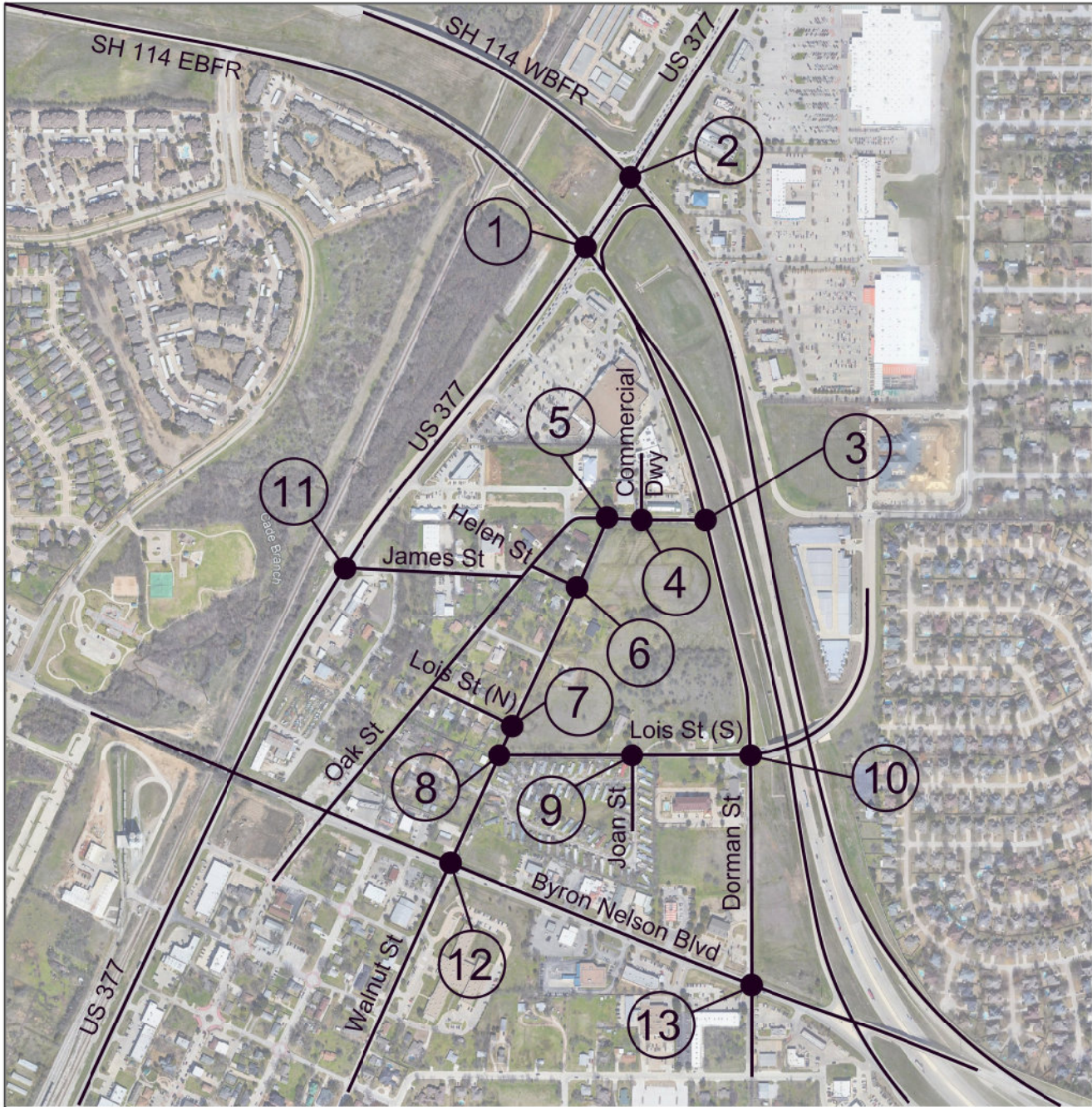
AM Peak Hour = 1.22

PM Peak Hour = 1.10



Revised Existing (2021) Peak Hour Traffic Volumes

Figure 6



LEGEND

● STUDY INTERSECTION

AM (PM) PEAK HOUR VOLUMES

Build Out Year (2024) Background Peak Hour Traffic Volumes

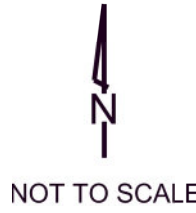
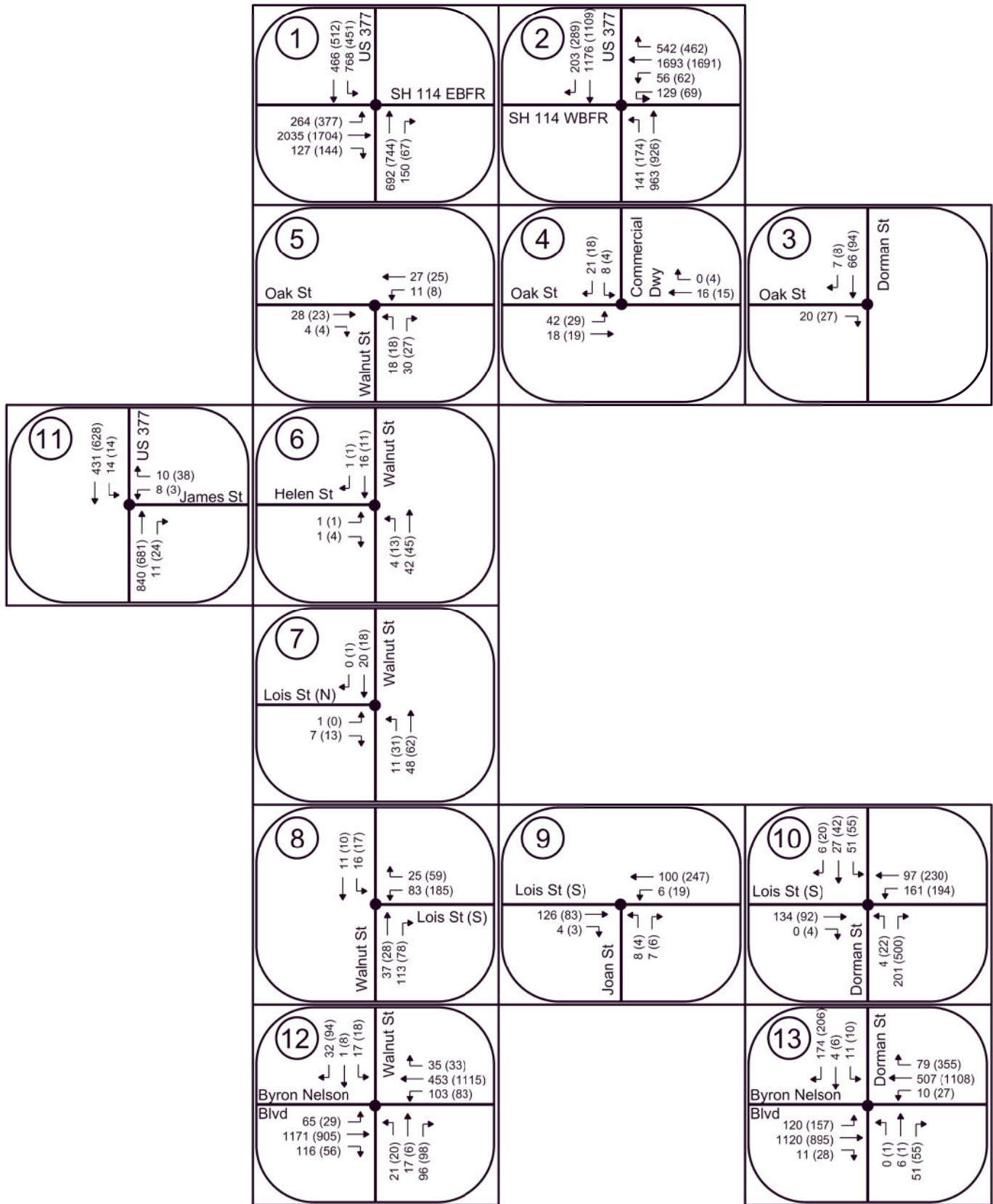


Figure 7

TRIP DISTRIBUTION AND ASSIGNMENT

Trip Distribution

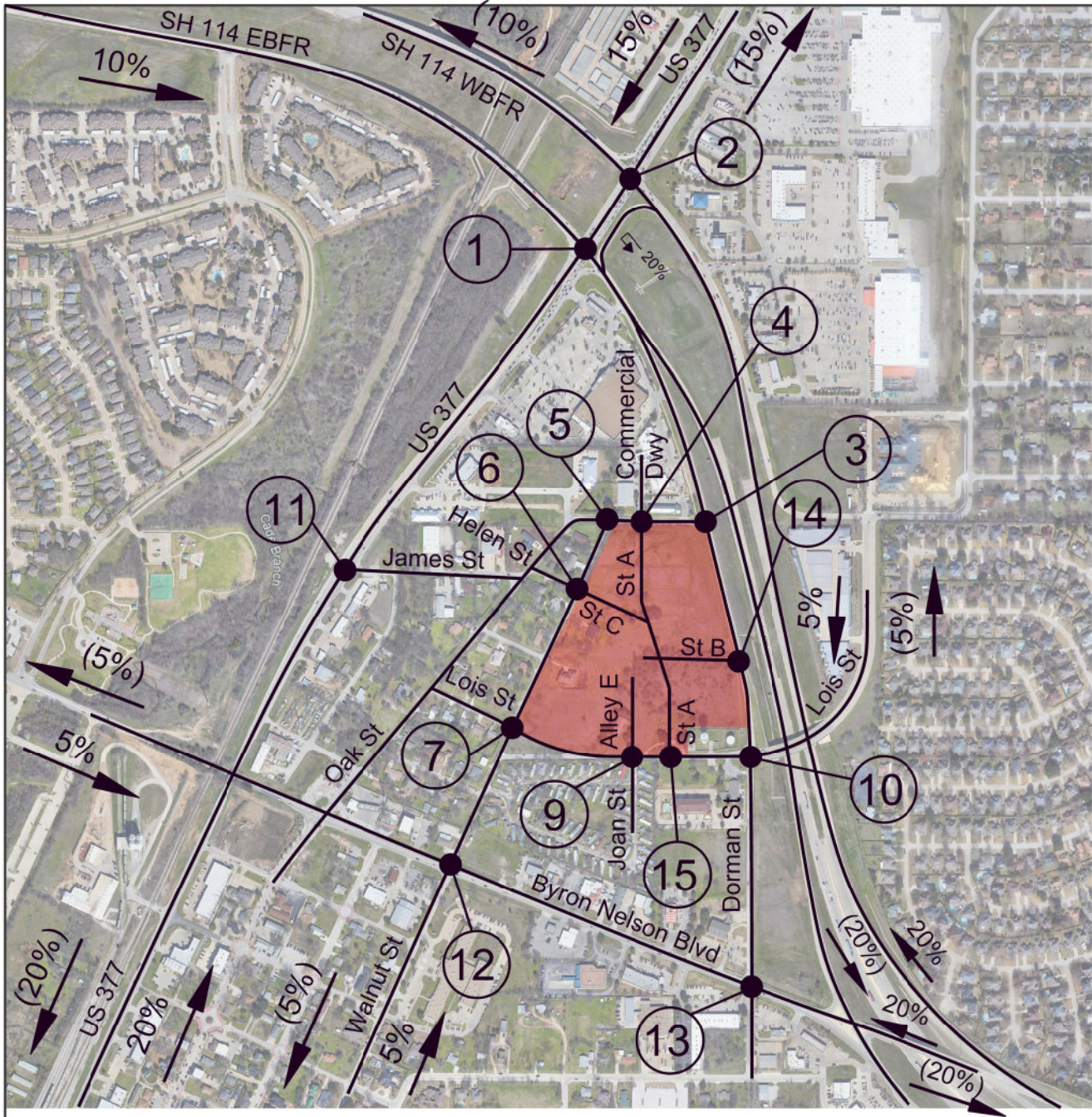
The existing traffic volumes and roadways in the area, along with the proposed site layout, were used to determine the directions from which traffic would approach and depart the proposed Roanoke North Residential Development. The assumed directional distribution is provided in **Figure 8**.

Site Traffic Volumes

Traffic volumes expected to be generated by the proposed Roanoke North Residential Development (Table 1) were assigned to the area roadways and site access points based on the directional distribution identified in Figure 8. The estimated site generated traffic volumes for the weekday AM and PM peak hours are shown in **Figure 9**.

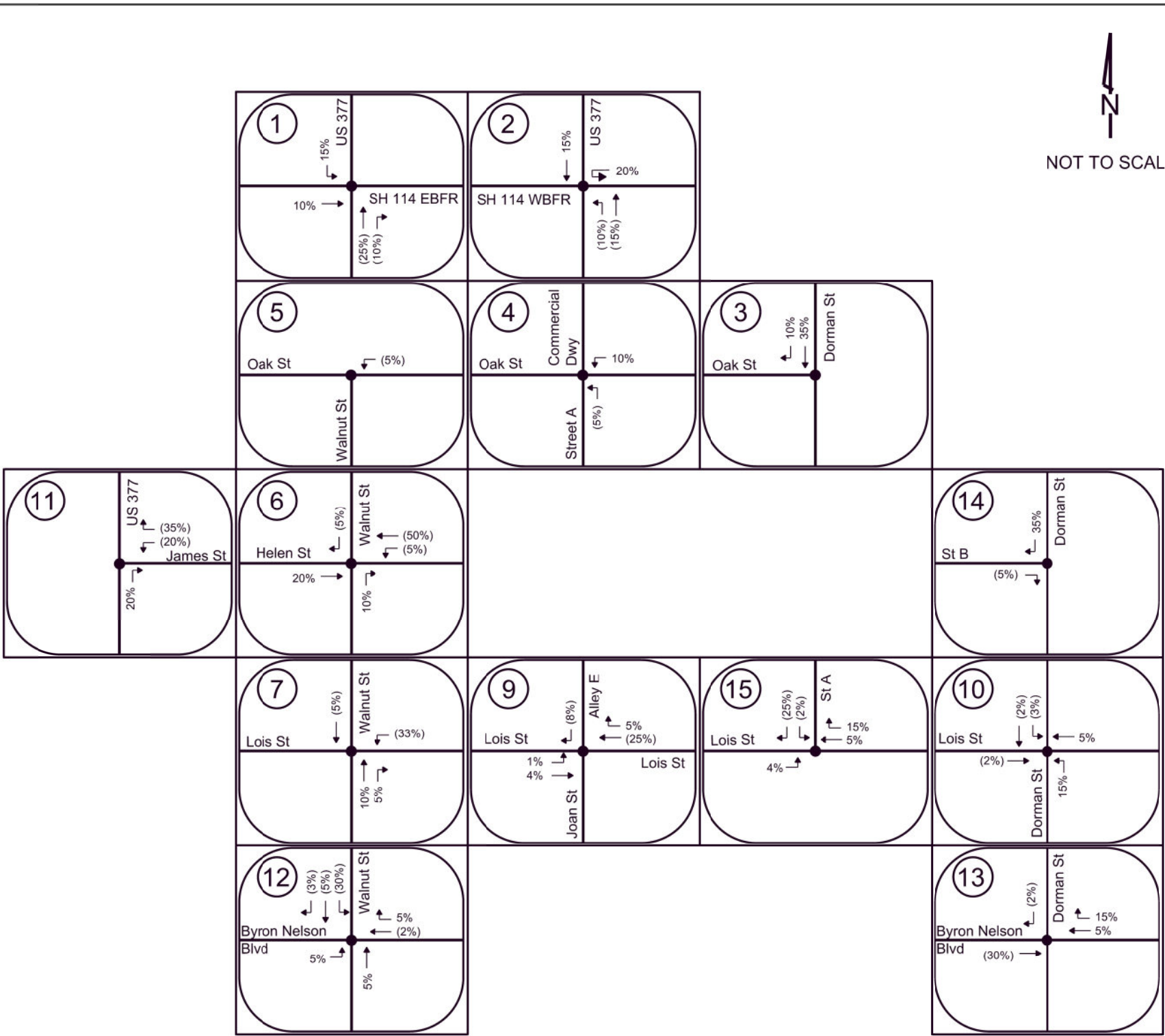
Total Traffic Conditions

Total (background + site) peak hour traffic conditions at Build-Out Year (2024) of the proposed Roanoke North Residential Development were obtained by adding the Build-Out Year (2024) Background traffic volumes (Figure 7) to the site generated traffic volumes (Figure 9) and are shown in **Figure 10**.



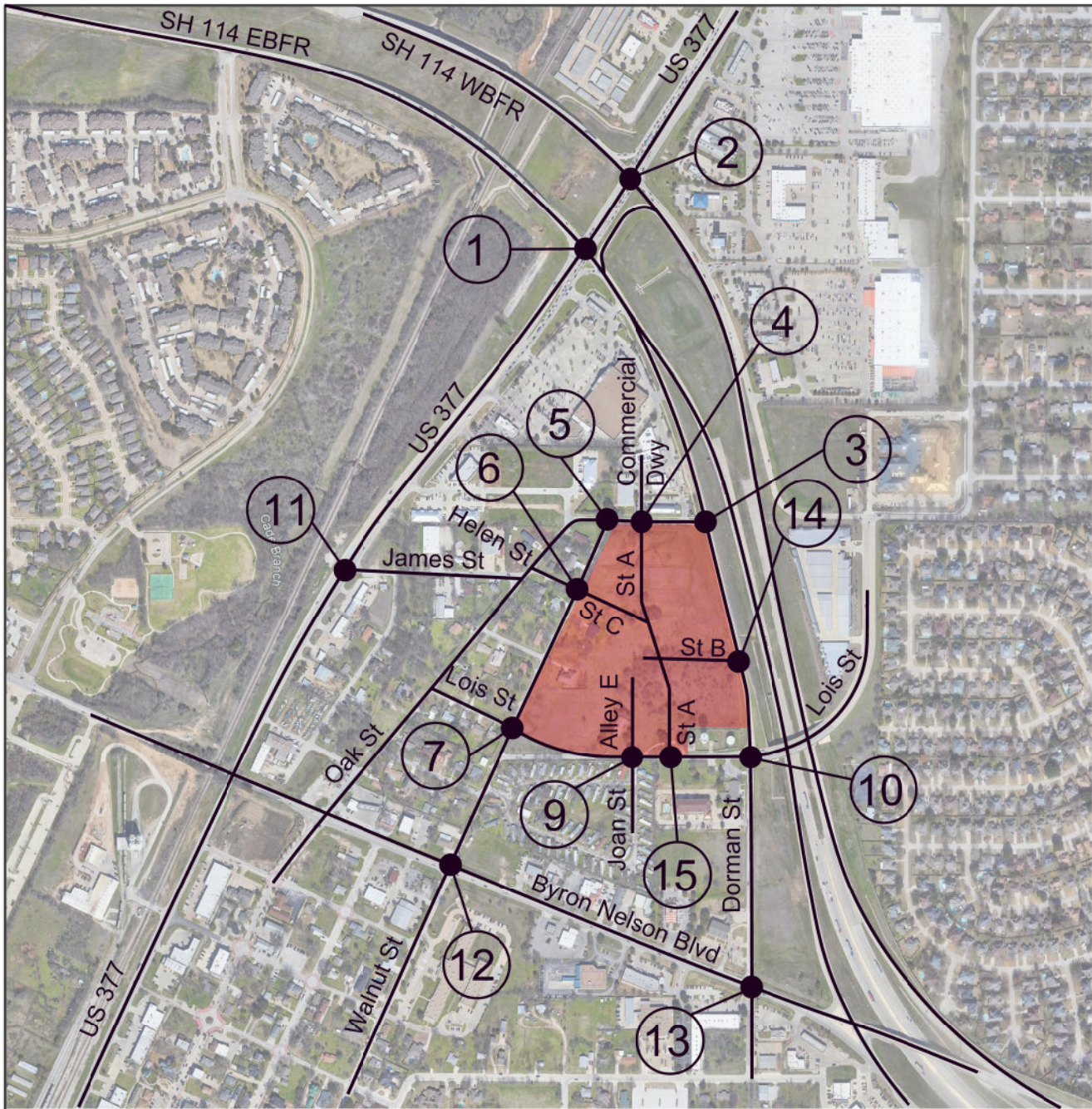
LEGEND

- STUDY INTERSECTION
- INBOUND (OUTBOUND) PERCENTAGE
- PROPOSED DEVELOPMENT



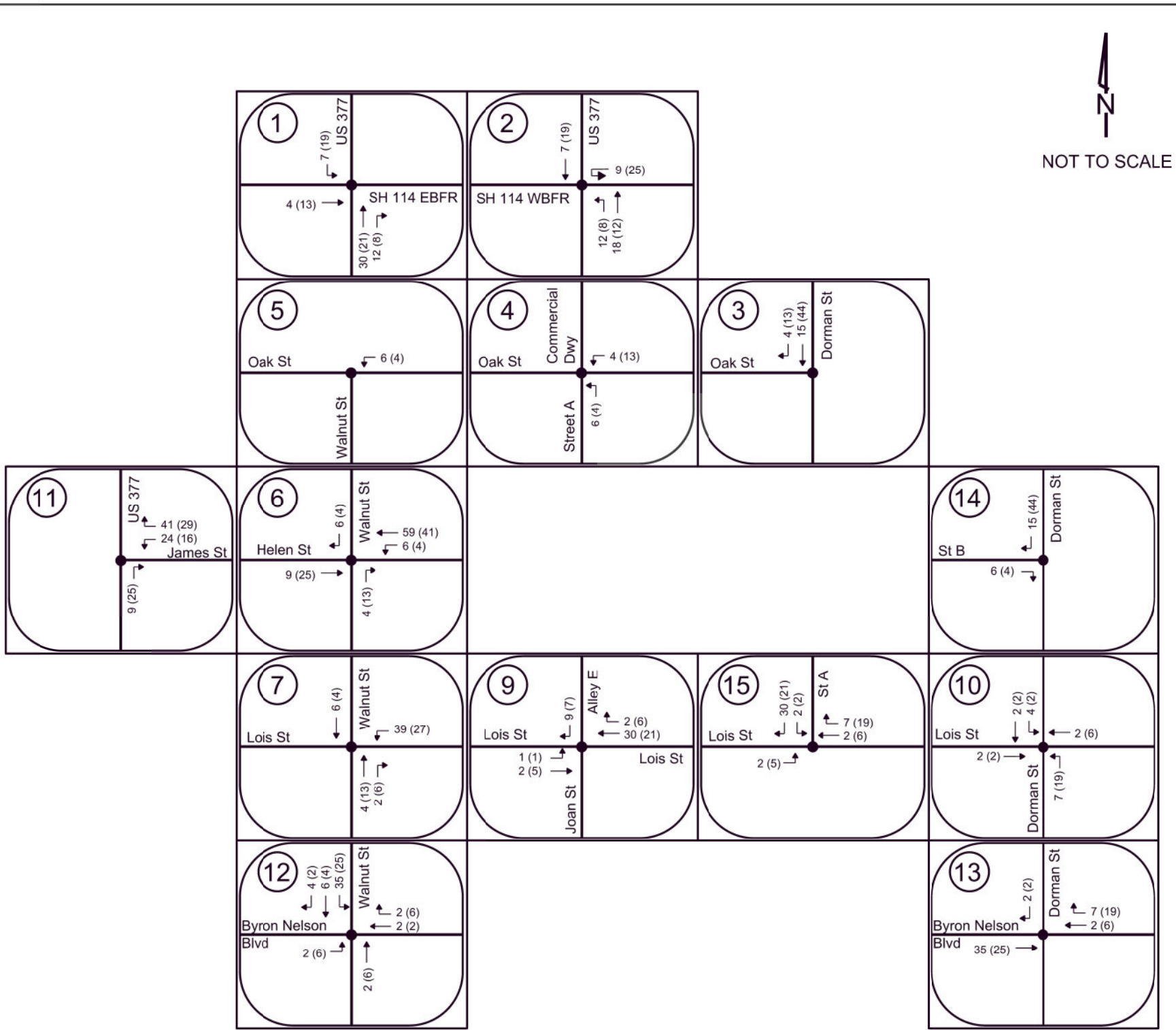
Assumed Directional Distribution

Figure 8



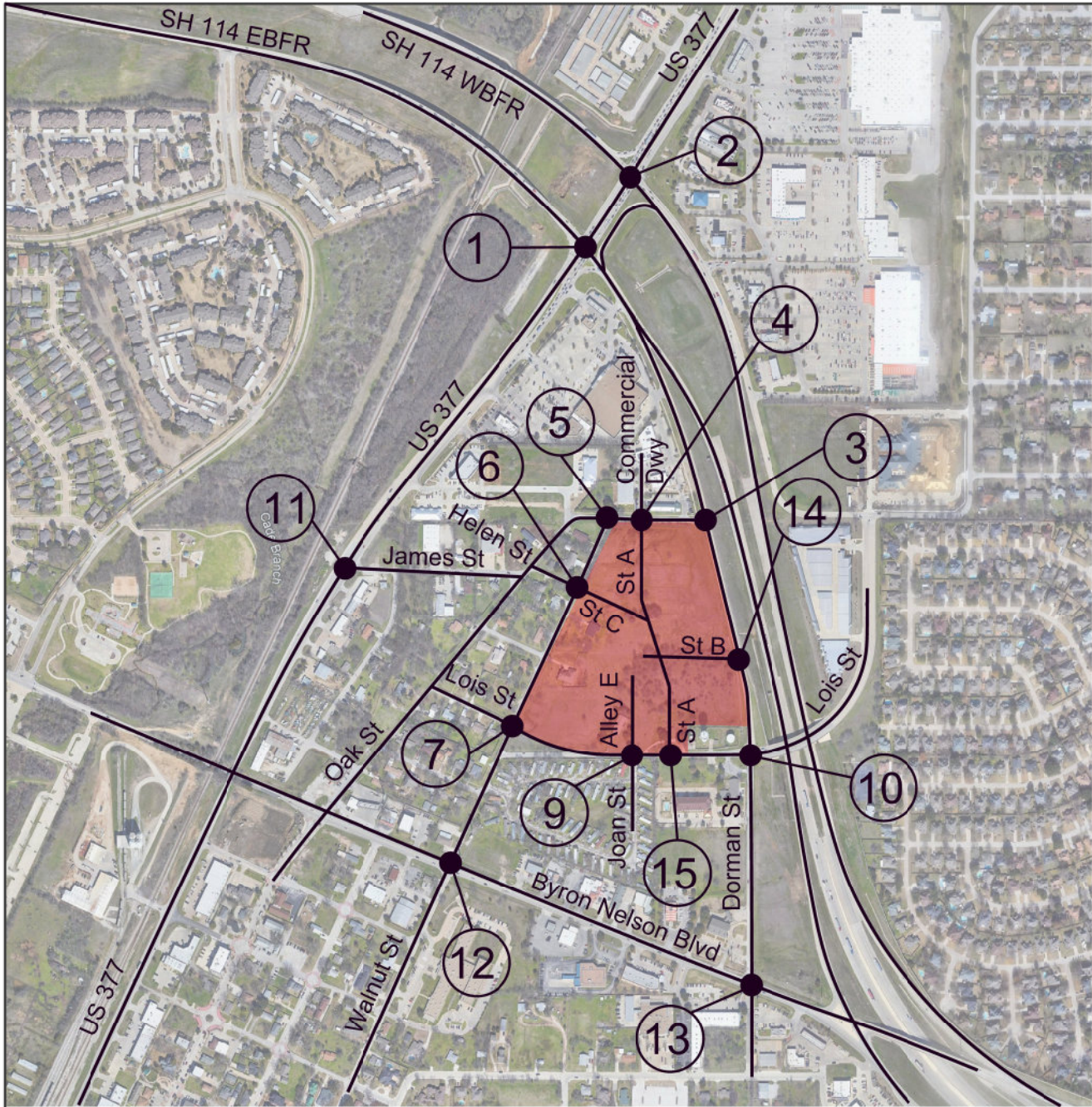
LEGEND

- STUDY INTERSECTION
- AM (PM) PEAK HOUR VOLUMES
- PROPOSED DEVELOPMENT



Site Generated Peak Hour Traffic Volumes

Figure 9

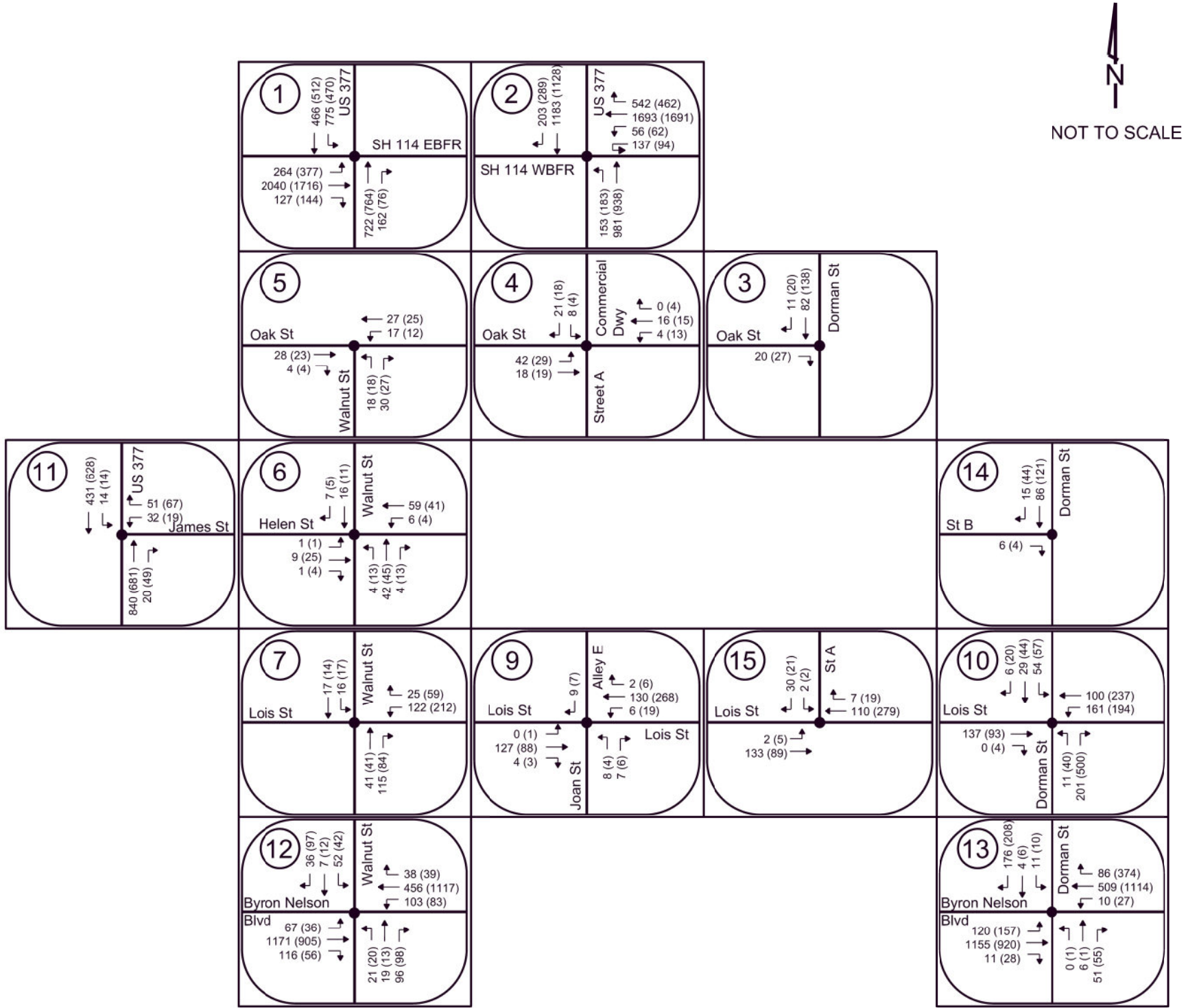


LEGEND

● STUDY INTERSECTION

AM (PM) PEAK HOUR VOLUMES

PROPOSED DEVELOPMENT



Build-Out Year (2024) Total Peak Hour Traffic Volumes

Figure 10

INTERSECTION CAPACITY ANALYSES

The Level of Service (LOS) of an intersection is a qualitative measure of capacity and operating conditions and is directly related to vehicle delay. The LOS criteria for unsignalized and signalized intersections are shown in **Table 3**. LOS is given a letter designation from A to F, with LOS A representing very short delays and LOS F representing very long delays or over-capacity conditions. LOS D is typically considered the minimum acceptable condition for both signalized and unsignalized intersections.

Table 3: Level of Service Criteria for Intersections

Level-of-Service (LOS)	Average Delay (seconds/vehicle)	
	Unsignalized	Signalized
A	≤ 10.0	≤ 10.0
B	10.1 to 15.0	10.1 to 20.0
C	15.1 to 25.0	20.1 to 35.0
D	25.1 to 35.0	35.1 to 55.0
E	35.1 to 50.0	55.1 to 80.0
F	> 50.0 or Volume exceeds Capacity	> 80.0 or Volume exceeds Capacity

SOURCE: *Highway Capacity Manual (HCM) 6th Edition*, Transportation Research Board, 2016

Capacity analyses were conducted for the study area intersections under the following analysis scenarios:

- Existing (2021) Traffic Conditions
- Build-Out Year (2024) Background Traffic Conditions
- Build-Out Year (2024) Total Traffic Conditions

The intersection capacity analyses were conducted using *Highway Capacity Manual (HCM) 6th Edition* methodologies in *Synchro 10* traffic analysis software package. Printouts of the Synchro analysis results are provided in the Appendix.

Existing Traffic Conditions

The existing lane configurations shown in Figure 3 and the Revised Existing (2021) traffic volumes shown in Figure 6 were used for the existing analyses. **Table 4** presents the capacity analysis results for the study intersections under Existing (2021) conditions. Traffic generated by the proposed development is not included in any of the analysis results presented in Table 4. The shaded cells identify intersections or approaches that currently operate at levels of service below the LOS D threshold.

Table 4: Capacity Analysis Results – Existing Traffic Conditions

1: US 377 and SH 114 Eastbound Frontage Road (Signalized)						
Scenario	Peak Hour	Intersection	EB	WB	NB	SB
Existing (2021) Conditions	AM	58.0 (E) ¹	52.2 (D)	--	67.7 (E)	62.9 (E)
	PM	38.3 (D)	33.5 (C)	--	63.6 (E)	28.0 (C)
2: US 377 and SH 114 Westbound Frontage Road (Signalized)						
Scenario	Peak Hour	Intersection	EB	WB	NB	SB
Existing (2021) Conditions	AM	108.8 (F)	--	127.0 (F)	68.7 (E)	111.1 (F)
	PM	67.1 (E)	--	79.7 (E)	42.9 (D)	66.0 (E)
3: Oak Street and Dorman Street (Side-Street Stop-Controlled)						
Scenario	Peak Hour	Intersection	EB	WB	NB	SB
Existing (2021) Conditions	AM	-- ²	8.6 (A)	--	--	0.0 (A)
	PM	--	8.7 (A)	--	--	0.0 (A)
4: Oak Street and Commercial Driveway (Side-Street Stop-Controlled)						
Scenario	Peak Hour	Intersection	EB Left	WB	NB	SB
Existing (2021) Conditions	AM	--	7.4 (A)	0.0 (A)	--	9.0 (A)
	PM	--	7.3 (A)	0.0 (A)	--	8.6 (A)
5: Oak Street and Walnut Street (Side-Street Stop-Controlled)						
Scenario	Peak Hour	Intersection	EB	WB Left	NB	SB
Existing (2021) Conditions	AM	--	0.0 (A)	7.3 (A)	9.0 (A)	--
	PM	--	0.0 (A)	7.3 (A)	8.9 (A)	--
6: Walnut Street and Helen Street (Side-Street Stop-Controlled)						
Scenario	Peak Hour	Intersection	EB	WB	NB Left	SB
Existing (2021) Conditions	AM	--	8.7 (A)	--	7.3 (A)	0.0 (A)
	PM	--	8.5 (A)	--	7.3 (A)	0.0 (A)
7: Walnut Street and Lois Street (North) (Side-Street Stop-Controlled)						
Scenario	Peak Hour	Intersection	EB	WB	NB Left	SB
Existing (2021) Conditions	AM	--	8.5 (A)	--	7.3 (A)	0.0 (A)
	PM	--	8.4 (A)	--	7.3 (A)	0.0 (A)
8: Walnut Street and Lois Street (South) (Side-Street Stop-Controlled)						
Scenario	Peak Hour	Intersection	EB	WB	NB	SB Left
Existing (2021) Conditions	AM	--	--	9.8 (A)	0.0 (A)	7.6 (A)
	PM	--	--	10.6 (B)	0.0 (A)	7.5 (A)

9: Lois Street and Joan Street (Side-Street Stop-Controlled)						
Scenario	Peak Hour	Intersection	EB	WB Left	NB	SB
Existing (2021) Conditions	AM	--	0.0 (A)	7.5 (A)	9.6 (A)	--
	PM	--	0.0 (A)	7.4 (A)	9.4 (A)	--
10: Lois Street and Dorman Street (All-Way Stop-Controlled)						
Scenario	Peak Hour	Intersection	EB	WB	NB	SB
Existing (2021) Conditions	AM	10.0 (A)	10.1 (B)	10.1 (B)	10.2 (B)	9.3 (A)
	PM	16.5 (C)	11.4 (B)	12.9 (B)	21.8 (C)	10.4 (B)
11: US 377 and James Street (Side-Street Stop-Controlled)						
Scenario	Peak Hour	Intersection	EB	WB	NB	SB Left
Existing (2021) Conditions	AM	--	--	19.2 (C)	0.0 (A)	9.4 (A)
	PM	--	--	13.7 (B)	0.0 (A)	9.0 (A)
12: Walnut Street and Byron Nelson Boulevard (Two-Way Stop-Controlled)						
Scenario	Peak Hour	Intersection	EB Left	WB Left	NB	SB
Existing (2021) Conditions	AM	--	8.4 (A)	12.1 (B)	169.7 (F)	157.0 (F)
	PM	--	10.6 (B)	10.1 (B)	265.6 (F)	213.8 (F)
13: Dorman Street and Byron Nelson Boulevard (Two-Way Stop-Controlled)						
Scenario	Peak Hour	Intersection	EB Left	WB Left	NB	SB
Existing (2021) Conditions	AM	--	8.8 (A)	10.3 (B)	19.5 (C)	13.4 (B)
	PM	--	14.2 (B)	9.6 (A)	15.9 (C)	54.6 (F)

¹ Delay in seconds/vehicle (Level of Service)

² HCM methodology does not provide intersection-wide delay/level of service for Side-Street/Two-Way Stop-Controlled analysis

The analysis results in Table 4 indicate that the following signalized intersections and approaches at the side-street stop-controlled intersections currently operate below LOS D:

- US 377 and SH 114 EBFR (AM peak hour)
- US 377 and SH 114 WBFR (AM & peak hours)
- Walnut Street and Byron Nelson Boulevard – Northbound and Southbound approaches (AM & peak hours)
- Dorman Street and Byron Nelson Boulevard – Southbound approach (PM peak hour)

All other approaches and movements at the unsignalized intersection are currently operating at acceptable levels of service during the AM and PM peak hours under Existing (2021) traffic conditions.

The operation at the US 377 and SH 114 Frontage Road intersections is a result of the high traffic volumes on these roadways, especially on the frontage roads since the SH 114 main lanes end east of US 377, forcing all SH 114 traffic to travel through the US 377 intersections. The operation at the two (2) intersections on Byron Nelson Boulevard are a result of the existing high eastbound and westbound traffic volumes (more than 900 vehicles in a single lane in the peak direction during the AM and PM peak hours).

Build-Out Year (2024) Background and Total Traffic Conditions

The existing lane configurations shown in Figure 3 and the Build-Out Year (2024) Background traffic volumes shown in Figure 7 were used for the Build-Out Year (2024) Background analyses. The proposed lane configurations shown in Figure 4 and the Build-Out Year (2024) Total traffic volumes shown in Figure 10 were used for the Build-Out Year (2024) Traffic analyses. **Table 5** presents the capacity analysis results for the study intersections under Build-Out Year (2024) Background and Total conditions. The shaded cells identify intersections or approaches that are predicted to operate at levels of service below the LOS D threshold.

Table 5: Capacity Analysis Results – Build-Out (2024) Background and Total Traffic Conditions

1: US 377 and SH 114 Eastbound Frontage Road (Signalized)						
Scenario	Peak Hr	Intersection	EB	WB	NB	SB
Build-Out Year (2024) Background Conditions	AM	94.9 (F) ¹	102.3 (F)	--	109.7 (F)	70.4 (E)
	PM	47.5 (D)	47.7 (D)	--	69.0 (E)	28.9 (C)
Build-Out Year (2024) Total Conditions	AM	96.5 (F)	103.3 (F)	--	111.1 (F)	73.0 (E)
	PM	49.2 (D)	49.8 (D)	--	70.6 (E)	29.4 (C)
2: US 377 and SH 114 Westbound Frontage Road (Signalized)						
Scenario	Peak Hr	Intersection	EB	WB	NB	SB
Build-Out Year (2024) Background Conditions	AM	156.7 (F)	--	213.3 (F)	79.4 (E)	124.5 (F)
	PM	117.3 (F)	--	174.0 (F)	45.3 (D)	84.0 (F)
Build-Out Year (2024) Total Conditions	AM	156.8 (F)	--	213.3 (F)	78.9 (E)	127.0 (F)
	PM	121.3 (F)	--	177.8 (F)	45.5 (D)	93.0 (F)
3: Oak Street and Dorman Street (Side-Street Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB	WB	NB	SB
Build-Out Year (2024) Background Conditions	AM	-- ²	8.6 (A)	--	--	0.0 (A)
	PM	--	8.7 (A)	--	--	0.0 (A)
Build-Out Year (2024) Total Conditions	AM	--	8.7 (A)	--	--	0.0 (A)
	PM	--	8.9 (A)	--	--	0.0 (A)
4: Oak Street and Commercial Driveway (Side-Street Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB Left	WB	NB	SB
Build-Out Year (2024) Background Conditions	AM	--	7.4 (A)	0.0 (A)	--	9.1 (A)
	PM	--	7.3 (A)	0.0 (A)	--	8.6 (A)
4: Oak Street and Commercial Driveway / Street A (Two-Way Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB Left	WB Left	NB	SB
Build-Out Year (2024) Total Conditions	AM	--	7.4 (A)	7.3 (A)	0.0 (A)	9.2 (A)
	PM	--	7.3 (A)	7.3 (A)	0.0 (A)	8.7 (A)
5: Oak Street and Walnut Street (Side-Street Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB	WB Left	NB	SB
Build-Out Year (2024) Background Conditions	AM	--	0.0 (A)	7.3 (A)	9.0 (A)	--
	PM	--	0.0 (A)	7.3 (A)	8.9 (A)	--
Build-Out Year (2024) Total Conditions	AM	--	0.0 (A)	7.3 (A)	9.1 (A)	--
	PM	--	0.0 (A)	7.3 (A)	9.0 (A)	--

6: Walnut Street and Helen Street (Side-Street Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB	WB	NB Left	SB
Build-Out Year (2024) Background Conditions	AM	--	8.7 (A)	--	7.3 (A)	0.0 (A)
	PM	--	8.5 (A)	--	7.3 (A)	0.0 (A)
6: Walnut Street and Helen Street / Street C (Two-Way Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB	WB	NB Left	SB Left
Build-Out Year (2024) Total Conditions	AM	--	9.5 (A)	10.0 (B)	7.3 (A)	0.0 (A)
	PM	--	9.7 (A)	10.0 (B)	7.3 (A)	0.0 (A)
7: Walnut Street and Lois Street (N) (Side-Street Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB	WB	NB Left	SB
Build-Out Year (2024) Background Conditions	AM	--	8.5 (A)	--	7.3 (A)	0.0 (A)
	PM	--	8.4 (A)	--	7.3 (A)	0.0 (A)
Scenario	Peak	Intersection	EB	WB	NB Left	SB Left
Build-Out Year (2024) Total Conditions	AM	--	0.0 (A)	10.8 (B)	0.0 (A)	7.6 (A)
	PM	--	0.0 (A)	11.2 (B)	0.0 (A)	7.5 (A)
8: Walnut Street and Lois Street (S) (Side-Street Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB	WB	NB	SB Left
Build-Out Year (2024) Background Conditions	AM	--	--	10.1 (B)	0.0 (A)	7.6 (A)
	PM	--	--	11.1 (B)	0.0 (A)	7.5 (A)
9: Lois Street and Joan Street (Side-Street Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB	WB Left	NB	SB
Build-Out Year (2024) Background Conditions	AM	--	0.0 (A)	7.6 (A)	9.8 (A)	--
	PM	--	0.0 (A)	7.4 (A)	9.8 (A)	--
9: Lois Street and Joan Street / Alley E (Two-Way Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB Left	WB Left	NB	SB
Build-Out Year (2024) Total Conditions	AM	--	0.0 (A)	7.6 (A)	10.3 (B)	9.1 (A)
	PM	--	7.9 (A)	7.5 (A)	10.3 (B)	10.0 (B)
10: Lois Street and Dorman Street (All-Way Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB	WB	NB	SB
Build-Out Year (2024) Background Conditions	AM	10.9 (B)	10.9 (B)	10.9 (B)	11.2 (B)	9.8 (A)
	PM	24.7 (C)	12.6 (B)	15.2 (C)	37.7 (E)	11.2 (B)
Build-Out Year (2024) Total Conditions	AM	11.0 (B)	11.1 (B)	11.0 (B)	11.5 (B)	9.9 (A)
	PM	28.3 (D)	12.9 (B)	15.7 (C)	44.8 (E)	11.4 (B)
11: US 377 and James Street (Side-Street Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB	WB	NB	SB Left
Build-Out Year (2024) Background Conditions	AM	--	--	14.8 (C)	0.0 (A)	10.0 (B)
	PM	--	--	11.8 (B)	0.0 (A)	9.4 (A)
Build-Out Year (2024) Total Conditions	AM	--	--	16.6 (C)	0.0 (A)	10.1 (B)
	PM	--	--	13.9 (B)	0.0 (A)	9.5 (A)

12: Walnut Street and Byron Nelson Boulevard (Two-Way Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB Left	WB Left	NB	SB
Build-Out Year (2024) Background Conditions	AM	--	8.7 (A)	14.0 (B)	>300 (F)	>300 (F)
	PM	--	11.5 (B)	10.9 (B)	>300 (F)	>300 (F)
Build-Out Year (2024) Total Conditions	AM	--	8.7 (A)	14.0 (B)	>300 (F)	>300 (F)
	PM	--	11.6 (B)	10.9 (B)	>300 (F)	>300 (F)
13: Dorman Street and Byron Nelson Boulevard (Two-Way Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB Left	WB Left	NB	SB
Build-Out Year (2024) Background Conditions	AM	--	9.2 (A)	11.1 (B)	24.4 (C)	15.4 (C)
	PM	--	17.7 (C)	10.2 (B)	18.6 (C)	151.6 (F)
Build-Out Year (2024) Total Conditions	AM	--	9.3 (A)	11.3 (B)	25.7 (D)	15.6 (C)
	PM	--	18.1 (C)	10.3 (B)	19.2 (C)	164.7 (F)
14: Dorman Street and Street B (Side-Street Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB	WB	NB	SB
Build-Out Year (2024) Total Conditions	AM	--	8.6 (A)	--	--	0.0 (A)
	PM	--	8.8 (A)	--	--	0.0 (A)
15: Lois Street and Street A (Side-Street Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB Left	WB	NB	SB
Build-Out Year (2024) Total Conditions	AM	--	7.5 (A)	0.0 (A)	--	9.1 (A)
	PM	--	7.9 (A)	0.0 (A)	--	10.2 (B)

¹ Delay in seconds/vehicle (Level of Service)

² HCM methodology does not provide intersection-wide delay/level of service for Side-Street/Two-Way Stop-Controlled analysis

The analysis results in Table 5 indicate that the following signalized intersections and approaches at the side-street stop-controlled intersections are predicted to operate below LOS D under Build-Out Year (2024) Background conditions, similar to Existing (2021) conditions:

- US 377 and SH 114 EBFR (AM peak hour)
- US 377 and SH 114 WBFR (AM & peak hours)
- Walnut Street and Byron Nelson Boulevard – Northbound and Southbound approaches (AM & peak hours)
- Dorman Street and Byron Nelson Boulevard – Southbound approach (PM peak hour)

With no improvements to the area roadways assumed between Existing (2021) and Build-Out Year (2024) conditions, the reasons for the above operation below LOS D at these intersections remains the same as identified for Existing (2021) conditions.

Under Build-Out Year (2024) Total conditions, with site traffic generated by the proposed Roanoke North Residential Development included, operation at the intersections is predicted to operate similar to Build-Out Year (2024) Background conditions. That is, traffic generated by the proposed development is predicted to have minimal impacts to the study intersections.

All other approaches and movements at the existing and new side-street stop-controlled intersections are predicted to operate at acceptable levels of service (LOS D or better) during the AM and PM peak hours under Build-Out Year (2024) Background and Total conditions.

Mitigation Measures

Potential mitigation measures for the frontage road intersections and the two (2) two-way stop-controlled intersections were identified and evaluated, where applicable. Although the all-way stop-controlled intersection of Lois Street and Dorman Street operate at LOS D or better under all scenarios evaluated, the City has requested mitigation improvements for the northbound approach at this intersection.

Operation at the US 377 and SH 114 Frontage Road intersections will be improved when the SH 114 main lanes are extended to the west side of US 377, eliminating a high number of the eastbound and westbound through traffic volumes on the SH 114 Frontage Roads at this intersection. A Design Schematic (October 2018) has been developed and approved for this improvement (CSJ 0353-09-002).

At the all-way stop-controlled intersection of Lois Street and Dorman Street, delays on the northbound approach can be reduced, resulting in LOS D or better operation (**Table 6**), by widening this approach from a single lane to two lanes to provide an exclusive left turn lane and shared through+right turn lane. For the two (2) two-way stop-controlled intersections on Byron Nelson Boulevard, the operation for the northbound and southbound approaches is a result of the delays experienced by these motorists trying to access Byron Nelson Boulevard with high eastbound and westbound high traffic volumes (>900 vehicles/hour in a single lane in the peak direction during the existing AM and PM peak hours and >1,100 vehicles/hour in a single lane in the peak direction during Build-Out Year (2024) Background conditions). As shown in **Table 6**, changing the traffic control at these intersections on Byron Nelson Boulevard to signalized is predicted to result in LOS D or better operation for these intersections during both the AM and PM peak hours under Build-Out Year (2024) conditions. These improvements would be needed even without traffic generated by the proposed residential development.

Although not included as part of the analysis, additional capacity improvements at the two (2) intersections on Byron Nelson Boulevard (widening of Byron Nelson Boulevard and/or installation of turn lanes) are predicted to result in operation better than that identified in Table 6. Similar to the signalization of these intersections, any capacity improvements would be needed even without traffic generated by the proposed residential development included. It should also be noted that with the signalization of the Dorman Street and Byron Nelson Boulevard, it was assumed that the right-turn only movements on the northbound and southbound approaches on Dorman Street would be modified to allow full access (left turn, through and right turn movements).

Table 6: Capacity Analysis Results – Build-Out Year (2024) Traffic Conditions with Mitigation

10: Lois Street and Dorman Street (All-Way Stop-Controlled)						
Scenario	Peak Hr	Intersection	EB	WB	NB	SB
Build-Out Year (2024) Background Conditions	AM	10.7 (B)	10.9 (B)	10.9 (B)	10.6 (B)	9.8 (A)
	PM	21.1 (C)	12.4 (B)	14.8 (B)	30.0 (D)	11.1 (B)
Build-Out Year (2024) Total Conditions	AM	10.7 (B)	11.0 (B)	11.0 (B)	10.5 (B)	9.9 (A)
	PM	21.3 (C)	12.5 (B)	15.2 (C)	30.1 (D)	11.3 (B)
12: Walnut Street and Byron Nelson Boulevard (Signalized)						
Scenario	Peak Hr	Intersection	EB	WB	NB	SB
Build-Out Year (2024) Background Conditions	AM	47.5 (D) ¹	66.0 (E)	11.0 (B)	30.1 (C)	29.0 (C)
	PM	18.5 (B)	16.1 (B)	19.4 (B)	23.5 (C)	23.4 (C)
Build-Out Year (2024) Total Conditions	AM	54.4 (D)	74.5 (E)	12.1 (B)	29.4 (C)	69.5 (E)
	PM	24.2 (C)	19.7 (B)	25.1 (C)	21.4 (C)	49.2 (D)
13: Dorman Street and Byron Nelson Boulevard (Signalized)						
Scenario	Peak Hr	Intersection	EB	WB	NB	SB
Build-Out Year (2024) Background Conditions	AM	16.2 (B)	18.6 (B)	12.6 (B)	13.6 (B)	12.5 (B)
	PM	50.4 (D)	18.9 (B)	77.8 (E)	23.8 (C)	26.8 (C)
Build-Out Year (2024) Total Conditions	AM	17.7 (B)	21.0 (C)	12.8 (B)	13.6 (B)	12.5 (B)
	PM	54.8 (D)	18.9 (B)	86.3 (F)	23.7 (C)	26.6 (C)

¹ Delay in seconds/vehicle (Level of Service)

ROADWAY LINK CAPACITY ANALYSIS

Roadway capacity is defined as the volume of traffic that a roadway can accommodate based on the road's width, traffic control, parking conditions, and several other factors. Capacity values for roadways by area type and functional class are presented in **Table 7**. These numbers were obtained from the North Central Texas Council of Governments (NCTCOG), which has developed planning level analysis numbers in their *DFW Regional Travel Model* that are useful in determining directional hourly capacities under different roadway and area conditions.

Table 7: NCTCOG Roadway Capacity Analysis and Level of Service Guidelines
Hourly Service Volume Per Lane*
(Undivided Roads)

Area Type	Functional Class						
	Freeway	Principal Arterial	Minor Arterial	Collector	Ramp	Frontage Road	HOV
CBD	---	675	650	425	1250	650	---
Outer Business District	---	725	725	450	1375	725	---
Urban Residential	---	775	750	475	1425	750	---
Suburban Residential	---	875	825	525	1600	825	---
Rural	---	925	875	550	1725	875	---

* Service volumes at Level of Service E (the model requires LOS E service volumes)

The roadway level of service (LOS) is determined by the volume on the roadway divided by the total planning level roadway capacity. The LOS classifications used within the model are listed below:

- if Volume/Service Volume Ratio is ≤ 0.45 , then LOS = A or B
- if Volume/Service Volume Ratio is > 0.45 and ≤ 0.65 , then LOS = C
- if Volume/Service Volume Ratio is > 0.65 and ≤ 0.80 , then LOS = D
- if Volume/Service Volume Ratio is > 0.80 and ≤ 1.00 , then LOS = E
- if Volume/Service Volume Ratio is > 1.00 , then LOS = F

The segments on Walnut Street (Collector), Dorman Street (Collector) and Lois Street (Collector) were identified as two-lane undivided roadways in a Rural area for analysis purposes with planning level capacities for each roadway highlighted in Table 7. Roadway capacity analysis was performed for Existing (2021) and Build-Out Year (2024) Background and Total traffic conditions and the results are shown in **Table 8**.

Table 8: Roadway Link Capacity Analysis Results

Analysis Period	Direction	Capacity ¹	Volume ¹		V/C		LOS	
			AM	PM	AM	PM	AM	PM
Walnut Street (South of Helen Street)								
Existing (2021)	NB	550	40	50	0.07	0.09	A/B	A/B
	SB	550	15	13	0.03	0.02	A/B	A/B
Build-Out (2024) – Background	NB	550	47	57	0.09	0.10	A/B	A/B
	SB	550	17	15	0.03	0.03	A/B	A/B
Build-Out (2024) – Total	NB	550	51	70	0.09	0.13	A/B	A/B
	SB	550	23	19	0.04	0.03	A/B	A/B
Dorman Street (North of Street B)								
Existing (2021)	NB	--	--	--	--	--	--	--
	SB	1,100	74	105	0.07	0.10	A/B	A/B
Build-Out (2024) – Background	NB	--	--	--	--	--	--	--
	SB	1,100	86	121	0.08	0.11	A/B	A/B
Build-Out (2024) – Total	NB	--	--	--	--	--	--	--
	SB	1,100	102	165	0.09	0.15	A/B	A/B
Lois Street (West of Joan Street)								
Existing (2021)	WB	550	94	217	0.17	0.39	A/B	A/B
	EB	550	112	74	0.20	0.13	A/B	A/B
Build-Out (2024) – Background	WB	550	109	251	0.20	0.46	A/B	C
	EB	550	130	85	0.24	0.15	A/B	A/B
Build-Out (2024) – Total	WB	550	148	278	0.27	0.51	A/B	C
	EB	550	132	92	0.24	0.17	A/B	A/B

¹ Vehicles/hour

As shown by the results in Table 8, all the roadway segments are currently operating at an acceptable level of service (LOS D or better) under Existing (2021) conditions and are predicted to continue to operate at an acceptable level of service (LOS D or better) under Build-Out Year (2024) Background and Total conditions. Based on these results, all the roadways have significant capacity available. Traffic generated by the Roanoke North Residential Development is predicted to have minimal impact to the operation of the streets adjacent to the development.

ACCESS MANAGEMENT ANALYSIS

As part of this study, access management analyses were performed to consider the need for deceleration lanes and to determine if adequate driveway spacing and intersection sight distance is provided for the proposed site driveways.

Right Turn Deceleration Lane Analysis

Traffic volumes on Oak Street, Dorman Street, Walnut Street and Lois Street at the site roadway connections were analyzed to determine the necessity of right turn deceleration lane. In the absence of City of Roanoke guidelines, guidelines in TxDOT's *Access Management Manual* were used for this analysis and state that for roadways with a posted speed limit less than 45 mph, a right turn deceleration lane should be considered when peak right turn volumes are greater than 60 vehicles per hour. **Table 9** summarizes the projected right turn volumes at the site roadway connections under Build-Out Year (2024) Total traffic conditions.

Table 9: Right Turn Deceleration Lane Analysis Results

Intersection	Scenario	Approach	Speed Limit (mph)	Right Turn Entering Volume (vph) AM (PM)	Threshold (vph)	Exceeds Threshold? AM (PM)
Street A at Oak Street	Build-Out Year (2024) Total	EB	25	0 (0)	60	NO (NO)
Street B at Dorman Street	Build-Out Year (2024) Total	SB	30	15 (44)	60	NO (NO)
Street C at Walnut Street	Build-Out Year (2024) Total	NB	25	4 (13)	60	NO (NO)
Alley E at Lois Street	Build-Out Year (2024) Total	WB	25	2 (6)	60	NO (NO)
Street A at Lois Street	Build-Out Year (2024) Total	WB	25	7 (19)	60	NO (NO)

Based on the projected right turn peak hour traffic volumes and TxDOT guidelines, all of the right turn volumes are not predicted to exceed TxDOT's guidelines at any of the site roadway connections. Therefore, right turn deceleration lanes are not recommended at any of the site roadway connections.

Left Turn Deceleration Lane Analysis

For this analysis, the procedure presented in TxDOT's *Roadway Design Manual* was used for determining whether left turn lanes should be considered on the adjacent streets (Oak Street, Walnut Street and Lois Street) at the site roadway connections. While the posted speed limit on the adjacent streets (Oak Street, Walnut Street and Lois Street) is 25 mph. Table 3-11 in TxDOT's *Roadway Design Manual* does not provide guidelines for roadways with speed limits below 40 mph. It should be noted that if the threshold for a 40 mph-roadway is not met, then the threshold

for a 25-mph roadway would not be met either. For a conservative analysis, **Table 10** summarizes the information presented in Table 3-11 of this manual for a design speed of 40 mph for when left turn lanes should be considered.

Table 10: Guide for Left Turn Lanes on Two-Lane Highways

Opposing Volume (vph)	Advancing Volume (vph)			
	5% Left Turns	10% Left Turns	20% Left Turns	30% Left Turns
40 mph Design Speed				
800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340

SOURCE: TxDOT Roadway Design Manual (Table 3-11)

Table 11 presents the evaluation results of whether left turn deceleration lanes should be considered for installation on Oak Street at Street A, Walnut Street at Street C and Lois Street at Alley E and Street A under Build-Out Year (2024) Total conditions.

Table 11: Left Turn Deceleration Lane Analysis Results

Peak Hour	Opposing Volume (vph)	Advancing Volume (vph)				Volume > Guideline?
		Percent Left Turns	Left Turns	Volume	Guideline	
Street A at Oak Street						
AM Peak	60	20%	4	20	~390	NO
PM Peak	48	41%	13	32	~340	NO
Street C at Walnut Street						
AM Peak	50	0%	0	23	~720	NO
PM Peak	71	0%	0	16	~720	NO
Alley E at Lois Street						
AM Peak	138	0%	0	131	~690	NO
PM Peak	293	1%	1	92	~580	NO
Street A at Lois Street						
AM Peak	117	1%	2	135	~705	NO
PM Peak	298	5%	5	94	~575	NO

Based on the results presented in Table 11, the traffic volumes at all of the proposed site roadway connections are not predicted to exceed (or even approach) the left turn lane guidelines during either the AM or PM peak hours under Build-Out Year (2024) Total conditions. Additionally, guidance in TxDOT's *Roadway Design Manual* states, "Left-turn lanes on two-lane highways at intersecting crossroads generally are not economically justified. For certain moderate or high-volume two-lane highways with heavy left-turn movements, however, left-turn lanes may be

justified in view of reduced road user crash costs.” The low number of left turns predicted during the AM and PM peak hours from the adjacent road at the site roadway connections (less than 15 entering left turns/hour), these left turn volumes are not considered to be “moderate or high-volume.” Therefore, as a result of the low left turn volumes and the left turn deceleration thresholds not being satisfied, left turn deceleration lanes are not recommended at any of the site roadway locations.

Sight Distance

As part of this traffic analysis, the available and required intersection sight distance for motorists accessing the adjacent roadway from the proposed site roadway connections were analyzed. The sight distance required was estimated using the procedures developed by the American Association of State Highway and Transportation Officials (AASHTO) and published in the 2018 edition of *A Policy on Geometric Design of Highways and Streets*. At this location, the motorist should be able to see if and when adequate gaps exist to perform their desired maneuver. **Table 12** presents the required and available intersection sight distance for vehicles exiting to the adjacent streets (Oak Street, Walnut Street, Lois Street and Dorman Street) for the proposed Roanoke North residential development.

Table 12: Intersection Sight Distance Evaluation

Major Roadway	Oak Street	Walnut Street	Lois Street		Dorman Street
Posted Speed Limit	25 mph	25 mph	25 mph	25 mph	30 mph
Design Vehicle	Passenger Vehicle	Passenger Vehicle	Passenger Vehicle	Passenger Vehicle	Passenger Vehicle
Minor Roadway	Street A	Street C	Alley E	Street A	Street B
Intersection Sight Distance (Turning From Driveway)					
Required	280'	280'	280'	280'	290'
Available Sight Distance to the Left	~380'	>500'	~300'	~300'	>500'
Available > Required to the Left	YES	YES	YES	YES	YES
Available Sight Distance to the Right	~295'	~340'	>500'	>500'	N/A ¹
Available > Required to the Right	YES	YES	YES	YES	N/A ¹

¹Right-out exit only

Based on the conditions that existed in the field at the time of the site visit, the field investigation results of the available sight distance indicate that adequate sight distance is predicted to be provided at all the proposed site roadway connections.

Access Spacing

In *City of Roanoke's Technical Standards (Part B)*, required access point spacing is determined based on Street Type designation in the City of Roanoke Thoroughfare Plan. Section I.B.7

indicates that the minimum driveway spacing (edge to edge offset) should be 200 feet on a Collector or Arterial roadway.

Based on the information presented in the site plan:

- Street A is planned to be located approximately 285 feet west of Dorman Street and approximately 145 feet east of Walnut Street on Oak Street.
- Street C is planned to be located approximately 345 feet south of Oak Street and approximately 700 feet north of Lois Street (after realignment) on Walnut Street.
- Alley E is planned to be located approximately 510 feet east of Walnut Street and approximately 115 feet west of the proposed Street A on Lois Street.
- Street A is planned to be located approximately 115 feet east of Alley E and approximately 425 feet west of the proposed Dorman Street on Lois Street.
- Street B is planned to be located approximately 570 feet south of Oak Street and approximately 490 feet north of Lois Street on Dorman Street.

The proposed site access roadway connections meet the City's access spacing requirements, except the distance between Street A (on Oak Street) and Walnut Street and the distance between the proposed Alley E and Street A (on Lois Street). The location of these site access roadway connections would need to be granted a variance. For Street A on Oak Street, this Street aligns with an existing commercial driveway to the north. Alley E on Lois Street is an alleyway and would not serve the traffic volumes expected at a public roadway, such as Street A. Due to the alignment of Street A on Oak Street and the low volumes at Alley E on Lois Street, these site access roadways should be granted a variance for their proposed locations.

CONCLUSIONS & RECOMMENDATIONS

Based on the analysis of the proposed site plan and characteristics of the proposed Roanoke North Residential Development, the following **conclusions** can be made:

- The proposed development is predicted to generate 2,554 trips on a daily basis with 162 trips during the AM peak hour and 207 trips during the PM peak hour.

Intersection Capacity Analysis

- Under Existing (2021) traffic conditions, the following signalized intersections and approaches at the side-street stop-controlled intersections currently operate below LOS D:
 - US 377 and SH 114 EBFR (AM peak hour)
 - US 377 and SH 114 WBFR (AM & peak hours)
 - Walnut Street and Byron Nelson Boulevard – Northbound and Southbound approaches (AM & peak hours)
 - Dorman Street and Byron Nelson Boulevard – Southbound approach (PM peak hour)

The operation at SH 114 Frontage Road intersections is a result of the high traffic volumes on these roadways, primarily as a result of forcing all SH 114 traffic to travel through the US 377 intersections. The operation at the two (2) intersections on Byron Nelson Boulevard are a result of the existing high eastbound and westbound traffic volumes (more than 900 vehicles in a single lane in the peak direction during the AM and PM peak hours).

All other approaches and movements at the unsignalized intersections are currently operating at acceptable levels of service during the AM and PM peak hours under Existing (2021) traffic conditions.

- Under Build-Out Year (2024) Background conditions, With no improvements to the area roadways assumed between Existing (2021) and Build-Out Year (2024) conditions, the intersections and approaches are predicted to operate similar to Existing (2021) conditions.
- Under Build-Out Year (2024) Total conditions, with site traffic generated by the proposed Roanoke North Residential Development included, operation at the intersections is predicted to operate similar to Build-Out Year (2024) Background conditions. That is, traffic generated by the proposed development is predicted to have minimal impacts to the study intersections.

Roadway Link Capacity Analysis

All of the roadway segments (Walnut Street, Dorman Street and Lois Street) are currently operating at an acceptable level of service (LOS D or better) under Existing (2021) conditions and are predicted to continue to operate at an acceptable level of service (LOS D or better) under Build-Out Year (2024) Background and Total conditions.

Access Management Analysis

- All of the right turn volumes at the site access roadways are not predicted to exceed TxDOT's guidelines and right turn deceleration lanes are not recommended at any of the site roadway connections.
- As a result of the low left turn volumes and the left turn deceleration thresholds (TxDOT) not being satisfied, left turn deceleration lanes are not recommended at any of the site roadway locations.
- Based on the conditions that existed in the field at the time of the site visit, the field investigation results of the available sight distance indicate that adequate sight distance is predicted to be provided at all of the proposed site roadway connections.
- The proposed site access roadway connections meet the City's access spacing requirements, except the distance between Street A (on Oak Street) and Walnut Street and the distance between the proposed Alley E and Street A (on Lois Street).
 - The location of these site access roadway connections would need to be granted a variance.
 - Due to the alignment of Street A on Oak Street and the low volumes at Alley E on Lois Street, these site access roadways should be granted a variance for their proposed locations.

Based on the results of this traffic study, the following **recommendations** are made as a result of the traffic generated by the proposed Roanoke North Residential Development:

- Request and obtain a variance for the location of Street A on Oak Street and the locations of Alley E and Street A on Lois Street.

Based on the results of this traffic study, it is **recommended** that the following potential mitigation measures be considered under Existing (2021) and Build-Out Year (2024) conditions, **regardless of whether the proposed Roanoke North Residential Development is completed:**

- Install traffic signals at the Byron Nelson Boulevard intersections with Walnut Street and Dorman Street.

APPENDIX

PROPOSED SITE PLAN



CALLED 0.299 AC. CHURCH OF CHRIST, HILLTOP CONGREGATION 2012-69979 RPRDCT	TRACT TWO CALLED 0.299 AC. CHURCH OF CHRIST, HILLTOP CONGREGATION VOL. 2539, PG. 868 RPRDCT
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TRACT TWO
CALLED 0.299 AC.
CHURCH OF CHRIST, HILLTOP CONGREGATION
VOL. 2539, PG. 868 RPRDCT

CALLED 0.014 AC.
 THE STATE OF TEXAS V. CHURCH C
 1992-37665 RPRDCT

CALLED 0.387 AC.
 STATE OF TEXAS
 1992-69555 RPRDC

CALLER 2.021 AC.
CITY OF ROANOKE
496/564 DRDCT

LOT 4, BLOCK A
TEMBO ADDITION
CAB. V, PG. 219 PRDCT

LOT 3A, BLOCK A
TEMBO ADDITION
CAB. X, PG. 291 PRDCT



SITE DATA TABLE			
PHYSICAL ADDRESS		NORTHWEST CORNER OF N WALNUT ST AND LOIS STREET	
GROSS SITE AREA		18.504 ACRES	
EXISTING ZONING		SINGLE FAMILY SF-7 & RETAIL	
PROPOSED ZONING		PLANNED DEVELOPMENT	
CURRENT USE		VACANT AND RESIDENTIAL	
PROPOSED USE		RESIDENTIAL AND MULTI-FAMILY AND AGE TARGETED	
BUILDING SUMMARY			
NUMBER OF MULTI-FAMILY UNITS		289 UNITS	
NUMBER OF AGE TARGETED UNITS		129 UNITS	
NUMBER OF FOR-RENT TOWNHOME UNITS		9 UNITS	
NUMBER OF SINGLE FAMILY FOR-SALE TOWNHOMES		41 UNITS	
MULTI-FAMILY NUMBER OF STORIES		4 STORIES	
AGE TARGETED NUMBER OF STORIES		4 STORIES	
TOWNHOME NUMBER OF STORIES		2 STORIES	
GROUND FLOOR BUILDING AREA FOR MF		87,510 SQUARE FEET	
GROUND FLOOR BUILDING AREA FOR AT		43,440 SQUARE FEET	
GROUND FLOOR BUILDING AREA FOR TH		11,695 SQUARE FEET	
PARKING SUMMARY			
SPACES REQUIRED = (UNITSX1.5)		REQUIRED PARKING	
MULTI-FAMILY		PROVIDED PARKING	
		524	TOTAL
		20	ONSITE
		34	ONSTREET
AGE TARGETED		470	P. GARAGE
		196	TOTAL
		100	ONSITE
		26	CARPORT
		52	ONSTREET
TOWNHOME		18	ATT. GARAGE
		15	TOTAL
		0	ONSITE
		6	ONSTREET
		9	ATT. GARAGE

C2.01b

OWNER/DEVELOPER
INTEGRATED REAL ESTATE GROUP
3110 W. SOUTHLAKE BLVD., STE. 120
SOUTHLAKE, TEXAS
Ph. 817-837-0565
Contact: Kenneth Fambro

INTERSECTION TURNING MOVMENT VOLUMES

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: SH 114 EBFR @
US 377
Site Code:
Start Date: 08/31/2021
Page No: 1

Turning Movement Data

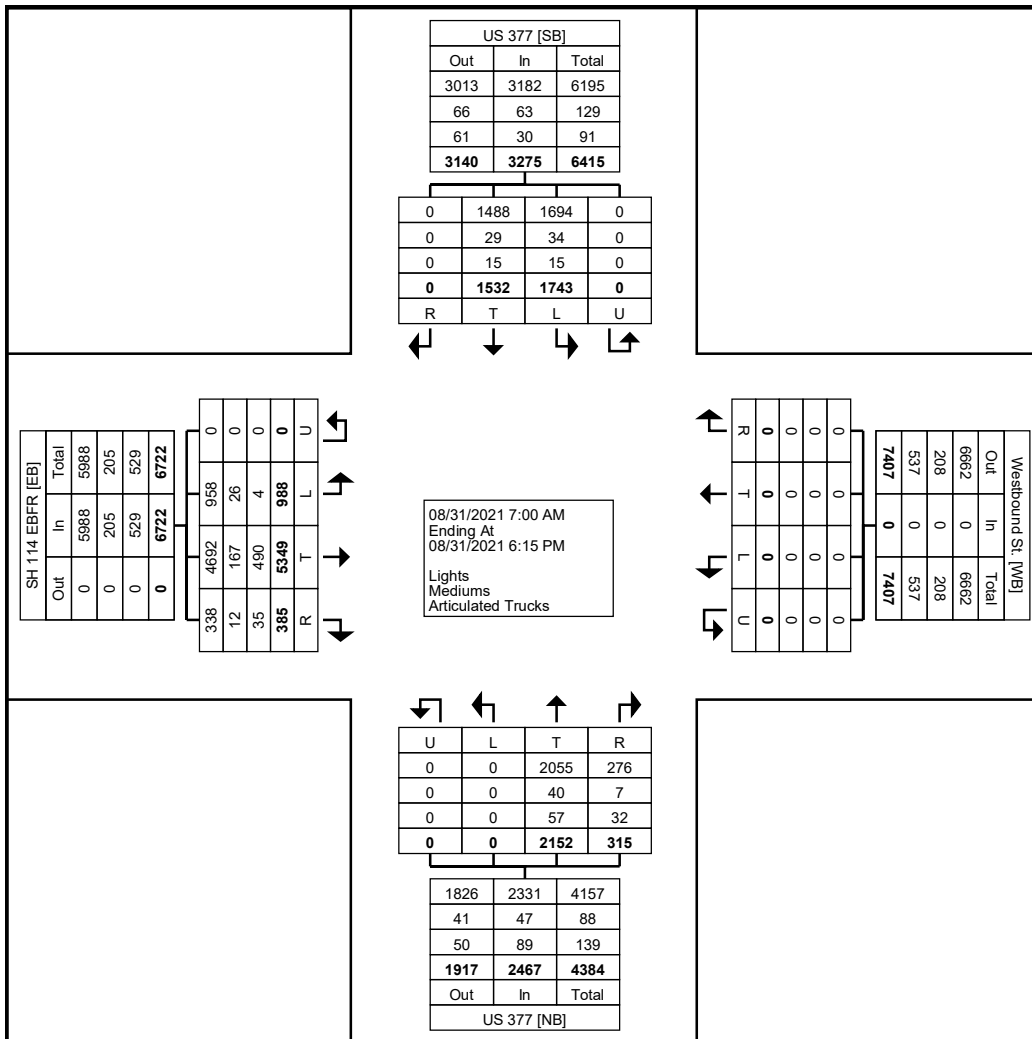
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7:00 AM	133	52	0	0	185	0	0	0	0	0	0	105	17	0	122	47	376	25	0	448	755
7:15 AM	139	93	0	0	232	0	0	0	0	0	0	132	26	0	158	41	357	24	0	422	812
7:30 AM	132	77	0	0	209	0	0	0	0	0	0	116	32	0	148	46	375	20	0	441	798
7:45 AM	140	108	0	0	248	0	0	0	0	0	0	137	31	0	168	53	333	21	0	407	823
Hourly Total	544	330	0	0	874	0	0	0	0	0	0	490	106	0	596	187	1441	90	0	1718	3188
8:00 AM	114	82	0	0	196	0	0	0	0	0	0	124	19	0	143	66	333	16	0	415	754
8:15 AM	139	100	0	0	239	0	0	0	0	0	0	132	26	0	158	68	303	21	0	392	789
8:30 AM	102	93	0	0	195	0	0	0	0	0	0	97	23	0	120	55	354	21	0	430	745
8:45 AM	140	92	0	0	232	0	0	0	0	0	0	145	25	0	170	36	287	19	0	342	744
Hourly Total	495	367	0	0	862	0	0	0	0	0	0	498	93	0	591	225	1277	77	0	1579	3032
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	96	101	0	0	197	0	0	0	0	0	0	135	12	0	147	70	332	30	0	432	776
4:15 PM	95	108	0	0	203	0	0	0	0	0	0	142	18	0	160	64	322	22	0	408	771
4:30 PM	88	114	0	0	202	0	0	0	0	0	0	142	14	0	156	79	341	26	0	446	804
4:45 PM	98	106	0	0	204	0	0	0	0	0	0	129	15	0	144	72	320	34	0	426	774
Hourly Total	377	429	0	0	806	0	0	0	0	0	0	548	59	0	607	285	1315	112	0	1712	3125
5:00 PM	105	89	0	0	194	0	0	0	0	0	0	150	14	0	164	71	327	26	0	424	782
5:15 PM	63	93	0	0	156	0	0	0	0	0	0	163	10	0	173	74	350	27	0	451	780
5:30 PM	75	106	0	0	181	0	0	0	0	0	0	164	11	0	175	74	322	27	0	423	779
5:45 PM	84	118	0	0	202	0	0	0	0	0	0	139	22	0	161	72	317	26	0	415	778
Hourly Total	327	406	0	0	733	0	0	0	0	0	0	616	57	0	673	291	1316	106	0	1713	3119
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1743	1532	0	0	3275	0	0	0	0	0	0	2152	315	0	2467	988	5349	385	0	6722	12464
Approach %	53.2	46.8	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	87.2	12.8	0.0	-	14.7	79.6	5.7	0.0	-	-
Total %	14.0	12.3	0.0	0.0	26.3	0.0	0.0	0.0	0.0	0.0	0.0	17.3	2.5	0.0	19.8	7.9	42.9	3.1	0.0	53.9	-
Lights	1694	1488	0	0	3182	0	0	0	0	0	0	2055	276	0	2331	958	4692	338	0	5988	11501
% Lights	97.2	97.1	-	-	97.2	-	-	-	-	-	-	95.5	87.6	-	94.5	97.0	87.7	87.8	-	89.1	92.3
Mediums	34	29	0	0	63	0	0	0	0	0	0	40	7	0	47	26	167	12	0	205	315
% Mediums	2.0	1.9	-	-	1.9	-	-	-	-	-	-	1.9	2.2	-	1.9	2.6	3.1	3.1	-	3.0	2.5
Articulated Trucks	15	15	0	0	30	0	0	0	0	0	0	57	32	0	89	4	490	35	0	529	648
% Articulated Trucks	0.9	1.0	-	-	0.9	-	-	-	-	-	-	2.6	10.2	-	3.6	0.4	9.2	9.1	-	7.9	5.2

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: SH 114 EBFR @
US 377
Site Code:
Start Date: 08/31/2021
Page No: 2



Turning Movement Data Plot

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: SH 114 EBFR @
US 377
Site Code:
Start Date: 08/31/2021
Page No: 3

Turning Movement Peak Hour Data (7:00 AM)

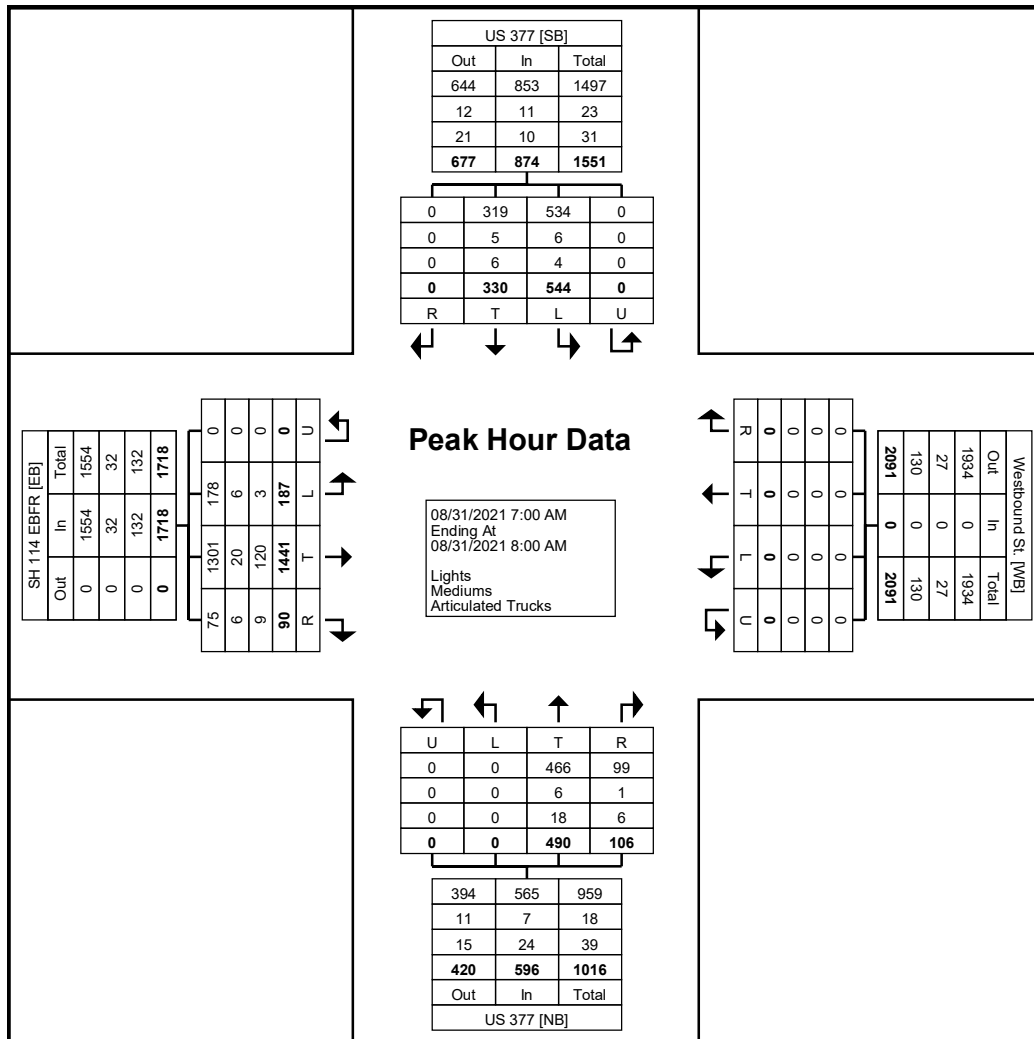
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	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	133	52	0	0	185	0	0	0	0	0	0	105	17	0	122	47	376	25	0	448	755
7:15 AM	139	93	0	0	232	0	0	0	0	0	0	132	26	0	158	41	357	24	0	422	812
7:30 AM	132	77	0	0	209	0	0	0	0	0	0	116	32	0	148	46	375	20	0	441	798
7:45 AM	140	108	0	0	248	0	0	0	0	0	0	137	31	0	168	53	333	21	0	407	823
Total	544	330	0	0	874	0	0	0	0	0	0	490	106	0	596	187	1441	90	0	1718	3188
Approach %	62.2	37.8	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	82.2	17.8	0.0	-	10.9	83.9	5.2	0.0	-	-
Total %	17.1	10.4	0.0	0.0	27.4	0.0	0.0	0.0	0.0	0.0	0.0	15.4	3.3	0.0	18.7	5.9	45.2	2.8	0.0	53.9	-
PHF	0.971	0.764	0.000	0.000	0.881	0.000	0.000	0.000	0.000	0.000	0.000	0.894	0.828	0.000	0.887	0.882	0.958	0.900	0.000	0.959	0.968
Lights	534	319	0	0	853	0	0	0	0	0	0	466	99	0	565	178	1301	75	0	1554	2972
% Lights	98.2	96.7	-	-	97.6	-	-	-	-	-	-	95.1	93.4	-	94.8	95.2	90.3	83.3	-	90.5	93.2
Mediums	6	5	0	0	11	0	0	0	0	0	0	6	1	0	7	6	20	6	0	32	50
% Mediums	1.1	1.5	-	-	1.3	-	-	-	-	-	-	1.2	0.9	-	1.2	3.2	1.4	6.7	-	1.9	1.6
Articulated Trucks	4	6	0	0	10	0	0	0	0	0	0	18	6	0	24	3	120	9	0	132	166
% Articulated Trucks	0.7	1.8	-	-	1.1	-	-	-	-	-	-	3.7	5.7	-	4.0	1.6	8.3	10.0	-	7.7	5.2

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1120 W. Lovers Lane

Arlington, Texas, United States 76013
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Count Name: SH 114 EBFR @
US 377
Site Code:
Start Date: 08/31/2021
Page No: 4



Turning Movement Peak Hour Data Plot (7:00 AM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

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817.265.8968

Count Name: SH 114 EBFR @
US 377
Site Code:
Start Date: 08/31/2021
Page No: 5

Turning Movement Peak Hour Data (4:30 PM)

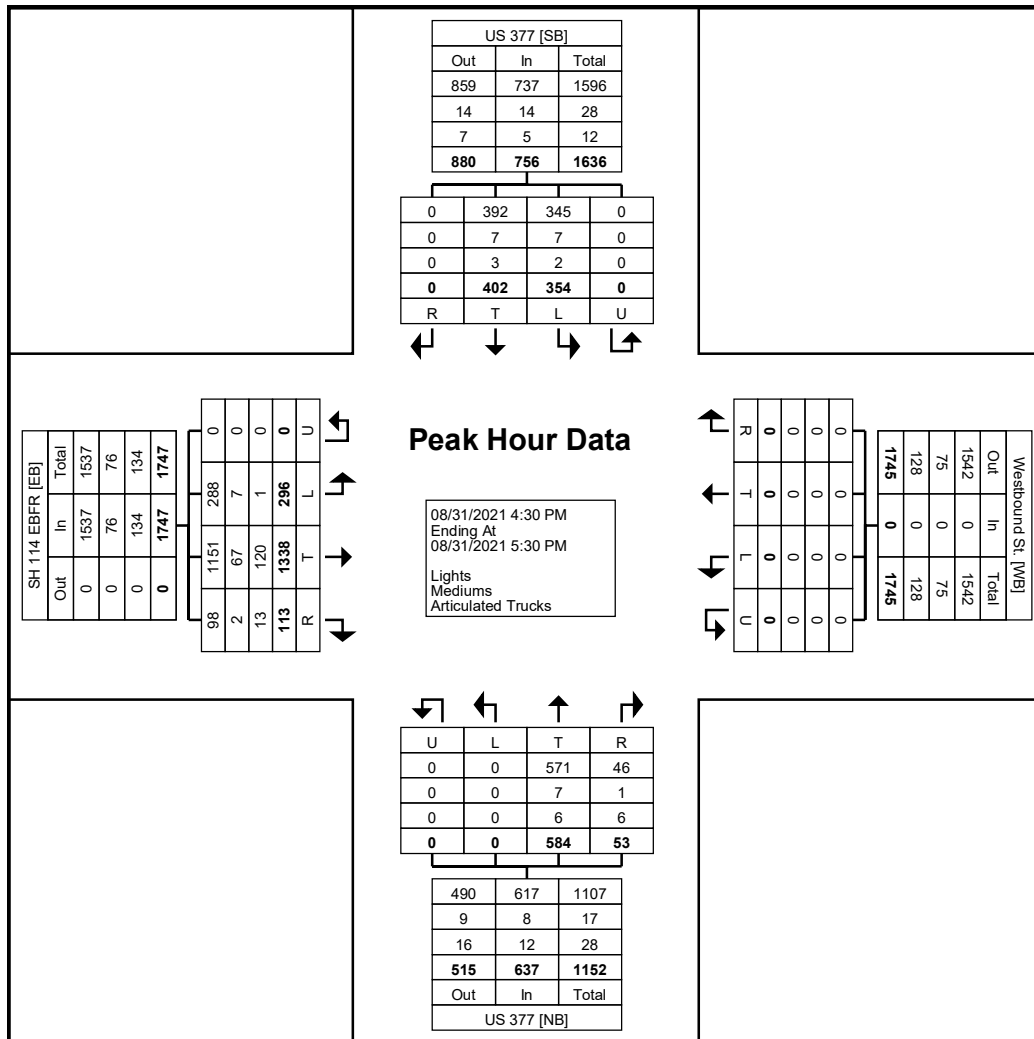
Start Time	US 377 Southbound					Westbound St. Westbound					US 377 Northbound					SH 114 EBFR Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:30 PM	88	114	0	0	202	0	0	0	0	0	0	142	14	0	156	79	341	26	0	446	804
4:45 PM	98	106	0	0	204	0	0	0	0	0	0	129	15	0	144	72	320	34	0	426	774
5:00 PM	105	89	0	0	194	0	0	0	0	0	0	150	14	0	164	71	327	26	0	424	782
5:15 PM	63	93	0	0	156	0	0	0	0	0	0	163	10	0	173	74	350	27	0	451	780
Total	354	402	0	0	756	0	0	0	0	0	0	584	53	0	637	296	1338	113	0	1747	3140
Approach %	46.8	53.2	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	91.7	8.3	0.0	-	16.9	76.6	6.5	0.0	-	-
Total %	11.3	12.8	0.0	0.0	24.1	0.0	0.0	0.0	0.0	0.0	0.0	18.6	1.7	0.0	20.3	9.4	42.6	3.6	0.0	55.6	-
PHF	0.843	0.882	0.000	0.000	0.926	0.000	0.000	0.000	0.000	0.000	0.000	0.896	0.883	0.000	0.921	0.937	0.956	0.831	0.000	0.968	0.976
Lights	345	392	0	0	737	0	0	0	0	0	0	571	46	0	617	288	1151	98	0	1537	2891
% Lights	97.5	97.5	-	-	97.5	-	-	-	-	-	-	97.8	86.8	-	96.9	97.3	86.0	86.7	-	88.0	92.1
Mediums	7	7	0	0	14	0	0	0	0	0	0	7	1	0	8	7	67	2	0	76	98
% Mediums	2.0	1.7	-	-	1.9	-	-	-	-	-	-	1.2	1.9	-	1.3	2.4	5.0	1.8	-	4.4	3.1
Articulated Trucks	2	3	0	0	5	0	0	0	0	0	0	6	6	0	12	1	120	13	0	134	151
% Articulated Trucks	0.6	0.7	-	-	0.7	-	-	-	-	-	-	1.0	11.3	-	1.9	0.3	9.0	11.5	-	7.7	4.8

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: SH 114 EBFR @
US 377
Site Code:
Start Date: 08/31/2021
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Turning Movement Peak Hour Data Plot (4:30 PM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: SH 114 WBFR @
US 377
Site Code:
Start Date: 08/31/2021
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Turning Movement Data

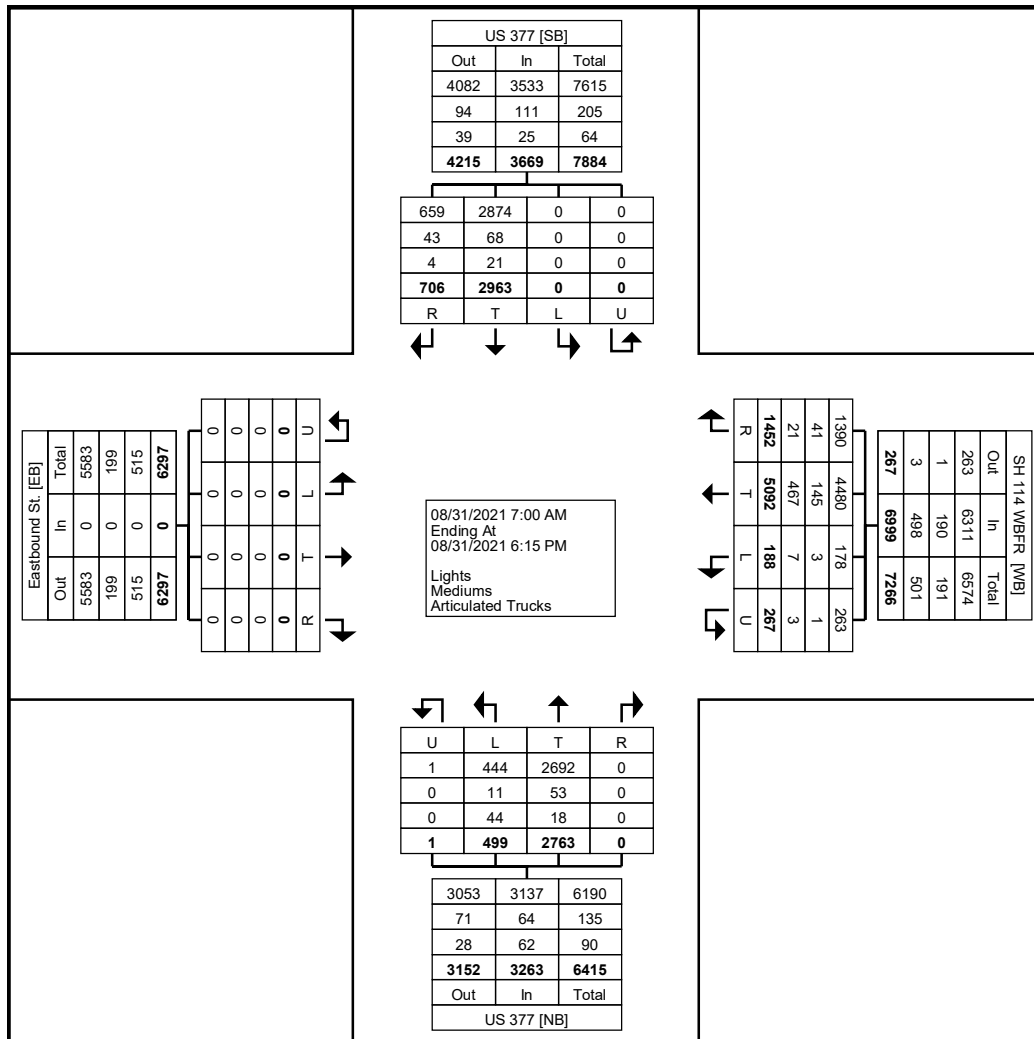
Start Time	US 377 Southbound					SH 114 WBFR Westbound					US 377 Northbound					Eastbound St. Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	0	172	30	0	202	8	302	92	8	410	19	142	0	0	161	0	0	0	0	0	773
7:15 AM	0	211	25	0	236	10	297	82	16	405	31	152	0	1	184	0	0	0	0	0	825
7:30 AM	0	228	36	0	264	5	322	102	28	457	21	169	0	0	190	0	0	0	0	0	911
7:45 AM	0	197	26	0	223	11	288	107	22	428	22	165	0	0	187	0	0	0	0	0	838
Hourly Total	0	808	117	0	925	34	1209	383	74	1700	93	628	0	1	722	0	0	0	0	0	3347
8:00 AM	0	217	34	0	251	9	305	85	21	420	21	181	0	0	202	0	0	0	0	0	873
8:15 AM	0	191	48	0	239	15	284	90	20	409	36	167	0	0	203	0	0	0	0	0	851
8:30 AM	0	212	54	0	266	11	240	81	22	354	28	146	0	0	174	0	0	0	0	0	794
8:45 AM	0	172	41	0	213	16	261	88	20	385	30	128	0	0	158	0	0	0	0	0	756
Hourly Total	0	792	177	0	969	51	1090	344	83	1568	115	622	0	0	737	0	0	0	0	0	3274
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	209	51	0	260	8	343	93	15	459	38	175	0	0	213	0	0	0	0	0	932
4:15 PM	0	224	71	0	295	9	340	80	10	439	30	178	0	0	208	0	0	0	0	0	942
4:30 PM	0	226	50	0	276	15	341	93	19	468	36	194	0	0	230	0	0	0	0	0	974
4:45 PM	0	212	55	0	267	17	304	97	10	428	33	180	0	0	213	0	0	0	0	0	908
Hourly Total	0	871	227	0	1098	49	1328	363	54	1794	137	727	0	0	864	0	0	0	0	0	3756
5:00 PM	0	138	64	0	202	12	359	85	11	467	28	216	0	0	244	0	0	0	0	0	913
5:15 PM	0	108	40	0	148	16	348	96	15	475	46	195	0	0	241	0	0	0	0	0	864
5:30 PM	0	128	43	0	171	12	377	94	12	495	38	185	0	0	223	0	0	0	0	0	889
5:45 PM	0	118	38	0	156	14	381	87	18	500	42	190	0	0	232	0	0	0	0	0	888
Hourly Total	0	492	185	0	677	54	1465	362	56	1937	154	786	0	0	940	0	0	0	0	0	3554
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	2963	706	0	3669	188	5092	1452	267	6999	499	2763	0	1	3263	0	0	0	0	0	13931
Approach %	0.0	80.8	19.2	0.0	-	2.7	72.8	20.7	3.8	-	15.3	84.7	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-
Total %	0.0	21.3	5.1	0.0	26.3	1.3	36.6	10.4	1.9	50.2	3.6	19.8	0.0	0.0	23.4	0.0	0.0	0.0	0.0	0.0	-
Lights	0	2874	659	0	3533	178	4480	1390	263	6311	444	2692	0	1	3137	0	0	0	0	0	12981
% Lights	-	97.0	93.3	-	96.3	94.7	88.0	95.7	98.5	90.2	89.0	97.4	-	100.0	96.1	-	-	-	-	-	93.2
Mediums	0	68	43	0	111	3	145	41	1	190	11	53	0	0	64	0	0	0	0	0	365
% Mediums	-	2.3	6.1	-	3.0	1.6	2.8	2.8	0.4	2.7	2.2	1.9	-	0.0	2.0	-	-	-	-	-	2.6
Articulated Trucks	0	21	4	0	25	7	467	21	3	498	44	18	0	0	62	0	0	0	0	0	585
% Articulated Trucks	-	0.7	0.6	-	0.7	3.7	9.2	1.4	1.1	7.1	8.8	0.7	-	0.0	1.9	-	-	-	-	-	4.2

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: SH 114 WBFR @
US 377
Site Code:
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Turning Movement Data Plot

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: SH 114 WBFR @
US 377
Site Code:
Start Date: 08/31/2021
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Turning Movement Peak Hour Data (7:30 AM)

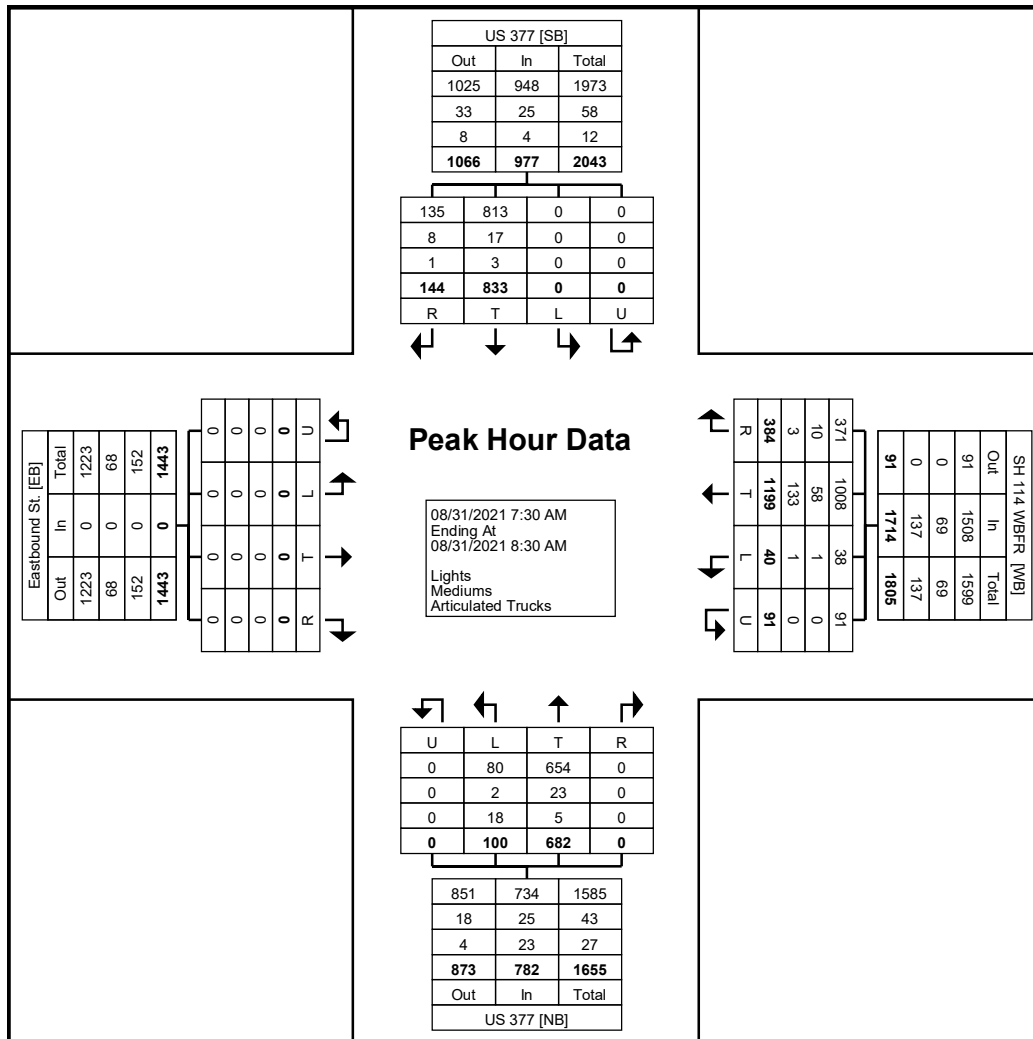
Start Time	US 377 Southbound					SH 114 WBFR Westbound					US 377 Northbound					Eastbound St. Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:30 AM	0	228	36	0	264	5	322	102	28	457	21	169	0	0	190	0	0	0	0	0	911
7:45 AM	0	197	26	0	223	11	288	107	22	428	22	165	0	0	187	0	0	0	0	0	838
8:00 AM	0	217	34	0	251	9	305	85	21	420	21	181	0	0	202	0	0	0	0	0	873
8:15 AM	0	191	48	0	239	15	284	90	20	409	36	167	0	0	203	0	0	0	0	0	851
Total	0	833	144	0	977	40	1199	384	91	1714	100	682	0	0	782	0	0	0	0	0	3473
Approach %	0.0	85.3	14.7	0.0	-	2.3	70.0	22.4	5.3	-	12.8	87.2	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-
Total %	0.0	24.0	4.1	0.0	28.1	1.2	34.5	11.1	2.6	49.4	2.9	19.6	0.0	0.0	22.5	0.0	0.0	0.0	0.0	0.0	-
PHF	0.000	0.913	0.750	0.000	0.925	0.667	0.931	0.897	0.813	0.938	0.694	0.942	0.000	0.000	0.963	0.000	0.000	0.000	0.000	0.000	0.953
Lights	0	813	135	0	948	38	1008	371	91	1508	80	654	0	0	734	0	0	0	0	0	3190
% Lights	-	97.6	93.8	-	97.0	95.0	84.1	96.6	100.0	88.0	80.0	95.9	-	-	93.9	-	-	-	-	-	91.9
Mediums	0	17	8	0	25	1	58	10	0	69	2	23	0	0	25	0	0	0	0	0	119
% Mediums	-	2.0	5.6	-	2.6	2.5	4.8	2.6	0.0	4.0	2.0	3.4	-	-	3.2	-	-	-	-	-	3.4
Articulated Trucks	0	3	1	0	4	1	133	3	0	137	18	5	0	0	23	0	0	0	0	0	164
% Articulated Trucks	-	0.4	0.7	-	0.4	2.5	11.1	0.8	0.0	8.0	18.0	0.7	-	-	2.9	-	-	-	-	-	4.7

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: SH 114 WBFR @
US 377
Site Code:
Start Date: 08/31/2021
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Turning Movement Peak Hour Data Plot (7:30 AM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: SH 114 WBFR @
US 377
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Turning Movement Peak Hour Data (4:00 PM)

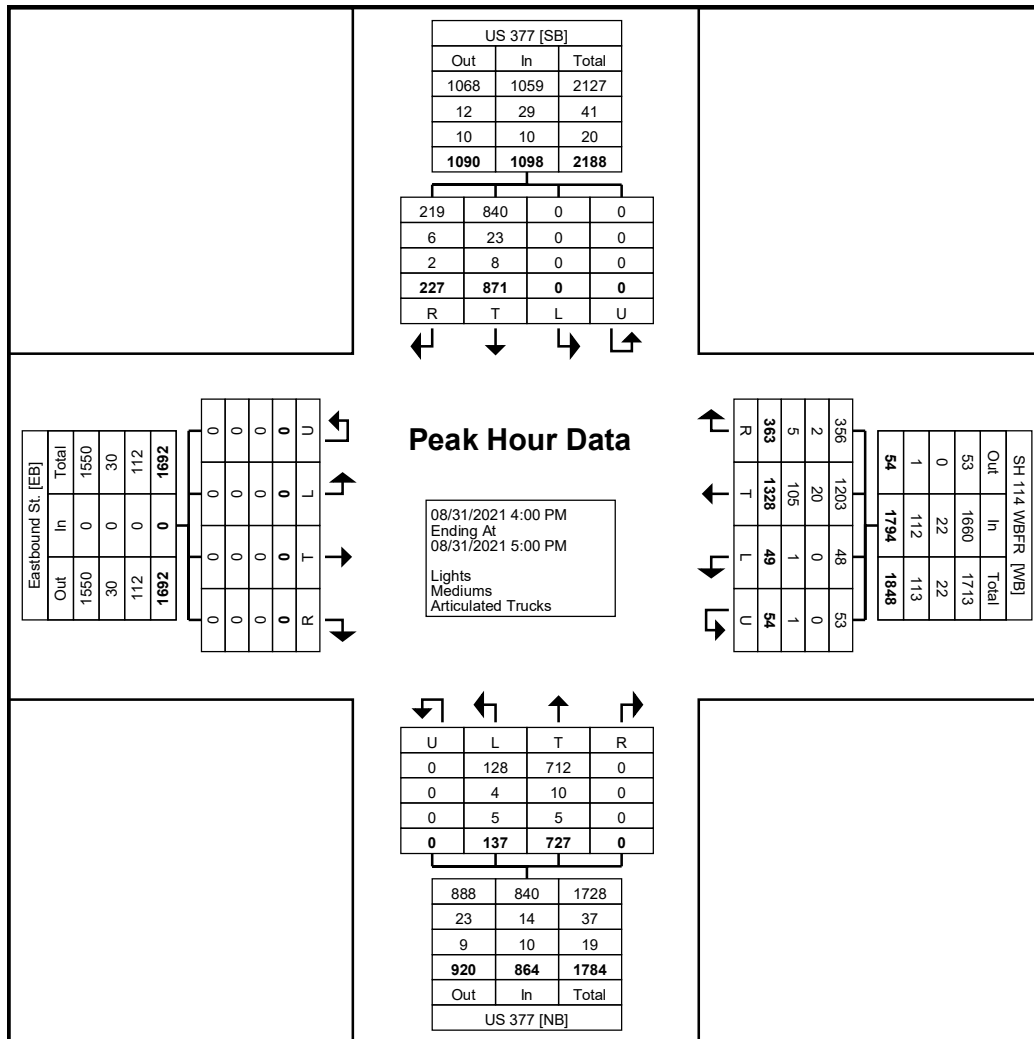
Start Time	US 377 Southbound					SH 114 WBFR Westbound					US 377 Northbound					Eastbound St. Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:00 PM	0	209	51	0	260	8	343	93	15	459	38	175	0	0	213	0	0	0	0	0	932
4:15 PM	0	224	71	0	295	9	340	80	10	439	30	178	0	0	208	0	0	0	0	0	942
4:30 PM	0	226	50	0	276	15	341	93	19	468	36	194	0	0	230	0	0	0	0	0	974
4:45 PM	0	212	55	0	267	17	304	97	10	428	33	180	0	0	213	0	0	0	0	0	908
Total	0	871	227	0	1098	49	1328	363	54	1794	137	727	0	0	864	0	0	0	0	0	3756
Approach %	0.0	79.3	20.7	0.0	-	2.7	74.0	20.2	3.0	-	15.9	84.1	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-
Total %	0.0	23.2	6.0	0.0	29.2	1.3	35.4	9.7	1.4	47.8	3.6	19.4	0.0	0.0	23.0	0.0	0.0	0.0	0.0	0.0	-
PHF	0.000	0.963	0.799	0.000	0.931	0.721	0.968	0.936	0.711	0.958	0.901	0.937	0.000	0.000	0.939	0.000	0.000	0.000	0.000	0.000	0.964
Lights	0	840	219	0	1059	48	1203	356	53	1660	128	712	0	0	840	0	0	0	0	0	3559
% Lights	-	96.4	96.5	-	96.4	98.0	90.6	98.1	98.1	92.5	93.4	97.9	-	-	97.2	-	-	-	-	-	94.8
Mediums	0	23	6	0	29	0	20	2	0	22	4	10	0	0	14	0	0	0	0	0	65
% Mediums	-	2.6	2.6	-	2.6	0.0	1.5	0.6	0.0	1.2	2.9	1.4	-	-	1.6	-	-	-	-	-	1.7
Articulated Trucks	0	8	2	0	10	1	105	5	1	112	5	5	0	0	10	0	0	0	0	0	132
% Articulated Trucks	-	0.9	0.9	-	0.9	2.0	7.9	1.4	1.9	6.2	3.6	0.7	-	-	1.2	-	-	-	-	-	3.5

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: SH 114 WBFR @
US 377
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Turning Movement Peak Hour Data Plot (4:00 PM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: DORMAN RD @
OAK ST
Site Code:
Start Date: 08/31/2021
Page No: 1

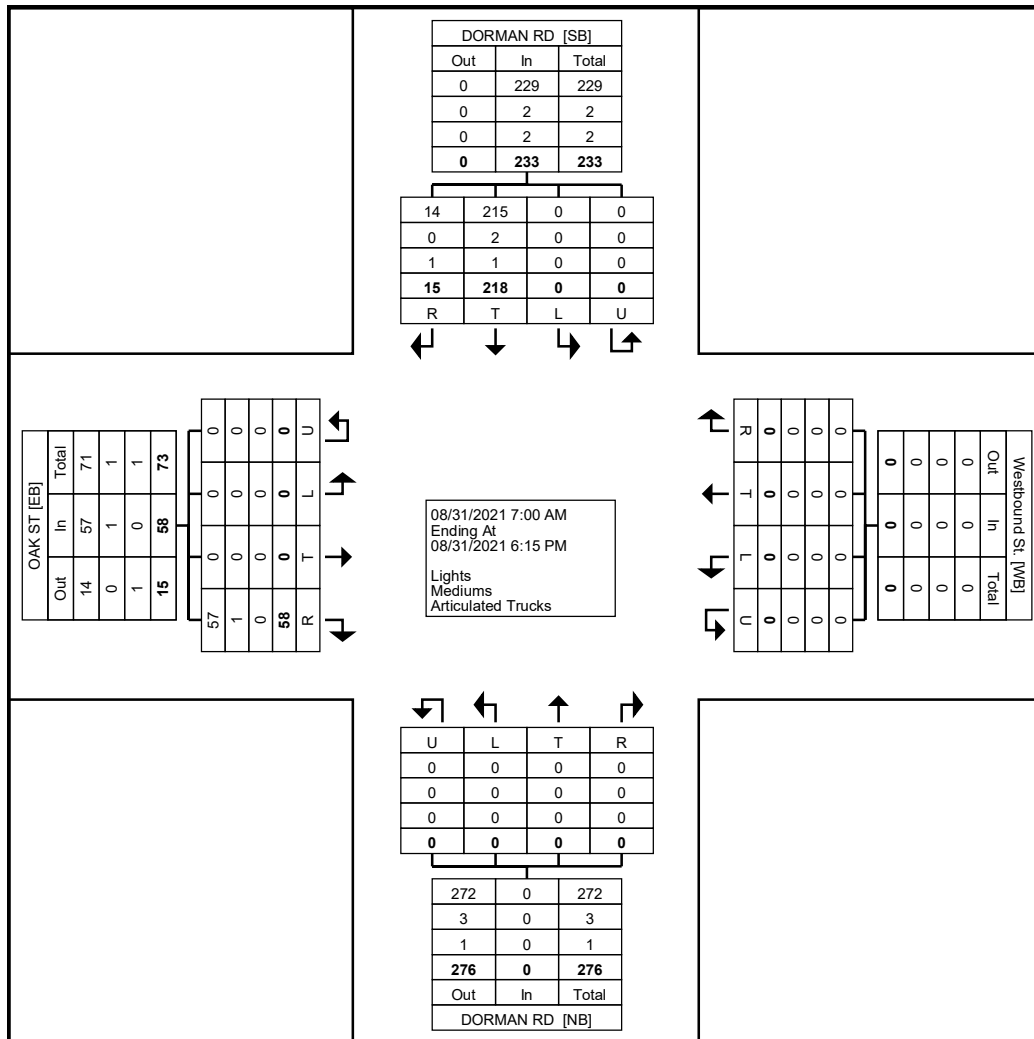
Turning Movement Data

Start Time	DORMAN RD Southbound					Westbound St. Westbound					DORMAN RD Northbound					OAK ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
7:15 AM	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	7
7:30 AM	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	9
7:45 AM	0	11	1	0	12	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	19
Hourly Total	0	29	1	0	30	0	0	0	0	0	0	0	0	0	0	0	0	9	0	9	39
8:00 AM	0	11	1	0	12	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	14
8:15 AM	0	11	1	0	12	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	16
8:30 AM	0	14	2	0	16	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	17
8:45 AM	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	15
Hourly Total	0	45	4	0	49	0	0	0	0	0	0	0	0	0	0	0	0	13	0	13	62
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	18	2	0	20	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	25
4:15 PM	0	21	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	23
4:30 PM	0	17	2	0	19	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	22
4:45 PM	0	17	1	0	18	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	23
Hourly Total	0	73	5	0	78	0	0	0	0	0	0	0	0	0	0	0	0	15	0	15	93
5:00 PM	0	21	2	0	23	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	29
5:15 PM	0	19	1	0	20	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	27
5:30 PM	0	15	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	19
5:45 PM	0	16	2	0	18	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	22
Hourly Total	0	71	5	0	76	0	0	0	0	0	0	0	0	0	0	0	0	21	0	21	97
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	218	15	0	233	0	0	0	0	0	0	0	0	0	0	0	0	58	0	58	291
Approach %	0.0	93.6	6.4	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	100.0	0.0	-	-
Total %	0.0	74.9	5.2	0.0	80.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.9	0.0	19.9	-
Lights	0	215	14	0	229	0	0	0	0	0	0	0	0	0	0	0	0	57	0	57	286
% Lights	-	98.6	93.3	-	98.3	-	-	-	-	-	-	-	-	-	-	-	-	98.3	-	98.3	98.3
Mediums	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
% Mediums	-	0.9	0.0	-	0.9	-	-	-	-	-	-	-	-	-	-	-	-	1.7	-	1.7	1.0
Articulated Trucks	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Articulated Trucks	-	0.5	6.7	-	0.9	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	0.0	0.7

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: DORMAN RD @
OAK ST
Site Code:
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Turning Movement Data Plot

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: DORMAN RD @
OAK ST
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Turning Movement Peak Hour Data (7:45 AM)

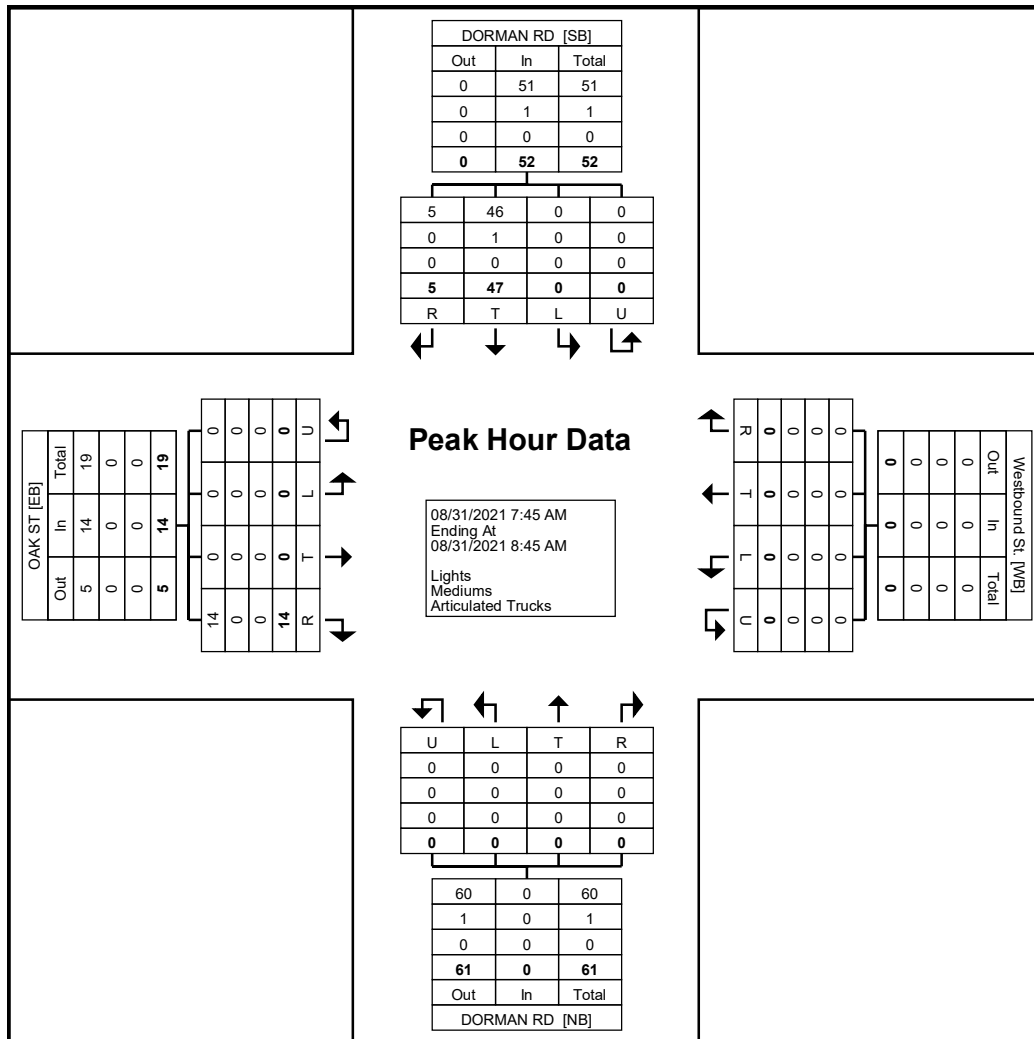
Start Time	DORMAN RD Southbound					Westbound St. Westbound					DORMAN RD Northbound					OAK ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:45 AM	0	11	1	0	12	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	19
8:00 AM	0	11	1	0	12	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	14
8:15 AM	0	11	1	0	12	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	16
8:30 AM	0	14	2	0	16	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	17
Total	0	47	5	0	52	0	0	0	0	0	0	0	0	0	0	0	0	14	0	14	66
Approach %	0.0	90.4	9.6	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	100.0	0.0	-	-
Total %	0.0	71.2	7.6	0.0	78.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.2	0.0	21.2	-
PHF	0.000	0.839	0.625	0.000	0.813	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.868
Lights	0	46	5	0	51	0	0	0	0	0	0	0	0	0	0	0	0	14	0	14	65
% Lights	-	97.9	100.0	-	98.1	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	100.0	98.5
Mediums	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Mediums	-	2.1	0.0	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	0.0	1.5
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: DORMAN RD @
OAK ST
Site Code:
Start Date: 08/31/2021
Page No: 4



Turning Movement Peak Hour Data Plot (7:45 AM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: DORMAN RD @
OAK ST
Site Code:
Start Date: 08/31/2021
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Turning Movement Peak Hour Data (4:30 PM)

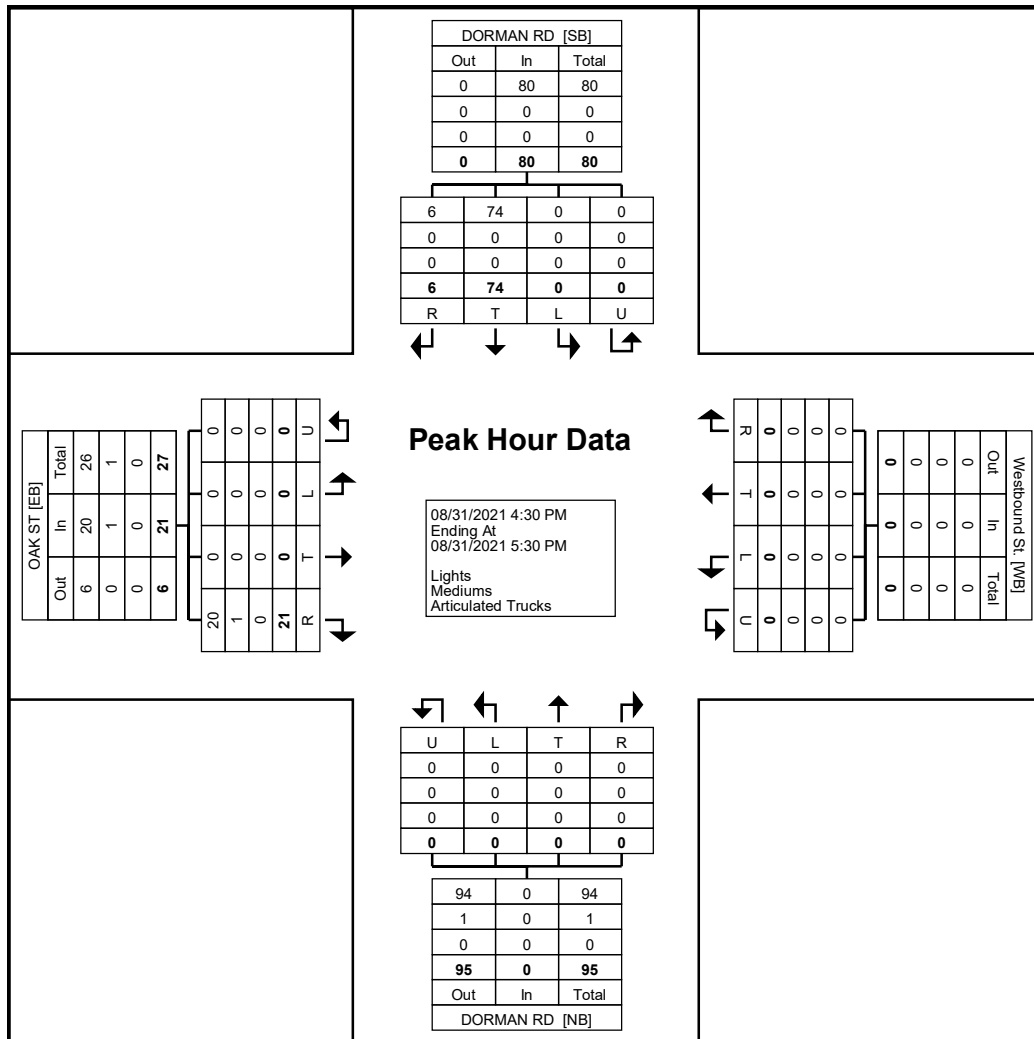
Start Time	DORMAN RD Southbound					Westbound St. Westbound					DORMAN RD Northbound					OAK ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:30 PM	0	17	2	0	19	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	22
4:45 PM	0	17	1	0	18	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	23
5:00 PM	0	21	2	0	23	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	29
5:15 PM	0	19	1	0	20	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	27
Total	0	74	6	0	80	0	0	0	0	0	0	0	0	0	0	0	0	21	0	21	101
Approach %	0.0	92.5	7.5	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	100.0	0.0	-	-
Total %	0.0	73.3	5.9	0.0	79.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.8	0.0	20.8	-
PHF	0.000	0.881	0.750	0.000	0.870	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.750	0.871
Lights	0	74	6	0	80	0	0	0	0	0	0	0	0	0	0	0	0	20	0	20	100
% Lights	-	100.0	100.0	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	95.2	-	95.2	99.0
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Mediums	-	0.0	0.0	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	4.8	1.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: DORMAN RD @
OAK ST
Site Code:
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Turning Movement Peak Hour Data Plot (4:30 PM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: OAK ST @
COMMERCIAL DRWY
Site Code:
Start Date: 08/31/2021
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Turning Movement Data

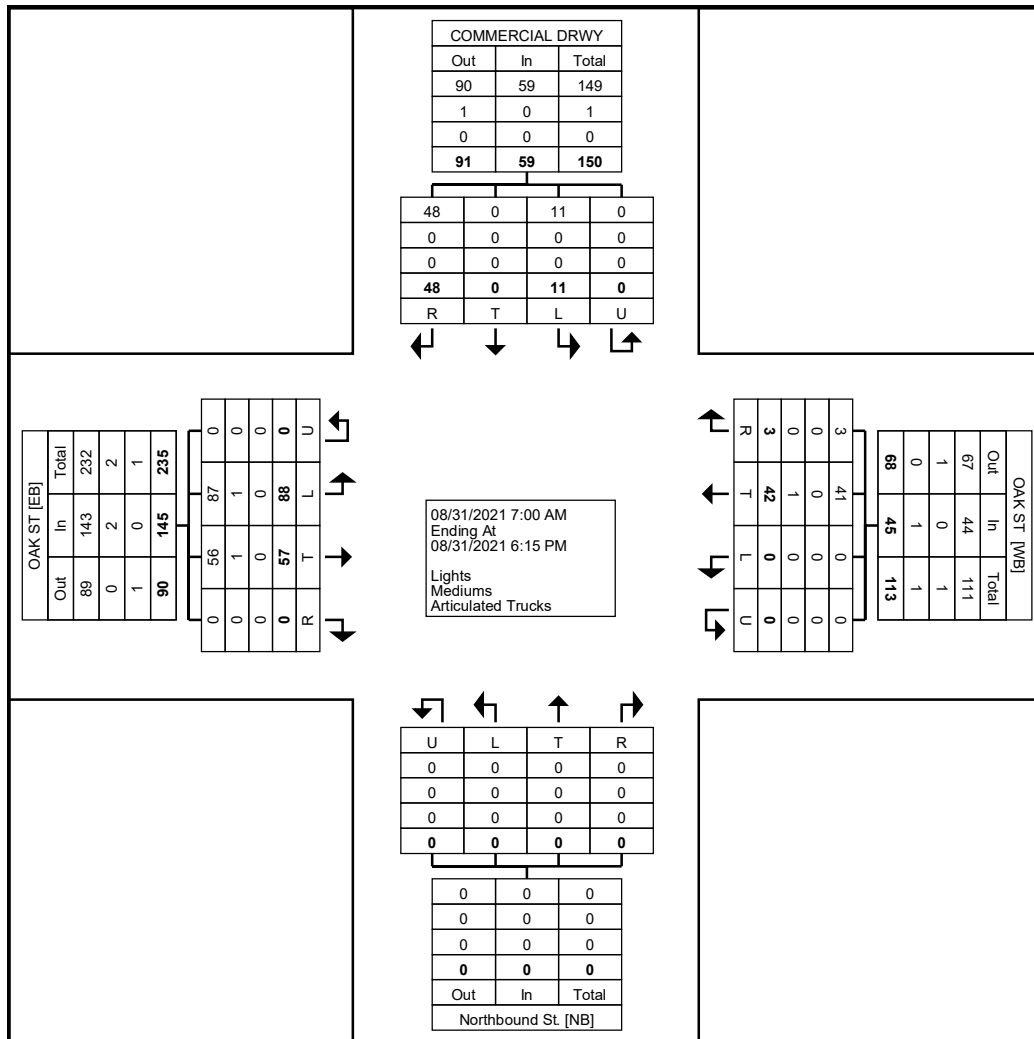
Start Time	COMMERCIAL DRWY Southbound					OAK ST Westbound					Northbound St. Northbound					OAK ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3	2	0	0	5	6
7:15 AM	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	6	1	0	0	7	10
7:30 AM	0	0	3	0	3	0	1	0	0	1	0	0	0	0	0	6	3	0	0	9	13
7:45 AM	4	0	8	0	12	0	3	0	0	3	0	0	0	0	0	14	6	0	0	20	35
Hourly Total	4	0	14	0	18	0	5	0	0	5	0	0	0	0	0	29	12	0	0	41	64
8:00 AM	1	0	4	0	5	0	3	0	0	3	0	0	0	0	0	2	1	0	0	3	11
8:15 AM	1	0	1	0	2	0	2	0	0	2	0	0	0	0	0	7	3	0	0	10	14
8:30 AM	0	0	2	0	2	0	3	0	0	3	0	0	0	0	0	7	3	0	0	10	15
8:45 AM	1	0	1	0	2	0	3	0	0	3	0	0	0	0	0	6	7	0	0	13	18
Hourly Total	3	0	8	0	11	0	11	0	0	11	0	0	0	0	0	22	14	0	0	36	58
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	1	0	1	0	2	0	4	0	0	4	0	0	0	0	0	4	3	0	0	7	13
4:15 PM	1	0	2	0	3	0	2	0	0	2	0	0	0	0	0	3	4	0	0	7	12
4:30 PM	2	0	4	0	6	0	3	0	0	3	0	0	0	0	0	7	3	0	0	10	19
4:45 PM	0	0	1	0	1	0	2	3	0	5	0	0	0	0	0	7	5	0	0	12	18
Hourly Total	4	0	8	0	12	0	11	3	0	14	0	0	0	0	0	21	15	0	0	36	62
5:00 PM	0	0	7	0	7	0	5	0	0	5	0	0	0	0	0	6	3	0	0	9	21
5:15 PM	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	2	5	0	0	7	11
5:30 PM	0	0	5	0	5	0	4	0	0	4	0	0	0	0	0	4	3	0	0	7	16
5:45 PM	0	0	4	0	4	0	4	0	0	4	0	0	0	0	0	4	5	0	0	9	17
Hourly Total	0	0	18	0	18	0	15	0	0	15	0	0	0	0	0	16	16	0	0	32	65
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	11	0	48	0	59	0	42	3	0	45	0	0	0	0	0	88	57	0	0	145	249
Approach %	18.6	0.0	81.4	0.0	-	0.0	93.3	6.7	0.0	-	0.0	0.0	0.0	0.0	-	60.7	39.3	0.0	0.0	-	-
Total %	4.4	0.0	19.3	0.0	23.7	0.0	16.9	1.2	0.0	18.1	0.0	0.0	0.0	0.0	0.0	35.3	22.9	0.0	0.0	58.2	-
Lights	11	0	48	0	59	0	41	3	0	44	0	0	0	0	0	87	56	0	0	143	246
% Lights	100.0	-	100.0	-	100.0	-	97.6	100.0	-	97.8	-	-	-	-	-	98.9	98.2	-	-	98.6	98.8
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
% Mediums	0.0	-	0.0	-	0.0	-	0.0	0.0	-	0.0	-	-	-	-	-	1.1	1.8	-	-	1.4	0.8
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Articulated Trucks	0.0	-	0.0	-	0.0	-	2.4	0.0	-	2.2	-	-	-	-	-	0.0	0.0	-	-	0.0	0.4

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: OAK ST @
COMMERCIAL DRWY
Site Code:
Start Date: 08/31/2021
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Turning Movement Data Plot

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: OAK ST @
COMMERCIAL DRWY
Site Code:
Start Date: 08/31/2021
Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

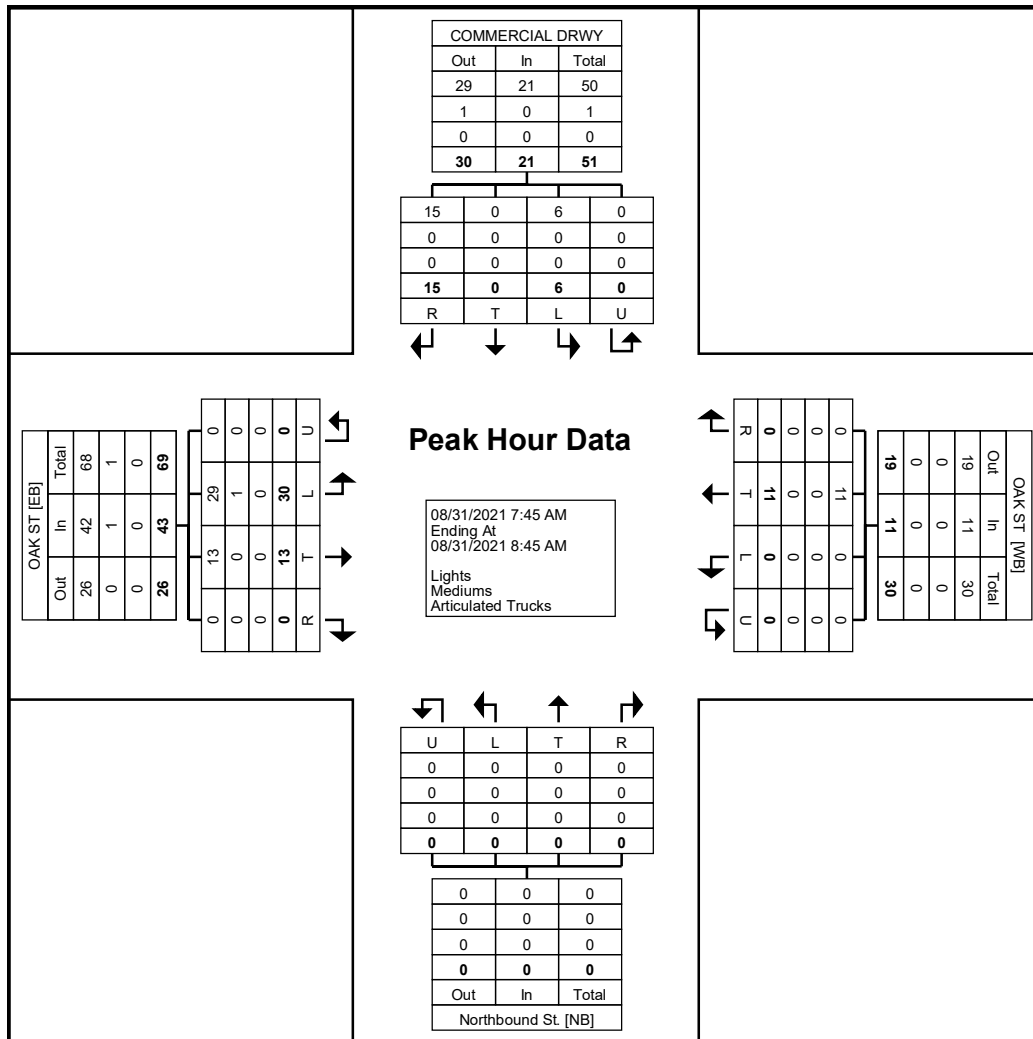
Start Time	COMMERCIAL DRWY Southbound					OAK ST Westbound					Northbound St. Northbound					OAK ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:45 AM	4	0	8	0	12	0	3	0	0	3	0	0	0	0	0	14	6	0	0	20	35
8:00 AM	1	0	4	0	5	0	3	0	0	3	0	0	0	0	0	2	1	0	0	3	11
8:15 AM	1	0	1	0	2	0	2	0	0	2	0	0	0	0	0	7	3	0	0	10	14
8:30 AM	0	0	2	0	2	0	3	0	0	3	0	0	0	0	0	7	3	0	0	10	15
Total	6	0	15	0	21	0	11	0	0	11	0	0	0	0	0	30	13	0	0	43	75
Approach %	28.6	0.0	71.4	0.0	-	0.0	100.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	69.8	30.2	0.0	0.0	-	-
Total %	8.0	0.0	20.0	0.0	28.0	0.0	14.7	0.0	0.0	14.7	0.0	0.0	0.0	0.0	0.0	40.0	17.3	0.0	0.0	57.3	-
PHF	0.375	0.000	0.469	0.000	0.438	0.000	0.917	0.000	0.000	0.917	0.000	0.000	0.000	0.000	0.000	0.536	0.542	0.000	0.000	0.538	0.536
Lights	6	0	15	0	21	0	11	0	0	11	0	0	0	0	0	29	13	0	0	42	74
% Lights	100.0	-	100.0	-	100.0	-	100.0	-	-	100.0	-	-	-	-	-	96.7	100.0	-	-	97.7	98.7
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
% Mediums	0.0	-	0.0	-	0.0	-	0.0	-	-	0.0	-	-	-	-	-	3.3	0.0	-	-	2.3	1.3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0.0	-	0.0	-	0.0	-	0.0	-	-	0.0	-	-	-	-	-	0.0	0.0	-	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: OAK ST @
COMMERCIAL DRWY
Site Code:
Start Date: 08/31/2021
Page No: 4



Turning Movement Peak Hour Data Plot (7:45 AM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: OAK ST @
COMMERCIAL DRWY
Site Code:
Start Date: 08/31/2021
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Turning Movement Peak Hour Data (4:15 PM)

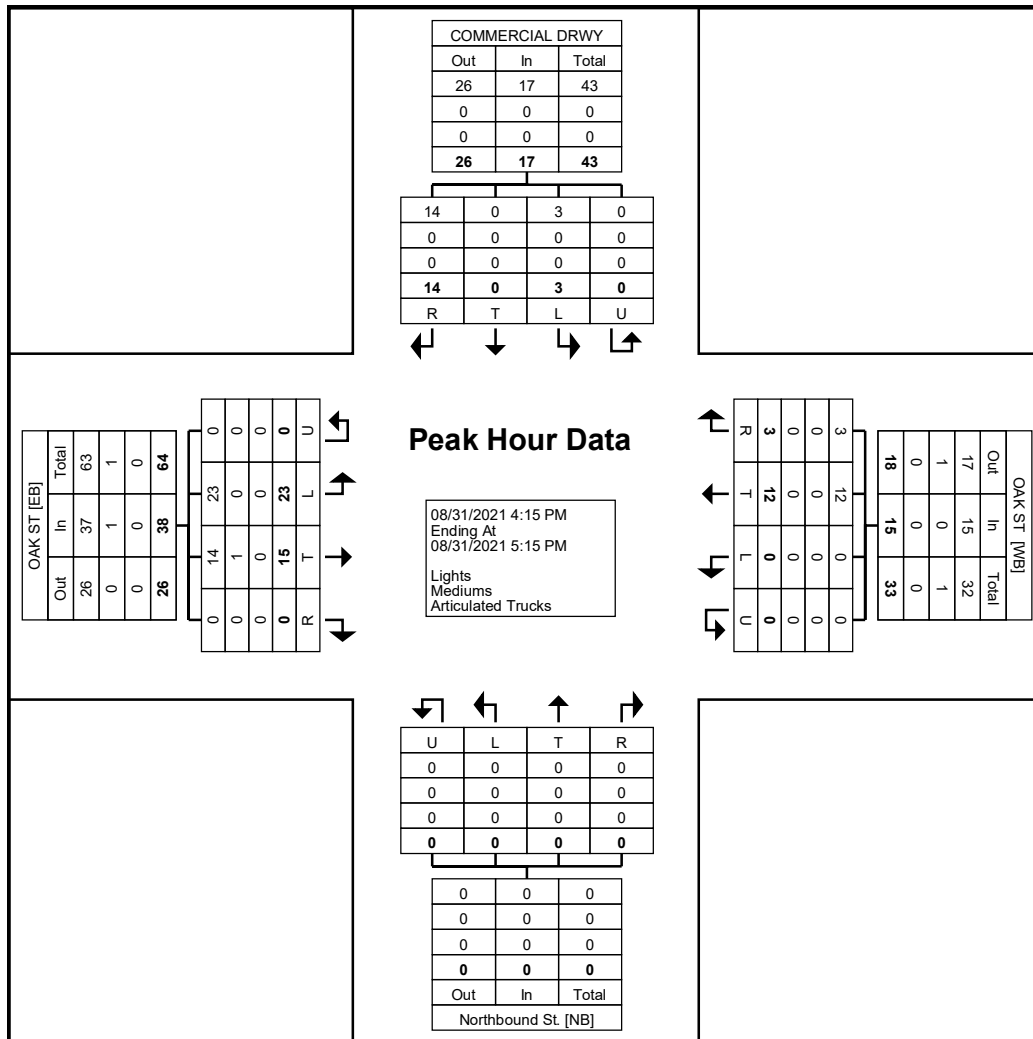
Start Time	COMMERCIAL DRWY Southbound					OAK ST Westbound					Northbound St. Northbound					OAK ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:15 PM	1	0	2	0	3	0	2	0	0	2	0	0	0	0	0	3	4	0	0	7	12
4:30 PM	2	0	4	0	6	0	3	0	0	3	0	0	0	0	0	7	3	0	0	10	19
4:45 PM	0	0	1	0	1	0	2	3	0	5	0	0	0	0	0	7	5	0	0	12	18
5:00 PM	0	0	7	0	7	0	5	0	0	5	0	0	0	0	0	6	3	0	0	9	21
Total	3	0	14	0	17	0	12	3	0	15	0	0	0	0	0	23	15	0	0	38	70
Approach %	17.6	0.0	82.4	0.0	-	0.0	80.0	20.0	0.0	-	0.0	0.0	0.0	0.0	-	60.5	39.5	0.0	0.0	-	-
Total %	4.3	0.0	20.0	0.0	24.3	0.0	17.1	4.3	0.0	21.4	0.0	0.0	0.0	0.0	0.0	32.9	21.4	0.0	0.0	54.3	-
PHF	0.375	0.000	0.500	0.000	0.607	0.000	0.600	0.250	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.821	0.750	0.000	0.000	0.792	0.833
Lights	3	0	14	0	17	0	12	3	0	15	0	0	0	0	0	23	14	0	0	37	69
% Lights	100.0	-	100.0	-	100.0	-	100.0	100.0	-	100.0	-	-	-	-	-	100.0	93.3	-	-	97.4	98.6
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Mediums	0.0	-	0.0	-	0.0	-	0.0	0.0	-	0.0	-	-	-	-	-	0.0	6.7	-	-	2.6	1.4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0.0	-	0.0	-	0.0	-	0.0	0.0	-	0.0	-	-	-	-	-	0.0	0.0	-	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: OAK ST @
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Site Code:
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Turning Movement Peak Hour Data Plot (4:15 PM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
OAK ST
Site Code:
Start Date: 08/31/2021
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Turning Movement Data

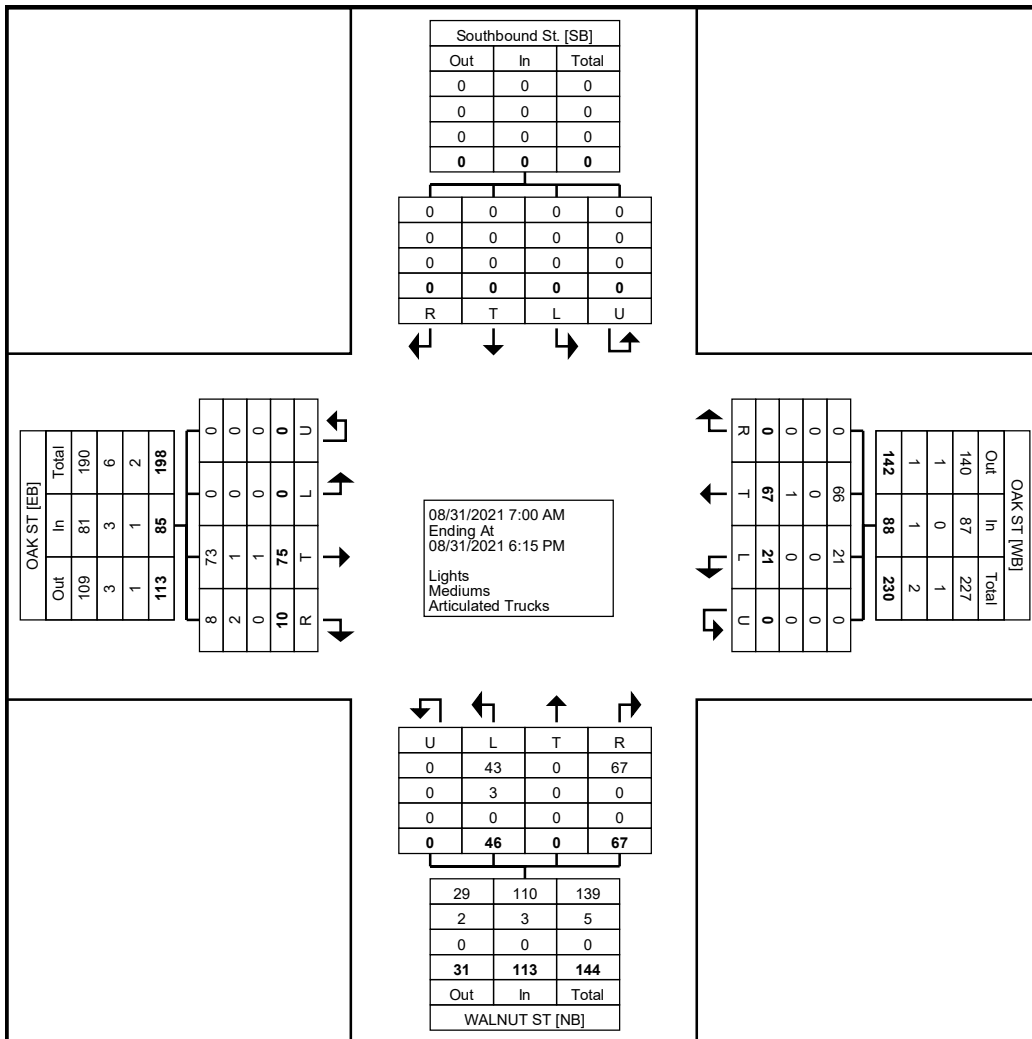
Start Time	Southbound St. Southbound					OAK ST Westbound					WALNUT ST Northbound					OAK ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	0	5	0	0	5	9
7:15 AM	0	0	0	0	0	0	3	0	0	3	3	0	5	0	8	0	2	1	0	3	14
7:30 AM	0	0	0	0	0	1	2	0	0	3	3	0	5	0	8	0	5	0	0	5	16
7:45 AM	0	0	0	0	0	4	7	0	0	11	0	0	9	0	9	0	9	2	0	11	31
Hourly Total	0	0	0	0	0	5	13	0	0	18	9	0	19	0	28	0	21	3	0	24	70
8:00 AM	0	0	0	0	0	2	5	0	0	7	5	0	1	0	6	0	2	1	0	3	16
8:15 AM	0	0	0	0	0	1	2	0	0	3	2	0	6	0	8	0	6	0	0	6	17
8:30 AM	0	0	0	0	0	1	5	0	0	6	6	0	5	0	11	0	3	0	0	3	20
8:45 AM	0	0	0	0	0	1	1	0	0	2	2	0	4	0	6	0	8	1	0	9	17
Hourly Total	0	0	0	0	0	5	13	0	0	18	15	0	16	0	31	0	19	2	0	21	70
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	0	0	0	1	4	0	0	5	5	0	1	0	6	0	5	0	0	5	16
4:15 PM	0	0	0	0	0	2	2	0	0	4	4	0	5	0	9	0	4	0	0	4	17
4:30 PM	0	0	0	0	0	1	6	0	0	7	3	0	4	0	7	0	3	0	0	3	17
4:45 PM	0	0	0	0	0	0	3	0	0	3	3	0	5	0	8	0	7	1	0	8	19
Hourly Total	0	0	0	0	0	4	15	0	0	19	15	0	15	0	30	0	19	1	0	20	69
5:00 PM	0	0	0	0	0	3	9	0	0	12	4	0	7	0	11	0	4	2	0	6	29
5:15 PM	0	0	0	0	0	1	4	0	0	5	1	0	1	0	2	0	6	2	0	8	15
5:30 PM	0	0	0	0	0	3	5	0	0	8	0	0	4	0	4	0	2	0	0	2	14
5:45 PM	0	0	0	0	0	0	8	0	0	8	2	0	5	0	7	0	4	0	0	4	19
Hourly Total	0	0	0	0	0	7	26	0	0	33	7	0	17	0	24	0	16	4	0	20	77
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	21	67	0	0	88	46	0	67	0	113	0	75	10	0	85	286
Approach %	0.0	0.0	0.0	0.0	-	23.9	76.1	0.0	0.0	-	40.7	0.0	59.3	0.0	-	0.0	88.2	11.8	0.0	-	-
Total %	0.0	0.0	0.0	0.0	0.0	7.3	23.4	0.0	0.0	30.8	16.1	0.0	23.4	0.0	39.5	0.0	26.2	3.5	0.0	29.7	-
Lights	0	0	0	0	0	21	66	0	0	87	43	0	67	0	110	0	73	8	0	81	278
% Lights	-	-	-	-	-	100.0	98.5	-	-	98.9	93.5	-	100.0	-	97.3	-	97.3	80.0	-	95.3	97.2
Mediums	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	1	2	0	3	6
% Mediums	-	-	-	-	-	0.0	0.0	-	-	0.0	6.5	-	0.0	-	2.7	-	1.3	20.0	-	3.5	2.1
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
% Articulated Trucks	-	-	-	-	-	0.0	1.5	-	-	1.1	0.0	-	0.0	-	0.0	-	1.3	0.0	-	1.2	0.7

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
OAK ST
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Turning Movement Data Plot

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
OAK ST
Site Code:
Start Date: 08/31/2021
Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

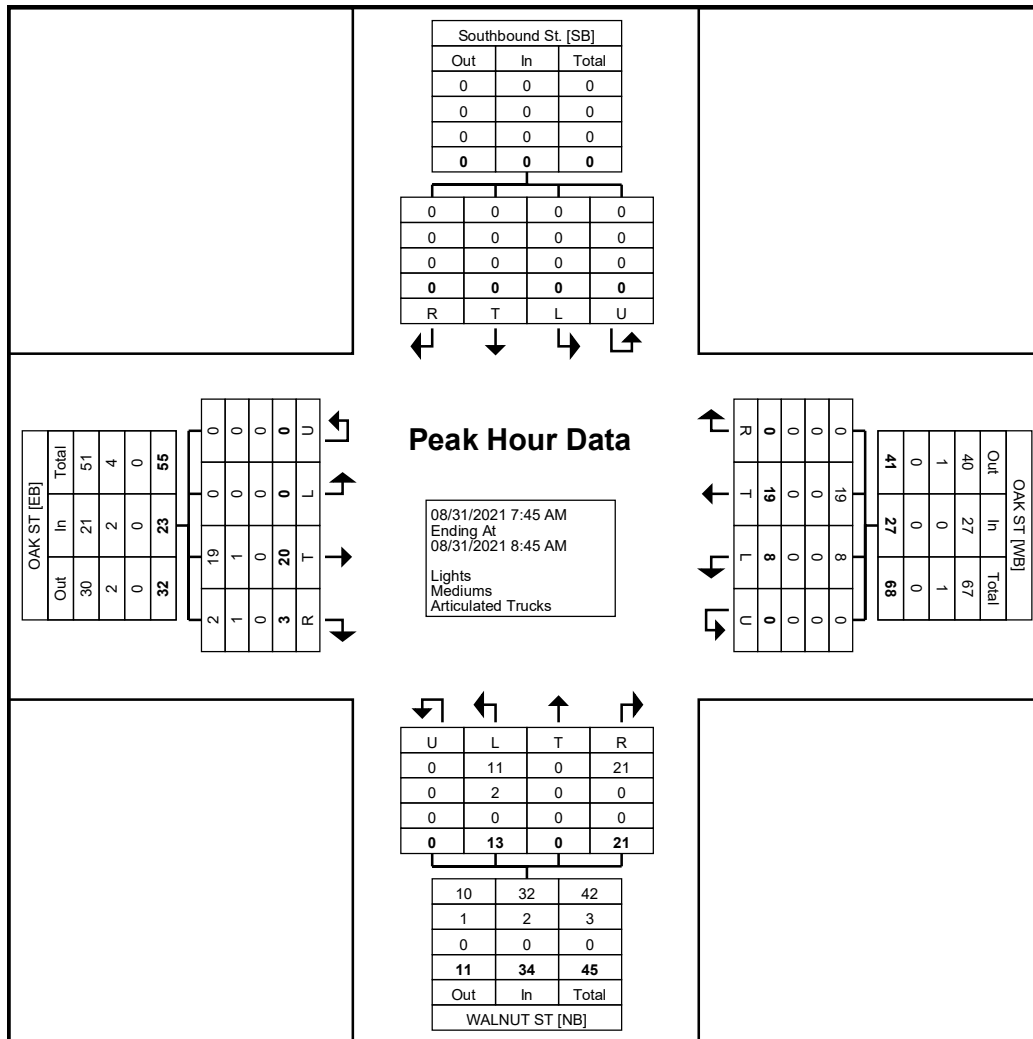
Start Time	Southbound St. Southbound					OAK ST Westbound					WALNUT ST Northbound					OAK ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:45 AM	0	0	0	0	0	4	7	0	0	11	0	0	9	0	9	0	9	2	0	11	31
8:00 AM	0	0	0	0	0	2	5	0	0	7	5	0	1	0	6	0	2	1	0	3	16
8:15 AM	0	0	0	0	0	1	2	0	0	3	2	0	6	0	8	0	6	0	0	6	17
8:30 AM	0	0	0	0	0	1	5	0	0	6	6	0	5	0	11	0	3	0	0	3	20
Total	0	0	0	0	0	8	19	0	0	27	13	0	21	0	34	0	20	3	0	23	84
Approach %	0.0	0.0	0.0	0.0	-	29.6	70.4	0.0	0.0	-	38.2	0.0	61.8	0.0	-	0.0	87.0	13.0	0.0	-	-
Total %	0.0	0.0	0.0	0.0	0.0	9.5	22.6	0.0	0.0	32.1	15.5	0.0	25.0	0.0	40.5	0.0	23.8	3.6	0.0	27.4	-
PHF	0.000	0.000	0.000	0.000	0.000	0.500	0.679	0.000	0.000	0.614	0.542	0.000	0.583	0.000	0.773	0.000	0.556	0.375	0.000	0.523	0.677
Lights	0	0	0	0	0	8	19	0	0	27	11	0	21	0	32	0	19	2	0	21	80
% Lights	-	-	-	-	-	100.0	100.0	-	-	100.0	84.6	-	100.0	-	94.1	-	95.0	66.7	-	91.3	95.2
Mediums	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	1	1	0	2	4
% Mediums	-	-	-	-	-	0.0	0.0	-	-	0.0	15.4	-	0.0	-	5.9	-	5.0	33.3	-	8.7	4.8
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	-	-	-	-	-	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
OAK ST
Site Code:
Start Date: 08/31/2021
Page No: 4



Turning Movement Peak Hour Data Plot (7:45 AM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
OAK ST
Site Code:
Start Date: 08/31/2021
Page No: 5

Turning Movement Peak Hour Data (4:15 PM)

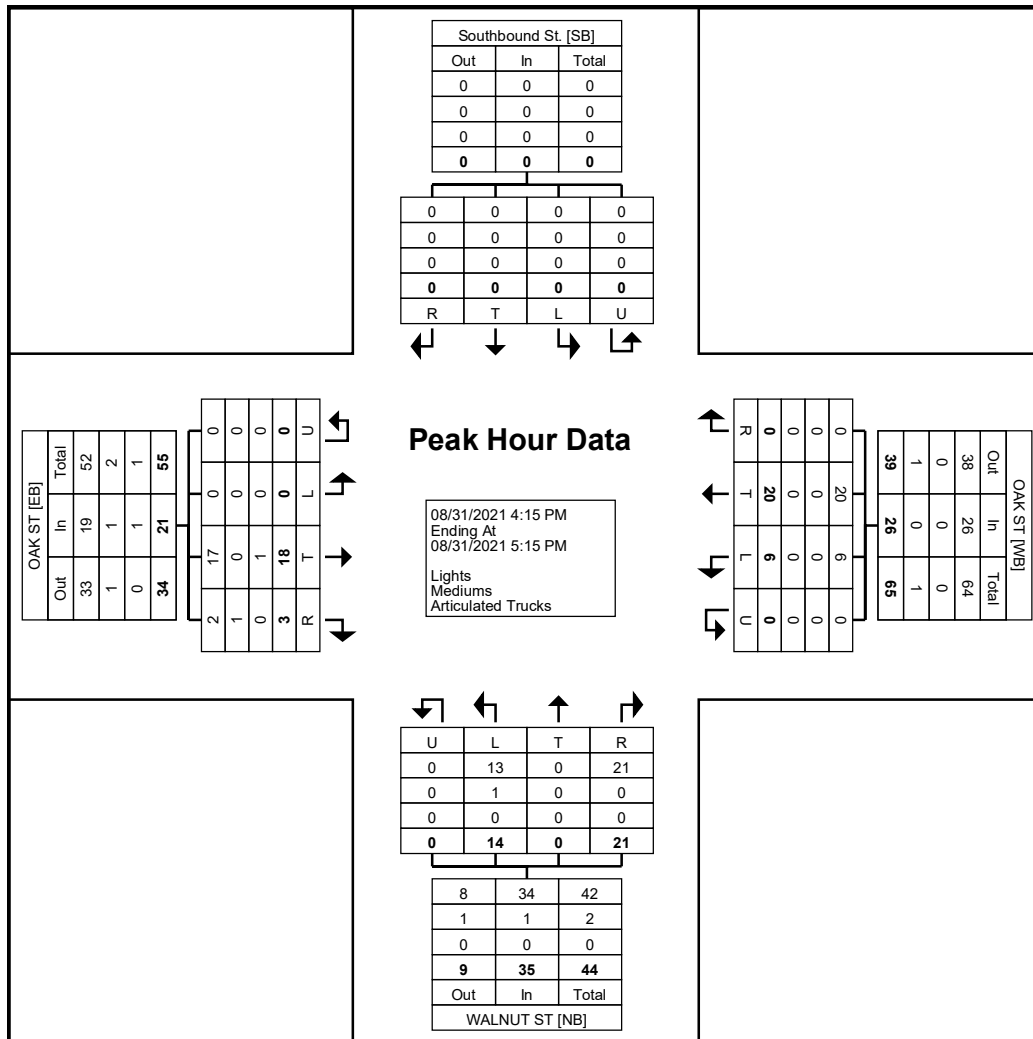
Start Time	Southbound St. Southbound					OAK ST Westbound					WALNUT ST Northbound					OAK ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:15 PM	0	0	0	0	0	2	2	0	0	4	4	0	5	0	9	0	4	0	0	4	17
4:30 PM	0	0	0	0	0	1	6	0	0	7	3	0	4	0	7	0	3	0	0	3	17
4:45 PM	0	0	0	0	0	0	3	0	0	3	3	0	5	0	8	0	7	1	0	8	19
5:00 PM	0	0	0	0	0	3	9	0	0	12	4	0	7	0	11	0	4	2	0	6	29
Total	0	0	0	0	0	6	20	0	0	26	14	0	21	0	35	0	18	3	0	21	82
Approach %	0.0	0.0	0.0	0.0	-	23.1	76.9	0.0	0.0	-	40.0	0.0	60.0	0.0	-	0.0	85.7	14.3	0.0	-	-
Total %	0.0	0.0	0.0	0.0	0.0	7.3	24.4	0.0	0.0	31.7	17.1	0.0	25.6	0.0	42.7	0.0	22.0	3.7	0.0	25.6	-
PHF	0.000	0.000	0.000	0.000	0.000	0.500	0.556	0.000	0.000	0.542	0.875	0.000	0.750	0.000	0.795	0.000	0.643	0.375	0.000	0.656	0.707
Lights	0	0	0	0	0	6	20	0	0	26	13	0	21	0	34	0	17	2	0	19	79
% Lights	-	-	-	-	-	100.0	100.0	-	-	100.0	92.9	-	100.0	-	97.1	-	94.4	66.7	-	90.5	96.3
Mediums	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	2
% Mediums	-	-	-	-	-	0.0	0.0	-	-	0.0	7.1	-	0.0	-	2.9	-	0.0	33.3	-	4.8	2.4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Articulated Trucks	-	-	-	-	-	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	-	5.6	0.0	-	4.8	1.2

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
OAK ST
Site Code:
Start Date: 08/31/2021
Page No: 6



Turning Movement Peak Hour Data Plot (4:15 PM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
HELEN ST
Site Code:
Start Date: 08/31/2021
Page No: 1

Turning Movement Data

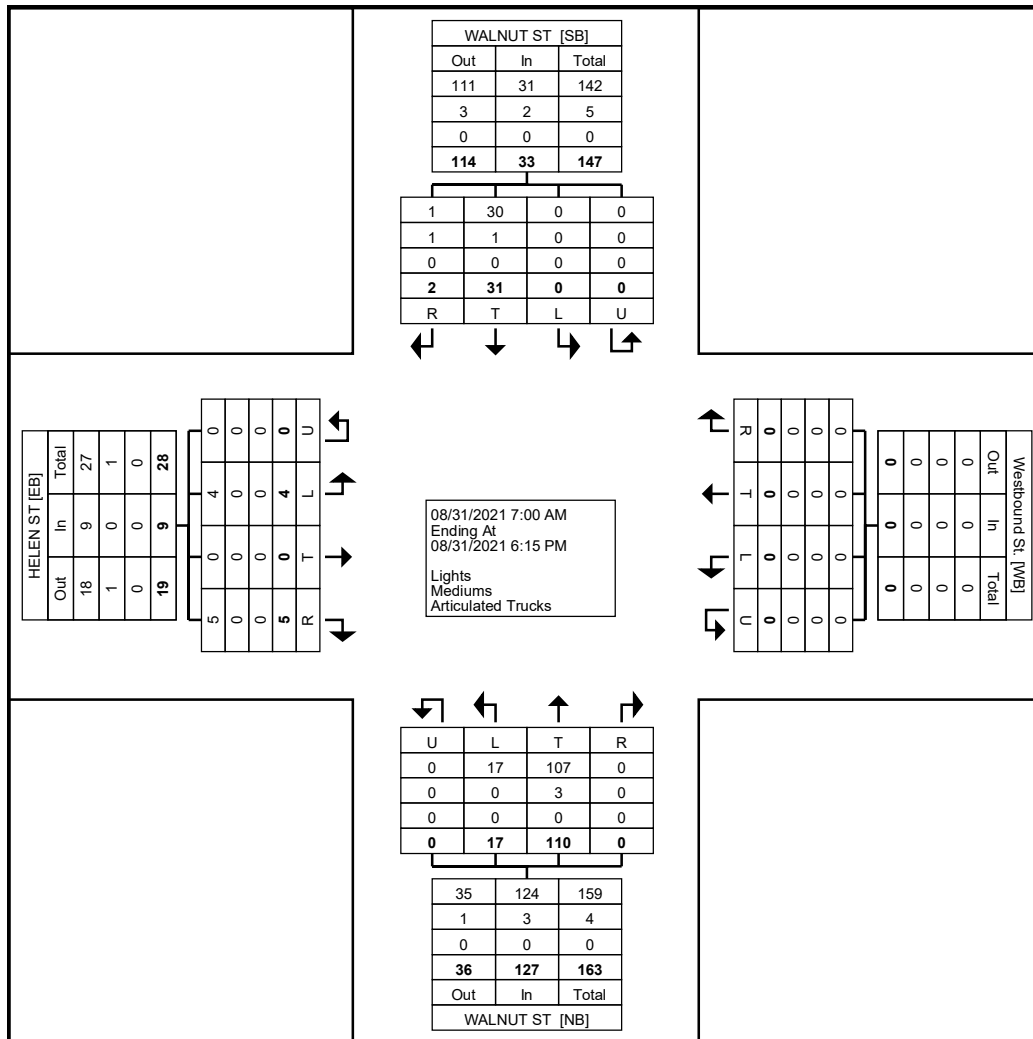
Start Time	WALNUT ST Southbound					Westbound St. Westbound					WALNUT ST Northbound					HELEN ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
7:15 AM	0	2	0	0	2	0	0	0	0	0	1	7	0	0	8	1	0	0	0	1	11
7:30 AM	0	1	0	0	1	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	10
7:45 AM	0	5	1	0	6	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	15
Hourly Total	0	8	1	0	9	0	0	0	0	0	2	27	0	0	29	1	0	0	0	1	39
8:00 AM	0	3	0	0	3	0	0	0	0	0	1	6	0	0	7	0	0	1	0	1	11
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	9
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	11
8:45 AM	0	3	0	0	3	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	9
Hourly Total	0	7	0	0	7	0	0	0	0	0	1	30	0	0	31	1	0	1	0	2	40
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	7
4:15 PM	0	2	0	0	2	0	0	0	0	0	4	10	0	0	14	0	0	1	0	1	17
4:30 PM	0	2	0	0	2	0	0	0	0	0	2	6	0	0	8	1	0	0	0	1	11
4:45 PM	0	0	1	0	1	0	0	0	0	0	4	8	0	0	12	0	0	2	0	2	15
Hourly Total	0	5	1	0	6	0	0	0	0	0	10	30	0	0	40	1	0	3	0	4	50
5:00 PM	0	5	0	0	5	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	16
5:15 PM	0	3	0	0	3	0	0	0	0	0	1	2	0	0	3	1	0	1	0	2	8
5:30 PM	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	7	0	0	10	0	0	0	0	0	10
Hourly Total	0	11	0	0	11	0	0	0	0	0	4	23	0	0	27	1	0	1	0	2	40
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	31	2	0	33	0	0	0	0	0	17	110	0	0	127	4	0	5	0	9	169
Approach %	0.0	93.9	6.1	0.0	-	0.0	0.0	0.0	0.0	-	13.4	86.6	0.0	0.0	-	44.4	0.0	55.6	0.0	-	-
Total %	0.0	18.3	1.2	0.0	19.5	0.0	0.0	0.0	0.0	0.0	10.1	65.1	0.0	0.0	75.1	2.4	0.0	3.0	0.0	5.3	-
Lights	0	30	1	0	31	0	0	0	0	0	17	107	0	0	124	4	0	5	0	9	164
% Lights	-	96.8	50.0	-	93.9	-	-	-	-	-	100.0	97.3	-	-	97.6	100.0	-	100.0	-	100.0	97.0
Mediums	0	1	1	0	2	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	5
% Mediums	-	3.2	50.0	-	6.1	-	-	-	-	-	0.0	2.7	-	-	2.4	0.0	-	0.0	-	0.0	3.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	-	-	-	-	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
HELEN ST
Site Code:
Start Date: 08/31/2021
Page No: 2



Turning Movement Data Plot

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
HELEN ST
Site Code:
Start Date: 08/31/2021
Page No: 3

Turning Movement Peak Hour Data (7:15 AM)

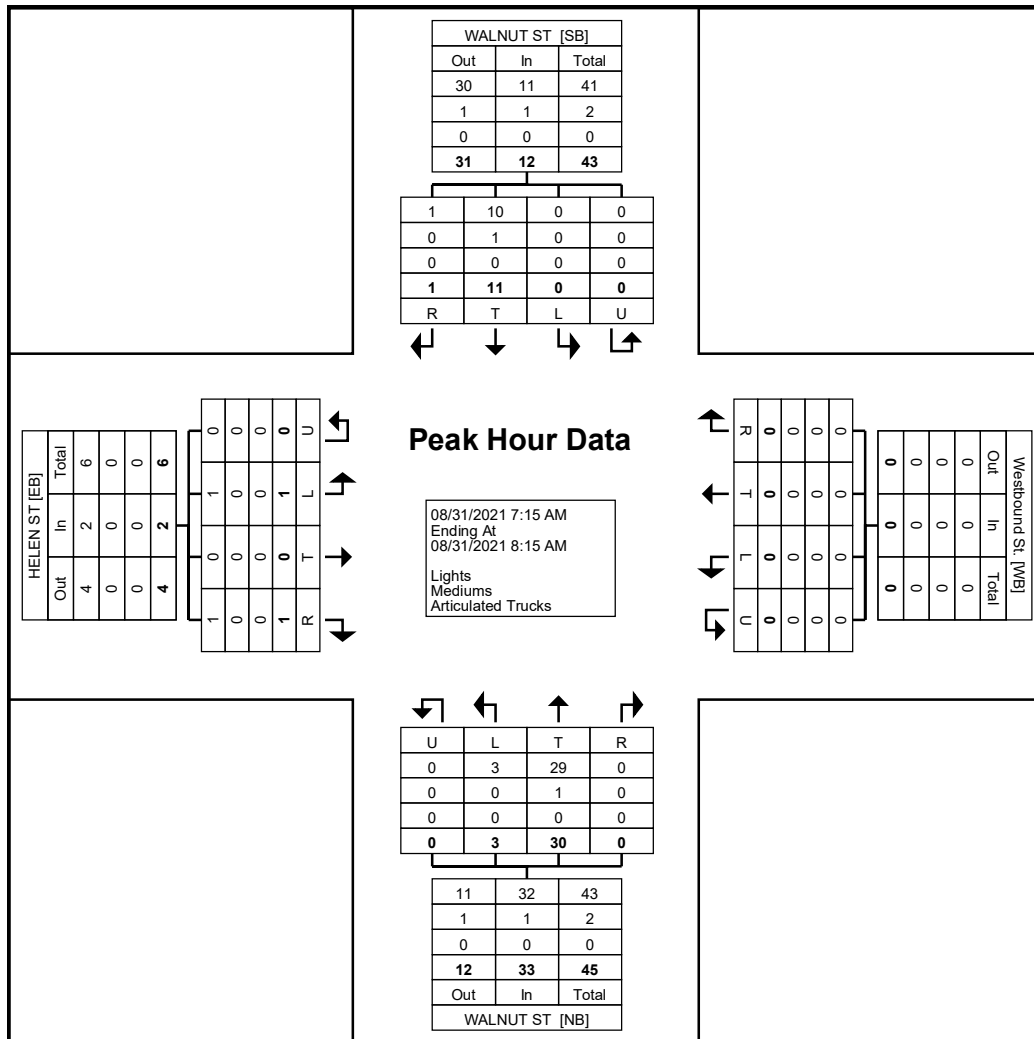
Start Time	WALNUT ST Southbound					Westbound St. Westbound					WALNUT ST Northbound					HELEN ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:15 AM	0	2	0	0	2	0	0	0	0	0	1	7	0	0	8	1	0	0	0	1	11
7:30 AM	0	1	0	0	1	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	10
7:45 AM	0	5	1	0	6	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	15
8:00 AM	0	3	0	0	3	0	0	0	0	0	1	6	0	0	7	0	0	1	0	1	11
Total	0	11	1	0	12	0	0	0	0	0	3	30	0	0	33	1	0	1	0	2	47
Approach %	0.0	91.7	8.3	0.0	-	0.0	0.0	0.0	0.0	-	9.1	90.9	0.0	0.0	-	50.0	0.0	50.0	0.0	-	-
Total %	0.0	23.4	2.1	0.0	25.5	0.0	0.0	0.0	0.0	0.0	6.4	63.8	0.0	0.0	70.2	2.1	0.0	2.1	0.0	4.3	-
PHF	0.000	0.550	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.750	0.833	0.000	0.000	0.917	0.250	0.000	0.250	0.000	0.500	0.783
Lights	0	10	1	0	11	0	0	0	0	0	3	29	0	0	32	1	0	1	0	2	45
% Lights	-	90.9	100.0	-	91.7	-	-	-	-	-	100.0	96.7	-	-	97.0	100.0	-	100.0	-	100.0	95.7
Mediums	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
% Mediums	-	9.1	0.0	-	8.3	-	-	-	-	-	0.0	3.3	-	-	3.0	0.0	-	0.0	-	0.0	4.3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	-	-	-	-	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
HELEN ST
Site Code:
Start Date: 08/31/2021
Page No: 4



Turning Movement Peak Hour Data Plot (7:15 AM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
HELEN ST
Site Code:
Start Date: 08/31/2021
Page No: 5

Turning Movement Peak Hour Data (4:15 PM)

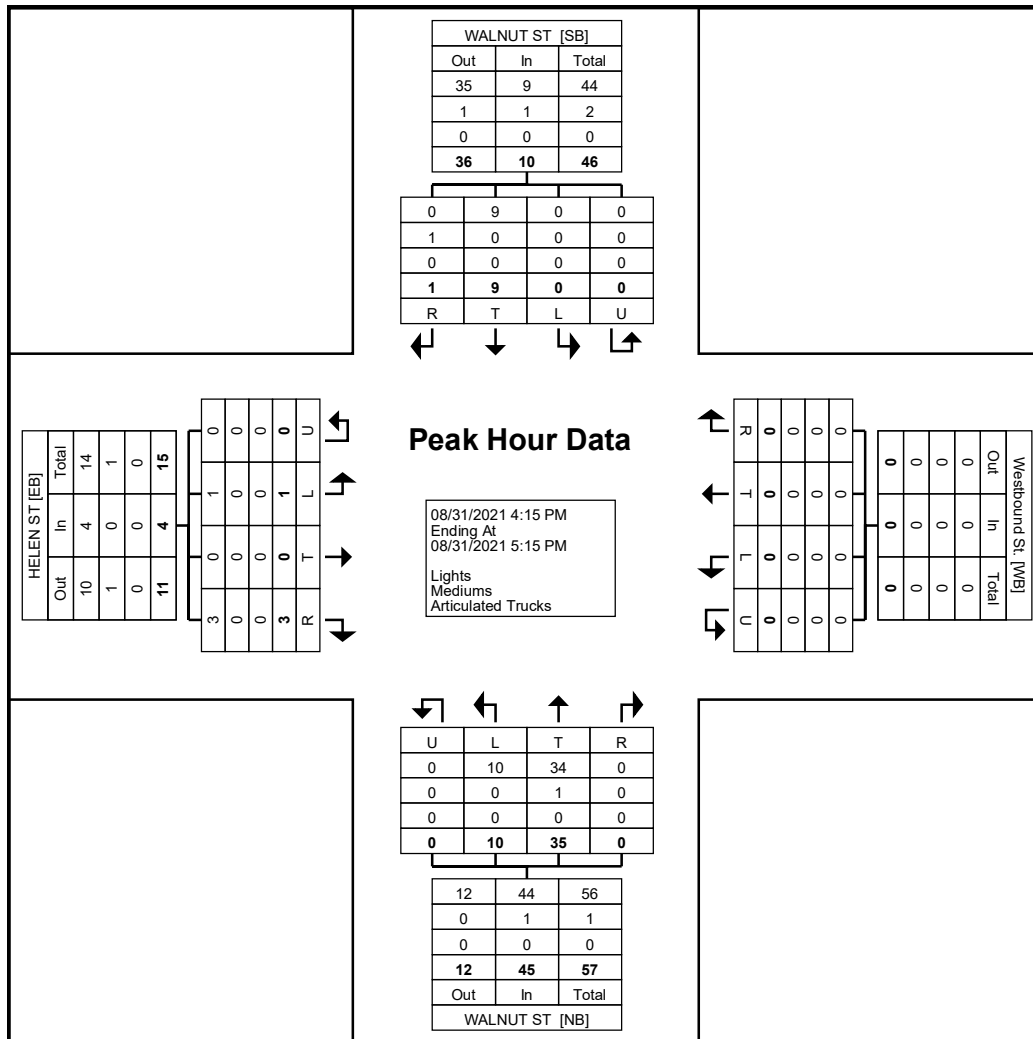
Start Time	WALNUT ST Southbound					Westbound St. Westbound					WALNUT ST Northbound					HELEN ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:15 PM	0	2	0	0	2	0	0	0	0	0	4	10	0	0	14	0	0	1	0	1	17
4:30 PM	0	2	0	0	2	0	0	0	0	0	2	6	0	0	8	1	0	0	0	1	11
4:45 PM	0	0	1	0	1	0	0	0	0	0	4	8	0	0	12	0	0	2	0	2	15
5:00 PM	0	5	0	0	5	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	16
Total	0	9	1	0	10	0	0	0	0	0	10	35	0	0	45	1	0	3	0	4	59
Approach %	0.0	90.0	10.0	0.0	-	0.0	0.0	0.0	0.0	-	22.2	77.8	0.0	0.0	-	25.0	0.0	75.0	0.0	-	-
Total %	0.0	15.3	1.7	0.0	16.9	0.0	0.0	0.0	0.0	0.0	16.9	59.3	0.0	0.0	76.3	1.7	0.0	5.1	0.0	6.8	-
PHF	0.000	0.450	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.625	0.795	0.000	0.000	0.804	0.250	0.000	0.375	0.000	0.500	0.868
Lights	0	9	0	0	9	0	0	0	0	0	10	34	0	0	44	1	0	3	0	4	57
% Lights	-	100.0	0.0	-	90.0	-	-	-	-	-	100.0	97.1	-	-	97.8	100.0	-	100.0	-	100.0	96.6
Mediums	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
% Mediums	-	0.0	100.0	-	10.0	-	-	-	-	-	0.0	2.9	-	-	2.2	0.0	-	0.0	-	0.0	3.4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	-	-	-	-	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
HELEN ST
Site Code:
Start Date: 08/31/2021
Page No: 6



Turning Movement Peak Hour Data Plot (4:15 PM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
LOIS ST NORTH
Site Code:
Start Date: 08/31/2021
Page No: 1

Turning Movement Data

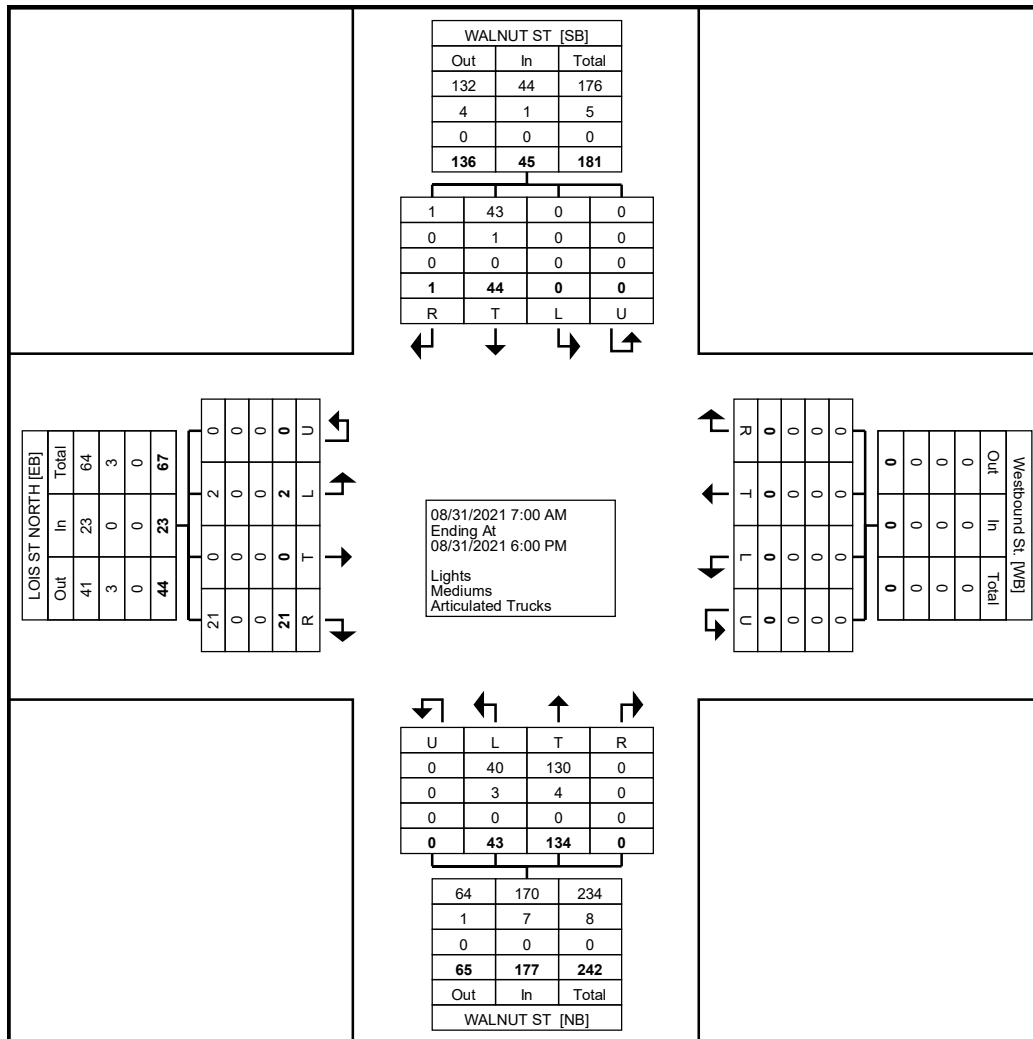
Start Time	WALNUT ST Southbound					Westbound St. Westbound					WALNUT ST Northbound					LOIS ST NORTH Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	4
7:15 AM	0	2	0	0	2	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	11
7:30 AM	0	2	0	0	2	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	12
7:45 AM	0	4	0	0	4	0	0	0	0	0	2	9	0	0	11	0	0	0	0	0	15
Hourly Total	0	8	0	0	8	0	0	0	0	0	3	30	0	0	33	0	0	1	0	1	42
8:00 AM	0	6	0	0	6	0	0	0	0	0	4	9	0	0	13	0	0	0	0	0	19
8:15 AM	0	3	0	0	3	0	0	0	0	0	1	5	0	0	6	0	0	4	0	4	13
8:30 AM	0	1	0	0	1	0	0	0	0	0	1	11	0	0	12	1	0	1	0	2	15
8:45 AM	0	3	0	0	3	0	0	0	0	0	1	6	0	0	7	0	0	0	0	0	10
Hourly Total	0	13	0	0	13	0	0	0	0	0	7	31	0	0	38	1	0	5	0	6	57
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	1	0	0	1	0	0	0	0	0	3	7	0	0	10	0	0	1	0	1	12
4:15 PM	0	2	1	0	3	0	0	0	0	0	6	12	0	0	18	0	0	4	0	4	25
4:30 PM	0	5	0	0	5	0	0	0	0	0	5	11	0	0	16	0	0	3	0	3	24
4:45 PM	0	1	0	0	1	0	0	0	0	0	11	11	0	0	22	0	0	2	0	2	25
Hourly Total	0	9	1	0	10	0	0	0	0	0	25	41	0	0	66	0	0	10	0	10	86
5:00 PM	0	6	0	0	6	0	0	0	0	0	2	15	0	0	17	0	0	1	0	1	24
5:15 PM	0	5	0	0	5	0	0	0	0	0	1	3	0	0	4	0	0	1	0	1	10
5:30 PM	0	3	0	0	3	0	0	0	0	0	2	5	0	0	7	0	0	1	0	1	11
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	9	0	0	12	1	0	2	0	3	15
Hourly Total	0	14	0	0	14	0	0	0	0	0	8	32	0	0	40	1	0	5	0	6	60
Grand Total	0	44	1	0	45	0	0	0	0	0	43	134	0	0	177	2	0	21	0	23	245
Approach %	0.0	97.8	2.2	0.0	-	0.0	0.0	0.0	0.0	-	24.3	75.7	0.0	0.0	-	8.7	0.0	91.3	0.0	-	-
Total %	0.0	18.0	0.4	0.0	18.4	0.0	0.0	0.0	0.0	0.0	17.6	54.7	0.0	0.0	72.2	0.8	0.0	8.6	0.0	9.4	-
Lights	0	43	1	0	44	0	0	0	0	0	40	130	0	0	170	2	0	21	0	23	237
% Lights	-	97.7	100.0	-	97.8	-	-	-	-	-	93.0	97.0	-	-	96.0	100.0	-	100.0	-	100.0	96.7
Mediums	0	1	0	0	1	0	0	0	0	0	3	4	0	0	7	0	0	0	0	0	8
% Mediums	-	2.3	0.0	-	2.2	-	-	-	-	-	7.0	3.0	-	-	4.0	0.0	-	0.0	-	0.0	3.3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	-	-	-	-	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
LOIS ST NORTH
Site Code:
Start Date: 08/31/2021
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Turning Movement Data Plot

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
LOIS ST NORTH
Site Code:
Start Date: 08/31/2021
Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

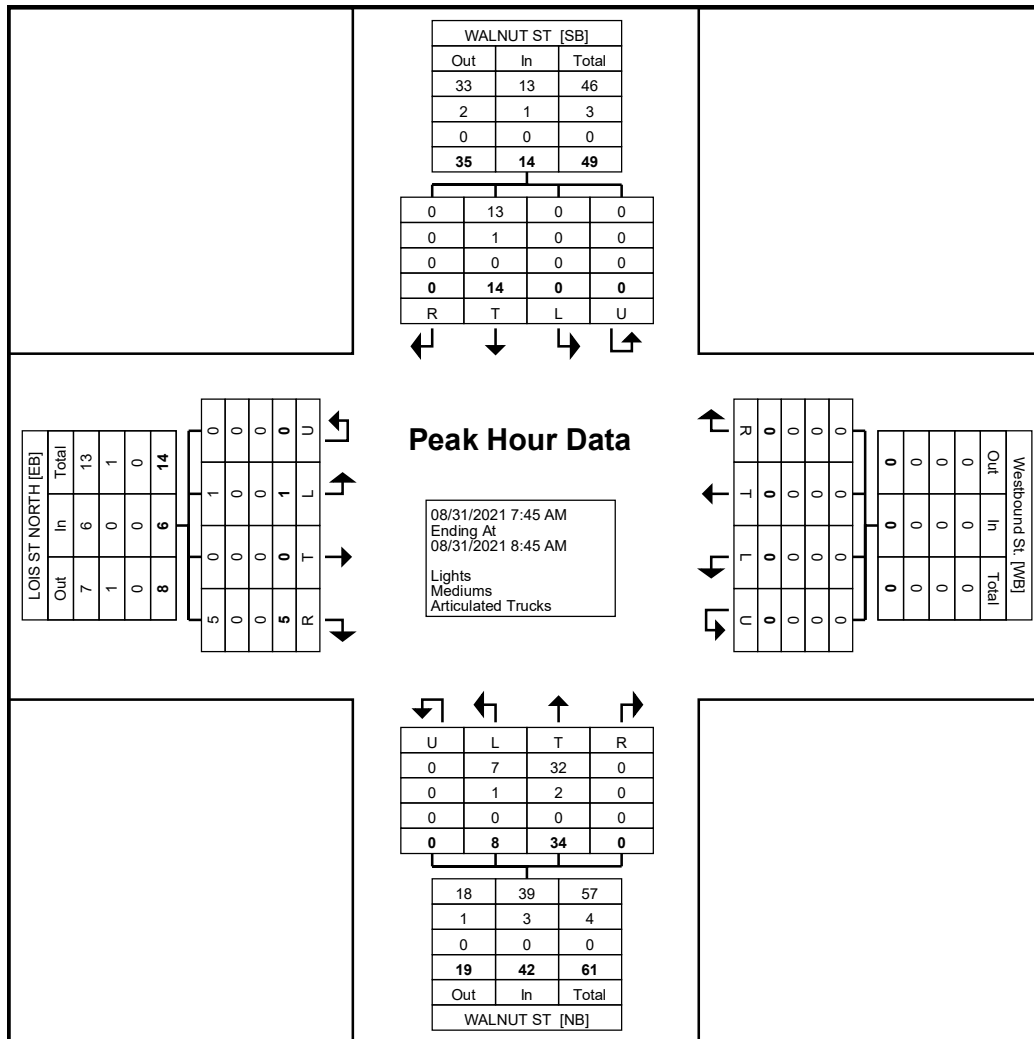
Start Time	WALNUT ST Southbound					Westbound St. Westbound					WALNUT ST Northbound					LOIS ST NORTH Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:45 AM	0	4	0	0	4	0	0	0	0	0	2	9	0	0	11	0	0	0	0	0	15
8:00 AM	0	6	0	0	6	0	0	0	0	0	4	9	0	0	13	0	0	0	0	0	19
8:15 AM	0	3	0	0	3	0	0	0	0	0	1	5	0	0	6	0	0	4	0	4	13
8:30 AM	0	1	0	0	1	0	0	0	0	0	1	11	0	0	12	1	0	1	0	2	15
Total	0	14	0	0	14	0	0	0	0	0	8	34	0	0	42	1	0	5	0	6	62
Approach %	0.0	100.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	19.0	81.0	0.0	0.0	-	16.7	0.0	83.3	0.0	-	-
Total %	0.0	22.6	0.0	0.0	22.6	0.0	0.0	0.0	0.0	0.0	12.9	54.8	0.0	0.0	67.7	1.6	0.0	8.1	0.0	9.7	-
PHF	0.000	0.583	0.000	0.000	0.583	0.000	0.000	0.000	0.000	0.000	0.500	0.773	0.000	0.000	0.808	0.250	0.000	0.313	0.000	0.375	0.816
Lights	0	13	0	0	13	0	0	0	0	0	7	32	0	0	39	1	0	5	0	6	58
% Lights	-	92.9	-	-	92.9	-	-	-	-	-	87.5	94.1	-	-	92.9	100.0	-	100.0	-	100.0	93.5
Mediums	0	1	0	0	1	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	4
% Mediums	-	7.1	-	-	7.1	-	-	-	-	-	12.5	5.9	-	-	7.1	0.0	-	0.0	-	0.0	6.5
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	-	0.0	-	-	0.0	-	-	-	-	-	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
LOIS ST NORTH
Site Code:
Start Date: 08/31/2021
Page No: 4



Turning Movement Peak Hour Data Plot (7:45 AM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
LOIS ST NORTH
Site Code:
Start Date: 08/31/2021
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Turning Movement Peak Hour Data (4:15 PM)

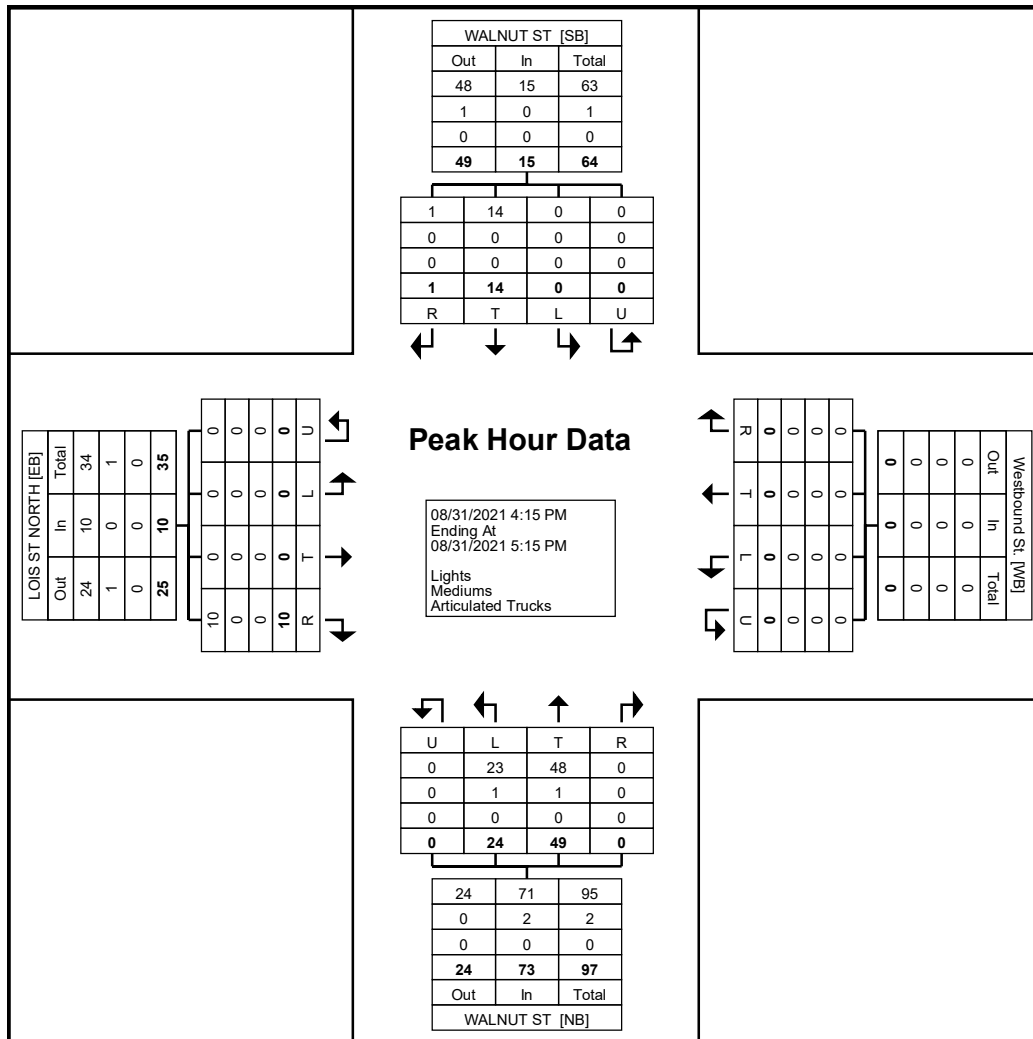
Start Time	WALNUT ST Southbound					Westbound St. Westbound					WALNUT ST Northbound					LOIS ST NORTH Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:15 PM	0	2	1	0	3	0	0	0	0	0	6	12	0	0	18	0	0	4	0	4	25
4:30 PM	0	5	0	0	5	0	0	0	0	0	5	11	0	0	16	0	0	3	0	3	24
4:45 PM	0	1	0	0	1	0	0	0	0	0	11	11	0	0	22	0	0	2	0	2	25
5:00 PM	0	6	0	0	6	0	0	0	0	0	2	15	0	0	17	0	0	1	0	1	24
Total	0	14	1	0	15	0	0	0	0	0	24	49	0	0	73	0	0	10	0	10	98
Approach %	0.0	93.3	6.7	0.0	-	0.0	0.0	0.0	0.0	-	32.9	67.1	0.0	0.0	-	0.0	0.0	100.0	0.0	-	-
Total %	0.0	14.3	1.0	0.0	15.3	0.0	0.0	0.0	0.0	0.0	24.5	50.0	0.0	0.0	74.5	0.0	0.0	10.2	0.0	10.2	-
PHF	0.000	0.583	0.250	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.545	0.817	0.000	0.000	0.830	0.000	0.000	0.625	0.000	0.625	0.980
Lights	0	14	1	0	15	0	0	0	0	0	23	48	0	0	71	0	0	10	0	10	96
% Lights	-	100.0	100.0	-	100.0	-	-	-	-	-	95.8	98.0	-	-	97.3	-	-	100.0	-	100.0	98.0
Mediums	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
% Mediums	-	0.0	0.0	-	0.0	-	-	-	-	-	4.2	2.0	-	-	2.7	-	-	0.0	-	0.0	2.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	-	-	-	-	0.0	0.0	-	-	0.0	-	-	0.0	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
LOIS ST NORTH
Site Code:
Start Date: 08/31/2021
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Turning Movement Peak Hour Data Plot (4:15 PM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
LOIS ST SOUTH
Site Code:
Start Date: 08/31/2021
Page No: 1

Turning Movement Data

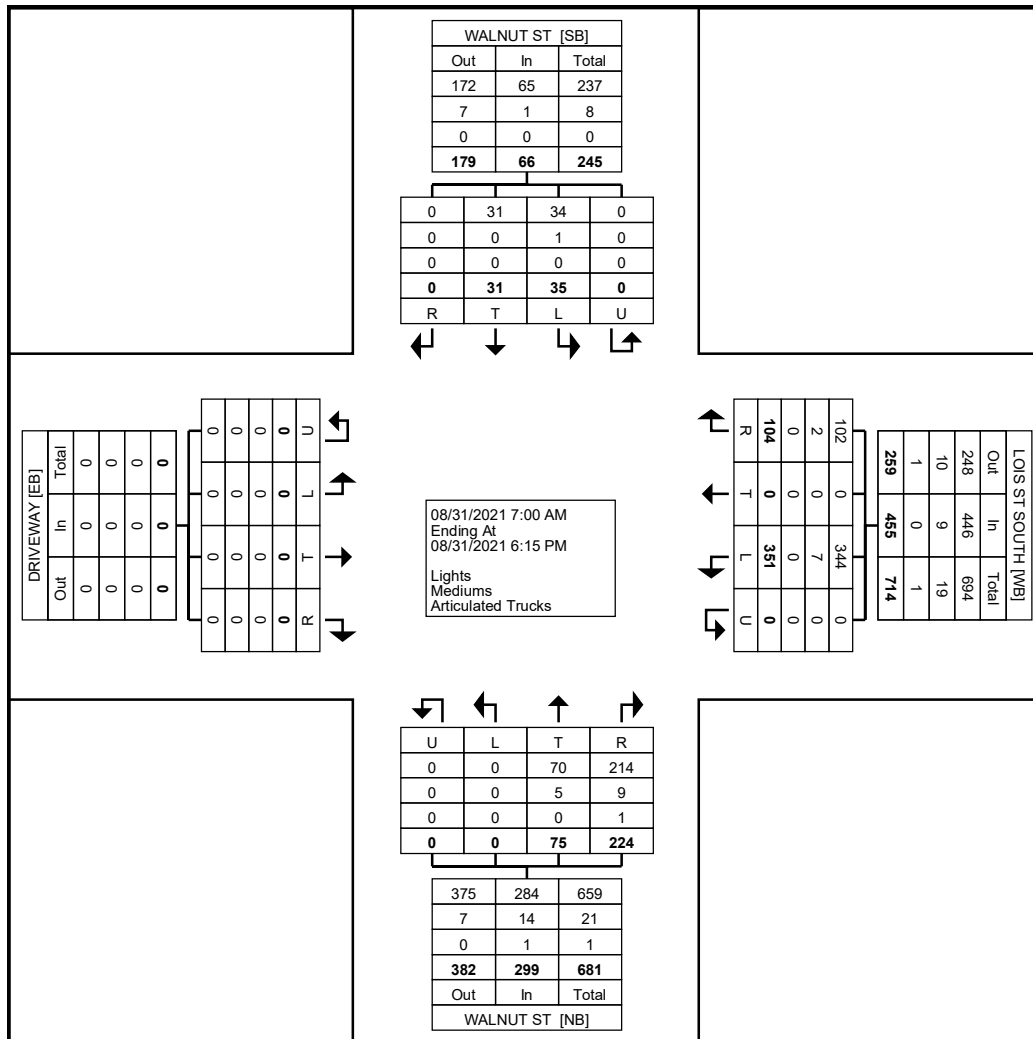
Start Time	WALNUT ST Southbound					LOIS ST SOUTH Westbound					WALNUT ST Northbound					DRIVEWAY Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	1	0	0	0	1	10	0	2	0	12	0	2	5	0	7	0	0	0	0	0	20
7:15 AM	0	2	0	0	2	6	0	3	0	9	0	6	3	0	9	0	0	0	0	0	30
7:30 AM	2	1	0	0	3	7	0	3	0	10	0	6	11	0	17	0	0	0	0	0	20
7:45 AM	2	4	0	0	6	14	0	3	0	17	0	9	21	0	30	0	0	0	0	0	53
Hourly Total	5	7	0	0	12	37	0	11	0	48	0	23	40	0	63	0	0	0	0	0	123
8:00 AM	3	2	0	0	5	15	0	9	0	24	0	4	29	0	33	0	0	0	0	0	62
8:15 AM	5	1	0	0	6	11	0	2	0	13	0	6	24	0	30	0	0	0	0	0	49
8:30 AM	1	1	0	0	2	19	0	4	0	23	0	7	6	0	13	0	0	0	0	0	38
8:45 AM	1	2	0	0	3	16	0	6	0	22	0	1	7	0	8	0	0	0	0	0	33
Hourly Total	10	6	0	0	16	61	0	21	0	82	0	18	66	0	84	0	0	0	0	0	182
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	3	0	0	3	28	0	6	0	34	0	3	19	0	22	0	0	0	0	0	59
4:15 PM	3	3	0	0	6	46	0	15	0	61	0	7	14	0	21	0	0	0	0	0	88
4:30 PM	5	2	0	0	7	45	0	11	0	56	0	3	13	0	16	0	0	0	0	0	79
4:45 PM	5	0	0	0	5	26	0	14	0	40	0	9	15	0	24	0	0	0	0	0	69
Hourly Total	13	8	0	0	21	145	0	46	0	191	0	22	61	0	83	0	0	0	0	0	295
5:00 PM	2	3	0	0	5	30	0	10	0	40	0	4	10	0	14	0	0	0	0	0	59
5:15 PM	3	4	0	0	7	30	0	4	0	34	0	0	20	0	20	0	0	0	0	0	61
5:30 PM	1	3	0	0	4	26	0	3	0	29	0	3	11	0	14	0	0	0	0	0	47
5:45 PM	1	0	0	0	1	22	0	9	0	31	0	5	16	0	21	0	0	0	0	0	53
Hourly Total	7	10	0	0	17	108	0	26	0	134	0	12	57	0	69	0	0	0	0	0	220
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	35	31	0	0	66	351	0	104	0	455	0	75	224	0	299	0	0	0	0	0	820
Approach %	53.0	47.0	0.0	0.0	-	77.1	0.0	22.9	0.0	-	0.0	25.1	74.9	0.0	-	0.0	0.0	0.0	0.0	-	-
Total %	4.3	3.8	0.0	0.0	8.0	42.8	0.0	12.7	0.0	55.5	0.0	9.1	27.3	0.0	36.5	0.0	0.0	0.0	0.0	0.0	-
Lights	34	31	0	0	65	344	0	102	0	446	0	70	214	0	284	0	0	0	0	0	795
% Lights	97.1	100.0	-	-	98.5	98.0	-	98.1	-	98.0	-	93.3	95.5	-	95.0	-	-	-	-	-	97.0
Mediums	1	0	0	0	1	7	0	2	0	9	0	5	9	0	14	0	0	0	0	0	24
% Mediums	2.9	0.0	-	-	1.5	2.0	-	1.9	-	2.0	-	6.7	4.0	-	4.7	-	-	-	-	-	2.9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	-	0.0	0.4	-	0.3	-	-	-	-	-	0.1

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
LOIS ST SOUTH
Site Code:
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Turning Movement Data Plot

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
LOIS ST SOUTH
Site Code:
Start Date: 08/31/2021
Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

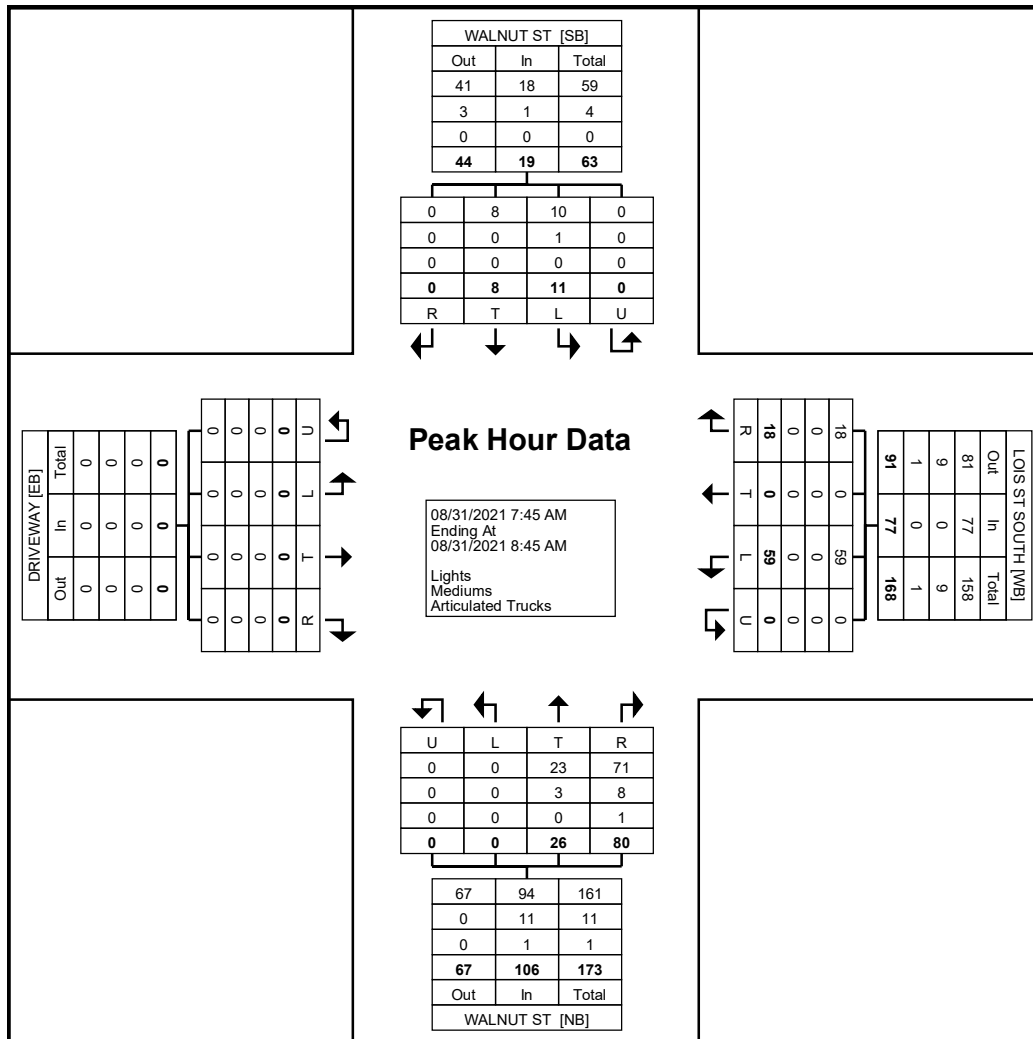
Start Time	WALNUT ST Southbound					LOIS ST SOUTH Westbound					WALNUT ST Northbound					DRIVEWAY Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:45 AM	2	4	0	0	6	14	0	3	0	17	0	9	21	0	30	0	0	0	0	0	53
8:00 AM	3	2	0	0	5	15	0	9	0	24	0	4	29	0	33	0	0	0	0	0	62
8:15 AM	5	1	0	0	6	11	0	2	0	13	0	6	24	0	30	0	0	0	0	0	49
8:30 AM	1	1	0	0	2	19	0	4	0	23	0	7	6	0	13	0	0	0	0	0	38
Total	11	8	0	0	19	59	0	18	0	77	0	26	80	0	106	0	0	0	0	0	202
Approach %	57.9	42.1	0.0	0.0	-	76.6	0.0	23.4	0.0	-	0.0	24.5	75.5	0.0	-	0.0	0.0	0.0	0.0	0.0	-
Total %	5.4	4.0	0.0	0.0	9.4	29.2	0.0	8.9	0.0	38.1	0.0	12.9	39.6	0.0	52.5	0.0	0.0	0.0	0.0	0.0	-
PHF	0.550	0.500	0.000	0.000	0.792	0.776	0.000	0.500	0.000	0.802	0.000	0.722	0.690	0.000	0.803	0.000	0.000	0.000	0.000	0.000	0.815
Lights	10	8	0	0	18	59	0	18	0	77	0	23	71	0	94	0	0	0	0	0	189
% Lights	90.9	100.0	-	-	94.7	100.0	-	100.0	-	100.0	-	88.5	88.8	-	88.7	-	-	-	-	-	93.6
Mediums	1	0	0	0	1	0	0	0	0	0	0	3	8	0	11	0	0	0	0	0	12
% Mediums	9.1	0.0	-	-	5.3	0.0	-	0.0	-	0.0	-	11.5	10.0	-	10.4	-	-	-	-	-	5.9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	-	0.0	1.3	-	0.9	-	-	-	-	-	0.5

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
LOIS ST SOUTH
Site Code:
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Turning Movement Peak Hour Data Plot (7:45 AM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
LOIS ST SOUTH
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Page No: 5

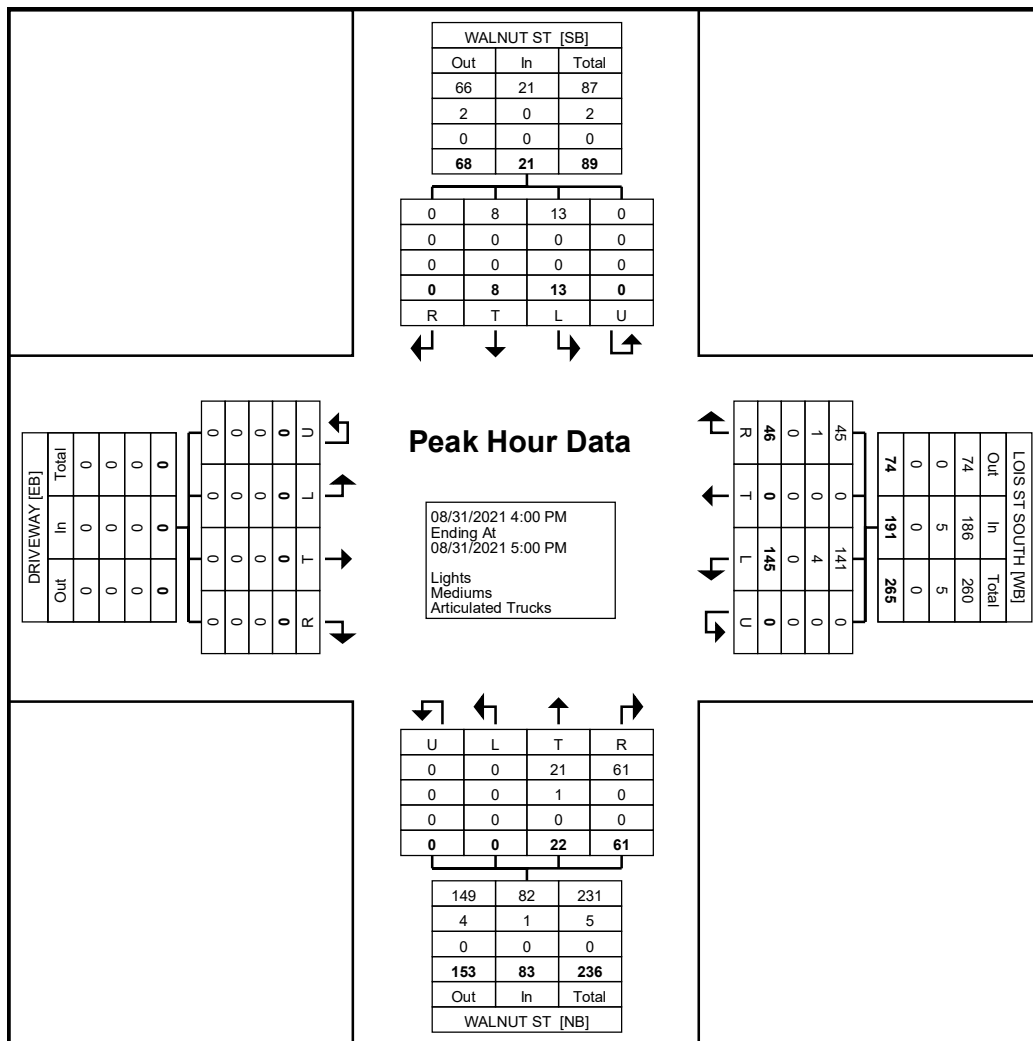
Turning Movement Peak Hour Data (4:00 PM)

Start Time	WALNUT ST Southbound					LOIS ST SOUTH Westbound					WALNUT ST Northbound					DRIVEWAY Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:00 PM	0	3	0	0	3	28	0	6	0	34	0	3	19	0	22	0	0	0	0	0	59
4:15 PM	3	3	0	0	6	46	0	15	0	61	0	7	14	0	21	0	0	0	0	0	88
4:30 PM	5	2	0	0	7	45	0	11	0	56	0	3	13	0	16	0	0	0	0	0	79
4:45 PM	5	0	0	0	5	26	0	14	0	40	0	9	15	0	24	0	0	0	0	0	69
Total	13	8	0	0	21	145	0	46	0	191	0	22	61	0	83	0	0	0	0	0	295
Approach %	61.9	38.1	0.0	0.0	-	75.9	0.0	24.1	0.0	-	0.0	26.5	73.5	0.0	-	0.0	0.0	0.0	0.0	0.0	-
Total %	4.4	2.7	0.0	0.0	7.1	49.2	0.0	15.6	0.0	64.7	0.0	7.5	20.7	0.0	28.1	0.0	0.0	0.0	0.0	0.0	-
PHF	0.650	0.667	0.000	0.000	0.750	0.788	0.000	0.767	0.000	0.783	0.000	0.611	0.803	0.000	0.865	0.000	0.000	0.000	0.000	0.000	0.838
Lights	13	8	0	0	21	141	0	45	0	186	0	21	61	0	82	0	0	0	0	0	289
% Lights	100.0	100.0	-	-	100.0	97.2	-	97.8	-	97.4	-	95.5	100.0	-	98.8	-	-	-	-	-	98.0
Mediums	0	0	0	0	0	4	0	1	0	5	0	1	0	0	1	0	0	0	0	0	6
% Mediums	0.0	0.0	-	-	0.0	2.8	-	2.2	-	2.6	-	4.5	0.0	-	1.2	-	-	-	-	-	2.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	-	0.0	0.0	-	0.0	-	-	-	-	-	0.0

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
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Turning Movement Peak Hour Data Plot (4:00 PM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: LOIS ST @ JOAN
ST
Site Code:
Start Date: 08/31/2021
Page No: 1

Turning Movement Data

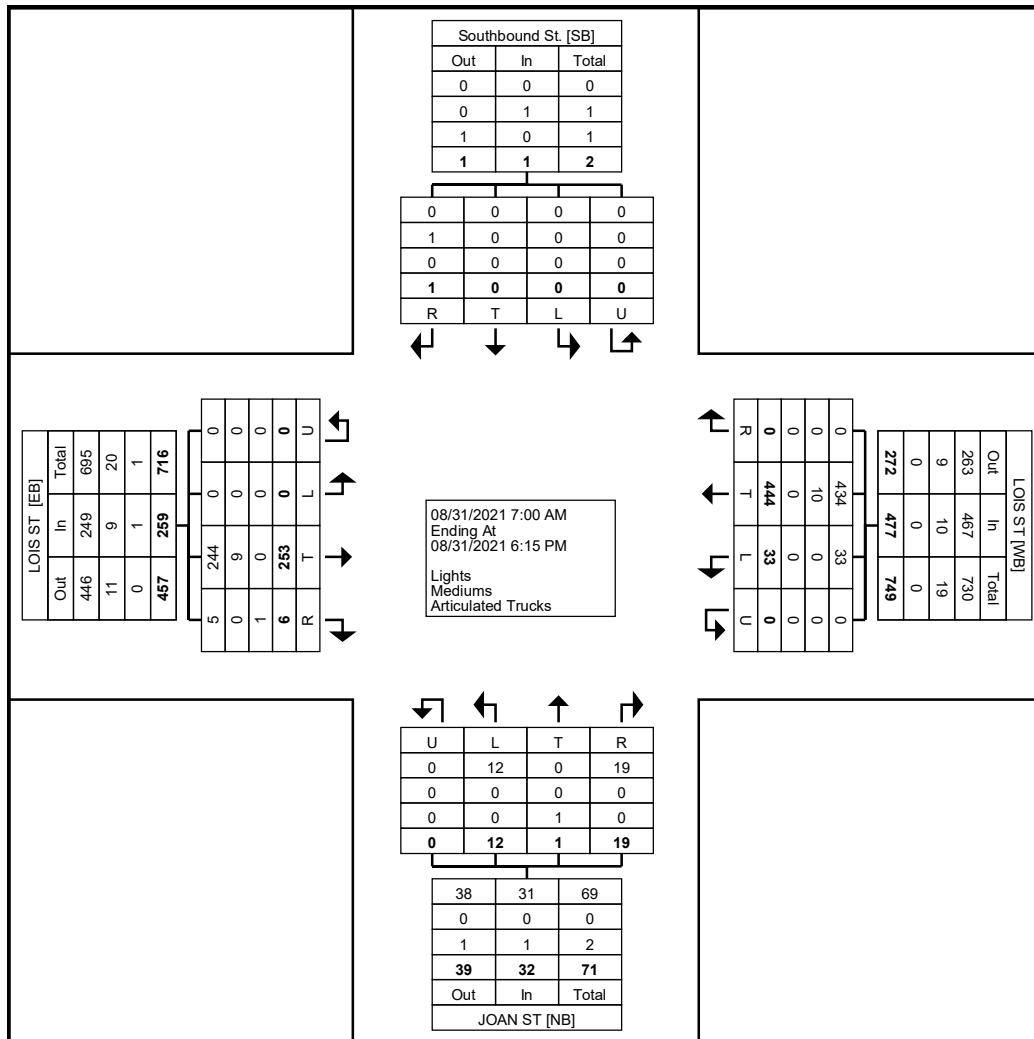
Start Time	Southbound St. Southbound					LOIS ST Westbound					JOAN ST Northbound					LOIS ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	0	0	0	0	0	0	10	0	0	10	2	0	4	0	6	0	5	0	0	5	21
7:15 AM	0	0	0	0	0	4	9	0	0	13	0	0	3	0	3	0	3	0	0	3	19
7:30 AM	0	0	0	0	0	1	11	0	0	12	0	0	1	0	1	0	13	0	0	13	26
7:45 AM	0	0	0	0	0	2	15	0	0	17	3	1	1	0	5	0	21	3	0	24	46
Hourly Total	0	0	0	0	0	7	45	0	0	52	5	1	9	0	15	0	42	3	0	45	112
8:00 AM	0	0	0	0	0	1	23	0	0	24	1	0	2	0	3	0	29	0	0	29	56
8:15 AM	0	0	0	0	0	0	12	0	0	12	1	0	1	0	2	0	31	0	0	31	45
8:30 AM	0	0	0	0	0	1	21	0	0	22	1	0	1	0	2	0	8	0	0	8	32
8:45 AM	0	0	0	0	0	0	21	0	0	21	1	0	1	0	2	0	8	0	0	8	31
Hourly Total	0	0	0	0	0	2	77	0	0	79	4	0	5	0	9	0	76	0	0	76	164
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	3	34	0	0	37	0	0	0	0	0	0	19	0	0	19	56
4:15 PM	0	0	0	0	0	4	60	0	0	64	1	0	1	0	2	0	15	1	0	16	82
4:30 PM	0	0	0	0	0	4	55	0	0	59	1	0	2	0	3	0	19	1	0	20	82
4:45 PM	0	0	1	0	1	0	39	0	0	39	1	0	1	0	2	0	18	0	0	18	60
Hourly Total	0	0	1	0	1	11	188	0	0	199	3	0	4	0	7	0	71	2	0	73	280
5:00 PM	0	0	0	0	0	7	40	0	0	47	0	0	1	0	1	0	13	0	0	13	61
5:15 PM	0	0	0	0	0	0	34	0	0	34	0	0	0	0	0	0	23	1	0	24	58
5:30 PM	0	0	0	0	0	1	29	0	0	30	0	0	0	0	0	0	11	0	0	11	41
5:45 PM	0	0	0	0	0	5	31	0	0	36	0	0	0	0	0	0	17	0	0	17	53
Hourly Total	0	0	0	0	0	13	134	0	0	147	0	0	1	0	1	0	64	1	0	65	213
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	1	0	1	33	444	0	0	477	12	1	19	0	32	0	253	6	0	259	769
Approach %	0.0	0.0	100.0	0.0	-	6.9	93.1	0.0	0.0	-	37.5	3.1	59.4	0.0	-	0.0	97.7	2.3	0.0	-	-
Total %	0.0	0.0	0.1	0.0	0.1	4.3	57.7	0.0	0.0	62.0	1.6	0.1	2.5	0.0	4.2	0.0	32.9	0.8	0.0	33.7	-
Lights	0	0	0	0	0	33	434	0	0	467	12	0	19	0	31	0	244	5	0	249	747
% Lights	-	-	0.0	-	0.0	100.0	97.7	-	-	97.9	100.0	0.0	100.0	-	96.9	-	96.4	83.3	-	96.1	97.1
Mediums	0	0	1	0	1	0	10	0	0	10	0	0	0	0	0	0	9	0	0	9	20
% Mediums	-	-	100.0	-	100.0	0.0	2.3	-	-	2.1	0.0	0.0	0.0	-	0.0	-	3.6	0.0	-	3.5	2.6
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	2
% Articulated Trucks	-	-	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0	100.0	0.0	-	3.1	-	0.0	16.7	-	0.4	0.3

GRAM Traffic NTX Inc.

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Turning Movement Peak Hour Data (7:45 AM)

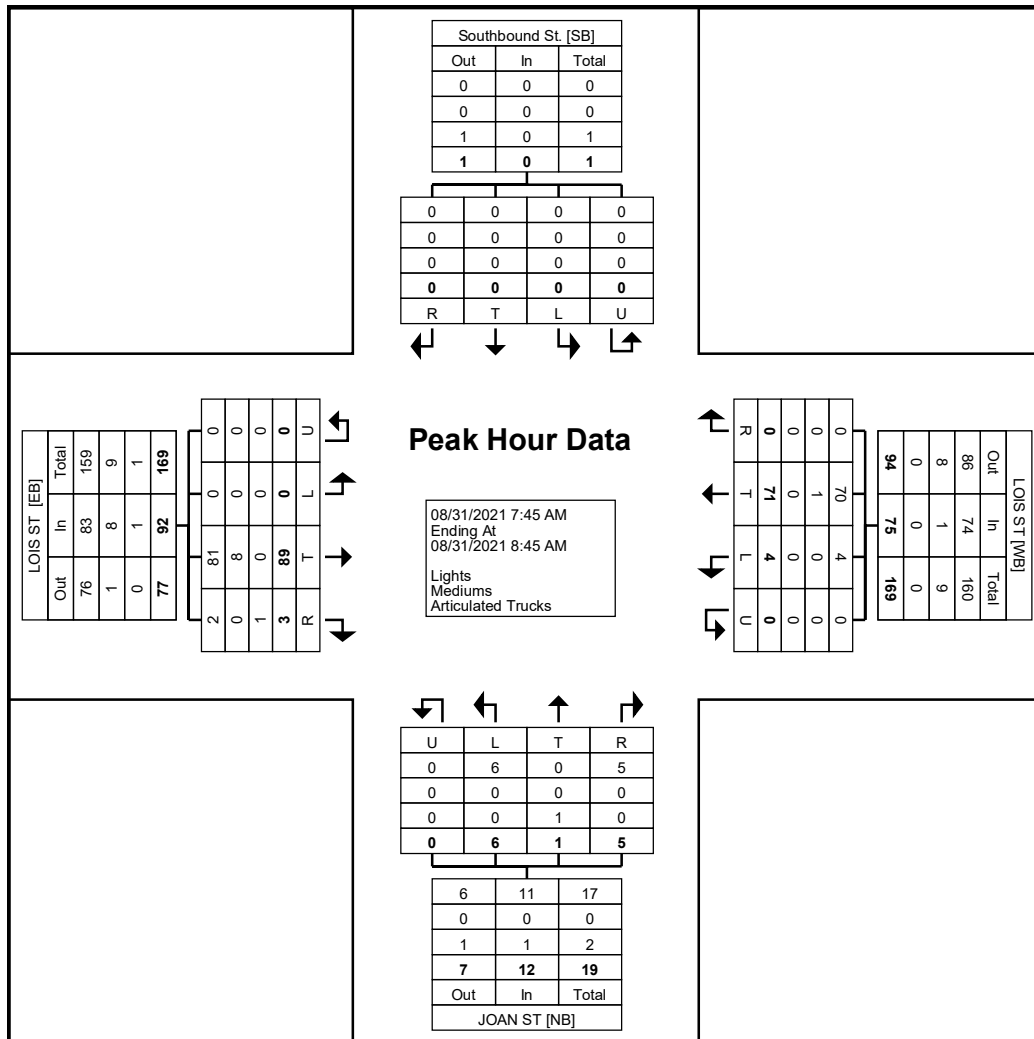
Start Time	Southbound St. Southbound					LOIS ST Westbound					JOAN ST Northbound					LOIS ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:45 AM	0	0	0	0	0	2	15	0	0	17	3	1	1	0	5	0	21	3	0	24	46
8:00 AM	0	0	0	0	0	1	23	0	0	24	1	0	2	0	3	0	29	0	0	29	56
8:15 AM	0	0	0	0	0	0	12	0	0	12	1	0	1	0	2	0	31	0	0	31	45
8:30 AM	0	0	0	0	0	1	21	0	0	22	1	0	1	0	2	0	8	0	0	8	32
Total	0	0	0	0	0	4	71	0	0	75	6	1	5	0	12	0	89	3	0	92	179
Approach %	0.0	0.0	0.0	0.0	-	5.3	94.7	0.0	0.0	-	50.0	8.3	41.7	0.0	-	0.0	96.7	3.3	0.0	-	-
Total %	0.0	0.0	0.0	0.0	0.0	2.2	39.7	0.0	0.0	41.9	3.4	0.6	2.8	0.0	6.7	0.0	49.7	1.7	0.0	51.4	-
PHF	0.000	0.000	0.000	0.000	0.000	0.500	0.772	0.000	0.000	0.781	0.500	0.250	0.625	0.000	0.600	0.000	0.718	0.250	0.000	0.742	0.799
Lights	0	0	0	0	0	4	70	0	0	74	6	0	5	0	11	0	81	2	0	83	168
% Lights	-	-	-	-	-	100.0	98.6	-	-	98.7	100.0	0.0	100.0	-	91.7	-	91.0	66.7	-	90.2	93.9
Mediums	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	8	0	0	8	9
% Mediums	-	-	-	-	-	0.0	1.4	-	-	1.3	0.0	0.0	0.0	-	0.0	-	9.0	0.0	-	8.7	5.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	2
% Articulated Trucks	-	-	-	-	-	0.0	0.0	-	-	0.0	0.0	100.0	0.0	-	8.3	-	0.0	33.3	-	1.1	1.1

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Turning Movement Peak Hour Data Plot (7:45 AM)

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Turning Movement Peak Hour Data (4:15 PM)

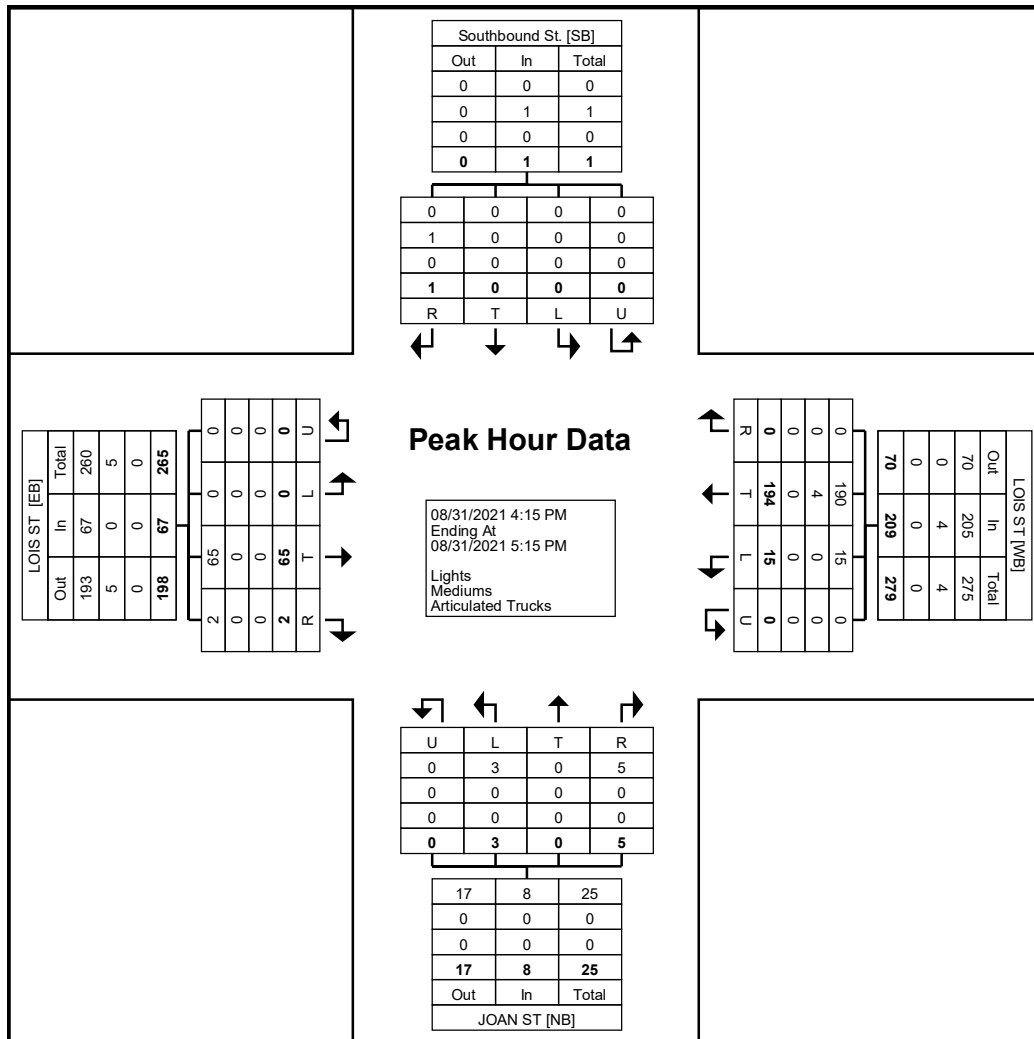
Start Time	Southbound St. Southbound					LOIS ST Westbound					JOAN ST Northbound					LOIS ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:15 PM	0	0	0	0	0	4	60	0	0	64	1	0	1	0	2	0	15	1	0	16	82
4:30 PM	0	0	0	0	0	4	55	0	0	59	1	0	2	0	3	0	19	1	0	20	82
4:45 PM	0	0	1	0	1	0	39	0	0	39	1	0	1	0	2	0	18	0	0	18	60
5:00 PM	0	0	0	0	0	7	40	0	0	47	0	0	1	0	1	0	13	0	0	13	61
Total	0	0	1	0	1	15	194	0	0	209	3	0	5	0	8	0	65	2	0	67	285
Approach %	0.0	0.0	100.0	0.0	-	7.2	92.8	0.0	0.0	-	37.5	0.0	62.5	0.0	-	0.0	97.0	3.0	0.0	-	-
Total %	0.0	0.0	0.4	0.0	0.4	5.3	68.1	0.0	0.0	73.3	1.1	0.0	1.8	0.0	2.8	0.0	22.8	0.7	0.0	23.5	-
PHF	0.000	0.000	0.250	0.000	0.250	0.536	0.808	0.000	0.000	0.816	0.750	0.000	0.625	0.000	0.667	0.000	0.855	0.500	0.000	0.838	0.869
Lights	0	0	0	0	0	15	190	0	0	205	3	0	5	0	8	0	65	2	0	67	280
% Lights	-	-	0.0	-	0.0	100.0	97.9	-	-	98.1	100.0	-	100.0	-	100.0	-	100.0	100.0	-	100.0	98.2
Mediums	0	0	1	0	1	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	5
% Mediums	-	-	100.0	-	100.0	0.0	2.1	-	-	1.9	0.0	-	0.0	-	0.0	-	0.0	0.0	-	0.0	1.8
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	-	-	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0

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Turning Movement Peak Hour Data Plot (4:15 PM)

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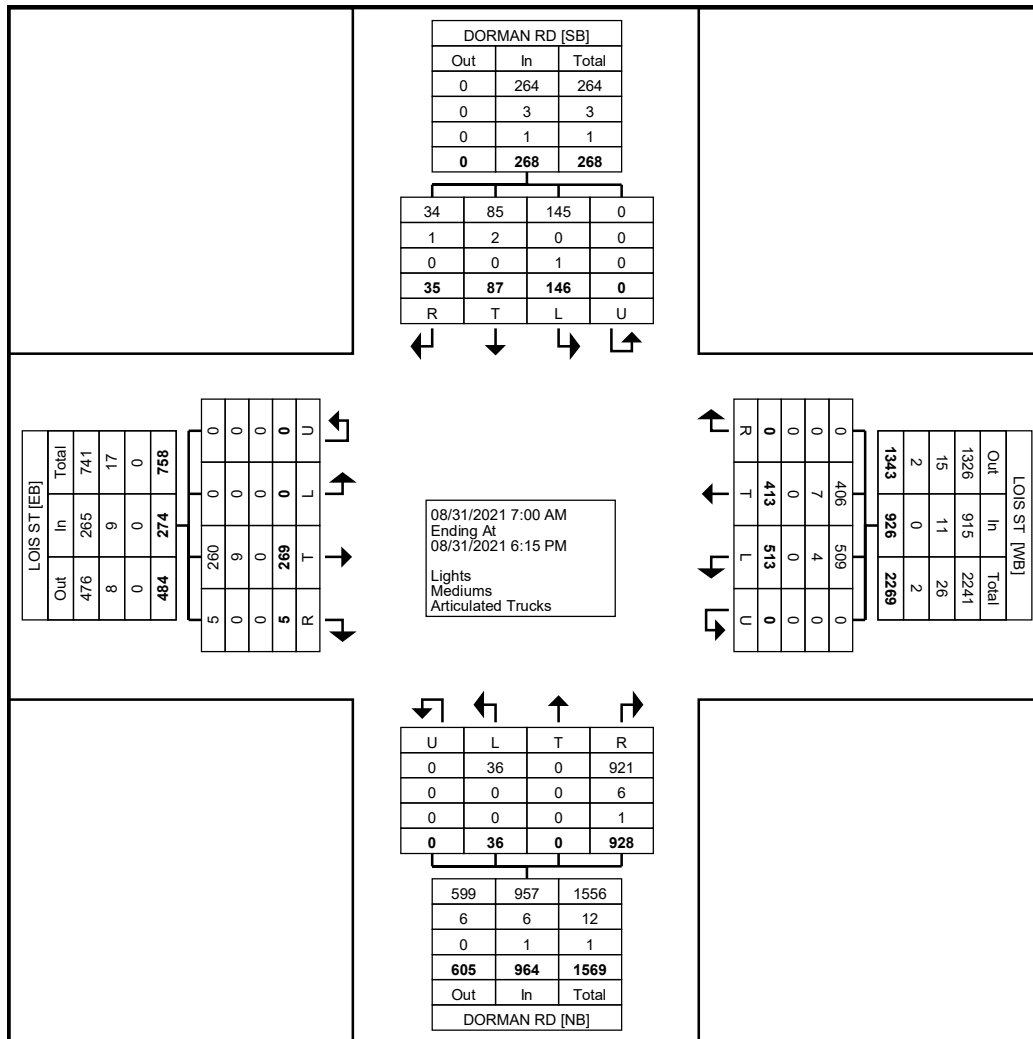
Turning Movement Data

Start Time	DORMAN RD Southbound					LOIS ST Westbound					DORMAN RD Northbound					LOIS ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	2	1	1	0	4	14	11	0	0	25	0	0	16	0	16	0	9	0	0	9	54
7:15 AM	5	1	1	0	7	21	11	0	0	32	1	0	21	0	22	0	5	0	0	5	66
7:30 AM	4	3	0	0	7	32	11	0	0	43	0	0	18	0	18	0	13	0	0	13	81
7:45 AM	12	3	1	0	16	29	13	0	0	42	2	0	43	0	45	0	19	0	0	19	122
Hourly Total	23	8	3	0	34	96	46	0	0	142	3	0	98	0	101	0	46	0	0	46	323
8:00 AM	6	5	2	0	13	30	21	0	0	51	1	0	34	0	35	0	36	0	0	36	135
8:15 AM	10	5	0	0	15	24	12	0	0	36	0	0	46	0	46	0	31	0	0	31	128
8:30 AM	8	6	1	0	15	31	23	0	0	54	0	0	19	0	19	0	9	0	0	9	97
8:45 AM	8	5	1	0	14	23	19	0	0	42	1	0	22	0	23	0	7	0	0	7	86
Hourly Total	32	21	4	0	57	108	75	0	0	183	2	0	121	0	123	0	83	0	0	83	446
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	9	9	3	0	21	52	32	0	0	84	3	0	69	0	72	0	16	0	0	16	193
4:15 PM	9	7	6	0	22	37	55	0	0	92	4	0	96	0	100	0	19	1	0	20	234
4:30 PM	9	8	3	0	20	46	52	0	0	98	3	0	86	0	89	0	19	1	0	20	227
4:45 PM	12	8	1	0	21	45	36	0	0	81	5	0	111	0	116	0	19	1	0	20	238
Hourly Total	39	32	13	0	84	180	175	0	0	355	15	0	362	0	377	0	73	3	0	76	892
5:00 PM	13	10	6	0	29	24	38	0	0	62	5	0	100	0	105	0	15	0	0	15	211
5:15 PM	16	5	5	0	26	25	25	0	0	50	2	0	93	0	95	0	22	1	0	23	194
5:30 PM	12	4	2	0	18	40	27	0	0	67	3	0	76	0	79	0	11	1	0	12	176
5:45 PM	11	7	2	0	20	40	27	0	0	67	6	0	78	0	84	0	19	0	0	19	190
Hourly Total	52	26	15	0	93	129	117	0	0	246	16	0	347	0	363	0	67	2	0	69	771
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	146	87	35	0	268	513	413	0	0	926	36	0	928	0	964	0	269	5	0	274	2432
Approach %	54.5	32.5	13.1	0.0	-	55.4	44.6	0.0	0.0	-	3.7	0.0	96.3	0.0	-	0.0	98.2	1.8	0.0	-	-
Total %	6.0	3.6	1.4	0.0	11.0	21.1	17.0	0.0	0.0	38.1	1.5	0.0	38.2	0.0	39.6	0.0	11.1	0.2	0.0	11.3	-
Lights	145	85	34	0	264	509	406	0	0	915	36	0	921	0	957	0	260	5	0	265	2401
% Lights	99.3	97.7	97.1	-	98.5	99.2	98.3	-	-	98.8	100.0	-	99.2	-	99.3	-	96.7	100.0	-	96.7	98.7
Mediums	0	2	1	0	3	4	7	0	0	11	0	0	6	0	6	0	9	0	0	9	29
% Mediums	0.0	2.3	2.9	-	1.1	0.8	1.7	-	-	1.2	0.0	-	0.6	-	0.6	-	3.3	0.0	-	3.3	1.2
Articulated Trucks	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
% Articulated Trucks	0.7	0.0	0.0	-	0.4	0.0	0.0	-	-	0.0	0.0	-	0.1	-	0.1	-	0.0	0.0	-	0.0	0.1

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Turning Movement Data Plot

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Turning Movement Peak Hour Data (7:45 AM)

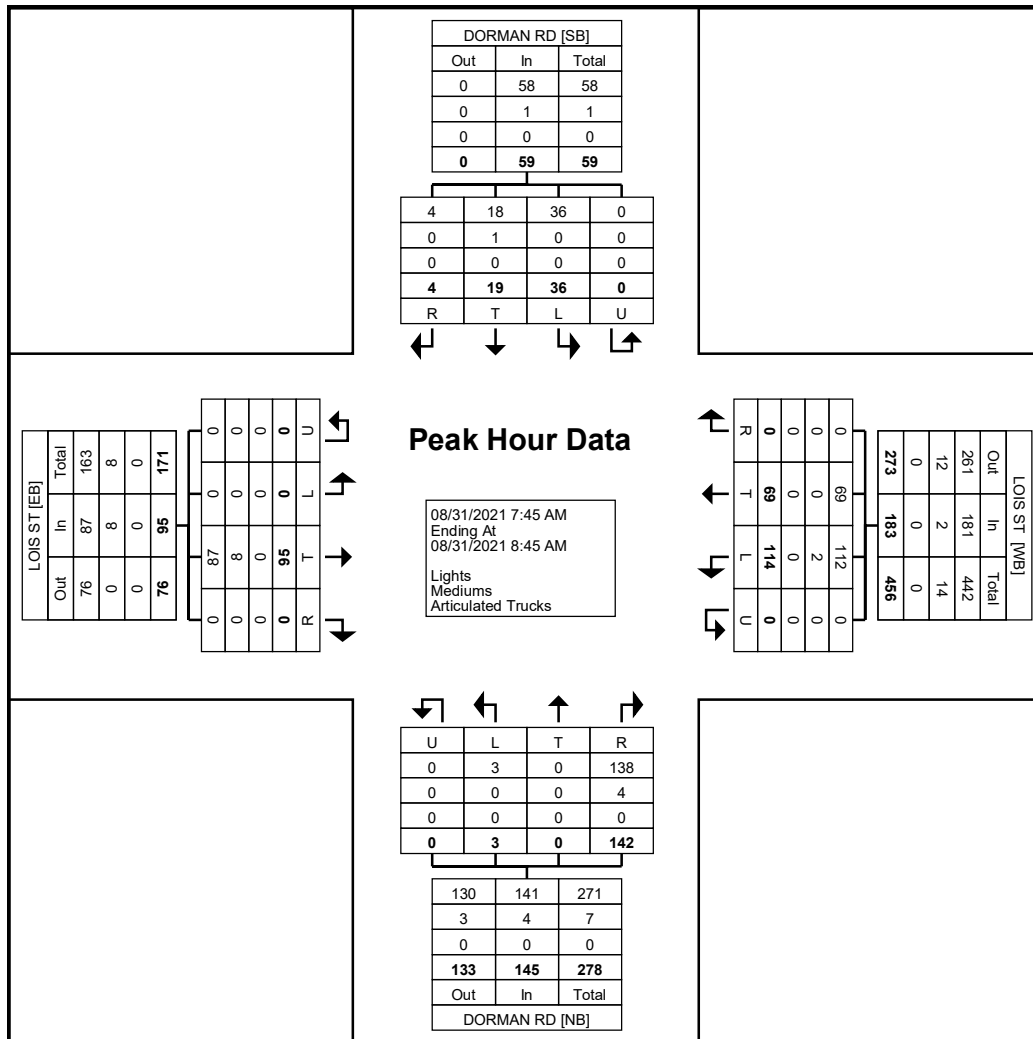
Start Time	DORMAN RD Southbound					LOIS ST Westbound					DORMAN RD Northbound					LOIS ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:45 AM	12	3	1	0	16	29	13	0	0	42	2	0	43	0	45	0	19	0	0	19	122
8:00 AM	6	5	2	0	13	30	21	0	0	51	1	0	34	0	35	0	36	0	0	36	135
8:15 AM	10	5	0	0	15	24	12	0	0	36	0	0	46	0	46	0	31	0	0	31	128
8:30 AM	8	6	1	0	15	31	23	0	0	54	0	0	19	0	19	0	9	0	0	9	97
Total	36	19	4	0	59	114	69	0	0	183	3	0	142	0	145	0	95	0	0	95	482
Approach %	61.0	32.2	6.8	0.0	-	62.3	37.7	0.0	0.0	-	2.1	0.0	97.9	0.0	-	0.0	100.0	0.0	0.0	-	-
Total %	7.5	3.9	0.8	0.0	12.2	23.7	14.3	0.0	0.0	38.0	0.6	0.0	29.5	0.0	30.1	0.0	19.7	0.0	0.0	19.7	-
PHF	0.750	0.792	0.500	0.000	0.922	0.919	0.750	0.000	0.000	0.847	0.375	0.000	0.772	0.000	0.788	0.000	0.660	0.000	0.000	0.660	0.893
Lights	36	18	4	0	58	112	69	0	0	181	3	0	138	0	141	0	87	0	0	87	467
% Lights	100.0	94.7	100.0	-	98.3	98.2	100.0	-	-	98.9	100.0	-	97.2	-	97.2	-	91.6	-	-	91.6	96.9
Mediums	0	1	0	0	1	2	0	0	0	2	0	0	4	0	4	0	8	0	0	8	15
% Mediums	0.0	5.3	0.0	-	1.7	1.8	0.0	-	-	1.1	0.0	-	2.8	-	2.8	-	8.4	-	-	8.4	3.1
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	-	0.0	-	-	0.0	0.0

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Turning Movement Peak Hour Data (4:15 PM)

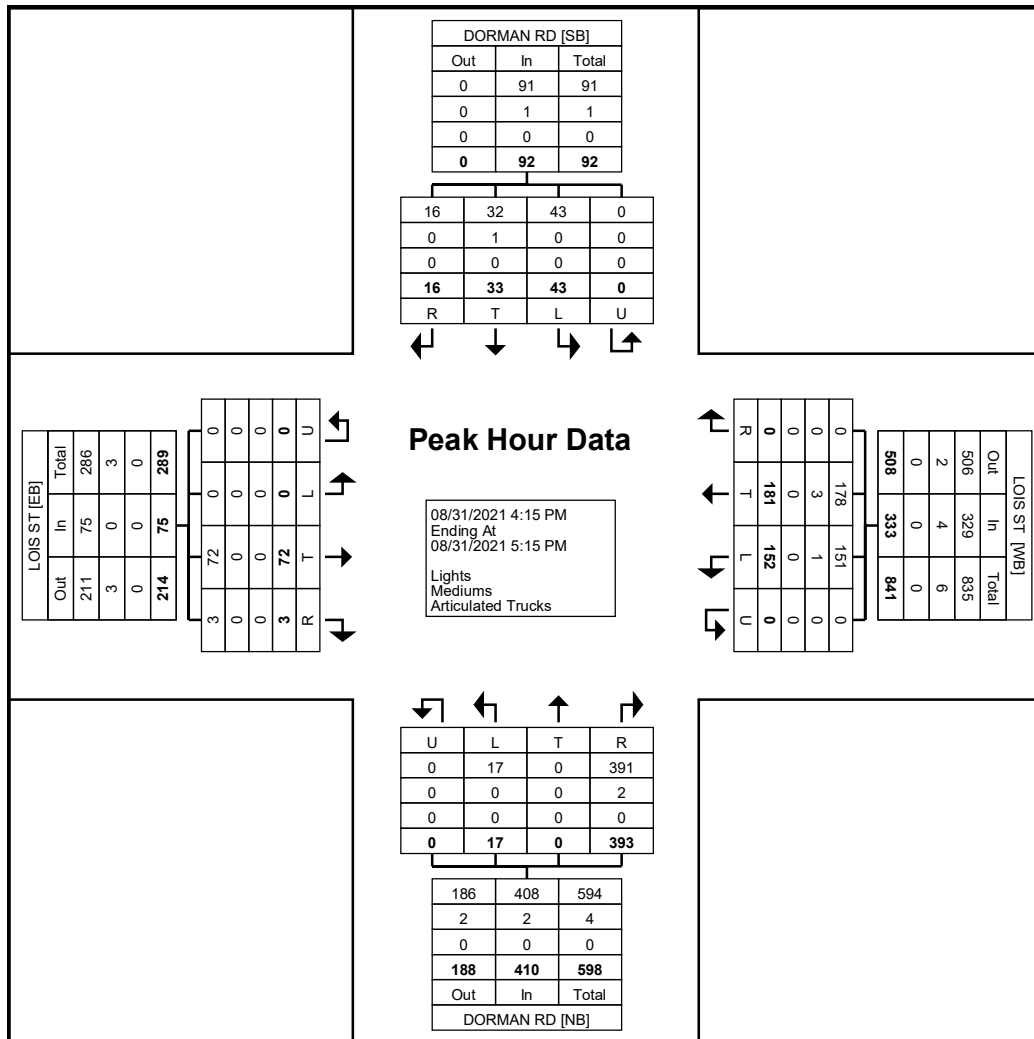
Start Time	DORMAN RD Southbound					LOIS ST Westbound					DORMAN RD Northbound					LOIS ST Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:15 PM	9	7	6	0	22	37	55	0	0	92	4	0	96	0	100	0	19	1	0	20	234
4:30 PM	9	8	3	0	20	46	52	0	0	98	3	0	86	0	89	0	19	1	0	20	227
4:45 PM	12	8	1	0	21	45	36	0	0	81	5	0	111	0	116	0	19	1	0	20	238
5:00 PM	13	10	6	0	29	24	38	0	0	62	5	0	100	0	105	0	15	0	0	15	211
Total	43	33	16	0	92	152	181	0	0	333	17	0	393	0	410	0	72	3	0	75	910
Approach %	46.7	35.9	17.4	0.0	-	45.6	54.4	0.0	0.0	-	4.1	0.0	95.9	0.0	-	0.0	96.0	4.0	0.0	-	-
Total %	4.7	3.6	1.8	0.0	10.1	16.7	19.9	0.0	0.0	36.6	1.9	0.0	43.2	0.0	45.1	0.0	7.9	0.3	0.0	8.2	-
PHF	0.827	0.825	0.667	0.000	0.793	0.826	0.823	0.000	0.000	0.849	0.850	0.000	0.885	0.000	0.884	0.000	0.947	0.750	0.000	0.938	0.956
Lights	43	32	16	0	91	151	178	0	0	329	17	0	391	0	408	0	72	3	0	75	903
% Lights	100.0	97.0	100.0	-	98.9	99.3	98.3	-	-	98.8	100.0	-	99.5	-	99.5	-	100.0	100.0	-	100.0	99.2
Mediums	0	1	0	0	1	1	3	0	0	4	0	0	2	0	2	0	0	0	0	0	7
% Mediums	0.0	3.0	0.0	-	1.1	0.7	1.7	-	-	1.2	0.0	-	0.5	-	0.5	-	0.0	0.0	-	0.0	0.8
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: LOIS ST @
DORMAN RD
Site Code:
Start Date: 08/31/2021
Page No: 6



Turning Movement Peak Hour Data Plot (4:15 PM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: ---JAMES ST @
US 377
Site Code:
Start Date: 08/31/2021
Page No: 1

Turning Movement Data

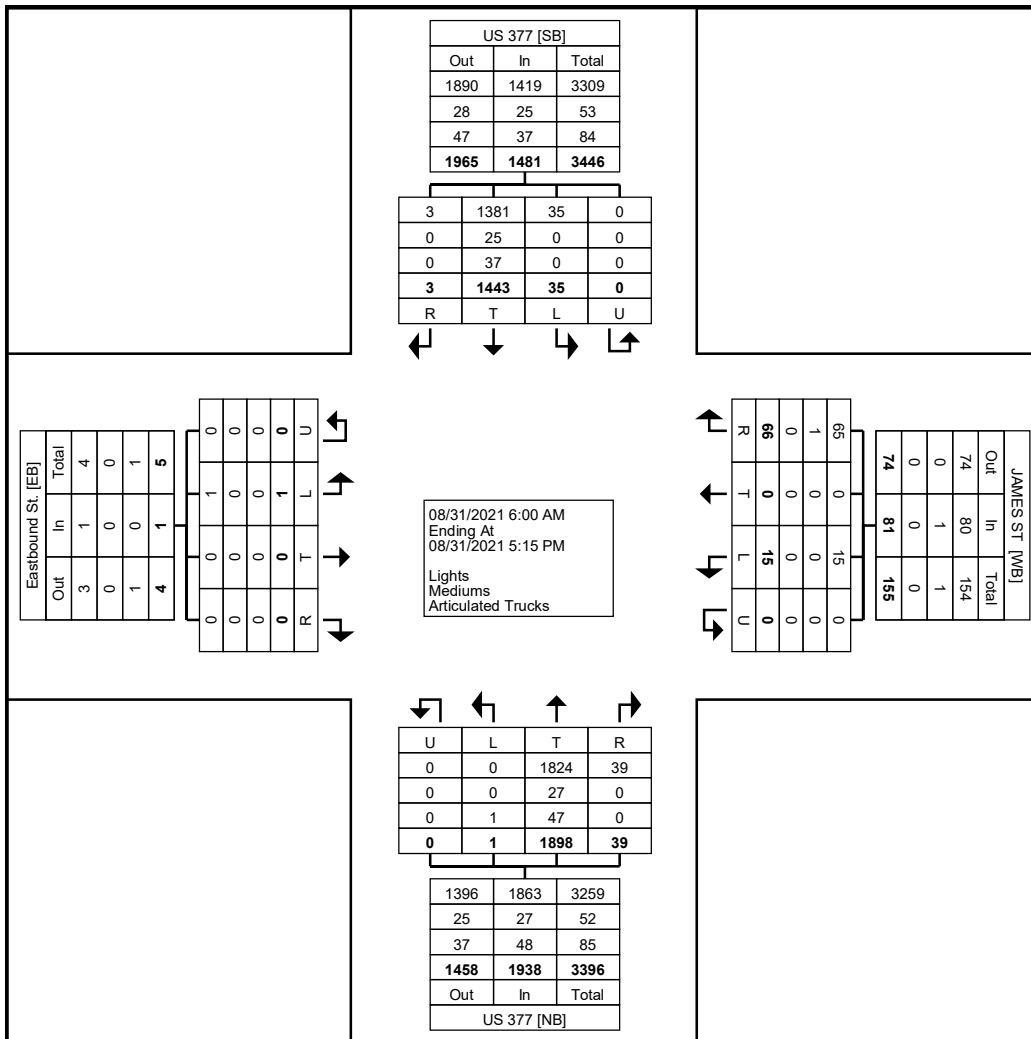
Start Time	US 377 Southbound					JAMES ST Westbound					US 377 Northbound					Eastbound St. Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
6:00 AM	0	35	0	0	35	0	0	0	0	0	0	49	0	0	49	0	0	0	0	0	84
6:15 AM	0	47	1	0	48	0	0	2	0	2	0	52	0	0	52	0	0	0	0	0	102
6:30 AM	0	49	0	0	49	0	0	2	0	2	0	72	0	0	72	0	0	0	0	0	123
6:45 AM	2	91	0	0	93	0	0	1	0	1	0	104	4	0	108	0	0	0	0	0	202
Hourly Total	2	222	1	0	225	0	0	5	0	5	0	277	4	0	281	0	0	0	0	0	511
7:00 AM	3	65	0	0	68	0	0	0	0	0	0	132	2	0	134	0	0	0	0	0	202
7:15 AM	5	74	1	0	80	3	0	2	0	5	0	139	3	0	142	0	0	0	0	0	227
7:30 AM	1	73	1	0	75	2	0	4	0	6	0	170	3	0	173	0	0	0	0	0	254
7:45 AM	1	93	0	0	94	1	0	1	0	2	0	154	0	0	154	0	0	0	0	0	250
Hourly Total	10	305	2	0	317	6	0	7	0	13	0	595	8	0	603	0	0	0	0	0	933
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	2	108	0	0	110	1	0	2	0	3	0	121	3	0	124	0	0	0	0	0	237
3:15 PM	2	107	0	0	109	2	0	5	0	7	1	108	0	0	109	0	0	0	0	0	225
3:30 PM	4	101	0	0	105	1	0	8	0	9	0	130	4	0	134	0	0	0	0	0	248
3:45 PM	4	107	0	0	111	3	0	9	0	12	0	132	1	0	133	1	0	0	0	1	257
Hourly Total	12	423	0	0	435	7	0	24	0	31	1	491	8	0	500	1	0	0	0	1	967
4:00 PM	3	111	0	0	114	1	0	6	0	7	0	107	3	0	110	0	0	0	0	0	231
4:15 PM	0	116	0	0	116	0	0	11	0	11	0	139	6	0	145	0	0	0	0	0	272
4:30 PM	2	141	0	0	143	0	0	7	0	7	0	148	3	0	151	0	0	0	0	0	301
4:45 PM	6	125	0	0	131	1	0	6	0	7	0	141	7	0	148	0	0	0	0	0	286
Hourly Total	11	493	0	0	504	2	0	30	0	32	0	535	19	0	554	0	0	0	0	0	1090
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	35	1443	3	0	1481	15	0	66	0	81	1	1898	39	0	1938	1	0	0	0	1	3501
Approach %	2.4	97.4	0.2	0.0	-	18.5	0.0	81.5	0.0	-	0.1	97.9	2.0	0.0	-	100.0	0.0	0.0	0.0	-	-
Total %	1.0	41.2	0.1	0.0	42.3	0.4	0.0	1.9	0.0	2.3	0.0	54.2	1.1	0.0	55.4	0.0	0.0	0.0	0.0	0.0	-
Lights	35	1381	3	0	1419	15	0	65	0	80	0	1824	39	0	1863	1	0	0	0	1	3363
% Lights	100.0	95.7	100.0	-	95.8	100.0	-	98.5	-	98.8	0.0	96.1	100.0	-	96.1	100.0	-	-	-	100.0	96.1
Mediums	0	25	0	0	25	0	0	1	0	1	0	27	0	0	27	0	0	0	0	0	53
% Mediums	0.0	1.7	0.0	-	1.7	0.0	-	1.5	-	1.2	0.0	1.4	0.0	-	1.4	0.0	-	-	-	0.0	1.5
Articulated Trucks	0	37	0	0	37	0	0	0	0	0	1	47	0	0	48	0	0	0	0	0	85
% Articulated Trucks	0.0	2.6	0.0	-	2.5	0.0	-	0.0	-	0.0	100.0	2.5	0.0	-	2.5	0.0	-	-	-	0.0	2.4

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: ---JAMES ST @
US 377
Site Code:
Start Date: 08/31/2021
Page No: 2



Turning Movement Data Plot

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: ---JAMES ST @
US 377
Site Code:
Start Date: 08/31/2021
Page No: 3

Turning Movement Peak Hour Data (7:00 AM)

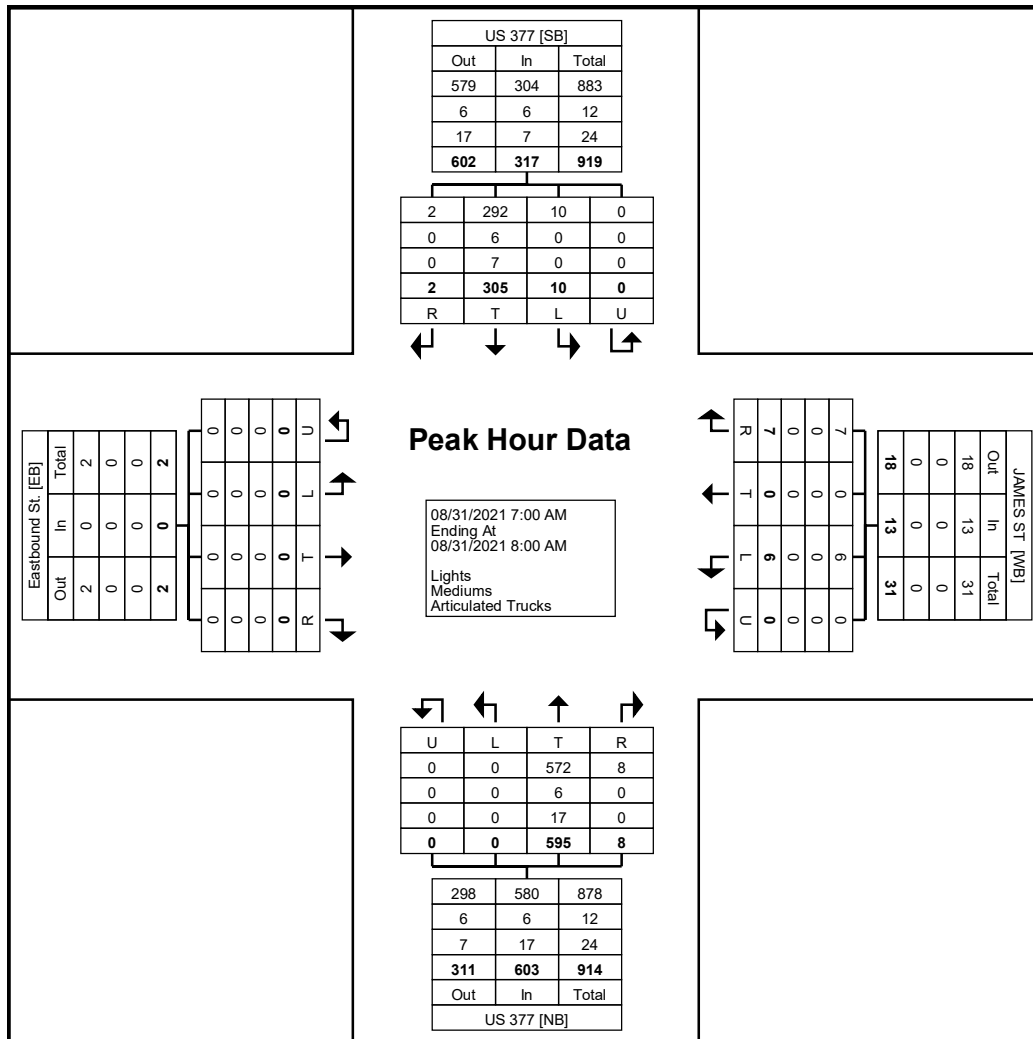
Start Time	US 377 Southbound					JAMES ST Westbound					US 377 Northbound					Eastbound St. Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	3	65	0	0	68	0	0	0	0	0	0	132	2	0	134	0	0	0	0	0	202
7:15 AM	5	74	1	0	80	3	0	2	0	5	0	139	3	0	142	0	0	0	0	0	227
7:30 AM	1	73	1	0	75	2	0	4	0	6	0	170	3	0	173	0	0	0	0	0	254
7:45 AM	1	93	0	0	94	1	0	1	0	2	0	154	0	0	154	0	0	0	0	0	250
Total	10	305	2	0	317	6	0	7	0	13	0	595	8	0	603	0	0	0	0	0	933
Approach %	3.2	96.2	0.6	0.0	-	46.2	0.0	53.8	0.0	-	0.0	98.7	1.3	0.0	-	0.0	0.0	0.0	0.0	0.0	-
Total %	1.1	32.7	0.2	0.0	34.0	0.6	0.0	0.8	0.0	1.4	0.0	63.8	0.9	0.0	64.6	0.0	0.0	0.0	0.0	0.0	-
PHF	0.500	0.820	0.500	0.000	0.843	0.500	0.000	0.438	0.000	0.542	0.000	0.875	0.667	0.000	0.871	0.000	0.000	0.000	0.000	0.000	0.918
Lights	10	292	2	0	304	6	0	7	0	13	0	572	8	0	580	0	0	0	0	0	897
% Lights	100.0	95.7	100.0	-	95.9	100.0	-	100.0	-	100.0	-	96.1	100.0	-	96.2	-	-	-	-	-	96.1
Mediums	0	6	0	0	6	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	12
% Mediums	0.0	2.0	0.0	-	1.9	0.0	-	0.0	-	0.0	-	1.0	0.0	-	1.0	-	-	-	-	-	1.3
Articulated Trucks	0	7	0	0	7	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	24
% Articulated Trucks	0.0	2.3	0.0	-	2.2	0.0	-	0.0	-	0.0	-	2.9	0.0	-	2.8	-	-	-	-	-	2.6

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: ---JAMES ST @
US 377
Site Code:
Start Date: 08/31/2021
Page No: 4



Turning Movement Peak Hour Data Plot (7:00 AM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: ---JAMES ST @
US 377
Site Code:
Start Date: 08/31/2021
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	US 377 Southbound					JAMES ST Westbound					US 377 Northbound					Eastbound St. Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:00 PM	3	111	0	0	114	1	0	6	0	7	0	107	3	0	110	0	0	0	0	0	231
4:15 PM	0	116	0	0	116	0	0	11	0	11	0	139	6	0	145	0	0	0	0	0	272
4:30 PM	2	141	0	0	143	0	0	7	0	7	0	148	3	0	151	0	0	0	0	0	301
4:45 PM	6	125	0	0	131	1	0	6	0	7	0	141	7	0	148	0	0	0	0	0	286
Total	11	493	0	0	504	2	0	30	0	32	0	535	19	0	554	0	0	0	0	0	1090
Approach %	2.2	97.8	0.0	0.0	-	6.3	0.0	93.8	0.0	-	0.0	96.6	3.4	0.0	-	0.0	0.0	0.0	0.0	-	-
Total %	1.0	45.2	0.0	0.0	46.2	0.2	0.0	2.8	0.0	2.9	0.0	49.1	1.7	0.0	50.8	0.0	0.0	0.0	0.0	0.0	-
PHF	0.458	0.874	0.000	0.000	0.881	0.500	0.000	0.682	0.000	0.727	0.000	0.904	0.679	0.000	0.917	0.000	0.000	0.000	0.000	0.000	0.905
Lights	11	466	0	0	477	2	0	29	0	31	0	515	19	0	534	0	0	0	0	0	1042
% Lights	100.0	94.5	-	-	94.6	100.0	-	96.7	-	96.9	-	96.3	100.0	-	96.4	-	-	-	-	-	95.6
Mediums	0	11	0	0	11	0	0	1	0	1	0	9	0	0	9	0	0	0	0	0	21
% Mediums	0.0	2.2	-	-	2.2	0.0	-	3.3	-	3.1	-	1.7	0.0	-	1.6	-	-	-	-	-	1.9
Articulated Trucks	0	16	0	0	16	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	27
% Articulated Trucks	0.0	3.2	-	-	3.2	0.0	-	0.0	-	0.0	-	2.1	0.0	-	2.0	-	-	-	-	-	2.5

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
BYRON NELSON BLVD
Site Code:
Start Date: 08/31/2021
Page No: 1

Turning Movement Data

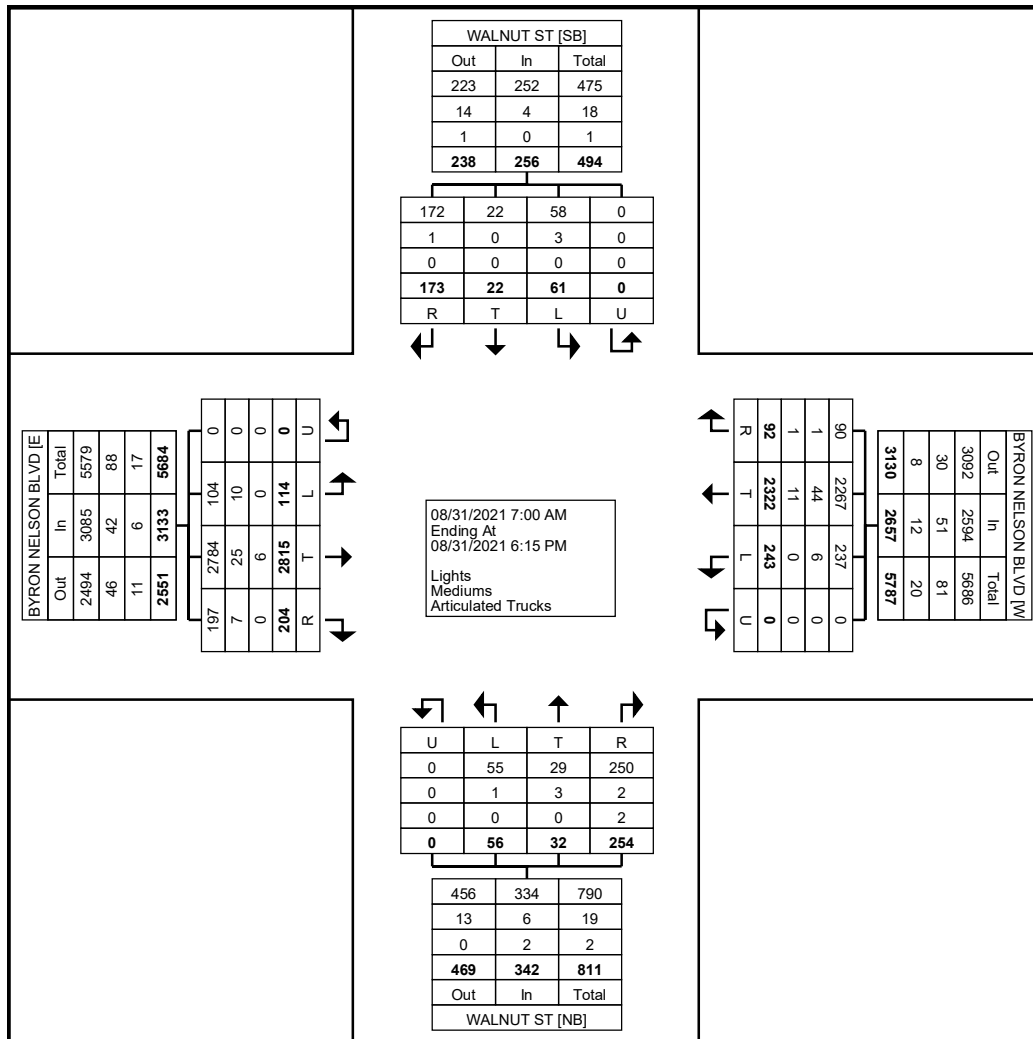
Start Time	WALNUT ST Southbound					BYRON NELSON BLVD Westbound					WALNUT ST Northbound					BYRON NELSON BLVD Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	6	3	2	0	11	4	59	3	0	66	4	0	11	0	15	1	163	3	0	167	259
7:15 AM	6	2	4	0	12	3	64	5	0	72	2	2	7	0	11	1	196	6	0	203	298
7:30 AM	3	0	2	0	5	14	62	5	0	81	3	2	10	0	15	4	218	14	0	236	337
7:45 AM	3	1	9	0	13	20	89	12	0	121	4	3	11	0	18	10	212	21	0	243	395
Hourly Total	18	6	17	0	41	41	274	25	0	340	13	7	39	0	59	16	789	44	0	849	1289
8:00 AM	4	0	6	0	10	23	94	6	0	123	2	3	25	0	30	17	188	25	0	230	393
8:15 AM	2	0	6	0	8	16	76	2	0	94	6	4	22	0	32	15	211	22	0	248	382
8:30 AM	2	5	13	0	20	15	89	2	0	106	2	2	14	0	18	6	158	10	0	174	318
8:45 AM	4	2	7	0	13	11	73	3	0	87	4	2	10	0	16	5	162	8	0	175	291
Hourly Total	12	7	32	0	51	65	332	13	0	410	14	11	71	0	96	43	719	65	0	827	1384
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	6	2	6	0	14	16	164	7	0	187	2	2	21	0	25	11	129	14	0	154	380
4:15 PM	3	0	16	0	19	21	207	10	0	238	4	1	15	0	20	8	143	9	0	160	437
4:30 PM	4	2	21	0	27	17	224	4	0	245	5	3	22	0	30	6	170	11	0	187	489
4:45 PM	4	2	15	0	21	16	214	10	0	240	2	1	16	0	19	8	183	7	0	198	478
Hourly Total	17	6	58	0	81	70	809	31	0	910	13	7	74	0	94	33	625	41	0	699	1784
5:00 PM	3	2	13	0	18	11	226	8	0	245	5	0	16	0	21	2	170	9	0	181	465
5:15 PM	3	0	25	0	28	21	212	4	0	237	4	1	23	0	28	7	188	17	0	212	505
5:30 PM	3	0	16	0	19	13	242	4	0	259	5	3	15	0	23	5	162	12	0	179	480
5:45 PM	5	1	12	0	18	22	227	7	0	256	2	3	16	0	21	8	162	16	0	186	481
Hourly Total	14	3	66	0	83	67	907	23	0	997	16	7	70	0	93	22	682	54	0	758	1931
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	61	22	173	0	256	243	2322	92	0	2657	56	32	254	0	342	114	2815	204	0	3133	6388
Approach %	23.8	8.6	67.6	0.0	-	9.1	87.4	3.5	0.0	-	16.4	9.4	74.3	0.0	-	3.6	89.8	6.5	0.0	-	-
Total %	1.0	0.3	2.7	0.0	4.0	3.8	36.3	1.4	0.0	41.6	0.9	0.5	4.0	0.0	5.4	1.8	44.1	3.2	0.0	49.0	-
Lights	58	22	172	0	252	237	2267	90	0	2594	55	29	250	0	334	104	2784	197	0	3085	6265
% Lights	95.1	100.0	99.4	-	98.4	97.5	97.6	97.8	-	97.6	98.2	90.6	98.4	-	97.7	91.2	98.9	96.6	-	98.5	98.1
Mediums	3	0	1	0	4	6	44	1	0	51	1	3	2	0	6	10	25	7	0	42	103
% Mediums	4.9	0.0	0.6	-	1.6	2.5	1.9	1.1	-	1.9	1.8	9.4	0.8	-	1.8	8.8	0.9	3.4	-	1.3	1.6
Articulated Trucks	0	0	0	0	0	0	11	1	0	12	0	0	2	0	2	0	6	0	0	6	20
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.5	1.1	-	0.5	0.0	0.0	0.8	-	0.6	0.0	0.2	0.0	-	0.2	0.3

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
BYRON NELSON BLVD
Site Code:
Start Date: 08/31/2021
Page No: 2



Turning Movement Data Plot

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
BYRON NELSON BLVD
Site Code:
Start Date: 08/31/2021
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

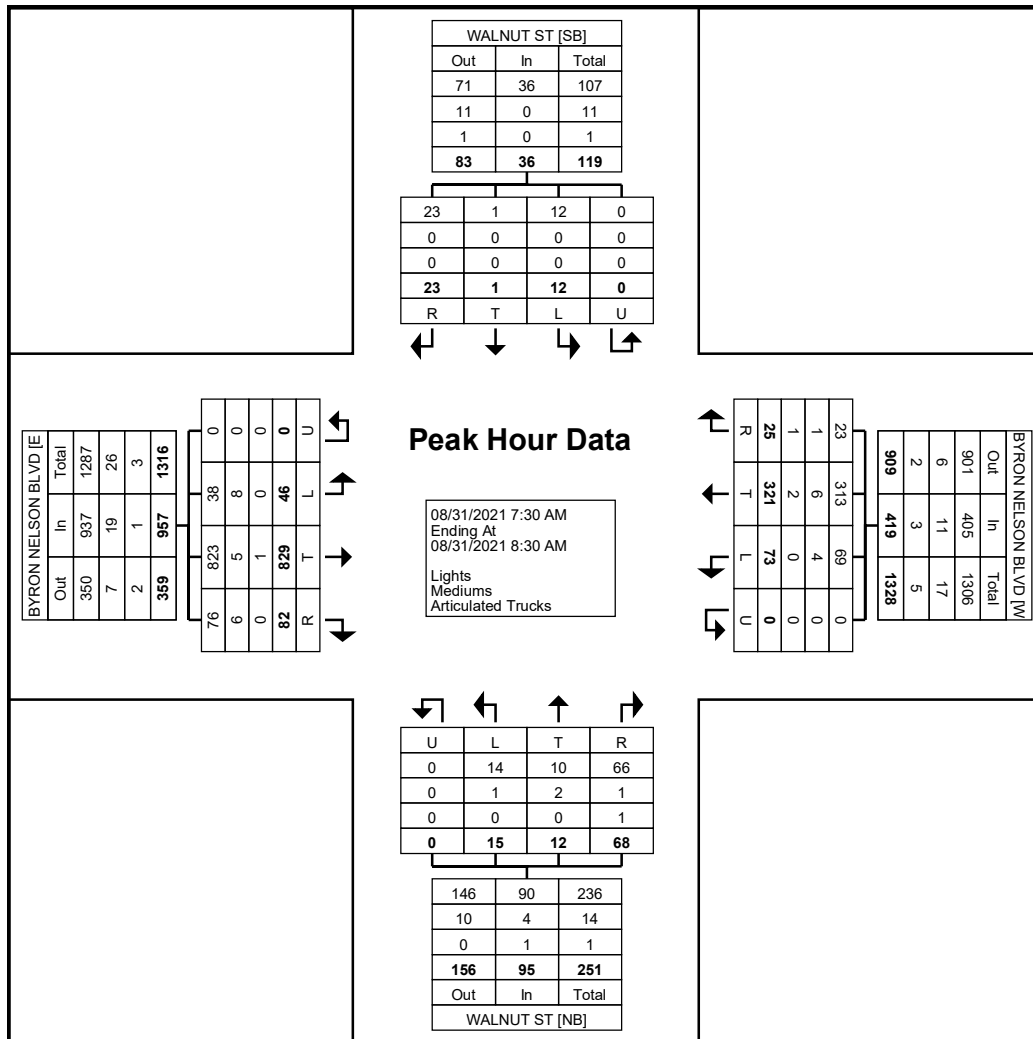
Start Time	WALNUT ST Southbound					BYRON NELSON BLVD Westbound					WALNUT ST Northbound					BYRON NELSON BLVD Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:30 AM	3	0	2	0	5	14	62	5	0	81	3	2	10	0	15	4	218	14	0	236	337
7:45 AM	3	1	9	0	13	20	89	12	0	121	4	3	11	0	18	10	212	21	0	243	395
8:00 AM	4	0	6	0	10	23	94	6	0	123	2	3	25	0	30	17	188	25	0	230	393
8:15 AM	2	0	6	0	8	16	76	2	0	94	6	4	22	0	32	15	211	22	0	248	382
Total	12	1	23	0	36	73	321	25	0	419	15	12	68	0	95	46	829	82	0	957	1507
Approach %	33.3	2.8	63.9	0.0	-	17.4	76.6	6.0	0.0	-	15.8	12.6	71.6	0.0	-	4.8	86.6	8.6	0.0	-	-
Total %	0.8	0.1	1.5	0.0	2.4	4.8	21.3	1.7	0.0	27.8	1.0	0.8	4.5	0.0	6.3	3.1	55.0	5.4	0.0	63.5	-
PHF	0.750	0.250	0.639	0.000	0.692	0.793	0.854	0.521	0.000	0.852	0.625	0.750	0.680	0.000	0.742	0.676	0.951	0.820	0.000	0.965	0.954
Lights	12	1	23	0	36	69	313	23	0	405	14	10	66	0	90	38	823	76	0	937	1468
% Lights	100.0	100.0	100.0	-	100.0	94.5	97.5	92.0	-	96.7	93.3	83.3	97.1	-	94.7	82.6	99.3	92.7	-	97.9	97.4
Mediums	0	0	0	0	0	4	6	1	0	11	1	2	1	0	4	8	5	6	0	19	34
% Mediums	0.0	0.0	0.0	-	0.0	5.5	1.9	4.0	-	2.6	6.7	16.7	1.5	-	4.2	17.4	0.6	7.3	-	2.0	2.3
Articulated Trucks	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	0	1	0	0	1	5
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.6	4.0	-	0.7	0.0	0.0	1.5	-	1.1	0.0	0.1	0.0	-	0.1	0.3

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
BYRON NELSON BLVD
Site Code:
Start Date: 08/31/2021
Page No: 4



Turning Movement Peak Hour Data Plot (7:30 AM)

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: WALNUT ST @
BYRON NELSON BLVD
Site Code:
Start Date: 08/31/2021
Page No: 5

Turning Movement Peak Hour Data (4:30 PM)

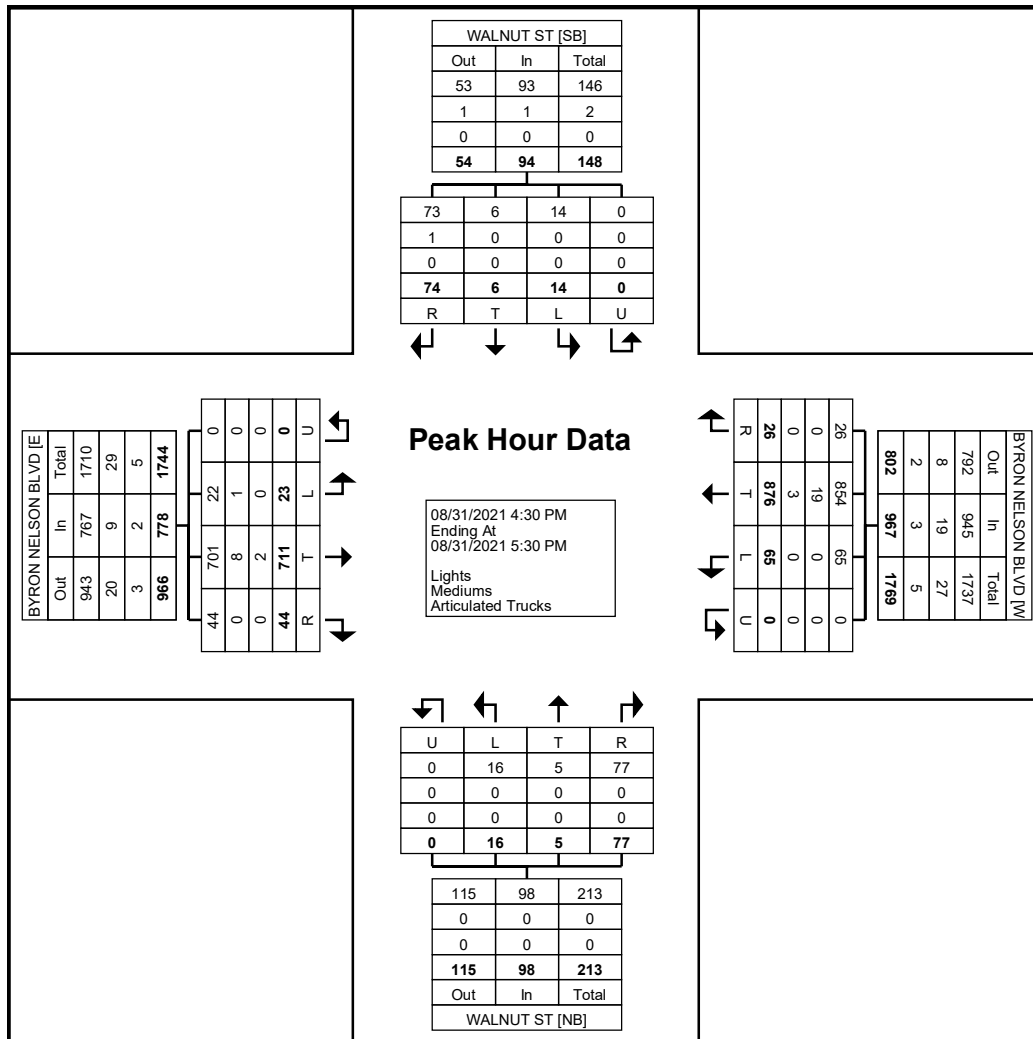
Start Time	WALNUT ST Southbound					BYRON NELSON BLVD Westbound					WALNUT ST Northbound					BYRON NELSON BLVD Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:30 PM	4	2	21	0	27	17	224	4	0	245	5	3	22	0	30	6	170	11	0	187	489
4:45 PM	4	2	15	0	21	16	214	10	0	240	2	1	16	0	19	8	183	7	0	198	478
5:00 PM	3	2	13	0	18	11	226	8	0	245	5	0	16	0	21	2	170	9	0	181	465
5:15 PM	3	0	25	0	28	21	212	4	0	237	4	1	23	0	28	7	188	17	0	212	505
Total	14	6	74	0	94	65	876	26	0	967	16	5	77	0	98	23	711	44	0	778	1937
Approach %	14.9	6.4	78.7	0.0	-	6.7	90.6	2.7	0.0	-	16.3	5.1	78.6	0.0	-	3.0	91.4	5.7	0.0	-	-
Total %	0.7	0.3	3.8	0.0	4.9	3.4	45.2	1.3	0.0	49.9	0.8	0.3	4.0	0.0	5.1	1.2	36.7	2.3	0.0	40.2	-
PHF	0.875	0.750	0.740	0.000	0.839	0.774	0.969	0.650	0.000	0.987	0.800	0.417	0.837	0.000	0.817	0.719	0.945	0.647	0.000	0.917	0.959
Lights	14	6	73	0	93	65	854	26	0	945	16	5	77	0	98	22	701	44	0	767	1903
% Lights	100.0	100.0	98.6	-	98.9	100.0	97.5	100.0	-	97.7	100.0	100.0	100.0	-	100.0	95.7	98.6	100.0	-	98.6	98.2
Mediums	0	0	1	0	1	0	19	0	0	19	0	0	0	0	0	1	8	0	0	9	29
% Mediums	0.0	0.0	1.4	-	1.1	0.0	2.2	0.0	-	2.0	0.0	0.0	0.0	-	0.0	4.3	1.1	0.0	-	1.2	1.5
Articulated Trucks	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.3	0.0	-	0.3	0.0	0.0	0.0	-	0.0	0.0	0.3	0.0	-	0.3	0.3

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Turning Movement Peak Hour Data Plot (4:30 PM)

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Turning Movement Data

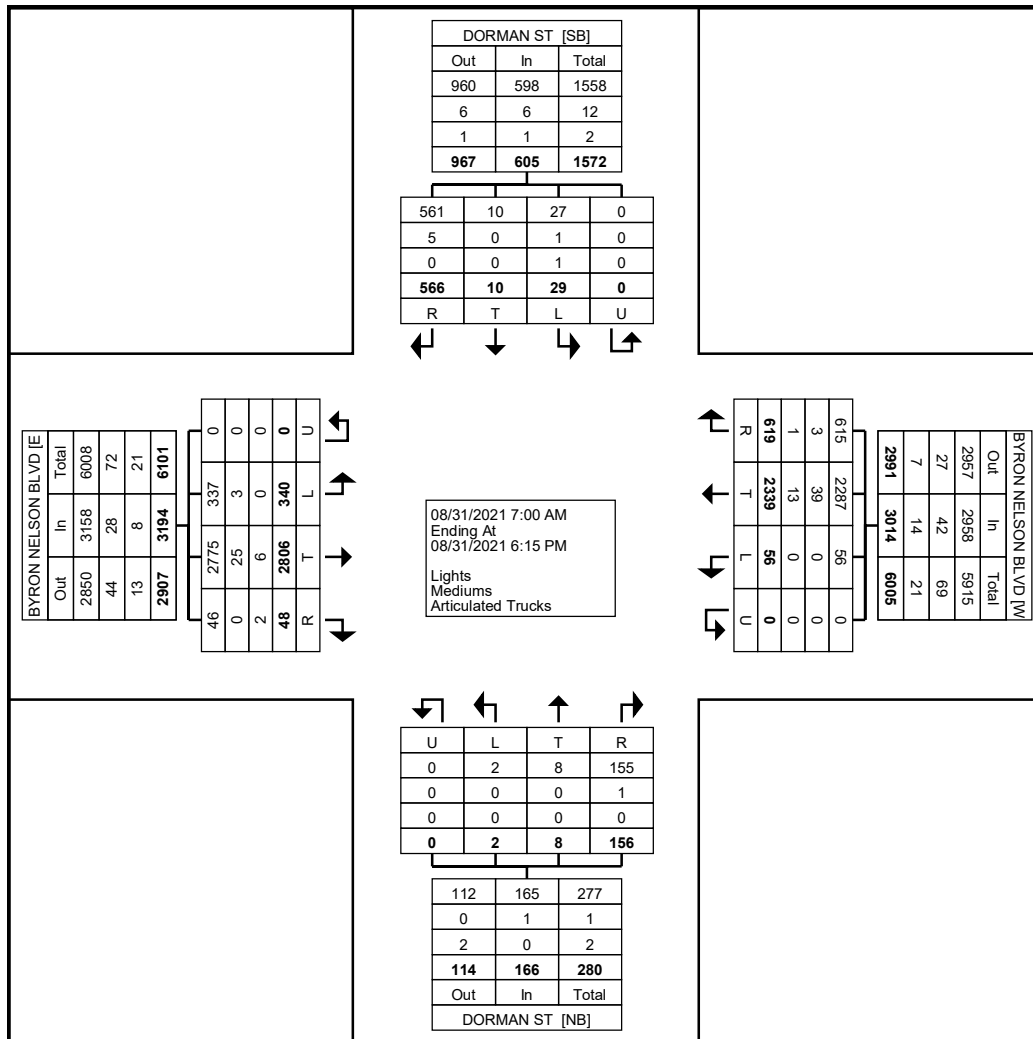
Start Time	DORMAN ST Southbound					BYRON NELSON BLVD Westbound					DORMAN ST Northbound					BYRON NELSON BLVD Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:00 AM	2	0	16	0	18	0	64	6	0	70	0	0	6	0	6	6	171	2	0	179	273
7:15 AM	0	0	18	0	18	2	71	13	0	86	0	1	7	0	8	10	197	2	0	209	321
7:30 AM	4	1	33	0	38	1	69	11	0	81	0	2	8	0	10	10	219	4	0	233	362
7:45 AM	0	0	31	0	31	3	106	17	0	126	0	1	11	0	12	22	181	2	0	205	374
Hourly Total	6	1	98	0	105	6	310	47	0	363	0	4	32	0	36	48	768	10	0	826	1330
8:00 AM	2	1	32	0	35	2	105	12	0	119	0	1	8	0	9	27	192	2	0	221	384
8:15 AM	2	1	27	0	30	1	79	16	0	96	0	0	9	0	9	26	201	0	0	227	362
8:30 AM	3	0	33	0	36	5	77	11	0	93	0	1	10	0	11	11	164	1	0	176	316
8:45 AM	1	0	26	0	27	5	80	4	0	89	0	0	12	0	12	17	166	3	0	186	314
Hourly Total	8	2	118	0	128	13	341	43	0	397	0	2	39	0	41	81	723	6	0	810	1376
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	2	0	59	0	61	4	165	51	0	220	0	0	9	0	9	20	135	1	0	156	446
4:15 PM	2	0	41	0	43	3	209	79	0	291	0	1	8	0	9	23	151	2	0	176	519
4:30 PM	2	1	44	0	47	6	228	71	0	305	0	0	11	0	11	26	176	6	0	208	571
4:45 PM	5	3	50	0	58	7	212	69	0	288	1	0	6	0	7	40	176	6	0	222	575
Hourly Total	11	4	194	0	209	20	814	270	0	1104	1	1	34	0	36	109	638	15	0	762	2111
5:00 PM	1	1	36	0	38	7	221	75	0	303	0	0	14	0	14	28	170	6	0	204	559
5:15 PM	0	0	32	0	32	1	209	64	0	274	0	1	12	0	13	29	181	4	0	214	533
5:30 PM	0	1	43	0	44	5	215	64	0	284	1	0	8	0	9	18	158	5	0	181	518
5:45 PM	3	1	45	0	49	4	229	56	0	289	0	0	17	0	17	27	168	2	0	197	552
Hourly Total	4	3	156	0	163	17	874	259	0	1150	1	1	51	0	53	102	677	17	0	796	2162
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	29	10	566	0	605	56	2339	619	0	3014	2	8	156	0	166	340	2806	48	0	3194	6979
Approach %	4.8	1.7	93.6	0.0	-	1.9	77.6	20.5	0.0	-	1.2	4.8	94.0	0.0	-	10.6	87.9	1.5	0.0	-	-
Total %	0.4	0.1	8.1	0.0	8.7	0.8	33.5	8.9	0.0	43.2	0.0	0.1	2.2	0.0	2.4	4.9	40.2	0.7	0.0	45.8	-
Lights	27	10	561	0	598	56	2287	615	0	2958	2	8	155	0	165	337	2775	46	0	3158	6879
% Lights	93.1	100.0	99.1	-	98.8	100.0	97.8	99.4	-	98.1	100.0	100.0	99.4	-	99.4	99.1	98.9	95.8	-	98.9	98.6
Mediums	1	0	5	0	6	0	39	3	0	42	0	0	1	0	1	3	25	0	0	28	77
% Mediums	3.4	0.0	0.9	-	1.0	0.0	1.7	0.5	-	1.4	0.0	0.0	0.6	-	0.6	0.9	0.9	0.0	-	0.9	1.1
Articulated Trucks	1	0	0	0	1	0	13	1	0	14	0	0	0	0	0	0	6	2	0	8	23
% Articulated Trucks	3.4	0.0	0.0	-	0.2	0.0	0.6	0.2	-	0.5	0.0	0.0	0.0	-	0.0	0.0	0.2	4.2	-	0.3	0.3

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Turning Movement Data Plot

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Count Name: DORMAN ST @
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Site Code:
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Turning Movement Peak Hour Data (7:30 AM)

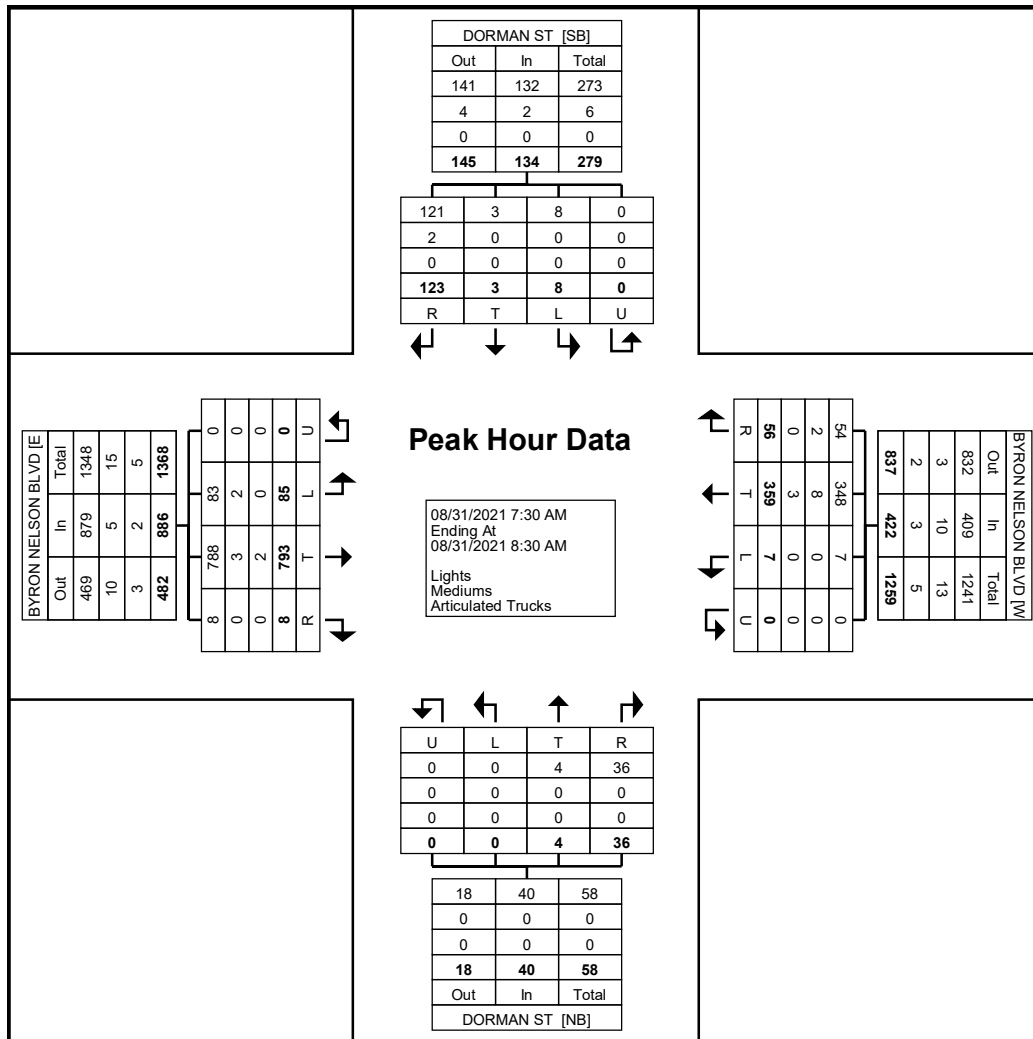
Start Time	DORMAN ST Southbound					BYRON NELSON BLVD Westbound					DORMAN ST Northbound					BYRON NELSON BLVD Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:30 AM	4	1	33	0	38	1	69	11	0	81	0	2	8	0	10	10	219	4	0	233	362
7:45 AM	0	0	31	0	31	3	106	17	0	126	0	1	11	0	12	22	181	2	0	205	374
8:00 AM	2	1	32	0	35	2	105	12	0	119	0	1	8	0	9	27	192	2	0	221	384
8:15 AM	2	1	27	0	30	1	79	16	0	96	0	0	9	0	9	26	201	0	0	227	362
Total	8	3	123	0	134	7	359	56	0	422	0	4	36	0	40	85	793	8	0	886	1482
Approach %	6.0	2.2	91.8	0.0	-	1.7	85.1	13.3	0.0	-	0.0	10.0	90.0	0.0	-	9.6	89.5	0.9	0.0	-	-
Total %	0.5	0.2	8.3	0.0	9.0	0.5	24.2	3.8	0.0	28.5	0.0	0.3	2.4	0.0	2.7	5.7	53.5	0.5	0.0	59.8	-
PHF	0.500	0.750	0.932	0.000	0.882	0.583	0.847	0.824	0.000	0.837	0.000	0.500	0.818	0.000	0.833	0.787	0.905	0.500	0.000	0.951	0.965
Lights	8	3	121	0	132	7	348	54	0	409	0	4	36	0	40	83	788	8	0	879	1460
% Lights	100.0	100.0	98.4	-	98.5	100.0	96.9	96.4	-	96.9	-	100.0	100.0	-	100.0	97.6	99.4	100.0	-	99.2	98.5
Mediums	0	0	2	0	2	0	8	2	0	10	0	0	0	0	0	2	3	0	0	5	17
% Mediums	0.0	0.0	1.6	-	1.5	0.0	2.2	3.6	-	2.4	-	0.0	0.0	-	0.0	2.4	0.4	0.0	-	0.6	1.1
Articulated Trucks	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.8	0.0	-	0.7	-	0.0	0.0	-	0.0	0.0	0.3	0.0	-	0.2	0.3

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Turning Movement Peak Hour Data Plot (7:30 AM)

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Count Name: DORMAN ST @
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Site Code:
Start Date: 08/31/2021
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Turning Movement Peak Hour Data (4:30 PM)

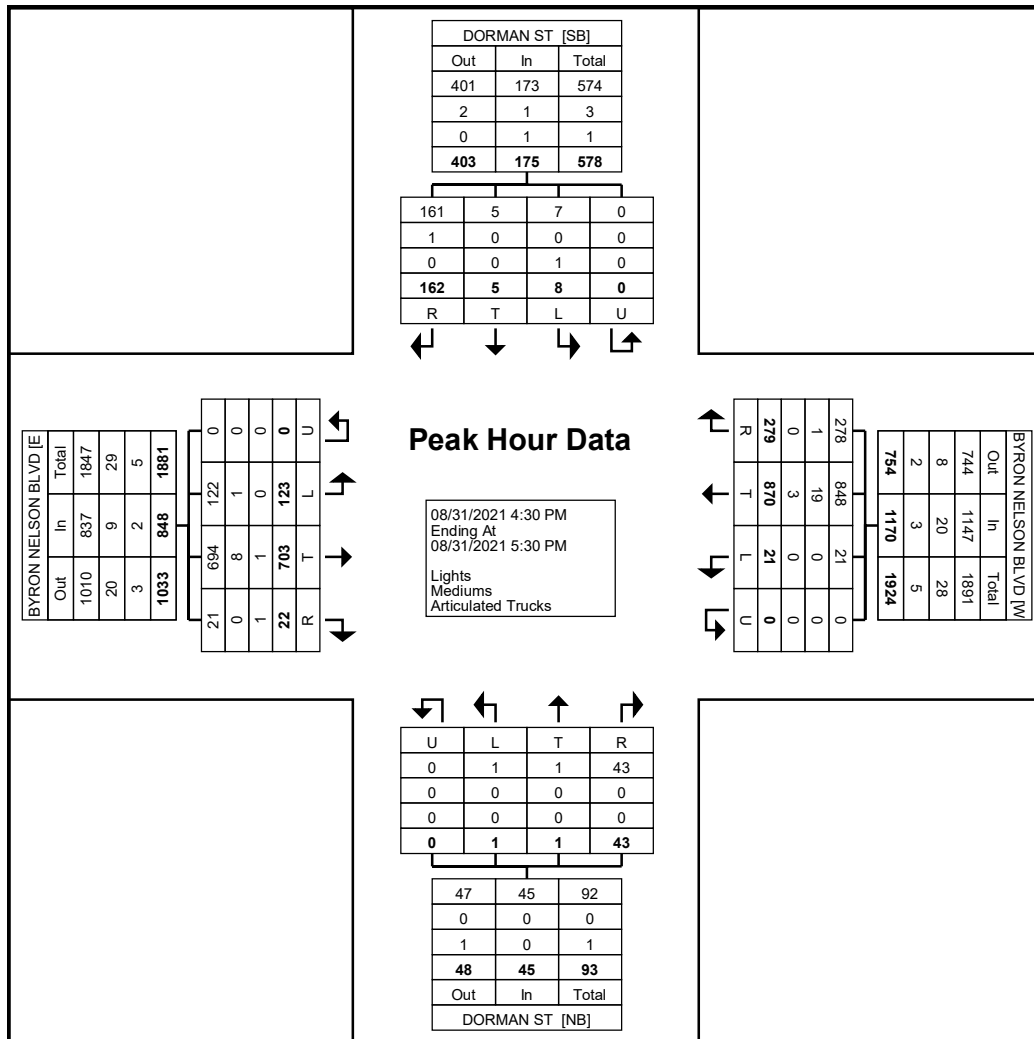
Start Time	DORMAN ST Southbound					BYRON NELSON BLVD Westbound					DORMAN ST Northbound					BYRON NELSON BLVD Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:30 PM	2	1	44	0	47	6	228	71	0	305	0	0	11	0	11	26	176	6	0	208	571
4:45 PM	5	3	50	0	58	7	212	69	0	288	1	0	6	0	7	40	176	6	0	222	575
5:00 PM	1	1	36	0	38	7	221	75	0	303	0	0	14	0	14	28	170	6	0	204	559
5:15 PM	0	0	32	0	32	1	209	64	0	274	0	1	12	0	13	29	181	4	0	214	533
Total	8	5	162	0	175	21	870	279	0	1170	1	1	43	0	45	123	703	22	0	848	2238
Approach %	4.6	2.9	92.6	0.0	-	1.8	74.4	23.8	0.0	-	2.2	2.2	95.6	0.0	-	14.5	82.9	2.6	0.0	-	-
Total %	0.4	0.2	7.2	0.0	7.8	0.9	38.9	12.5	0.0	52.3	0.0	0.0	1.9	0.0	2.0	5.5	31.4	1.0	0.0	37.9	-
PHF	0.400	0.417	0.810	0.000	0.754	0.750	0.954	0.930	0.000	0.959	0.250	0.250	0.768	0.000	0.804	0.769	0.971	0.917	0.000	0.955	0.973
Lights	7	5	161	0	173	21	848	278	0	1147	1	1	43	0	45	122	694	21	0	837	2202
% Lights	87.5	100.0	99.4	-	98.9	100.0	97.5	99.6	-	98.0	100.0	100.0	100.0	-	100.0	99.2	98.7	95.5	-	98.7	98.4
Mediums	0	0	1	0	1	0	19	1	0	20	0	0	0	0	0	1	8	0	0	9	30
% Mediums	0.0	0.0	0.6	-	0.6	0.0	2.2	0.4	-	1.7	0.0	0.0	0.0	-	0.0	0.8	1.1	0.0	-	1.1	1.3
Articulated Trucks	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	1	1	0	2	6
% Articulated Trucks	12.5	0.0	0.0	-	0.6	0.0	0.3	0.0	-	0.3	0.0	0.0	0.0	-	0.0	0.0	0.1	4.5	-	0.2	0.3

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Turning Movement Peak Hour Data Plot (4:30 PM)

**ADJUSTMENT FACTOR FOR
EXISTING (2021) TRAFFIC VOLUMES**

ROANOKE NORTH RESIDENTIAL DEVELOPEMNT TIA ADJUSTMENT OF EXISTING (2021) PEAK HOUR TRAFFIC VOLUMES

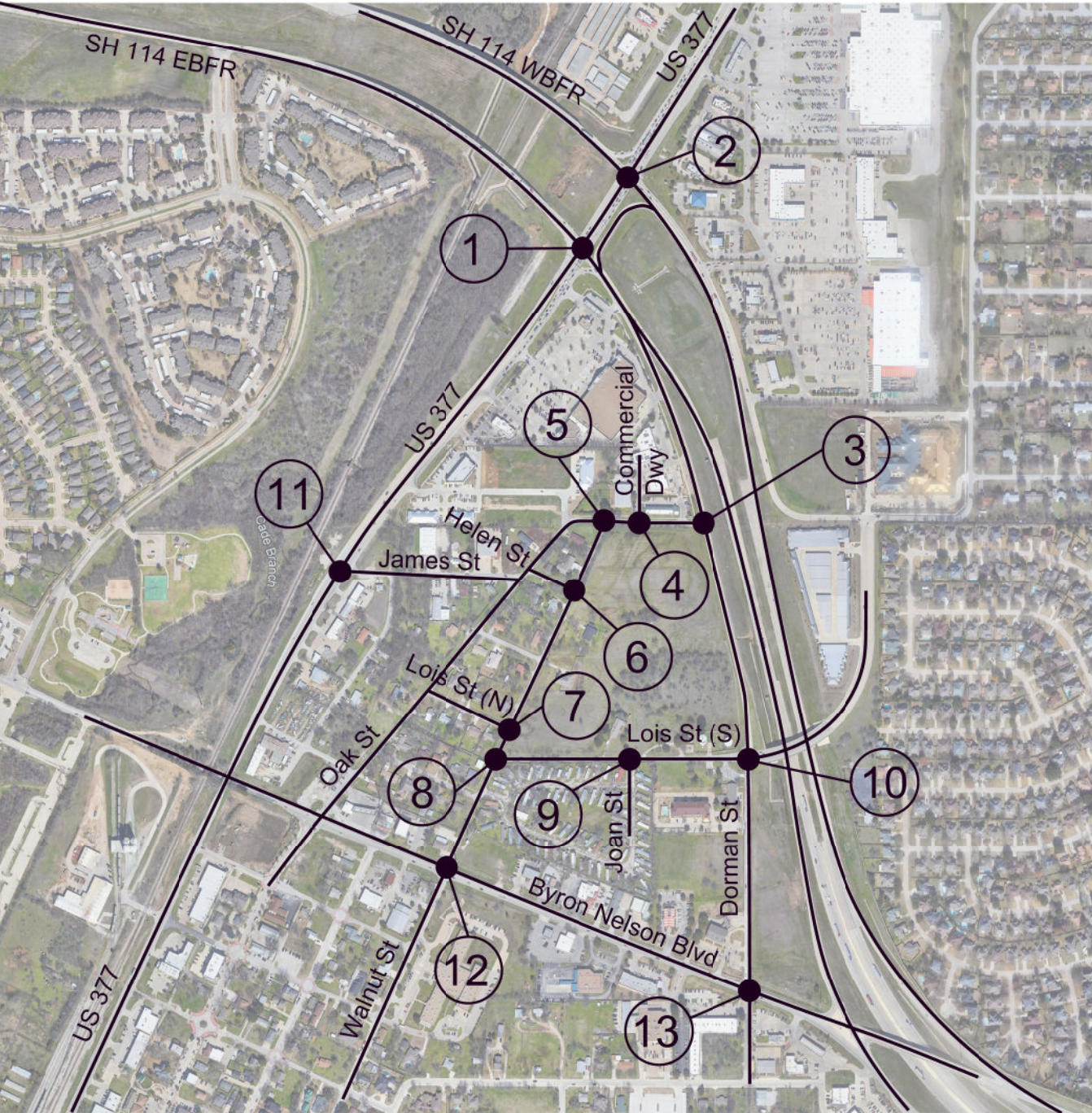
Since traffic volumes under existing conditions could potentially not represent typical conditions due to the COVID-19 pandemic, adjustment factors to apply to the existing traffic volumes collected were determined using the methodology below:

- 1) Existing traffic volumes were collected at the study intersections during the existing AM and PM peak hour traffic volumes (**Figure 5**) on Tuesday, August 31, 2021.
- 2) Hourly traffic volume data collected over a 24-hour period at five (5) locations in the study area were obtained from TxDOT's online Traffic Count Database System (TCDS):
 - US 377 – North of SH 114 WBFR
 - Oak Street – West of Dorman Road
 - Dorman Road – South of Oak Street
 - Walnut Street – North of Byron Nelson Boulevard
 - Walnut Street – South of Byron Nelson Boulevard

This data is provided in **Figures A1 to A5** and summarized in **Table A1**.

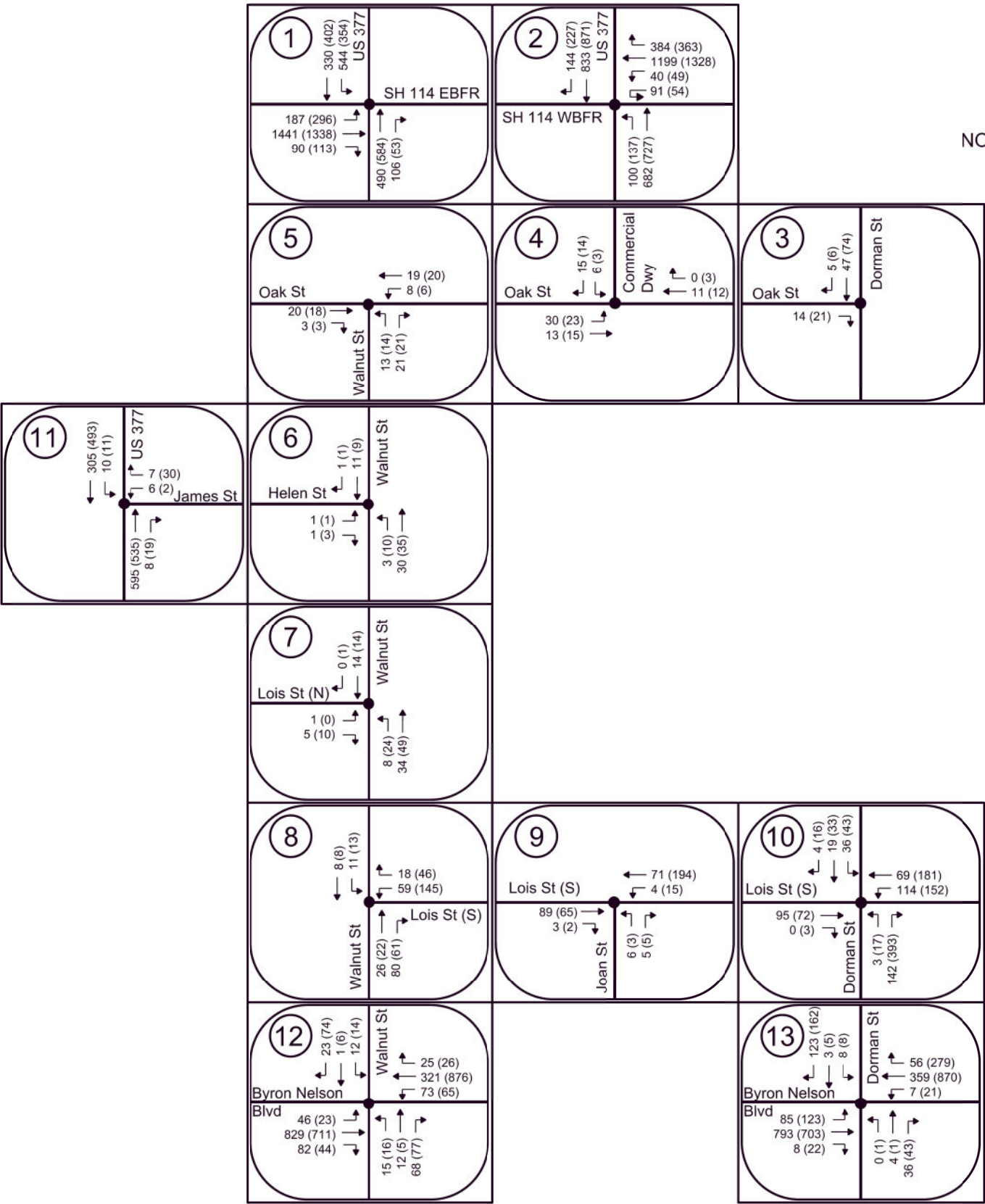
- 3) As described in the TIA, a five (5) percent annual growth rate was assumed. This 5% annual growth rate was applied to the TCDS data to project 2021 TCDS peak hour traffic volumes, which are also summarized in **Table A1**.
- 4) Comparisons between the Projected 2021 TCDS and Existing (8/31/21) traffic volume data are summarized in **Table A1**, which shows the calculated adjustment factors for the AM and PM peak hours based on this information:
 - AM Peak Hour = 1.22
 - PM Peak Hour = 1.10

The revised existing (2021) traffic volumes used in this study are presented in **Figure 6** and represent the application of the adjustment factors to the existing peak hour traffic volumes (Figure 5).



LEGEND
 ● STUDY INTERSECTION
 AM (PM) PEAK HOUR VOLUMES

* AM and PM Traffic volumes collected on Tuesday, August 31, 2021.



Initial Existing (2021) Peak Hour Traffic Volumes

Figure 5

Figure A1: TCDS Data – US 377 (North of SH 114 WBFR)

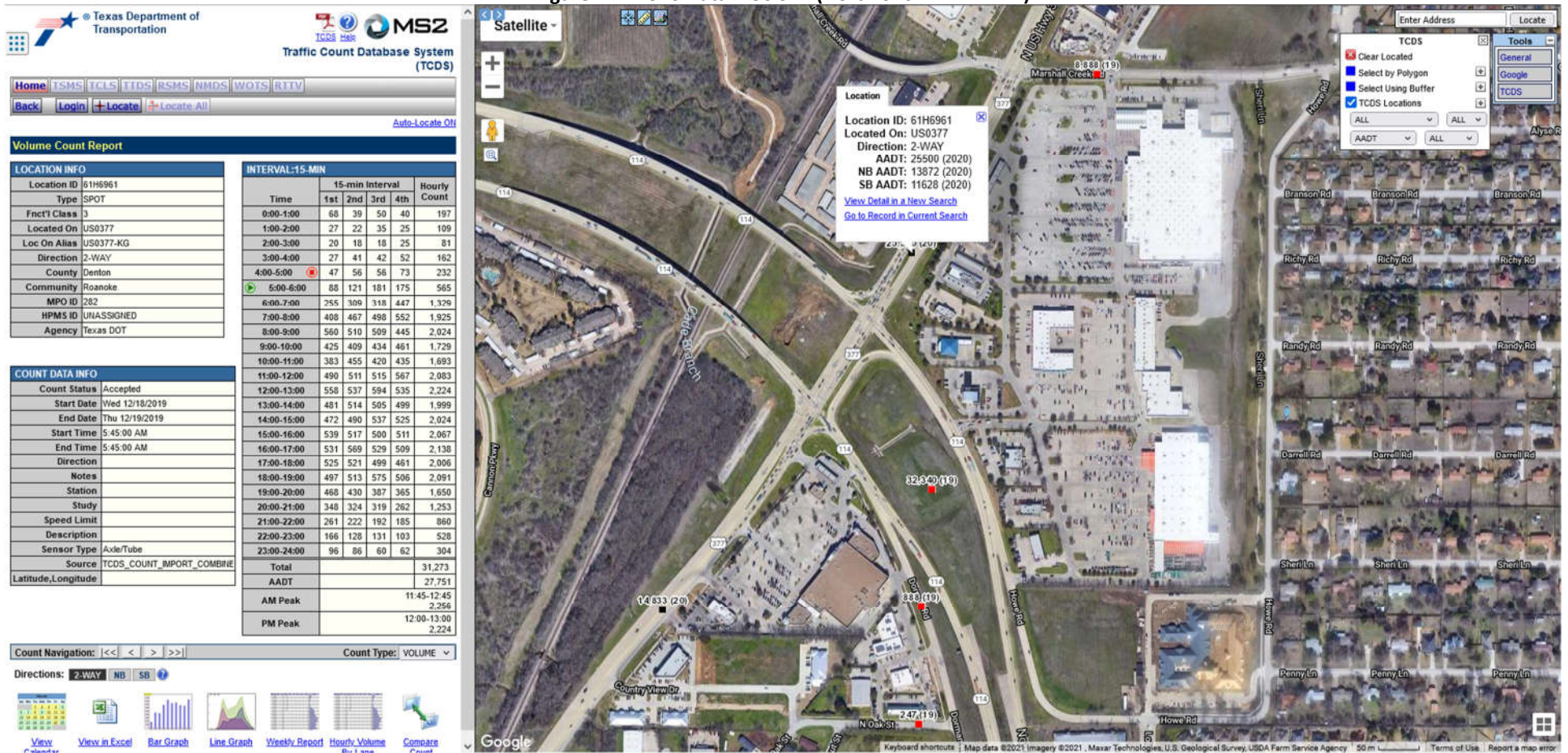


Figure A2: TCDS Data – Oak Street (West of Dorman Road)

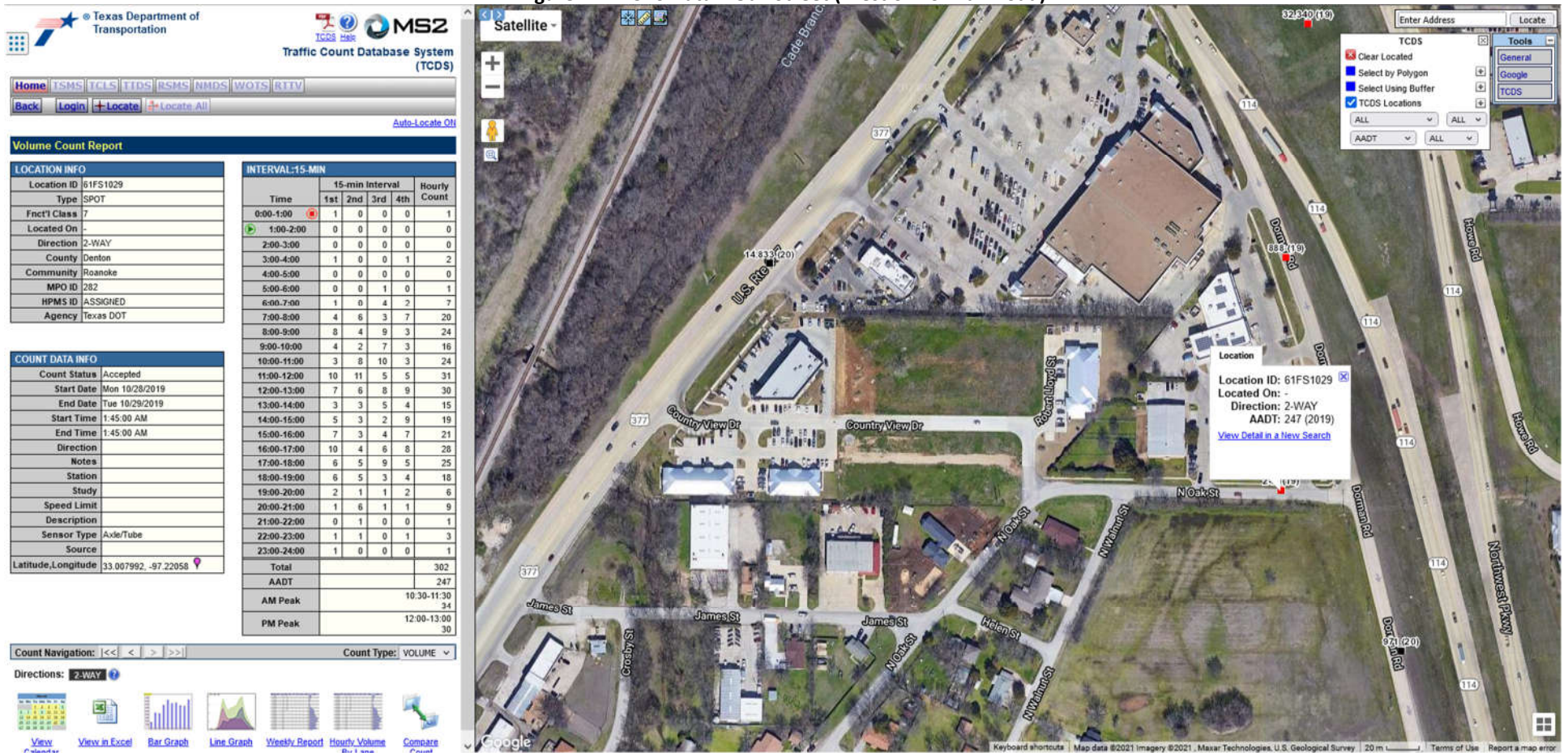


Figure A3: TCDS Data – Dorman Road (South of Oak Street)

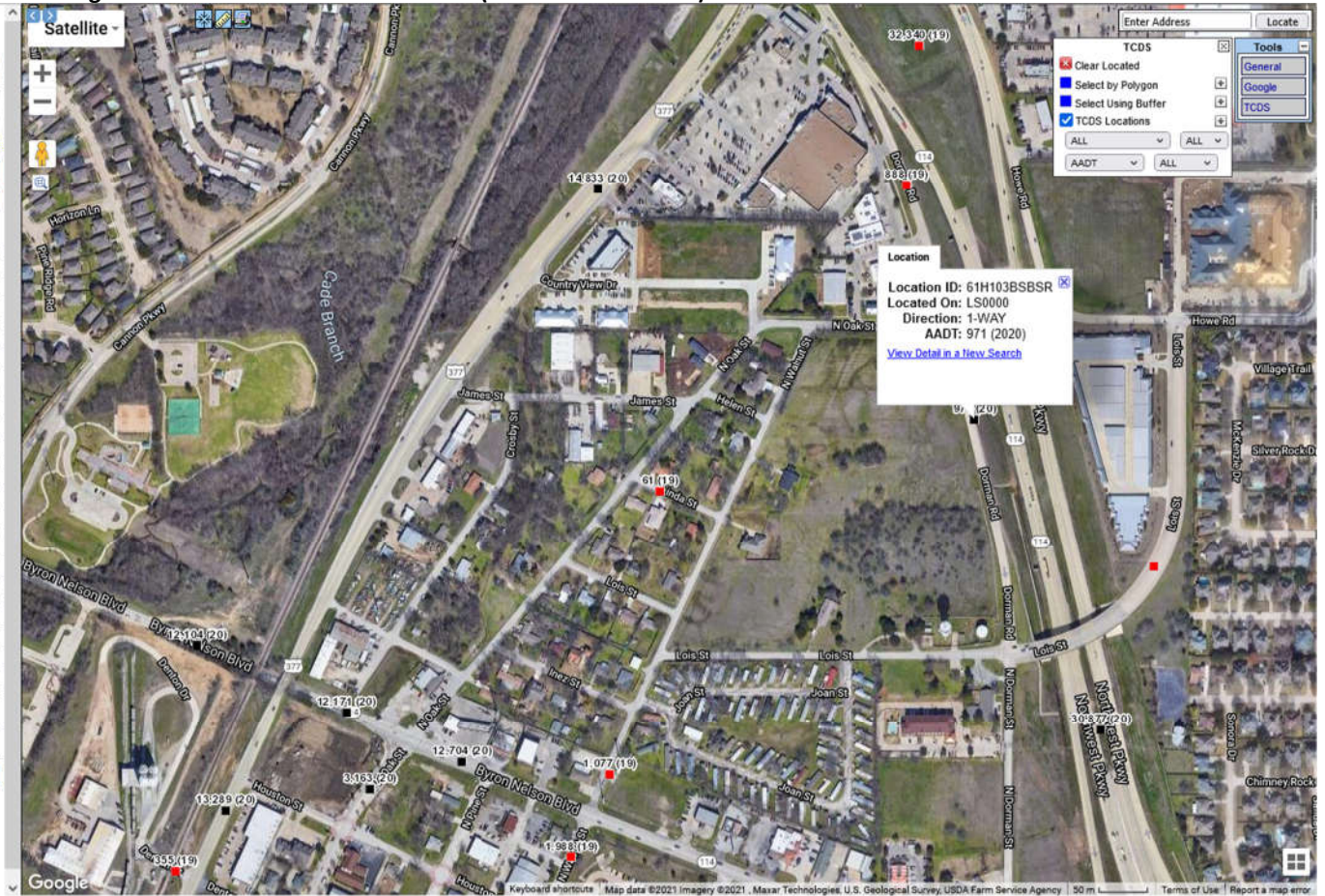
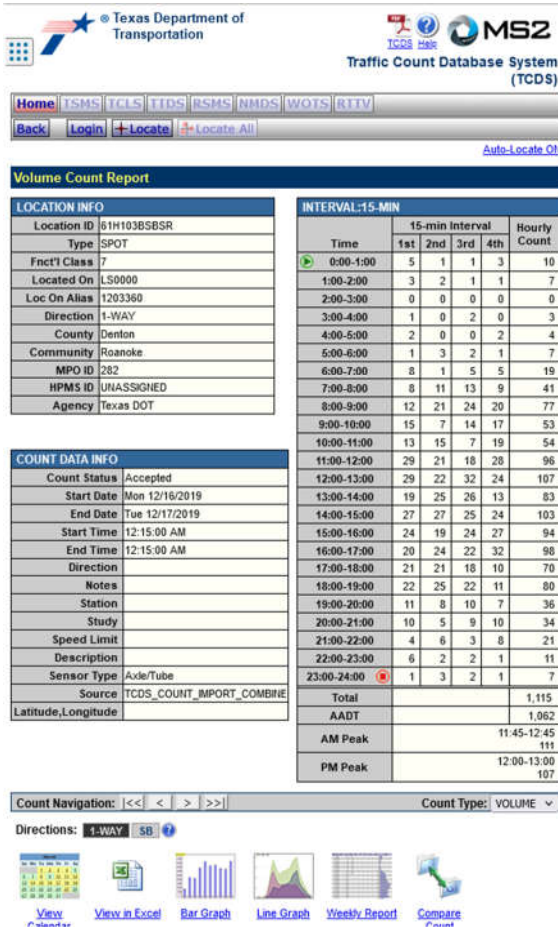


Figure A4: TCDS Data – Walnut Street (North of Byron Nelson Boulevard)

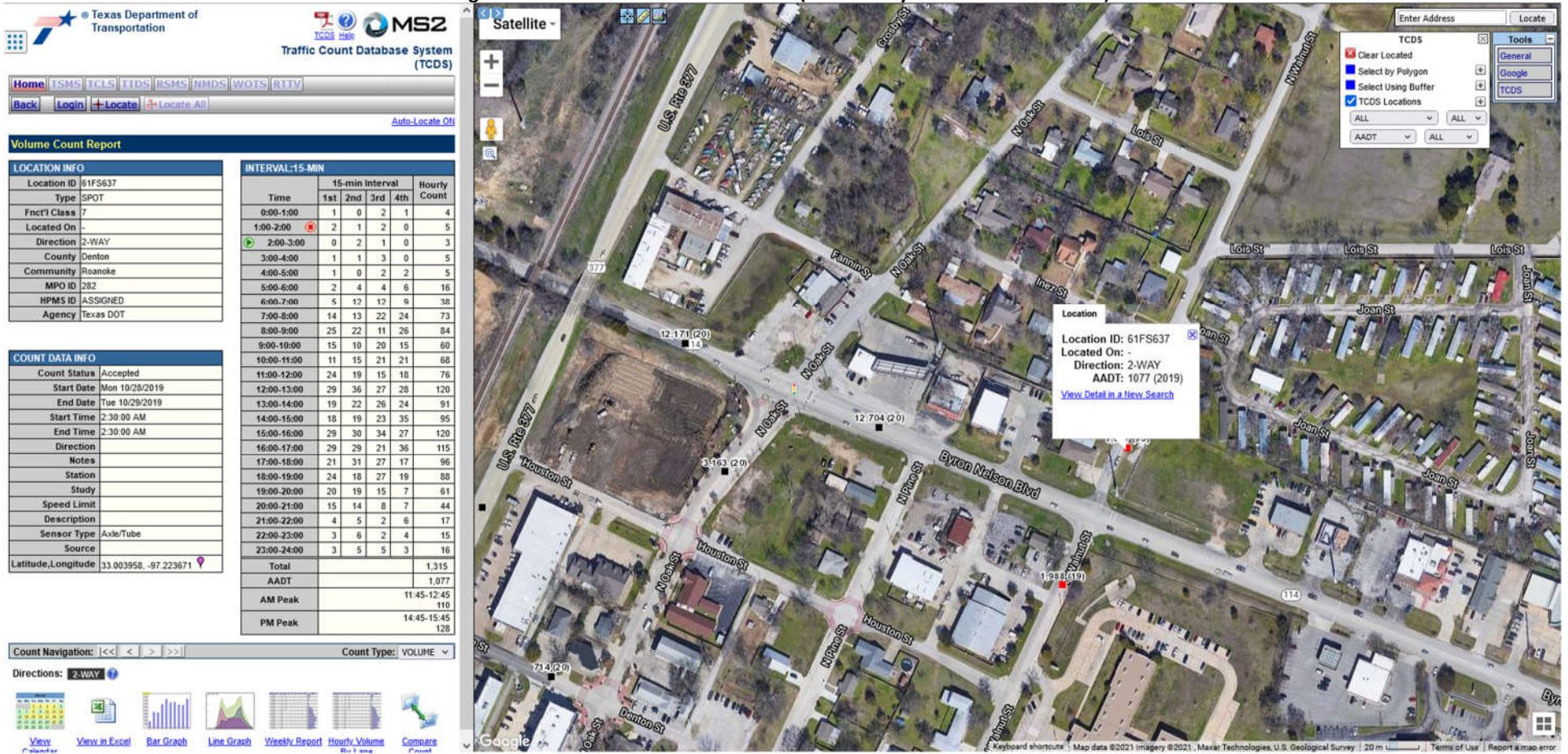


Figure A5: TCDS Data – Walnut Street (South of Byron Nelson Boulevard)

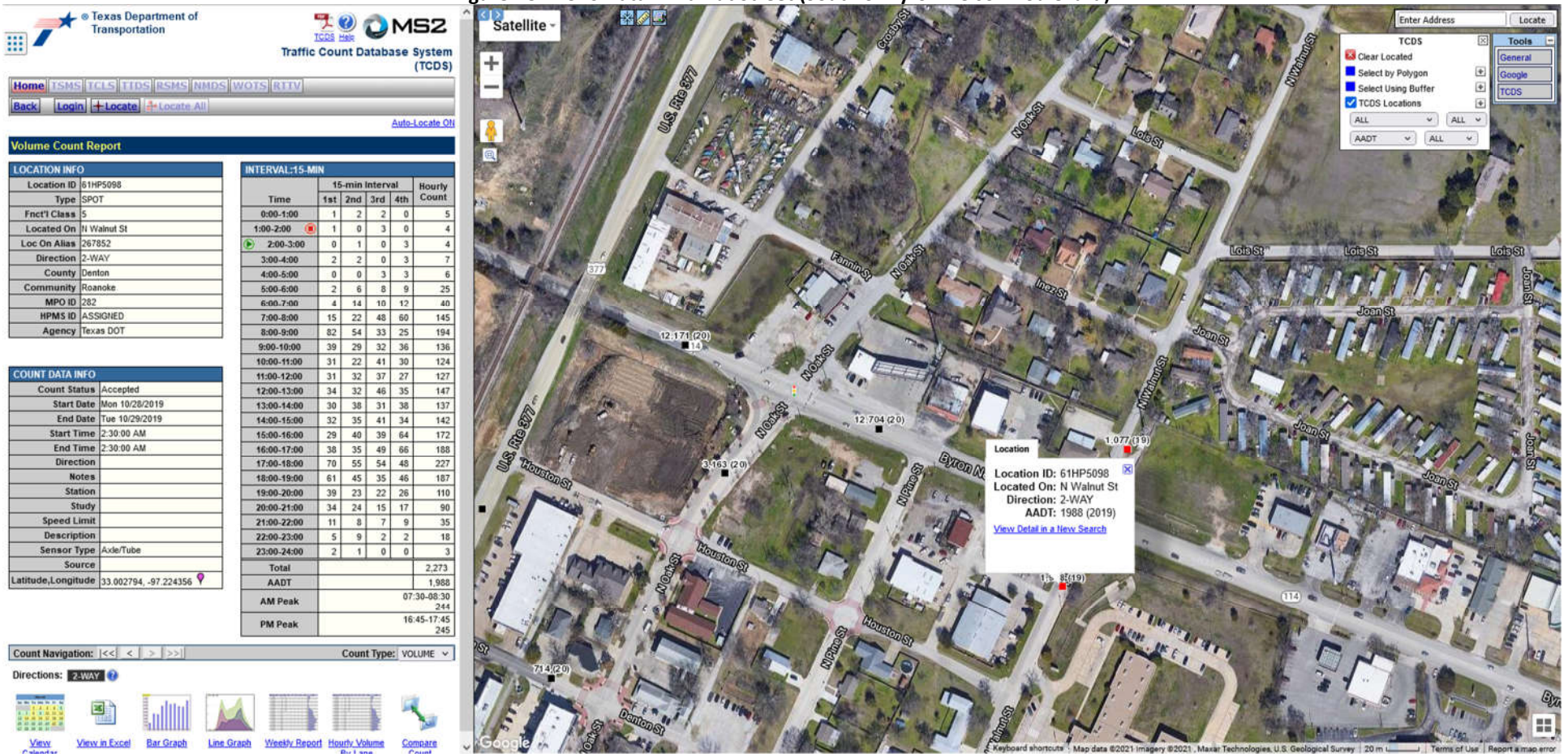
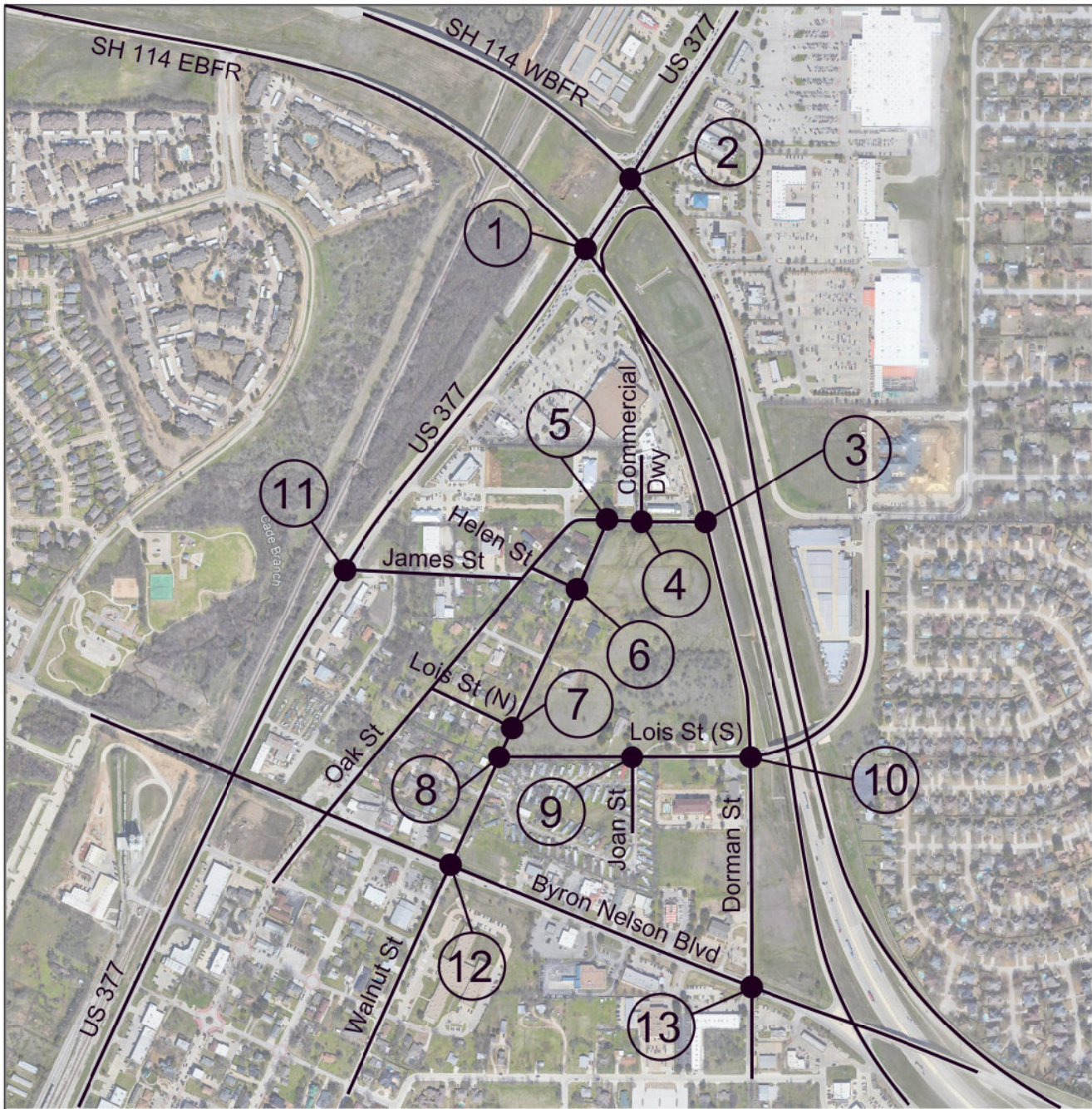


Table A1: COVID Adjustment Factor Calculations

AM PEAK HOUR								
TxDOT TCDS Location	2-WAY VOLUMES							COMPARISON
	TCDS				EXISTING TMCs			Previous Counts (Grown to 2021) : Existing TMC
	DATE	TIME	Volumes	Grown to 2021 (5% annually)	DATE	TIME	EXISTING (2021)	
US 377 - N of SH 114 WBFR	12/18/2019	7:45 - 8:45 AM	2,131	2,344	8/31/2021	7:30 - 8:30 AM	2,043	1.15
Oak St - W of Dorman Rd	10/28/2019	7:45 - 8:45 AM	28	31	8/31/2021	7:45 - 8:45 AM	19	1.63
Dorman Rd - S of Oak St	12/16/2019	8:00 - 9:00 AM	77	85	8/31/2021	7:45 - 8:45 AM	61	1.39
Walnut St - N of Byron Nelson Blvd	10/28/2019	7:30 - 8:30 AM	93	102	8/31/2021	7:30 - 8:30 AM	119	0.86
Walnut St - S of Byron Nelson Blvd	10/28/2019	7:30 - 8:30 AM	244	268	8/31/2021	7:30 - 8:30 AM	251	1.07
AVERAGE							1.22	

PM PEAK HOUR								
TxDOT TCDS Location	2-WAY VOLUMES							COMPARISON
	TCDS				EXISTING TMCs			Previous Counts (Grown to 2021) : Existing TMC
	DATE	TIME	Volumes	Grown to 2021 (5% annually)	DATE	TIME	EXISTING (2021)	
US 377 - N of SH 114 WBFR	12/18/2019	4:00 - 5:00 PM	2,138	2,352	8/31/2021	4:00 - 5:00 PM	2,188	1.07
Oak St - W of Dorman Rd	10/28/2019	4:00 - 5:00 PM	28	31	8/31/2021	4:30 - 5:30 PM	27	1.15
Dorman Rd - S of Oak St	12/16/2019	4:15 - 5:15 PM	99	109	8/31/2021	4:30 - 5:30 PM	95	1.15
Walnut St - N of Byron Nelson Blvd	10/28/2019	4:00 - 5:00 PM	115	127	8/31/2021	4:30 - 5:30 PM	148	0.86
Walnut St - S of Byron Nelson Blvd	10/28/2019	4:45 - 5:45 PM	245	270	8/31/2021	4:30 - 5:30 PM	213	1.27
AVERAGE							1.10	



LEGEND

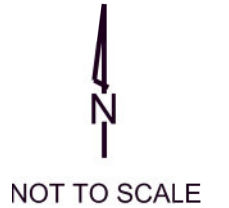
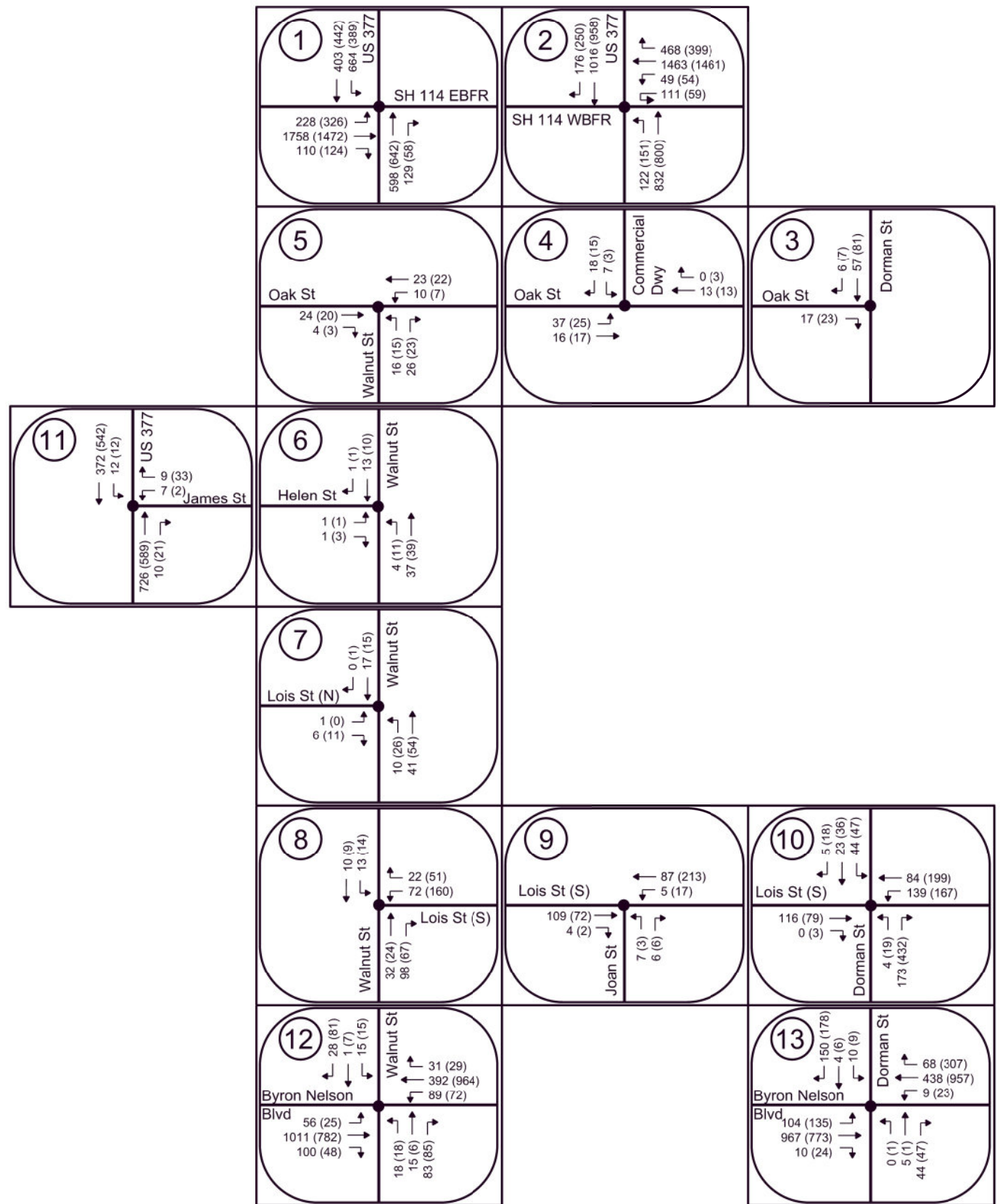
● STUDY INTERSECTION

AM (PM) PEAK HOUR VOLUMES

* The following adjustment factors were applied to the initial existing traffic volumes in Figure 5 in an attempt to reflect "typical" operations:

AM Peak Hour = 1.22

PM Peak Hour = 1.10



Revised Existing (2021) Peak Hour Traffic Volumes

Figure 6

EXISTING TRAFFIC SIGNAL TIMING SHEETS

Configuration Phase Sequence

Controller Sequence (MM)1-1-1

Hardware Alternate Sequence Enable: No

Phase Ring Sequence.....(Note: Sequences identical to the prior one are not printed)

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Sequence 1																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 2																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 3																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 4																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 5																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 6																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 7																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 8																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 9																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 10																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 11																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.

Sequence 12

Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.

Sequence 13

Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.

Sequence 14

Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.

Sequence 15

Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.

Sequence 16

Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.

Phases In Use / Exclusive PED (MM)1-2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases in Use	X	X		X	X	X		X								
Exclusive PED																

Phase Compatibility (MM)1-1-2

Phase	Compatible Phase
1	5
1	6
2	5
2	6
3	7
3	8
4	7
4	8
9	11
9	12
10	11
10	12
13	15
13	16
14	15
14	16

Phase and Overlap Descriptions

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Overlap	A	B	C	D	E	F	G	H	I	J	L	K	L	M	N	O
Description																

Administration (MM)1-7-1

Enable CU/Cabinet Interlock
CRC No

Request Download
Controller Data No

Controller Database CRC 0000

Enable Automatic Backup to
Datakey No

Backup Prevent (MM)1-1-3

Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Timing /	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Backup	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Simultaneous Gap (MM)1-1-4

Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phase	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Must	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Gap	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
With	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phase	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Disable	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Load Switch Assignments (MMU Channel) (MM)1-3

Phase / Type Dimming Power Up Auto Flash

APPENDIX

Overlap			Red	Yellow	Green	Dark	Auto	Red	Yellow	Dark	Red	Yellow	Together
1	0					+	X				X		X
2	2	V				+	X				X		
3	0					+	X				X		
4	5	O				+	X				X		
5	0					+	X				X		
6	6	V				+	X				X		X
7	0					+	X				X		X
8	6	O				+	X				X		X
9	0					+	X				X		X
10	0					+	X				X		
11	0					+	X				X		
12	0					+	X				X		X
13	1	O				+	X						
14	2	O				+	X						
15	3	O				+	X						
16	4	O				+	X						

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Configuration Port 1 (SDLC)

SDLC Options (MM)1-4-1

BIU	1	2	3	4	5	6	7	8
Term and Facility Enable	X	X						
Detector Rack Enable	X	X						

Enable TS2/MMU Type Cabinet: Yes
Enable MMU Extended Status: Yes
Enable SDLC Stop Time: No
Enable 3 Critical RFE's Lockup: No

MMU Program (MM)1-4-2

Channel Can Serve with
Channel

Channel 1	Channel 2
1	5
1	6
1	8
1	14
1	15
1	16
2	5
2	6
2	8
2	13
2	14
2	15
2	16
4	5
4	6
4	8
4	15
4	16
5	13
5	14
5	16
6	13
6	14

6	15
6	16
8	13
8	14
13	14
13	15
13	16
14	15
14	16
15	16

Color Check Enable (MM)1-4-3

Enable Color Check: No

MMU Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Green	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Yellow	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Red	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Secondary To Secondary Addressing (MM)1-4-4

ID	1	2	3	4	5	6	7	8	MMU
Term and Facility Enable									

ID	1	2	3	4	5	6	7	8	Diag
Detector Rack Enable									

Diagnostics (Test Fixture) Enable: No

Configuration Communications**Ethernet Port Configuration (MM)1-5-1 NTCIP Parameters (MM)1-5-5**

Controller IP:	10.70.10.51	Backup Time:	0
Subnet Mask:	255.255.255.0	UDP Port:	501
Default Gateway IP:	10.70.10.1	Ethernet Priority:	1
Server IP:	10.70.10.1	Port 2 Priority:	4
		Port 3A Priority:	2
		Port 3B Priority:	3

Port Configuration (MM)1-5-2 to 1-5-4

Port	2 (C50S)	3A (C21S)	3B (C22S)
Protocol	Terminal	NTCIP	AB3418
Enable	No	Yes	No
Data Rate	1200	9600	4800
Data Parity Stop	7 N 1	8 N 1	7 0 1
Modem Setup String	None	None	None
User String			
Comm Port Address	0	1	10
System Detector 9-1	0	0	0
Telemetry Response Delay	0.0	0.0	0.9
Duplex Half/Full	Half	Full	Full
Flow Control	Yes	No	Yes
AB3418 NTCIP Group Address	0	0	0
AB3418 NTCIP Single Flag Enable	No	No	No
RTS to CTS Delay	0.0	0.0	14.0
RTS Turn Off Delay	0.0	0.0	2.0
Droupout Time	10	10	10
Early RTS	No	No	No
Telemetry Mode	FSK	FSK	FSK
Rail Road	0	0	0
Rail Road Line	0	0	0
ATCS Group	0	0	0
Wayside Device	0	0	0
ATCS Device	0	0	0
Wayside SubNode	0	0	0
ATCS SubNode	0	0	0

ECPIP Parameters (MM)1-5-6

Controller Address: 10

Expanded System Detector Address: 0

Local System Detector

Local System Detector	Number
--------------------------	--------

Configuration Logging/Display

Event Logging (MM)1-6-1

Critical RFE's	Yes	3 Critical RFE's in 24 Hours	Yes
MMU Flash Faults	Yes	Local Flash Faults	Yes
Non-Critical RFE's (Det/Test)	Yes	Detector Errors	Yes
Coordination Errors	Yes	Controller Download	Yes
Preempt	Yes	TSP	Yes
Power On/Off	Yes	Low Battery	Yes
Access	Yes	Data Change	Yes
Online/Offline	Yes		

Alarm Log	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable Logging	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Display Options (MM)1-7-2

Key Click Enable:	No
Backlight Enable:	Yes
LED Mode:	Auto
Main Status Display Mode:	Advanced
Screen Format:	Advanced
Trans Mode Pop-up Disable:	No

Sign On (MM)8-5

Sign On Message Line 1: Diamond Controllers
Sign On Message Line 2:

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Logic Processor Page 1

Statement Control (MM)1-8-1

LP	Statement Control
1	E
2	E

Logic Processor Page 2

Logic Statements (MM)1-8-2

Statement Number: 1

IF:

	Assignment	#	State
IF	DETECTOR	3	IS ON

THEN:

	Assignment	#	State
	CALL PHASE	1	ON

ELSE:

	Assignment	#	State
--	------------	---	-------

Statement Number: 2

IF:

	Assignment	#	State
IF	DETECTOR	7	IS ON

THEN:

	Assignment	#	State
	CALL PHASE	5	ON

ELSE:

	Assignment	#	State
--	------------	---	-------

Controller Timing Plan (MM)2-1**Plan 3**

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	7	10	5	20	7	10	5	20	5	20	2	2	5	20	2	2
BK Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	1.5	1.5	1.0	1.5	1.5	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Vehicle Ext 2	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max 1	30	30	25	60	25	35	25	60	25	40	2	2	25	40	2	2
Max 2	35	30	50	85	30	35	50	85	50	90	4	4	50	90	4	4
Max 3	50	45	0	100	50	45	0	100	0	110	0	0	0	110	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Stp	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.6	4.7	3.5	5.0	3.6	4.7	3.5	5.0	3.5	5.0	3.5	3.5	3.5	5.0	3.5	3.5
Red Clear	1.4	1.0	1.5	1.7	1.4	1.0	1.5	1.7	1.5	1.7	1.5	1.5	1.5	1.7	1.5	1.5
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACT B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEC/ACT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPT Duc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	7	10	5	15	7	10	5	15	1	1	2	5	1	1	2	5
BK Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	1.5	1.5	1.0	1.5	1.5	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Vehicle Ext 2	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max 1	15	20	25	35	15	20	25	35	1	1	2	5	1	1	2	5
Max 2	35	30	50	85	30	35	50	85	50	90	4	4	50	90	4	4
Max 3	50	45	0	100	50	45	0	100	0	110	0	0	0	110	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Stp	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.6	4.7	3.5	5.0	3.6	4.7	3.5	5.0	3.5	5.0	3.5	3.5	3.5	5.0	3.5	3.5
Red Clear	1.4	1.0	1.5	1.7	1.4	1.0	1.5	1.7	1.5	1.7	1.5	1.5	1.5	1.7	1.5	1.5
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACT B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEC/ACT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPT Duc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Controller Overlaps

Overlap	Type	Vehicle Overlaps (MM)2-2			
		Lag Green	Yellow	Red	Advance Green
A	Normal	0.0	0.0	0.0	0.0
B	Normal	0.0	0.0	0.0	0.0
C	Normal	0.0	0.0	0.0	0.0
D	Normal	0.0	0.0	0.0	0.0
E	Normal	0.0	0.0	0.0	0.0
F	Normal	0.0	0.0	0.0	0.0

Overlap	Phase	Included	Protect	Phases		Modifier	Lag X Phase	Lag 2 Phase	Flash Green
				Ped Protect	Not Overlap				
A	1	Yes	No	No	No		No	No	0
A	9	Yes	No	No	No		No	No	0
A	10	Yes	No	No	No		No	No	0
B	1	Yes	No	No	No		No	No	0
B	2	Yes	No	No	No		No	No	0
B	9	Yes	No	No	No		No	No	0
B	10	Yes	No	No	No		No	No	0
C	5	Yes	No	No	No		No	No	0
C	13	Yes	No	No	No		No	No	0
C	14	Yes	No	No	No		No	No	0
D	5	Yes	No	No	No		No	No	0
D	6	Yes	No	No	No		No	No	0
D	13	Yes	No	No	No		No	No	0
D	14	Yes	No	No	No		No	No	0
E	4	Yes	No	No	No		No	No	0
E	12	Yes	No	No	No		No	No	0
F	8	Yes	No	No	No		No	No	0
F	16	Yes	No	No	No		No	No	0

PPLT FYA

Overlap	Protected Phase	Permissive Phase	Flash Arrow Output	Flash Arrow Channel	FYA Delay	FYA Clearance	Special Function Disable
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Guaranteed Minimum Time Data (MM) 2-4
Phase Time Data

Phase	Min Green	Walk	Ped Clear	Yellow	Red Clear	Overlap Green
A01	0	0	7	3.0	0.0	0
B02	0	0	7	3.0	0.0	0
C03	0	0	7	3.0	0.0	0
D04	0	0	7	3.0	0.0	0
E05	0	0	7	3.0	0.0	0
F06	0	0	7	3.0	0.0	0
G07	0	0	7	3.0	0.0	0
H08	0	0	7	3.0	0.0	0
I09	0	0	7	3.0	0.0	0
J10	0	0	7	3.0	0.0	0
K11	0	0	7	3.0	0.0	0
L12	0	0	7	3.0	0.0	0
M13	0	0	7	3.0	0.0	0
N14	0	0	7	3.0	0.0	0
O15	0	0	7	3.0	0.0	0
P16	0	0	7	3.0	0.0	0

Roanoke - SH 114 at US 377

Controller Pedestrian Overlaps

Pedestrian Overlaps (MM) 2-3

Included Phase Ped Overlap

Coordination Options

Coordination Options (MM)3-1

Manual Pattern	Auto	ECPI Coord	No
System Source	TBC	System Format	STD
Splits In	Seconds	Offsets In	Seconds
Transition	Smooth	Max Select	MAXINH
Dwell/Add Time	5		
Delay Coord Walk to LZ	No	Force Off	Fixed
Offset Reference	Lead	Use Ped Time	No
Ped Recall	No	Ped Reservice	No
Local Zero Override	No	FO Added Initial Green	Yes
Re-Sync Count	0	Multisync	No

Auto Perm Minimum Green (Seconds) (MM)3-4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Split Demand (MM)3-5

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Demand 1																
Demand 2																

Demand	1	2
Detector	0	0
Call Time (Sec)	0	0
Cycle Count	0	0

Coordination Pattern Data
Pattern Data (MM)3-2

Pattern - 1

Split Pattern	1	TS2 (Pat-Off)	0-1	Splits in	Seconds
Cycle	180	Std (COS)	111	Offsets in	Seconds
Offset Value	111s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 1)	50	35	0	95	30	55	0	95	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	180s	180s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases				X				X								
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit											X	X			X	X
Special Function Output																

Pattern - 2

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits in	Seconds
Cycle	180	Std (COS)	121	Offsets in	Seconds
Offset Value	110s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 2)	30	45	0	105	40	35	0	105	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	180s	180s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases				X				X								
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit											X	X			X	X
Special Function Output																

Pattern - 3

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits in	Seconds
Cycle	90	Std (COS)	131	Offsets in	Seconds
Offset Value	88s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 3)	24	26	0	40	24	26	0	40	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	90s	90s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit											X	X			X	X
Special Function Output																

Preemptor

Preempt Plan (MM)4-1

Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Track Clear Vehicle																
Track Clear Overlap																
Enable Trailing																
Dwell Vehicle		X			X											
Dwell Ped																
Dwell Overlap				X												
Cycling Vehicle																
Cycling Ped																
Cycling Overlap																
Exit Phase																
Exit Calls																
Special Function	X															

Enable	Yes	Preempt Override	No	Interlock Enable	No
Detector Lock	No	Delay	0	Inhibit	0
Override Flash	No	Duration	0	CLR > GRN	No
Term Overlap Asap	No	PC Through Yellow	No	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	Flash Exit Color	Green	Exit Option	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Preempt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	255	0	25.5	25.5
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	25.5	25.5

	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	5	0.0	90	2.0	4.0

Preempt Active Out On Preempt Active Dwell No
 Other Priority Preempt On Non-Priority Preempt No
 Inhibit Extension Time 0.0 Ped Priority Return Off
 Veh Priority Return Off Queue Delay Off
 Conditional Delay Off

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return % Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Track Clear Vehicle																
Track Clear Overlap																
Enable Trailing																
Dwell Vehicle	X					X										
Dwell Ped																
Dwell Overlap		X														
Cycling Vehicle																
Cycling Ped																
Cycling Overlap																
Exit Phase																
Exit Calls																
Special Function					X											

Enable Yes Preempt Override Yes Interlock Enable No
 Detector Lock No Delay 0 Inhibit 0
 Override Flash No Duration 0 CLR > GRN No
 Term Overlap Asap No PC Through Yellow No Terminate Phase No
 Ped Dark No Track Clear Rsrv No Dwell Flash Off
 Linked Pmt 0 Flash Exit Color Green Exit Option Off
 Exit Timing Plan 0 Reservice 0 Fault Type Hard

Ring	1	2	3	4
Free During Preempt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	255	0	25.5	25.5
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	25.5	25.5
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	5	0.0	90	2.0	4.0

Preempt Active Out On Preempt Active Dwell No

Other Priority Preempt On Non-Priority Preempt No

Inhibit Extension Time 0.0 Ped Priority Return Off

Veh Priority Return Off Queue Delay Off

Conditional Delay Off

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return % Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Plan 5

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Track Clear Vehicle																
Track Clear Overlap																
Enable Trailing																
Dwell Vehicle				X												
Dwell Ped																
Dwell Overlap					X											
Cycling Vehicle																
Cycling Ped																
Cycling Overlap																
Exit Phase																
Exit Calls																
Special Function																

Enable Yes Preempt Override No Interlock Enable No

Detector Lock No Delay 0 Inhibit 0

Override Flash	No	Duration	0	CLR > GRN	No
Term Overlap Asap	No	PC Through Yellow	No	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	Flash Exit Color	Green	Exit Option	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Preempt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	255	0	25.5	25.5
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	25.5	25.5
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	90	25.5	25.5

Preempt Active Out	On	Preempt Active Dwell	No
Other Priority Preempt	On	Non-Priority Preempt	No
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return % Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Plan 6

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Track Clear Vehicle																
Track Clear Overlap																
Enable Trailing																
Dwell Vehicle								X								
Dwell Ped																
Dwell Overlap						X										
Cycling Vehicle																
Cycling Ped																

Cycling Overlap																
Exit Phase																
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Detector Lock	No	Delay	0	Inhibit	0
Override Flash	No	Duration	0	CLR > GRN	No
Term Overlap Asap	No	PC Through Yellow	No	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	Flash Exit Color	Green	Exit Option	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Preempt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	255	0	25.5	25.5
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	25.5	25.5
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	90	25.5	25.5

Preempt Active Out	On	Preempt Active Dwell	No
Other Priority Preempt	On	Non-Priority Preempt	No
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return % Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Roanoke - SH 114 at US 377

Time Base Clock/Calendar

Clock/Calendar Options (MM)5-1

Enable Action Plan: 0
Sync Reference Time: 12:00 AM
Sync Reference: Reference Time
Day Light Savings: No
Time Reset Input Set Time: 3:30:00
Standard Time From GMT: -6

Time Base Action Plan
Action Plan (MM)5-2

Action Plan - 1																
Pattern	254 - FREE				Override System				No							
Timing Plan	3				Sequence				18							
Veh Det Plan	3				Detector Log				None							
Flash	No				Red Rest				No							
Veh Det Diag Plan	0				Ped Det Diag Plan				0							
Diming Enable	No				Veh Priority Return				No							
Ped Priority Return	No				Queue Delay				No							
Preempt Cond Delay	No															
Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2				X				X								
Veh Recall																
Max Recall																
Max 2				X				X								
Max 3																
CS Inhibit																
Omit																
Special Function																
Auxilliary Function																

AM

- 123456789101112131415
- LP 1-15
- LP 16-30
- LP 31-45
- LP 46-60
- LP 61-75
- LP 76-90
- LP 91-100

Action Plan - 2

Pattern	254 - FREE	Override System	No
Timing Plan	3	Sequence	18
Veh Det Plan	3	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
-------	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Ped Recall

Walk 2

Veh Ext 2				X				X								
-----------	--	--	--	---	--	--	--	---	--	--	--	--	--	--	--	--

Veh Recall

Max Recall

Max 2

Max 3				X				X								
-------	--	--	--	---	--	--	--	---	--	--	--	--	--	--	--	--

CS Inhibit

Omit

Special
FunctionAuxilliary
Function

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----

LP 1-15

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

LP 91-100

Action Plan - 3

Pattern	254 - FREE	Override System	No
Timing Plan	3	Sequence	18
Veh Det Plan	3	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2				X				X								
Veh Recall																
Max Recall																
Max 2				X				X								
Max 3																
CS Inhibit																
Omit																
Special																
Function																
Auxilliary																
Function																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15															
LP 16-30															
LP 31-45															
LP 46-60															
LP 61-75															
LP 76-90															
LP 91-100															

Action Plan - 4

Pattern	4	Override System	No
Timing Plan	0	Sequence	0
Veh Det Plan	0	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		

Phase 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Ped Recall

Walk 2

Veh Ext 2

Veh Recall

Max Recall

Max 2

Max 3

CS Inhibit

Omit

Special
Function

Auxilliary
Function

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

LP 1-15

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

LP 91-100

Action Plan - 100

Pattern	254 - FREE	Override System	No
Timing Plan	3	Sequence	18
Veh Det Plan	3	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2				X												
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Special Function																
Auxilliary Function																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
LP 1-15																
LP 16-30																
LP 31-45																
LP 46-60																
LP 61-75																
LP 76-90																
LP 91-100																

Roanoke - SH 114 at US 377

Time Base Day Plan/Schedule
Day Plan (MM)5-3

Day Plan - 1

Event	Action Plan	Start Time
1	100	12:00 AM
2	1	6:00 AM
3	3	8:30 AM
4	2	1:30 PM
5	3	7:30 PM
6	100	8:00 PM

Day Plan - 2

Event	Action Plan	Start Time
1	100	12:00 AM
2	3	7:30 AM
3	100	7:00 PM

Schedule (MM)5-4

Schedule Number - 1

Day Plan Number: 1

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	X	X	X	X	X	X	X	X	X	X	X	X

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
		X	X	X	X	X	

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 2

Day Plan Number: 2

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	X	X	X	X	X	X	X	X	X	X	X	X

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
	X						X

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Time Base Exceptions

Exception Day Program (MM)5-5					
Day	Fixed/Float	Month	Day of Week/Month	Week of Month/Year	Day Plan
1	FIXED	1	1	0	3
2	FLOAT	11	5	4	3
3	FIXED	12	25	0	3

Roanoke - SH 114 at US 377

Detectors

Detectors Page 1

Vehicle Detectors Setup (MM)6-1			
Vehicle Plan	Detector Number	Called	Type

Vehicle Detector Setup (MM)6-2 continued			
Detector Number	Type	TS2 Detector	Detector Description
1	N-NTCIP	No	
2	N-NTCIP	No	
3	N-NTCIP	No	
4	N-NTCIP	No	
5	N-NTCIP	No	
6	N-NTCIP	No	
7	N-NTCIP	No	
8	N-NTCIP	No	
9	N-NTCIP	No	
10	N-NTCIP	No	
11	N-NTCIP	No	
12	N-NTCIP	No	
13	N-NTCIP	No	
14	N-NTCIP	No	
15	N-NTCIP	No	
16	N-NTCIP	No	
17	N-NTCIP	No	
18	N-NTCIP	No	
19	N-NTCIP	No	
20	N-NTCIP	No	
21	N-NTCIP	No	
22	N-NTCIP	No	
23	N-NTCIP	No	
24	N-NTCIP	No	
25	N-NTCIP	Yes	
26	N-NTCIP	Yes	
27	N-NTCIP	Yes	
28	N-NTCIP	Yes	
29	N-NTCIP	Yes	
30	N-NTCIP	Yes	
31	N-NTCIP	Yes	

32	N-NTCIP	Yes
33	N-NTCIP	Yes
34	N-NTCIP	Yes
35	N-NTCIP	Yes
36	N-NTCIP	Yes
37	N-NTCIP	Yes
38	N-NTCIP	Yes
39	N-NTCIP	Yes
40	N-NTCIP	Yes
41	N-NTCIP	Yes
42	N-NTCIP	Yes
43	N-NTCIP	Yes
44	N-NTCIP	Yes
45	N-NTCIP	Yes
46	N-NTCIP	Yes
47	N-NTCIP	Yes
48	N-NTCIP	Yes
49	N-NTCIP	Yes
50	N-NTCIP	Yes
51	N-NTCIP	Yes
52	N-NTCIP	Yes
53	N-NTCIP	Yes
54	N-NTCIP	Yes
55	N-NTCIP	Yes
56	N-NTCIP	Yes
57	N-NTCIP	Yes
58	N-NTCIP	Yes
59	N-NTCIP	Yes
60	N-NTCIP	Yes
61	N-NTCIP	Yes
62	N-NTCIP	Yes
63	N-NTCIP	Yes
64	N-NTCIP	Yes

Vehicle Detector Setup (MM)6-2 continued

Det Num	Veh Det Plan	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim / Discon. Time	Use Added Initial	Cross Switch Phase	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	3	No	Yes	5.0	Passage	0.0	0	No	0	None	No	No	No
1	2	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
1	3	0	No	No	15.0	Queue	0.0	0	No	0	None	No	No	No
1	4	0	No	No	15.0	Queue	0.0	0	No	0	None	No	No	No
2	1	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

2	2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	3	4	No	Yes	5.0	Passage	0.0	0	No	0	None	No	No	No
2	4	4	No	Yes	5.0	Passage	0.0	0	No	0	None	No	No	No
3	1	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	2	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	1	No	Yes	15.0	Passage	0.0	0	No	0	None	No	No	No
3	4	1	No	Yes	15.0	Passage	0.0	0	No	0	None	No	No	No
4	1	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	2	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	3	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	1	5	No	Yes	5.0	Passage	0.0	0	No	0	None	No	No	No
5	2	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	1	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	2	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	3	8	No	Yes	5.0	Passage	0.0	0	No	0	None	No	No	No
6	4	8	No	Yes	5.0	Passage	0.0	0	No	0	None	No	No	No
7	1	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	2	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	3	5	No	Yes	15.0	Passage	0.0	0	No	0	None	No	No	No
7	4	5	No	Yes	15.0	Passage	0.0	0	No	0	None	No	No	No
8	1	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	2	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	3	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	4	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	2	1	No	Yes	0.0	Passage	0.0	0	No	2	None	No	No	No
10	2	1	No	Yes	0.0	Passage	0.0	0	No	2	None	No	No	No
11	1	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	3	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	4	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	1	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	2	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	2	5	No	Yes	0.0	Passage	0.0	0	No	6	None	No	No	No
14	2	5	No	Yes	0.0	Passage	0.0	0	No	6	None	No	No	No
15	1	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	2	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	1	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	2	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	3	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	4	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
17	1	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
17	2	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
17	3	4	No	No	0.0	Passage	1.0	0	No	0	None	No	No	No

17	4	4	No	No	0.0	Passage	1.0	0	No	0	None	No	No	No
18	1	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
18	2	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
19	3	2	No	No	0.0	Passage	0.0	0	No	0	None	No	No	No
19	4	2	No	No	0.0	Passage	0.0	0	No	0	None	No	No	No
22	3	8	No	No	0.0	Passage	0.0	0	No	0	None	No	No	No
22	4	8	No	No	0.0	Passage	0.0	0	No	0	None	No	No	No
24	3	6	No	No	0.0	Passage	0.0	0	No	0	None	No	No	No
24	4	6	No	No	0.0	Passage	0.0	0	No	0	None	No	No	No

Ped Detector Options (MM)6-3

Phase Ped Detector (NTCIP)

Local Ped
Detector

Number

Detectors

Detectors Page 2

Log - Speed Detector Setup (MM)6-4

NTCIP Log ECPI Log Period: Length Unit:
Period: 0 TBAP Inch

Speed Detector	Local Detector	One/Two Detector	Vehicle Length	Trap Length	Enable Log
1	0	1	0	0	No
2	0	1	0	0	No
3	0	1	0	0	No
4	0	1	0	0	No
5	0	1	0	0	No
6	0	1	0	0	No
7	0	1	0	0	No
8	0	1	0	0	No
9	0	1	0	0	No
10	0	1	0	0	No
11	0	1	0	0	No
12	0	1	0	0	No
13	0	1	0	0	No
14	0	1	0	0	No
15	0	1	0	0	No
16	0	1	0	0	No

Vehicle Detector Diagnostics (MM)6-5

Plan	Detector	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay
1	1	0	0	0	1	255	0
1	2	0	0	0	1	255	0
1	3	0	0	0	1	255	0
1	4	0	0	0	1	255	0
1	5	0	0	0	1	255	0
1	6	0	0	0	1	255	0
1	7	0	0	0	1	255	0
1	8	0	0	0	1	255	0
1	9	0	0	0	1	255	0
1	10	0	0	0	1	255	0
1	11	0	0	0	1	255	0

1	12	0	0	0	1	255	0
1	13	0	0	0	1	255	0
1	14	0	0	0	1	255	0
1	15	0	0	0	1	255	0
1	16	0	0	0	1	255	0
1	17	0	0	0	1	255	0
1	18	0	0	0	1	255	0
1	19	0	0	0	1	255	0
1	20	0	0	0	1	255	0
1	21	0	0	0	1	255	0
1	22	0	0	0	1	255	0
1	23	0	0	0	1	255	0
1	24	0	0	0	1	255	0
1	25	0	0	0	1	255	0
1	26	0	0	0	1	255	0
1	27	0	0	0	1	255	0
1	28	0	0	0	1	255	0
1	29	0	0	0	1	255	0
1	30	0	0	0	1	255	0
1	31	0	0	0	1	255	0
1	32	0	0	0	1	255	0
1	33	0	0	0	1	255	0
1	34	0	0	0	1	255	0
1	35	0	0	0	1	255	0
1	36	0	0	0	1	255	0
1	37	0	0	0	1	255	0
1	38	0	0	0	1	255	0
1	39	0	0	0	1	255	0
1	40	0	0	0	1	255	0
1	41	0	0	0	1	255	0
1	42	0	0	0	1	255	0
1	43	0	0	0	1	255	0
1	44	0	0	0	1	255	0
1	45	0	0	0	1	255	0
1	46	0	0	0	1	255	0
1	47	0	0	0	1	255	0
1	48	0	0	0	1	255	0
1	49	0	0	0	1	255	0
1	50	0	0	0	1	255	0
1	51	0	0	0	1	255	0
1	52	0	0	0	1	255	0
1	53	0	0	0	1	255	0
1	54	0	0	0	1	255	0
1	55	0	0	0	1	255	0

1	56	0	0	0	1	255	0
1	57	0	0	0	1	255	0
1	58	0	0	0	1	255	0
1	59	0	0	0	1	255	0
1	60	0	0	0	1	255	0
1	61	0	0	0	1	255	0
1	62	0	0	0	1	255	0
1	63	0	0	0	1	255	0
1	64	0	0	0	1	255	0
3	1	0	0	0	1	255	0
3	2	0	0	0	1	255	0
3	3	0	0	0	1	255	0
3	4	0	0	0	1	255	0
3	5	0	0	0	1	255	0
3	6	0	0	0	1	255	0
3	7	0	0	0	1	255	0
3	8	0	0	0	1	255	0
3	9	0	0	0	1	255	0
3	10	0	0	0	1	255	0
3	11	0	0	0	1	255	0
3	12	0	0	0	1	255	0
3	13	0	0	0	1	255	0
3	14	0	0	0	1	255	0
3	15	0	0	0	1	255	0
3	16	0	0	0	1	255	0
3	17	0	0	0	1	255	0
3	18	0	0	0	1	255	0
3	19	0	0	0	1	255	0
3	20	0	0	0	1	255	0
3	21	0	0	0	1	255	0
3	22	0	0	0	1	255	0
3	23	0	0	0	1	255	0
3	24	0	0	0	1	255	0
3	25	0	0	0	1	255	0
3	26	0	0	0	1	255	0
3	27	0	0	0	1	255	0
3	28	0	0	0	1	255	0
3	29	0	0	0	1	255	0
3	30	0	0	0	1	255	0
3	31	0	0	0	1	255	0
3	32	0	0	0	1	255	0
3	33	0	0	0	1	255	0
3	34	0	0	0	1	255	0
3	35	0	0	0	1	255	0

3	36	0	0	0	1	255	0
3	37	0	0	0	1	255	0
3	38	0	0	0	1	255	0
3	39	0	0	0	1	255	0
3	40	0	0	0	1	255	0
3	41	0	0	0	1	255	0
3	42	0	0	0	1	255	0
3	43	0	0	0	1	255	0
3	44	0	0	0	1	255	0
3	45	0	0	0	1	255	0
3	46	0	0	0	1	255	0
3	47	0	0	0	1	255	0
3	48	0	0	0	1	255	0
4	1	0	0	0	1	255	0
4	2	0	0	0	1	255	0
4	3	0	0	0	1	255	0
4	4	0	0	0	1	255	0
4	5	0	0	0	1	255	0
4	6	0	0	0	1	255	0
4	7	0	0	0	1	255	0
4	8	0	0	0	1	255	0
4	9	0	0	0	1	255	0
4	10	0	0	0	1	255	0
4	11	0	0	0	1	255	0
4	12	0	0	0	1	255	0
4	13	0	0	0	1	255	0
4	14	0	0	0	1	255	0
4	15	0	0	0	1	255	0
4	16	0	0	0	1	255	0
4	17	0	0	0	1	255	0
4	18	0	0	0	1	255	0
4	19	0	0	0	1	255	0
4	20	0	0	0	1	255	0
4	21	0	0	0	1	255	0
4	22	0	0	0	1	255	0
4	23	0	0	0	1	255	0
4	24	0	0	0	1	255	0
4	25	0	0	0	1	255	0
4	26	0	0	0	1	255	0
4	27	0	0	0	1	255	0
4	28	0	0	0	1	255	0
4	29	0	0	0	1	255	0
4	30	0	0	0	1	255	0
4	31	0	0	0	1	255	0

4	32	0	0	0	1	255	0
4	33	0	0	0	1	255	0
4	34	0	0	0	1	255	0
4	35	0	0	0	1	255	0
4	36	0	0	0	1	255	0
4	37	0	0	0	1	255	0
4	38	0	0	0	1	255	0
4	39	0	0	0	1	255	0
4	40	0	0	0	1	255	0
4	41	0	0	0	1	255	0
4	42	0	0	0	1	255	0
4	43	0	0	0	1	255	0
4	44	0	0	0	1	255	0
4	45	0	0	0	1	255	0
4	46	0	0	0	1	255	0
4	47	0	0	0	1	255	0
4	48	0	0	0	1	255	0

Pedestrian Detector Diagnostics (MM)6-6

Plan	Detector	Counts	Act	Pres	Multiplier
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SYNCHRO PRINTOUTS

Timings

Existing 2021 AM.syn

1: US 377 & SH 114 EBFR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	1758	110	0	0	0	0	598	129	664	403	0
Future Volume (vph)	228	1758	110	0	0	0	0	598	129	664	403	0
Adj. Flow (vph)	235	1812	113	0	0	0	0	616	133	685	415	0
Lane Group Flow (vph)	235	1812	113	0	0	0	0	616	133	685	415	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	1 2	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2	1	1 2	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0					10.0	10.0	7.0		
Minimum Split (s)	26.7	26.7	26.7					15.7	15.7	12.0		
Total Split (s)	91.7	91.7	91.7					35.7	35.7	40.0		
Total Split (%)	54.8%	54.8%	54.8%					21.3%	21.3%	23.9%		
Yellow Time (s)	5.0	5.0	5.0					4.7	4.7	3.6		
All-Red Time (s)	1.7	1.7	1.7					1.0	1.0	1.4		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0		
Total Lost Time (s)	6.7	6.7	6.7					5.7	5.7	5.0		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	None	None	None					None	None	None		
Act Effect Green (s)	85.1	85.1	85.1					28.1	28.1	34.1	67.9	
Actuated g/C Ratio	0.52	0.52	0.52					0.17	0.17	0.21	0.41	
v/c Ratio	0.26	0.99	0.13					0.71	0.42	0.96	0.54	
Control Delay	23.7	58.3	12.4					69.6	38.7	45.3	5.8	
Queue Delay	0.0	0.0	0.0					4.4	0.0	44.6	12.6	
Total Delay	23.7	58.3	12.4					73.9	38.7	89.9	18.3	
LOS	C	E	B					E	D	F	B	
Approach Delay		52.2						67.7			62.9	
Approach LOS		D						E			E	

Intersection Summary

Cycle Length: 167.4

Actuated Cycle Length: 164.7

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 58.0

Intersection LOS: E

Intersection Capacity Utilization 93.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: US 377 & SH 114 EBFR

#1  35.7 s	#1  40 s	#1  91.7 s
#2  40.7 s	#2  35 s	#2  91.7 s

Lee Engineering, LLC

Synchro 11 Report

H:\T1514.07 - TIA Multifamily-SR House Multi Use Development, Roanoke, TX\Synchro\Existing 2021 AM.syn

Timings
1: US 377 & SH 114 EBFR

Existing 2021 AM.syn

Lane Group	Ø5	Ø6	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Adj. Flow (vph)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	5	6	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	7.0	10.0	20.0
Minimum Split (s)	12.0	15.7	26.7
Total Split (s)	35.0	40.7	91.7
Total Split (%)	21%	24%	55%
Yellow Time (s)	3.6	4.7	5.0
All-Red Time (s)	1.4	1.0	1.7
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Intersection Summary			

Timings
2: US 377 & SH 114 WBFR

Existing 2021 AM.syn

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	49	1463	468	122	832	0	0	1016	176
Future Volume (vph)	0	0	0	49	1463	468	122	832	0	0	1016	176
Adj. Flow (vph)	0	0	0	52	1540	493	128	876	0	0	1069	185
Lane Group Flow (vph)	0	0	0	47	2038	0	128	876	0	0	1069	185
Turn Type				Perm	NA		Prot	NA			NA	Perm
Protected Phases					8		5	5 6			6	
Permitted Phases				8								6
Detector Phase				8	8		5	5 6			6	6
Switch Phase												
Minimum Initial (s)				20.0	20.0		7.0				10.0	10.0
Minimum Split (s)				26.7	26.7		12.0				15.7	15.7
Total Split (s)				91.7	91.7		35.0				40.7	40.7
Total Split (%)				54.8%	54.8%		20.9%				24.3%	24.3%
Yellow Time (s)				5.0	5.0		3.6				4.7	4.7
All-Red Time (s)				1.7	1.7		1.4				1.0	1.0
Lost Time Adjust (s)				0.0	0.0		0.0				0.0	0.0
Total Lost Time (s)				6.7	6.7		5.0				5.7	5.7
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None				None	None
Act Effect Green (s)				85.1	85.1		27.1	67.9			35.0	35.0
Actuated g/C Ratio				0.52	0.52		0.16	0.41			0.21	0.21
v/c Ratio				0.06	1.20		0.44	0.60			0.99	0.43
Control Delay				21.1	129.4		58.1	29.2			88.6	22.4
Queue Delay				0.0	0.0		0.0	40.4			37.9	0.0
Total Delay				21.1	129.4		58.1	69.6			126.5	22.4
LOS				C	F		E	E			F	C
Approach Delay					127.0			68.1			111.1	
Approach LOS					F			E			F	

Intersection Summary

Cycle Length: 167.4

Actuated Cycle Length: 164.7

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 108.8

Intersection LOS: F

Intersection Capacity Utilization 93.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 2: US 377 & SH 114 WBFR

#1 	#1 	#1
35.7 s	40 s	91.7 s
#2 	#2 	#2
40.7 s	35 s	91.7 s

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Synchro 11 Report

Timings
2: US 377 & SH 114 WBFR

Existing 2021 AM.syn

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Adj. Flow (vph)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	7.0	10.0	20.0
Minimum Split (s)	12.0	15.7	26.7
Total Split (s)	40.0	35.7	91.7
Total Split (%)	24%	21%	55%
Yellow Time (s)	3.6	4.7	5.0
All-Red Time (s)	1.4	1.0	1.7
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Intersection Summary			

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	17	0	0	57	6
Future Vol, veh/h	0	17	0	0	57	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	20	0	0	66	7
Major/Minor	Minor2		Major2			
Conflicting Flow All	-	37	-	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	1027	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	1027	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		SB			
HCM Control Delay, s	8.6		0			
HCM LOS	A					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	1027	-	-			
HCM Lane V/C Ratio	0.019	-	-			
HCM Control Delay (s)	8.6	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	0.1	-	-			

Intersection

Int Delay, s/veh 5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	37	16	13	0	7	18
Future Vol, veh/h	37	16	13	0	7	18
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	54	54	54	54	54	54
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	69	30	24	0	13	33

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	24	0	0 192 24
Stage 1	-	-	- 24 -
Stage 2	-	-	- 168 -
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	1591	-	- 797 1052
Stage 1	-	-	- 999 -
Stage 2	-	-	- 862 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1591	-	- 762 1052
Mov Cap-2 Maneuver	-	-	- 762 -
Stage 1	-	-	- 955 -
Stage 2	-	-	- 862 -

Approach	EB	WB	SB
HCM Control Delay, s	5.1	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1591	-	-	-	951
HCM Lane V/C Ratio	0.043	-	-	-	0.049
HCM Control Delay (s)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection

Int Delay, s/veh 4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	4	10	23	16	26
Future Vol, veh/h	24	4	10	23	16	26
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	68	68	68	68	68	68
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	6	15	34	24	38

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	41
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1568
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1568
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	973	-	-	1568	-
HCM Lane V/C Ratio	0.063	-	-	0.009	-
HCM Control Delay (s)	9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	4	37	13	1
Future Vol, veh/h	1	1	4	37	13	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	5	47	17	1

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	75	18	18
Stage 1	18	-	-
Stage 2	57	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	928	1061	1599
Stage 1	1005	-	-
Stage 2	966	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	925	1061	1599
Mov Cap-2 Maneuver	925	-	-
Stage 1	1002	-	-
Stage 2	966	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1599	-	988	-	-
HCM Lane V/C Ratio	0.003	-	0.003	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	6	10	41	17	0
Future Vol, veh/h	1	6	10	41	17	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	7	12	50	21	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	95	21	21
Stage 1	21	-	-
Stage 2	74	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	905	1056	1595
Stage 1	1002	-	-
Stage 2	949	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	898	1056	1595
Mov Cap-2 Maneuver	898	-	-
Stage 1	994	-	-
Stage 2	949	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1595	-	1030	-	-
HCM Lane V/C Ratio	0.008	-	0.008	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	22	32	98	13	10
Future Vol, veh/h	72	22	32	98	13	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	27	39	120	16	12
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	143	99	0	0	159	0
Stage 1	99	-	-	-	-	-
Stage 2	44	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	850	957	-	-	1420	-
Stage 1	925	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	841	957	-	-	1420	-
Mov Cap-2 Maneuver	841	-	-	-	-	-
Stage 1	925	-	-	-	-	-
Stage 2	967	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.8	0		4.3		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	866	1420	-	
HCM Lane V/C Ratio	-	-	0.132	0.011	-	
HCM Control Delay (s)	-	-	9.8	7.6	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0	-	

Intersection

Int Delay, s/veh 0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	109	4	5	87	7	6
Future Vol, veh/h	109	4	5	87	7	6
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	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	136	5	6	109	9	8

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	141
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1442
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1442
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	800	-	-	1442	-
HCM Lane V/C Ratio	0.02	-	-	0.004	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↱	↱			↱		↱	↱	
Traffic Vol, veh/h	0	116	0	139	84	0	4	0	173	44	23	5
Future Vol, veh/h	0	116	0	139	84	0	4	0	173	44	23	5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	130	0	156	94	0	4	0	194	49	26	6
Number of Lanes	0	1	0	1	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	10.1	10.1	10.2	9.3
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	2%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	100%	0%	82%
Vol Right, %	98%	0%	0%	0%	0%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	177	116	139	84	44	28
LT Vol	4	0	139	0	44	0
Through Vol	0	116	0	84	0	23
RT Vol	173	0	0	0	0	5
Lane Flow Rate	199	130	156	94	49	31
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.281	0.203	0.256	0.142	0.086	0.049
Departure Headway (Hd)	5.084	5.609	5.912	5.408	6.295	5.664
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	702	633	603	658	565	626
Service Time	3.154	3.696	3.691	3.187	4.084	3.452
HCM Lane V/C Ratio	0.283	0.205	0.259	0.143	0.087	0.05
HCM Control Delay	10.2	10.1	10.7	9.1	9.7	8.7
HCM Lane LOS	B	B	B	A	A	A
HCM 95th-tile Q	1.2	0.8	1	0.5	0.3	0.2

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	9	726	10	12	372
Future Vol, veh/h	7	9	726	10	12	372
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	10	789	11	13	404
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1225	795	0	0	800	0
Stage 1	795	-	-	-	-	-
Stage 2	430	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	198	388	-	-	823	-
Stage 1	445	-	-	-	-	-
Stage 2	656	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	194	388	-	-	823	-
Mov Cap-2 Maneuver	194	-	-	-	-	-
Stage 1	445	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	19.2	0	0.3			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	270	823	-	
HCM Lane V/C Ratio	-	-	0.064	0.016	-	
HCM Control Delay (s)	-	-	19.2	9.4	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

Intersection												
Int Delay, s/veh	15.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	1011	100	89	392	31	18	15	83	15	1	28
Future Vol, veh/h	56	1011	100	89	392	31	18	15	83	15	1	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	1064	105	94	413	33	19	16	87	16	1	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	446	0	0	1169	0	0	1868	1869	1117	1904	1905	430
Stage 1	-	-	-	-	-	-	1235	1235	-	618	618	-
Stage 2	-	-	-	-	-	-	633	634	-	1286	1287	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1114	-	-	598	-	-	55	72	252	52	69	625
Stage 1	-	-	-	-	-	-	216	249	-	477	481	-
Stage 2	-	-	-	-	-	-	468	473	-	202	235	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1114	-	-	598	-	-	44	57	252	23	55	625
Mov Cap-2 Maneuver	-	-	-	-	-	-	44	57	-	23	55	-
Stage 1	-	-	-	-	-	-	205	236	-	452	405	-
Stage 2	-	-	-	-	-	-	375	399	-	117	223	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.1	169.7	157
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	116	1114	-	-	598	-	-	62
HCM Lane V/C Ratio	1.053	0.053	-	-	0.157	-	-	0.747
HCM Control Delay (s)	169.7	8.4	-	-	12.1	-	-	157
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	7.2	0.2	-	-	0.6	-	-	3.3

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	104	967	10	9	438	68	0	5	44	10	4	150
Future Vol, veh/h	104	967	10	9	438	68	0	5	44	10	4	150
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	107	997	10	9	452	70	0	5	45	10	4	155
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	522	0	0	1007	0	0	-	1756	1002	1746	1726	487
Stage 1	-	-	-	-	-	-	-	1216	-	505	505	-
Stage 2	-	-	-	-	-	-	-	540	-	1241	1221	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1044	-	-	688	-	-	0	85	294	68	89	581
Stage 1	-	-	-	-	-	-	0	254	-	549	540	-
Stage 2	-	-	-	-	-	-	0	521	-	214	252	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1044	-	-	688	-	-	-	75	294	50	79	581
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	75	-	50	79	-
Stage 1	-	-	-	-	-	-	-	228	-	493	533	-
Stage 2	-	-	-	-	-	-	-	514	-	159	226	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0.2			19.5			13.4		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	294	1044	-	-	688	-	-	581				
HCM Lane V/C Ratio	0.154	0.103	-	-	0.013	-	-	0.266				
HCM Control Delay (s)	19.5	8.8	-	-	10.3	-	-	13.4				
HCM Lane LOS	C	A	-	-	B	-	-	B				
HCM 95th %tile O(veh)	0.5	0.3	-	-	0	-	-	1.1				

Timings

Existing 2021 PM.syn

1: US 377 & SH 114 EBFR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	326	1472	124	0	0	0	0	642	58	389	442	0
Future Volume (vph)	326	1472	124	0	0	0	0	642	58	389	442	0
Adj. Flow (vph)	333	1502	127	0	0	0	0	655	59	397	451	0
Lane Group Flow (vph)	333	1502	127	0	0	0	0	655	59	397	451	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	1 2	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2	1	1 2	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0					10.0	10.0	7.0		
Minimum Split (s)	26.7	26.7	26.7					15.7	15.7	12.0		
Total Split (s)	106.7	106.7	106.7					50.7	50.7	55.0		
Total Split (%)	50.2%	50.2%	50.2%					23.9%	23.9%	25.9%		
Yellow Time (s)	5.0	5.0	5.0					4.7	4.7	3.6		
All-Red Time (s)	1.7	1.7	1.7					1.0	1.0	1.4		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0		
Total Lost Time (s)	6.7	6.7	6.7					5.7	5.7	5.0		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	None	None	None					None	None	None		
Act Effect Green (s)	100.4	100.4	100.4					39.1	39.1	25.3	70.1	
Actuated g/C Ratio	0.55	0.55	0.55					0.21	0.21	0.14	0.38	
v/c Ratio	0.34	0.77	0.14					0.60	0.16	0.83	0.63	
Control Delay	25.4	36.9	15.5					67.2	19.5	48.1	9.6	
Queue Delay	0.0	0.0	0.0					0.4	0.0	0.0	0.7	
Total Delay	25.4	36.9	15.5					67.6	19.5	48.1	10.4	
LOS	C	D	B					E	B	D	B	
Approach Delay		33.5						63.6			28.0	
Approach LOS		C						E			C	

Intersection Summary

Cycle Length: 212.4

Actuated Cycle Length: 182.2

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 38.3

Intersection LOS: D

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: US 377 & SH 114 EBFR

#1  50.7 s	#1  55 s	#1  106.7 s
#2  50.7 s	#2  55 s	#2  106.7 s

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Synchro 11 Report

Timings
1: US 377 & SH 114 EBFR

Existing 2021 PM.syn

Lane Group	Ø5	Ø6	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Adj. Flow (vph)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	5	6	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	7.0	10.0	20.0
Minimum Split (s)	12.0	15.7	26.7
Total Split (s)	55.0	50.7	106.7
Total Split (%)	26%	24%	50%
Yellow Time (s)	3.6	4.7	5.0
All-Red Time (s)	1.4	1.0	1.7
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Intersection Summary			

Timings
2: US 377 & SH 114 WBFR

Existing 2021 PM.syn

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	54	1461	399	151	800	0	0	958	250
Future Volume (vph)	0	0	0	54	1461	399	151	800	0	0	958	250
Adj. Flow (vph)	0	0	0	56	1522	416	157	833	0	0	998	260
Lane Group Flow (vph)	0	0	0	50	1944	0	157	833	0	0	998	260
Turn Type				Perm	NA		Prot	NA			NA	Perm
Protected Phases					8		5	5 6			6	
Permitted Phases				8								6
Detector Phase				8	8		5	5 6			6	6
Switch Phase												
Minimum Initial (s)				20.0	20.0		7.0				10.0	10.0
Minimum Split (s)				26.7	26.7		12.0				15.7	15.7
Total Split (s)				106.7	106.7		55.0				50.7	50.7
Total Split (%)				50.2%	50.2%		25.9%				23.9%	23.9%
Yellow Time (s)				5.0	5.0		3.6				4.7	4.7
All-Red Time (s)				1.7	1.7		1.4				1.0	1.0
Lost Time Adjust (s)				0.0	0.0		0.0				0.0	0.0
Total Lost Time (s)				6.7	6.7		5.0				5.7	5.7
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None				None	None
Act Effect Green (s)				100.4	100.4		22.6	70.1			41.7	41.7
Actuated g/C Ratio				0.55	0.55		0.12	0.38			0.23	0.23
v/c Ratio				0.06	1.07		0.72	0.61			0.86	0.53
Control Delay				21.8	81.2		84.9	34.6			76.2	26.9
Queue Delay				0.0	0.0		0.0	0.4			0.0	0.0
Total Delay				21.8	81.2		84.9	35.0			76.2	26.9
LOS				C	F		F	D			E	C
Approach Delay					79.7			42.9			66.0	
Approach LOS					E			D			E	

Intersection Summary

Cycle Length: 212.4

Actuated Cycle Length: 182.2

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 67.1

Intersection LOS: E

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: US 377 & SH 114 WBFR

#1 	#1 	#1
50.7 s	55 s	106.7 s
#2 	#2 	#2
50.7 s	55 s	106.7 s

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Synchro 11 Report

Timings
2: US 377 & SH 114 WBFR

Existing 2021 PM.syn

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Adj. Flow (vph)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	7.0	10.0	20.0
Minimum Split (s)	12.0	15.7	26.7
Total Split (s)	55.0	50.7	106.7
Total Split (%)	26%	24%	50%
Yellow Time (s)	3.6	4.7	5.0
All-Red Time (s)	1.4	1.0	1.7
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Intersection Summary			

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	23	0	0	81	7
Future Vol, veh/h	0	23	0	0	81	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	26	0	0	93	8
Major/Minor	Minor2		Major2			
Conflicting Flow All	-	51	-	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	1006	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	1006	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		SB			
HCM Control Delay, s	8.7		0			
HCM LOS	A					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	1006	-	-			
HCM Lane V/C Ratio	0.026	-	-			
HCM Control Delay (s)	8.7	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	0.1	-	-			

Intersection

Int Delay, s/veh 4.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	17	13	3	3	15
Future Vol, veh/h	25	17	13	3	3	15
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	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	20	16	4	4	18

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	20	0	0 98 18
Stage 1	-	-	- 18 -
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	1596	-	- 901 1061
Stage 1	-	-	- 1005 -
Stage 2	-	-	- 943 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1596	-	- 884 1061
Mov Cap-2 Maneuver	-	-	- 884 -
Stage 1	-	-	- 986 -
Stage 2	-	-	- 943 -

Approach	EB	WB	SB
HCM Control Delay, s	4.3	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1596	-	-	-	1027
HCM Lane V/C Ratio	0.019	-	-	-	0.021
HCM Control Delay (s)	7.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection

Int Delay, s/veh 4.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	3	7	22	15	23
Future Vol, veh/h	20	3	7	22	15	23
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	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	4	10	31	21	33

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	33
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1579
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1579
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	988	-	-	1579	-
HCM Lane V/C Ratio	0.055	-	-	0.006	-
HCM Control Delay (s)	8.9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	3	11	39	10	1
Future Vol, veh/h	1	3	11	39	10	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	3	13	45	11	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	83	12	12	0	-	0
Stage 1	12	-	-	-	-	-
Stage 2	71	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	919	1069	1607	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	912	1069	1607	-	-	-
Mov Cap-2 Maneuver	912	-	-	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.5	1.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1607	-	1025	-	-	
HCM Lane V/C Ratio	0.008	-	0.004	-	-	
HCM Control Delay (s)	7.3	0	8.5	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	11	26	54	15	1
Future Vol, veh/h	0	11	26	54	15	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	27	55	15	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	125	16	16	0	-	0
Stage 1	16	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	870	1063	1602	-	-	-
Stage 1	1007	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	855	1063	1602	-	-	-
Mov Cap-2 Maneuver	855	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.4	2.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1602	-	1063	-	-	
HCM Lane V/C Ratio	0.017	-	0.011	-	-	
HCM Control Delay (s)	7.3	0	8.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0	-	-	

Intersection						
Int Delay, s/veh	7.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	160	51	24	67	14	9
Future Vol, veh/h	160	51	24	67	14	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	190	61	29	80	17	11
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	114	69	0	0	109	0
Stage 1	69	-	-	-	-	-
Stage 2	45	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	882	994	-	-	1481	-
Stage 1	954	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	871	994	-	-	1481	-
Mov Cap-2 Maneuver	871	-	-	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.6	0		4.5		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	898	1481	-	
HCM Lane V/C Ratio	-	-	0.28	0.011	-	
HCM Control Delay (s)	-	-	10.6	7.5	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	1.1	0	-	

Intersection

Int Delay, s/veh 0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	72	2	17	213	3	6
Future Vol, veh/h	72	2	17	213	3	6
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	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	2	20	245	3	7

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	85
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1512
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1512
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	820	-	-	1512	-
HCM Lane V/C Ratio	0.013	-	-	0.013	-
HCM Control Delay (s)	9.4	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Intersection Delay, s/veh	16.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↱	↱			↱		↱	↱	
Traffic Vol, veh/h	0	79	3	167	199	0	19	0	432	47	36	18
Future Vol, veh/h	0	79	3	167	199	0	19	0	432	47	36	18
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	82	3	174	207	0	20	0	450	49	38	19
Number of Lanes	0	1	0	1	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	11.4	12.9	21.8	10.4
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	4%	0%	100%	0%	100%	0%
Vol Thru, %	0%	96%	0%	100%	0%	67%
Vol Right, %	96%	4%	0%	0%	0%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	451	82	167	199	47	54
LT Vol	19	0	167	0	47	0
Through Vol	0	79	0	199	0	36
RT Vol	432	3	0	0	0	18
Lane Flow Rate	470	85	174	207	49	56
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.723	0.164	0.332	0.367	0.098	0.101
Departure Headway (Hd)	5.54	6.93	6.879	6.372	7.2	6.451
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	653	515	522	564	496	553
Service Time	3.587	5.005	4.634	4.126	4.97	4.221
HCM Lane V/C Ratio	0.72	0.165	0.333	0.367	0.099	0.101
HCM Control Delay	21.8	11.4	13	12.8	10.8	10
HCM Lane LOS	C	B	B	B	B	A
HCM 95th-tile Q	6.1	0.6	1.4	1.7	0.3	0.3

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	33	589	21	12	542
Future Vol, veh/h	2	33	589	21	12	542
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	36	647	23	13	596
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1281	659	0	0	670	0
Stage 1	659	-	-	-	-	-
Stage 2	622	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	183	464	-	-	920	-
Stage 1	515	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	179	464	-	-	920	-
Mov Cap-2 Maneuver	319	-	-	-	-	-
Stage 1	515	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	13.7	0		0.2		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	452	920	-	
HCM Lane V/C Ratio	-	-	0.085	0.014	-	
HCM Control Delay (s)	-	-	13.7	9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

Intersection												
Int Delay, s/veh	24.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	782	48	72	964	29	18	6	85	15	7	81
Future Vol, veh/h	25	782	48	72	964	29	18	6	85	15	7	81
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	815	50	75	1004	30	19	6	89	16	7	84

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1034	0	0	865	0	0	2107	2076	840	2109	2086	1019
Stage 1	-	-	-	-	-	-	892	892	-	1169	1169	-
Stage 2	-	-	-	-	-	-	1215	1184	-	940	917	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	672	-	-	778	-	-	37	54	365	37	53	288
Stage 1	-	-	-	-	-	-	337	360	-	235	267	-
Stage 2	-	-	-	-	-	-	222	263	-	316	351	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	672	-	-	778	-	-	21	47	365	23	46	288
Mov Cap-2 Maneuver	-	-	-	-	-	-	21	47	-	23	46	-
Stage 1	-	-	-	-	-	-	324	346	-	226	241	-
Stage 2	-	-	-	-	-	-	138	238	-	226	337	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7	265.6	213.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	90	672	-	-	778	-	-	95
HCM Lane V/C Ratio	1.262	0.039	-	-	0.096	-	-	1.129
HCM Control Delay (s)	265.6	10.6	-	-	10.1	-	-	213.8
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	8.2	0.1	-	-	0.3	-	-	7.2

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	135	773	24	23	957	307	1	1	47	9	6	178
Future Vol, veh/h	135	773	24	23	957	307	1	1	47	9	6	178
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	139	797	25	24	987	316	1	1	48	9	6	184
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1303	0	0	822	0	0	2376	2439	810	2305	2293	1145
Stage 1	-	-	-	-	-	-	1088	1088	-	1193	1193	-
Stage 2	-	-	-	-	-	-	1288	1351	-	1112	1100	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	531	-	-	807	-	-	24	32	380	27	39	243
Stage 1	-	-	-	-	-	-	261	292	-	228	260	-
Stage 2	-	-	-	-	-	-	201	219	-	253	288	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	531	-	-	807	-	-	4	23	380	18	28	243
Mov Cap-2 Maneuver	-	-	-	-	-	-	4	23	-	18	28	-
Stage 1	-	-	-	-	-	-	193	215	-	168	252	-
Stage 2	-	-	-	-	-	-	47	212	-	162	213	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0.2			15.9			54.6		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	380	531	-	-	807	-	-	243				
HCM Lane V/C Ratio	0.128	0.262	-	-	0.029	-	-	0.755				
HCM Control Delay (s)	15.9	14.2	-	-	9.6	-	-	54.6				
HCM Lane LOS	C	B	-	-	A	-	-	F				
HCM 95th %tile O(veh)	0.4	1	-	-	0.1	-	-	5.4				

Timings

Build Out 2024 Background AM.syn

1: US 377 & SH 114 EBFR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	2035	127	0	0	0	0	692	150	768	466	0
Future Volume (vph)	264	2035	127	0	0	0	0	692	150	768	466	0
Adj. Flow (vph)	272	2098	131	0	0	0	0	713	155	792	480	0
Lane Group Flow (vph)	272	2098	131	0	0	0	0	713	155	792	480	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	1 2	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2	1	1 2	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0					10.0	10.0	7.0		
Minimum Split (s)	26.7	26.7	26.7					15.7	15.7	12.0		
Total Split (s)	91.7	91.7	91.7					35.7	35.7	40.0		
Total Split (%)	54.8%	54.8%	54.8%					21.3%	21.3%	23.9%		
Yellow Time (s)	5.0	5.0	5.0					4.7	4.7	3.6		
All-Red Time (s)	1.7	1.7	1.7					1.0	1.0	1.4		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0		
Total Lost Time (s)	6.7	6.7	6.7					5.7	5.7	5.0		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	None	None	None					None	None	None		
Act Effect Green (s)	85.0	85.0	85.0					29.5	29.5	35.0	70.2	
Actuated g/C Ratio	0.51	0.51	0.51					0.18	0.18	0.21	0.42	
v/c Ratio	0.30	1.16	0.16					0.79	0.48	1.10	0.61	
Control Delay	25.0	117.9	13.9					73.2	43.7	80.4	7.2	
Queue Delay	0.0	0.0	0.0					50.8	0.0	1.2	44.8	
Total Delay	25.0	117.9	13.9					124.0	43.7	81.6	52.0	
LOS	C	F	B					F	D	F	D	
Approach Delay		102.3						109.7			70.4	
Approach LOS		F						F			E	

Intersection Summary

Cycle Length: 167.4

Actuated Cycle Length: 166.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.40

Intersection Signal Delay: 94.9

Intersection LOS: F

Intersection Capacity Utilization 106.0%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: US 377 & SH 114 EBFR

#1  35.7 s	#1  40 s	#1  91.7 s
#2  40.7 s	#2  35 s	#2  91.7 s

Lee Engineering, LLC

Synchro 11 Report

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Timings
1: US 377 & SH 114 EBFR

Build Out 2024 Background AM.syn

Lane Group	Ø5	Ø6	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Adj. Flow (vph)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	5	6	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	7.0	10.0	20.0
Minimum Split (s)	12.0	15.7	26.7
Total Split (s)	35.0	40.7	91.7
Total Split (%)	21%	24%	55%
Yellow Time (s)	3.6	4.7	5.0
All-Red Time (s)	1.4	1.0	1.7
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Intersection Summary			

Timings 2: US 377 & SH 114 WBFR

Build Out 2024 Background AM.syn

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	56	1693	542	141	963	0	0	1176	203
Future Volume (vph)	0	0	0	56	1693	542	141	963	0	0	1176	203
Adj. Flow (vph)	0	0	0	59	1782	571	148	1014	0	0	1238	214
Lane Group Flow (vph)	0	0	0	53	2359	0	148	1014	0	0	1238	214
Turn Type				Perm	NA		Prot	NA			NA	Perm
Protected Phases					8		5	5 6			6	
Permitted Phases				8								6
Detector Phase				8	8		5	5 6			6	6
Switch Phase												
Minimum Initial (s)				20.0	20.0		7.0				10.0	10.0
Minimum Split (s)				26.7	26.7		12.0				15.7	15.7
Total Split (s)				91.7	91.7		35.0				40.7	40.7
Total Split (%)				54.8%	54.8%		20.9%				24.3%	24.3%
Yellow Time (s)				5.0	5.0		3.6				4.7	4.7
All-Red Time (s)				1.7	1.7		1.4				1.0	1.0
Lost Time Adjust (s)				0.0	0.0		0.0				0.0	0.0
Total Lost Time (s)				6.7	6.7		5.0				5.7	5.7
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None				None	None
Act Effect Green (s)				85.0	85.0		29.5	70.2			35.0	35.0
Actuated g/C Ratio				0.51	0.51		0.18	0.42			0.21	0.21
v/c Ratio				0.06	1.40		0.47	0.68			1.16	0.52
Control Delay				21.3	217.6		57.8	31.8			138.9	34.3
Queue Delay				0.0	0.0		0.0	50.7			1.1	0.0
Total Delay				21.3	217.6		57.8	82.5			140.0	34.3
LOS				C	F		E	F			F	C
Approach Delay					213.3			79.4			124.5	
Approach LOS					F			E			F	

Intersection Summary

Cycle Length: 167.4

Actuated Cycle Length: 166.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.40

Intersection Signal Delay: 156.7

Intersection LOS: F

Intersection Capacity Utilization 106.0%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 2: US 377 & SH 114 WBFR

#1 	#1 	#1
35.7 s	40 s	91.7 s
#2 	#2 	#2
40.7 s	35 s	91.7 s

Lee Engineering, LLC

Synchro 11 Report

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Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Adj. Flow (vph)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	7.0	10.0	20.0
Minimum Split (s)	12.0	15.7	26.7
Total Split (s)	40.0	35.7	91.7
Total Split (%)	24%	21%	55%
Yellow Time (s)	3.6	4.7	5.0
All-Red Time (s)	1.4	1.0	1.7
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Intersection Summary			

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	0	0	66	7
Future Vol, veh/h	0	20	0	0	66	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	23	0	0	76	8
Major/Minor	Minor2		Major2			
Conflicting Flow All	-	42	-	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	1019	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	1019	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		SB			
HCM Control Delay, s	8.6		0			
HCM LOS	A					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	1019	-	-			
HCM Lane V/C Ratio	0.023	-	-			
HCM Control Delay (s)	8.6	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	0.1	-	-			

Intersection						
Int Delay, s/veh	5.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	42	18	16	0	8	21
Future Vol, veh/h	42	18	16	0	8	21
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	54	54	54	54	54	54
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	33	30	0	15	39
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	30	0	-	0	219	30
Stage 1	-	-	-	-	30	-
Stage 2	-	-	-	-	189	-
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	1583	-	-	-	769	1044
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	843	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1583	-	-	-	731	1044
Mov Cap-2 Maneuver	-	-	-	-	731	-
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	843	-
Approach	EB	WB		SB		
HCM Control Delay, s	5.2	0		9.1		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1583	-	-	-	934	
HCM Lane V/C Ratio	0.049	-	-	-	0.057	
HCM Control Delay (s)	7.4	0	-	-	9.1	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	

Intersection						
Int Delay, s/veh	4.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	28	4	11	27	18	30
Future Vol, veh/h	28	4	11	27	18	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	68	68	68	68	68	68
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	6	16	40	26	44
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	47	0	116	44
Stage 1	-	-	-	-	44	-
Stage 2	-	-	-	-	72	-
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	-	-	1560	-	880	1026
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	951	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1560	-	871	1026
Mov Cap-2 Maneuver	-	-	-	-	871	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	941	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.1		9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	962	-	-	1560	-	
HCM Lane V/C Ratio	0.073	-	-	0.01	-	
HCM Control Delay (s)	9	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0	-	

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	4	42	16	1
Future Vol, veh/h	1	1	4	42	16	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	5	54	21	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	86	22	22	0	-	0
Stage 1	22	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	915	1055	1593	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	912	1055	1593	-	-	-
Mov Cap-2 Maneuver	912	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.7	0.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1593	-	978	-	-	
HCM Lane V/C Ratio	0.003	-	0.003	-	-	
HCM Control Delay (s)	7.3	0	8.7	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	7	11	48	20	0
Future Vol, veh/h	1	7	11	48	20	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	9	13	59	24	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	109	24	24	0	-	0
Stage 1	24	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	888	1052	1591	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	938	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	881	1052	1591	-	-	-
Mov Cap-2 Maneuver	881	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	938	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.5	1.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1591	-	1027	-	-	
HCM Lane V/C Ratio	0.008	-	0.009	-	-	
HCM Control Delay (s)	7.3	0	8.5	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	83	25	37	113	16	11
Future Vol, veh/h	83	25	37	113	16	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	30	45	138	20	13
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	167	114	0	0	183	0
Stage 1	114	-	-	-	-	-
Stage 2	53	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	823	939	-	-	1392	-
Stage 1	911	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	811	939	-	-	1392	-
Mov Cap-2 Maneuver	811	-	-	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.1	0	4.5			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	837	1392	-	
HCM Lane V/C Ratio	-	-	0.157	0.014	-	
HCM Control Delay (s)	-	-	10.1	7.6	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.6	0	-	

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	126	4	6	100	8	7
Future Vol, veh/h	126	4	6	100	8	7
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	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	158	5	8	125	10	9
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	163	0	302	161
Stage 1	-	-	-	-	161	-
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	-	-	1416	-	690	884
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	886	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1416	-	686	884
Mov Cap-2 Maneuver	-	-	-	-	686	-
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	881	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		9.8	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	766	-	-	1416	-	
HCM Lane V/C Ratio	0.024	-	-	0.005	-	
HCM Control Delay (s)	9.8	-	-	7.6	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↱	↱			↱↲		↱	↱	
Traffic Vol, veh/h	0	134	0	161	97	0	4	0	201	51	27	6
Future Vol, veh/h	0	134	0	161	97	0	4	0	201	51	27	6
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	151	0	181	109	0	4	0	226	57	30	7
Number of Lanes	0	1	0	1	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	10.9	10.9	11.2	9.8
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	2%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	100%	0%	82%
Vol Right, %	98%	0%	0%	0%	0%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	205	134	161	97	51	33
LT Vol	4	0	161	0	51	0
Through Vol	0	134	0	97	0	27
RT Vol	201	0	0	0	0	6
Lane Flow Rate	230	151	181	109	57	37
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.344	0.248	0.311	0.172	0.106	0.062
Departure Headway (Hd)	5.374	5.938	6.195	5.69	6.652	6.016
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	670	605	581	632	540	596
Service Time	3.399	3.965	3.919	3.414	4.383	3.746
HCM Lane V/C Ratio	0.343	0.25	0.312	0.172	0.106	0.062
HCM Control Delay	11.2	10.9	11.7	9.6	10.2	9.1
HCM Lane LOS	B	B	B	A	B	A
HCM 95th-tile Q	1.5	1	1.3	0.6	0.4	0.2

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	10	840	11	14	431
Future Vol, veh/h	8	10	840	11	14	431
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	-	-	-	200	-
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	9	11	913	12	15	468
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1183	463	0	0	925	0
Stage 1	919	-	-	-	-	-
Stage 2	264	-	-	-	-	-
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	182	546	-	-	734	-
Stage 1	349	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	178	546	-	-	734	-
Mov Cap-2 Maneuver	282	-	-	-	-	-
Stage 1	349	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	14.8	0		0.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	386	734	-	
HCM Lane V/C Ratio	-	-	0.051	0.021	-	
HCM Control Delay (s)	-	-	14.8	10	-	
HCM Lane LOS	-	-	B	B	-	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

Intersection												
Int Delay, s/veh	57.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	1171	116	103	453	35	21	17	96	17	1	32
Future Vol, veh/h	65	1171	116	103	453	35	21	17	96	17	1	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	68	1233	122	108	477	37	22	18	101	18	1	34
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	514	0	0	1355	0	0	2159	2160	1294	2202	2203	496
Stage 1	-	-	-	-	-	-	1430	1430	-	712	712	-
Stage 2	-	-	-	-	-	-	729	730	-	1490	1491	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1052	-	-	508	-	-	34	47	199	32	45	574
Stage 1	-	-	-	-	-	-	167	200	-	423	436	-
Stage 2	-	-	-	-	-	-	414	428	-	154	187	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1052	-	-	508	-	-	25	35	199	~ 8	33	574
Mov Cap-2 Maneuver	-	-	-	-	-	-	25	35	-	~ 8	33	-
Stage 1	-	-	-	-	-	-	156	187	-	396	343	-
Stage 2	-	-	-	-	-	-	306	337	-	64	175	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			2.4			\$ 546.1			\$ 946.6		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	74	1052	-	-	508	-	-	23				
HCM Lane V/C Ratio	1.906	0.065	-	-	0.213	-	-	2.288				
HCM Control Delay (s)	\$ 546.1	8.7	-	-	14	-	-	\$ 946.6				
HCM Lane LOS	F	A	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	12.6	0.2	-	-	0.8	-	-	6.7				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	120	1120	11	10	507	79	0	6	51	11	4	174
Future Vol, veh/h	120	1120	11	10	507	79	0	6	51	11	4	174
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	124	1155	11	10	523	81	0	6	53	11	4	179
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	604	0	0	1166	0	0	-	2033	1161	2022	1998	564
Stage 1	-	-	-	-	-	-	-	1409	-	584	584	-
Stage 2	-	-	-	-	-	-	-	624	-	1438	1414	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	974	-	-	599	-	-	0	57	238	43	60	525
Stage 1	-	-	-	-	-	-	0	205	-	498	498	-
Stage 2	-	-	-	-	-	-	0	478	-	165	204	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	974	-	-	599	-	-	-	49	238	27	51	525
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	49	-	27	51	-
Stage 1	-	-	-	-	-	-	-	179	-	435	490	-
Stage 2	-	-	-	-	-	-	-	470	-	108	178	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.9		0.2			24.4			15.4			
HCM LOS						C			C			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	238	974	-	-	599	-	-	525				
HCM Lane V/C Ratio	0.221	0.127	-	-	0.017	-	-	0.342				
HCM Control Delay (s)	24.4	9.2	-	-	11.1	-	-	15.4				
HCM Lane LOS	C	A	-	-	B	-	-	C				
HCM 95th %tile O(veh)	0.8	0.4	-	-	0.1	-	-	1.5				

Timings

Build Out 2024 Background PM.syn

1: US 377 & SH 114 EBFR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	1704	144	0	0	0	0	744	67	451	512	0
Future Volume (vph)	377	1704	144	0	0	0	0	744	67	451	512	0
Adj. Flow (vph)	385	1739	147	0	0	0	0	759	68	460	522	0
Lane Group Flow (vph)	385	1739	147	0	0	0	0	759	68	460	522	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	1 2	
Permitted Phases	4		4						2			
Detector Phase	4	4	4					2	2	1	1 2	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0					10.0	10.0	7.0		
Minimum Split (s)	26.7	26.7	26.7					15.7	15.7	12.0		
Total Split (s)	106.7	106.7	106.7					50.7	50.7	55.0		
Total Split (%)	50.2%	50.2%	50.2%					23.9%	23.9%	25.9%		
Yellow Time (s)	5.0	5.0	5.0					4.7	4.7	3.6		
All-Red Time (s)	1.7	1.7	1.7					1.0	1.0	1.4		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0		
Total Lost Time (s)	6.7	6.7	6.7					5.7	5.7	5.0		
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	None	None	None					None	None	None		
Act Effect Green (s)	100.2	100.2	100.2					42.9	42.9	31.0	79.6	
Actuated g/C Ratio	0.52	0.52	0.52					0.22	0.22	0.16	0.42	
v/c Ratio	0.42	0.94	0.17					0.67	0.17	0.83	0.67	
Control Delay	30.6	54.0	18.8					71.3	25.8	46.0	10.6	
Queue Delay	0.0	0.0	0.0					1.5	0.0	0.2	3.0	
Total Delay	30.6	54.0	18.8					72.8	25.8	46.2	13.6	
LOS	C	D	B					E	C	D	B	
Approach Delay		47.7						69.0			28.9	
Approach LOS		D						E			C	

Intersection Summary

Cycle Length: 212.4

Actuated Cycle Length: 191.5

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.30

Intersection Signal Delay: 47.5

Intersection LOS: D

Intersection Capacity Utilization 88.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: US 377 & SH 114 EBFR

#1  50.7 s	#1  55 s	#1  106.7 s
#2  50.7 s	#2  55 s	#2  106.7 s

Lane Group	Ø5	Ø6	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Adj. Flow (vph)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	5	6	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	7.0	10.0	20.0
Minimum Split (s)	12.0	15.7	26.7
Total Split (s)	55.0	50.7	106.7
Total Split (%)	26%	24%	50%
Yellow Time (s)	3.6	4.7	5.0
All-Red Time (s)	1.4	1.0	1.7
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Intersection Summary			

Timings 2: US 377 & SH 114 WBFR

Build Out 2024 Background PM.syn

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	62	1691	462	174	926	0	0	1109	289
Future Volume (vph)	0	0	0	62	1691	462	174	926	0	0	1109	289
Adj. Flow (vph)	0	0	0	65	1761	481	181	965	0	0	1155	301
Lane Group Flow (vph)	0	0	0	58	2249	0	181	965	0	0	1155	301
Turn Type				Perm	NA		Prot	NA			NA	Perm
Protected Phases					8		5	5 6			6	
Permitted Phases				8								6
Detector Phase				8	8		5	5 6			6	6
Switch Phase												
Minimum Initial (s)				20.0	20.0		7.0				10.0	10.0
Minimum Split (s)				26.7	26.7		12.0				15.7	15.7
Total Split (s)				106.7	106.7		55.0				50.7	50.7
Total Split (%)				50.2%	50.2%		25.9%				23.9%	23.9%
Yellow Time (s)				5.0	5.0		3.6				4.7	4.7
All-Red Time (s)				1.7	1.7		1.4				1.0	1.0
Lost Time Adjust (s)				0.0	0.0		0.0				0.0	0.0
Total Lost Time (s)				6.7	6.7		5.0				5.7	5.7
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None				None	None
Act Effect Green (s)				100.2	100.2		28.8	79.6			45.1	45.1
Actuated g/C Ratio				0.52	0.52		0.15	0.42			0.24	0.24
v/c Ratio				0.07	1.30		0.68	0.66			0.96	0.63
Control Delay				24.6	177.8		81.4	37.5			90.3	41.8
Queue Delay				0.0	0.0		0.2	1.0			4.8	0.0
Total Delay				24.6	177.8		81.6	38.5			95.0	41.8
LOS				C	F		F	D			F	D
Approach Delay					174.0			45.3			84.0	
Approach LOS					F			D			F	

Intersection Summary

Cycle Length: 212.4

Actuated Cycle Length: 191.5

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.30

Intersection Signal Delay: 117.3

Intersection LOS: F

Intersection Capacity Utilization 88.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: US 377 & SH 114 WBFR

#1 	#1 	#1
50.7 s	55 s	106.7 s
#2 	#2 	#2
50.7 s	55 s	106.7 s

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Adj. Flow (vph)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	7.0	10.0	20.0
Minimum Split (s)	12.0	15.7	26.7
Total Split (s)	55.0	50.7	106.7
Total Split (%)	26%	24%	50%
Yellow Time (s)	3.6	4.7	5.0
All-Red Time (s)	1.4	1.0	1.7
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Intersection Summary			

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	27	0	0	94	8
Future Vol, veh/h	0	27	0	0	94	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	31	0	0	108	9
Major/Minor	Minor2		Major2			
Conflicting Flow All	-	59	-	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	994	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	994	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		SB			
HCM Control Delay, s	8.7		0			
HCM LOS	A					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	994	-	-			
HCM Lane V/C Ratio	0.031	-	-			
HCM Control Delay (s)	8.7	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	0.1	-	-			

Intersection						
Int Delay, s/veh	4.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	19	15	4	4	18
Future Vol, veh/h	29	19	15	4	4	18
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	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	23	18	5	5	22
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	23	0	-	0	114	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	93	-
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	1592	-	-	-	882	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	931	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1592	-	-	-	863	1056
Mov Cap-2 Maneuver	-	-	-	-	863	-
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	931	-
Approach	EB	WB		SB		
HCM Control Delay, s	4.4	0		8.6		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1592	-	-	-	1015	
HCM Lane V/C Ratio	0.022	-	-	-	0.026	
HCM Control Delay (s)	7.3	0	-	-	8.6	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	

Intersection						
Int Delay, s/veh	4.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	23	4	8	25	18	27
Future Vol, veh/h	23	4	8	25	18	27
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	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	6	11	36	26	39
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	39	0	94	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	58	-
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	-	-	1571	-	906	1037
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	965	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1571	-	900	1037
Mov Cap-2 Maneuver	-	-	-	-	900	-
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	958	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	1.8		8.9		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	977	-	-	1571	-	
HCM Lane V/C Ratio	0.066	-	-	0.007	-	
HCM Control Delay (s)	8.9	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0	-	

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	13	45	11	1
Future Vol, veh/h	1	4	13	45	11	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	15	52	13	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	96	14	14	0	-	0
Stage 1	14	-	-	-	-	-
Stage 2	82	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	903	1066	1604	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	941	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	894	1066	1604	-	-	-
Mov Cap-2 Maneuver	894	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	941	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.5	1.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1604	-	1027	-	-	
HCM Lane V/C Ratio	0.009	-	0.006	-	-	
HCM Control Delay (s)	7.3	0	8.5	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	31	62	18	1
Future Vol, veh/h	0	13	31	62	18	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	13	32	63	18	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	146	19	19	0	-	0
Stage 1	19	-	-	-	-	-
Stage 2	127	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	846	1059	1597	-	-	-
Stage 1	1004	-	-	-	-	-
Stage 2	899	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	828	1059	1597	-	-	-
Mov Cap-2 Maneuver	828	-	-	-	-	-
Stage 1	983	-	-	-	-	-
Stage 2	899	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.4	2.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1597	-	1059	-	-	
HCM Lane V/C Ratio	0.02	-	0.013	-	-	
HCM Control Delay (s)	7.3	0	8.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0	-	-	

Intersection						
Int Delay, s/veh	7.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	185	59	28	78	17	10
Future Vol, veh/h	185	59	28	78	17	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	220	70	33	93	20	12
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	132	80	0	0	126	0
Stage 1	80	-	-	-	-	-
Stage 2	52	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	862	980	-	-	1460	-
Stage 1	943	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	850	980	-	-	1460	-
Mov Cap-2 Maneuver	850	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.1	0		4.7		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	878	1460	-	
HCM Lane V/C Ratio	-	-	0.331	0.014	-	
HCM Control Delay (s)	-	-	11.1	7.5	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	1.5	0	-	

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	83	3	19	247	4	6
Future Vol, veh/h	83	3	19	247	4	6
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	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	95	3	22	284	5	7
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	98	0	425	97
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	328	-
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	-	586	959
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	730	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1495	-	576	959
Mov Cap-2 Maneuver	-	-	-	-	576	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	718	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.5		9.8	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	758	-	-	1495	-	
HCM Lane V/C Ratio	0.015	-	-	0.015	-	
HCM Control Delay (s)	9.8	-	-	7.4	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection	
Intersection Delay, s/veh	24.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↱	↱			↔		↱	↱	
Traffic Vol, veh/h	0	92	4	194	230	0	22	0	500	55	42	20
Future Vol, veh/h	0	92	4	194	230	0	22	0	500	55	42	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	96	4	202	240	0	23	0	521	57	44	21
Number of Lanes	0	1	0	1	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	12.6	15.2	37.7	11.2
HCM LOS	B	C	E	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	4%	0%	100%	0%	100%	0%
Vol Thru, %	0%	96%	0%	100%	0%	68%
Vol Right, %	96%	4%	0%	0%	0%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	522	96	194	230	55	62
LT Vol	22	0	194	0	55	0
Through Vol	0	92	0	230	0	42
RT Vol	500	4	0	0	0	20
Lane Flow Rate	544	100	202	240	57	65
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.882	0.211	0.414	0.457	0.124	0.127
Departure Headway (Hd)	5.838	7.596	7.384	6.874	7.801	7.056
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	614	474	491	527	461	510
Service Time	3.935	5.613	5.084	4.574	5.525	4.779
HCM Lane V/C Ratio	0.886	0.211	0.411	0.455	0.124	0.127
HCM Control Delay	37.7	12.6	15.2	15.2	11.6	10.8
HCM Lane LOS	E	B	C	C	B	B
HCM 95th-tile Q	10.4	0.8	2	2.4	0.4	0.4

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕↕		↔	↕↕
Traffic Vol, veh/h	3	38	681	24	14	628
Future Vol, veh/h	3	38	681	24	14	628
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	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	42	748	26	15	690
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1136	387	0	0	774	0
Stage 1	761	-	-	-	-	-
Stage 2	375	-	-	-	-	-
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	196	611	-	-	837	-
Stage 1	422	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	192	611	-	-	837	-
Mov Cap-2 Maneuver	315	-	-	-	-	-
Stage 1	422	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.8	0		0.2		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	572	837	-	
HCM Lane V/C Ratio	-	-	0.079	0.018	-	
HCM Control Delay (s)	-	-	11.8	9.4	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-	

Intersection												
Int Delay, s/veh	100.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	905	56	83	1115	33	20	6	98	18	8	94
Future Vol, veh/h	29	905	56	83	1115	33	20	6	98	18	8	94
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	943	58	86	1161	34	21	6	102	19	8	98
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1195	0	0	1001	0	0	2435	2399	972	2436	2411	1178
Stage 1	-	-	-	-	-	-	1032	1032	-	1350	1350	-
Stage 2	-	-	-	-	-	-	1403	1367	-	1086	1061	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	584	-	-	692	-	-	22	33	306	22	33	232
Stage 1	-	-	-	-	-	-	281	310	-	186	219	-
Stage 2	-	-	-	-	-	-	173	215	-	262	300	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	584	-	-	692	-	-	~ 8	27	306	~ 11	27	232
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 8	27	-	~ 11	27	-
Stage 1	-	-	-	-	-	-	267	294	-	177	192	-
Stage 2	-	-	-	-	-	-	84	188	-	162	285	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.7			\$ 1175.5			\$ 831.5		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	41	584	-	-	692	-	-	51				
HCM Lane V/C Ratio	3.15	0.052	-	-	0.125	-	-	2.451				
HCM Control Delay (s)	\$ 1175.5	11.5	-	-	10.9	-	-	\$ 831.5				
HCM Lane LOS	F	B	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	14.4	0.2	-	-	0.4	-	-	12.9				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

Intersection												
Int Delay, s/veh	13.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	157	895	28	27	1108	355	1	1	55	10	6	206
Future Vol, veh/h	157	895	28	27	1108	355	1	1	55	10	6	206
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	162	923	29	28	1142	366	1	1	57	10	6	212
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1508	0	0	952	0	0	2752	2826	938	2672	2657	1325
Stage 1	-	-	-	-	-	-	1262	1262	-	1381	1381	-
Stage 2	-	-	-	-	-	-	1490	1564	-	1291	1276	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	444	-	-	722	-	-	13	18	321	15	23	~ 190
Stage 1	-	-	-	-	-	-	208	241	-	178	211	-
Stage 2	-	-	-	-	-	-	154	172	-	201	238	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	444	-	-	722	-	-	-	11	321	~ 8	14	~ 190
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	11	-	~ 8	14	-
Stage 1	-	-	-	-	-	-	132	153	-	113	203	-
Stage 2	-	-	-	-	-	-	-	165	-	104	151	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.6			0.2			18.6			151.6		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	321	444	-	-	722	-	-	190				
HCM Lane V/C Ratio	0.177	0.365	-	-	0.039	-	-	1.118				
HCM Control Delay (s)	18.6	17.7	-	-	10.2	-	-	151.6				
HCM Lane LOS	C	C	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	0.6	1.6	-	-	0.1	-	-	10.4				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Timings

Build Out 2024 Total AM.syn

1: US 377 & SH 114 EBFR

										
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT	Ø5	Ø6	Ø8
Lane Configurations										
Traffic Volume (vph)	264	2040	127	722	162	775	466			
Future Volume (vph)	264	2040	127	722	162	775	466			
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA			
Protected Phases		4		2		1	1 2	5	6	8
Permitted Phases	4		4		2					
Detector Phase	4	4	4	2	2	1	1 2			
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	10.0	10.0	7.0		7.0	10.0	20.0
Minimum Split (s)	26.7	26.7	26.7	15.7	15.7	12.0		12.0	15.7	26.7
Total Split (s)	91.7	91.7	91.7	35.7	35.7	40.0		35.0	40.7	91.7
Total Split (%)	54.8%	54.8%	54.8%	21.3%	21.3%	23.9%		21%	24%	55%
Yellow Time (s)	5.0	5.0	5.0	4.7	4.7	3.6		3.6	4.7	5.0
All-Red Time (s)	1.7	1.7	1.7	1.0	1.0	1.4		1.4	1.0	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	6.7	6.7	6.7	5.7	5.7	5.0				
Lead/Lag				Lead	Lead	Lag		Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None		None	None	None
Act Effect Green (s)	85.0	85.0	85.0	29.5	29.5	35.0	70.2			
Actuated g/C Ratio	0.51	0.51	0.51	0.18	0.18	0.21	0.42			
v/c Ratio	0.30	1.17	0.16	0.83	0.51	1.11	0.61			
Control Delay	25.0	119.0	13.9	75.2	46.5	84.5	7.2			
Queue Delay	0.0	0.0	0.0	50.3	0.0	1.2	44.8			
Total Delay	25.0	119.0	13.9	125.5	46.5	85.6	52.0			
LOS	C	F	B	F	D	F	D			
Approach Delay		103.3		111.1			73.0			
Approach LOS		F		F			E			

Intersection Summary

Cycle Length: 167.4

Actuated Cycle Length: 166.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.40

Intersection Signal Delay: 96.5

Intersection LOS: F

Intersection Capacity Utilization 107.0%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: US 377 & SH 114 EBFR

#1  35.7 s	#1  40 s	#1  91.7 s
#2  40.7 s	#2  35 s	#2  91.7 s

Timings 2: US 377 & SH 114 WBFR

Build Out 2024 Total AM.syn

									
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR	Ø1	Ø2	Ø4
Lane Configurations									
Traffic Volume (vph)	56	1693	153	981	1183	203			
Future Volume (vph)	56	1693	153	981	1183	203			
Turn Type	Perm	NA	Prot	NA	NA	Perm			
Protected Phases		8	5	5 6	6		1	2	4
Permitted Phases	8					6			
Detector Phase	8	8	5	5 6	6	6			
Switch Phase									
Minimum Initial (s)	20.0	20.0	7.0		10.0	10.0	7.0	10.0	20.0
Minimum Split (s)	26.7	26.7	12.0		15.7	15.7	12.0	15.7	26.7
Total Split (s)	91.7	91.7	35.0		40.7	40.7	40.0	35.7	91.7
Total Split (%)	54.8%	54.8%	20.9%		24.3%	24.3%	24%	21%	55%
Yellow Time (s)	5.0	5.0	3.6		4.7	4.7	3.6	4.7	5.0
All-Red Time (s)	1.7	1.7	1.4		1.0	1.0	1.4	1.0	1.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0			
Total Lost Time (s)	6.7	6.7	5.0		5.7	5.7			
Lead/Lag			Lag		Lead	Lead	Lag	Lead	
Lead-Lag Optimize?			Yes		Yes	Yes	Yes	Yes	
Recall Mode	None	None	None		None	None	None	None	None
Act Effect Green (s)	85.0	85.0	29.5	70.2	35.0	35.0			
Actuated g/C Ratio	0.51	0.51	0.18	0.42	0.21	0.21			
v/c Ratio	0.06	1.40	0.52	0.69	1.17	0.53			
Control Delay	21.3	217.6	58.1	31.4	141.3	37.1			
Queue Delay	0.0	0.0	0.0	50.7	1.1	0.0			
Total Delay	21.3	217.6	58.1	82.1	142.4	37.1			
LOS	C	F	E	F	F	D			
Approach Delay		213.3		78.9	127.0				
Approach LOS		F		E	F				

Intersection Summary

Cycle Length: 167.4

Actuated Cycle Length: 166.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.40

Intersection Signal Delay: 156.8

Intersection LOS: F

Intersection Capacity Utilization 107.0%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 2: US 377 & SH 114 WBFR

#1 	#1 	#1 
35.7 s	40 s	91.7 s
#2 	#2 	#2 
40.7 s	35 s	91.7 s

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	0	0	82	11
Future Vol, veh/h	0	20	0	0	82	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	23	0	0	94	13
Major/Minor	Minor2		Major2			
Conflicting Flow All	-	54	-	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	1002	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	1002	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		SB			
HCM Control Delay, s	8.7		0			
HCM LOS	A					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	1002	-	-			
HCM Lane V/C Ratio	0.023	-	-			
HCM Control Delay (s)	8.7	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	0.1	-	-			

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	42	18	0	4	16	0	0	0	0	8	0	21
Future Vol, veh/h	42	18	0	4	16	0	0	0	0	8	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	54	54	54	54	54	54	54	54	54	54	54	54
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	33	0	7	30	0	0	0	0	15	0	39
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	30	0	0	33	0	0	253	233	33	233	233	30
Stage 1	-	-	-	-	-	-	189	189	-	44	44	-
Stage 2	-	-	-	-	-	-	64	44	-	189	189	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1583	-	-	1579	-	-	700	667	1041	722	667	1044
Stage 1	-	-	-	-	-	-	813	744	-	970	858	-
Stage 2	-	-	-	-	-	-	947	858	-	813	744	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1583	-	-	1579	-	-	645	630	1041	692	630	1044
Mov Cap-2 Maneuver	-	-	-	-	-	-	645	630	-	692	630	-
Stage 1	-	-	-	-	-	-	772	707	-	922	854	-
Stage 2	-	-	-	-	-	-	907	854	-	772	707	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.2			1.5			0			9.2		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1583	-	-	1579	-	-	916				
HCM Lane V/C Ratio	-	0.049	-	-	0.005	-	-	0.059				
HCM Control Delay (s)	0	7.4	0	-	7.3	0	-	9.2				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	0.2				

Intersection						
Int Delay, s/veh	4.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	28	4	17	27	18	30
Future Vol, veh/h	28	4	17	27	18	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	68	68	68	68	68	68
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	6	25	40	26	44
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	47	0	134	44
Stage 1	-	-	-	-	44	-
Stage 2	-	-	-	-	90	-
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	-	-	1560	-	860	1026
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	934	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1560	-	846	1026
Mov Cap-2 Maneuver	-	-	-	-	846	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	919	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	2.8		9.1		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	950	-	-	1560	-	
HCM Lane V/C Ratio	0.074	-	-	0.016	-	
HCM Control Delay (s)	9.1	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0	-	

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	9	1	6	59	0	4	42	4	0	16	7
Future Vol, veh/h	1	9	1	6	59	0	4	42	4	0	16	7
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	12	1	8	76	0	5	54	5	0	21	9
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	131	95	26	99	97	57	30	0	0	59	0	0
Stage 1	26	26	-	67	67	-	-	-	-	-	-	-
Stage 2	105	69	-	32	30	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	841	795	1050	883	793	1009	1583	-	-	1545	-	-
Stage 1	992	874	-	943	839	-	-	-	-	-	-	-
Stage 2	901	837	-	984	870	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	778	793	1050	870	791	1009	1583	-	-	1545	-	-
Mov Cap-2 Maneuver	778	793	-	870	791	-	-	-	-	-	-	-
Stage 1	989	874	-	940	836	-	-	-	-	-	-	-
Stage 2	817	834	-	970	870	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.5		10			0.6			0			
HCM LOS	A		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1583	-	-	810	798	1545	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.017	0.104	-	-	-				
HCM Control Delay (s)	7.3	0	-	9.5	10	0	-	-				
HCM Lane LOS	A	A	-	A	B	A	-	-				
HCM 95th %tile O(veh)	0	-	-	0.1	0.3	0	-	-				

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	122	0	25	0	41	115	16	17	0
Future Vol, veh/h	0	0	0	122	0	25	0	41	115	16	17	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	149	0	30	0	50	140	20	21	0
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	196	251	21	181	181	120	21	0	0	190	0	0
Stage 1	61	61	-	120	120	-	-	-	-	-	-	-
Stage 2	135	190	-	61	61	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	763	652	1056	781	713	931	1595	-	-	1384	-	-
Stage 1	950	844	-	884	796	-	-	-	-	-	-	-
Stage 2	868	743	-	950	844	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	729	642	1056	772	702	931	1595	-	-	1384	-	-
Mov Cap-2 Maneuver	729	642	-	772	702	-	-	-	-	-	-	-
Stage 1	950	831	-	884	796	-	-	-	-	-	-	-
Stage 2	840	743	-	936	831	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0		10.8			0			3.7			
HCM LOS	A		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1595	-	-	-	795	1384	-	-				
HCM Lane V/C Ratio	-	-	-	-	0.225	0.014	-	-				
HCM Control Delay (s)	0	-	-	0	10.8	7.6	0	-				
HCM Lane LOS	A	-	-	A	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	-	0.9	0	-	-				

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	127	4	6	130	2	8	0	7	0	0	9
Future Vol, veh/h	0	127	4	6	130	2	8	0	7	0	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	159	5	8	163	3	10	0	9	0	0	11
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	166	0	0	164	0	0	348	344	162	347	345	165
Stage 1	-	-	-	-	-	-	162	162	-	181	181	-
Stage 2	-	-	-	-	-	-	186	182	-	166	164	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1412	-	-	1414	-	-	607	579	883	607	578	879
Stage 1	-	-	-	-	-	-	840	764	-	821	750	-
Stage 2	-	-	-	-	-	-	816	749	-	836	762	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1412	-	-	1414	-	-	597	576	883	599	575	879
Mov Cap-2 Maneuver	-	-	-	-	-	-	597	576	-	599	575	-
Stage 1	-	-	-	-	-	-	840	764	-	821	746	-
Stage 2	-	-	-	-	-	-	801	745	-	828	762	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.3			10.3			9.1		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	703	1412	-	-	1414	-	-	879				
HCM Lane V/C Ratio	0.027	-	-	-	0.005	-	-	0.013				
HCM Control Delay (s)	10.3	0	-	-	7.6	0	-	9.1				
HCM Lane LOS	B	A	-	-	A	A	-	A				
HCM 95th %tile O(veh)	0.1	0	-	-	0	-	-	0				

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↱	↱			↱		↱	↱	
Traffic Vol, veh/h	0	137	0	161	100	0	11	0	201	54	29	6
Future Vol, veh/h	0	137	0	161	100	0	11	0	201	54	29	6
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	154	0	181	112	0	12	0	226	61	33	7
Number of Lanes	0	1	0	1	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	11.1	11	11.5	9.9
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	5%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	100%	0%	83%
Vol Right, %	95%	0%	0%	0%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	212	137	161	100	54	35
LT Vol	11	0	161	0	54	0
Through Vol	0	137	0	100	0	29
RT Vol	201	0	0	0	0	6
Lane Flow Rate	238	154	181	112	61	39
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.36	0.257	0.314	0.179	0.113	0.066
Departure Headway (Hd)	5.44	6	6.255	5.75	6.699	6.07
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	662	599	575	625	536	590
Service Time	3.468	4.028	3.98	3.475	4.433	3.804
HCM Lane V/C Ratio	0.36	0.257	0.315	0.179	0.114	0.066
HCM Control Delay	11.5	11.1	11.8	9.7	10.3	9.2
HCM Lane LOS	B	B	B	A	B	A
HCM 95th-tile Q	1.6	1	1.3	0.6	0.4	0.2

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	51	840	20	14	431
Future Vol, veh/h	32	51	840	20	14	431
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	-	-	-	200	-
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	35	55	913	22	15	468
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1188	468	0	0	935	0
Stage 1	924	-	-	-	-	-
Stage 2	264	-	-	-	-	-
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	181	542	-	-	728	-
Stage 1	347	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	177	542	-	-	728	-
Mov Cap-2 Maneuver	281	-	-	-	-	-
Stage 1	347	-	-	-	-	-
Stage 2	740	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	16.6	0		0.3		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	399	728	-	
HCM Lane V/C Ratio	-	-	0.226	0.021	-	
HCM Control Delay (s)	-	-	16.6	10.1	-	
HCM Lane LOS	-	-	C	B	-	
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-	

Intersection												
Int Delay, s/veh	214.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	67	1171	116	103	456	38	21	19	96	52	7	36
Future Vol, veh/h	67	1171	116	103	456	38	21	19	96	52	7	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	1233	122	108	480	40	22	20	101	55	7	38
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	520	0	0	1355	0	0	2175	2172	1294	2213	2213	500
Stage 1	-	-	-	-	-	-	1436	1436	-	716	716	-
Stage 2	-	-	-	-	-	-	739	736	-	1497	1497	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1046	-	-	508	-	-	33	47	199	~ 31	44	571
Stage 1	-	-	-	-	-	-	166	199	-	421	434	-
Stage 2	-	-	-	-	-	-	409	425	-	153	186	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1046	-	-	508	-	-	~ 20	34	199	~ 7	32	571
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 20	34	-	~ 7	32	-
Stage 1	-	-	-	-	-	-	155	185	-	392	342	-
Stage 2	-	-	-	-	-	-	294	334	-	63	173	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			2.4			\$ 688.8			\$ 3916.5		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	65	1046	-	-	508	-	-	12				
HCM Lane V/C Ratio	2.202	0.067	-	-	0.213	-	-	8.333				
HCM Control Delay (s)	\$ 688.8	8.7	-	-	14	-	-	\$ 3916.5				
HCM Lane LOS	F	A	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	13.7	0.2	-	-	0.8	-	-	13.7				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	120	1155	11	10	509	86	0	6	51	11	4	176
Future Vol, veh/h	120	1155	11	10	509	86	0	6	51	11	4	176
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	124	1191	11	10	525	89	0	6	53	11	4	181
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	614	0	0	1202	0	0	-	2079	1197	2064	2040	570
Stage 1	-	-	-	-	-	-	-	1445	-	590	590	-
Stage 2	-	-	-	-	-	-	-	634	-	1474	1450	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	965	-	-	581	-	-	0	53	226	40	57	521
Stage 1	-	-	-	-	-	-	0	197	-	494	495	-
Stage 2	-	-	-	-	-	-	0	473	-	158	196	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	965	-	-	581	-	-	-	45	226	25	49	521
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	45	-	25	49	-
Stage 1	-	-	-	-	-	-	-	172	-	431	487	-
Stage 2	-	-	-	-	-	-	-	465	-	102	171	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0.2			25.7			15.6		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	226	965	-	-	581	-	-	521				
HCM Lane V/C Ratio	0.233	0.128	-	-	0.018	-	-	0.348				
HCM Control Delay (s)	25.7	9.3	-	-	11.3	-	-	15.6				
HCM Lane LOS	D	A	-	-	B	-	-	C				
HCM 95th %tile Q(veh)	0.9	0.4	-	-	0.1	-	-	1.5				

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	0	0	86	15
Future Vol, veh/h	0	6	0	0	86	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	0	0	93	16
Major/Minor	Minor2		Major2			
Conflicting Flow All	-	55	-	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	1000	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	1000	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		SB			
HCM Control Delay, s	8.6		0			
HCM LOS	A					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	1000	-	-			
HCM Lane V/C Ratio	0.007	-	-			
HCM Control Delay (s)	8.6	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	0	-	-			

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	133	110	7	2	30
Future Vol, veh/h	2	133	110	7	2	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	2	145	120	8	2	33

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	128	0	0 273 124
Stage 1	-	-	- 124 -
Stage 2	-	-	- 149 -
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	1458	-	- 716 927
Stage 1	-	-	- 902 -
Stage 2	-	-	- 879 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1458	-	- 715 927
Mov Cap-2 Maneuver	-	-	- 715 -
Stage 1	-	-	- 901 -
Stage 2	-	-	- 879 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1458	-	-	-	910
HCM Lane V/C Ratio	0.001	-	-	-	0.038
HCM Control Delay (s)	7.5	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Timings

Build Out 2024 Total PM.syn

1: US 377 & SH 114 EBFR

								Ø5	Ø6	Ø8
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT			
Lane Configurations										
Traffic Volume (vph)	377	1716	144	764	76	470	512			
Future Volume (vph)	377	1716	144	764	76	470	512			
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA			
Protected Phases		4		2		1	1 2	5	6	8
Permitted Phases	4		4		2					
Detector Phase	4	4	4	2	2	1	1 2			
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	10.0	10.0	7.0		7.0	10.0	20.0
Minimum Split (s)	26.7	26.7	26.7	15.7	15.7	12.0		12.0	15.7	26.7
Total Split (s)	106.7	106.7	106.7	50.7	50.7	55.0		55.0	50.7	106.7
Total Split (%)	50.2%	50.2%	50.2%	23.9%	23.9%	25.9%		26%	24%	50%
Yellow Time (s)	5.0	5.0	5.0	4.7	4.7	3.6		3.6	4.7	5.0
All-Red Time (s)	1.7	1.7	1.7	1.0	1.0	1.4		1.4	1.0	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	6.7	6.7	6.7	5.7	5.7	5.0				
Lead/Lag				Lead	Lead	Lag		Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None		None	None	None
Act Effect Green (s)	100.2	100.2	100.2	42.8	42.8	32.3	80.8			
Actuated g/C Ratio	0.52	0.52	0.52	0.22	0.22	0.17	0.42			
v/c Ratio	0.42	0.95	0.17	0.69	0.20	0.84	0.67			
Control Delay	31.2	56.5	19.2	72.8	30.0	45.9	10.3			
Queue Delay	0.0	0.0	0.0	1.9	0.0	0.3	3.6			
Total Delay	31.2	56.5	19.2	74.6	30.0	46.2	13.9			
LOS	C	E	B	E	C	D	B			
Approach Delay		49.8		70.6			29.4			
Approach LOS		D		E			C			

Intersection Summary

Cycle Length: 212.4

Actuated Cycle Length: 192.7

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.31

Intersection Signal Delay: 49.2

Intersection LOS: D

Intersection Capacity Utilization 90.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: US 377 & SH 114 EBFR

#1 	#1 	#1
50.7 s	55 s	106.7 s
#2 	#2 	#2
50.7 s	55 s	106.7 s

Timings 2: US 377 & SH 114 WBFR

Build Out 2024 Total PM.syn

									
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR	Ø1	Ø2	Ø4
Lane Configurations									
Traffic Volume (vph)	62	1691	183	938	1128	289			
Future Volume (vph)	62	1691	183	938	1128	289			
Turn Type	Perm	NA	Prot	NA	NA	Perm			
Protected Phases		8	5	5 6	6		1	2	4
Permitted Phases	8					6			
Detector Phase	8	8	5	5 6	6	6			
Switch Phase									
Minimum Initial (s)	20.0	20.0	7.0		10.0	10.0	7.0	10.0	20.0
Minimum Split (s)	26.7	26.7	12.0		15.7	15.7	12.0	15.7	26.7
Total Split (s)	106.7	106.7	55.0		50.7	50.7	55.0	50.7	106.7
Total Split (%)	50.2%	50.2%	25.9%		23.9%	23.9%	26%	24%	50%
Yellow Time (s)	5.0	5.0	3.6		4.7	4.7	3.6	4.7	5.0
All-Red Time (s)	1.7	1.7	1.4		1.0	1.0	1.4	1.0	1.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0			
Total Lost Time (s)	6.7	6.7	5.0		5.7	5.7			
Lead/Lag			Lag		Lead	Lead	Lag	Lead	
Lead-Lag Optimize?			Yes		Yes	Yes	Yes	Yes	
Recall Mode	None	None	None		None	None	None	None	None
Act Effect Green (s)	100.2	100.2	30.0	80.8	45.1	45.1			
Actuated g/C Ratio	0.52	0.52	0.16	0.42	0.23	0.23			
v/c Ratio	0.07	1.31	0.69	0.66	0.99	0.64			
Control Delay	25.1	181.8	81.2	37.1	95.5	44.5			
Queue Delay	0.0	0.0	0.4	1.3	10.0	0.0			
Total Delay	25.1	181.8	81.6	38.4	105.5	44.5			
LOS	C	F	F	D	F	D			
Approach Delay		177.8		45.5	93.0				
Approach LOS		F		D	F				

Intersection Summary

Cycle Length: 212.4

Actuated Cycle Length: 192.7

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.31

Intersection Signal Delay: 121.3

Intersection LOS: F

Intersection Capacity Utilization 90.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: US 377 & SH 114 WBFR

#1 	#1 	#1 
50.7 s	55 s	106.7 s
#2 	#2 	#2 
50.7 s	55 s	106.7 s

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	27	0	0	138	20
Future Vol, veh/h	0	27	0	0	138	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	31	0	0	159	23

Major/Minor	Minor2	Major2
Conflicting Flow All	- 91	- 0
Stage 1	- -	- -
Stage 2	- -	- -
Critical Hdwy	- 6.94	- -
Critical Hdwy Stg 1	- -	- -
Critical Hdwy Stg 2	- -	- -
Follow-up Hdwy	- 3.32	- -
Pot Cap-1 Maneuver	0 949	- -
Stage 1	0 -	- -
Stage 2	0 -	- -
Platoon blocked, %		- -
Mov Cap-1 Maneuver	- 949	- -
Mov Cap-2 Maneuver	- -	- -
Stage 1	- -	- -
Stage 2	- -	- -

Approach	EB	SB
HCM Control Delay, s	8.9	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	949	-	-
HCM Lane V/C Ratio	0.033	-	-
HCM Control Delay (s)	8.9	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	29	19	0	13	15	4	0	0	0	4	0	18
Future Vol, veh/h	29	19	0	13	15	4	0	0	0	4	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	23	0	16	18	5	0	0	0	5	0	22
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	23	0	0	23	0	0	157	148	23	146	146	21
Stage 1	-	-	-	-	-	-	93	93	-	53	53	-
Stage 2	-	-	-	-	-	-	64	55	-	93	93	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1592	-	-	1592	-	-	809	743	1054	823	745	1056
Stage 1	-	-	-	-	-	-	914	818	-	960	851	-
Stage 2	-	-	-	-	-	-	947	849	-	914	818	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1592	-	-	1592	-	-	773	719	1054	803	721	1056
Mov Cap-2 Maneuver	-	-	-	-	-	-	773	719	-	803	721	-
Stage 1	-	-	-	-	-	-	894	800	-	939	842	-
Stage 2	-	-	-	-	-	-	918	841	-	894	800	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.4			3			0			8.7		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1592	-	-	1592	-	-	999				
HCM Lane V/C Ratio	-	0.022	-	-	0.01	-	-	0.027				
HCM Control Delay (s)	0	7.3	0	-	7.3	0	-	8.7				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile O(veh)	-	0.1	-	-	0	-	-	0.1				

Intersection						
Int Delay, s/veh	4.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	23	4	12	25	18	27
Future Vol, veh/h	23	4	12	25	18	27
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	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	6	17	36	26	39
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	39	0	106	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	70	-
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	-	-	1571	-	892	1037
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	953	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1571	-	882	1037
Mov Cap-2 Maneuver	-	-	-	-	882	-
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	943	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.4		9	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	969	-	-	1571	-	
HCM Lane V/C Ratio	0.066	-	-	0.011	-	
HCM Control Delay (s)	9	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile O(veh)	0.2	-	-	0	-	

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	25	4	4	41	0	13	45	13	0	11	5
Future Vol, veh/h	1	25	4	4	41	0	13	45	13	0	11	5
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	29	5	5	47	0	15	52	15	0	13	6
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	129	113	16	123	109	60	19	0	0	67	0	0
Stage 1	16	16	-	90	90	-	-	-	-	-	-	-
Stage 2	113	97	-	33	19	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	844	777	1063	852	781	1005	1597	-	-	1535	-	-
Stage 1	1004	882	-	917	820	-	-	-	-	-	-	-
Stage 2	892	815	-	983	880	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	798	769	1063	818	773	1005	1597	-	-	1535	-	-
Mov Cap-2 Maneuver	798	769	-	818	773	-	-	-	-	-	-	-
Stage 1	994	882	-	908	812	-	-	-	-	-	-	-
Stage 2	832	807	-	947	880	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.7		10			1.3			0			
HCM LOS	A		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1597	-	-	799	777	1535	-	-				
HCM Lane V/C Ratio	0.009	-	-	0.043	0.067	-	-	-				
HCM Control Delay (s)	7.3	0	-	9.7	10	0	-	-				
HCM Lane LOS	A	A	-	A	B	A	-	-				
HCM 95th %tile O(veh)	0	-	-	0.1	0.2	0	-	-				

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	212	0	59	0	41	84	17	14	0
Future Vol, veh/h	0	0	0	212	0	59	0	41	84	17	14	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	216	0	60	0	42	86	17	14	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	163	176	14	133	133	85	14	0	0	128	0	0
Stage 1	48	48	-	85	85	-	-	-	-	-	-	-
Stage 2	115	128	-	48	48	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	802	717	1066	839	758	974	1604	-	-	1458	-	-
Stage 1	965	855	-	923	824	-	-	-	-	-	-	-
Stage 2	890	790	-	965	855	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	746	708	1066	831	749	974	1604	-	-	1458	-	-
Mov Cap-2 Maneuver	746	708	-	831	749	-	-	-	-	-	-	-
Stage 1	965	845	-	923	824	-	-	-	-	-	-	-
Stage 2	835	790	-	953	845	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0		11.2		0		4.1					
HCM LOS	A		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1604	-	-	-	858	1458	-	-				
HCM Lane V/C Ratio	-	-	-	-	0.322	0.012	-	-				
HCM Control Delay (s)	0	-	-	0	11.2	7.5	0	-				
HCM Lane LOS	A	-	-	A	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	-	1.4	0	-	-				

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	88	3	19	268	6	4	0	6	0	0	7
Future Vol, veh/h	1	88	3	19	268	6	4	0	6	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	101	3	22	308	7	5	0	7	0	0	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	315	0	0	104	0	0	465	464	103	464	462	312
Stage 1	-	-	-	-	-	-	105	105	-	356	356	-
Stage 2	-	-	-	-	-	-	360	359	-	108	106	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1245	-	-	1488	-	-	508	495	952	508	497	728
Stage 1	-	-	-	-	-	-	901	808	-	661	629	-
Stage 2	-	-	-	-	-	-	658	627	-	897	807	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1245	-	-	1488	-	-	495	486	952	497	488	728
Mov Cap-2 Maneuver	-	-	-	-	-	-	495	486	-	497	488	-
Stage 1	-	-	-	-	-	-	900	807	-	660	618	-
Stage 2	-	-	-	-	-	-	639	616	-	890	806	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.5			10.3			10		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	695	1245	-	-	1488	-	-	728				
HCM Lane V/C Ratio	0.017	0.001	-	-	0.015	-	-	0.011				
HCM Control Delay (s)	10.3	7.9	0	-	7.5	0	-	10				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile O(veh)	0.1	0	-	-	0	-	-	0				

Intersection	
Intersection Delay, s/veh	28.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↱	↱			↰		↱	↰	
Traffic Vol, veh/h	0	93	4	194	237	0	40	0	500	57	44	20
Future Vol, veh/h	0	93	4	194	237	0	40	0	500	57	44	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	97	4	202	247	0	42	0	521	59	46	21
Number of Lanes	0	1	0	1	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	12.9	15.7	44.8	11.4
HCM LOS	B	C	E	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	7%	0%	100%	0%	100%	0%
Vol Thru, %	0%	96%	0%	100%	0%	69%
Vol Right, %	93%	4%	0%	0%	0%	31%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	540	97	194	237	57	64
LT Vol	40	0	194	0	57	0
Through Vol	0	93	0	237	0	44
RT Vol	500	4	0	0	0	20
Lane Flow Rate	562	101	202	247	59	67
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.924	0.217	0.421	0.479	0.13	0.133
Departure Headway (Hd)	6.019	7.736	7.491	6.981	7.9	7.161
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	608	466	483	518	455	501
Service Time	4.019	5.759	5.191	4.681	5.631	4.892
HCM Lane V/C Ratio	0.924	0.217	0.418	0.477	0.13	0.134
HCM Control Delay	44.8	12.9	15.5	15.9	11.8	11
HCM Lane LOS	E	B	C	C	B	B
HCM 95th-tile Q	11.8	0.8	2.1	2.6	0.4	0.5

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	67	681	49	14	628
Future Vol, veh/h	19	67	681	49	14	628
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	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	74	748	54	15	690
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1150	401	0	0	802	0
Stage 1	775	-	-	-	-	-
Stage 2	375	-	-	-	-	-
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	192	599	-	-	817	-
Stage 1	415	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	189	599	-	-	817	-
Mov Cap-2 Maneuver	311	-	-	-	-	-
Stage 1	415	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	13.9	0		0.2		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	497	817	-	
HCM Lane V/C Ratio	-	-	0.19	0.019	-	
HCM Control Delay (s)	-	-	13.9	9.5	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-	

Intersection												
Int Delay, s/veh	276.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	905	56	83	1117	39	20	13	98	42	12	97
Future Vol, veh/h	36	905	56	83	1117	39	20	13	98	42	12	97
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	943	58	86	1164	41	21	14	102	44	13	101
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1205	0	0	1001	0	0	2462	2425	972	2463	2434	1185
Stage 1	-	-	-	-	-	-	1048	1048	-	1357	1357	-
Stage 2	-	-	-	-	-	-	1414	1377	-	1106	1077	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	579	-	-	692	-	-	21	32	306	~ 21	32	230
Stage 1	-	-	-	-	-	-	275	305	-	184	217	-
Stage 2	-	-	-	-	-	-	171	212	-	255	295	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	579	-	-	692	-	-	~ 6	26	306	~ 7	26	230
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 6	26	-	~ 7	26	-
Stage 1	-	-	-	-	-	-	257	285	-	172	190	-
Stage 2	-	-	-	-	-	-	78	186	-	151	276	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.7			\$ 1721.1			\$ 3114.7		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	32	579	-	-	692	-	-	22				
HCM Lane V/C Ratio	4.264	0.065	-	-	0.125	-	-	7.15				
HCM Control Delay (s)	\$ 1721.1	11.6	-	-	10.9	-	-	\$ 3114.7				
HCM Lane LOS	F	B	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	16.2	0.2	-	-	0.4	-	-	19.9				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Intersection												
Int Delay, s/veh	14.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	157	920	28	27	1114	374	1	1	55	10	6	208
Future Vol, veh/h	157	920	28	27	1114	374	1	1	55	10	6	208
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	162	948	29	28	1148	386	1	1	57	10	6	214
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1534	0	0	977	0	0	2794	2877	963	2713	2698	1341
Stage 1	-	-	-	-	-	-	1287	1287	-	1397	1397	-
Stage 2	-	-	-	-	-	-	1507	1590	-	1316	1301	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	434	-	-	706	-	-	12	16	310	14	21	~ 186
Stage 1	-	-	-	-	-	-	202	235	-	175	208	-
Stage 2	-	-	-	-	-	-	151	167	-	194	231	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	434	-	-	706	-	-	-	10	310	~ 7	13	~ 186
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	10	-	~ 7	13	-
Stage 1	-	-	-	-	-	-	127	147	-	110	200	-
Stage 2	-	-	-	-	-	-	-	160	-	99	145	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.6			0.2			19.2			164.7		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	310	434	-	-	706	-	-	186				
HCM Lane V/C Ratio	0.183	0.373	-	-	0.039	-	-	1.153				
HCM Control Delay (s)	19.2	18.1	-	-	10.3	-	-	164.7				
HCM Lane LOS	C	C	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	0.7	1.7	-	-	0.1	-	-	10.9				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	0	0	121	44
Future Vol, veh/h	0	4	0	0	121	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	0	0	132	48
Major/Minor	Minor2		Major2			
Conflicting Flow All	-	90	-	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	950	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	950	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		SB			
HCM Control Delay, s	8.8		0			
HCM LOS	A					
Minor Lane/Major Mvmt	EBLn1	SBT	SBR			
Capacity (veh/h)	950	-	-			
HCM Lane V/C Ratio	0.005	-	-			
HCM Control Delay (s)	8.8	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	0	-	-			

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	89	279	19	2	21
Future Vol, veh/h	5	89	279	19	2	21
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	5	97	303	21	2	23
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	324	0	-	0	421	314
Stage 1	-	-	-	-	314	-
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	1236	-	-	-	589	726
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	917	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1236	-	-	-	587	726
Mov Cap-2 Maneuver	-	-	-	-	587	-
Stage 1	-	-	-	-	738	-
Stage 2	-	-	-	-	917	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		10.2		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1236	-	-	-	711	
HCM Lane V/C Ratio	0.004	-	-	-	0.035	
HCM Control Delay (s)	7.9	0	-	-	10.2	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↱	↱		↱	↱		↱	↱	
Traffic Vol, veh/h	0	134	0	161	97	0	4	0	201	51	27	6
Future Vol, veh/h	0	134	0	161	97	0	4	0	201	51	27	6
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	151	0	181	109	0	4	0	226	57	30	7
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	10.9	10.9	10.6	9.8
HCM LOS	B	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	0%	100%	0%	100%	0%	82%
Vol Right, %	0%	100%	0%	0%	0%	0%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	201	134	161	97	51	33
LT Vol	4	0	0	161	0	51	0
Through Vol	0	0	134	0	97	0	27
RT Vol	0	201	0	0	0	0	6
Lane Flow Rate	4	226	151	181	109	57	37
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.008	0.331	0.247	0.31	0.171	0.106	0.062
Departure Headway (Hd)	6.471	5.282	5.905	6.167	5.663	6.644	6.007
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	554	684	608	584	634	540	597
Service Time	4.198	2.982	3.935	3.893	3.389	4.377	3.74
HCM Lane V/C Ratio	0.007	0.33	0.248	0.31	0.172	0.106	0.062
HCM Control Delay	9.3	10.6	10.9	11.7	9.6	10.2	9.1
HCM Lane LOS	A	B	B	B	A	B	A
HCM 95th-tile Q	0	1.4	1	1.3	0.6	0.4	0.2

Timings

Build Out 2024 Background AM - mitigation.syn

12: Walnut St & Byron Nelson Blvd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	1171	116	103	453	35	21	17	96	17	1	32
Future Volume (vph)	65	1171	116	103	453	35	21	17	96	17	1	32
Adj. Flow (vph)	68	1233	122	108	477	37	22	18	101	18	1	34
Lane Group Flow (vph)	68	1355	0	108	514	0	0	141	0	0	53	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	15.0		10.0	15.0		15.0	15.0		15.0	15.0	
Total Split (s)	20.0	80.0		20.0	80.0		30.0	30.0		30.0	30.0	
Total Split (%)	15.4%	61.5%		15.4%	61.5%		23.1%	23.1%		23.1%	23.1%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Min		None	Min		None	None		None	None	
Act Effect Green (s)	84.6	75.1		83.5	79.4			11.4			11.4	
Actuated g/C Ratio	0.77	0.68		0.76	0.72			0.10			0.10	
v/c Ratio	0.10	1.08		0.54	0.39			0.58			0.34	
Control Delay	2.8	69.1		27.1	7.6			30.1			29.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.8	69.1		27.1	7.6			30.1			29.0	
LOS	A	E		C	A			C			C	
Approach Delay		66.0			11.0			30.1			29.0	
Approach LOS		E			B			C			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 110

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 47.5

Intersection LOS: D

Intersection Capacity Utilization 95.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 12: Walnut St & Byron Nelson Blvd

 Ø1	 Ø2	 Ø4
20 s	80 s	30 s
 Ø5	 Ø6	 Ø8
20 s	80 s	30 s

Timings
13: SH 114 EBFR & Byron Nelson Blvd

Build Out 2024 Background AM - mitigation.syn

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1120	11	10	507	79	0	6	51	11	4	174
Future Volume (vph)	120	1120	11	10	507	79	0	6	51	11	4	174
Adj. Flow (vph)	124	1155	11	10	523	81	0	6	53	11	4	179
Lane Group Flow (vph)	124	1166	0	10	604	0	0	59	0	0	194	0
Turn Type	D.P+P	NA		D.P+P	NA			NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	6			2			8			4		
Detector Phase	5	2		1	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	15.0		10.0	15.0		15.0	15.0		15.0	15.0	
Total Split (s)	20.0	60.0		20.0	60.0		30.0	30.0		30.0	30.0	
Total Split (%)	18.2%	54.5%		18.2%	54.5%		27.3%	27.3%		27.3%	27.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Min		None	Min		None	None		None	None	
Act Effect Green (s)	52.1	55.3		56.3	45.1			10.5			10.5	
Actuated g/C Ratio	0.67	0.71		0.72	0.58			0.14			0.14	
v/c Ratio	0.24	0.88		0.05	0.57			0.22			0.52	
Control Delay	4.3	20.1		3.3	12.8			13.6			12.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.3	20.1		3.3	12.8			13.6			12.5	
LOS	A	C		A	B			B			B	
Approach Delay		18.6			12.6			13.6			12.5	
Approach LOS		B			B			B			B	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 77.7

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 16.2

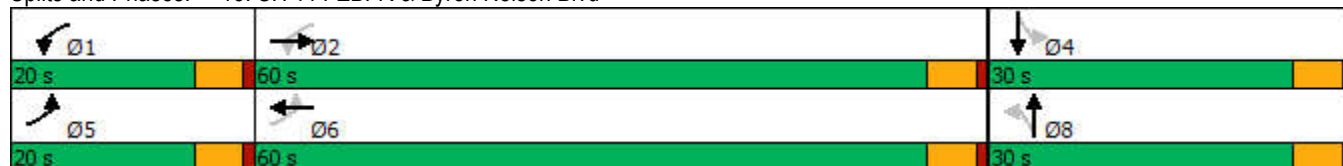
Intersection LOS: B

Intersection Capacity Utilization 94.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 13: SH 114 EBFR & Byron Nelson Blvd



Intersection	
Intersection Delay, s/veh	21.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	92	4	194	230	0	22	0	500	55	42	20
Future Vol, veh/h	0	92	4	194	230	0	22	0	500	55	42	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	96	4	202	240	0	23	0	521	57	44	21
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	12.4	14.8	30	11.1
HCM LOS	B	B	D	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	0%	96%	0%	100%	0%	68%
Vol Right, %	0%	100%	4%	0%	0%	0%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	500	96	194	230	55	62
LT Vol	22	0	0	194	0	55	0
Through Vol	0	0	92	0	230	0	42
RT Vol	0	500	4	0	0	0	20
Lane Flow Rate	23	521	100	202	240	57	65
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.044	0.832	0.207	0.404	0.445	0.123	0.126
Departure Headway (Hd)	6.974	5.753	7.463	7.198	6.69	7.755	7.009
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	510	625	483	497	534	465	514
Service Time	4.76	3.539	5.469	4.991	4.483	5.461	4.715
HCM Lane V/C Ratio	0.045	0.834	0.207	0.406	0.449	0.123	0.126
HCM Control Delay	10.1	30.9	12.4	14.8	14.8	11.5	10.7
HCM Lane LOS	B	D	B	B	B	B	B
HCM 95th-tile Q	0.1	8.8	0.8	1.9	2.3	0.4	0.4

Timings

Build Out 2024 Background PM - mitigation.syn

12: Walnut St & Byron Nelson Blvd

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	905	56	83	1115	33	20	6	98	18	8	94
Future Volume (vph)	29	905	56	83	1115	33	20	6	98	18	8	94
Adj. Flow (vph)	30	943	58	86	1161	34	21	6	102	19	8	98
Lane Group Flow (vph)	30	1001	0	86	1195	0	0	129	0	0	125	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	15.0		10.0	15.0		15.0	15.0		15.0	15.0	
Total Split (s)	20.0	80.0		20.0	80.0		30.0	30.0		30.0	30.0	
Total Split (%)	15.4%	61.5%		15.4%	61.5%		23.1%	23.1%		23.1%	23.1%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Min		None	Min		None	None		None	None	
Act Effect Green (s)	80.3	73.1		79.2	76.8			10.7			10.7	
Actuated g/C Ratio	0.77	0.70		0.76	0.74			0.10			0.10	
v/c Ratio	0.15	0.77		0.26	0.87			0.55			0.53	
Control Delay	3.9	16.5		4.3	20.5			23.5			23.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	3.9	16.5		4.3	20.5			23.5			23.4	
LOS	A	B		A	C			C			C	
Approach Delay		16.1			19.4			23.5			23.4	
Approach LOS		B			B			C			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 103.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 18.5

Intersection LOS: B

Intersection Capacity Utilization 87.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 12: Walnut St & Byron Nelson Blvd

		
Ø1	Ø2	Ø4
20 s	80 s	30 s
		
Ø5	Ø6	Ø8
20 s	80 s	30 s

Timings
13: SH 114 EBFR & Byron Nelson Blvd

Build Out 2024 Background PM - mitigation.syn

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	895	28	27	1108	355	1	1	55	10	6	206
Future Volume (vph)	157	895	28	27	1108	355	1	1	55	10	6	206
Adj. Flow (vph)	162	923	29	28	1142	366	1	1	57	10	6	212
Lane Group Flow (vph)	162	952	0	28	1508	0	0	59	0	0	228	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	6			2			8			4		
Detector Phase	5	2		1	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	15.0		10.0	15.0		15.0	15.0		15.0	15.0	
Total Split (s)	20.0	130.0		20.0	130.0		20.0	20.0		20.0	20.0	
Total Split (%)	11.8%	76.5%		11.8%	76.5%		11.8%	11.8%		11.8%	11.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Min		None	Min		None	None		None	None	
Act Effect Green (s)	138.8	137.3		140.9	125.0			11.3			11.3	
Actuated g/C Ratio	0.84	0.83		0.85	0.76			0.07			0.07	
v/c Ratio	0.85	0.62		0.06	1.10			0.37			0.75	
Control Delay	84.5	7.7		1.9	79.2			23.8			26.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	84.5	7.7		1.9	79.2			23.8			26.8	
LOS	F	A		A	E			C			C	
Approach Delay		18.9			77.8			23.8			26.8	
Approach LOS		B			E			C			C	

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 165.1

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 50.4

Intersection LOS: D

Intersection Capacity Utilization 120.4%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 13: SH 114 EBFR & Byron Nelson Blvd

 Ø1	 Ø2	 Ø4
20 s	130 s	20 s
 Ø5	 Ø6	 Ø8
20 s	130 s	20 s

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↱	↱		↱	↱		↱	↱	
Traffic Vol, veh/h	0	137	0	161	100	0	11	0	201	54	29	6
Future Vol, veh/h	0	137	0	161	100	0	11	0	201	54	29	6
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	154	0	181	112	0	12	0	226	61	33	7
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

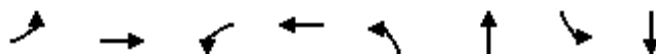
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	11	11	10.5	9.9
HCM LOS	B	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	0%	100%	0%	100%	0%	83%
Vol Right, %	0%	100%	0%	0%	0%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	201	137	161	100	54	35
LT Vol	11	0	0	161	0	54	0
Through Vol	0	0	137	0	100	0	29
RT Vol	0	201	0	0	0	0	6
Lane Flow Rate	12	226	154	181	112	61	39
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.022	0.332	0.255	0.312	0.178	0.113	0.066
Departure Headway (Hd)	6.507	5.291	5.955	6.217	5.713	6.687	6.057
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	551	680	603	579	629	536	591
Service Time	4.237	3.021	3.985	3.944	3.439	4.421	3.791
HCM Lane V/C Ratio	0.022	0.332	0.255	0.313	0.178	0.114	0.066
HCM Control Delay	9.4	10.6	11	11.8	9.7	10.3	9.2
HCM Lane LOS	A	B	B	B	A	B	A
HCM 95th-tile Q	0.1	1.5	1	1.3	0.6	0.4	0.2

Timings

Build Out 2024 Total AM - mitigation.syn

12: Walnut St & Byron Nelson Blvd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	67	1171	103	456	21	19	52	7
Future Volume (vph)	67	1171	103	456	21	19	52	7
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	84.0	10.0	84.0	16.0	16.0	16.0	16.0
Total Split (%)	9.1%	76.4%	9.1%	76.4%	14.5%	14.5%	14.5%	14.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0		5.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	84.0	79.0	85.0	81.0		11.0		11.0
Actuated g/C Ratio	0.76	0.72	0.77	0.74		0.10		0.10
v/c Ratio	0.11	1.02	0.74	0.38		0.61		0.93
Control Delay	2.6	48.1	48.2	6.5		32.4		109.3
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	2.6	48.1	48.2	6.5		32.4		109.3
LOS	A	D	D	A		C		F
Approach Delay		45.9		13.7		32.4		109.3
Approach LOS		D		B		C		F

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 39.0

Intersection LOS: D

Intersection Capacity Utilization 99.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 12: Walnut St & Byron Nelson Blvd

Ø2	Ø3	Ø4
16 s	10 s	84 s
Ø6	Ø7	Ø8
16 s	10 s	84 s

Timings
13: SH 114 EBFR & Byron Nelson Blvd

Build Out 2024 Total AM - mitigation.syn

							
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	120	1155	10	509	6	11	4
Future Volume (vph)	120	1155	10	509	6	11	4
Turn Type	pm+pt	NA	pm+pt	NA	NA	Perm	NA
Protected Phases	7	4	3	8	2		6
Permitted Phases	4		8			6	
Detector Phase	7	4	3	8	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	15.0	120.0	15.0	120.0	25.0	25.0	25.0
Total Split (%)	9.4%	75.0%	9.4%	75.0%	15.6%	15.6%	15.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Recall Mode	None	None	None	None	Min	Min	Min
Act Effect Green (s)	71.4	69.4	62.2	55.2	9.2		9.2
Actuated g/C Ratio	0.76	0.74	0.66	0.59	0.10		0.10
v/c Ratio	0.22	0.87	0.04	0.57	0.28		0.61
Control Delay	3.0	17.7	2.6	11.0	22.6		20.3
Queue Delay	0.0	0.1	0.0	0.0	0.0		0.0
Total Delay	3.0	17.8	2.6	11.0	22.6		20.3
LOS	A	B	A	B	C		C
Approach Delay		16.4		10.9	22.6		20.3
Approach LOS		B		B	C		C

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 93.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 15.4

Intersection LOS: B

Intersection Capacity Utilization 96.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 13: SH 114 EBFR & Byron Nelson Blvd

		
Ø2	Ø3	Ø4
25 s	15 s	120 s
		
Ø6	Ø7	Ø8
25 s	15 s	120 s

Intersection	
Intersection Delay, s/veh	21.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	93	4	194	237	0	40	0	500	57	44	20
Future Vol, veh/h	0	93	4	194	237	0	40	0	500	57	44	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	97	4	202	247	0	42	0	521	59	46	21
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

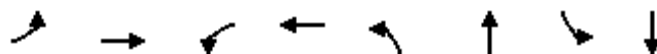
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	12.5	15.2	30.1	11.3
HCM LOS	B	C	D	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	0%	96%	0%	100%	0%	69%
Vol Right, %	0%	100%	4%	0%	0%	0%	31%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	500	97	194	237	57	64
LT Vol	40	0	0	194	0	57	0
Through Vol	0	0	93	0	237	0	44
RT Vol	0	500	4	0	0	0	20
Lane Flow Rate	42	521	101	202	247	59	67
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.081	0.838	0.211	0.407	0.463	0.129	0.131
Departure Headway (Hd)	7.016	5.795	7.528	7.256	6.748	7.828	7.089
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	507	620	479	493	531	460	509
Service Time	4.808	3.586	5.536	5.053	4.544	5.535	4.795
HCM Lane V/C Ratio	0.083	0.84	0.211	0.41	0.465	0.128	0.132
HCM Control Delay	10.4	31.7	12.5	15	15.3	11.7	10.9
HCM Lane LOS	B	D	B	B	C	B	B
HCM 95th-tile Q	0.3	9	0.8	2	2.4	0.4	0.4

Timings

Build Out 2024 Total PM-mitigation.syn

12: Walnut St & Byron Nelson Blvd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	36	905	83	1117	20	13	42	12
Future Volume (vph)	36	905	83	1117	20	13	42	12
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	15.0	70.0	15.0	70.0	25.0	25.0	25.0	25.0
Total Split (%)	13.6%	63.6%	13.6%	63.6%	22.7%	22.7%	22.7%	22.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0		5.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	68.2	63.3	71.0	66.7		11.5		11.5
Actuated g/C Ratio	0.72	0.67	0.75	0.71		0.12		0.12
v/c Ratio	0.20	0.81	0.29	0.92		0.52		0.73
Control Delay	6.3	20.5	5.8	28.3		20.6		42.9
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	6.3	20.5	5.8	28.3		20.6		42.9
LOS	A	C	A	C		C		D
Approach Delay		20.0		26.8		20.6		42.9
Approach LOS		C		C		C		D

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 94.6

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 24.8

Intersection LOS: C

Intersection Capacity Utilization 92.6%

ICU Level of Service F

Analysis Period (min) 15

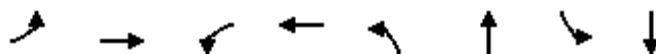
Splits and Phases: 12: Walnut St & Byron Nelson Blvd

Ø2	Ø3	Ø4
25 s	15 s	70 s
Ø6	Ø7	Ø8
25 s	15 s	70 s

Timings

Build Out 2024 Total PM-mitigation.syn

13: SH 114 EBFR & Byron Nelson Blvd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	157	920	27	1114	1	1	10	6
Future Volume (vph)	157	920	27	1114	1	1	10	6
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	15.0	120.0	15.0	120.0	25.0	25.0	25.0	25.0
Total Split (%)	9.4%	75.0%	9.4%	75.0%	15.6%	15.6%	15.6%	15.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0		5.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	129.6	123.7	121.0	115.1		9.5		9.5
Actuated g/C Ratio	0.87	0.83	0.81	0.77		0.06		0.06
v/c Ratio	0.98	0.64	0.07	1.11		0.38		0.77
Control Delay	106.1	8.6	2.4	78.6		23.2		29.3
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	106.1	8.6	2.4	78.6		23.2		29.3
LOS	F	A	A	E		C		C
Approach Delay		22.5		77.3		23.2		29.3
Approach LOS		C		E		C		C

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 149.7

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 51.6

Intersection LOS: D

Intersection Capacity Utilization 122.0%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 13: SH 114 EBFR & Byron Nelson Blvd

Ø2	Ø3	Ø4
25 s	15 s	120 s
Ø6	Ø7	Ø8
25 s	15 s	120 s

PREVIOUS CONFIGURATION

Table 1: Trip Generation Characteristics for Proposed Roanoke North Residential Development

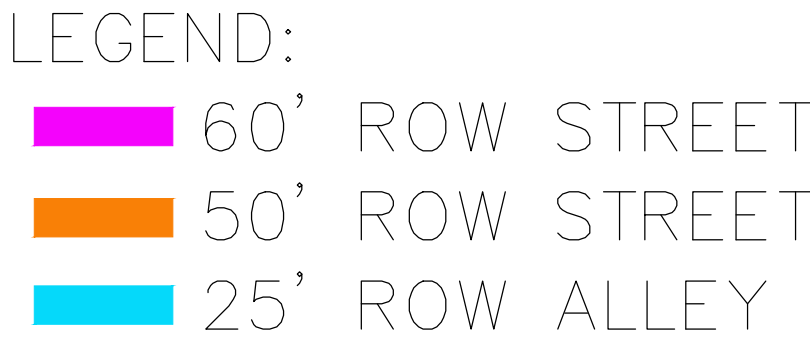
Land Use		Rates ¹								
Description	ITE Code	Average Weekday			AM Peak Hour			PM Peak Hour		
Multifamily Housing (Mid-Rise)	221	T = 5.45(X) – 1.75			Ln(T) = 0.98*Ln(X) – 0.98			Ln(T) = 0.96Ln*(X) – 0.63		
Senior Adult Housing - Attached	252	T = 4.02(X) - 25.37			T = 0.2(X) - 0.18			T = 0.26(X)		
Townhomes	220	T = 7.56(X) - 40.86			Ln(T) = 0.95*Ln(X) - 0.51			Ln(T) = 0.89*Ln(X) - 0.02		
Single-Family Detached Housing	210	Ln(T) = 0.92*Ln(X) + 2.71			T = 0.71(X) + 4.80			Ln(T) = 0.96*Ln(X) + 0.20		
Land Use		Directional Split ²								
Description	ITE Code	Average Weekday			AM Peak Hour			PM Peak Hour		
Multifamily Housing (Mid-Rise)	221	50 / 50			26 / 74			61 / 39		
Senior Adult Housing - Attached	252	50 / 50			35 / 65			55 / 45		
Townhomes	220	50 / 50			23 / 77			63 / 37		
Single-Family Detached Housing	210	50 / 50			25 / 75			63 / 37		
Land Use		Number of Trips								
Land Use	Variable ³	Average Weekday			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
Multifamily Housing (Mid-Rise)	289	1,574	787	787	97	25	72	123	75	48
Senior Adult Housing - Attached	129	494	247	247	26	9	17	34	19	15
Townhomes	9	28	14	14	5	1	4	7	4	3
Single-Family Detached Housing	41	458	229	229	34	9	25	43	27	16
TOTAL		2,554	1,277	1,277	162	44	118	207	125	82

¹T = Trips Ends; X = Number of Dwelling Units

²XX / YY = % entering vehicles / % exiting vehicles

³Number of Dwelling Units

***Based on ITE Trip Generation, 10th Edition**



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ROANOKE NORTH
Lot 1&2, Block 1
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18.504 Acres
 in the
NAME & PRR CO. SURVEY, ABSTRACT NO. 923
CITY OF ROANOKE
DENTON COUNTY, TEXAS

**STREET CLASSIFICATION
EXHIBIT**

PRELIMINARY PLANS
THIS DOCUMENT IS FOR
INTERIM REVIEW AND IS
NOT INTENDED FOR
CONSTRUCTION, BIDDING
OR PERMIT PURPOSES.
THE JOHN R. MCADAMS
COMPANY, INC.
TBPE: 19762
JUSTIN L. LANSDOWNE,
P.E. #121990
DATE 11/9/2021

Drawn By: PF
Date: 10/11/2021
Scale: #####
Revisions:

2020310199

C2.3

Roanoke Zoning Comparison Table Provided by Developer							
Section	Description	MF-12	Proposed	R	Proposed	SF-A	Proposed
			Tract 1		Tract 2		Tract 3
			Multi-Family, Age Targeted, Townhome for rent				Townhome for sale
Sec. 12.261. Permitted Uses. Sec. 12.311. Permitted Uses.	Land uses	Those uses listed for the MF-12 district in article VI of this chapter as "P" or "S" are authorized uses permitted by right or specially permitted uses, respectively. Special uses must be approved utilizing procedures set forth in article V of this chapter.	Multi-family	Staybridge Suites	Multi-family	Those uses listed for the SFA district in article VI of this chapter as "P" or "S" are authorized uses permitted by right or specially permitted uses, respectively. Special uses must be approved utilizing procedures set forth in article V of this chapter.	Townhomes
Sec. 12.262. Height Regulations. Sec. 12.312. Height Regulations.	Maximum Height: Main Building	2.5 Story / 35'	4 Story / 55'* *Highest point on front facing façade. Remainder of building is 48'	4 Story / 54.5'	4 Story / 55'* *Highest point. Remainder of building is 50'	2.5 Story / 35'	2.5 story / 35'
	Maximum Height: Accessory Building Other	1 story / 16' for other accessory buildings, including detached garage, garden shed, gazebo, etc. Other requirements (see article VII, division 6 of this chapter).	NC (Non-Comparable)	1 story	1 story	1 story / 16' for other accessory buildings, including detached garages, carports, garden shed, gazebo, clubhouse, mail kiosks, etc. Other requirements (see article VII, division 6 of this chapter).	NC
Sec. 12.313. Area Regulations. Sec. 12.313. Area Regulations.	Minimum Lot Area	3,500 sf / du	1,012 sf / du	10,000 sf	NC	6,000 sf	3,300 sf
	Maximum Density	12 du / gross acre	37.66 units / acre	34.62 rooms/acre	33.68 units/acre	8 units / acre	NC
	Minimum project size	30,000 sf	NC	73,632 sf	NC	5 acres	NC
	Maximum project size	10 acres	10.62 acres	2.86 acres	3.83 acres	20 acres	7.88 acres
	Minimum Lot Width	125'	NC	25'	NC	40'	30'
	Minimum Lot Depth	200'	NC	100'	NC	100'	110'
	Size of Yards: Minimum Front Yard Minimum Side Yard Minimum Rear Yard	25' 7.5' 25'	BLDG I 30' 25' 25' BLDG II Front - 15' Side - 0' Rear - 15'	25' 15' 0'	30' 25' 25'	15' 8' (15' for adjacent building complexes) 8' (24') for garage)	5' 0' on zero lot, 3' on non-zero 10'
	Building Separation: One-Story	15' /20'	NC	n/a	NC	n/a	NC

	Two-Story Over Two-Story	20' /25' 25'					
	Minimum Dwelling Unit Size	900 sf - Efficiency 950 sf - One Bedroom 1075 sf - Two or more bedrooms	BLDG I 700 sf - One Bedroom (average 815 sf btw. unit types) 1,060 sf - Two or more bedroom 1,380 sf - Three bedroom BLDG II NC - One Bedroom NC - Two or more bedrooms	n/a	735 sf - One Bedroom 1,080 sf - Two or more bedrooms	1,000 sf	1,200 sf
	Maximum Lot Coverage	35%, including main and accessory buildings	50%	16.16%	50%	50%	75%
	Parking Regulations: Efficiency / One Bedroom Two Bedroom Three Bedroom	1 enclosed space per unit 1.5 spaces 2 spaces 2.5 spaces (avg 2 spaces / unit Req'd)	BLDG I 1.70 spaces per unit BLDG II 1.5 spaces per unit	1 Space required per guest room + 3 for 1 st 20 rooms + 1 per 10 rooms after	1.5 spaces per unit	2 enclosed spaces per unit	NC
Sec. 12.781. - Minimum Exterior Construction Standards.	Minimum Exterior Masonry Construction	85%, all walls 100%, facing a street & have elevation offsets of at least 5' for every 50' length of flat wall, both horizontally and vertically	80%, facing a street	n/a	80%, facing a street	85%, all walls 100%, facing a street & have elevation offsets of at least 5' for every 50' length of flat wall, both horizontally and vertically	80% facing a street
Sec. 12.314. - Special Requirements.	Usable Open Space Requirements.	Min 15% of tract area	18.5%	n/a		20%	26.1%
	Landscape Area Requirements.	Min 20% of tract area (includes open space)	30%	Min 20% of tract area (includes open space)			n/a
	Refuse Facilities.	dwelling units shall be located within 150' of a refuse facility	1 Compactor *valet trash to be provided				n/a
	Swimming Pool	For 50 or more units, plus one (1) additional pool per 100 units	1 Swimming pool for all units in Tract I		1 Swimming pool for all units in Tract 2		n/a
	Playground Area	One playground area containing at least 5 pieces of play equipment shall be provided for every 100 dwelling units	Provided in open space if required				n/a

Tract 1 and 2 (Multifamily and Age Targeted): The following standards shall apply to Tract 1 and 2.

- (a) Size of Tract: Tract 1 and 2 shall contain approximately 10.62 acres.
- (b) Uses Generally: In the development of Tract 1 and 2, no land shall be used, and no building or structure shall be installed, erected, or converted to any use other than:
 - (A) Permitted Uses: Multifamily Residential
 - (B) Accessory Uses: Accessory buildings and uses, customarily incident to the above uses and located on the same lot therewith, not involving the conduct of a retail business.
 - (C) Limitation of Uses: Any use not expressly permitted herein is prohibited:
 - (1) Area and Building Regulations:
 - (i) Minimum Lot Size: Tract 1 and 2 shall be developed as two lots.
 - (ii) Maximum Building Coverage: The combined foundation area of all main and accessory buildings shall not exceed 40% of the total area of Tract 1 and 2.
 - (iii) Maximum Open Space: All areas (but in any event at least 25% of the total area of Tract 1 and 2) not devoted to buildings, pedestrian walkways, structures or off-street parking area shall be devoted to grass, trees, gardens, shrubs, courtyards, community pool including decorative hardscape, pocket parks, hike and bike trails or other suitable landscape or decorative hard scape materials.
 - (iv) Maximum Unit Count: The maximum number of units on Tract 1 and 2 shall be 400.
 - (v) Maximum Impervious Area: The combined area occupied by all buildings, structures, off-street parking and paved areas shall not exceed 75% of the total area of Tract 1 and 2.
 - (vi) Depth of Front Yard: There shall be a front yard having a depth of not less than ten (10) feet along Street A. There shall be no parking allowed in the required front yard.

Stoops, steps, retaining walls, raised planters, and other decorative landscape items may be located within the required front yard setback.
 - (vii) Depth of Side and Rear Yards: There shall be a rear and side yard having a depth of not less than ten (10) feet. Automobile parking, including associated carports, will be permitted in such rear and side yards.
 - (viii) Height:
 - (1) No building or structure shall exceed four stories or fifty-five (55) feet in height.

(ix) Minimum Floor Areas:

- (1) Multi-family: The minimum square footage of a dwelling unit, exclusive of garages, breezeways, and porches, shall be as follows:

One Bedroom: 700 square feet

Two Bedroom: 1,060 square feet

Three Bedroom: 1,380 square feet

- (2) Age Targeted: The minimum square footage of a dwelling unit, exclusive of garages, breezeways, and porches, shall be as follows:

One Bedroom: 735 square feet

Two Bedroom: 1,080 square feet

(1) Street Frontage:

- (i) Both angled and parallel parking is permitted along the frontage of internal streets, if approved by the engineering department.
- (ii) One (1) large shade tree shall be required per fifty (50) linear feet (or portion thereof) of street frontage (less vehicular entry drives and associated visibility triangle). Trees to be located in the right-of-way adjacent to Street A within a minimum five foot (5') width parkway and/or within a minimum five feet (5') by ten feet (10') tree well leave-out in paving. Trees to be evenly spaced and aligned as to the extent site conditions allow.
- (2) Parking and Loading Regulations: Off-street parking and loading spaces shall be provided in accordance with the requirements for specific uses set forth in Section 12.700 –12.704 of the City of Roanoke Zoning Ordinance.
- Notwithstanding the forgoing, the total parking requirement shall be 1.7 spaces per dwelling unit for building I and 1.5 spaces per dwelling unit for buildings II and III. Tandem spaces behind private garages shall count toward the off-street parking requirement. Parking spaces along internal streets, if approved by the engineering department, shall count towards the off street parking requirement.
- (3) Building Materials: The following building material requirements shall apply:
- (i) Multi-family: All street facing facades shall have a masonry requirement of not less than 80% of the total street facing exterior wall excluding doors, windows and patios.

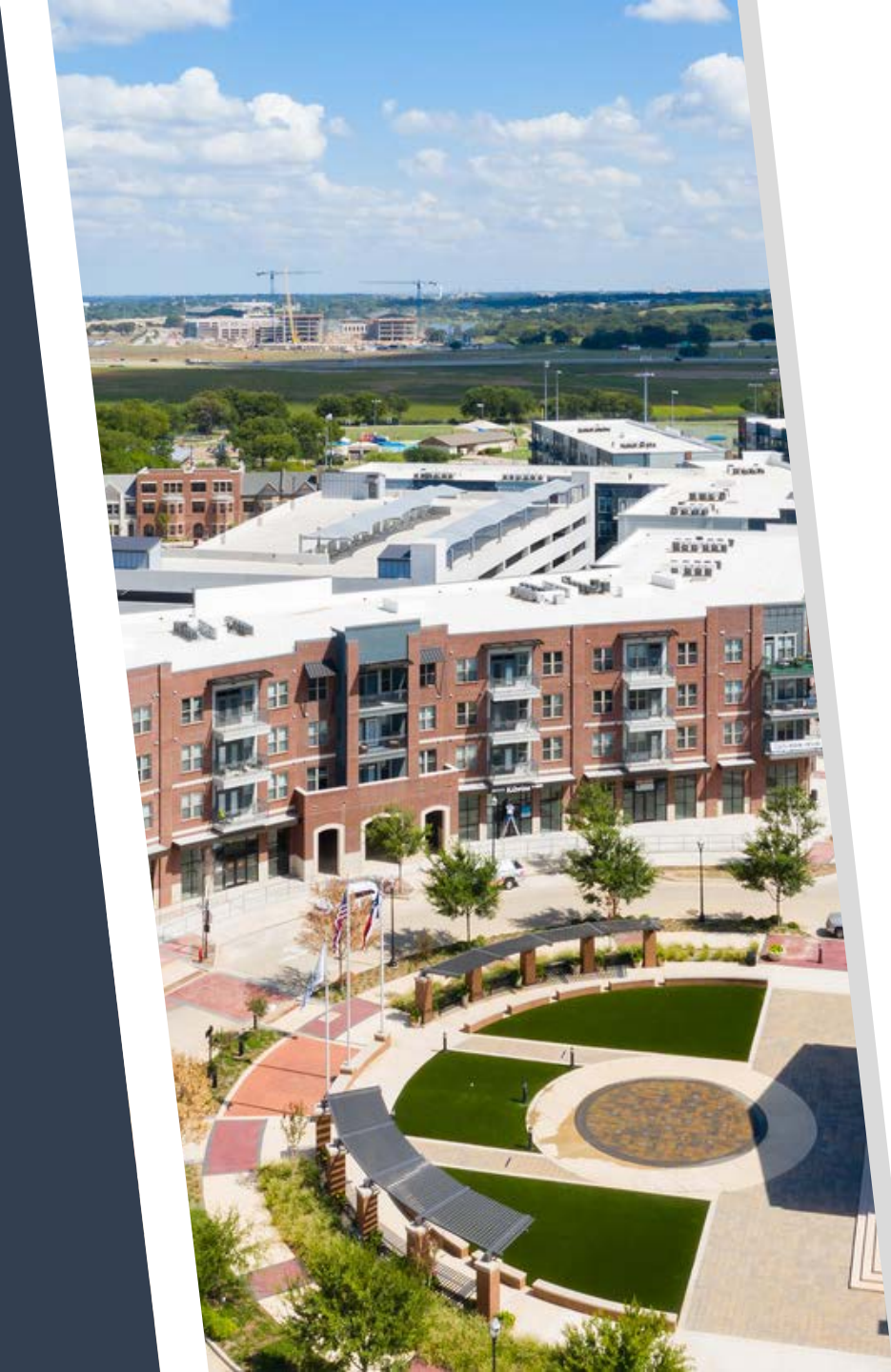
- (ii) Age Targeted: All street facing facades shall have a masonry requirement of not less than 80% of the total street facing exterior wall excluding doors, windows and patios.
- (4) Landscaping:
 - (i) Materials: Landscape materials such as decomposed granite and synthetic turf may be used as surface material at resident activity /amenity zones within the site.
 - (ii) Tree Mitigation: All trees planted on site shall be counted toward protected tree mitigation.
- (D) Signage: Signage shall meet all of the requirements of the Uniform Sign Regulations and attached signs are allowed on buildings I and II subject to the following provisions:
 - (1) All attached signs must be on-premise signs. All businesses shall be permitted to have one (1) attached sign per public street frontage.
 - (2) Maximum Effective Area. Total effective area of attached signs shall not exceed the following: an attached sign or signs shall not exceed or cover more than fifteen percent (15%) of the façade area of a building face or area of the front of the leasable building space.
 - (3) Projected from Building Surface. All attached signs and their words shall be mounted parallel to the building surface to which they are attached, and shall project no more than eighteen inches (18") from the surface.

Tract 3 (Townhomes for Sale): The following standards shall apply to Tract 3.

- (a) Size of Tract: Tract 3 shall contain approximately 7.88 acres.
- (b) Uses Generally: In the development of Tract 3, no land shall be used, and no building or structure shall be installed, erected, or converted to any use other than:
 - (A) Permitted Uses: Townhomes
 - (B) Accessory Uses: Accessory buildings and uses, customarily incident to the above uses and located on the same lot therewith, not involving the conduct of a retail business.
 - (C) Limitation of Uses: Any use not expressly permitted herein is prohibited:
 - (1) Area and Building Regulations:
 - (i) Minimum Lot Size: Tract 3 shall be developed with minimum lot sizes of 3,300 square feet.
 - (ii) Maximum Building Coverage: The combined foundation area of all main and accessory buildings shall not exceed 75% of the total area of Tract 3.
 - (iii) Maximum Open Space: All areas (but in any event at least 25% of the total area of Tract 3) not devoted to buildings, pedestrian walkways, structures or off-street parking area shall be devoted to grass, trees, gardens, shrubs, courtyards including decorative hardscape, pocket parks, hike and bike trails or other suitable landscape or decorative hard scape materials.
 - (iv) Maximum Unit Count: The maximum number of units on Tract 3 shall be 45.
 - (v) Maximum Impervious Area: The combined area occupied by all buildings, structures, off-street parking and paved areas shall not exceed 75% of the total area of Tract 3.
 - (vi) Minimum Yards:
 - (1) Depth of Front Yard: There shall be a front yard having a depth of not less than five (5) feet. Stoops, steps, retaining walls, raised planters, and other decorative landscape items may be located within the required front yard setback.
 - (2) Depth of Side Yard: There shall be a side yard having a depth of zero (0) feet on one side of the lot and a three (3) foot setback on the other side.
 - (3) Depth of Rear Yard: There shall be a rear yard having a depth of not less than ten (10) feet.

- (vii) Height:
 - (1) Main structure limited to 2.5 stories or thirty-five (35) feet in height.
 - (2) Any accessory buildings limited to 1 story or sixteen (16) feet.
- (viii) Minimum Floor Area: The minimum square footage of a dwelling unit, exclusive of garages, breezeways, and porches, shall be 1,200.
- (4) Street Frontage:
 - (i) Parallel parking is permitted along the frontage of internal streets, if approved by the engineering department.
 - (ii) One (1) large shade tree shall be required per fifty (50) linear feet (or portion thereof) of street frontage (less vehicular entry drives and associated visibility triangle). Trees to be located in the right-of-way adjacent to Street A within a minimum five foot (5') width parkway and/or within a minimum five feet (5') by ten feet (10') tree well leave-out in paving. Trees to be evenly spaced and aligned as to the extent site conditions allow.
- (5) Parking and Loading Regulations: Off-street parking and loading spaces shall be provided in accordance with the requirements for specific uses set forth in Section 12.700 –12.704 of the City of Roanoke Zoning Ordinance.

Notwithstanding the forgoing, the total parking requirement shall be 2 spaces per dwelling unit. Tandem spaces behind private garages shall count toward the off-street parking requirement. Parking spaces along internal streets, if approved by the engineering department, shall count towards the off street parking requirement.
- (6) Building Materials: The following building material requirements shall apply:
 - (i) All street facing facades shall have a masonry requirement of not less than 80% of the total street facing exterior wall excluding doors, windows and patios.
- (7) Landscaping:
 - (iii) Materials: Landscape materials such as decomposed granite and synthetic turf may be used as surface material at resident activity /amenity zones within the site.
 - (iv) Tree Mitigation: All trees planted on site shall be counted toward protected tree mitigation.



Roanoke North

INTEGRATED REAL ESTATE GROUP

City Council Workshop 01/12/2022



Re-adjusted plans & approach

Feedback from 10/18 P&Z Meeting

-  Reduce multifamily density
-  Increase bedroom sizes
-  Reduce overall parking and increase spaces around townhomes
-  Increase the number of for-sale product
-  Add a pool for the Seniors community

-  Reduced multifamily density by 10%
-  Eliminated efficiency units. Larger 1BR and 2BR units
-  Parking reduced by 36 spaces. Townhome guest parking up to 37 from 18
-  Replaced “cottage home” lots with for-sale townhomes *
-  Added pool & more gathering space at 55+ community

* The SF density is 5.7 units/acre and the tract features over two acres of open space

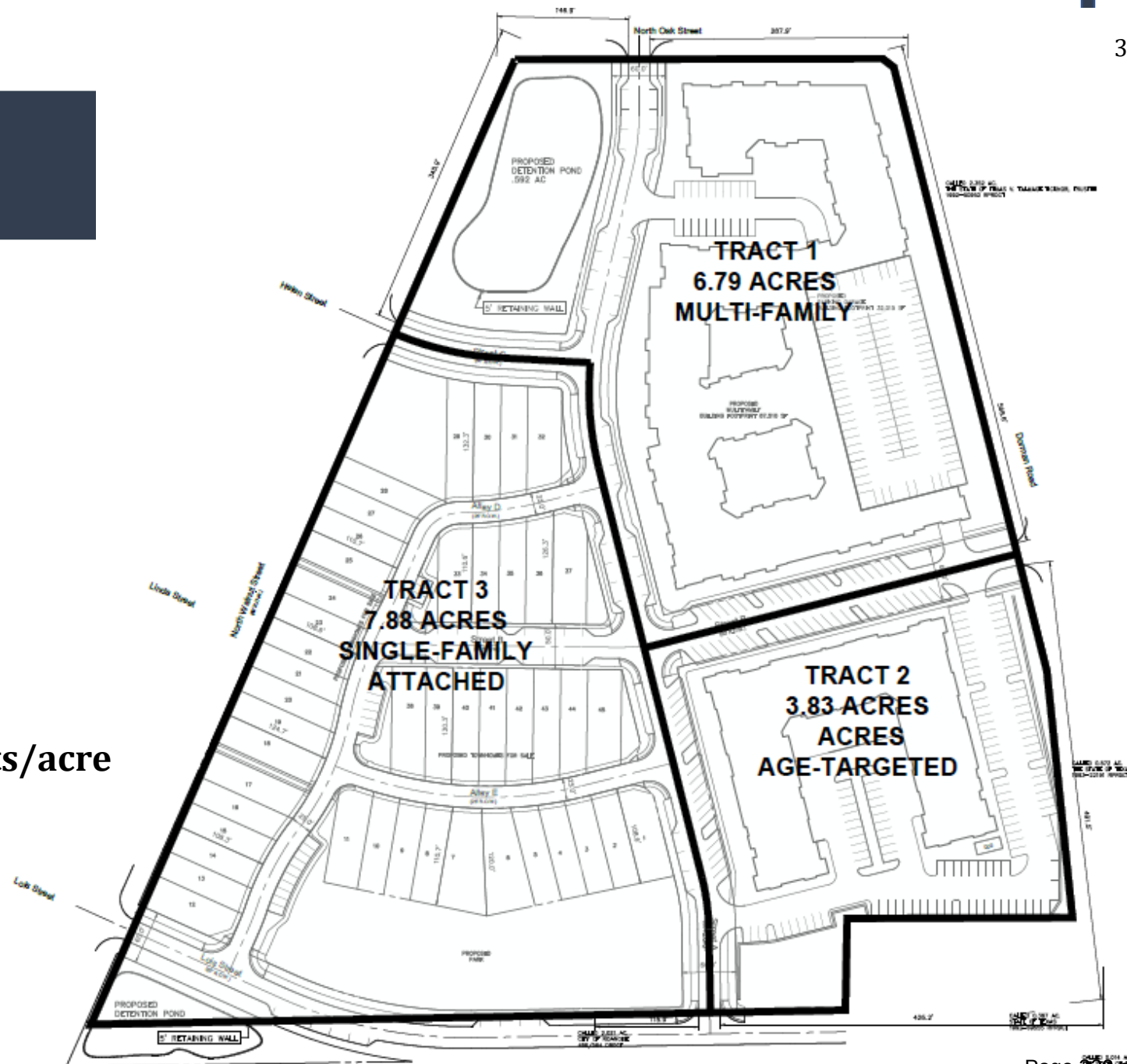
SITE OVERVIEW

- Tract 3 is currently zoned SF-7; Single-Family Residential

- Tracts 1&2 are currently zoned R; Retail

- Site includes two detention ponds (north & south portion of property)

- Overall site density is 23.8 units/acre**
Single Family is 5.7 units/acre
55+ is 34.2 units/acre
Multifamily is 39 units/acre



PERSPECTIVE RENDERING



55+ ELEVATION



FRONT ELEVATION

55+ IMAGERY



MULTIFAMILY ELEVATION



FRONT ELEVATION

81% MASONRY

MULTIFAMILY IMAGERY



TOWNHOME ELEVATION



B1
MERIDIAN

BRICK MASONRY



B2
MERIDIAN

BRICK MASONRY



P1
SW 7004
SNOWBOUND



P2
SW 7072
ONLINE



P3
SW 7078
URBANE BRONZE



S1
GOLDEN OAK
STAIN



M1
BLACK
METAL



W1
CLAY

VINYL WINDOW

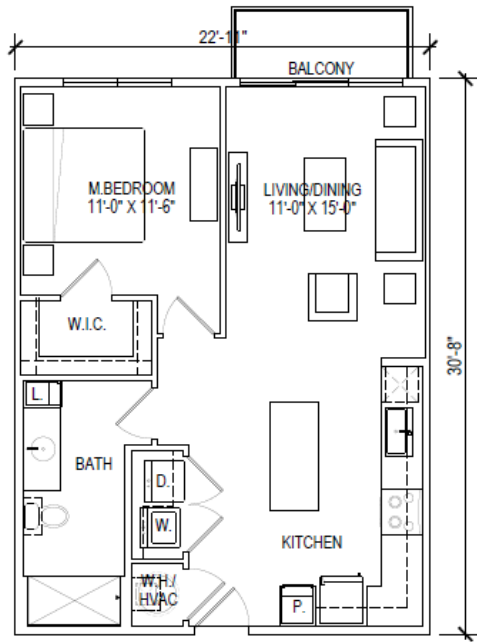
TOWNHOME IMAGERY



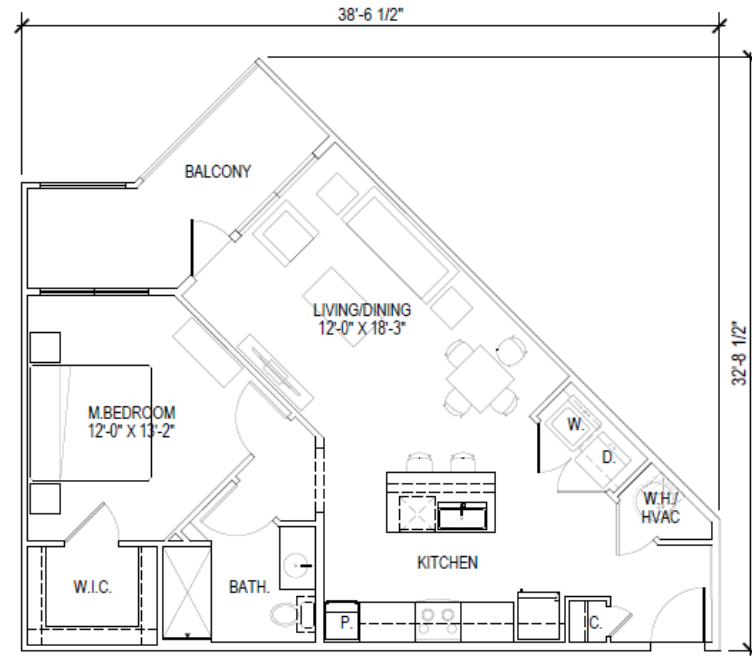
TOWNHOME IMAGERY



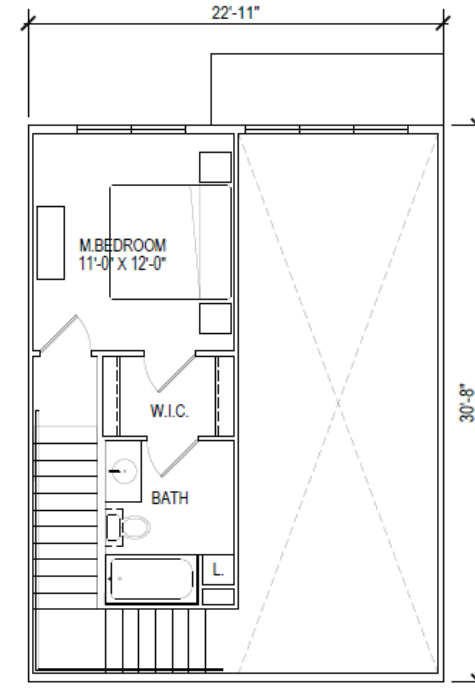
FLOORPLAN OVERVIEW



UNIT A1
NET - 703 SQ. FT.

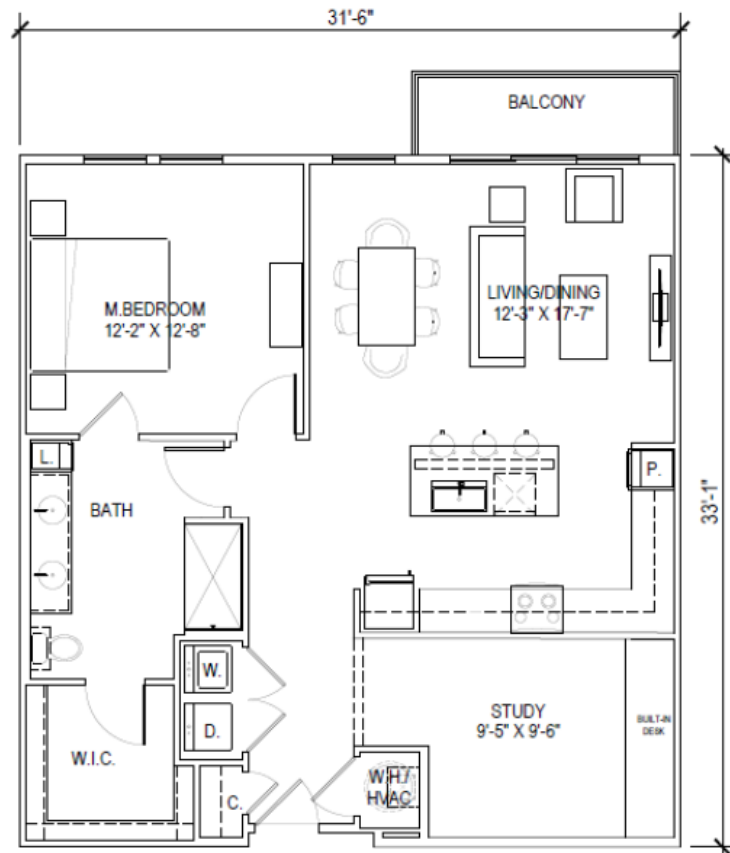


UNIT A2
NET - 763 SQ. FT.

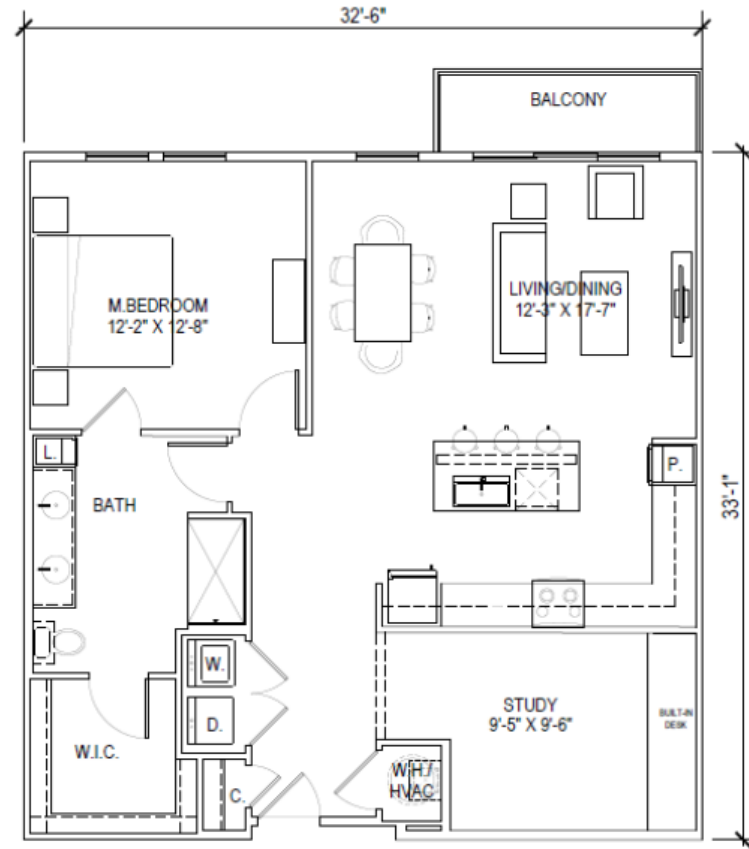


UNIT A3 STACK
1ST LEVEL-272 SQ. FT.
2ND LEVEL-703 SQ. FT.
TOTAL NET -975 SQ. FT.

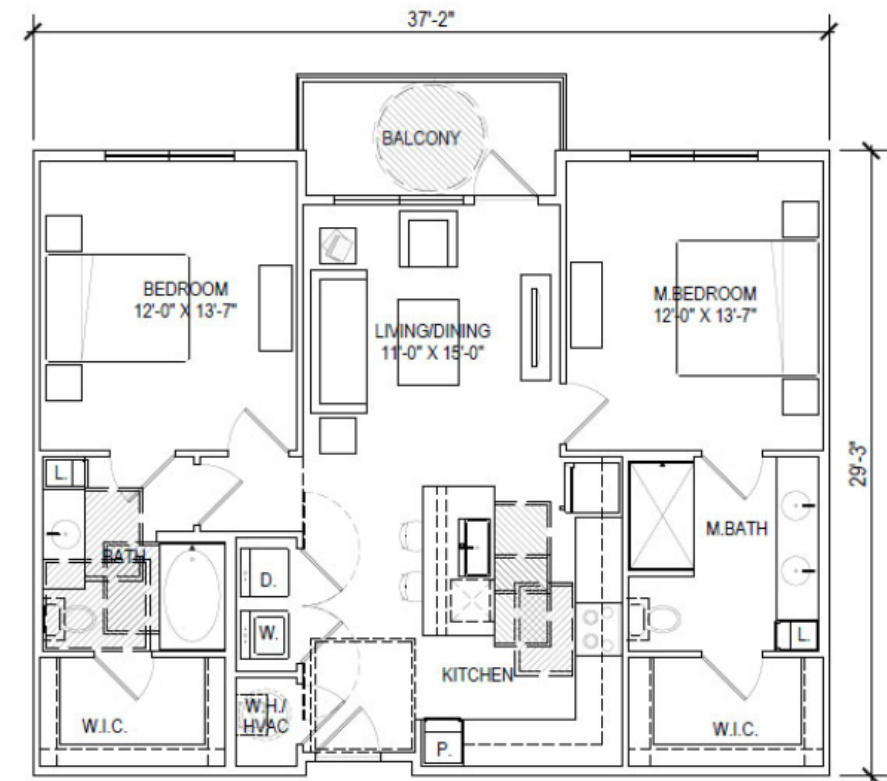
FLOORPLAN OVERVIEW



UNIT A4 STUDY
NET - 1038 SQ. FT.

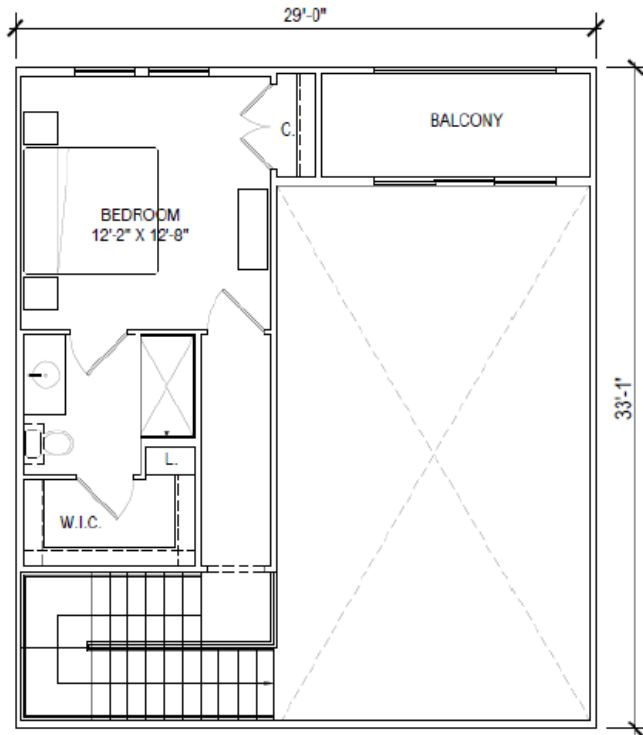


UNIT A5 STUDY
NET - 1070 SQ. FT.

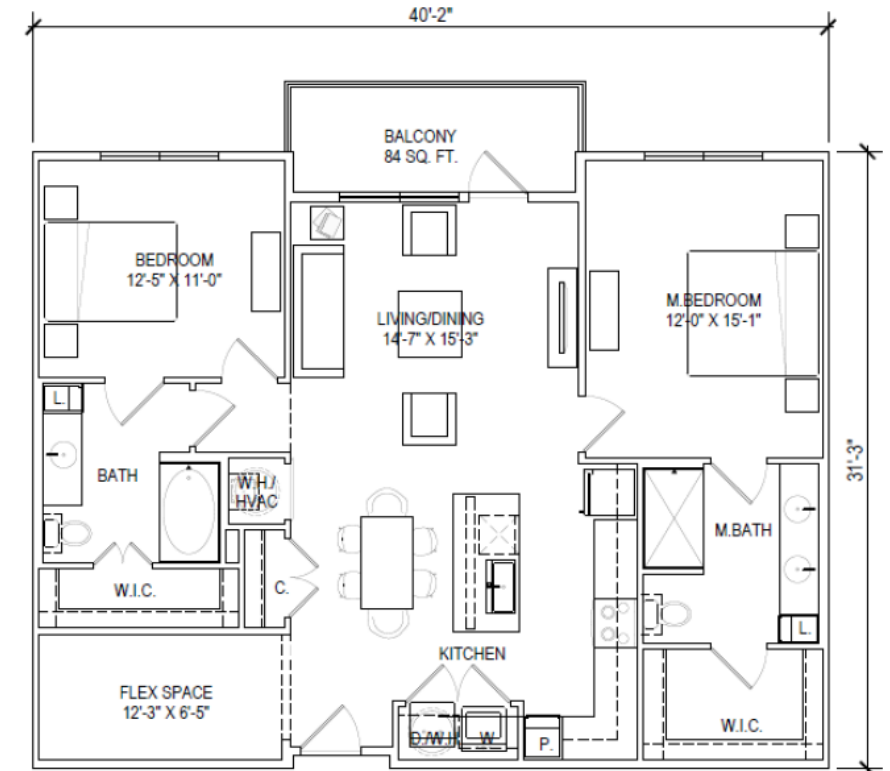
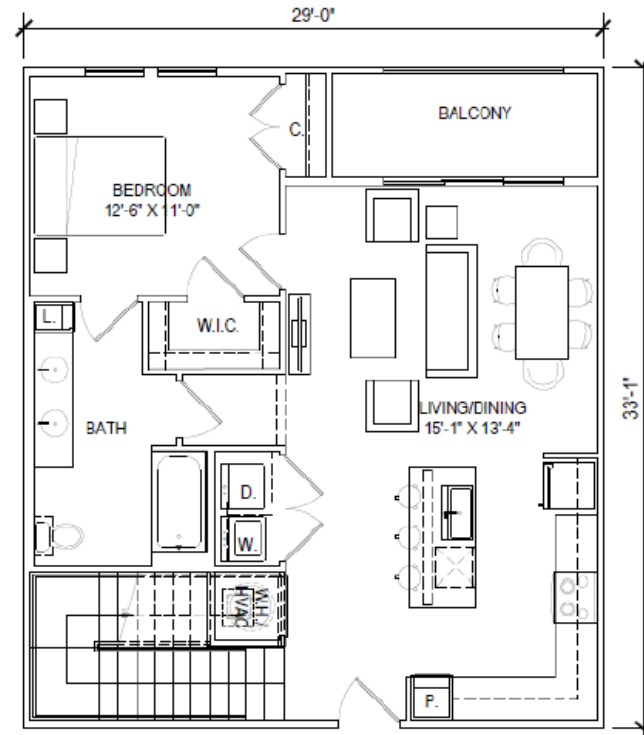


UNIT B1
NET - 1060 SQ. FT.

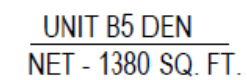
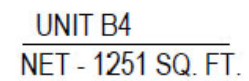
FLOORPLAN OVERVIEW



UNIT B2 STACK
1ST LEVEL-345 SQ. FT.
2ND LEVEL-884 SQ. FT.
TOTAL NET -1229 SQ. FT.



UNIT B3 FLEX
NET - 1222 SQ. FT.



North Roanoke

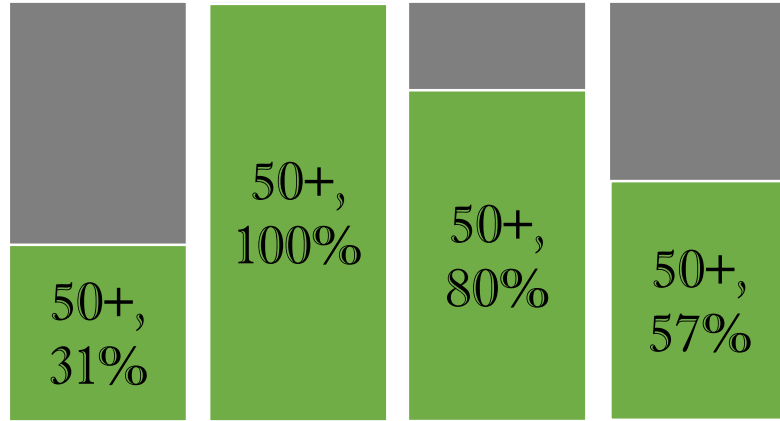
Total # Units

~265

~135

~45

~445



Estimated at 40%

Estimated at 62%

Multi-Family

55+

Townhomes

TOTAL

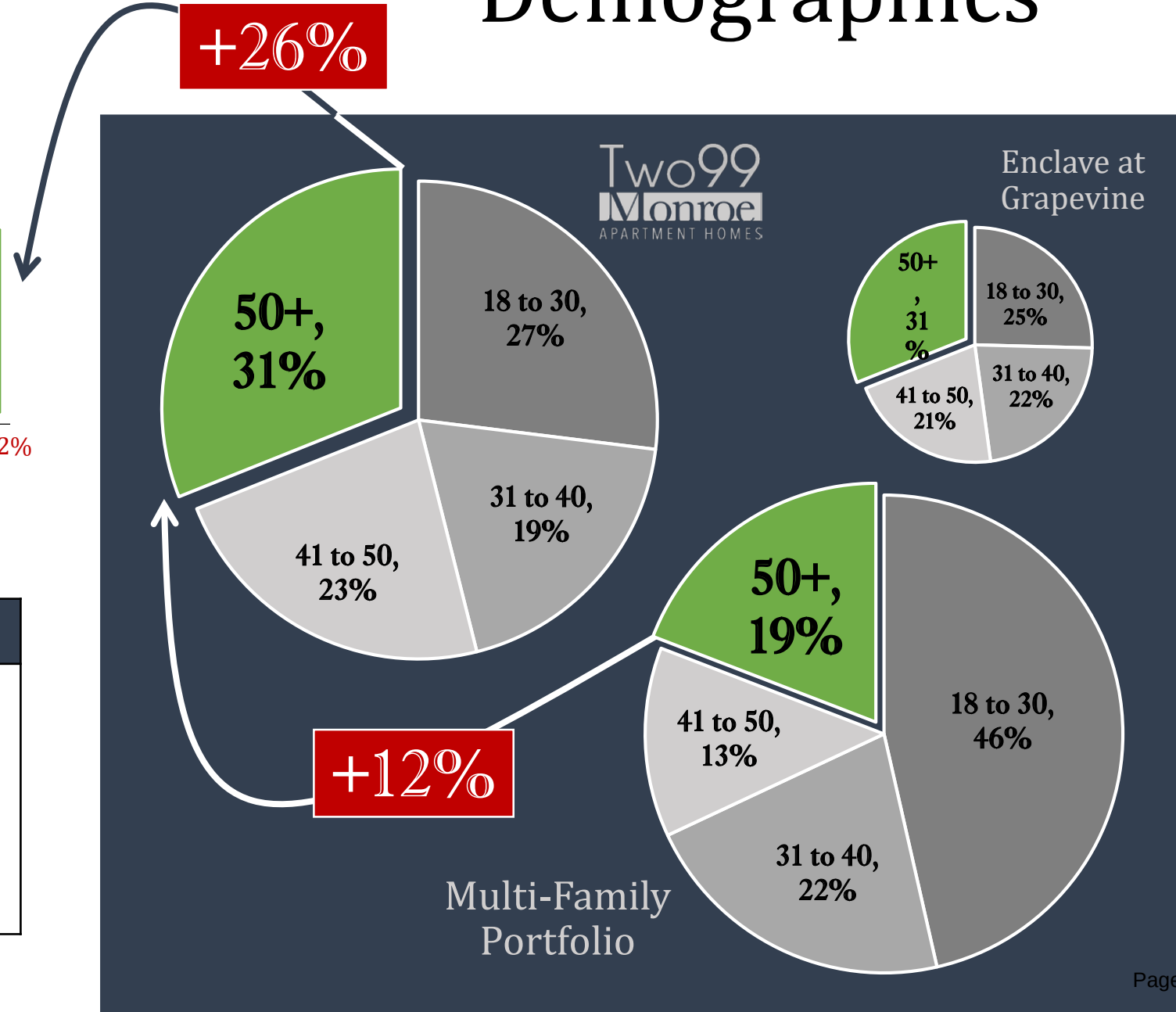


AGE BAND	AVG HOUSEHOLD INCOME	MEDIAN HOUSEHOLD INCOME
18 to 30	\$94k	\$113k [2020]
31 to 40	\$114k	
41 to 50	\$143k	
50+	\$129k	
AVG TOTAL	\$120k	

Two99 Monroe

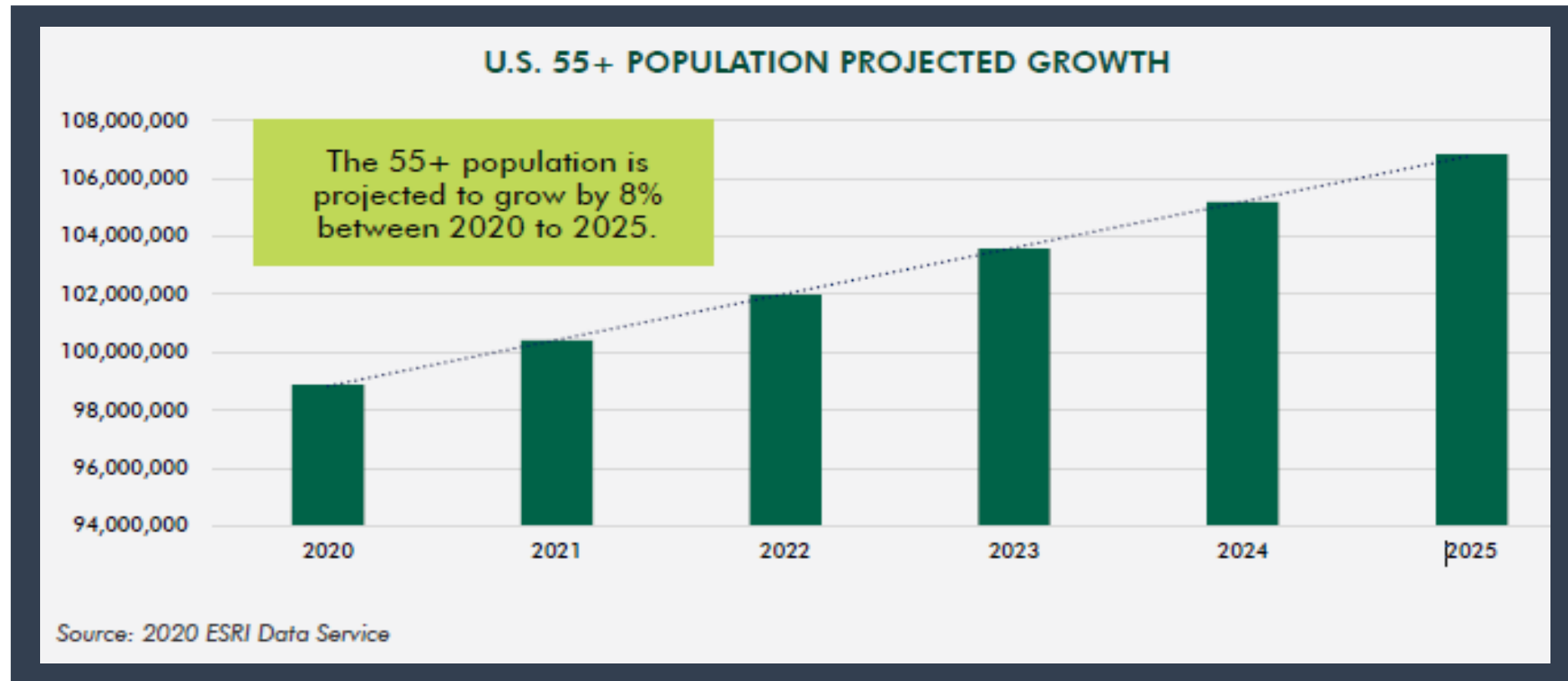
Roanoke, TX

Demographics



Demographics

Baby Boomers began turning 65 in 2011 and by 2030, the 65+ population will be 21% of the total US population (a 50% increase from 2020).



According to a CBRE report, once Active Adult residents move in to a community, they create valued connections with other residents and rarely leave for any other reason than needing assisted living or dementia care services.

ROANOKE RESTAURANT LANDSCAPE

While the City has experienced growth in the Oak Street area, the Roanoke North project will bring stable support to small businesses in the City while providing a new source of tax revenue to ensure Roanoke's continued success.

Recent Closures



Community Partners



Struggle outside of the loop

ROANOKE RETAIL OUTLOOK



Comparison between current and proposed use

ECONOMIC IMPACT

Upon buildout, the community will produce ad valorem tax and sales tax receipts to the City in excess of **\$550,000 per year**.

The development will also help offset any reduction in City sales taxes receipts from the implementation of Rule 3.334 (temporarily enjoined until May 2022).

Nearby cities such as Coppell have estimated that their sales tax revenue would be reduced by 60% should the Rule be adopted as written.

Proposed Use	Appraised Value	2021 Taxes	City Taxes
Multifamily	\$59,000,000	\$1,121,122	\$221,321
Active Adult 55+	\$29,750,000	\$565,311	\$111,598
Townhomes	\$28,350,000	\$538,708	\$106,347
Sales Tax Collections	\$6,342,000	\$523,215	\$126,840
Total Anticipated Taxes	\$123,442,000	\$2,748,357	\$566,106

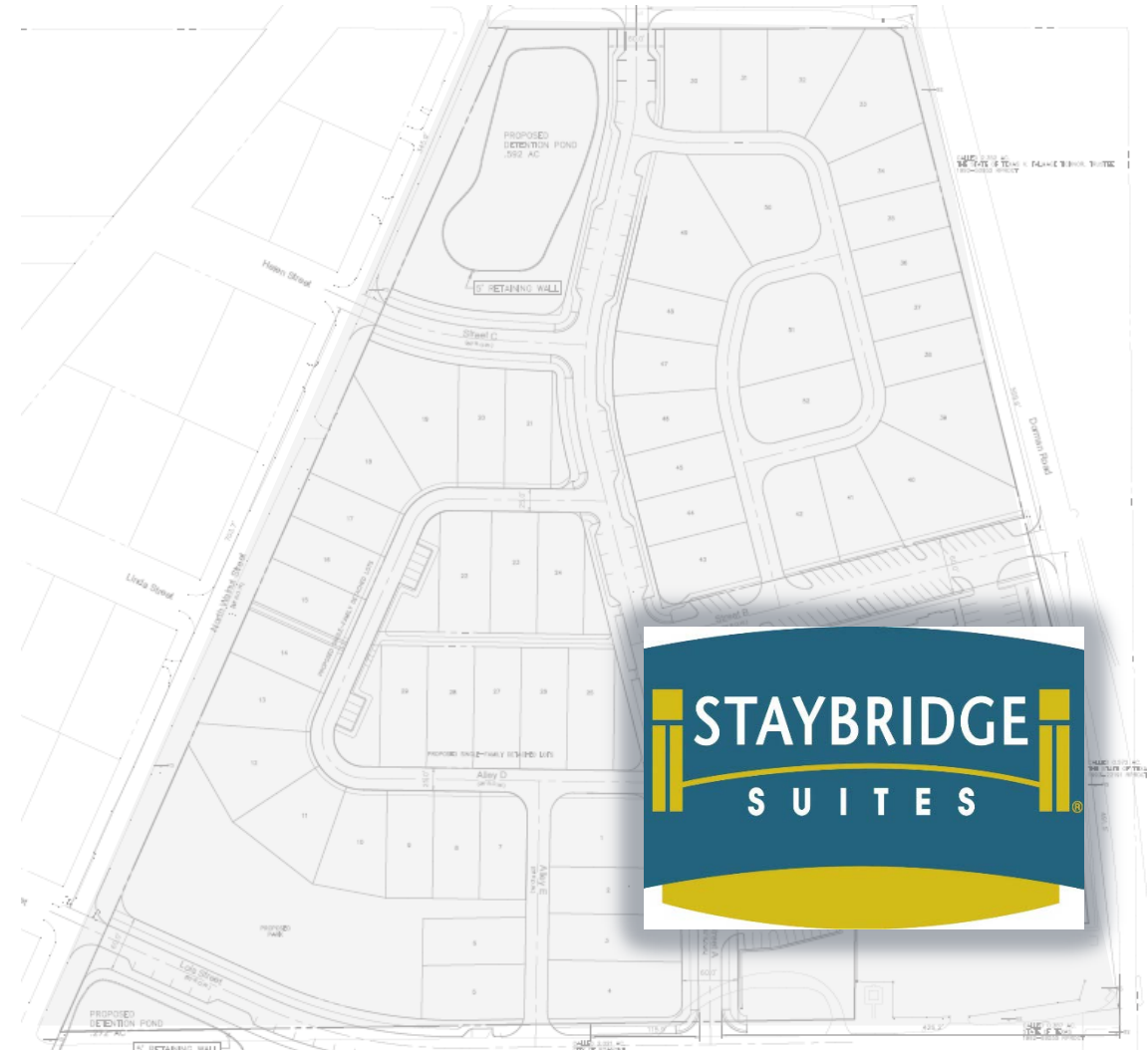
Current Use	Appraised Value	2021 Taxes	City Taxes
Single Family	\$33,880,000	\$704,026	\$138,982
Staybridge	\$5,000,000	\$95,010	\$18,756
Sales Tax Collections	\$1,540,000	\$127,050	\$30,800
Total Anticipated Taxes	\$40,420,000	\$926,087	\$188,538

Potential Tax Loss	\$(83,022,000)	\$(1,822,270)	\$(377,568)
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CONCLUSION | SUMMARY



Proposed Project



Current Use



APPENDIX – Roanoke North Development Proposal

1. Developer Overview

Integrated Real Estate Group (IREG) is a vertically integrated real estate company providing development, construction, and property management of multifamily and senior housing communities. Since 2003, IREG has developed and managed nearly 13,000 units with over \$1.6 billion in development costs, incorporating standards of excellence that have been recognized with industry awards. IREG's diverse portfolio includes high-end market-rate multifamily, workforce housing, independent senior living, assisted living/memory care, and affordable senior housing. To date, IREG has worked diligently to complete 55 multi-unit, institutional-grade residential real estate assets.

2. Development Changes

The below changes were made in response to feedback received from the October 18th Planning and Zoning meeting.

- Reduced multifamily density by 10% - From 297 (including the for-rent townhomes) to 265 units
- Eliminated all efficiency units and in place of larger 1Bd and 2Bd units
- Average unit size of 1Bd increased from 725 to 827 sf
- Added three-bedroom (two-bedroom with study) units after removing the for-rent townhomes
- Overall parking for the multifamily was reduced by 36 spaces. However, the number of spaces for single-family residences increased to 37 from 18.
- Replaced "cottage home" lots with for-sale townhomes
- Increased the number of for-sale units to 45 from 25
- Revamped lot sizes to create a variety of sizes/layout, all of which are larger than existing product in Roanoke and are more comparable to CB Jeni in Trophy Club
- The SF density is 5.7 units/acre and the tract feature over two acres of open space
- Added a pool and more gathering space for seniors at the 55+ community

3. Texas Restaurant Landscape

The Texas Restaurant Association (TRA) is the leading business association for Texas' \$70 billion restaurant industry, which is comprised of more than 50,000 locations and a workforce of over 1.3 million employees— 11% of the state's employment. TRA has estimated that 9,000 Texas restaurants have closed due to the pandemic and approximately 80% of those are small businesses.

According to a recent TRA survey of Texas restaurant operators:

- 96% are paying more for food;
- 64% are paying more for occupancy or rent;
- 91% have much higher labor costs;
- 72% of operators say their restaurant currently does not have enough employees to support its existing customer demand; and
- 89% of Texas operators say their profit margin is lower than it was prior to the COVID-19 outbreak.



COVID continues to impact operations, and new variants are depressing sales in dining rooms. 91% of TRA operators have confirmed that they've experienced a decrease in traffic for dine-in. The labor shortage is also affecting operations. The Texas restaurant industry currently has about 170,000 open jobs, with 91% of operators reporting that they don't have enough staff to get to 100% capacity. Nationally, the industry has over 1.1 million open jobs.

4. Economic Impact of Roanoke North Development

Upon buildout, the community will produce ad valorem tax and sales tax receipts to the City in excess of \$550,000 per year. The community's population will significantly contribute to the City's sales tax receipts as residents dine, shop, and procure services from businesses within the city limits. The Roanoke North project will bring stable support to small businesses in the City while providing a new source of tax revenue to ensure Roanoke's continued success.

The development will also help offset any reduction in City sales taxes receipts from the implementation of Rule 3.334, which is temporarily enjoined until May 2022. Nearby cities such as Coppell have estimated that their sales tax revenue would be reduced by 60% should the Rule be adopted as written.

Tax Comparison Between Proposed Use and Current Use

Proposed	Values	Total Taxes	City
IREG MF	\$ 59,000,000	\$ 1,121,122	\$ 221,321
IREG 55+	\$ 29,750,000	\$ 565,311	\$ 111,598
Townhomes (45)	\$ 28,350,000	\$ 538,708	\$ 106,346
Sales Tax Collection	\$ 6,342,000	\$ 523,215	\$ 126,840
Total Anticipated Taxes	\$ 123,442,000	\$ 2,748,357	\$ 566,106
Current Use	Values	Total Taxes	City
Single Family Homes (52)	\$ 33,880,000	\$ 704,026	\$ 138,982
Staybridge	\$ 5,000,000	\$ 95,010	\$ 18,756
Sales Tax Collections	\$ 1,540,000	\$ 127,050	\$ 30,800
Total Anticipated Taxes	\$ 40,420,000	\$ 926,087	\$ 188,538
Potential Tax Loss	\$ (83,022,000)	\$ (1,822,270)	\$ (377,568)

Assumptions on Sales Tax Calculation

	# Disposable Income Spenders	\$ Amount per Person Spent (annual)	Total Spending
Current Use			
52 Homes	104	\$10,000	\$1,040,000
Staybridge	100	\$5,000	\$500,000
Total / Avg	196	\$7,449	\$1,540,000
	# Disposable Income Spenders	\$ Amount per Person Spent (annual)	Total Spending
Proposed Use			
45 Townhomes	90	\$10,000	\$900,000
IREG 55+	192	\$8,500	\$1,632,000
IREG MF	508	\$7,500	\$3,810,000
Total / Avg	790	\$8,028	\$6,342,000

5. Roanoke North Demographics

Almost 60% of the Roanoke North population is estimated to be 50 years or older. Data from Two99 Monroe shows that the average household income for residents aged 50+ is \$129,000, which is significantly higher than the City's median household income.

The tables below showcase earnings and ages (including the child population) for Two99 Monroe.

- 65% of units report income in excess of \$75,000, while 45% of units earn \$100,000 or more
- 27% of residents are between the ages of 18 to 30, while 31% of residents are 50 or older
- Two99 currently has 67 children who live across 22 units, comprising just 7% of the overall unit population

AGE BAND	1BR	2BR	3BR	Grand Total
18 to 30	55	23	1	79
31 to 40	28	28		56
41 to 50	23	41	3	67
50+	32	58	1	91
Grand Total	138	150	5	293



Income Band	1BR	2BR	3BR	Grand Total
<\$50,000	27	5		32
\$51k to \$75k	50	20	1	71
\$76k to \$100k	22	37		59
\$101k to \$125k	15	34	2	50
\$126k+	24	54	2	80
Grand Total	138	150	5	293

6. Local Employers Near Roanoke North Site

Approximately 20,000 high-paying jobs, with advertised salaries ranging between \$80,000 to \$200,000+, are located within 10-minutes from the Roanoke North Site. Sample employee counts are listed below:

- Charles Schwab – 6,000
- Fidelity – 7,000
- Robinhood – 400
- Solana Business Park, which is comprised of Travelocity, Sabre, Goosehead, Solera, Verizon, and more – 3,000
- Deloitte University – 500

7. Roanoke 2001 Future Use Plan

Roanoke adopted its Comprehensive Future Land Use Plan (“The Plan”) in 2001 and was revised in April of 2003. Roanoke’s population in 2001 was 3,291 and 67% of land was vacant.

- Population according to the 2010 Census: 5,962 (81% increase); 2020 Census: 9,665 (62% increase)
- Demographic company Esri projects the population to surpass 10,000 in the next few years

The Plan is intended to serve as a “guide for growth” and “is intended to be flexible and should be revised . . . as the community evolves” (Page 4-1). The Plan encourages high-quality residential neighborhoods to meet City’s diverse housing needs (Page 4-5). The Plan also calls for an “appropriate balance” of single-family and multi-family units and states that apartments should be “located along major thoroughfares” (Page 4-5).

When a proposal is presented to the City that is inconsistent with the Plan, it should be reviewed based upon the following considerations:

- Will the proposed change enhance the proposed site and the surrounding area?
- Is the proposed change a better use than what is shown on the Future Land Use Plan?
- Will the proposed use impact adjacent residential areas in a negative manner? Or, will the proposed use be compatible with, or even enhance, adjacent residential properties?

Page 4-17 of the Plan states that “It is important to recognize that proposals contrary to the Plan could be an *improvement* over the uses shown on the Plan for a particular area.” Deviations from the Plan might be needed to address changing market, development and/or economic trends after the Plan was adopted. The Plan goes on to state that “If such changes occur, and especially if there is a significant benefit to the City, then these proposals should probably be approved unless they would have a negative impact upon the surrounding area and/or the City in general.”