REVISED: MARCH 03, 2020

ARLINGTON
VIRGINIA

DEPARTMENT OF
ENVIRONMENTAL SERVICES

Transportation Engineering and
Operations Bureau
2100 Clarendon Boulevard, Suite 900, Arlington, VA 22201
Phone: 703.228.3344 Fax: 703.228.3719 www.arlingtonva.us

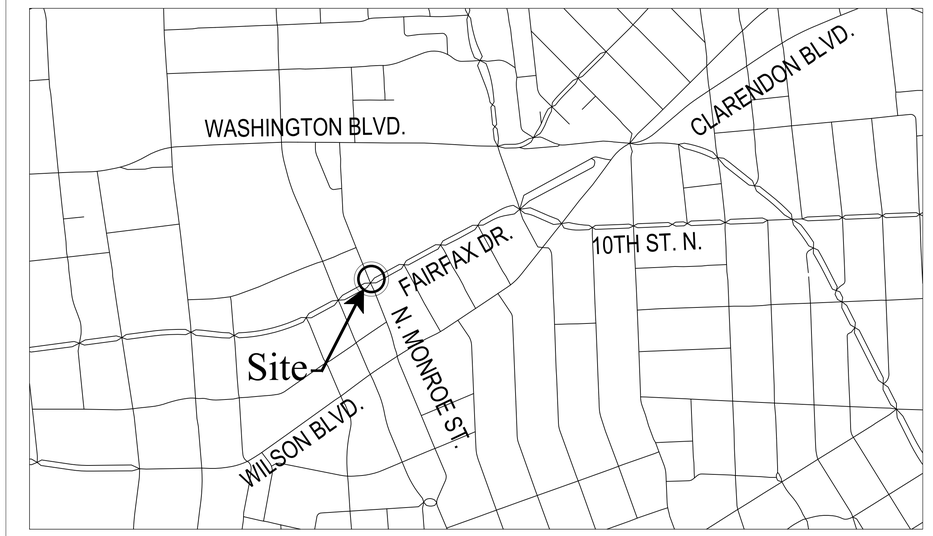
Traffic Signal Modification Plans

Fairfax Drive & N. Monroe Street (TS#099)

Location Map

Scale: 1"=500'

Vicinity



Signal Notes

A. POLES AND FOUNDATIONS

1. MAST ARM POLES AND FOUNDATIONS MUST COMPLY WITH THE LATEST VERSION OF WMATA ADJACENT CONSTRUCTION PROJECT MANUAL (ACPM) AND WMATA REAL ESTATE PERMIT.
2. MAST ARM LENGTH IS TO BE AS SHOWN ON PLAN AND ALL MAST ARMS ARE TO BE FIELD DRILLED ONLY.
3. MAST ARM POLES SHALL BE DESIGNED TO THE PROPER HEIGHT TO ACCOMMODATE A STREET LIGHT LUMINAIRE AND INSTALLED IN ACCORDANCE WITH ARLINGTON COUNTY TRAFFIC SIGNAL & STREETLIGHT SPECIFICATIONS.
4. MAST ARM POLE FOUNDATIONS SHALL BE INSTALLED IN ACCORDANCE WITH ARLINGTON COUNTY STANDARDS AND SPECIFICATIONS. ALL POLES SHALL HAVE A 6-BOLT PATTERN.
5. AT THE COUNTY'S REQUEST, THE CONTRACTOR SHALL DIG TEST PITS TO VERIFY THAT SIGNAL POLE FOUNDATIONS WILL NOT CONFLICT WITH UNDERGROUND UTILITIES AND THAT FOUNDATIONS WILL FIT WITHIN THE EXISTING RIGHT-OF-WAY.
6. SIGNAL POLES AND MAST ARMS SHALL BE NON-ORNAMENTAL. COBRA LIGHTING SHALL BE LED.
7. COBRA LIGHTING SHALL BE LED TYPE RFL-145W64LED4K-T-R2M-UNIV-DMG-PH8-RCD7-[USA-003]-BK. DECORATIVE POST-TOP LIGHTING SHALL BE HADCO DECORATIVE POST-TOP LUMINAIRE WITH RELUME LED KIT (UAZ XRE LED 57.69W).

B. CONTROLLER AND FOUNDATION

1. NEW CONTROLLER CABINETS SHALL BE TS2, P TYPE WITH BATTERY BACKUP PER ARLINGTON COUNTY REQUIREMENTS.
2. CONTROLLER SHALL BE INTELIGHT X-3 AND SHALL BE INSTALLED AND SET AS FOLLOWS:
   2.1 TO REST IN PHASE 2 & 6 GREEN INTERVAL
   2.2 TO START/RESTART IN PHASE 2 & 6 YELLOW CHANGE INTERVAL
3. THE CONTROLLER CABINET AND FOUNDATION SHALL BE INSTALLED IN ACCORDANCE WITH ARLINGTON COUNTY TRAFFIC SIGNAL & STREETLIGHT SPECIFICATIONS 66-01. 66-02, AND 70-01.
4. THE COUNTY WILL PROVIDE SIGNAL TIMINGS TO THE CONTRACTOR FOR THE CONTROLLER WHEN THE INTERSECTION IS TOTALLY PREPARED FOR OPERATION. THE CONTRACTOR SHALL NOTIFY THE COUNTY IN WRITING 10 DAYS IN ADVANCE OF REQUIRING FINAL TIMINGS.

C. TRAFFIC SIGNAL HEADS

1. ALL NEW VEHICULAR SIGNAL SECTIONS SHALL BE 12 INCHES IN DIAMETER CAST ALUMINUM WITH LED DISPLAYS.
2. PEDESTRIAN SIGNAL HEAD SECTIONS SHALL BE CAST ALUMINUM WITH LED DISPLAYS (COUNTDOWN).
3. ALL SIGNAL HEADS SHALL BE YELLOW IN COLOR.

D. DETECTORS

1. ALL NEW PEDESTRIAN PUSH BUTTON STATIONS SHALL CONFORM TO ARLINGTON COUNTY'S SPECIFICATIONS FOR ACCESSIBLE SIGNAL DESIGN AND SHALL USE POLARA NAVIGATOR VIBRO-TACTILE/AUDIO PUSH BUTTON ASSEMBLIES UNLESS OTHERWISE SPECIFIED.
2. NEW OVERHEAD VIDEO DETECTION SHALL BE FLIR CAMERAS AND SHALL BE INSTALLED IN ACCORDANCE WITH COUNTY REQUIREMENTS.
3. EMERGENCY VEHICLE PRE-EMPTION (EVP) EQUIPMENT (GTT MODEL M711 OR M721), OR APPROVED SUBSTITUTE, SHALL BE INSTALLED COMPLETE WITH DISCRIMINATOR CARDS, WIRING, ETC. IN ACCORDANCE WITH ARLINGTON COUNTY STANDARDS.
4. EVP TO BE MOUNTED ON VEHICLE HEAD MOUNTING BRACKET OR AS APPROVED BY THE ENGINEER IN THE FIELD.

E. CONDUIT, CONDUCTORS, AND ELECTRICAL

1. ALL JUNCTION BOXES SHALL HAVE THE WORDS "ARLINGTON COUNTY TRANSPORTATION" CAST IN THE LID. ALL JUNCTION BOXES SHALL BE INSTALLED PER STANDARDS 61-01, 61-02, 61-03, AND 61-04.
2. METER PEDESTAL SHALL BE INSTALLED PER COUNTY STANDARDS. UNDERGROUND SERVICE SHALL BE OBTAINED FROM THE NEAREST UTILITY POLE OR SERVICE POINT. CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVAL AND COORDINATING WITH POWER SERVICE COMPANY FOR CONNECTION.
3. CONDUIT SYSTEM SHALL BE ADDED TO CONNECT EXISTING COMMUNICATION CABLE PLANT TO THE NEW CONTROLLER CABINET LOCATION AS DIRECTED BY THE COUNTY ENGINEER.
4. ALL CONDUIT ENTERING INTO JUNCTION BOXES SHALL NOT EXTEND OVER 3" MAXIMUM NOR 2" MINIMUM INSIDE THE JUNCTION BOXES, AND SHALL BE FITTED WITH BELL ENDS OR BUSHING.
5. ALL JUNCTION BOXES SHALL HAVE A GROUND ROD INSTALLED. ALL JUNCTION BOXES SHALL BE PROPERLY CONNECTED TO THE INTERSECTION GROUNDING SYSTEM. METAL LIDS SHALL BE BONDED TO THE GROUNDING SYSTEM.
6. CONTRACTOR IS TO VERIFY DEPTHS OF UTILITIES AT PROPOSED CONDUIT CROSSINGS PRIOR TO EXCAVATING CONDUIT TRENCHES OR BORING.
7. ALL CONDUITS BENEATH ROADWAYS SHALL BE DIRECTIONAL DRILLED UNLESS DIRECTED OTHERWISE BY THE COUNTY CONSTRUCTION MANAGER. WHERE DIRECTED ON THE PLANS OR BY THE CONSTRUCTION MANAGER, THE CONTRACTOR SHALL INSTALL SPARE CONDUITS WITH PULL TAPE AND TRACER WIRE FOR ROAD CROSSINGS.
8. ALL EXISTING CONDUIT AND CABLES ARE BASED ON RECORD DRAWINGS OR WERE ESTIMATED. CONTRACTOR SHALL VERIFY CONDUIT FILL CAPACITY IN EXISTING CONDUITS PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY ARLINGTON COUNTY IF CONDUIT CAPACITY IS NOT AVAILABLE IN EXISTING CONDUIT FOR NEW CABLES.
9. NEW CCTV CAMERAS SHALL BE INSTALLED IN ACCORDANCE WITH ARLINGTON COUNTY REQUIREMENTS. CONTRACTOR SHALL CONFIRM MOUNTING LOCATION OF CCTV CAMERA WITH COUNTY PRIOR TO INSTALLATION.
10. CONTRACTOR TO VERIFY THE CONDUIT AND ⅝ FILL. IF THERE IS NOT ENOUGH CAPACITY IN CONDUIT, THEN THE CONTRACTOR SHALL INSTALL NEW CONDUIT.
11. ALL PROPOSED CONDUIT SHALL HAVE #6 AWG (EGC) & TRACER WIRE FOR GROUNDING SYSTEM.
12. REMOVE ALL EXISTING UNUSED RISERS, JUNCTION BOXES, AND CABLES.

F. SIGNS

1. ALL MAST ARM SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH ARLINGTON COUNTY STANDARDS. SIGNS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS DIRECTED OTHERWISE.
2. STREET NAME SIGNS SHALL HAVE A WHITE LEGEND ON GREEN BACKGROUND. CONTRACTOR SHALL SUBMIT SIGN DETAILS TO COUNTY TO REVIEW. THE DIMENSIONS PROVIDED ON PLANS ARE ESTIMATED.
3. PREVIOUS SIGNAL PLANS FOR THIS INTERSECTION DATED JULY 5TH, 2016 INCLUDED OVERHEAD STREET NAME SIGNS ON THE MAST ARM POLES IN THE NORTHEAST AND NORTHWEST CORNERS. THESE STREET NAME SIGNS WERE NOT INSTALLED. CONTRACTOR TO CONFIRM THAT EXISTING SIGNAL POLE AND FOUNDATION ARE CAPABLE OF SUPPORTING THE STRUCTURAL LOAD OF THE PROPOSED STREET NAME SIGNS.

G. DEMOLITION/SALVAGE

1. ALL EXISTING SIGNAL EQUIPMENT IS TO BE REMOVED & RETURNED TO ARLINGTON COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES LOCATED AT 4300 29TH ST S., ARLINGTON, VA 22206.
2. ALL EXISTING SIGNAL POLE FOUNDATIONS SHALL BE DEMOLISHED IN ACCORDANCE WITH ARLINGTON COUNTY SPECIFICATIONS.

H. COMMUNICATIONS

1. EXISTING COUNTY FIBER JUNCTION BOXES AND CONDUITS CONTAIN LIVE FIBER OPTIC CABLES. THE CONTRACTOR SHALL NOT CUT OR DAMAGE THE COUNTY'S EXISTING FIBER CABLES.
2. ALL FIBER OPTIC CABLE INSTALLATION, REMOVAL, SPLICING, AND TESTING SHALL BE PERFORMED BY THE COUNTY AT THE CONTRACTOR'S EXPENSE. CONTRACTOR MAY CONTRACT DIRECTLY WITH THE COUNTY'S FIBER CONTRACTORS. UPON REQUEST 703-228-7726, THE COUNTY WILL PROVIDE THE CONTACT INFORMATION FOR CURRENT COUNTY FIBER CONTRACTORS.
3. CONTACT ARLINGTON COUNTY DTS FOR FIBER OPTIC CABLE REMOVAL OR INSTALLATION AT LEAST 10 BUSINESS DAYS IN ADVANCE.
4. CONTRACTOR SHALL FURNISH FIBER PATCH PANEL FOR INSTALLATION BY THE COUNTY. FIBER PIGTAIL SHALL BE APPROPRIATE LENGTH TO ALLOW FOR 50 FEET OF SLACK IN EACH INTERMEDIATE JUNCTION BOX. CONTRACTOR SHALL SUBMIT A SHOP DRAWING OF THE PATCH PANEL (INDICATING THE TAIL LENGTH) FOR COUNTY REVIEW PRIOR TO ORDERING.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF PROPOSED JUNCTION BOXES AND CONDUITS INCLUDING ALL APPURTENANCES SUCH AS GROUND RODS, TRACER WIRE, PULL TAPE, ETC.
6. ALL NEW CONDUITS SHALL HAVE PULL TAPE INSTALLED BETWEEN JUNCTION BOXES AND TRACER WIRE INSTALLED WITHIN OR BESIDE AT LEAST ONE OF THE CONDUITS. TRACER WIRE SHALL BE CONNECTED TO THE GROUND RODS INSTALLED IN THE ADJACENT JUNCTION BOXES.
7. DO NOT SPLICE TRACER WIRE.

I. INSPECTION

1. THE CONTRACTOR SHALL CONTACT THE COUNTY CONSTRUCTION MANAGER FOR INSPECTIONS THROUGHOUT CONSTRUCTION AS REQUIRED BY THE CONSTRUCTION MANAGER.
2. THE COUNTY SHALL VERIFY POLE LOCATIONS PRIOR TO EXCAVATION. THE CONTRACTOR SHALL NOTIFY MR. SHAHID MOHIUDDIN, 703-228-7555 TO SCHEDULE INSPECTION PRIOR TO EXCAVATION, AND AGAIN PRIOR TO POURING CONCRETE. STAKEOUT IS THE RESPONSIBILITY OF THE CONTRACTOR UNLESS DIRECTED OTHERWISE.
3. THE CONTRACTOR SHALL CONTACT THE COUNTY CONSTRUCTION MANAGER WITHIN 7 BUSINESS DAYS OF SIGNAL ACTIVATION. ALL POWER AND COMMUNICATIONS SHALL BE IN OPERATION AT THE TIME OF ACTIVATION UNLESS APPROVED BY THE COUNTY CONSTRUCTION MANAGER.

J. SURVEY

1. ALL SURVEY AND ROW INFORMATION IS BASED ON ARLINGTON COUTY-PROVIDED CAD FILES.

Table of Contents:

Prepared By:

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ARLINGTON
VIRGINIA

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Transportation Division
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SEAL

COMMONWEALTH OF VIRGINIA
ANDREW T. SMITH
Lic. No. 0402053042
08/05/2021
PROFESSIONAL ENGINEER

APPROVALS	DATE
TRAFFIC SIGNAL ENGINEER	08/03/21
TRAFFIC ENGINEERING MANAGER	08/04/21
TE&O BUREAU CHIEF	08/04/2021
TRANSPORTATION DIRECTOR	08/04/21

REVISONS	DATE

Project Name and Location
Fairfax Drive & N. Monroe Street
Traffic Signal Modification Plans

COVER SHEET

ID #099
ARLINGTON COUNTY, VIRGINIA

Designed: AS
Drawn: JW
Checked: AS
Miss Utility Transmittal #:

Plotted: August 05, 2021
Plotted by: Patrick.Husted

Scale:
AS NOTED

Sheet
1

Filename: | COVER SHEET.dwg
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REVISED: MARCH 03, 2020

SIGN DETAIL
1:50

Panel Style: ARLINGTON OVERHEAD.ssi
M.U.T.C.D.: 2009 Edition

SIGN NUMBER	S-3
WIDTH x HGHT.	6'-6" x 1'-6"
BORDER WIDTH	1.5"
CORNER RADIUS	2.25"
MOUNTING	Overhead
BACKGROUND	TYPE: Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: Reflective
	COLOR: White/White

SYMBOL	ROT	X	Y	WID	HT

Panel Style: ARLINGTON OVERHEAD.ssi
Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

LETTER POSITIONS (X)																			LENGTH	SERIES/SIZE
F	a	i	r	f	a	x		D	r											ClearviewHwy-5-W
5.9	12.9	21.2	26	31.3	37	44.5	50.7	59.1	68.4										66.2	8/6.5

SIGN DETAIL
1:50

Panel Style: ARLINGTON OVERHEAD.ssi
M.U.T.C.D.: 2009 Edition

SIGN NUMBER	S-4
WIDTH x HGHT.	8'-0" x 1'-6"
BORDER WIDTH	1.5"
CORNER RADIUS	2.25"
MOUNTING	Overhead
BACKGROUND	TYPE: Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: Reflective
	COLOR: White/White

SYMBOL	ROT	X	Y	WID	HT

Panel Style: ARLINGTON OVERHEAD.ssi
Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

LETTER POSITIONS (X)																			LENGTH	SERIES/SIZE
N		M	o	n	r	o	e		S	t										ClearviewHwy-5-W
6	12.6	22.2	32.3	41.2	49.8	55.5	64.1	70	78.5	86.1									84	8/6.5

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AS NOTED

Sheet
2

Filename: 2. SIGN DETAILS.dwg
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Fairfax Drive & N. Monroe Street

REVISED: MARCH 03, 2020

CONDUIT & CABLE RUNS

A
- 1-3" CONDUIT (TRENCHED)
- 1-14/7c SIGNAL HEADS 21,22
- 1-14/7c PEDESTRIAN SIGNAL P22
- 1-12/2c CABLE FOR LUMINAIRE SL6
- 1-14/3c PEDESTRIAN PUSH BUTTON PB22
- 1-THERMAL DETECTION LEAD-IN CABLE VD2
- 1-#6 BARE COPPER GROUNDING WIRE

B
- 1-2" CONDUIT (TRENCHED)
- 1-OPTICOM CABLE PE2
- 1-#6 BARE COPPER GROUNDING WIRE

C
- 1-2" CONDUIT (TRENCHED)
- 1-14/7c SIGNAL HEADS 81,82
- 1-14/7c PEDESTRIAN SIGNAL P82
- 1-14/3c PEDESTRIAN PUSH BUTTON PB82
- 1-#6 BARE COPPER GROUNDING WIRE

D
- 1-4" CONDUIT (BORED)
- 1-14/7c SIGNAL HEADS 21,22
- 2-14/7c PEDESTRIAN SIGNALS P22,P82
- 1-12/2c CABLE FOR LUMINAIRE SL6
- 2-14/3c PEDESTRIAN PUSH BUTTONS PB22,PB82
- 1-THERMAL DETECTION LEAD-IN CABLE VD2
- 1-#6 BARE COPPER GROUNDING WIRE

E
- 1-2" CONDUIT (BORED)
- 1-OPTICOM CABLE PE2
- 1-#6 BARE COPPER GROUNDING WIRE

F
- 1-3" CONDUIT (TRENCHED)
- 1-14/7c SIGNAL HEADS 41,42
- 1-12/2c CABLE FOR LUMINAIRE SL5
- 1-14/3c PEDESTRIAN PUSH BUTTON PB21
- 1-THERMAL DETECTION LEAD-IN CABLE VD4
- 1-#6 BARE COPPER GROUNDING WIRE

G
- 1-2" CONDUIT (TRENCHED)
- 1-OPTICOM CABLE PE4
- 1-#6 BARE COPPER GROUNDING WIRE

H
- 1-4" CONDUIT (BORED)
- 2-14/7c SIGNAL HEADS 21,22,41,42
- 4-14/7c PEDESTRIAN SIGNALS P21,P22,P42,P82
- 2-12/2c CABLE FOR LUMINAIRES SL5,SL6
- 4-14/3c PEDESTRIAN PUSH BUTTONS PB21,PB22,PB42,PB82
- 2-THERMAL DETECTION LEAD-IN CABLES VD2,VD4
- 1-#6 BARE COPPER GROUNDING WIRE

I
- 1-2" CONDUIT (TRENCHED)
- 2-OPTICOM CABLES PE2,PE4
- 1-#6 BARE COPPER GROUNDING WIRE

J
- 2-EXISTING CONDUITS
- 1-14/7c PEDESTRIAN SIGNAL P41
- 1-14/3c PEDESTRIAN PUSH BUTTON PB21
- 1-12/2c CABLE FOR LUMINAIRE SL2
- 2-#6 BARE COPPER GROUNDING WIRES

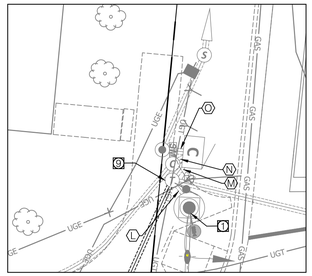
K
- 2-EXISTING CONDUITS
- 1-14/7c PEDESTRIAN SIGNAL P81
- 1-14/3c PEDESTRIAN PUSH BUTTON PB81
- 1-12/2c CABLE FOR LUMINAIRE SL4
- 2-#6 BARE COPPER GROUNDING WIRES

L
- 2-EXISTING CONDUITS
- 1-14/7c SIGNAL HEADS 81,82
- 1-14/7c PEDESTRIAN SIGNAL P62
- 1-14/3c PEDESTRIAN PUSH BUTTON PB62
- 1-12/2c CABLE FOR LUMINAIRE SL3
- 1-THERMAL DETECTION LEAD-IN CABLE VD8
- 1-OPTICOM CABLE PE8
- 2-#6 BARE COPPER GROUNDING WIRES

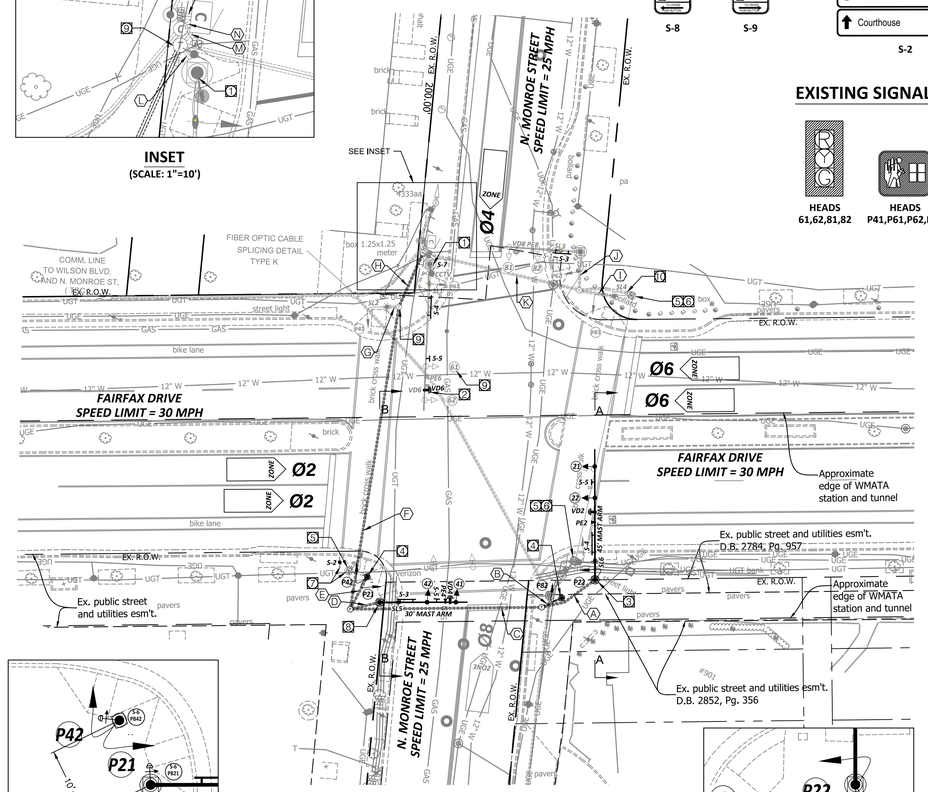
M
- 2-EXISTING CONDUITS
- 1-14/7c SIGNAL HEADS 81,82
- 2-14/7c PEDESTRIAN SIGNALS P62,P81
- 2-14/3c PEDESTRIAN PUSH BUTTONS PB62, PB81
- 2-12/2c CABLES FOR LUMINAIRE SL3,SL4
- 1-THERMAL DETECTION LEAD-IN CABLE VD8
- 1-OPTICOM CABLE PE8
- 2-#6 BARE COPPER GROUNDING WIRES
- *2-14/7c SIGNAL HEADS 21,22,41,42 (TO BE REMOVED)*
- *4-14/7c PEDESTRIAN SIGNALS P21,P22,P42,P82 (TO BE REMOVED)*
- *4-14/3c PEDESTRIAN PUSH BUTTONS PB21,PB22,PB42,PB82 (TO BE REMOVED)*

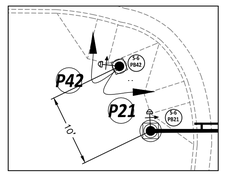
N
- 1-EXISTING CONDUIT
- 1-12 FIBER CABLE

O
- 1-EXISTING CONDUIT
- 1-6/3c SERVICE CABLE

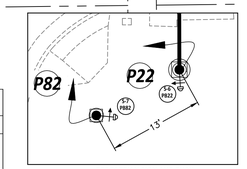


INSET
(SCALE: 1"=10')



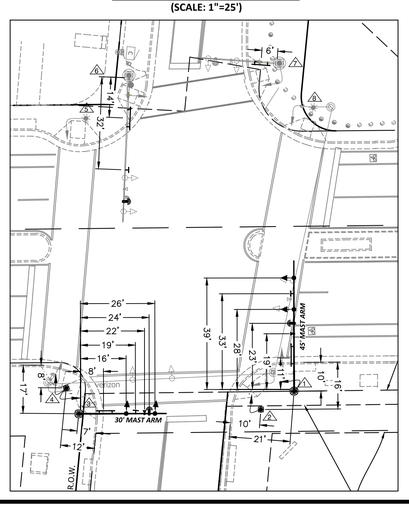


PEDESTRIAN SIGN AND PUSH BUTTON DETAIL FOR THE SOUTHWEST CORNER
1" = 10'



PEDESTRIAN SIGN AND PUSH BUTTON DETAIL FOR THE SOUTHEAST CORNER
1" = 10'

POLE LOCATION DETAIL
(SCALE: 1"=25')



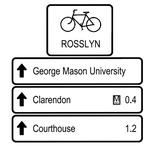
EXISTING SIGNS

S-1

S-8

S-9

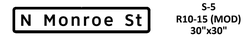
EXISTING SIGNS TO BE RELOCATED



S-2

PROPOSED SIGNS

S-3
D3-1
18"x78"



S-4
D3-1
18"x96"

S-5
R10-15 (MOD)
30"x30"

EXISTING SIGNALS

HEADS
61,62,81,82

HEADS
P41,P61,P62,P81

PROPOSED SIGNALS

HEADS
21,22,41,42

HEADS
P21,P22,P42,P82

PROPOSED ACCESSIBLE PEDESTRIAN PUSHBUTTONS

S-6
R10-3E(L)
9"X15"

S-7
R10-3E(R)
9"X15"

PB21, PB22, PB42

PB82

PUSHBUTTON	WALK MESSAGE
PB42, PB82	"FAIRFAX DRIVE, WALK SIGN IS ON TO CROSS FAIRFAX DRIVE."
PB21, PB22	"NORTH MONROE STREET, WALK SIGN IS ON TO CROSS NORTH MONROE STREET."

* PEDESTRIAN PUSHBUTTON SIGN SHALL BE MOUNTED ABOVE PEDESTRIAN PUSHBUTTON.

* **ACCESSIBLE PUSHBUTTON SYSTEM SHALL BE POLARA SYSTEM CONFORMING TO ARLINGTON COUNTY SPECIFICATION AND SHALL INCLUDE A POLARA CENTRAL CONTROL UNIT.**

CONSTRUCTION NOTES

1. INSTALL PROPOSED S-7 SIGN (SIGN ONLY) ABOVE EXISTING ACCESSIBLE PEDESTRIAN PUSHBUTTON.
2. ROTATE EXISTING DETECTION CAMERA TO ESTABLISH VEHICLE DETECTION ZONES FOR PHASE 6 APPROACH.
3. INSTALL NON-ORNAMENTAL MAST ARM SIGNAL POLE WITH LUMINAIRE, PEDESTRIAN AND VEHICULAR SIGNAL HEADS, ACCESSIBLE PEDESTRIAN PUSHBUTTON, AND SIGNS.
4. INSTALL PEDESTAL POLE WITH PEDESTRIAN SIGNAL(S), ACCESSIBLE PEDESTRIAN PUSHBUTTON, AND SIGN.
5. REMOVE EXISTING STRAIN POLE, SIGNAL HEADS, PEDESTRIAN SIGNAL HEADS, ACCESSIBLE PEDESTRIAN PUSHBUTTONS, AND DETECTION CAMERAS. ALL HOLES LEFT BY REMOVAL SHALL BE BACKFILLED, COMPACTED, AND RESTORED TO SURROUNDING CONDITIONS. SIGNAL HEADS AND PUSHBUTTONS TO BE SALVAGED AND RETURNED TO ARLINGTON COUNTY.
6. NON-STANDARD PUSHBUTTON SIGNS AND PUSHBUTTONS SHALL NOT BE SALVAGED.
7. EXISTING SIGN ASSEMBLY S-2 TO BE RELOCATED TO NEW GROUND-MOUNTED POST.
8. INSTALL NON-ORNAMENTAL MAST ARM SIGNAL POLE WITH LUMINAIRE, VEHICULAR SIGNAL HEADS, ACCESSIBLE PEDESTRIAN PUSHBUTTON, AND SIGNS.
9. RETAIN EXISTING JUNCTION BOX AND REENTER WITH NEW CONDUIT.
10. CAP AND ABANDON EXISTING CONDUIT.

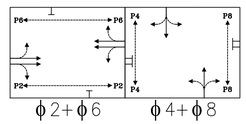
SEE SHEET 4 FOR SECTIONS A-A AND B-B.

COLOR SEQUENCE CHART

PHASE	2	4	6	8	2+6	4+8	FLASH
SIGNAL	R/W	R/W	R/W	R/W	R/W	R/W	
21, 22	G				G		Y
41, 42		G				G	R
61, 62			G		G		Y
81, 82				G		G	R
P21, P22	W*				W*		DARK
P41, P42		W*				W*	DARK
P61, P62			W*		W*		DARK
P81, P82				W*		W*	DARK

NOTE: BLANK SPACES IN THIS CHART REPRESENT A "RED" SIGNAL INDICATION.
*WALK INDICATION IS DISPLAYED WHEN PEDESTRIAN CALL IS SERVICED; WALK INDICATION IS DISPLAYED UNTIL IT IS TIMED OUT. OTHERWISE "DONT WALK" INDICATION IS DISPLAYED.

EXISTING/PROPOSED PHASING DIAGRAM



INITIAL TIMING CHART

PHASE	1	2	3	4	5	6	7	8
MOVEMENT		EB THRU		SB THRU		WB THRU		NB THRU
PHASE ON		X		X		X		X
PHASE OFF	X		X		X		X	
PHASE TIMINGS								
MIN GR	NOT USED	5.0	NOT USED	5.0	NOT USED	5.0	NOT USED	5.0
PASSAGE		0.0		4.0		0.0		4.0
YELLOW		3.4		3.0		3.4		3.0
RED		2.4		3.3		2.4		3.3
MAX 1		45.0		45.0		30.0		30.0
MAX 2		0.0		0.0		0.0		0.0
MIN GAP		0.0		0.0		0.0		0.0
TIME BEFORE REDUCTION		0.0		0.0		0.0		0.0
TIME TO REDUCE		0.0		0.0		0.0		0.0
PED WALK		7.0		7.0		7.0		7.0
PED CLEARANCE		16.0		23.0		12.0		25.0
MODE		MIN RECALL		NON-LOCK		MIN RECALL		NON-LOCK

POLE SCHEDULE

No.	POLE IDENTIFICATION	STANDARD					LUM. LED (4)	POLE SIGNAL MOUNTING				STREET NAME SIGN
		TYPE	SIG. M.A. ORIENT.	SIG. M.A.	LUM. M.A. ORIENT.	LUM. M.A. (TYPE)		VEHICLE & PED. HEADS	PED. PUSH BUTTONS	SIGNS	VIDEO DETECTOR PREEMPTION & CCTV	
1	099-MA-01-SE	MAST ARM POLE 30' *	180°	45'	180°	6' (UPSWEEP)	145W	21,22,P22	PB22	S-5, S-6	VD2,PE2	S-4
2	099-PP-01-SE	PEDESTAL POLE 12'	-	-	-	-	-	P82	PB82	S-7	-	-
3	099-MA-01-SW	MAST ARM POLE 30' *	180°	30'	180°	6' (UPSWEEP)	145W	41,42	PB21	S-5, S-6	VD4,PE4	S-3
4	099-PP-01-SW	PEDESTAL POLE 12'	-	-	-	-	-	P21,P42	PB42	S-6	-	-
5	099-CP-01-NW	CARLYLE POLE 16' **	-	-	-	-	EX.	P41	PB41	S-9	-	-
6	099-MA-01-NW	MAST ARM POLE 30' **	EX.	50'	EX.	EX.	EX.	61,62,P61	PB61	S-5, S-7	VD6,PE6	S-4
7	099-MA-01-NE	MAST ARM POLE 30' **	EX.	28'	EX.	EX.	EX.	81,82,P62	PB62	S-1, S-3, S-8	VD8,PE8	S-3
8	099-CP-01-NE	CARLYLE POLE 16' **	-	-	-	-	EX.	P81	PB81	S-9	-	-

* SPECIAL DESIGN
** EXISTING POLE

LEGEND

	EXISTING	PROPOSED
Controller Cabinet		
Signal Junction Box (61-02)		
Signal Junction Box (61-04)		
Comm. Junction Box		
Service Junction Box		
Mast Arm Pole & Foundation		
Pedestrian Pedestal Pole & Foundation		
Carlyle Lighting Pole & Foundation		
Service Meter		
Battery Backup (UPS)		
Vehicle Signal Head (LED)		
Pedestrian Push Button	PB#	PB#
FLIR Video Detection	VD#	VD#
Emergency Vehicle Preemption	PE#	PE#
CCTV Vehicle Camera	CCTV	CCTV
Overhead Light (LED)	SL#	SL#
Conduit Run		

GRAPHIC SCALE IN FEET
0 12.5 25 50

ARLINGTON
VIRGINIA

DEPARTMENT OF ENVIRONMENTAL SERVICES

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SEAL

COMMONWEALTH OF VIRGINIA
ANDREW T. SMITH
Lic. No. 0402053042
08/05/2021
PROFESSIONAL ENGINEER

APPROVALS	DATE
TRAFFIC SIGNAL ENGINEER	08/03/21
TRAFFIC ENGINEERING MANAGER	08/04/21
TE&O BUREAU CHIEF	08/04/2021
TRANSPORTATION DIRECTOR	08/04/21

REVISONS	DATE

Project Name and Location
Fairfax Drive & N. Monroe Street
Traffic Signal Modification Plans

TRAFFIC SIGNAL MODIFICATION PLAN

ID #099
ARLINGTON COUNTY, VIRGINIA

Designed: AS
Drawn: JW
Checked: AS
Miss Utility Transmittal #:

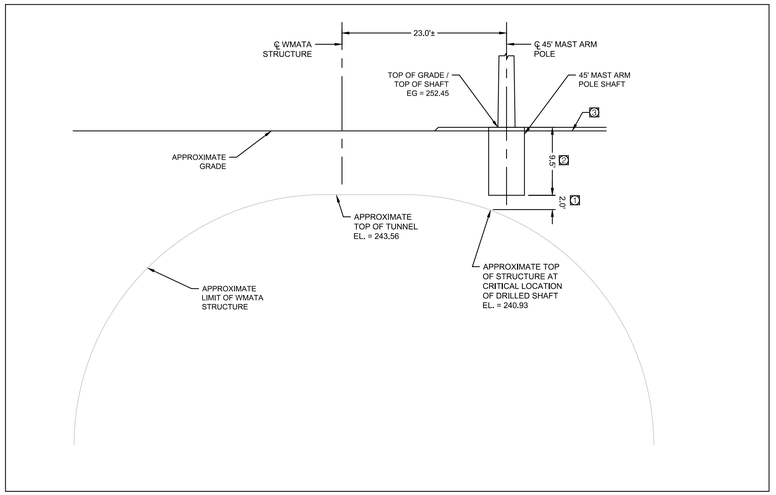
Plotted: August 05, 2021
Plotted by: Patrick.Husted

Scale:
AS NOTED

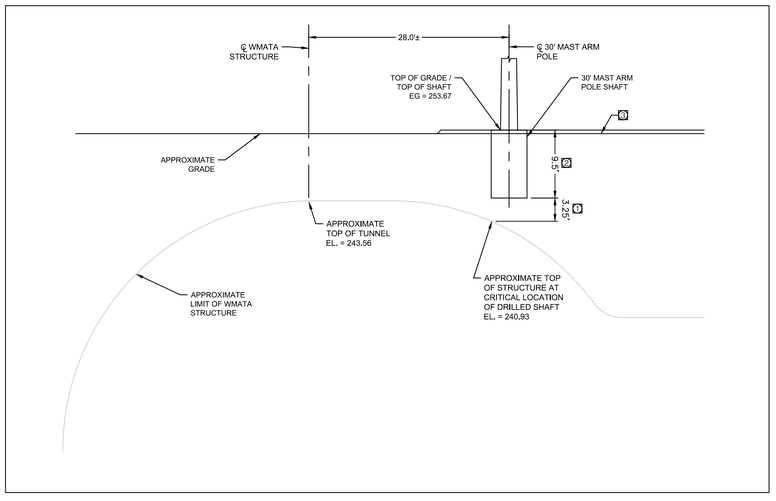
Sheet
3

Filename:3 TRAFFIC SIGNAL MODIFICATION PLANS.dwg
Path: K:\NVA_TPTO\1160106 - Fairfax and Monroe Signal\CAD Plan Sheets

Fairfax Drive & N. Monroe Street



SECTION A-A



SECTION B-B

CONSTRUCTION NOTES

SEE SHEET 3 FOR LOCATIONS OF SECTION A-A AND B-B.

MAST ARM POLES AND FOUNDATIONS MUST COMPLY WITH THE LATEST VERSION OF WMATA ADJACENT CONSTRUCTION PROJECT MANUAL (ACPM) AND WMATA REAL ESTATE PERMIT.

1. APPROXIMATE CLEARANCE TO WMATA TUNNEL. TOP OF WMATA TUNNEL SHALL BE VERIFIED BY VACUUM DRILLING PRIOR TO CONSTRUCTION AND SUBMIT THE TEST RESULTS FOR WMATA REVIEW. EXISTING WATERPROOFING / STRUCTURE SHALL NOT BE DAMAGED.
2. DIMENSION BASED ON PRELIMINARY DESIGN. FINAL DESIGN TO BE COMPLETED BY THE CONTRACTOR.
3. 4" MINIMUM PAVER OR CONCRETE SIDEWALK THICKNESS PER ARLINGTON COUNTY STANDARD DRAWING NO. R-2.0 OR R-2.1.

ARLINGTON
VIRGINIA

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ANDREW T. SMITH
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TRAFFIC ENGINEERING MANAGER	08/04/21
TE&O BUREAU CHIEF	08/04/2021
TRANSPORTATION DIRECTOR	08/04/21

REVISONS	DATE

Project Name and Location
Fairfax Drive & N. Monroe Street
Traffic Signal Modification Plans
TUNNEL AND SIGNAL POLE SHAFT INTERACTION
ID #099
ARLINGTON COUNTY, VIRGINIA

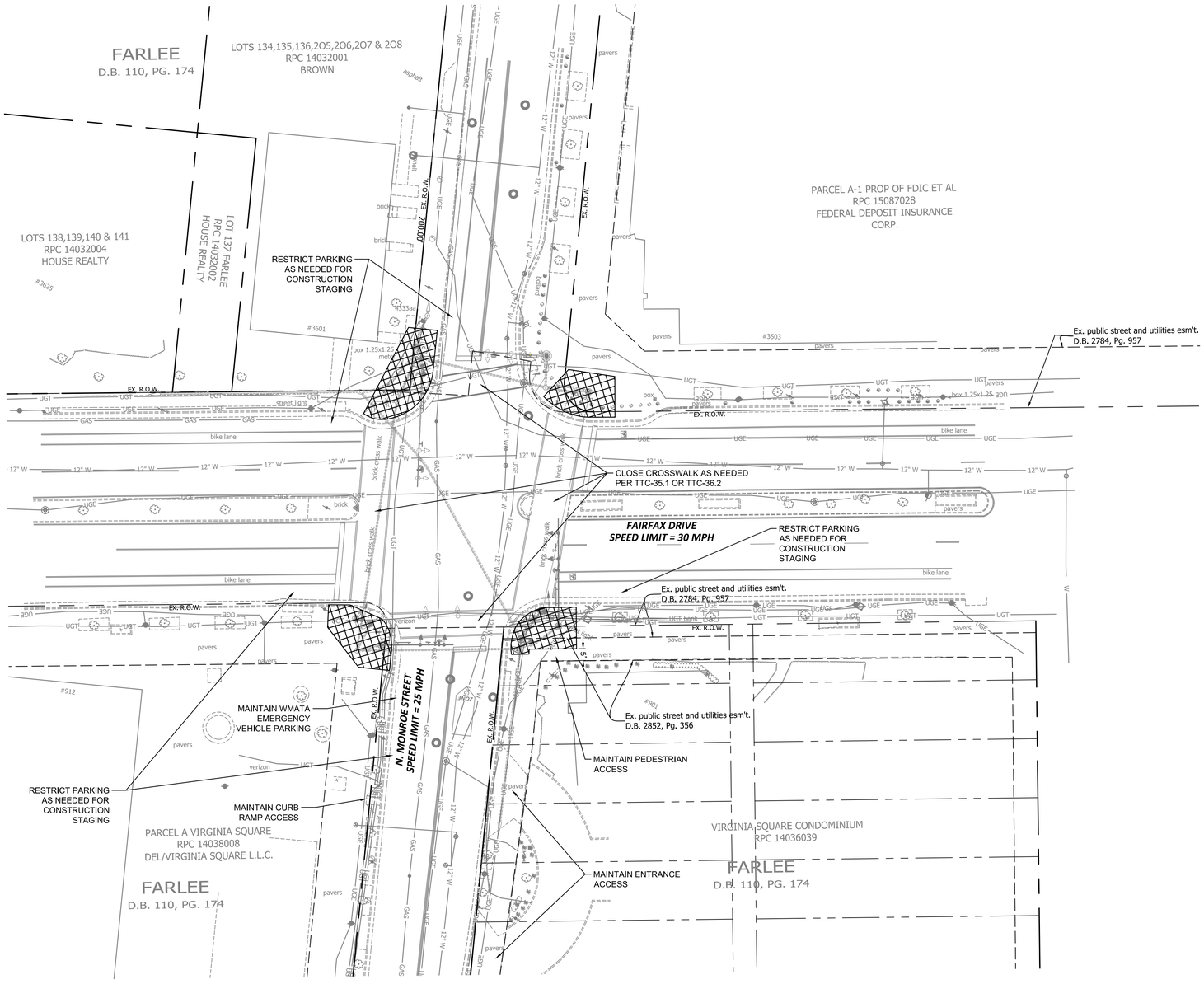
Designed: AS
Drawn: JW
Checked: AS
Miss Utility Transmittal #:

Plotted: August 05, 2021
Plotted by: Patrick.Husted

Scale: NOT TO SCALE

Sheet 4

REVISED: MARCH 03, 2020



MAINTENANCE OF TRAFFIC GENERAL NOTES:

1. TRAFFIC CONTROL SHALL COMPLY WITH: THE LATEST VERSION OF THE VIRGINIA WORK AREA PROTECTION MANUAL, VDOT'S GUIDELINES FOR TEMPORARY TRAFFIC CONTROL, VDOT WORK ZONE PEDESTRIAN AND BICYCLE GUIDANCE, ARLINGTON COUNTY STANDARDS, THE TRAFFIC CONTROL PLANS INCLUDED IN THE CONSTRUCTION DRAWINGS, THIS MAINTENANCE OF TRAFFIC PLAN, AND/OR DIRECTION FROM THE ARLINGTON COUNTY TRAFFIC ENGINEER. THE TEMPORARY TRAFFIC CONTROL DETAILS THAT MAY BE NEEDED FOR THIS PROJECT HAVE BEEN INCLUDED ON SHEET 6.

2. THE PROPOSED WORK SHALL INCLUDE:

   - INSTALLATION OF MAST ARM POLES AND FOUNDATIONS ON SOUTHEAST AND SOUTHWEST CORNERS, INCLUDING SIGNAL HEADS, SIGNS, VIDEO DETECTION, AND PREEMPTION DEVICES.
   - INSTALLATION OF PEDESTAL POLES AND FOUNDATIONS ON SOUTHEAST AND SOUTHWEST CORNERS, INCLUDING PEDESTRIAN SIGNAL HEADS, PUSH BUTTONS, AND SIGNS.
   - INSTALLATION OF STREET NAME SIGNS ON TWO EXISTING MAST ARMS.
   - ROTATION OF EXISTING VIDEO DETECTION DEVICE ON EXISTING MAST ARM.
   - INSTALLATION OF CABLE, CONDUIT, AND JUNCTION BOXES BETWEEN PROPOSED SIGNAL EQUIPMENT AND EXISTING TRAFFIC SIGNAL CONTROL SYSTEM.
   - REMOVAL OF TWO EXISTING STRAIN POLES AND ASSOCIATED SIGNAL EQUIPMENT INCLUDING SPAN WIRE.
   - REPROGRAMMING OF TRAFFIC SIGNAL CONTROLLER.

   CONTRACTOR SHALL SUBMIT A DETAILED SCHEDULE WHICH INDICATES START AND FINISH DATES FOR THE WORK. THE TOTAL DURATION OF WORK SHALL BE APPROXIMATELY 2-3 MONTHS. THE SCHEDULE SHALL INDICATE THE DURATION OF ALL LANE CLOSURES (INCLUDING BICYCLE LANES), CROSSWALK CLOSURES, AND STREET PARKING RESTRICTIONS.

3. DURING CONSTRUCTION, THE CONTRACTOR SHALL EITHER MAINTAIN APPROPRIATE SIGHT DISTANCE TO ALL TRAFFIC SIGNS OR PROVIDE FOR TEMPORARY SIGNAGE OR FLAGGERS TO GUIDE TRAFFIC THROUGH WORK ZONES. THE MINIMUM LANE WIDTH SHOULD BE 10 FEET.

4. THE CONTRACTOR SHALL MINIMIZE THE DURATION OF AN BLOCKAGE TO PRIVATE ENTRANCES AND DRIVEWAYS. THE AFFECTED PROPERTY OWNER SHALL BE NOTIFIED A MINIMUM OF 24 HOURS IN ADVANCE OF SUCH ACTIVITIES, AND THE CONTRACTOR SHALL MAKE ALL PRIVATE ENTRANCES AND DRIVEWAYS ACCESSIBLE AT THE CONCLUSION OF EACH WORKDAY.

5. ANY EXCAVATIONS WHICH ARE SPECIFICALLY APPROVED BY THE ENGINEER TO REMAIN OPEN PAST NORMAL WORKING HOURS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PROTECTED IN ACCORDANCE WITH THE VIRGINIA WORK AREA PROTECTION MANUAL AND AS APPROVED BY THE ENGINEER.

6. ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE RETROREFLECTIVE OR ILLUMINATED DURING NIGHT TIME HOURS.

7. CONTRACTOR IS RESPONSIBLE FOR PROVIDING SAFE WALKWAYS FOR PEDESTRIANS WITHIN THE CONSTRUCTION AREA. FOR ANY SIDEWALK OR CROSSWALK CLOSURE, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL AND IMPLEMENT VDOT TTC-35.1 OR TTC-36.2. PEDESTRIAN SIGNAL HEADS MUST BE BAGGED FOR ALL CROSSWALKS NOT IN USE FOR DURATION OF THE CLOSURE.

8. CONTRACTOR TO CONCENTRATE WORK ON ONE CORNER AT A TIME IN ORDER TO MINIMIZE THE FREQUENCY AND DURATION OF CROSSWALK CLOSURES. CONTRACTOR SHALL MAKE REASONABLE EFFORT TO LIMIT CROSSWALK CLOSURES TO ONE CROSSWALK AT ANY GIVEN TIME. IF THIS CANNOT REASONABLY BE ACHIEVED, A MAXIMUM OF TWO CROSSWALKS MAY BE CLOSED AT ANY GIVEN TIME. IN THE EVENT THAT CROSSWALK CLOSURES ARE REQUIRED, CONTRACTOR SHALL DIRECT PEDESTRIANS TO USE CROSSWALKS AT FAIRFAX DRIVE & N. LINCOLN STREET, N. MONROE ST & 9TH ST N., AND/OR FAIRFAX DRIVE & N. NELSON STREET PER VDOT TTC-36.2.

9. PEDESTRIAN AND BICYCLE TRAFFIC SHALL BE SEPARATED FROM WORK ZONES WITH APPROPRIATE MEASURES IN ACCORDANCE WITH THE MUTCD.

10. ADEQUATE PROVISIONS FOR PERSONS WITH DISABILITIES SHALL BE PROVIDED AT ALL TIMES PER ADA REQUIREMENTS.

11. PEDESTRIANS SHALL NOT BE LED INTO CONFLICT WITH WORK SITE EQUIPMENT, OPERATIONS, AND/OR VEHICLES MOVING THROUGH OR AROUND THE WORK SITE.

12. ALL EXISTING FIRE HYDRANTS AND FIRE DEPARTMENT CONNECTIONS SHALL BE MAINTAINED UNOBSTRUCTED AND ACCESSIBLE AT ALL TIMES IN ACCORDANCE WITH SECTIONS 508.5.4 AND 508.5.5 OF THE ARLINGTON COUNTY FIRE PREVENTION CODE.

13. ACCESS TO BUILDINGS FOR FIREFIGHTING SHALL BE MAINTAINED AT ALL TIMES. EXISTING FIRE APPARATUS ACCESS ROADS (FIRE LANES) SHALL BE KEPT CLEAR OF OBSTRUCTIONS IN ACCORDANCE WITH SECTION 503.4 OF THE ARLINGTON COUNTY FIRE PREVENTION CODE. ACCESS TO CONSTRUCTION SITES SHALL BE PROVIDED AND MAINTAINED IN ACCORDANCE WITH SECTION 1410 OF THE ARLINGTON COUNTY FIRE PREVENTION CODE.

14. IN THE EVENT THAT EXISTING FIRE DEPARTMENT CONNECTIONS OR FIRE APPARATUS ACCESS ROADS (FIRE LANES) MUST BE OBSTRUCTED TO FACILITATE CONSTRUCTION ACTIVITIES, CONTACT THE ARLINGTON COUNTY FIRE DEPARTMENT FIRE PREVENTION OFFICE AT 703-228-4644 TO COORDINATE REVIEW AND APPROVAL OF TEMPORARY FIRE DEPARTMENT CONNECTIONS AND/OR FIRE APPARATUS ACCESS ROADS PRIOR TO CREATING THE OBSTRUCTION.

15. NORMAL WORKING HOURS SHALL BE 9:00 AM TO 4:00 PM MONDAY THROUGH FRIDAY. WEEKEND, NIGHTTIME, OR HOLIDAY WORK SHALL ONLY BE PERMITTED WITH PRIOR COUNTY APPROVAL.

16. SHOULD THE CONTRACTOR DETERMINE THAT A SIGNAL MUST BE TURNED OFF AT ANY POINT, THE CONTRACTOR MUST NOTIFY ARLINGTON COUNTY A MINIMUM OF 24 HOURS IN ADVANCE AND ARRANGE FOR ARLINGTON POLICE TO CONTROL THE INTERSECTION. ACTIVE TRAFFIC CONTROL/FLAGGING THROUGH A SIGNALIZED INTERSECTION MUST BE PERFORMED BY A UNIFORMED POLICE OFFICER - THE CONTRACTOR SHALL COORDINATE WITH ARLINGTON COUNTY POLICE FOR THESE ACTIVITIES.

17. FOR SIGNAL POLE INSTALLATIONS, CONTRACTOR SHALL FOLLOW VDOT TTC-30.2 FOR ANY REQUIRED LANE CLOSURES. CONTRACTOR SHALL NOTIFY ARLINGTON COUNTY A MINIMUM OF TWO WEEKS IN ADVANCE OF ANY LANE CLOSURES

LEGEND

APPROXIMATE LIMITS OF WORK AREA

GRAPHIC SCALE IN FEET
0 12.5 25 50

AND COOPERATION WITH ARLINGTON COUNTY

ARLINGTON
VIRGINIA

DEPARTMENT OF
ENVIRONMENTAL SERVICES

Transportation Division
Transportation Planning Bureau
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DERIK DOUGHTY
Lic. No. 0402055074
08/05/2021
PROFESSIONAL ENGINEER

APPROVALS	DATE
TRAFFIC SIGNAL ENGINEER	08/03/21
TRAFFIC ENGINEERING MANAGER	08/04/21
TE&O BUREAU CHIEF	08/04/2021
TRANSPORTATION DIRECTOR	08/04/21

REVISONS	DATE

Project Name and Location
Fairfax Drive & N. Monroe Street
Traffic Signal Modification Plans

MAINTENANCE OF TRAFFIC

ID #099
ARLINGTON COUNTY, VIRGINIA

Designed: DD
Drawn: PH
Checked: DD
Miss Utility Transmittal #:

Plotted: August 05, 2021
Plotted by: Patrick.Husted

Scale:
AS NOTED

Sheet
5

Filename:5. MAINTENANCE OF TRAFFIC.dwg
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Typical Traffic Control
Shoulder Operation with Minor Encroachment
(Figure TTC-5.2)
NOTES

Standard

1. **For required sign assemblies for multi-lane roadways see Note 1, TTC-4.**[1]

Guidance

2. *Sign spacing should be 1500'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
3. *When work takes up part of a lane on a high volume roadway; vehicular traffic volumes, vehicle mix, speed and capacity should be analyzed to determine whether the affected lane should be closed. Unless the lane encroachment analysis permits a remaining lane width of 10 feet, the lane should be closed. If the closure operation is on a Limited Access highway, the minimum lane width is 11 feet.*

Option:

4. The ROAD WORK AHEAD (W20-1) sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.

Standard:

5. **A shadow vehicle with either an arrow board operating in the caution mode, or at least one high-intensity amber rotating, flashing, or[2] oscillating light shall be parked 80' - 120' in advance of the first work crew.**
6. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or[2] oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or[2] oscillating lights.**
7. **Taper length (L) and channelizing device spacing shall be at the following:**

Taper Length L

Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks	Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks
25	95	105	115	125	L=S*W/60	50	450	500	550	600	L=SW
30	135	150	165	180	L=S*W/60	55	495	550	605	660	L= SW
35	185	205	225	245	L=S*W/60	60	540	600	660	720	L=SW
40	240	270	295	320	L=S*W/60	65	585	650	715	780	L=SW
45	405	450	495	540	L=SW	70	630	700	770	840	L=SW

Limited Access highways shall use a 1000' merging taper regardless of the posted speed, a 750' shifting taper for posted speeds < 65 mph and a 1000' shifting taper for posted speeds ≥ 65 mph.[2]
Shoulder Taper = ½ L Minimum

8. **Channelizing device spacing shall be at the following:**

Channelizing Device Spacing

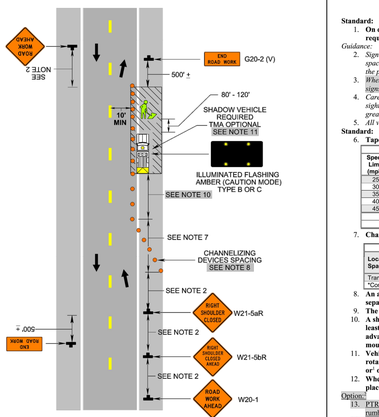
Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +
Transition	20'	40'	Traveway	40'	80'	*Construction Access	80'	120'

*Construction access spacing may be increased to this distance, but shall not exceed one access per ¼ mile.

9. **On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.[2]**
10. **The buffer space length The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.**
11. **A truck-mounted attenuator (TMA) shall be used on Limited Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 mph.**
12. **When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.**

1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

Shoulder Operation with Minor Encroachment
(Figure TTC-5.2)



1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

Typical Traffic Control
Outside Lane Closure Operation on a Four-Lane Roadway
(Figure TTC-16.2)
NOTES

Standard:

1. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**

Guidance:

2. *Sign spacing should be 1500'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
3. *When closing a lane, a PCMS should be used in advance of the first warning sign if all of the left side signs cannot be installed.*[1]
4. *Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. For Limited Access highways a minimum of 1000' is desired.*
5. *All vehicles, equipment, workers, and their activities should be restricted to one side of the pavement.*

Standard:

6. **Taper length (L) and channelizing device spacing shall be at the following:**

Taper Length L

Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks	Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks
25	95	105	115	125	L=S*W/60	50	450	500	550	600	L=SW
30	135	150	165	180	L=S*W/60	55	495	550	605	660	L= SW
35	185	205	225	245	L=S*W/60	60	540	600	660	720	L=SW
40	240	270	295	320	L=S*W/60	65	585	650	715	780	L=SW
45	405	450	495	540	L=SW	70	630	700	770	840	L=SW

Limited Access highways shall use a 1000' merging taper regardless of the posted speed,
Shifting Tapers see Table 6H-2
Shoulder Taper = ½ L Minimum

7. **Channelizing device spacing shall be at the following:**

Channelizing Device Spacing

Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +
Transition	20'	40'	Traveway	40'	80'	* Construction Access	80'	120'

*Construction access spacing may be increased to this distance, but shall not exceed one access per ¼ mile.

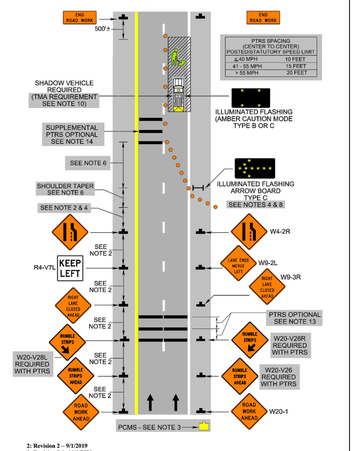
8. **An arrow board shall be used when a lane is closed. When more than one lane is closed, a separate arrow board shall be used for each closed lane (see Figure TTC-18).**
9. **The buffer space length shall be shown in Table 6H-3 on Page 6H-5 for the posted speed limit.**
10. **A shadow vehicle with either a Type B or C arrow board operating in the caution mode, or at least one high-intensity amber rotating, flashing, or[2] oscillating light shall be parked 80'-120' in advance of the first work crew. When the posted speed limit is 45 mph or greater, a truck-mounted attenuator shall be used.**
11. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or[2] oscillating lights but can be used to supplement the amber rotating, flashing, or[2] oscillating lights.**
12. **When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed as needed.**

Option:

13. PTRS and their supporting signs may be used, see Sections 6F.99 and 6G.25. Long-term transverse rumble strips may be used in long-term situations, see Section 6F.99 and TTC-20.[1]
14. The supplemental PTRS may be eliminated.[1]

1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

Outside Lane Closure Operation on a Four-Lane Roadway
(Figure TTC-16.2)



2: Revision 2 – 9/1/2019
3: Revision 2.1 -11/1/2020

Typical Traffic Control
Lane Closure Operation – Near Side of an Intersection
(Figure TTC-26.2)
NOTES

Guidance:

1. *Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph.*

Standard:

2. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**
3. **Taper length (L) shall be at the following:**

Taper Length L

Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks	Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks
25	95	105	115	125	L=S*W/60	50	450	500	550	600	L=SW
30	135	150	165	180	L=S*W/60	55	495	550	605	660	L= SW
35	185	205	225	245	L=S*W/60	60	540	600	660	720	L=SW
40	240	270	295	320	L=S*W/60	65	585	650	715	780	L=SW
45	405	450	495	540	L=SW	70	630	700	770	840	L=SW

Shifting Tapers - full lane width shifts on Limited Access Highways shall use a 750' shifting taper for posted speeds less than 65 mph and a 1000' shifting taper for posted speeds equal to or greater than 65 mph. For all other roadways ½ L should be used.[2]
Shoulder Taper = ½ L Minimum

4. **Channelizing device spacing shall be at the following:**

Channelizing Device Spacing

Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +
Transition	20'	40'	Traveway	40'	80'	*Construction Access	80'	120'

*Construction access spacing may be increased to this distance, but shall not exceed one access per ¼ mile.

Guidance:

5. *If room permits, a shadow vehicle with at least one amber[2] rotating, oscillating, or high intensity flashing[2] light should be parked 80'-120' in advance of the first work crew.*

Standard:

6. **If the posted speed limit is 45 mph or greater, the shadow vehicle shall have a truck-mounted attenuator.**
7. **For emergency situations (any non-planned operation) of 30 minutes or less duration, two rotating amber lights or high intensity amber flashing or oscillating[2] lights mounted on the vehicle and visible for 360° shall be required in addition to the channelizing devices shown around the vehicle. Also, vehicle hazard warning signals shall be used.**

Guidance:

8. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure TTC-36.*

Standard:

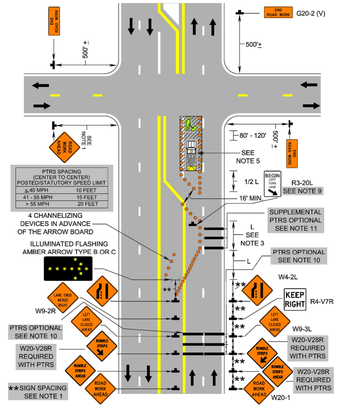
9. **If the left turn lane is closed a NO LEFT TURN (Symbol) (R3-2) shall be used.**[1]

Option:[2]

10. PTRS may be used as shown in Figure TTC-17 and in accordances with Section 6F-99.[1]
11. The supplemental PTRS may be eliminated.[1]

1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

Lane Closure Operation - Near Side of an Intersection
(Figure TTC-26.2)



1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

Typical Traffic Control
Lane Closure Operation – Far Side of an Intersection
(Figure TTC-27.2)
NOTES

Guidance:

1. *Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph.*

Standard:

2. **On divided highways have a median wider than 8', right and left sign assemblies shall be required.**
3. **Taper length (L) shall be at the following:**

Taper Length L

Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks	Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks
25	95	105	115	125	L=S*W/60	50	450	500	550	600	L=SW
30	135	150	165	180	L=S*W/60	55	495	550	605	660	L= SW
35	185	205	225	245	L=S*W/60	60	540	600	660	720	L=SW
40	240	270	295	320	L=S*W/60	65	585	650	715	780	L=SW
45	405	450	495	540	L=SW	70	630	700	770	840	L=SW

Shifting Tapers - full lane width shifts on Limited Access Highways shall use a 750' shifting taper for posted speeds less than 65 mph and a 1000' shifting taper for posted speeds equal to or greater than 65 mph. For all other roadways ½ L should be used.[2]
Shoulder Taper = ½ L Minimum

4. **Channelizing device spacing shall be at the following:**

Channelizing Device Spacing

Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +
Transition	20'	40'	Traveway	40'	80'	*Construction Access	80'	120'

*Construction access spacing may be increased to this distance, but shall not exceed one access per ¼ mile.

Guidance:

5. *If room permits, a shadow vehicle with at least one amber[2] rotating, oscillating, or high intensity flashing[2] light should be parked 80'-120' in advance of the first work crew,*

Standard:

6. **If the posted speed limit is 45 mph or greater, the shadow vehicle shall have a truck-mounted attenuator.**
7. **For emergency situations (any non-planned operation) of 30 minutes or less duration, two rotating amber lights or high intensity amber flashing or oscillating[2] lights mounted on the vehicle and visible for 360° shall be required in addition to the channelizing devices shown around the vehicle. Also, vehicle hazard warning signals shall be used.**

Guidance:

8. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure TTC-36.*

Standard:

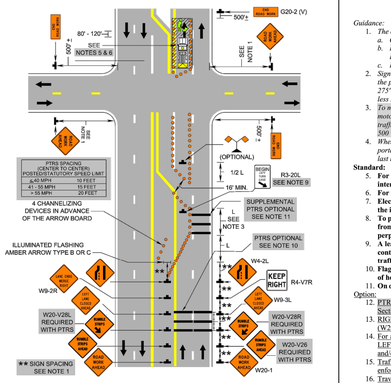
9. **If the left turn lane is closed a NO LEFT TURN (Symbol) (R3-2) shall be used.**[1]

Option:[2]

10. PTRS may be used as shown in Figure TTC-17 and in accordances with Section 6F-99.[1]
11. The supplemental PTRS may be eliminated.[1]

1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

Lane Closure Operation - Far Side of an Intersection
(Figure TTC-27.2)



1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

Typical Traffic Control
Flagging Operation at a Signalized Intersection
(Figure TTC-30.2)
NOTES

Guidance:

1. *The control of traffic through the intersection in order of preference should be:*
   a. *Obtain the services of law enforcement personnel with the approved signing as shown.*
   b. *Divert the effective routes to other roads and streets as approved and directed by the District[2] Traffic Engineer.*
   c. *Place a state certified flagger on each leg of the intersection with the approved signing as shown.*
2. *Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph. For urban streets sign spacing distance should be 225'-275' where the posted speed limit is 30 to 35 mph, and 100'-200' where the posted speed is 25 mph or less .*
3. *To maintain efficient traffic flow in a flagging operation on a two-lane roadway the maximum time motorist should be stopped at a flagger station is 8 minutes for high volume roadways (average daily traffic of 500 or more vehicles per day) to a maximum of 12 minutes for low volume roadways (less than 300 vehicles per day). Additional information see Section 6E.03.*
4. *When law enforcement officers or flaggers are used to control movement at the signalize intersection, portable temporary rumble strips and signing as shown[2] should be used when the expected operation will last longer than 3 hours.*[1]

Standard:

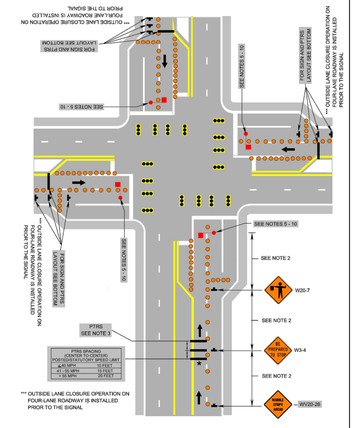
5. **For flagging operations,[1] a stationary lane closure shall be installed in advance of the signalized intersection for all approaches with two or more lanes for through traffic.**
6. **For flagging operations,[1] all turn lanes at the intersection shall be closed.**
7. **Electrical power supply to signals shall be turned off while flaggers are controlling traffic through the intersection.**
8. **To prevent accidental intrusion into the flagger station, cone spacing shall not exceed 10' on centers from the graphic flagger sign to the flagger station. Cones shall be installed in the closed lane, perpendicular to traffic, prior to the flagging station.**
9. **A lead flagger shall be assigned to control all flagger operations. One flagger shall be stationed to control each approach of the intersection. Flaggers shall alternate right-of-way to traffic such that traffic moves through the intersection one approach at a time.**
10. **Flagger stations shall be illuminated during planned night time work operations with a minimum of horizontal luminance of 5-foot candles (50 lux) (see Section 6E.08).**
11. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**

Option:

12. PTRS may be incorporated into the advanced warning area of lane closures on multi-lane roadways, see Section 6F.99 and TTC-16.[1]
13. RIGHT TURN LANE CLOSED AHEAD (W20-V13R) and/or LEFT TURN LANE CLOSED AHEAD (W20-V13L) sign(s) may be used when closing the turn lanes.
14. For a high volume of turning movements, additional traffic control devices, such as signs (graphic NO LEFT TURN (R3-2), NO RIGHT TURN (R3-1), RIGHT TURN LANE CLOSED AHEAD (W20-V13R) and/or LEFT TURN LANE CLOSED AHEAD (W20-V13L)), cones and vehicles may be used.
15. Traffic signals may be on the flash mode when traffic through the intersection when controlled by a law enforcement officer.[1]
16. Travel and turn lanes may remain open if a law enforcement officer is controlling traffic through the intersection.[1]

1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

Flagging Operation at a Signalized Intersection
(Figure TTC-30.2)



2: Revision 2 – 9/1/2019

Typical Traffic Control
Sidewalk Closure and Bypass Sidewalk Operation
(Figure TTC-35.1)
NOTES

Standard:

1. **When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.**

Guidance:

2. *Where high speeds are anticipated, a temporary traffic barrier and, if necessary, a crash cushion should be used to separate the temporary sidewalks from vehicular traffic.*
3. *Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*
4. *Temporary markings should be considered for operations exceeding three days in duration.*

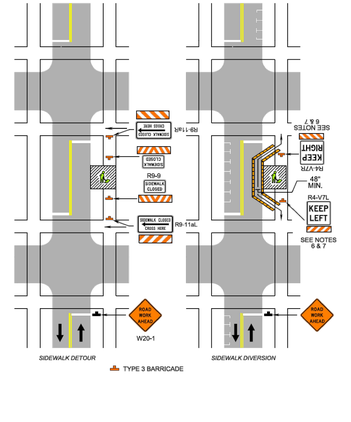
Option:

5. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS (W5-1) signs, may be used to control vehicular traffic.
6. For nighttime closures, Type A Flashing warning lights may be used on barricades that support signs and close sidewalks.
7. Signs, such as KEEP RIGHT (R4-V7R) and KEEP LEFT (R4-V7L), may be placed along a temporary sidewalk to guide or direct pedestrians.

Standard:

8. **All sidewalk closures shall be closed with Type 3 Barricades. The SIDEWALK CLOSED (R9-9) sign and the SIDEWALK CROSS HERE (R9-11) sign shall be installed above the Type 3 Barricade. The KEEP RIGHT sign can cover the top rail of the Type 3 Barricade.**[1]

Sidewalk Closure and Bypass Sidewalk Operation
(Figure TTC-35.1)



2: Revision 2 – 9/1/2019

Typical Traffic Control
Crosswalk Closure and Pedestrian Detour Operation
(Figure TTC-36.2)
NOTES

Standard:

1. **When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.**
2. **Curb parking shall be prohibited for at least 50 feet in advance of the midblock crosswalk.**

Guidance:

3. *Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*
4. *Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated.*
5. *Temporary markings should be considered for operations exceeding three days in duration.*

Option:

6. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS (W5-1) signs, may be used to control vehicular traffic.
7. For nighttime closures, Type A Flashing warning lights may be used on barricades supporting signs and closing sidewalks.

Standard:

8. **In order to maintain the systematic use of the fluorescent yellow-green background for school warning signs in a jurisdiction, the fluorescent yellow-green background for school warning signs shall be used in TTC zones.**[1]
9. **All sidewalk closures shall be closed with Type 3 Barricades. The SIDEWALK CLOSED (R9-9) sign and the SIDEWALK CROSS HERE (R9-11) sign shall be installed above the Type 3 Barricade. The KEEP RIGHT sign can cover the top rail of the Type 3 Barricade.**[2]

Support:

10. Refer to Sections 3B-16 through 3B-18 of the 2009 MUTCD and the Virginia Supplement to the MUTCD[1] for crosswalk[2] lines, yield lines and other related TTC devices that may be used to control vehicular traffic at midblock crosswalks.

Standard:[2]

11. **The YIELD HERE TO PEDESTRIANS (R1-5) sign shall be placed at the Yield Line.**
12. **Fluorescent yellow-green PEDESTRIAN TRAFFIC (W11-2) symbol sign, AHEAD (W16-9p) plaque and ARROW (W16-7p) plaque shall be used to identify the work zone crosswalk.**

Crosswalk Closure and Pedestrian Detour Operation
(Figure TTC-36.2)

1: Revision 1 – 4/1/2015
2: Revision 2 – 7/1/2018

Typical Traffic Control
Signing for Project Limits
(Figure TTC-53.0)
NOTES

Support:

1. This layout depicts signing requirements for notifying motorist when they are entering and exiting a potential construction/maintenance area with a duration equal to or greater than 60 days.

Standard:

2. **The ROAD WORK AHEAD (W20-1) sign or the ROAD WORK NEXT XX MILES (G20-1 (V)) sign shall be placed far enough in advance of the project limits so that other warning signs in a series may be adequately placed prior to the condition they are warning about.**
3. **The ROAD WORK NEXT XX MILES sign shall be used for projects with activity areas greater than 2 miles in length, or when multiple work activities (such as pavement patching, guardrail installations, shoulder restoration, etc.) occur along a highway.**
4. **The distance displayed on the ROAD WORK NEXT XX MILES sign shall be stated to the nearest whole mile from the point of installation to the END ROAD WORK (G20-2 (V)) sign.**
5. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**

Guidance:

6. *For projects with activity areas 2 miles or less in length, the ROAD WORK AHEAD sign should be the first sign motorist encounter.*
7. *Sign spacing should be 1500'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
8. *All connections within the project limits should be identified with signs indicating to motorist they are entering or exiting a potential construction/maintenance area.*

Signing for Project Limits
(Figure TTC-53.0)

ARLINGTON
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Transportation Planning Bureau
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Fax: 703.228.3606

SEAL

COMMONWEALTH OF VIRGINIA
DERIK DOUGHTY
Lic. No. 0402055074
08/05/2021
PROFESSIONAL ENGINEER

APPROVALS DATE

TRAFFIC SIGNAL ENGINEER 08/03/21

TRAFFIC ENGINEERING MANAGER 08/04/21

TE&O BUREAU CHIEF 08/04/2021

TRANSPORTATION DIRECTOR 08/04/21

REVISONS DATE

Project Name and Location
Fairfax Drive & N. Monroe Street
Traffic Signal Modification Plans
MAINTENANCE OF TRAFFIC DETAILS
ID #099
ARLINGTON COUNTY, VIRGINIA

Designed: DD
Drawn: PH
Checked: DD
Miss Utility Transmittal #:

Plotted: August 05, 2021
Plotted by: Patrick.Husted

Scale: NOT TO SCALE

Sheet 6

REVISED: MARCH 03, 2020

Filename:5. MAINTENANCE OF TRAFFIC.dwg
Path: K:\NVA_TPTO\1100106 - Fairfax and Monroe Signal\CAD\PlanSheets

Fairfax Drive & N. Monroe Street