

# TRAFFIC IMPACT STUDY

*For*

**Baldwas Realty, LLC  
Proposed Warehouse Development**

*Property Located at:*

**545 & 549 Weston Canal Road (CR 623)  
Block 516.01 – Lots 4.03 & 5  
Township of Franklin, Somerset County, NJ**

Prepared by:



1904 Main Street | 245 Main Street, Suite #110  
Lake Como, NJ 07719 | Chester, NJ 07930  
(732) 681-0760

A handwritten signature in black ink, appearing to read 'C Chase', written over a horizontal line.

**Corey M. Chase, PE  
NJ PE License #47470**

A handwritten signature in black ink, appearing to read 'Kevin Savage', written over a horizontal line.

**Kevin M. Savage, PE  
NJ PE License #55728**

**February 24, 2022**

**4151-99-001T**

## INTRODUCTION

It is proposed to construct a warehouse development on a parcel of land currently developed with a nursery and greenhouse known as Atlock Flower Farm, located along the northbound side of Weston Canal Road (CR 623) in Franklin Township, Somerset County, New Jersey (see Figure 1 in Appendix A). The site is designated as Block 516.01 – Lots 4.03 and 5 on the Township of Franklin Tax Maps. It is proposed to raze the existing site and construct a 62,500 SF warehouse facility (“The Project”). The site is located within the B-I – Business and Industry Zoning District. Access to the site is currently provided via a full movement driveway along Weston Canal Road (CR 623). It is proposed to close the existing access point and provide access to the site via a full movement driveway along Weston Canal Road (CR 623).

Dynamic Traffic LLC has been retained to prepare this study to assess the traffic impact associated with the construction of The Project on the adjacent roadway network. This study documents the methodology, analyses, findings and conclusions of our study and includes:

- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, traffic control, and location and geometry of existing driveways and intersections.
- Existing traffic data was collected via manual turning movement (MTM) counts during the weekday AM and weekday PM peak periods at the intersections of:
  - Weston Canal Road (CR 623) and Randolph Road
  - Weston Canal Road (CR 623) and Schoolhouse Road
- Projections of traffic to be generated by the proposed development were prepared utilizing trip generation data as published by the Institute of Transportation Engineers. Site traffic was then assigned to the adjacent street system based upon the anticipated directional distribution.
- Capacity analyses were conducted for the No Build and Build conditions for the study intersections.
- The proposed points of ingress and egress were inspected for adequacy of geometric design, spacing and/or alignment to streets and driveways on the opposite side of the street, relationship to other driveways adjacent to the development, and conformance with accepted design standards.
- The site plan as designed was reviewed for sufficiency in accommodating large wheel base vehicles such as delivery trucks, refuse trucks, and emergency vehicles.
- The parking layout and supply was assessed based on accepted design standards, local requirements, and demand experienced at similar developments.

## EXISTING CONDITIONS

A review of the existing roadway conditions near the proposed site was conducted to provide the basis for assessing the traffic impact of the development. This included field investigations of the surrounding roadways and intersections, collection of traffic volume data, and extensive analyses.

### Existing Roadway Conditions

The following are descriptions of the roadways in the study area:

Weston Canal Road (CR 623) is an Urban Major Collector roadway under Somerset County jurisdiction with a general northeast/southwest orientation. It should be noted that for the remainder of this study, Weston Canal Road (CR 623) is considered to have a north/south orientation. In the vicinity of the site the posted speed limit is 45 MPH and the roadway provides one travel lane in each direction. On-street parking is prohibited along both sides of the roadway, while curb and sidewalk are not provided along either side of the roadway. Weston Canal Road (CR 623) provides a curved horizontal alignment and a relatively flat vertical alignment. The land uses along Weston Canal Road (CR 623) in the vicinity of The Project are mixed residential, commercial and institutional.

Randolph Road is an Urban Major Collector roadway under Franklin Township jurisdiction with a general north/south orientation. In the vicinity of the site the posted speed limit is 40 MPH and the roadway provides one travel lane in each direction. On-street parking is prohibited along both sides of the roadway. Curb is provided along both sides of the roadway while sidewalk is not provided along either side of the roadway. Randolph Road provides a straight horizontal alignment and a relatively flat vertical alignment with a downgrade towards the intersection with Weston Canal Road (CR 623). The land uses along Randolph Road in the vicinity of The Project are primarily industrial.

Schoolhouse Road is an Urban Major Collector under Franklin Township jurisdiction with a general east/west orientation. In the vicinity of the site the posted speed limit is 40 MPH and the roadway provides one travel lane in each direction. On-street parking is permitted along both sides of roadway. Curb is provided along both sides of the roadway while sidewalk is not provided along either side of the roadway. Schoolhouse Road provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along Schoolhouse Road in the vicinity of The Project are mixed industrial and residential.

### Existing Traffic Volumes

Manual turning movement (MTM) counts were conducted on Thursday, January 13, 2022 from 7:00 to 9:00 AM and from 4:30 to 6:30 PM at the following intersections:

- Weston Canal Road (CR 623) and Randolph Road
- Weston Canal Road (CR 623) and Schoolhouse Road

### **COVID-19 Pandemic Traffic Count Normalization**

It is noted that when the count data was collected, travel conditions associated with the COVID-19 pandemic may still have an impact on the prevailing traffic volumes. However, while the collected traffic volumes are lower than historical conditions, traffic volume data located within the *Traffic Impact Study* (TIS) prepared by Dynamic Traffic, LLC dated July 16, 2018 and last revised September 7, 2018 for the warehouse facilities located at Weston Canal Road (CR 623) and Randolph Road were utilized to normalize the MTM counts. As part of the TIS, MTM counts were conducted in 2018 at the intersection of Weston Canal Road (CR 623) and Schoolhouse Road. As such, in order to calculate the adjusted MTM volumes, the 2020 Build Traffic Volumes as illustrated in Figure 21 of the TIS were utilized and first increased to better represent existing 2022 traffic volumes by applying a growth rate of 1.75% per year obtained from the NJDOT Annual Background Growth Rate Table for a period of two (2) years.

Once the projected 2022 volumes were established for the previous count data, the projected TIS traffic volumes were compared to the current 2022 MTM counts at the intersection of Weston Canal Road (CR 623) and Randolph Road. Upon comparing the projected TIS traffic count data to the 2022 MTM data, adjustment factors of 1.44 and 1.10 were calculated during the weekday morning and weekday evening peak hours, respectively, and applied to the 2022 MTM counts.

Review of the collected traffic data reveals that the weekday morning peak street hour (PSH) occurs between 7:30 - 8:30 AM and the weekday evening PSH occurs between 5:30 - 6:30 PM. Figures 2 and 3, located in Appendix A, show the existing and adjusted existing peak hour traffic volumes at the study intersections. All traffic counts are contained in Appendix B.

### FUTURE CONDITIONS

Traffic volumes and operational analyses were developed for both the 2024 No Build and Build conditions. The No Build conditions provide a baseline for assessing the impact of the site development traffic on the roadway system. The process of developing the No Build and Build traffic volumes and the subsequent analyses is outlined below.

Regardless of whether the subject site is developed or not, traffic volumes on the surrounding roadways are expected to increase as a result of developments throughout the region. A growth rate for roadways within the study area was obtained from the NJDOT Annual Background Growth Rate Table, which indicates a growth rate of 1.75% per year.

Through consultation with the Franklin Township Planning Board staff, there are no other developments in the vicinity of the site that have been approved but not yet constructed that are identified as significant traffic generators. It was assumed that the background growth rate was adequate to account for the traffic associated with all developments not listed. It should be noted that since the 2022 MTM counts were compared to historical TIS volumes and increased accordingly, the volumes utilized herein provide a conservative representation of existing traffic conditions.

Future 2024 No Build traffic volumes were developed by applying the background growth rate of 1.75% for two (2) years to the study area roadways existing traffic volumes and adding the adjacent development traffic volumes. Figure 5, in Appendix A, shows the 2024 No Build traffic volumes.

#### Traffic Generation

Trip generation projections for The Project were prepared utilizing trip generation research data as published under Land Use Code (LUC) 150 – Warehousing in the Institute of Transportation Engineers’ (ITE) publication, *Trip Generation, 11<sup>th</sup> Edition*. This publication sets forth trip generation rates based on traffic counts conducted at research sites throughout the country. It should be noted that consistent with data published by the ITE for LUC 150, 13% of the AM site generated trips and 15% of the PM site generated trips were assumed to be trucks.

**Table I  
Trip Generation**

Trip Type		AM PSH			PM PSH		
		In	Out	Total	In	Out	Total
62,500 SF Warehouse	Total	24	7	31	10	24	34
	Heavy Vehicles	3	1	4	2	3	5
	Automobiles	21	6	27	8	21	29

Once the magnitude of traffic to be generated by the site is known, it is necessary to assign that traffic to the adjacent street system. The distribution of new traffic to the surrounding roadways is based on the location of primary arterial roadways, major signalized intersections and existing traffic patterns. Located in Appendix A, Figures 6-10 illustrate the Car Traffic Trip Distribution, Car Site Generated Volumes, Truck Traffic Trip Distribution, Truck Site Generated Volumes, and the Total Site Generated Volumes, respectively. The Total Site Generated Volumes assigned to the study area network were added to the No Build traffic volumes to generate the Build traffic volumes, which are shown in Figure 11.

**Future Capacity Analysis**

The methodology utilized in the capacity analyses is described in the *Highway Capacity Manual*, published by the Transportation Research Board. In general, the term Level of Service (LOS) is used to provide a “qualitative” evaluation of capacity based upon certain “quantitative” calculations related to empirical values, such as traffic volume and intersection control.

At signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, signal “green time”, turning percentages, truck volumes, etc. However, delays cannot be related to capacity in a simple one-to-one fashion. For example, it is possible to have delays in the Level of Service “F” range without exceeding roadway capacity. Substantial delays can exist without exceeding capacity if one or more of the following conditions exist: long signal cycle lengths; a particular traffic movement experiences a long red time; or progressive movement for a particular lane group is poor. Table II describes the level of service ranges for signalized intersections.

An unsignalized (STOP sign controlled) driveway or side street along a through route is seldom critical from an overall capacity standpoint, however, it may be of great significance to the capacity of the minor cross-route, and it may influence the quality of traffic flow on both. When analyzing an unsignalized intersection, it is assumed that both the major street through and right turn movements are unimpeded and have the right-of-way over all side street traffic and left turns from the major street. All other turning movements in the intersection cross, merge with, or are otherwise impeded by major street movements. Traffic delays at unsignalized intersections are determined by sequentially processing these impeded movements. Table III describes the level of service ranges for unsignalized (stop controlled) intersections.

**Table II  
Level of Service Criteria  
for Signalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
A	0.0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	greater than 80.0

**Table III  
Level of Service Criteria  
for Unsignalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
a	0.0 to 10.0
b	10.1 to 15.0
c	15.1 to 25.0
d	25.1 to 35.0
e	35.1 to 50.0
f	greater than 50.0

It should be noted that the analyses within the *Highway Capacity Manual* assume a random arrival for all the movements, which may not be the case if an adjacent traffic signal is present that platoons vehicles, such as the signalized intersection of Weston Canal Road (CR 623) and Cottontail Lane.

All capacity analyses were performed utilizing Synchro 11 software. Operational conditions at the study intersections were analyzed under the No Build and Build conditions and are summarized in Table IV below. All capacity analysis calculation worksheets are contained in Appendix C.

**Table IV**  
**Future Levels of Service**

Intersection	Direction/ Movement		AM PSH		PM PSH	
			No Build	Build	No Build	Build
Weston Canal Road (CR 623) & Randolph Road	WB	L	-	D (41)	D (39)	D (39)
		R	C (33)	C (33)	C (26)	C (27)
	NB	TR	D (49)	D (51)	C (29)	C (30)
	SB	L	D (50)	D (50)	A (6)	A (6)
		T	A (4)	A (4)	A (9)	A (9)
	<b>Overall</b>			<b>D (37)</b>	<b>D (38)</b>	<b>B (18)</b>
Weston Canal Road (CR 623) & Schoolhouse Road	WB	L	D (41)	D (41)	D (35)	D (35)
		R	B (12)	B (12)	A (9)	A (9)
	NB	T	B (14)	B (14)	B (11)	B (11)
		R	A (8)	A (8)	A (10)	A (10)
	SB	L	A (4)	A (4)	A (4)	A (4)
		T	A (5)	A (5)	A (8)	A (8)
	<b>Overall</b>			<b>B (14)</b>	<b>B (14)</b>	<b>B (12)</b>
Weston Canal Road (CR 623) & Site Driveway	WB	LR	-	d (27)	-	c (16)
	SB	LT	-	b (12)	-	a (9)

a (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)

### Weston Canal Road (CR 623) and Randolph Road

Randolph Road intersects Weston Canal Road (CR 623) to form a three-leg intersection controlled by a traffic signal. The traffic signal timing directive indicates that a three-phase variable cycle length is utilized (the traffic signal timing directive is included in Appendix B).

The westbound approach of Randolph Road provides a dedicated left turn lane and dedicated right turn lane. The northbound approach of Weston Canal Road (CR 623) provides a shared through/right turn lane, while the southbound approach provides a dedicated left turn lane and dedicated through lane.

With the addition of site generated traffic, the intersection is anticipated to continue to operate at overall intersection levels of service “D” or better during the analyzed peak hours. Additionally, each movement is anticipated to operate at No Build levels of service “D” or better. See Table IV for the individual movement levels of service and delays.

### **Weston Canal Road (CR 623) and Schoolhouse Road**

Schoolhouse Road intersects Weston Canal Road (CR 623) to form a three-leg intersection controlled by a traffic signal. The traffic signal timing directive indicates that a three-phase variable cycle length is utilized (the traffic signal timing directive is included in Appendix B).

The westbound approach of Schoolhouse Road provides a dedicated left turn lane and dedicated right turn lane. The northbound approach of Weston Canal Road (CR 623) provides a dedicated through lane and a dedicated right turn lane, while the southbound approach provides a dedicated left turn lane and dedicated through lane.

With the addition of site generated traffic, the intersection is anticipated to operate at overall intersection levels of service “B” or better during the analyzed peak hours. Additionally, each movement is anticipated to operate at No Build levels of service “D” or better. See Table IV for the individual movement levels of service and delays.

### **Weston Canal Road (CR 623) and Site Driveway**

The site driveway is proposed to intersect Weston Canal Road (CR 623) to form an unsignalized T-intersection with the westbound approach of the site driveway operating under stop control. The westbound approach of the site driveway is proposed to provide a shared left turn/right turn lane. The northbound approach of Weston Canal Road (CR 623) is proposed to provide a shared through/right turn lane, while the southbound approach is proposed to provide a shared left turn/through lane.

As designed, the driveway is anticipated to operate at levels of service “D” or better during the studied peak hours. See Table IV for the individual movement levels of service and delays.



## **SITE PLAN**

### **Site Access and Circulation**

The site plan was reviewed with respect to the site access and on-site circulation design. As noted previously, access to The Project will be provided via a new full movement driveway along Weston Canal Road (CR 623).

The parking lot will be serviced by parking aisles with a minimum width of 26', which complies with the Ordinance's minimum requirement of 24'. It should be noted that these aisle widths will allow for two-way circulation and 90 degree parking and the safe and efficient movement of the automobile traffic anticipated. Aisle widths of at least 26' are only proposed in the passenger car parking areas. Increased aisle widths are provided adjacent to the loading area.

Review of the site plan design indicates that the site can sufficiently accommodate, within paved areas, a large wheel base vehicle, such as a single unit truck (SU), or a tractor with a 53' trailer, along with the automobile traffic anticipated.

### **Parking**

The Franklin Township Ordinance sets forth a parking requirement of 1 parking space per each 1,000 SF for the first 5,000 SF, then 1 parking space for each 2,500 SF thereafter for warehouse uses. This equates to a parking requirement of 28 spaces for the proposed 62,500 SF industrial warehouse facility. The site as proposed provides 52 parking spaces and the ordinance requirement is satisfied.

It is proposed to provide parking stalls with dimensions of 9'x18', which satisfy the Ordinance minimum requirement of 9'x18'. The site proposes 4 loading stalls with a dimension of 13'x60' which complies with Ordinance requirements.

## **FINDINGS & CONCLUSIONS**

### **Findings**

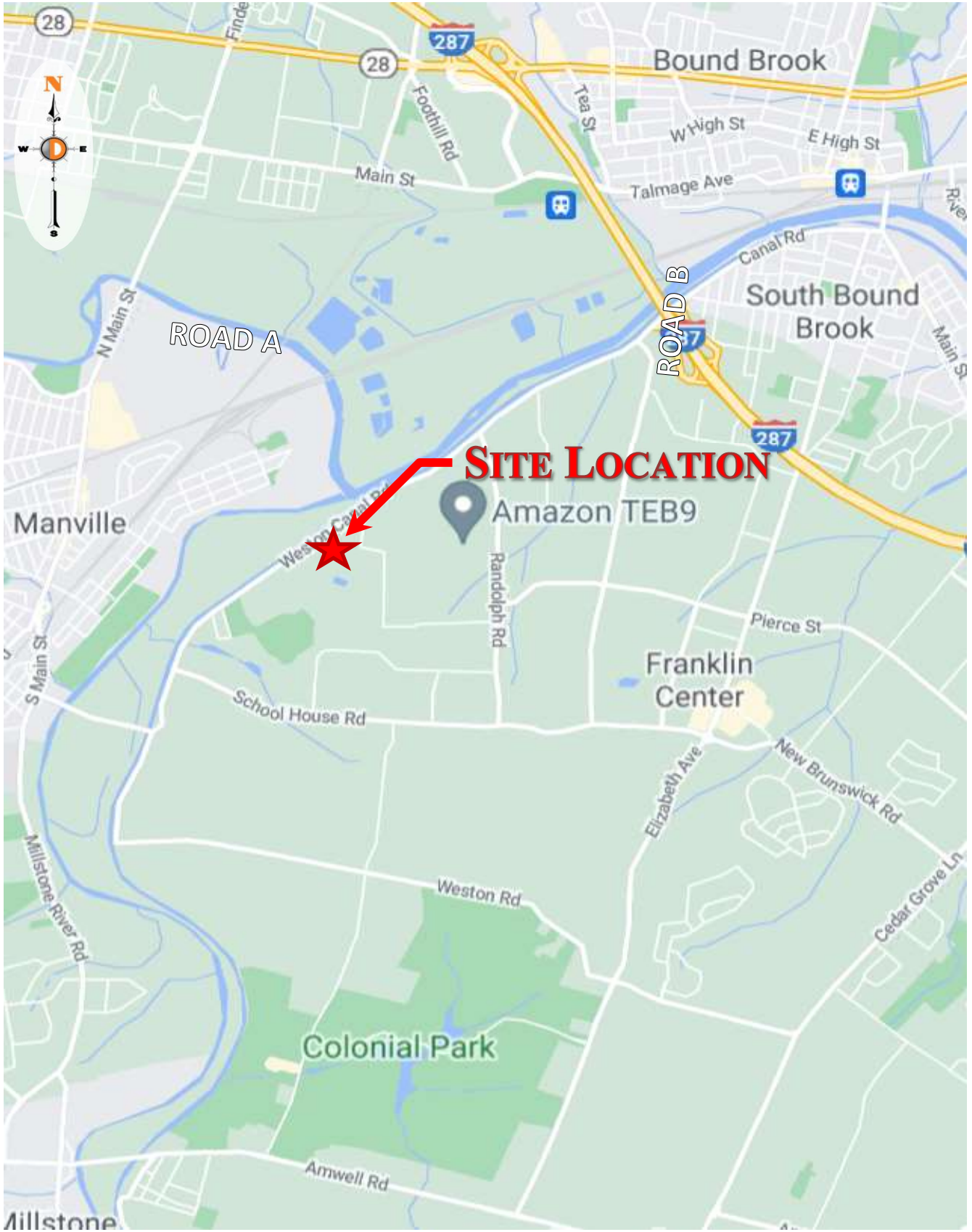
Based upon the detailed analyses as documented herein, the following findings are noted:

- The proposed 62,500 SF industrial warehouse facility, is projected to generate 24 entering trips and 7 exiting trips during the weekday morning peak hour and 10 entering trips and 24 exiting trips during the evening peak hour that are “new” to the adjacent roadway network.
- Access to the site is proposed to be provided via a new full movement driveway along Weston Canal Road (CR 623).
- With the addition of site generated traffic, the intersection of Weston Canal Road (CR 623) and Randolph Road is anticipated to operate at acceptable intersection levels of service “D” or better during the peak hours studied.
- With the addition of site generated traffic, the intersection of Weston Canal Road (CR 623) and Schoolhouse Road is anticipated to operate at acceptable intersection levels of service “B” or better during the peak hours studied.
- As designed, the intersection of Weston Canal Road (CR 623) and the site driveway is anticipated to operate at acceptable levels of service “D” or better during the peak hours studied.
- As proposed, The Project’s site driveways and internal circulation have been designed to provide for safe and efficient movement of automobiles and large wheel base vehicles.
- The proposed parking supply and design is sufficient to support the projected demand and satisfies the Ordinance requirements.

### **Conclusions**

Based upon our Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Dynamic Traffic LLC that the adjacent street system of the Township of Franklin and Somerset County will not experience any significant degradation in operating conditions with the construction of The Project. The site driveways are located to provide safe and efficient access to the adjacent roadway system. The site plan as proposed provides for good circulation throughout the site and provides adequate parking to accommodate The Project’s needs.

**Appendix A**  
**Traffic Volume Figures**

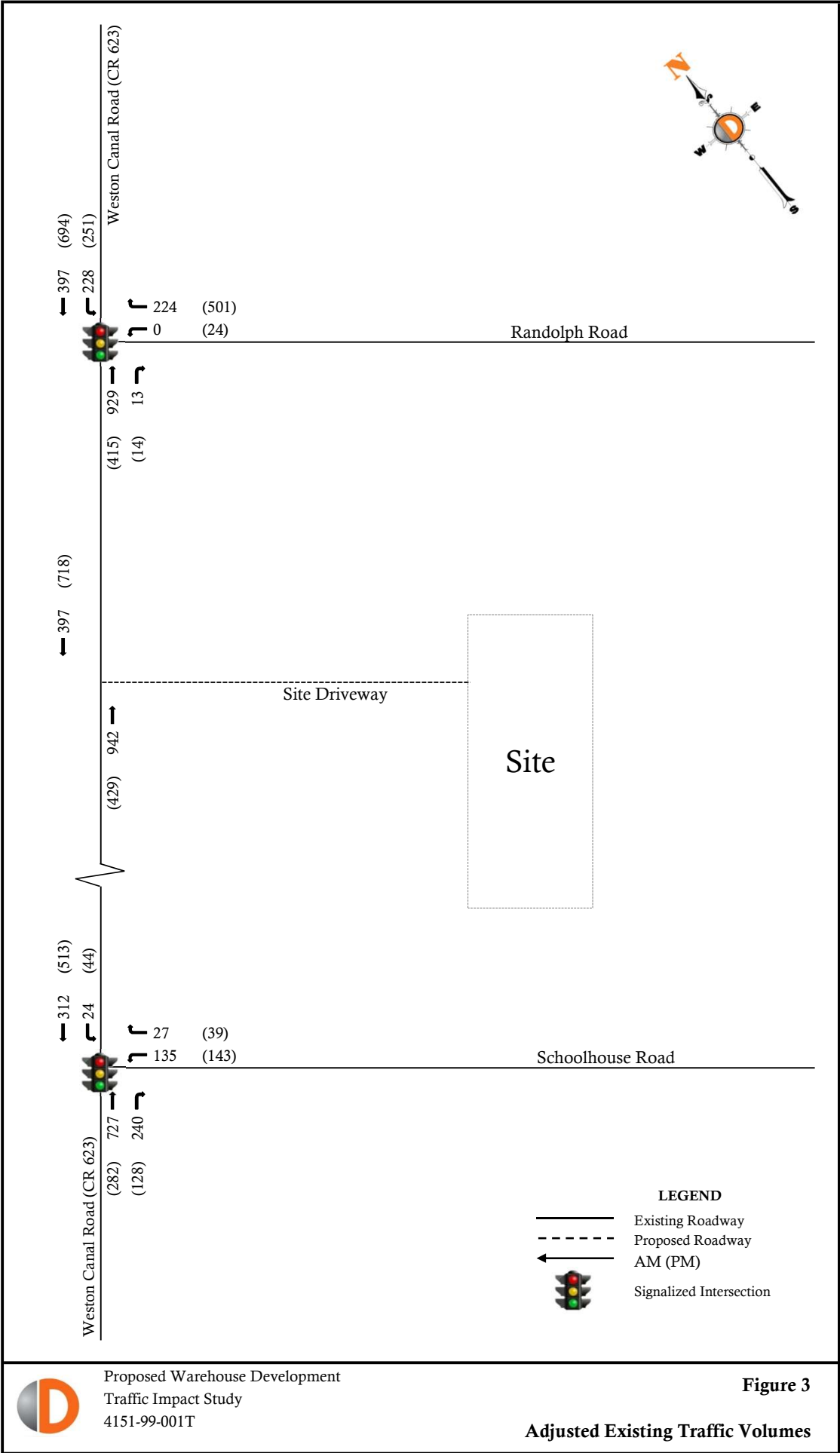


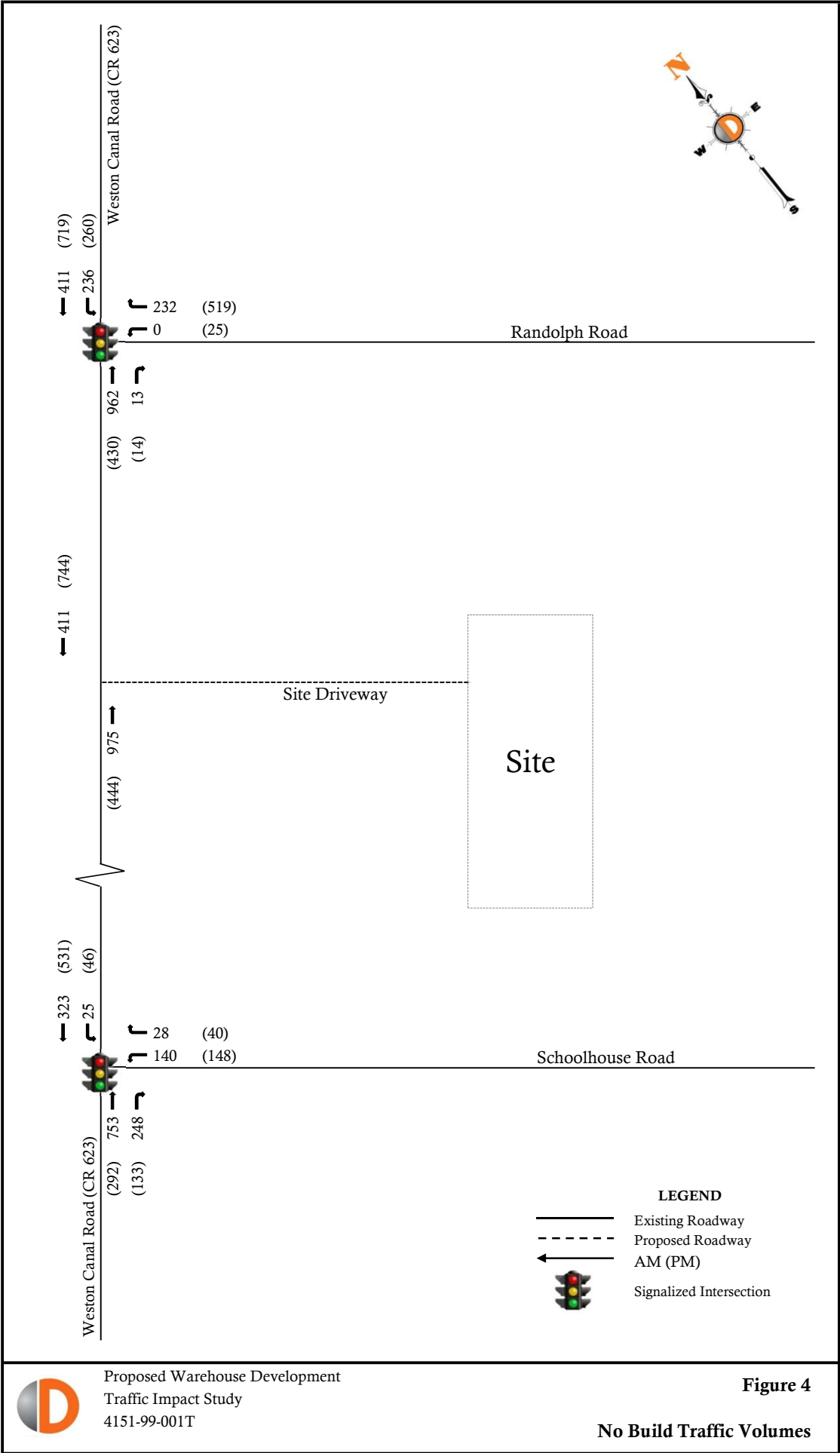
Proposed Warehouse Development  
Traffic Impact Study  
4151-99-001T

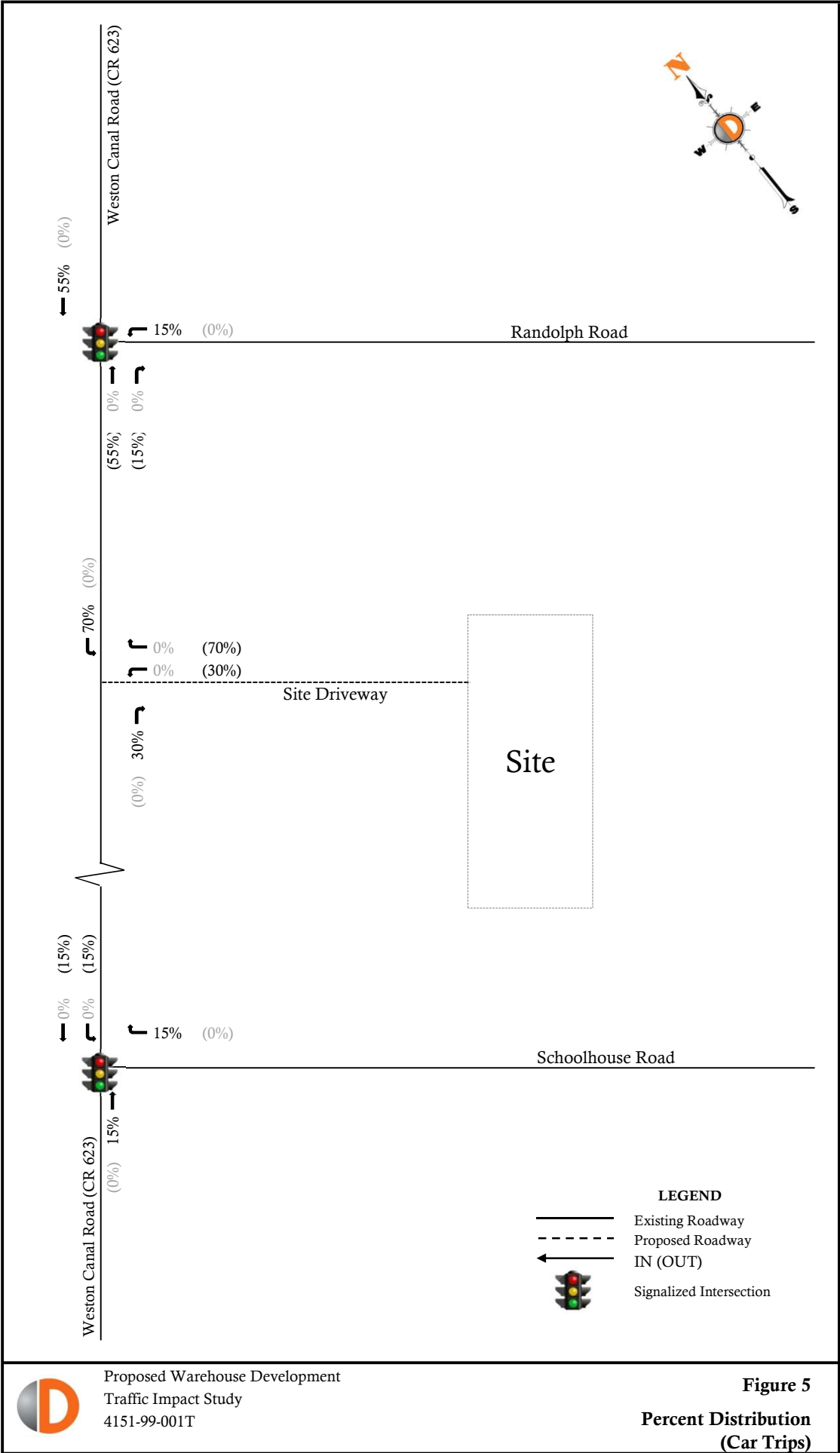
Figure 1

Site Location Map

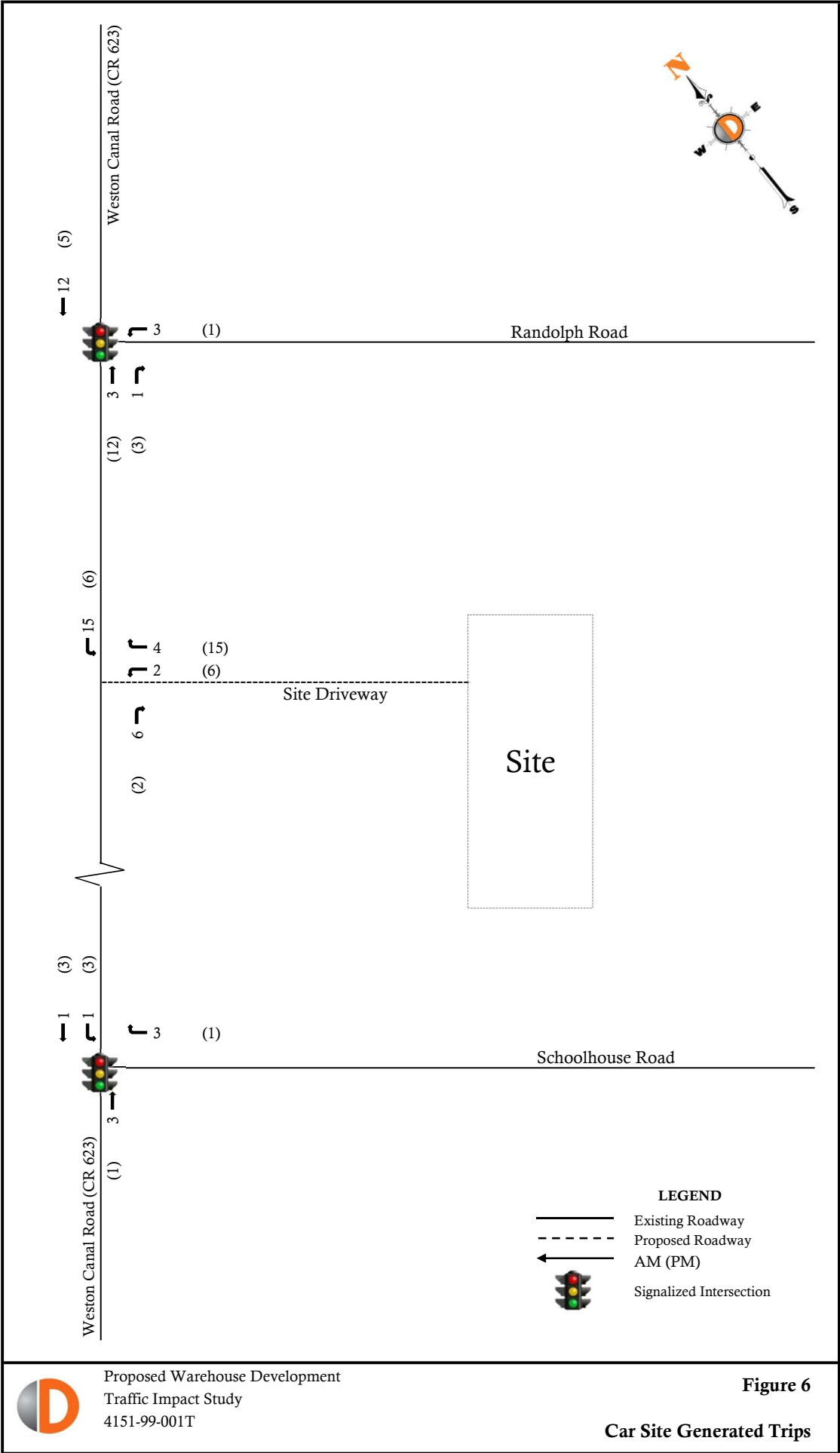


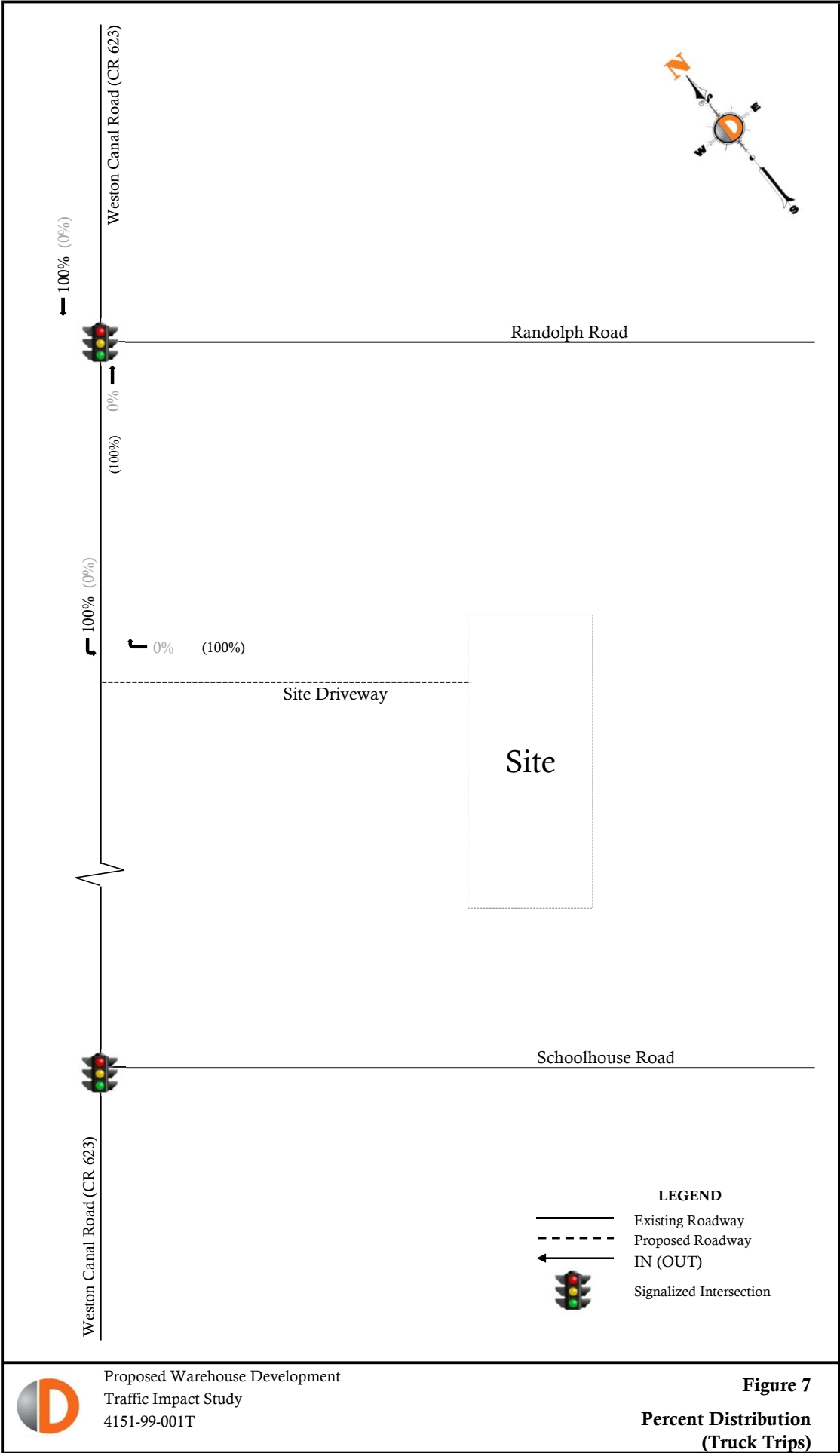




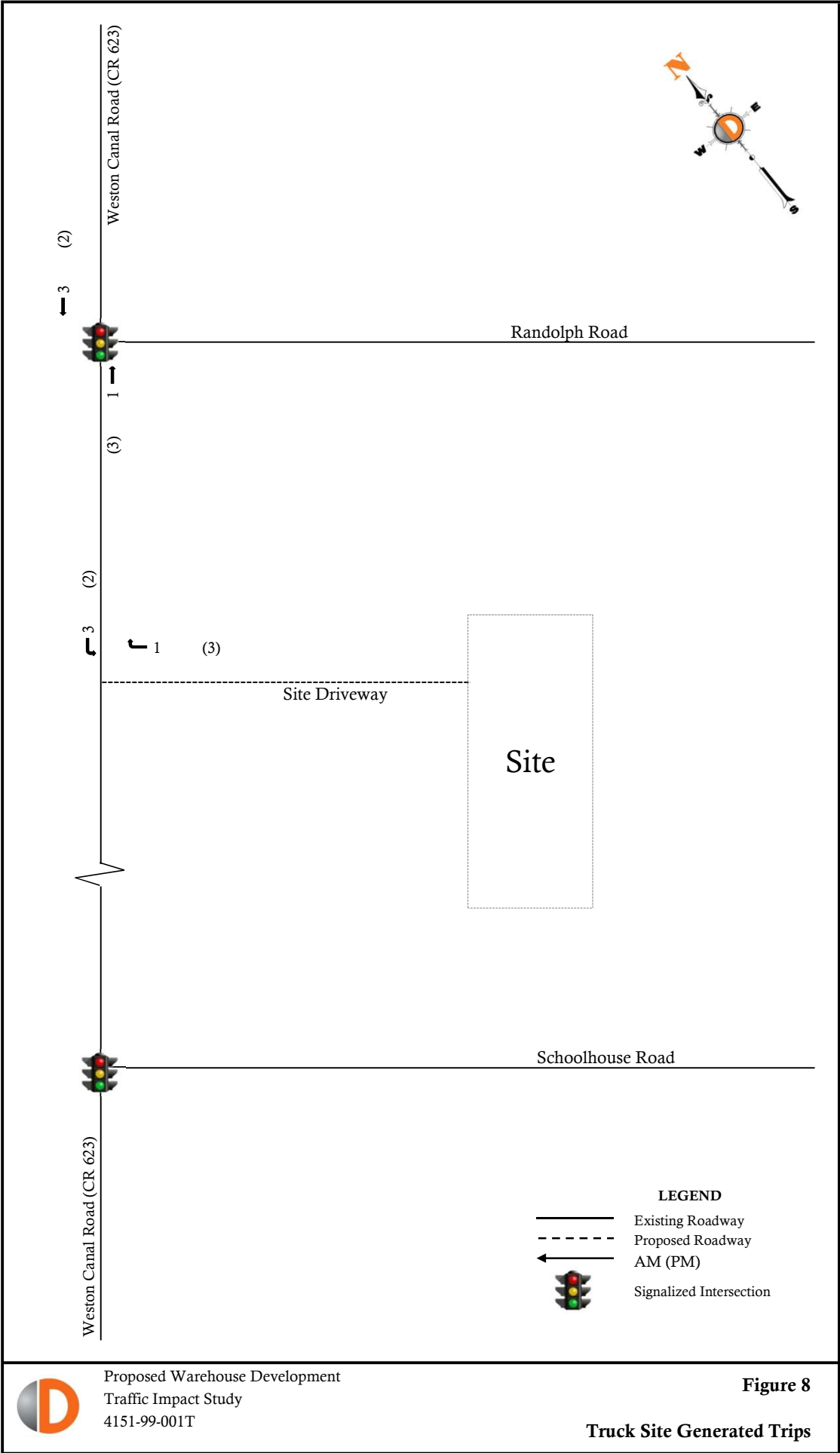


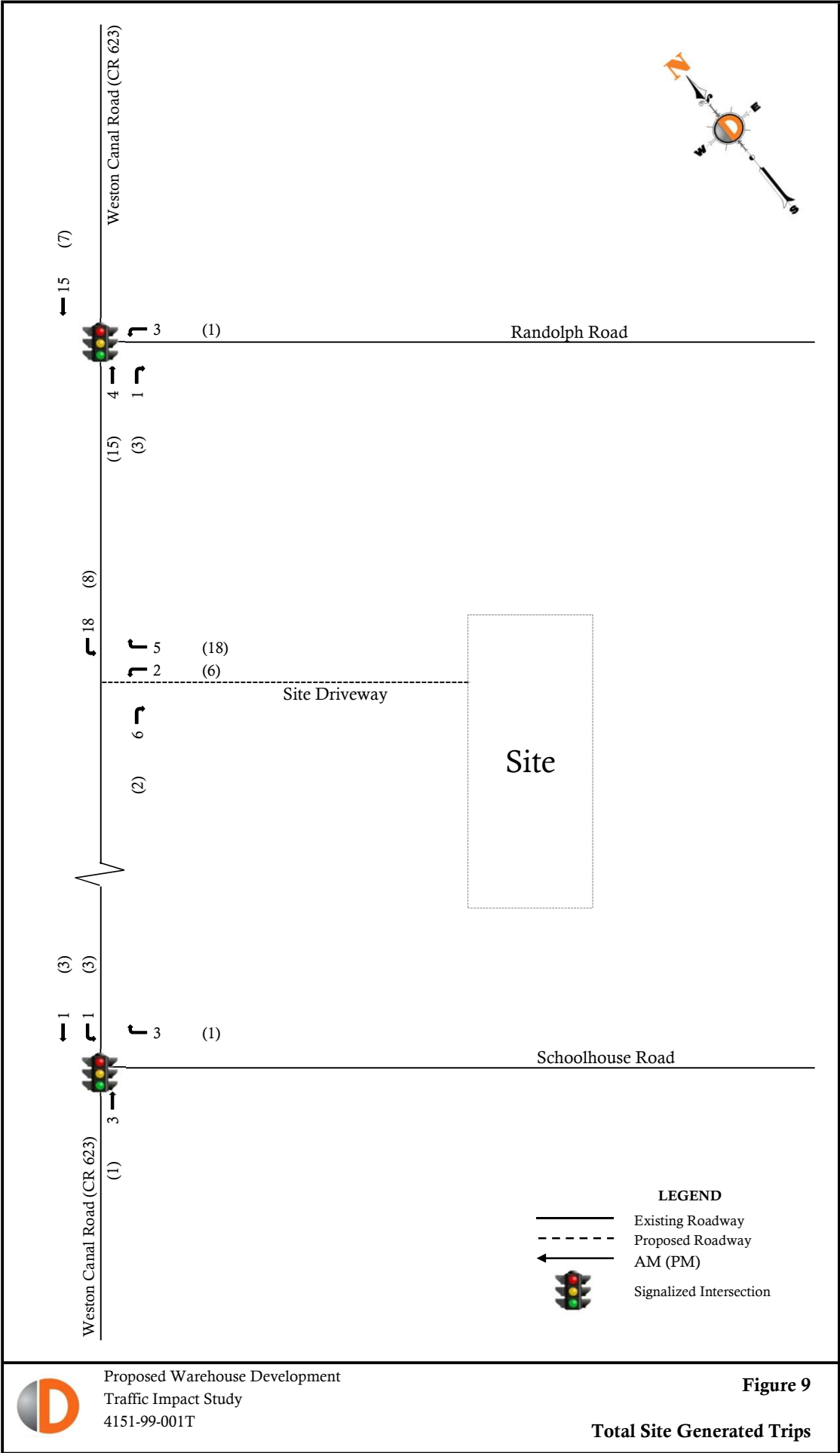


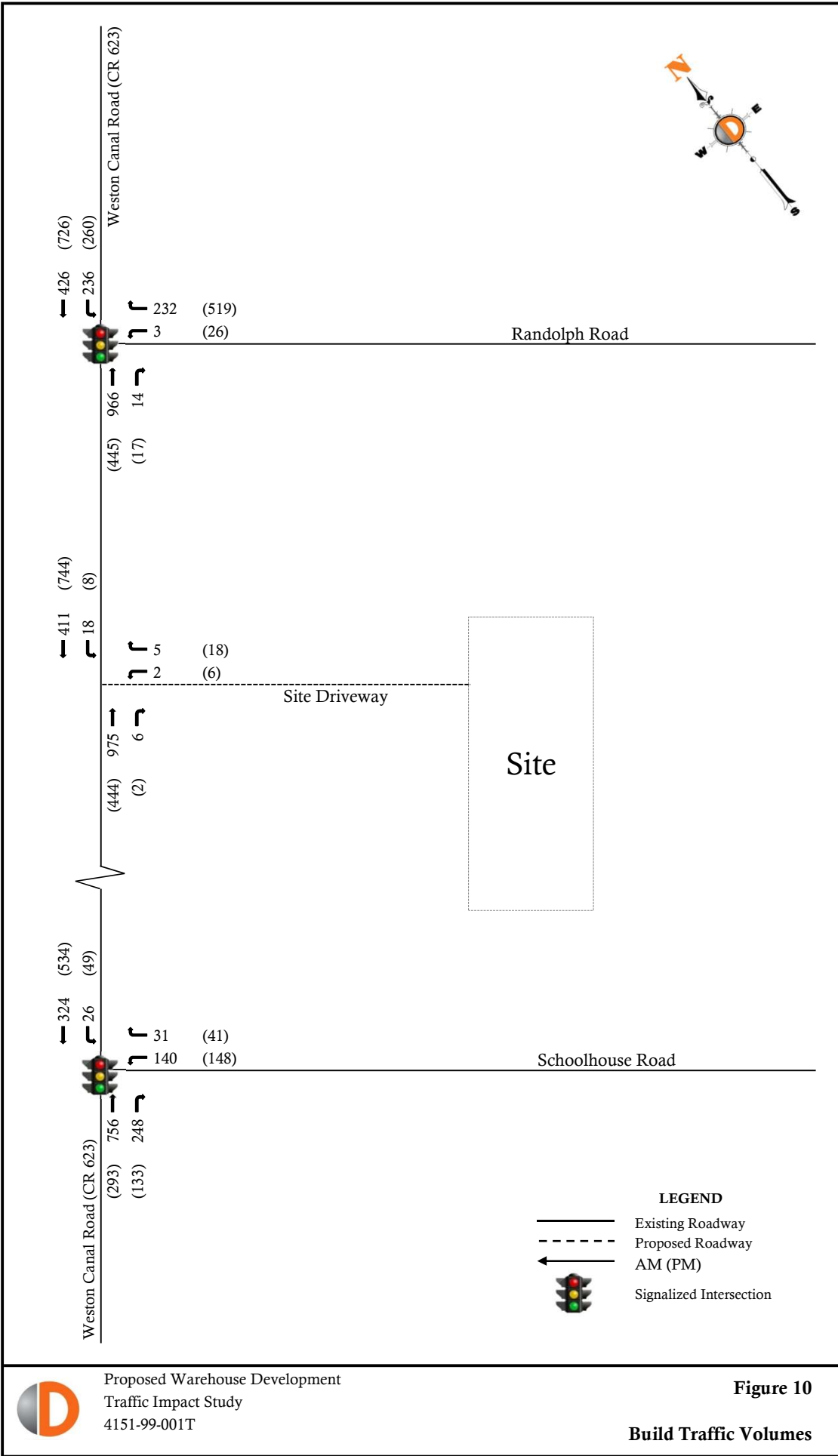




**Figure 7**  
**Percent Distribution**  
**(Truck Trips)**







**Appendix B**  
**Project Information**

# Dynamic Traffic, LLC

1904 Main Street, Lake Como, NJ 07719  
 245 Main Street - Suite #110, Chester, NJ 07930  
 732-681-0760

E/W: Weston Canal Rd  
 N/S: Randolph Rd  
 Town/County: Franklin/Somerset  
 Job #: 4151-99-001T

File Name : Weston Canal Rd & Randolph Rd - AMPM  
 Site Code : 00000000  
 Start Date : 1/13/2022  
 Page No : 1

## Groups Printed- Cars - Trucks (SU) - Trucks (TT)

Start Time	Weston Canal Road (CR 623) Eastbound					Weston Canal Road (CR 623) Westbound					Randolph Road Northbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	0	127	2	0	129	89	41	0	0	130	5	0	79	0	84	343
07:15 AM	0	108	1	0	109	57	76	0	0	133	0	0	50	0	50	292
07:30 AM	0	189	3	0	192	49	74	0	0	123	0	0	64	0	64	379
07:45 AM	0	146	3	0	149	66	62	0	0	128	0	0	59	0	59	336
Total	0	570	9	0	579	261	253	0	0	514	5	0	252	0	257	1350
08:00 AM	0	181	4	0	185	52	74	0	0	126	0	0	45	0	45	356
08:15 AM	0	125	3	0	128	61	66	0	0	127	0	0	56	0	56	311
08:30 AM	0	130	3	0	133	31	63	0	0	94	0	0	34	0	34	261
08:45 AM	0	123	1	0	124	49	46	0	0	95	2	1	45	0	48	267
Total	0	559	11	0	570	193	249	0	0	442	2	1	180	0	183	1195
*** BREAK ***																
04:30 PM	0	114	0	0	114	31	184	0	0	215	9	0	89	0	98	427
04:45 PM	0	128	2	0	130	46	152	0	0	198	6	0	82	0	88	416
Total	0	242	2	0	244	77	336	0	0	413	15	0	171	0	186	843
05:00 PM	0	115	0	0	115	31	132	0	0	163	13	0	103	0	116	394
05:15 PM	0	94	1	0	95	33	129	0	0	162	1	0	71	0	72	329
05:30 PM	0	109	3	0	112	56	170	0	0	226	4	0	119	0	123	461
05:45 PM	0	78	3	0	81	54	133	0	0	187	4	0	62	0	66	334
Total	0	396	7	0	403	174	564	0	0	738	22	0	355	0	377	1518
06:00 PM	0	93	4	0	97	53	157	0	0	210	15	0	201	0	216	523
06:15 PM	0	96	4	0	100	88	169	0	0	257	1	0	119	2	122	479
Grand Total	0	1956	37	0	1993	846	1728	0	0	2574	60	1	1278	2	1341	5908
Apprch %	0	98.1	1.9	0		32.9	67.1	0	0		4.5	0.1	95.3	0.1		
Total %	0	33.1	0.6	0	33.7	14.3	29.2	0	0	43.6	1	0	21.6	0	22.7	
Cars	0	1927	34	0	1961	763	1697	0	0	2460	55	0	1184	2	1241	5662
% Cars	0	98.5	91.9	0	98.4	90.2	98.2	0	0	95.6	91.7	0	92.6	100	92.5	95.8
Trucks (SU)	0	27	3	0	30	20	24	0	0	44	3	0	33	0	36	110
% Trucks (SU)	0	1.4	8.1	0	1.5	2.4	1.4	0	0	1.7	5	0	2.6	0	2.7	1.9
Trucks (TT)	0	2	0	0	2	63	7	0	0	70	2	1	61	0	64	136
% Trucks (TT)	0	0.1	0	0	0.1	7.4	0.4	0	0	2.7	3.3	100	4.8	0	4.8	2.3

# Dynamic Traffic, LLC

1904 Main Street, Lake Como, NJ 07719  
 245 Main Street - Suite #110, Chester, NJ 07930  
 732-681-0760

E/W: Schoolhouse Rd  
 N/S: Weston Canal Rd  
 Town/County: Franklin/Somerset  
 Job #: 4151-99-001T

File Name : Weston Canal Rd & Schoolhouse Rd - AMPM  
 Site Code : 00000000  
 Start Date : 1/13/2022  
 Page No : 1

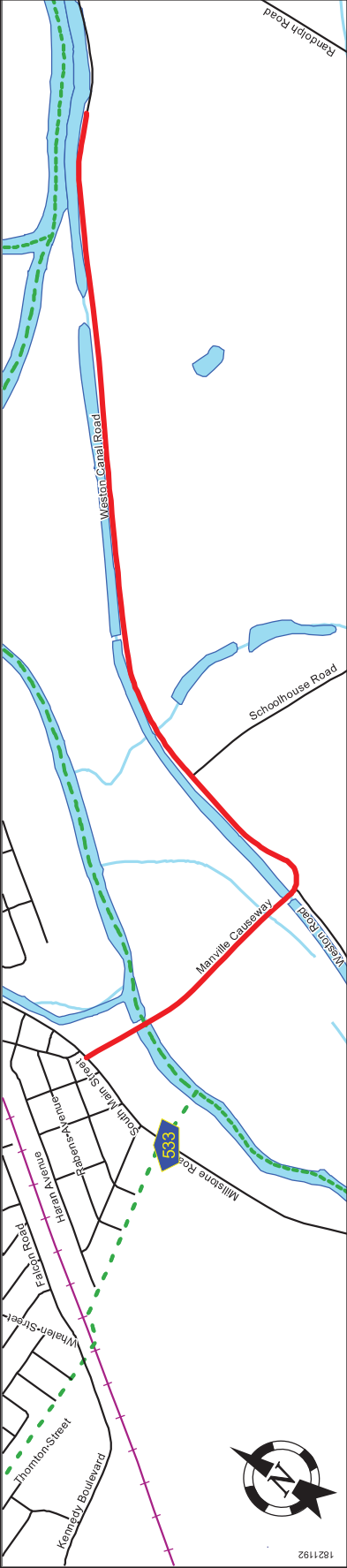
## Groups Printed- Cars - Trucks (SU) - Trucks (TT)

Start Time	Schoolhouse Road Westbound					Weston Canal Road (CR 623) Northbound					Weston Canal Road (CR 623) Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	14	0	6	0	20	0	109	16	0	125	0	45	0	0	45	190
07:15 AM	21	0	1	0	22	0	95	27	0	122	1	59	0	0	60	204
07:30 AM	25	0	4	0	29	0	140	32	0	172	5	52	0	0	57	258
07:45 AM	23	0	2	0	25	0	135	49	0	184	1	63	0	0	64	273
Total	83	0	13	0	96	0	479	124	0	603	7	219	0	0	226	925
08:00 AM	22	0	7	0	29	0	122	30	0	152	8	50	0	0	58	239
08:15 AM	24	0	6	0	30	0	108	56	0	164	3	52	0	0	55	249
08:30 AM	35	0	6	0	41	0	116	45	0	161	4	53	0	0	57	259
08:45 AM	27	0	8	0	35	0	88	29	0	117	5	56	0	0	61	213
Total	108	0	27	0	135	0	434	160	0	594	20	211	0	0	231	960
*** BREAK ***																
04:30 PM	41	0	18	0	59	0	96	29	0	125	14	123	0	0	137	321
04:45 PM	34	0	12	0	46	0	86	22	0	108	11	116	0	0	127	281
Total	75	0	30	0	105	0	182	51	0	233	25	239	0	0	264	602
05:00 PM	58	0	6	0	64	0	90	27	0	117	12	120	0	0	132	313
05:15 PM	45	0	8	0	53	0	82	29	0	111	6	100	0	0	106	270
05:30 PM	32	0	9	0	41	0	69	35	0	104	12	144	0	0	156	301
05:45 PM	33	0	8	0	41	0	51	28	0	79	9	105	0	0	114	234
Total	168	0	31	0	199	0	292	119	0	411	39	469	0	0	508	1118
06:00 PM	36	0	7	0	43	0	79	31	0	110	9	113	0	0	122	275
06:15 PM	29	0	11	0	40	0	57	22	0	79	10	104	0	0	114	233
Grand Total	499	0	119	0	618	0	1523	507	0	2030	110	1355	0	0	1465	4113
Apprch %	80.7	0	19.3	0		0	75	25	0		7.5	92.5	0	0		
Total %	12.1	0	2.9	0	15	0	37	12.3	0	49.4	2.7	32.9	0	0	35.6	
Cars	491	0	117	0	608	0	1504	499	0	2003	107	1331	0	0	1438	4049
% Cars	98.4	0	98.3	0	98.4	0	98.8	98.4	0	98.7	97.3	98.2	0	0	98.2	98.4
Trucks (SU)	6	0	2	0	8	0	17	5	0	22	3	16	0	0	19	49
% Trucks (SU)	1.2	0	1.7	0	1.3	0	1.1	1	0	1.1	2.7	1.2	0	0	1.3	1.2
Trucks (TT)	2	0	0	0	2	0	2	3	0	5	0	8	0	0	8	15
% Trucks (TT)	0.4	0	0	0	0.3	0	0.1	0.6	0	0.2	0	0.6	0	0	0.5	0.4

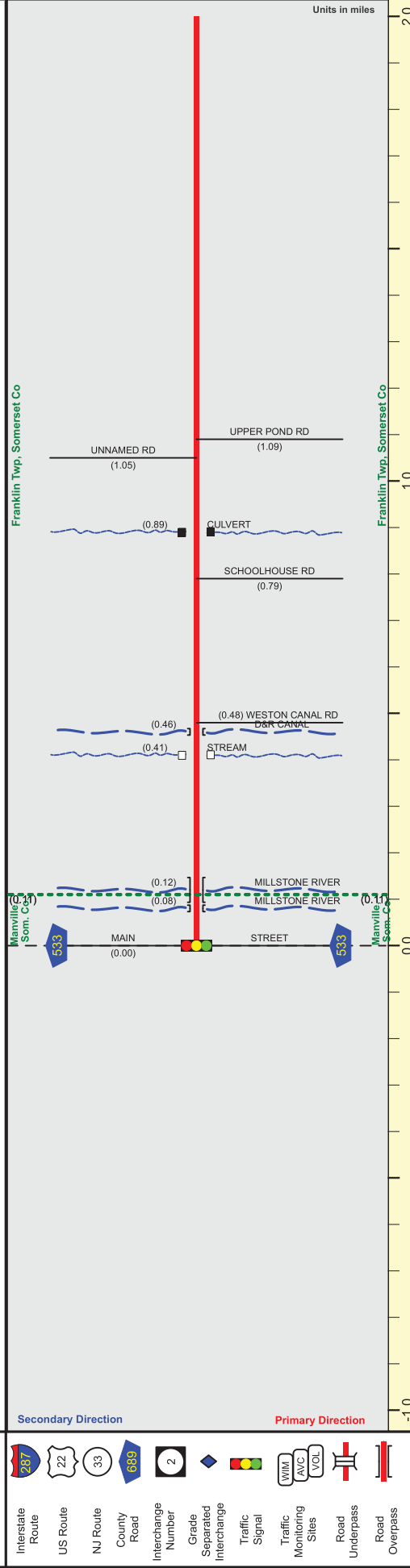


Mile Posts: 0.000 - 2.000

SOMERSET COUNTY 623 (South to North)



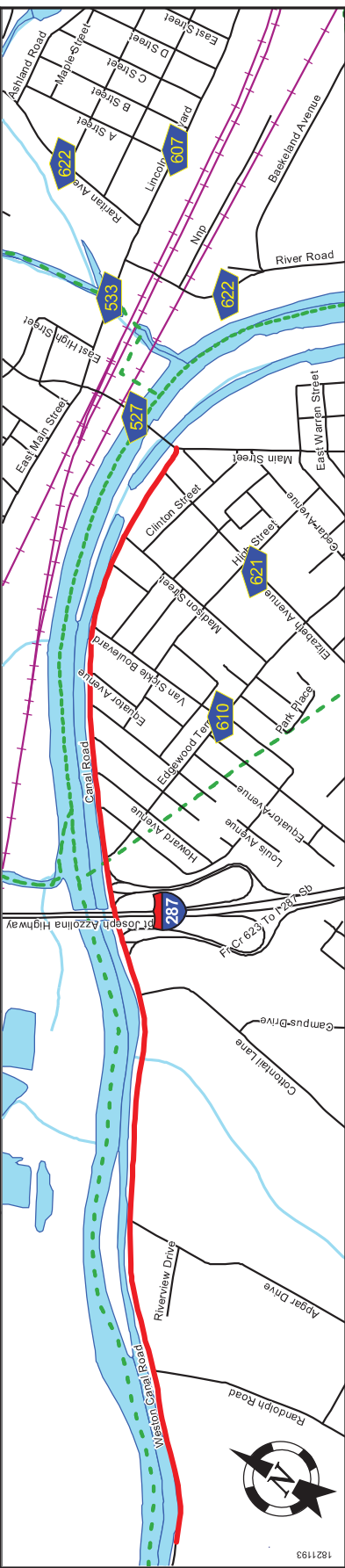
Pavement	
Shoulder	
Number of Lanes	
Speed Limit	
Street Name	



Street Name	Weston Canal Road
Jurisdiction	County
Functional Class	Urban Major Collector
Federal Aid - NHS Sy	STP
Control Section	
Speed Limit	35
Number of Lanes	2
Med. Type	None
Med. Width	0
Pavement	22
Shoulder	8
Traffic Volume	6
Traffic Sta. ID	2
Structure No.	
Enlarged Views	

Mile Posts: 2.000 - 4.150

SOMERSET COUNTY 623 (South to North)

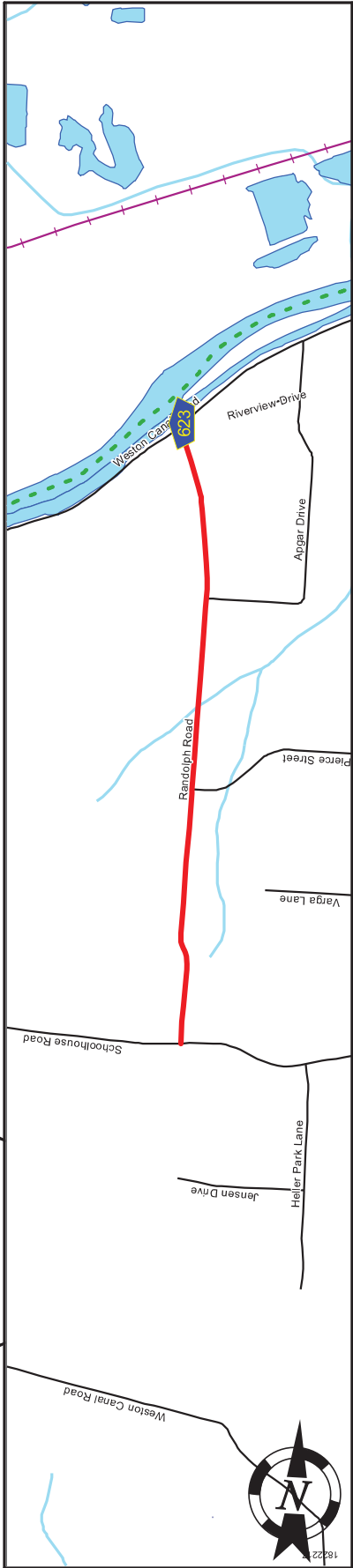


Pavement	Shoulder	Number of Lanes	Speed Limit	Street Name	Interstate Route	US Route	NJ Route	County Road	Interchange Number	Grade	Separated Interchange	Traffic Signal	Traffic Monitoring Sites	Road Underpass	Road Overpass	Street Name	Jurisdiction	Functional Class	Federal Aid - NHS Sy	Control Section	Speed Limit	Number of Lanes	Med. Type	Med. Width	Pavement	Shoulder	Traffic Volume	Traffic Sta. ID	Structure No.	Enlarged Views
					287	22	33	689	2							Weston Canal Road	County	Urban Major Collector	STP		45	2	None	0	22	2				
																Franklin Twp, Somerset Co														
																Franklin Twp, Somerset Co														
																South Bound Brook Boro, Somerset Co														
																South Bound Brook Boro, Somerset Co														
																End Somerset County 623 MP=4.15														

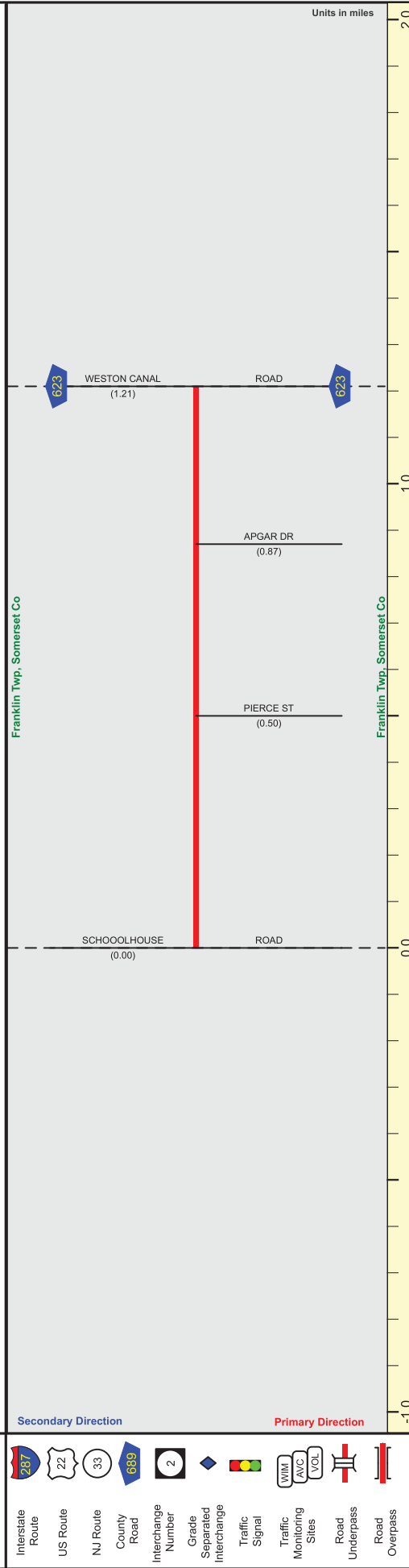
SRI = 18000623 Date last inventoried: July 2011

Mile Posts: 0.000 - 1.210

RANDOLPH RD (South to North)



Pavement	
Shoulder	
Number of Lanes	
Speed Limit	
Street Name	

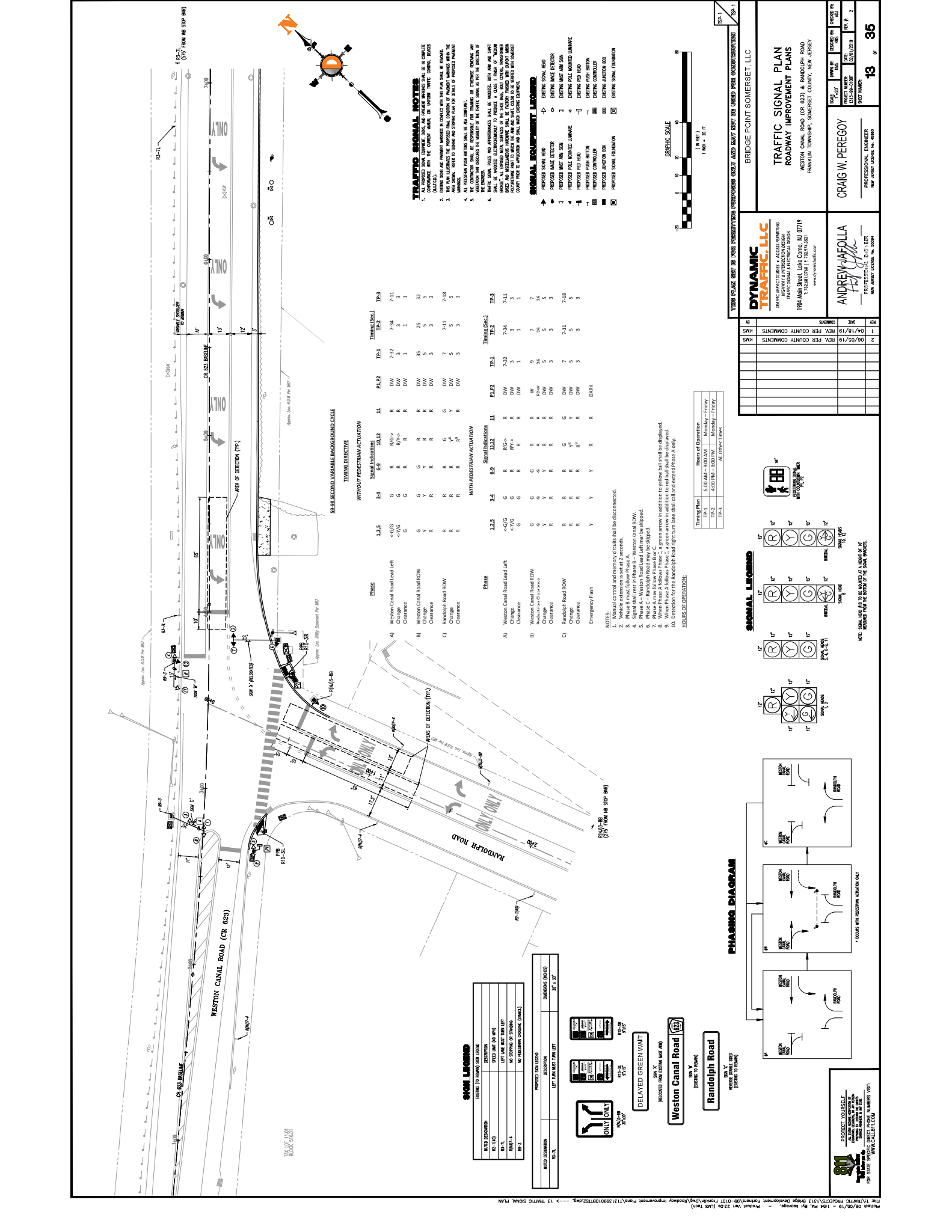


Street Name	Randolph Road
Jurisdiction	Municipal
Functional Class	Urban Major Collector
Federal Aid - NHS Sy	STP
Control Section	
Speed Limit	40
Number of Lanes	2
Med. Type	None
Med. Width	0
Pavement	40
Shoulder	0
Traffic Volume	
Traffic Sta. ID	
Structure No.	
Enlarged Views	

Date last inventoried: September 2017

SRI = 18081651





**TRAFFIC SIGNAL NOTES**

- ALL PROPOSED SIGNAL LOCATIONS, SIGNAL AND MOUNTING HEIGHTS SHALL BE IN COMPLETE COMPLIANCE WITH THE CURRENT STANDARDS ON SIGNALS (MUTUAL, SIGNALS, SIGNALS).
- EXISTING SIGNALS AND PROPOSED SIGNALS IN CONTACT WITH THIS PLAN SHALL BE IDENTIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND MAINTENANCE OF ALL EXISTING SIGNALS AND PROPOSED SIGNALS.
- ALL EXISTING SIGNALS SHALL BE MAINTAINED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND MAINTENANCE OF ALL EXISTING SIGNALS AND PROPOSED SIGNALS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND MAINTENANCE OF ALL EXISTING SIGNALS AND PROPOSED SIGNALS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND MAINTENANCE OF ALL EXISTING SIGNALS AND PROPOSED SIGNALS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND MAINTENANCE OF ALL EXISTING SIGNALS AND PROPOSED SIGNALS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND MAINTENANCE OF ALL EXISTING SIGNALS AND PROPOSED SIGNALS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND MAINTENANCE OF ALL EXISTING SIGNALS AND PROPOSED SIGNALS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND MAINTENANCE OF ALL EXISTING SIGNALS AND PROPOSED SIGNALS.

**SIGNAL EQUIPMENT LISTINGS**

EXISTING SIGNAL HEAD	PROPOSED SIGNAL HEAD	EXISTING MOUNTING HEIGHT	PROPOSED MOUNTING HEIGHT
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10

**50-90 SECOND VARIABLE BACKGROUND CYCLE**

**WITHOUT PEDESTRIAN ACTIVATION**

Phase	Signal Indicators	TP-1	TP-2	TP-3
A) Weston Canal Road Lead Left	G R	7:32	7:34	7:11
Change	R R	1	1	1
B) Weston Canal Road ROW	G R	35	35	32
Change	R R	3	3	3
C) Randolph Road ROW	G R	7	7	7:18
Change	R R	5	5	5
Emergency Flash	R R	5	5	5

**WITH PEDESTRIAN ACTIVATION**

Phase	Signal Indicators	TP-1	TP-2	TP-3
A) Weston Canal Road Lead Left	G R	7:32	7:34	7:11
Change	R R	1	1	1
B) Weston Canal Road ROW	G R	35	35	32
Change	R R	3	3	3
C) Randolph Road ROW	G R	7	7	7:18
Change	R R	5	5	5
Emergency Flash	R R	5	5	5

**PHASING DIAGRAM**

**SIGNAL LEGEND**

**NOTES:**

- Manual control and memory circuits shall be disconnected.
- Signal shall rest in Phase A.
- Phase B must follow Phase A.
- Signal shall rest in Phase B - Weston Canal ROW.
- Phase C - Randolph Road may be skipped.
- Phase C - Randolph Road may be skipped.
- Phase A may follow Phase B or C.
- When Phase A follows Phase C, a green arrow in addition to red ball shall be displayed.
- When Phase A follows Phase C, a green arrow in addition to red ball shall be displayed.
- Direction for the Randolph Road right turn lane shall call and extend Phase A only.

**DYNAMIC TRAFFIC, LLC**  
 TRAFFIC ENGINEERING & ACCESS REMEDIATION  
 TRAFFIC SIGNAL ELECTRICAL DESIGN  
 100 High Street, Lake Como, NJ 07719  
 T: 202.681.0761 | F: 202.742.8817  
 www.dynamictraffic.com

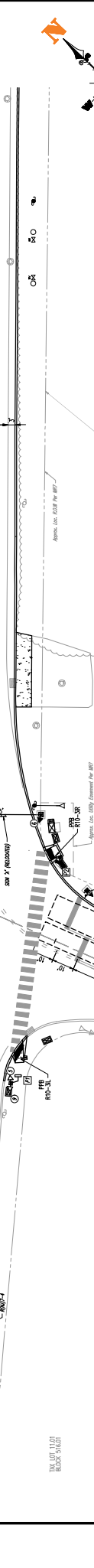
**ANDREW M. GALLA**  
 PROFESSIONAL ENGINEER  
 NEW JERSEY LICENSE NO. 30084

**CRAIG W. PEREGOY**  
 PROFESSIONAL ENGINEER  
 NEW JERSEY LICENSE NO. 4086

PROJECT NUMBER: 2024-001  
 SHEET NUMBER: 13 OF 35

**PHASING DIAGRAM**

Timing Plan	Hours of Operation
TP-1	6:00 AM - 8:00 AM Monday - Friday
TP-2	4:00 PM - 8:00 PM Monday - Friday
TP-3	All Other Times



**SIGNAL LEGEND**

Signal State	Description	Dimensions
ONLY ONLY	ONLY ONLY	30" x 30"
DELAYED GREEN WAIT	DELAYED GREEN WAIT	30" x 30"
WESTON CANAL ROAD	WESTON CANAL ROAD	30" x 30"
RANDOLPH ROAD	RANDOLPH ROAD	30" x 30"

**TRAFFIC SIGNAL NOTES**

- Manual control and memory circuits shall be disconnected.
- Signal shall rest in Phase A.
- Phase B must follow Phase A.
- Signal shall rest in Phase B - Weston Canal ROW.
- Phase C - Randolph Road may be skipped.
- Phase C - Randolph Road may be skipped.
- Phase A may follow Phase B or C.
- When Phase A follows Phase C, a green arrow in addition to red ball shall be displayed.
- When Phase A follows Phase C, a green arrow in addition to red ball shall be displayed.
- Direction for the Randolph Road right turn lane shall call and extend Phase A only.

**50-90 SECOND VARIABLE BACKGROUND CYCLE**

**WITHOUT PEDESTRIAN ACTIVATION**

Phase	Signal Indicators	TP-1	TP-2	TP-3
A) Weston Canal Road Lead Left	G R	7:32	7:34	7:11
Change	R R	1	1	1
B) Weston Canal Road ROW	G R	35	35	32
Change	R R	3	3	3
C) Randolph Road ROW	G R	7	7	7:18
Change	R R	5	5	5
Emergency Flash	R R	5	5	5

**WITH PEDESTRIAN ACTIVATION**

Phase	Signal Indicators	TP-1	TP-2	TP-3
A) Weston Canal Road Lead Left	G R	7:32	7:34	7:11
Change	R R	1	1	1
B) Weston Canal Road ROW	G R	35	35	32
Change	R R	3	3	3
C) Randolph Road ROW	G R	7	7	7:18
Change	R R	5	5	5
Emergency Flash	R R	5	5	5

**PHASING DIAGRAM**

**SIGNAL LEGEND**

**NOTES:**

- Manual control and memory circuits shall be disconnected.
- Signal shall rest in Phase A.
- Phase B must follow Phase A.
- Signal shall rest in Phase B - Weston Canal ROW.
- Phase C - Randolph Road may be skipped.
- Phase C - Randolph Road may be skipped.
- Phase A may follow Phase B or C.
- When Phase A follows Phase C, a green arrow in addition to red ball shall be displayed.
- When Phase A follows Phase C, a green arrow in addition to red ball shall be displayed.
- Direction for the Randolph Road right turn lane shall call and extend Phase A only.

Weston Canal Road (CR 623) and Schoolhouse Road  
Franklin Township, Somerset County, NJ

**TIMING DIRECTIVE**

<u>Phase</u>	<u>Signal Indications</u>					<u>Timing (Sec.)</u>		
	<u>1,2</u>	<u>3,4</u>	<u>5,6</u>	<u>7,8</u>	<u>9,10</u>	<u>MAX 1</u>	<u>MAX 2</u>	<u>MAX 3</u>
A) Weston Canal Road SB Lead	<-G/G	G	R	R	R	7-11	7	7
Change	<-Y/G	G	R	R	R	3	3	3
Clearance	G	G	R	R	R	1	1	1
B) Weston Canal Road NB/SB ROW	G	G	G	G	R	39.5	34.5	39.5
Change	Y	Y	Y	Y	R	4.5	4.5	4.5
Clearance	R	R	R	R	R	2	2	2
C) Schoolhouse ROW	R	R	R	R/G->	G	7-15	7-26	7-9
Change	R	R	R	R/Y->	Y	4	4	4
Clearance	R	R	R	R	R	2	2	2
Emergency Flash	Y	Y	Y	Y	R			












**NOTES:**

1. Manual control and memory circuits shall be disconnected.
2. Vehicle extension is set at 2 seconds.
3. Signal shall rest in Phase B – Weston Canal NB/SB ROW.
4. Phase A – Weston Road SB Lead & Phase C – School House Road ROW may be omitted in the absence of demands.
5. Phase A shall only follow Phase C.

**HOURS OF OPERATION:**

<b>Timing Plan</b>	<b>Hours of Operation</b>	
MAX 1	6:00 AM – 9:00 AM	Monday – Friday
MAX 2	3:00 PM – 8:00 PM	Monday – Friday
MAX 3	All Other Times	

**Appendix C**  
**Capacity Analysis**

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	232	962	13	236	411
Future Volume (vph)	0	232	962	13	236	411
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	11	13	12	12	11	12
Grade (%)	-8%		2%			-2%
Storage Length (ft)	200	0		0	500	
Storage Lanes	1	1		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.998			
Flt Protected					0.950	
Satd. Flow (prot)	1960	1563	1886	0	1573	1894
Flt Permitted					0.069	
Satd. Flow (perm)	1960	1563	1886	0	114	1894
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		23	1			
Link Speed (mph)	40		45			45
Link Distance (ft)	374		459			1499
Travel Time (s)	6.4		7.0			22.7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	14%	2%	15%	15%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	255	1071	0	259	452
Turn Type	Prot	pt+ov	NA		pm+pt	NA
Protected Phases	3	3 1	2		1	6
Permitted Phases					6	
Detector Phase	3	3 1	2		1	6
Switch Phase						
Minimum Initial (s)	7.0		35.0		7.0	42.0
Minimum Split (s)	15.0		43.0		11.0	54.0
Total Split (s)	15.0		43.0		36.0	79.0
Total Split (%)	16.0%		45.7%		38.3%	84.0%
Yellow Time (s)	5.0		5.0		3.0	5.0
All-Red Time (s)	3.0		3.0		1.0	3.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	8.0		8.0		4.0	8.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Max		None	Max
Act Effct Green (s)		24.4	53.6		75.0	71.0
Actuated g/C Ratio		0.26	0.57		0.80	0.76
v/c Ratio		0.60	1.00		0.87	0.32
Control Delay		33.1	49.2		49.8	4.4
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		33.1	49.2		49.8	4.4
LOS		C	D		D	A
Approach Delay	33.1		49.2			20.9
Approach LOS	C		D			C



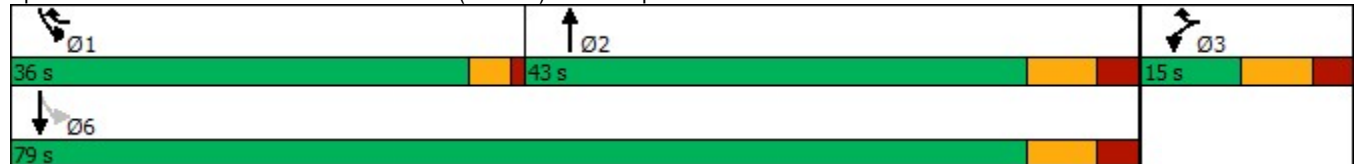


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)		123	582		103	70
Queue Length 95th (ft)		178	#1019		176	104
Internal Link Dist (ft)	294		379			1419
Turn Bay Length (ft)					500	
Base Capacity (vph)		727	1076		587	1430
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.35	1.00		0.44	0.32

Intersection Summary

Area Type:	Other
Cycle Length:	94
Actuated Cycle Length:	94
Natural Cycle:	90
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	1.00
Intersection Signal Delay:	37.3
Intersection LOS:	D
Intersection Capacity Utilization	77.4%
ICU Level of Service	D
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 10: Weston Canal Road (CR 623) & Randolph Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	519	430	14	260	719
Future Volume (vph)	25	519	430	14	260	719
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	11	13	12	12	11	12
Grade (%)	-8%		2%			-2%
Storage Length (ft)	200	0		0	500	
Storage Lanes	1	1		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.996			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1862	1729	1904	0	1723	1969
Flt Permitted	0.950				0.275	
Satd. Flow (perm)	1862	1729	1904	0	499	1969
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		100	2			
Link Speed (mph)	40		45			45
Link Distance (ft)	374		459			1499
Travel Time (s)	6.4		7.0			22.7
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	3%	1%	0%	5%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	603	516	0	302	836
Turn Type	Prot	pt+ov	NA		pm+pt	NA
Protected Phases	3	3 1	2		1	6
Permitted Phases					6	
Detector Phase	3	3 1	2		1	6
Switch Phase						
Minimum Initial (s)	7.0		25.0		7.0	32.0
Minimum Split (s)	15.0		33.0		11.0	44.0
Total Split (s)	19.0		33.0		38.0	71.0
Total Split (%)	21.1%		36.7%		42.2%	78.9%
Yellow Time (s)	5.0		5.0		3.0	5.0
All-Red Time (s)	3.0		3.0		1.0	3.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	8.0		8.0		4.0	8.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Max		None	Max
Act Effct Green (s)	11.0	38.0	38.1		69.1	65.1
Actuated g/C Ratio	0.12	0.41	0.41		0.75	0.71
v/c Ratio	0.13	0.78	0.65		0.45	0.60
Control Delay	39.1	26.3	28.9		5.6	9.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	39.1	26.3	28.9		5.6	9.1
LOS	D	C	C		A	A
Approach Delay	26.9		28.9			8.1
Approach LOS	C		C			A

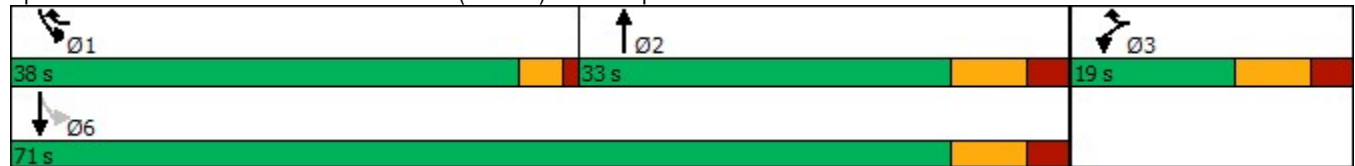













Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	15	235	240		43	212
Queue Length 95th (ft)	42	318	392		64	278
Internal Link Dist (ft)	294		379			1419
Turn Bay Length (ft)	200				500	
Base Capacity (vph)	222	967	789		826	1391
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.13	0.62	0.65		0.37	0.60

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	92.1
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	18.0
Intersection LOS:	B
Intersection Capacity Utilization	67.5%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 10: Weston Canal Road (CR 623) & Randolph Road



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	232	966	14	236	426
Future Volume (vph)	3	232	966	14	236	426
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	11	13	12	12	11	12
Grade (%)	-8%		2%			-2%
Storage Length (ft)	200	0		0	500	
Storage Lanes	1	1		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1862	1563	1886	0	1573	1912
Flt Permitted	0.950				0.069	
Satd. Flow (perm)	1862	1563	1886	0	114	1912
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		23	1			
Link Speed (mph)	40		45			45
Link Distance (ft)	374		459			1499
Travel Time (s)	6.4		7.0			22.7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	14%	2%	14%	15%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	255	1077	0	259	468
Turn Type	Prot	pt+ov	NA		pm+pt	NA
Protected Phases	3	3 1	2		1	6
Permitted Phases					6	
Detector Phase	3	3 1	2		1	6
Switch Phase						
Minimum Initial (s)	7.0		35.0		7.0	42.0
Minimum Split (s)	15.0		43.0		11.0	54.0
Total Split (s)	15.0		43.0		36.0	79.0
Total Split (%)	16.0%		45.7%		38.3%	84.0%
Yellow Time (s)	5.0		5.0		3.0	5.0
All-Red Time (s)	3.0		3.0		1.0	3.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	8.0		8.0		4.0	8.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Max		None	Max
Act Effct Green (s)	7.0	24.4	53.6		75.0	71.0
Actuated g/C Ratio	0.07	0.26	0.57		0.80	0.76
v/c Ratio	0.02	0.60	1.00		0.87	0.32
Control Delay	41.0	33.1	50.6		49.8	4.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	41.0	33.1	50.6		49.8	4.4
LOS	D	C	D		D	A
Approach Delay	33.2		50.6			20.6
Approach LOS	C		D			C

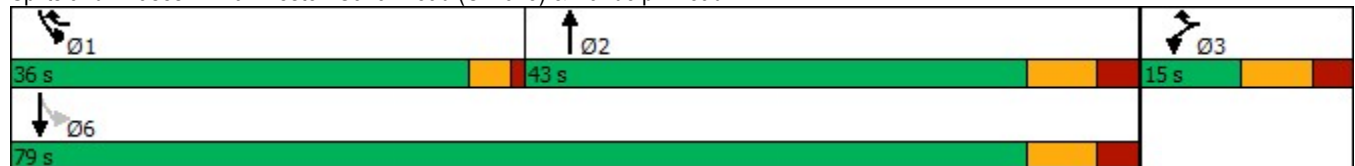













Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	2	123	589		103	73
Queue Length 95th (ft)	11	178	#1027		176	109
Internal Link Dist (ft)	294		379			1419
Turn Bay Length (ft)	200				500	
Base Capacity (vph)	138	727	1076		587	1444
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.02	0.35	1.00		0.44	0.32

Intersection Summary

Area Type:	Other
Cycle Length:	94
Actuated Cycle Length:	94
Natural Cycle:	90
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	1.00
Intersection Signal Delay:	37.8
Intersection LOS:	D
Intersection Capacity Utilization	85.6%
ICU Level of Service	E
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Weston Canal Road (CR 623) & Randolph Road



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	519	445	17	260	726
Future Volume (vph)	26	519	445	17	260	726
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	11	13	12	12	11	12
Grade (%)	-8%		2%			-2%
Storage Length (ft)	200	0		0	500	
Storage Lanes	1	1		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.995			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1862	1729	1903	0	1723	1950
Flt Permitted	0.950				0.253	
Satd. Flow (perm)	1862	1729	1903	0	459	1950
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		92	2			
Link Speed (mph)	40		45			45
Link Distance (ft)	374		459			1499
Travel Time (s)	6.4		7.0			22.7
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	3%	1%	0%	5%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	603	537	0	302	844
Turn Type	Prot	pt+ov	NA		pm+pt	NA
Protected Phases	3	3 1	2		1	6
Permitted Phases					6	
Detector Phase	3	3 1	2		1	6
Switch Phase						
Minimum Initial (s)	7.0		25.0		7.0	32.0
Minimum Split (s)	15.0		33.0		11.0	44.0
Total Split (s)	19.0		33.0		38.0	71.0
Total Split (%)	21.1%		36.7%		42.2%	78.9%
Yellow Time (s)	5.0		5.0		3.0	5.0
All-Red Time (s)	3.0		3.0		1.0	3.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	8.0		8.0		4.0	8.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Max		None	Max
Act Effct Green (s)	11.0	38.2	37.9		69.1	65.1
Actuated g/C Ratio	0.12	0.41	0.41		0.75	0.71
v/c Ratio	0.14	0.78	0.69		0.46	0.61
Control Delay	39.2	26.6	30.2		5.8	9.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	39.2	26.6	30.2		5.8	9.3
LOS	D	C	C		A	A
Approach Delay	27.2		30.2			8.4
Approach LOS	C		C			A

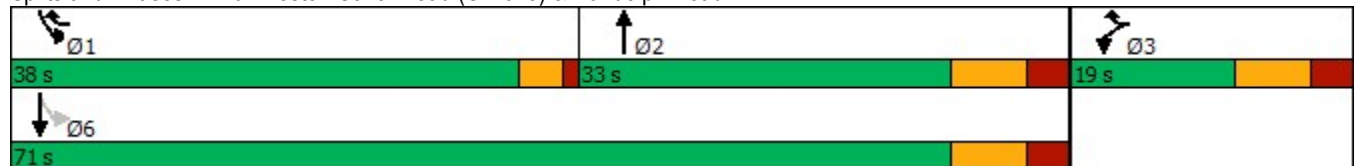














Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	15	238	255		43	218
Queue Length 95th (ft)	43	323	#442		64	285
Internal Link Dist (ft)	294		379			1419
Turn Bay Length (ft)	200				500	
Base Capacity (vph)	222	963	783		811	1378
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.14	0.63	0.69		0.37	0.61

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	92.1
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	18.6
Intersection LOS:	B
Intersection Capacity Utilization	68.5%
ICU Level of Service	C
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Weston Canal Road (CR 623) & Randolph Road



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	140	28	753	248	25	323
Future Volume (vph)	140	28	753	248	25	323
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	13	12	15	12	12
Grade (%)	-2%		0%			0%
Storage Length (ft)	0	180		255	115	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				80	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1852	1648	1931	1788	1748	1893
Flt Permitted	0.950				0.214	
Satd. Flow (perm)	1852	1648	1931	1788	394	1893
Right Turn on Red		Yes		No		
Satd. Flow (RTOR)		30				
Link Speed (mph)	40		45			45
Link Distance (ft)	468		568			504
Travel Time (s)	8.0		8.6			7.6
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	5%	1%	2%	6%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	151	30	810	267	27	347
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	39.5	39.5	7.0	46.5
Minimum Split (s)	13.0	13.0	46.0	46.0	11.0	53.0
Total Split (s)	21.0	21.0	46.0	46.0	15.0	61.0
Total Split (%)	25.6%	25.6%	56.1%	56.1%	18.3%	74.4%
Yellow Time (s)	4.0	4.0	4.5	4.5	3.0	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.5	6.5	4.0	6.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.8	10.8	50.3	50.3	57.1	54.6
Actuated g/C Ratio	0.14	0.14	0.65	0.65	0.73	0.70
v/c Ratio	0.59	0.12	0.65	0.23	0.07	0.26
Control Delay	40.9	12.2	14.0	8.1	3.8	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	12.2	14.0	8.1	3.8	5.3
LOS	D	B	B	A	A	A
Approach Delay	36.2		12.5			5.2
Approach LOS	D		B			A



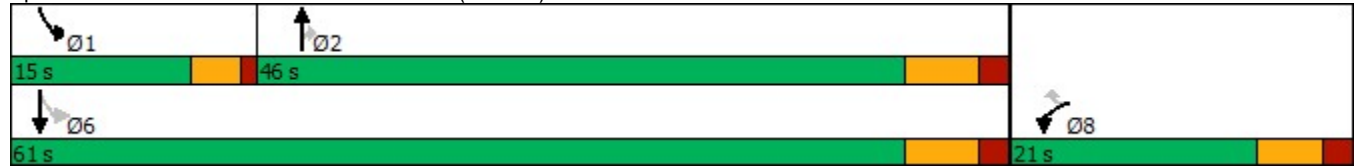














Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	70	0	168	38	3	51
Queue Length 95th (ft)	126	22	477	117	11	100
Internal Link Dist (ft)	388		488			424
Turn Bay Length (ft)		180		255	115	
Base Capacity (vph)	357	341	1247	1154	480	1325
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.09	0.65	0.23	0.06	0.26

Intersection Summary

Area Type:	Other
Cycle Length:	82
Actuated Cycle Length:	77.9
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	13.5
Intersection LOS:	B
Intersection Capacity Utilization	56.7%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 30: Weston Canal Road (CR 623) & Schoolhouse Road



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	148	40	292	133	46	531
Future Volume (vph)	148	40	292	133	46	531
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	13	12	15	12	12
Grade (%)	-2%		0%			0%
Storage Length (ft)	0	180		255	115	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				80	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1834	1730	1931	1770	1852	1931
Flt Permitted	0.950				0.497	
Satd. Flow (perm)	1834	1730	1931	1770	969	1931
Right Turn on Red		Yes		No		
Satd. Flow (RTOR)		46				
Link Speed (mph)	40		45			45
Link Distance (ft)	468		568			504
Travel Time (s)	8.0		8.6			7.6
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	0%	1%	3%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	170	46	336	153	53	610
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	34.5	34.5	7.0	41.5
Minimum Split (s)	13.0	13.0	41.0	41.0	11.0	52.0
Total Split (s)	32.0	32.0	41.0	41.0	11.0	52.0
Total Split (%)	38.1%	38.1%	48.8%	48.8%	13.1%	61.9%
Yellow Time (s)	4.0	4.0	4.5	4.5	3.0	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.5	6.5	4.0	6.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.9	10.9	39.1	39.1	48.1	45.6
Actuated g/C Ratio	0.16	0.16	0.57	0.57	0.70	0.66
v/c Ratio	0.59	0.15	0.31	0.15	0.07	0.48
Control Delay	35.4	9.4	10.8	9.8	4.2	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	9.4	10.8	9.8	4.2	7.9
LOS	D	A	B	A	A	A
Approach Delay	29.9		10.5			7.6
Approach LOS	C		B			A















Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	68	0	80	33	6	107
Queue Length 95th (ft)	118	23	145	69	17	199
Internal Link Dist (ft)	388		488			424
Turn Bay Length (ft)		180		255	115	
Base Capacity (vph)	692	681	1095	1004	764	1275
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.07	0.31	0.15	0.07	0.48

Intersection Summary

Area Type:	Other
Cycle Length:	84
Actuated Cycle Length:	69
Natural Cycle:	65
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.59
Intersection Signal Delay:	12.2
Intersection LOS:	B
Intersection Capacity Utilization	55.7%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 30: Weston Canal Road (CR 623) & Schoolhouse Road



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	140	31	756	248	26	324
Future Volume (vph)	140	31	756	248	26	324
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	13	12	15	12	12
Grade (%)	-2%		0%			0%
Storage Length (ft)	0	180		255	115	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				80	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1852	1679	1931	1805	1781	1912
Flt Permitted	0.950				0.212	
Satd. Flow (perm)	1852	1679	1931	1805	397	1912
Right Turn on Red		Yes		No		
Satd. Flow (RTOR)		33				
Link Speed (mph)	40		45			45
Link Distance (ft)	468		568			504
Travel Time (s)	8.0		8.6			7.6
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	3%	1%	1%	4%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	151	33	813	267	28	348
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	39.5	39.5	7.0	46.5
Minimum Split (s)	13.0	13.0	46.0	46.0	11.0	53.0
Total Split (s)	21.0	21.0	46.0	46.0	15.0	61.0
Total Split (%)	25.6%	25.6%	56.1%	56.1%	18.3%	74.4%
Yellow Time (s)	4.0	4.0	4.5	4.5	3.0	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.5	6.5	4.0	6.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.8	10.8	50.3	50.3	57.1	54.6
Actuated g/C Ratio	0.14	0.14	0.65	0.65	0.73	0.70
v/c Ratio	0.59	0.13	0.65	0.23	0.07	0.26
Control Delay	40.9	11.8	14.1	8.1	3.8	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	11.8	14.1	8.1	3.8	5.3
LOS	D	B	B	A	A	A
Approach Delay	35.7		12.6			5.1
Approach LOS	D		B			A















Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	70	0	169	38	3	51
Queue Length 95th (ft)	126	23	480	116	11	100
Internal Link Dist (ft)	388		488			424
Turn Bay Length (ft)		180		255	115	
Base Capacity (vph)	357	350	1247	1165	486	1339
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.09	0.65	0.23	0.06	0.26

Intersection Summary

Area Type:	Other
Cycle Length:	82
Actuated Cycle Length:	77.9
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	13.5
Intersection LOS:	B
Intersection Capacity Utilization	56.7%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 30: Weston Canal Road (CR 623) & Schoolhouse Road



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	148	41	293	133	49	534
Future Volume (vph)	148	41	293	133	49	534
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	13	12	15	12	12
Grade (%)	-2%		0%			0%
Storage Length (ft)	0	180		255	115	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				80	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1852	1730	1931	1788	1852	1931
Flt Permitted	0.950				0.496	
Satd. Flow (perm)	1852	1730	1931	1788	967	1931
Right Turn on Red		Yes		No		
Satd. Flow (RTOR)		47				
Link Speed (mph)	40		45			45
Link Distance (ft)	468		568			504
Travel Time (s)	8.0		8.6			7.6
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	0%	1%	2%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	170	47	337	153	56	614
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	34.5	34.5	7.0	41.5
Minimum Split (s)	13.0	13.0	41.0	41.0	11.0	52.0
Total Split (s)	32.0	32.0	41.0	41.0	11.0	52.0
Total Split (%)	38.1%	38.1%	48.8%	48.8%	13.1%	61.9%
Yellow Time (s)	4.0	4.0	4.5	4.5	3.0	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.5	6.5	4.0	6.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.9	10.9	39.2	39.2	48.1	45.6
Actuated g/C Ratio	0.16	0.16	0.57	0.57	0.70	0.66
v/c Ratio	0.58	0.15	0.31	0.15	0.07	0.48
Control Delay	35.3	9.4	10.8	9.8	4.2	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	9.4	10.8	9.8	4.2	7.9
LOS	D	A	B	A	A	A
Approach Delay	29.7		10.5			7.6
Approach LOS	C		B			A



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	68	0	80	33	6	108
Queue Length 95th (ft)	118	24	145	69	18	200
Internal Link Dist (ft)	388		488			424
Turn Bay Length (ft)		180		255	115	
Base Capacity (vph)	699	682	1096	1015	764	1276
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.07	0.31	0.15	0.07	0.48

Intersection Summary




Area Type:	Other
Cycle Length:	84
Actuated Cycle Length:	69
Natural Cycle:	65
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.58
Intersection Signal Delay:	12.1
Intersection LOS:	B
Intersection Capacity Utilization	56.3%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 30: Weston Canal Road (CR 623) & Schoolhouse Road



## Intersection

Int Delay, s/veh 0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	5	975	6	18	411
Future Vol, veh/h	2	5	975	6	18	411
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, %	0	20	2	0	17	4
Mvmt Flow	2	6	1121	7	21	472

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1639	1125	0	0	1128
Stage 1	1125	-	-	-	-
Stage 2	514	-	-	-	-
Critical Hdwy	6.4	6.4	-	-	4.27
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.48	-	-	2.353
Pot Cap-1 Maneuver	112	230	-	-	567
Stage 1	313	-	-	-	-
Stage 2	605	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	106	230	-	-	567
Mov Cap-2 Maneuver	106	-	-	-	-
Stage 1	313	-	-	-	-
Stage 2	575	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27	0	0.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	172	567
HCM Lane V/C Ratio	-	-	0.047	0.036
HCM Control Delay (s)	-	-	27	11.6
HCM Lane LOS	-	-	D	B
HCM 95th %tile Q(veh)	-	-	0.1	0.1



Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Vol, veh/h	6	18	444	2	8	744
Future Vol, veh/h	6	18	444	2	8	744
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, %	0	17	1	0	25	0
Mvmt Flow	7	20	488	2	9	818

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1325	489	0	0	490
Stage 1	489	-	-	-	-
Stage 2	836	-	-	-	-
Critical Hdwy	6.4	6.37	-	-	4.35
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.453	-	-	2.425
Pot Cap-1 Maneuver	174	550	-	-	964
Stage 1	621	-	-	-	-
Stage 2	429	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	171	550	-	-	964
Mov Cap-2 Maneuver	171	-	-	-	-
Stage 1	621	-	-	-	-
Stage 2	422	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	354	964
HCM Lane V/C Ratio	-	-	0.075	0.009
HCM Control Delay (s)	-	-	16	8.8
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.2	0