

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

VOLUME 2 - SALEM
PEDESTRIAN / BICYCLE FACILITY UPGRADES

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HSI-003S(104)X	14	44
PROJECT FILE NO.		608732	

TITLE SHEET & INDEX

STATEWIDE PEDESTRIAN AND BICYCLE FACILITY UPGRADES FOR:

DISTRICT 4 (SALEM)

WASHINGTON STREET, NORMAN STREET, NORTH STREET, AND SUMMER STREET

IN THE CITY OF

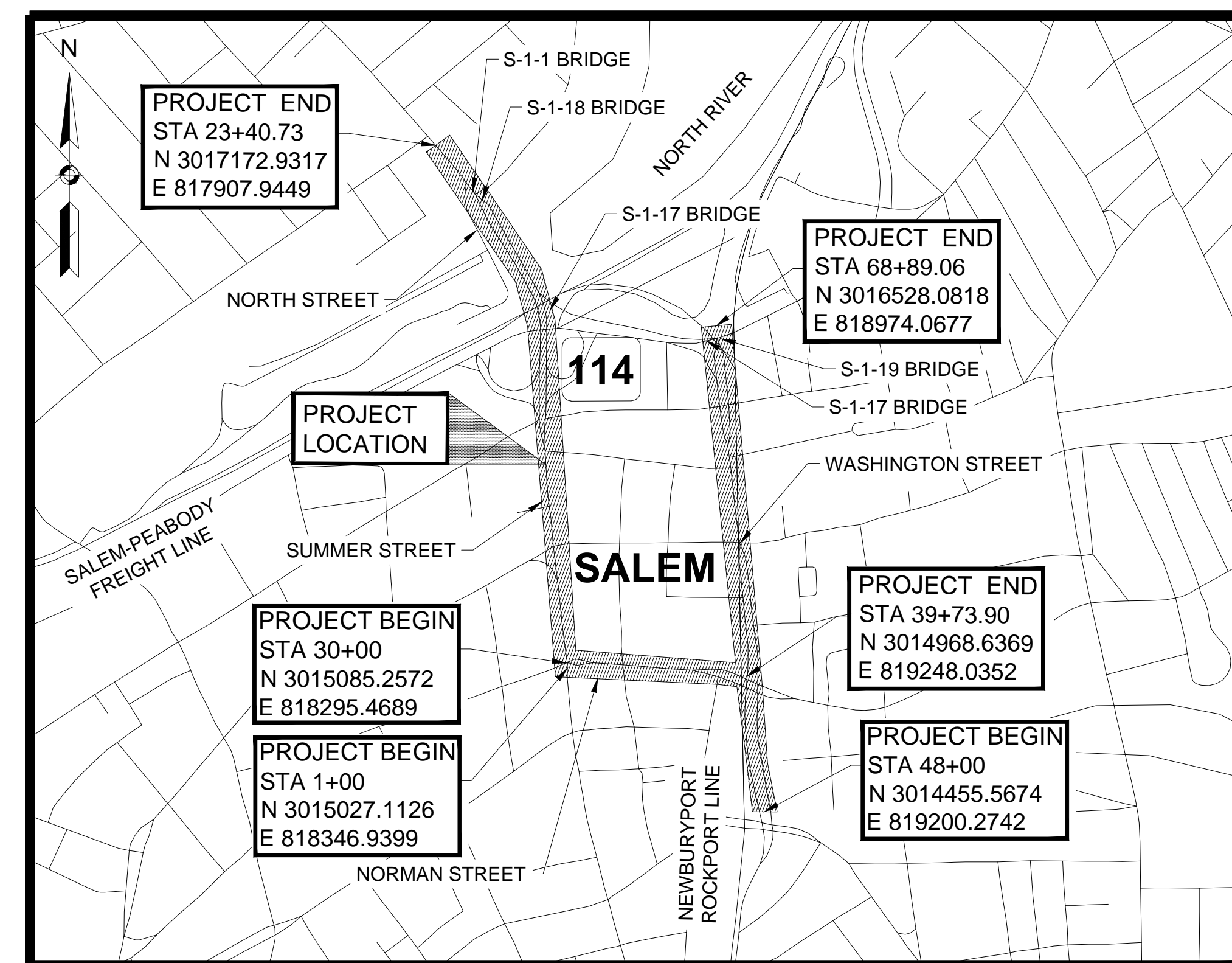
SALEM

ESSEX COUNTY

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED JULY 1, 2015, THE DECEMBER 2016 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

FEDERAL AID PROJECT NO. HSI-003S(104)X

VOLUME 2 INDEX	
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25	CONSTRUCTION DETAILS



500' 0 500' 1000'

SCALE 1" = 500'

LENGTH OF PROJECT = 5,306 FEET = 1.005 MILES

DESIGN DESIGNATION

STREET	WASHINGTON STREET	NORMAN STREET	NORTH STREET/ SUMMER STREET
DESIGN SPEED	30 MPH	30 MPH	30 MPH
ADT (CURRENT YEAR)	18,500 vpd (2010)	17,500 vpd (2017)	23,000 (2010)
ADT (DESIGN YEAR)	19,000 vpd (2010)	17,500 vpd (2017)	23,500 (2017)
K	7%	8%	4%
D	61%	60%	54%
T (PEAK HOUR)	N/A	N/A	N/A
T (AVERAGE DAY)	N/A	N/A	N/A
DHV	1,460 vph	1,400 vph	1,780 vph
DDHV	895 vph	835 vph	970 vph
FUNCTIONAL CLASSIFICATION	PRINCIPAL ARTERIAL	URBAN PRINCIPAL ARTERIAL	URBAN PRINCIPAL ARTERIAL

DATE	DESCRIPTION	REV #



RECOMMENDED FOR APPROVAL

CHIEF ENGINEER DATE

APPROVED

HIGHWAY ADMINISTRATOR DATE



DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HSI-003S(104)X	15	44
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GENERAL NOTES, LEGEND & ABBREVIATIONS

GENERAL NOTES

- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, RULES, REGULATIONS AND SAFETY CODES IN THE CONSTRUCTION OF ALL IMPROVEMENTS. SIGN AND STRIPING WORK SHALL ALSO MEET ALL APPLICABLE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- CURBLINES, DRIVEWAYS, BUILDINGS, PROPERTY LINES, AND CITY LAYOUT LINES WERE PROVIDED BY THE CITY OF SALEM'S GIS DEPARTMENT IN MAY 2016. CITY LAYOUT ACCEPTANCE DATES AND WIDTHS WERE PROVIDED BY THE CITY OF SALEM'S MAYOR'S OFFICE.
- THE CONTRACTOR SHALL VERIFY BASE MAPPING IN THE FIELD PRIOR TO PLACING STRIPING OR SYMBOLS AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO START OF WORK. WHEN THESE PLANS ARE IN CONFLICT WITH ACTUAL SITE CONDITIONS, PROPOSED STRIPING MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
- PARKING AREAS SHOWN ARE APPROXIMATE LIMITS OF PARKING BASED UPON EXISTING SIGNED REGULATIONS. NOT ALL DRIVEWAYS ARE SHOWN ON THE DRAWINGS.
- SIGNS, PAVEMENT MARKINGS, STREET FURNITURE AND FIRE HYDRANTS SHOWN ON THE DRAWINGS ARE BASED UPON FIELD OBSERVATIONS. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND NOTE ANY DISCREPANCIES TO THE ENGINEER.
- MARKED CROSSWALKS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND NOT ALL CROSSWALKS ARE SHOWN.
- ALL PAVEMENT CONDITIONS MUST BE ACCEPTABLE TO THE ENGINEER.
- ALL PAVEMENT MARKINGS ARE THERMOPLASTIC UNLESS OTHERWISE NOTED.
- TEXT, ARROWS, BICYCLE LANE SYMBOLS AND SHARED LANE MARKING SYMBOLS SHALL BE WHITE. LONGITUDINAL LOCATIONS FOR BICYCLE LANE SYMBOLS AND SHARED LANE MARKINGS ARE APPROXIMATE UNLESS DIMENSIONS GIVEN. SEE DRAWINGS FOR SYMBOL LOCATIONS.
- IF PROPOSED PAVEMENT MARKINGS ARE SHOWN IN THE AREA OF EXISTING PAVEMENT MARKINGS, ERADICATE ANY CONFLICTING MARKINGS USING AN APPROVED METHOD SUCH THAT NO TRACES OF EXISTING MARKINGS ARE SHOWN. THE CONTRACTOR SHALL NOT INSTALL NEW PAVEMENT MARKINGS WITHOUT ERADICATING EXISTING PAVEMENT MARKINGS FIRST.
- STRIPING PLANS SHOW SIGNING ASSOCIATED WITH BICYCLE LANES AND SHARED LANE MARKINGS. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ALL PROPOSED SIGNS AND ANY MODIFICATIONS TO EXISTING SIGNS.
- THE CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO PROTECT ALL WALKS, GRADING, SIDEWALKS, AND FEATURES OUTSIDE OF THE LIMITS OF WORK AND SHALL REPAIR AND REPLACE OR OTHERWISE MAKE GOOD AS DIRECTED BY THE ENGINEER OR OWNER'S DESIGNATED REPRESENTATIVE ANY SUCH OR OTHER DAMAGE SO CAUSED AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RELOCATION DUE TO CENTERLINE SHIFTS OF ANY IN-STREET PEDESTRIAN CROSSING SIGNS.
- ALL EXISTING PEDESTRIAN RAMP LOCATIONS SHOWN ARE APPROXIMATE. EXISTING PEDESTRIAN RAMPS HAVE NOT BEEN REVIEWED FOR ADA COMPLIANCE.

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		HAY BALES/SILT FENCE
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT
		COMPOST FILTER TUBE

ABBREVIATIONS

GENERAL	
AADT	ANNUAL AVERAGE DAILY TRAFFIC
APPROX.	APPROXIMATE
BE	BEGIN ERADICATION
BL	BASELINE
BLDG	BUILDING
BO	BY OTHERS
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CL	CENTERLINE
CONT	CONTINUOUS
CONST	CONSTRUCTION
DHV	DESIGN HOURLY VOLUME
DWY	DRIVEWAY
EOP	EDGE OF PAVEMENT
EE	END ERADICATION
ES	ERADICATE SYMBOL
EXIST (or EX)	EXISTING
HOR	HORIZONTAL
HYD	HYDRANT
L	LENGTH OF CURVE
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
O.C.	ON CENTER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		12" STOP LINE
		CROSSWALK
		6" SOLID WHITE LINE
		6" SOLID YELLOW LINE
		6" BROKEN WHITE LINE
		6" BROKEN YELLOW LINE
		6" DOTTED WHITE LINE (2' LINE, 6' GAP)
		6" DOTTED YELLOW LINE (2' LINE, 6' GAP)
		6" DOTTED WHITE LINE EXTENSION (2' LINE, 6' GAP)
		6" DOTTED YELLOW LINE EXTENSION (2' LINE, 6' GAP)
		6" DOUBLE WHITE LINE
		6" DOUBLE YELLOW LINE
		8" SOLID WHITE CHANNELIZATION LINE
		8" SOLID YELLOW CHANNELIZATION LINE
		SHARED LANE MARKING SYMBOL
		BIKE LANE MARKING SYMBOL
		BIKE LANE YIELD LINE
		BIKE DETECTOR SYMBOL
		BICYCLE BOX SYMBOL
		HIGH FRICTION GREEN COLORED PAVEMENT
		SIGN POST

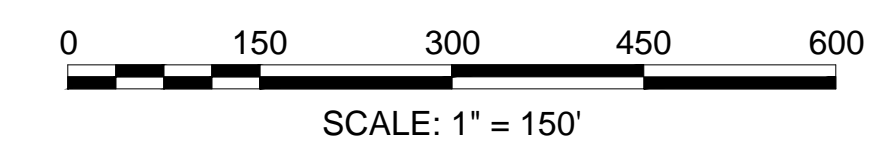
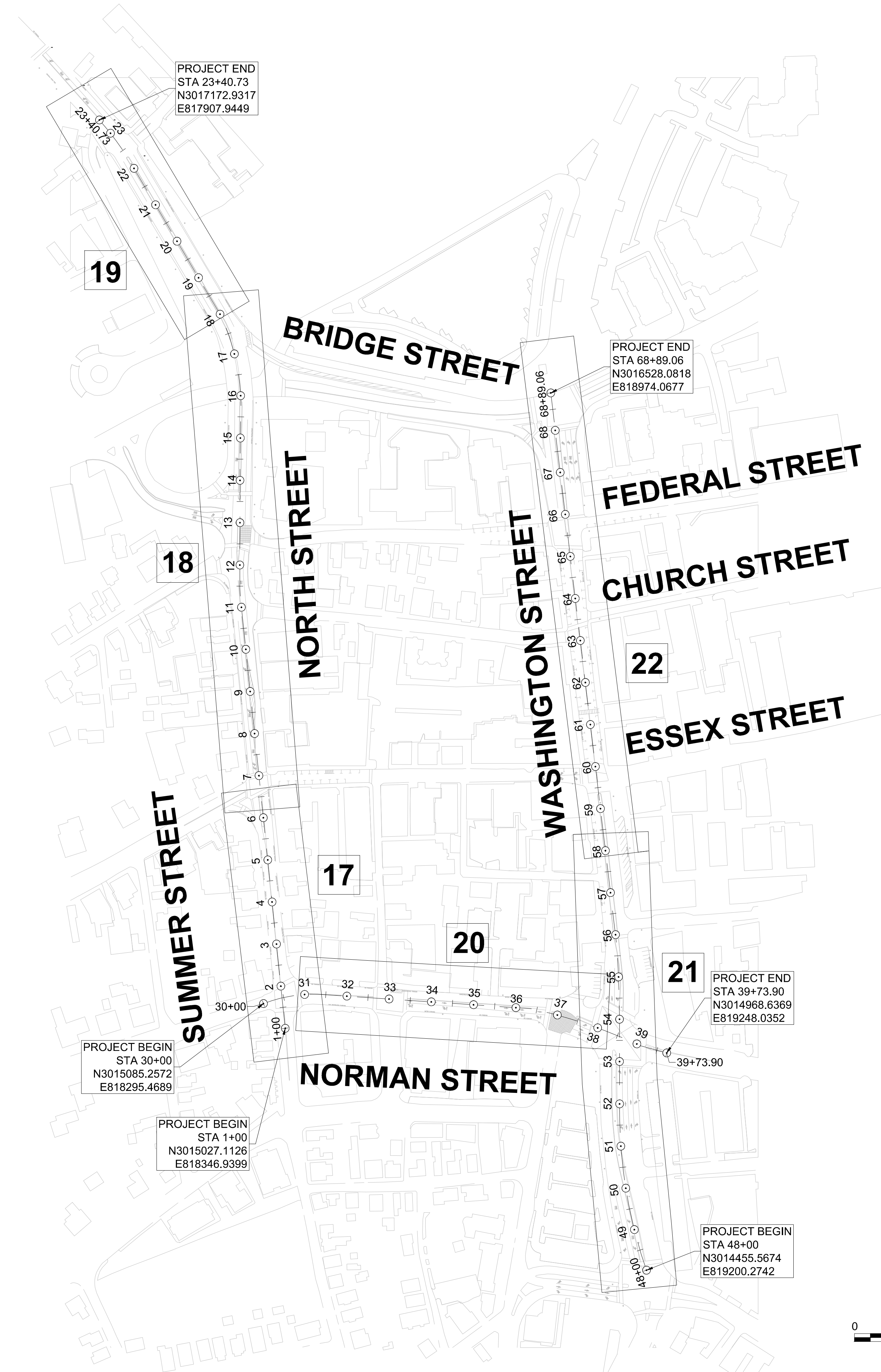
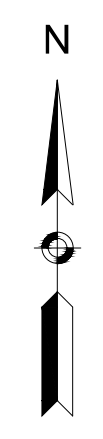
VOLUME 2 - SALEM
PEDESTRIAN / BICYCLE FACILITY UPGRADES

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KEY PLAN

LEGEND

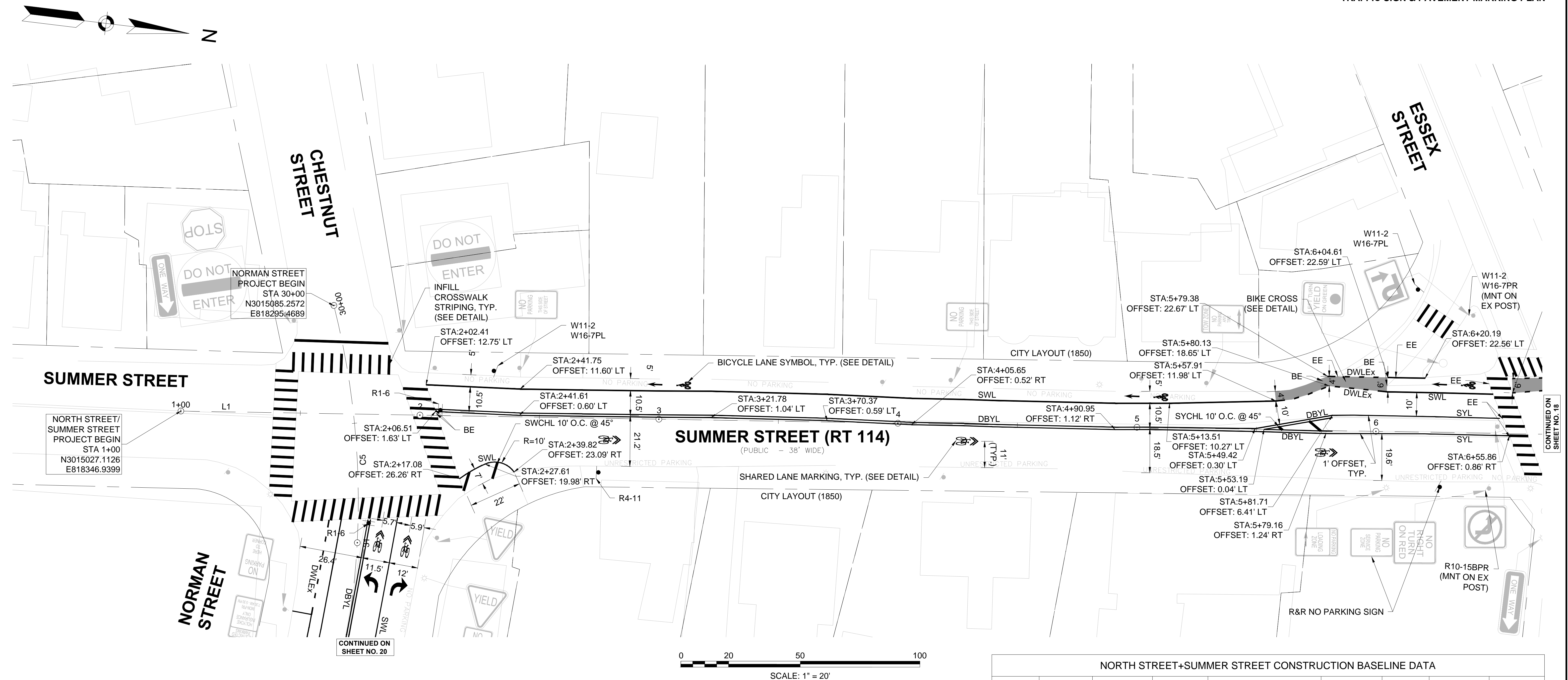
X TRAFFIC SIGNS & PAVEMENT MARKING PLANS



VOLUME 2 - SALEM
PEDESTRIAN / BICYCLE FACILITY UPGRADES

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SUMMER STREET
TRAFFIC SIGN & PAVEMENT MARKING PLAN



CONSTRUCTION NOTES

- SEE SHEET 15 FOR GENERAL NOTES, LEGEND & ABBREVIATIONS.
- SEE SHEET 23 FOR TRAFFIC SIGN SUMMARY.
- SEE SHEET 25 FOR CONSTRUCTION DETAILS.
- ALL EXISTING SIGNS ARE TO BE RETAINED UNLESS OTHERWISE NOTED.
- ALL EXISTING CROSSWALKS ARE TO BE RETAINED.

NORTH STREET+SUMMER STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	1+00.00	3015027.113	818346.940		N5°56'36"W 1026.18'	11+26.18	3016047.772	818240.683
C1	11+26.18	3016047.772	818240.683	R = 200.00' Δ = 6°02'45" L = 21.10' T = 10.56'		11+47.28	3016068.839	818239.608
L2	11+47.28	3016068.839	818239.608		N0°06'09"E 308.78'	14+56.06	3016377.620	818240.161
C2	14+56.06	3016377.620	818240.161	R = 200.00' Δ = 0°57'54" L = 3.37' T = 1.68'		14+59.43	3016380.988	818240.195
L3	14+59.43	3016380.988	818240.195		N1°04'03"E 113.93'	15+73.35	3016494.894	818242.318
C3	15+73.35	3016494.894	818242.318	R = 512.77' Δ = 25°09'16" L = 225.12' T = 114.40'		17+98.48	3016712.850	818193.681
L4	17+98.48	3016712.850	818193.681		N30°32'47"W 417.26'	22+15.74	3017072.203	817981.615
C4	22+15.74	3017072.203	817981.615	R = 635.52' Δ = 11°16'08" L = 124.99' T = 62.70'		23+40.73	3017172.932	817907.945

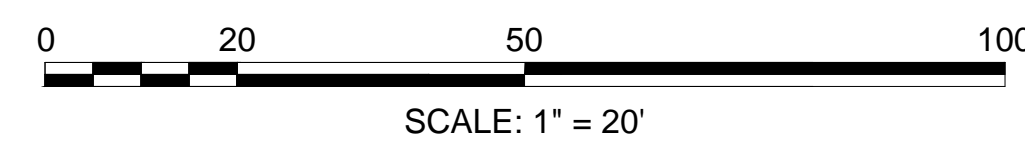
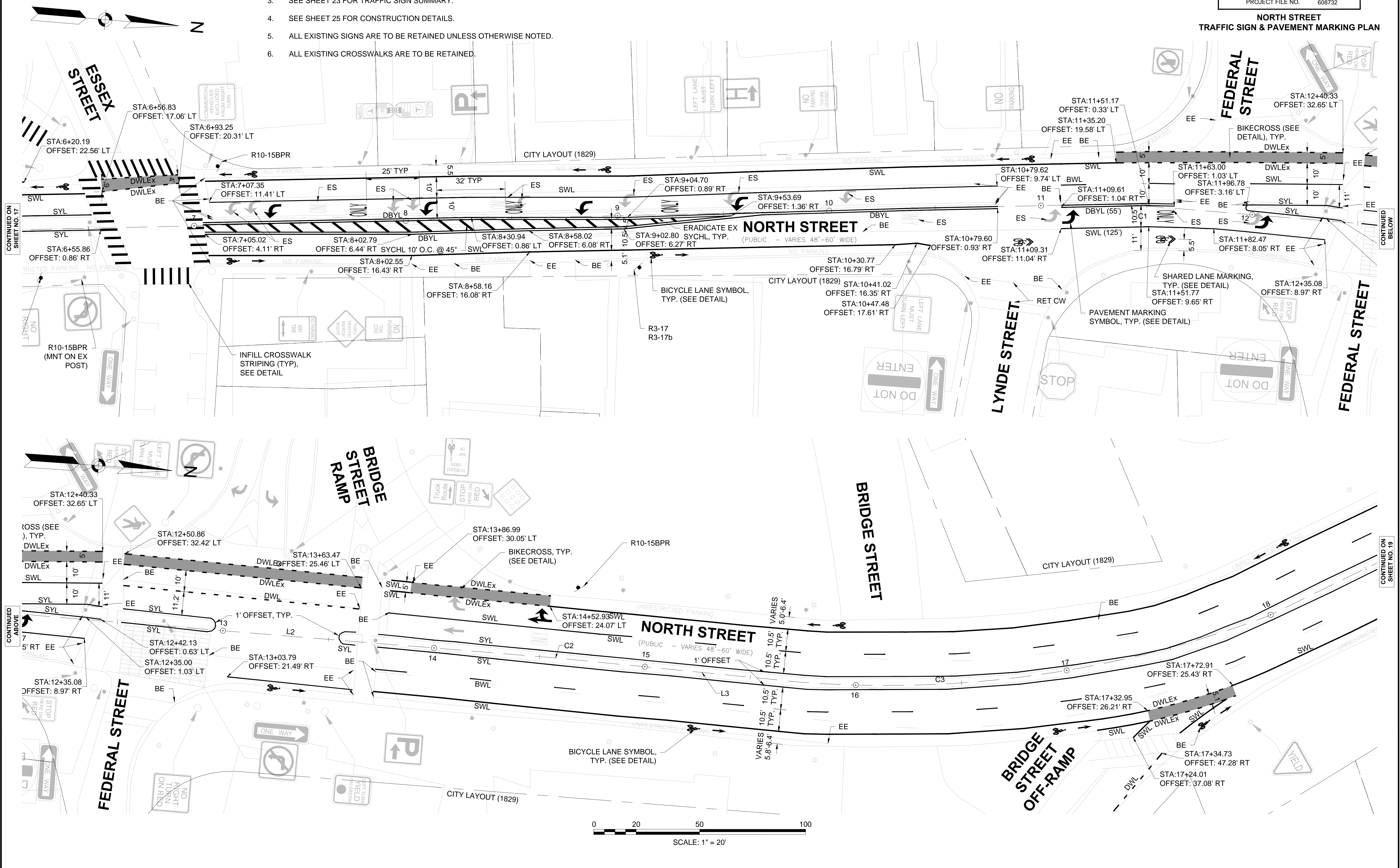
CONSTRUCTION NOTES

1. SEE SHEET 15 FOR GENERAL NOTES, LEGEND & ABBREVIATIONS.
2. SEE SHEET 17 FOR CONSTRUCTION BASELINE DATA.
3. SEE SHEET 23 FOR TRAFFIC SIGN SUMMARY.
4. SEE SHEET 25 FOR CONSTRUCTION DETAILS.
5. ALL EXISTING SIGNS ARE TO BE RETAINED UNLESS OTHERWISE NOTED.
6. ALL EXISTING CROSSWALKS ARE TO BE RETAINED.

**VOLUME 2 - SALEM
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**NORTH STREET
TRAFFIC SIGN & PAVEMENT MARKING PLAN**



CONTINUED ON SHEET NO. 17

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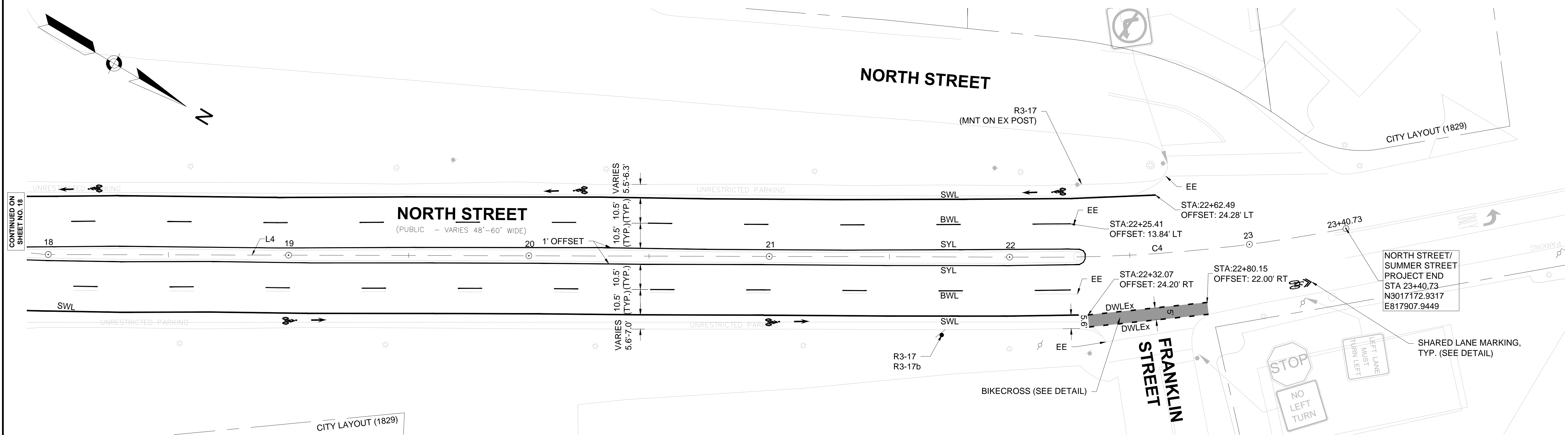
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MA	HSI-003S(104)X	19	44
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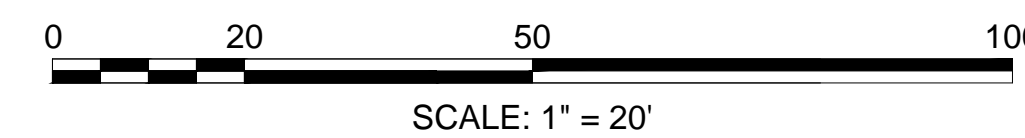
NORTH STREET
TRAFFIC SIGN & PAVEMENT MARKING PLAN



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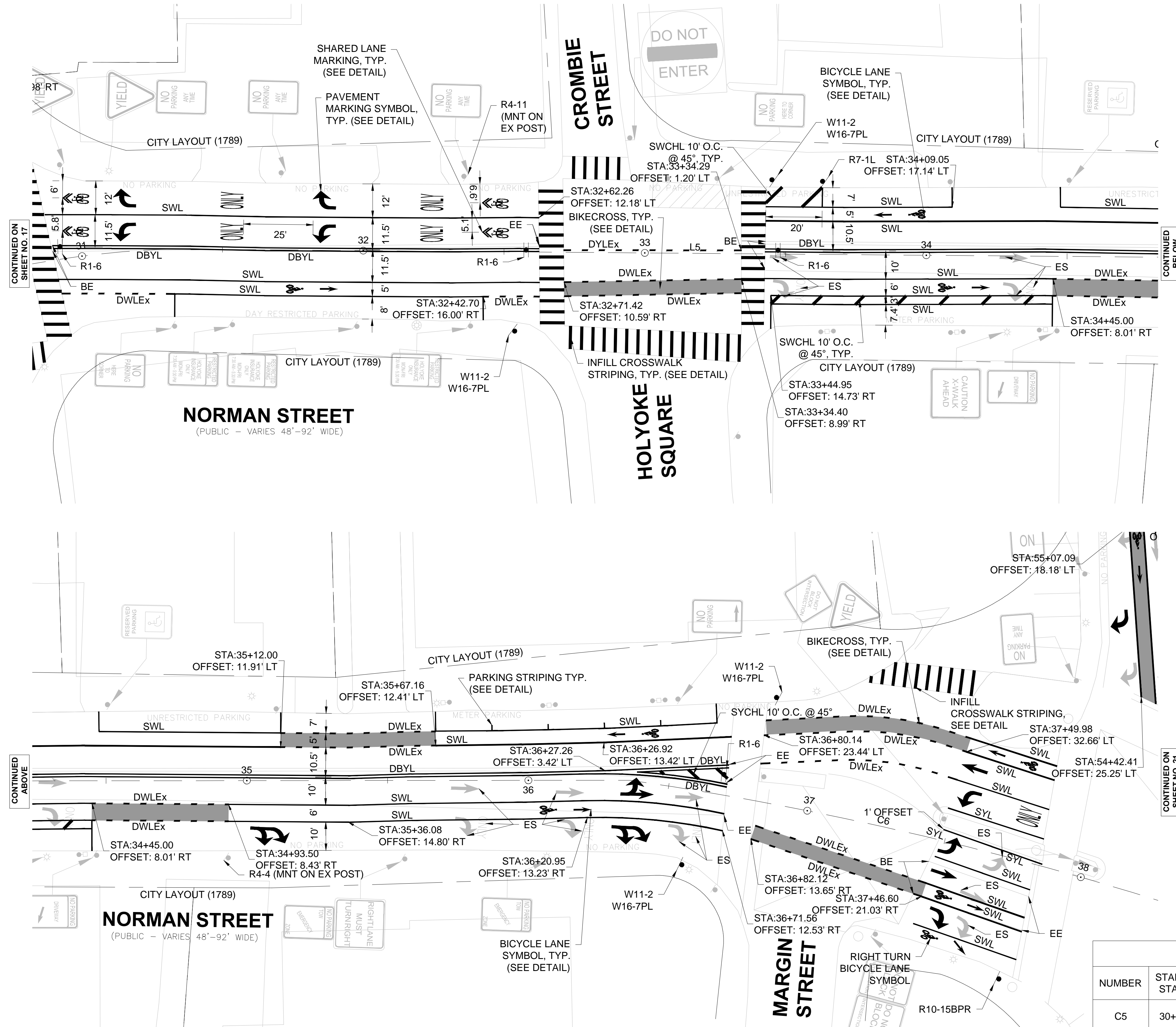
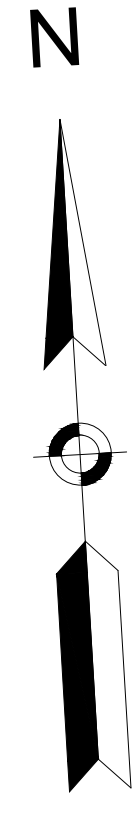
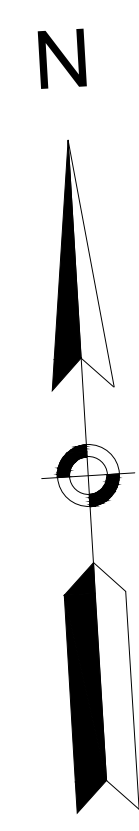
CONSTRUCTION NOTES

1. SEE SHEET 15 FOR GENERAL NOTES, LEGEND & ABBREVIATIONS.
2. SEE SHEET 17 FOR CONSTRUCTION BASELINE DATA.
3. SEE SHEET 23 FOR TRAFFIC SIGN SUMMARY.
4. SEE SHEET 25 FOR CONSTRUCTION DETAILS.
5. ALL EXISTING SIGNS ARE TO BE RETAINED UNLESS OTHERWISE NOTED.
6. ALL EXISTING CROSSWALKS ARE TO BE RETAINED.



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HSI-003S(104)X	20	44
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**NORMAN STREET
TRAFFIC SIGN & PAVEMENT MARKING PLAN**

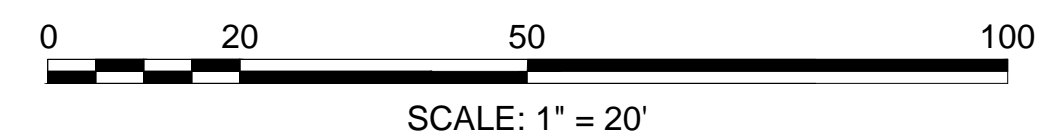


CONSTRUCTION NOTES

- SEE SHEET 15 FOR GENERAL NOTES, LEGEND & ABBREVIATIONS.
- SEE SHEET 23 FOR TRAFFIC SIGN SUMMARY.
- SEE SHEET 25 FOR CONSTRUCTION DETAILS.
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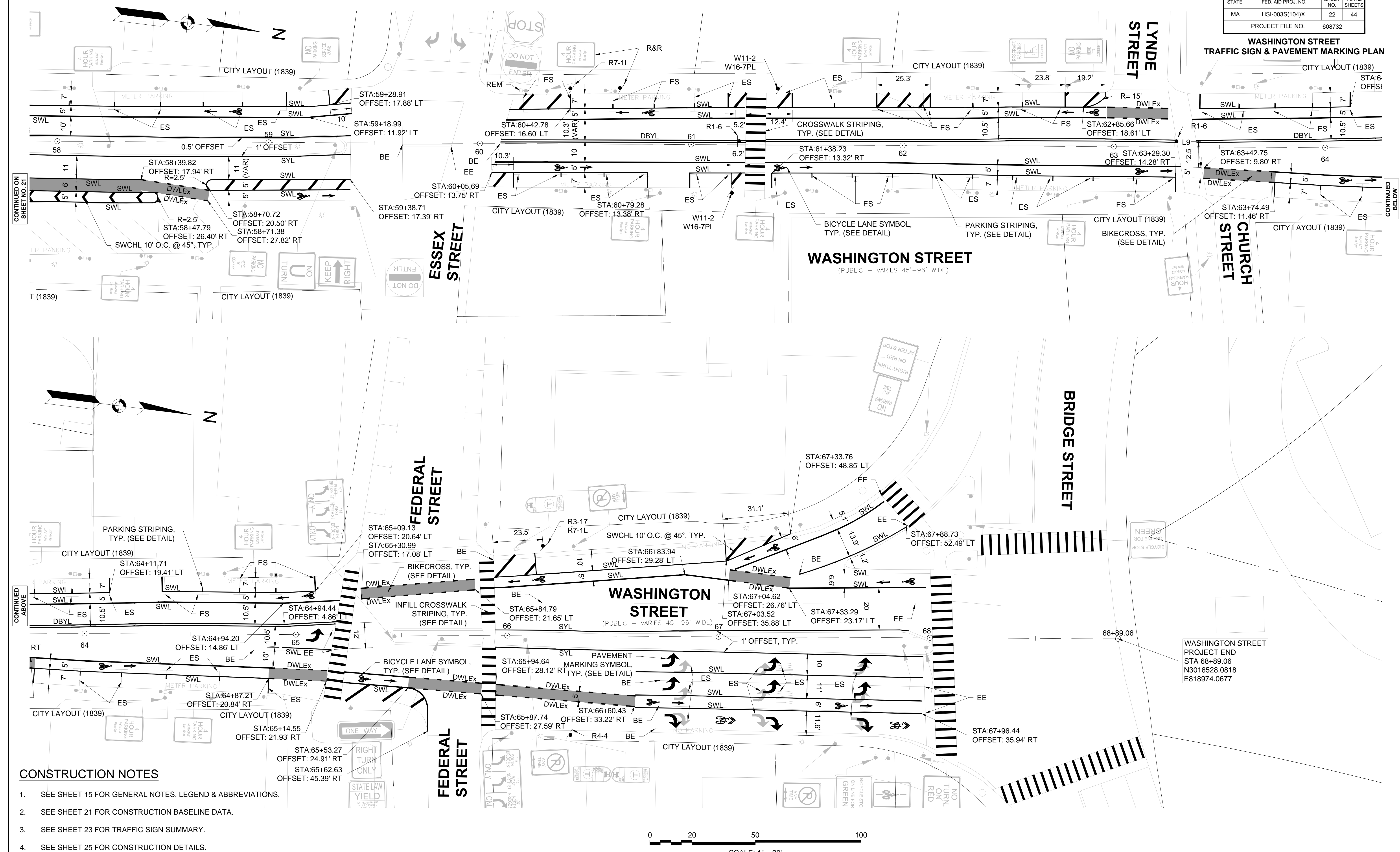
NORMAN STREET CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C5	30+00.00	3015085.350	818295.433	R = 332.28' Δ = 22°33'20" L = 130.81' T = 66.26'		31+30.81	3015107.667	818423.465
L5	31+30.81	3015107.667	818423.465		S86°06'38"E 505.47'	36+36.28	3015073.380	818927.771
C6	36+36.28	3015073.380	818927.771	R = 1208.00' Δ = 12°59'34" L = 273.93' T = 137.56'		39+10.21	3014985.742	819186.689
L6	39+10.21	3014985.742	819186.689		S74°25'11"E 63.69'	39+73.90	3014968.637	819248.035

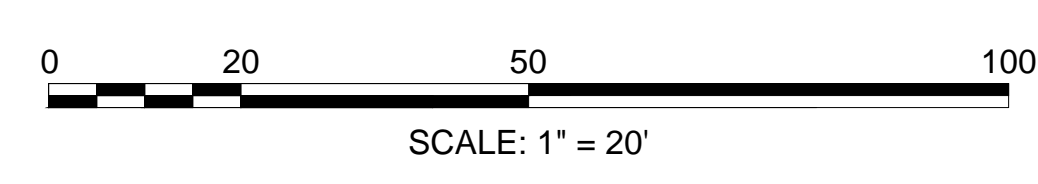


STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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WASHINGTON STREET
TRAFFIC SIGN & PAVEMENT MARKING PLAN



- CONSTRUCTION NOTES**
- SEE SHEET 15 FOR GENERAL NOTES, LEGEND & ABBREVIATIONS.
 - SEE SHEET 21 FOR CONSTRUCTION BASELINE DATA.
 - SEE SHEET 23 FOR TRAFFIC SIGN SUMMARY.
 - SEE SHEET 25 FOR CONSTRUCTION DETAILS.
 - ALL EXISTING SIGNS ARE TO BE RETAINED UNLESS OTHERWISE NOTED.
 - ALL EXISTING CROSSWALKS ARE TO BE RETAINED.



WASHINGTON STREET
PROJECT END
STA 68+89.06
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E818974.0677

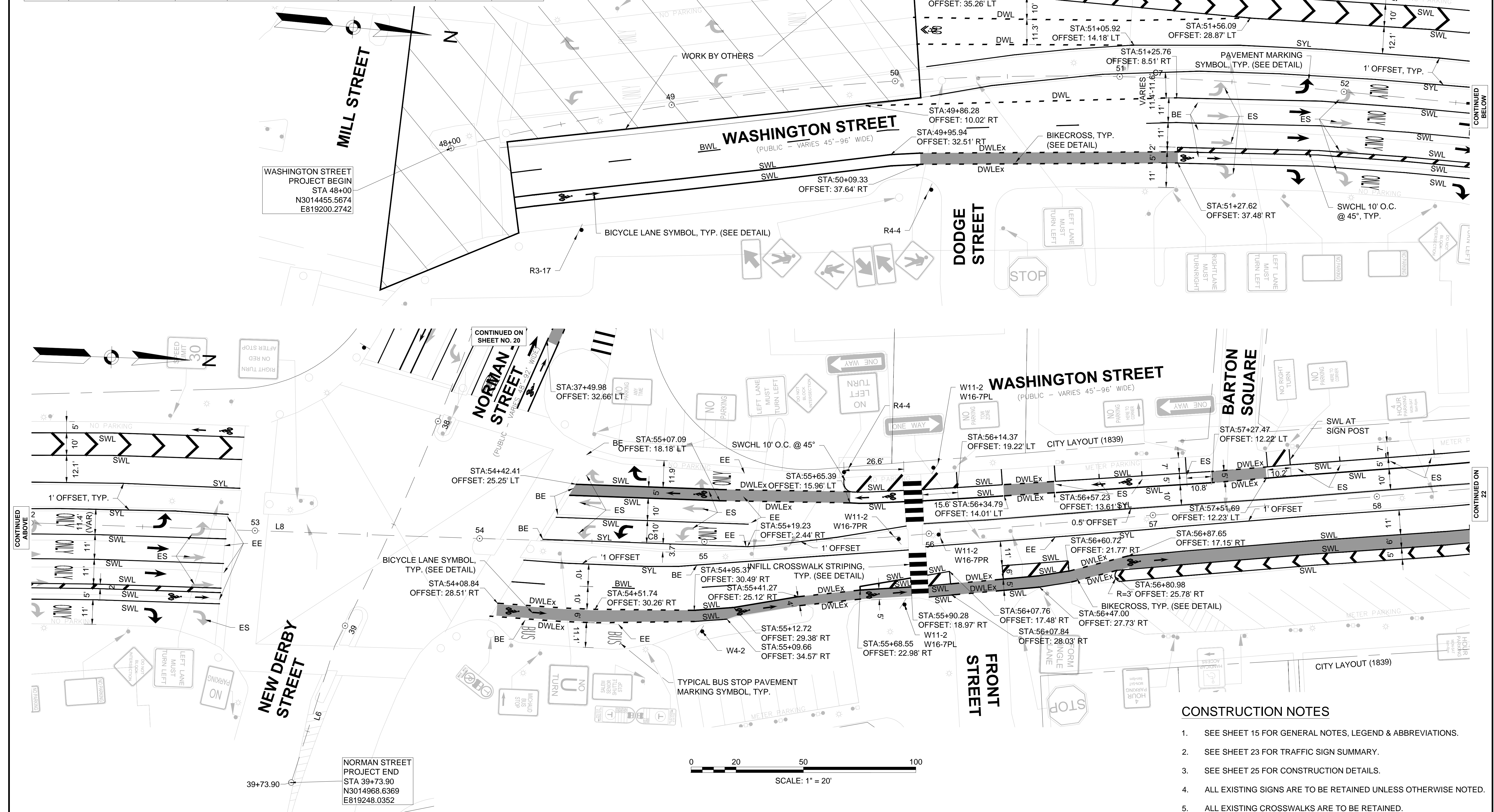
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SHEET NO. 21

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BELOW

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HSI-003S(104)X	21	44
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WASHINGTON STREET
TRAFFIC SIGN & PAVEMENT MARKING PLAN

WASHINGTON STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C7	48+00.00	3014455.567	819200.274	R=1151.19' Δ=19°56'42" L=400.74' T=202.42'		52+00.74	3014849.189	819136.737
L8	52+00.74	3014849.189	819136.737		N0°05'03"W 200.07'	54+00.81	3015049.262	819136.444
C8	54+00.81	3015049.262	819136.444	R=2386.83' Δ=4°17'42" L=178.92' T=89.50'		55+79.73	3015228.007	819129.478
L9	55+79.73	3015228.007	819129.478		N6°49'00"W 1309.33'	68+89.06	3016528.082	818974.068






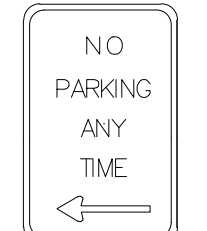
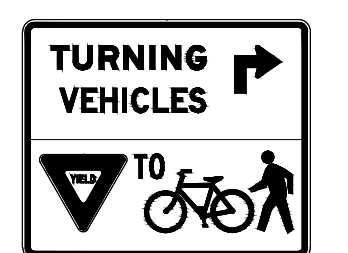
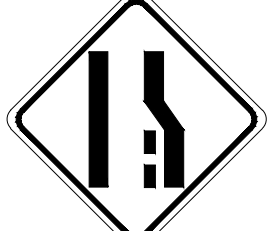





- CONSTRUCTION NOTES**
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TRAFFIC SIGN SUMMARY

TRAFFIC SIGN SUMMARY

ID NUMBER	SIZE OF SIGN (in.)		LEGEND	TEXT DIMENSIONS (in.)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
R1-6	12	36		SEE 2009 MUTCD STANDARD DETAIL			14	WHITE	BLACK	YELLOW	DOUBLE MOUNTED ON FLEXIBLE POST	3.00	42.00
R3-17	24	18					6	WHITE	BLACK	BLACK	P-5 5 REQ-D	3.00	18.00
R3-17b	24	8					3	WHITE	BLACK	BLACK	MOUNT W/ R3-17	1.33	4.00
R4-4	36	30					4	WHITE	BLACK	BLACK	P-5 3 REQ-D	7.50	30.00
R4-11	30	30					2	WHITE	BLACK	BLACK	P-5 1 REQ-D	6.25	12.50
R7-1L	12	18					3	WHITE	RED	RED	P-5 3 REQ-D	1.50	4.50
R10-15BPR	36	30					4	WHITE	BLACK	YELLOW	P-5 3 REQ-D	7.50	30.00
W4-2	30	30					1	YELLOW	BLACK	BLACK	P-5 1 REQ-D	6.25	6.25
W11-2	30	30					13	YELLOW	BLACK	BLACK	P-5 12 REQ-D	6.25	81.25
W16-7PL	24	12					10	YELLOW	BLACK	BLACK	MOUNT W/ W11-2	2.00	20.00
W16-7PR	24	12					3	YELLOW	BLACK	BLACK	MOUNT W/ W11-2	2.00	6.00

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HSI-003S(104)X	24	44
PROJECT FILE NO. 608732		608732	

TEMPORARY TRAFFIC CONTROL PLAN

GENERAL NOTES

- ALL CONSTRUCTION SIGNING, CONES, BARRICADES AND OTHER DEVICES SHALL CONFORM WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS AMENDED.
- ALL CONES SHALL BE APPROXIMATELY PLACED AND MOVED AS NECESSARY TO MAINTAIN ADEQUATE ABUTTER ACCESS AT ALL TIMES. WORK MAY REQUIRE ADDITIONAL SIGNS, CONES AND OTHER TRAFFIC CONTROL DEVICES, VEHICULAR AND EMERGENCY TRAFFIC THROUGH THE WORK AREAS, BOTH DURING AND AFTER WORKING HOURS, TO MAINTAIN SUCH ACCESS.
- THE MAXIMUM SPACING OF CONES IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
- THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS PAVEMENT MARKINGS AND SIMILAR OPERATIONS.
- A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION ON TWO WAY STREETS SHALL BE MAINTAINED AT ALL TIMES, EXCEPT THAT DURING WORKING HOURS, TRAFFIC MAY BE REDUCED TO ONE LANE UNDER POLICE OR FLAGGER CONTROL FOR SHORT TIME PERIODS WHEN REQUIRED FOR THE WORK, AS SHOWN.
- 11' MINIMUM LANE WIDTHS SHALL BE MAINTAINED AT ALL TIMES.
- NON-ESSENTIAL TRAFFIC CONTROL DEVICES SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS.
- CONTRACTOR SHALL MAINTAIN ADA-COMPLIANT PEDESTRIAN ACCESS AT ALL TIMES. ACCESS SHALL BE MAINTAINED ALONG ALL SIDEWALKS AND TO ALL MBTA BUS STOPS.
- R8-3a SIGNS SHALL BE COVERED OUTSIDE OF WORKING HOURS.
- POLICE, NOT FLAGGERS, SHALL BE USED FOR TRAFFIC CONTROL AT ANY INTERSECTION WHETHER SIGNALIZED OR UNSIGNALIZED.

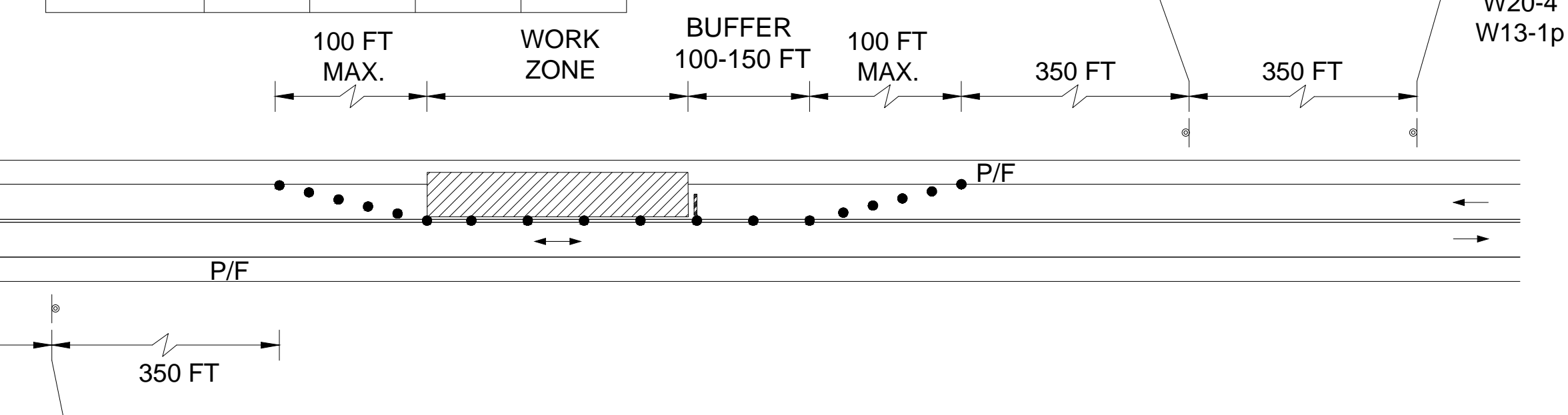
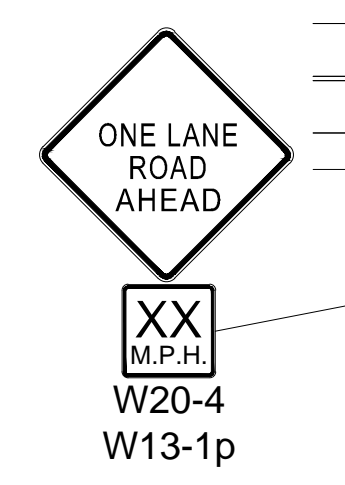
LONGITUDINAL BUFFER

SPEED (mph)	BUFFER (FT)
20	115
25	155
30	200
35	250
40	305
45	360

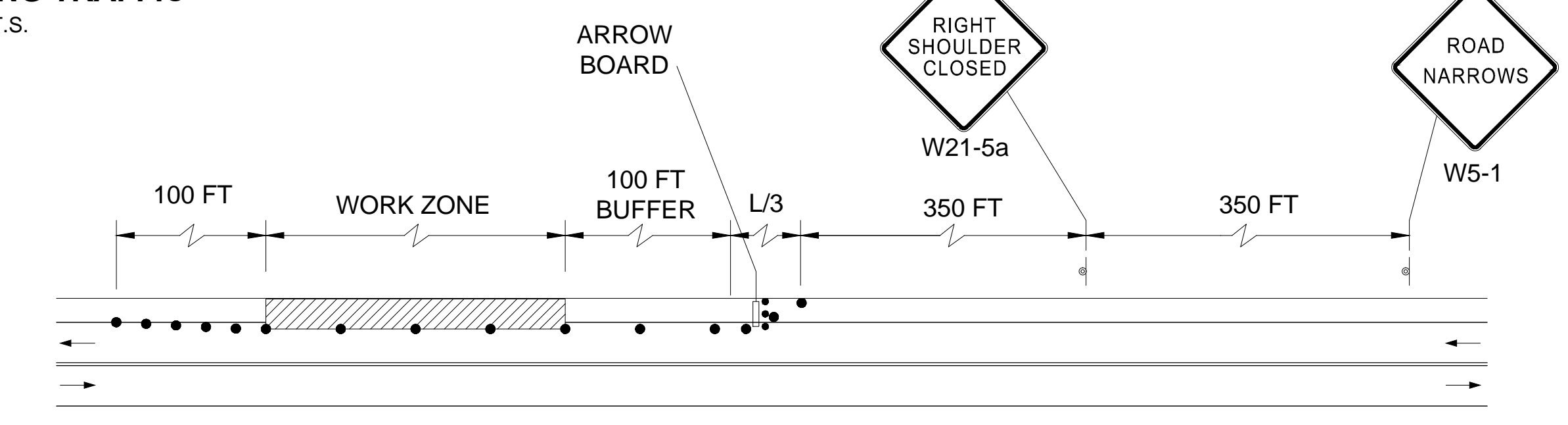
MERGING TAPER LENGTH (L)

SPEED (mph)	TAPER WIDTH (FT)			
	9	10	11	12
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540

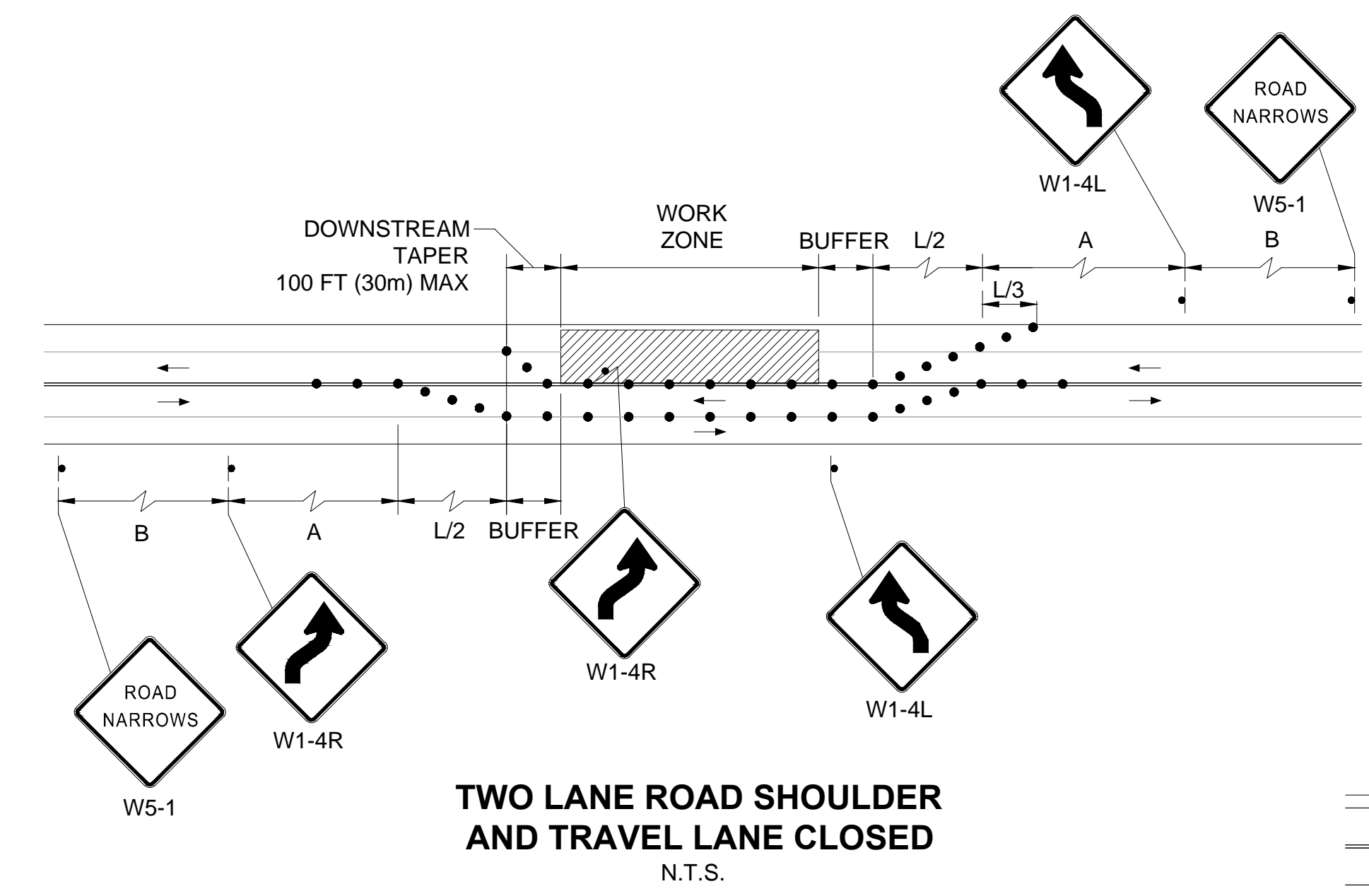
ID NUMBER	SIZE OF SIGN (in.)		LEGEND	TEXT DIMENSIONS (in.)			COLOR			NUMBER OF SIGNS REQUIRED	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACKGROUND	LEGEND	BORDER			
R8-3a	24	30		SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS			WHITE	RED	RED	5	5.00	25.00
W1-4L	36	36					ORANGE	BLACK	BLACK	2	9.00	18.00
W1-4R	36	36					ORANGE	BLACK	BLACK	2	9.00	18.00
W5-1	36	36					ORANGE	BLACK	BLACK	4	9.00	36.00
W13-1P	24	24					ORANGE	BLACK	BLACK	6	4.00	24.00
W20-1	36	36					ORANGE	BLACK	BLACK	2	9.00	18.00
W20-4	36	36					ORANGE	BLACK	BLACK	6	9.00	54.00
W20-7a	36	36					ORANGE	BLACK	BLACK	2	9.00	18.00
W21-5a	36	36					ORANGE	BLACK	BLACK	2	9.00	18.00
MA-R2-10a	48	36		MASSDOT STANDARD SIGN			ORANGE	WHITE	BLACK	2	12.00	24.00
MA-R2-10e	36	48		MASSDOT STANDARD SIGN			ORANGE	WHITE	BLACK	2	12.00	24.00
MA-W20-7b	36	36					ORANGE	BLACK	BLACK	6	9.00	54.00



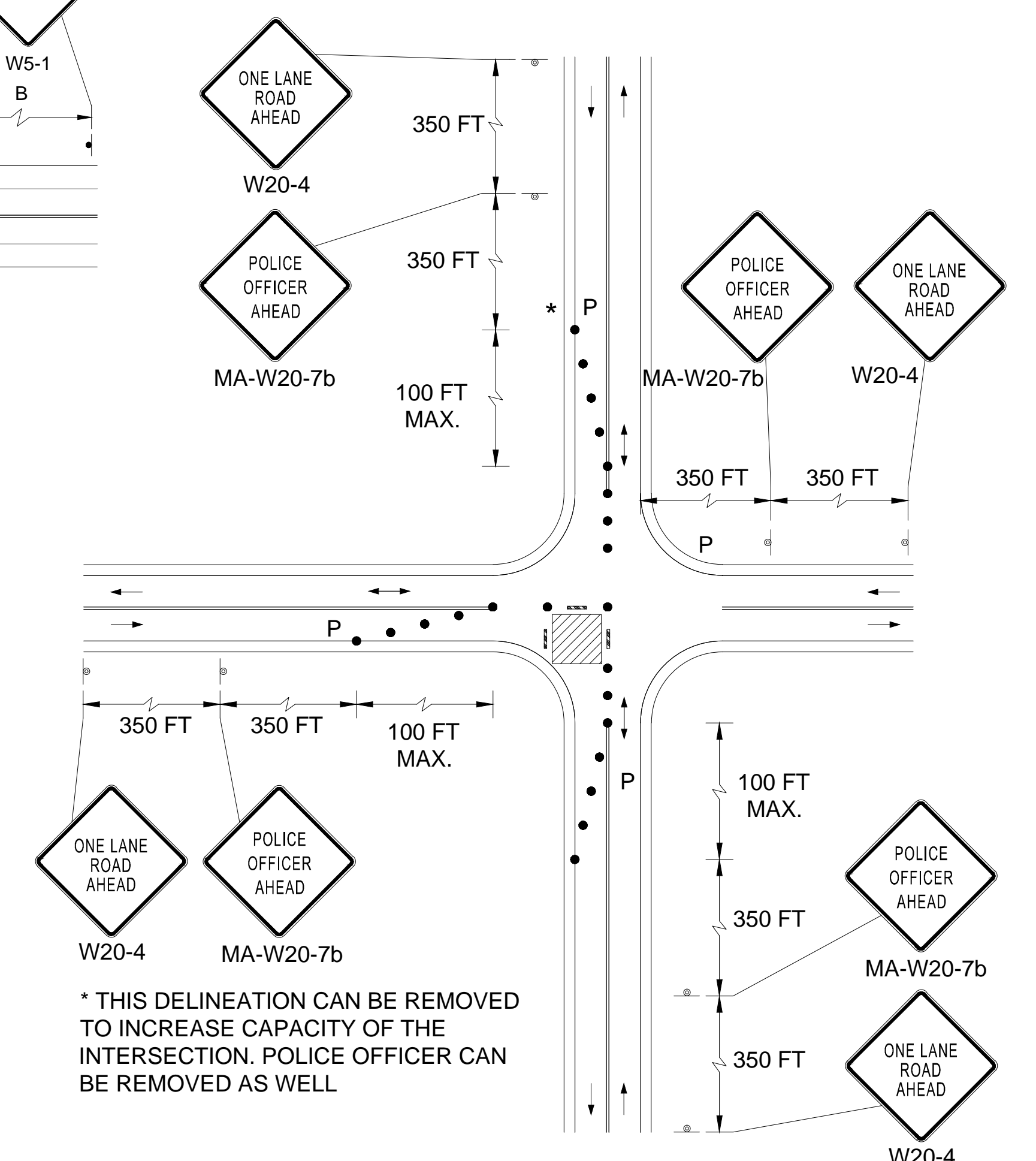
TWO LANE ROAD ONE LANE CLOSURE
ALTERNATING TRAFFIC
N.T.S.



TWO LANE ROAD SHOULDER CLOSED
N.T.S.



TWO LANE ROAD SHOULDER AND TRAVEL LANE CLOSED
N.T.S.



SINGLE LANE APPROACH
ONE QUADRANT CLOSURE
N.T.S.

LEGEND

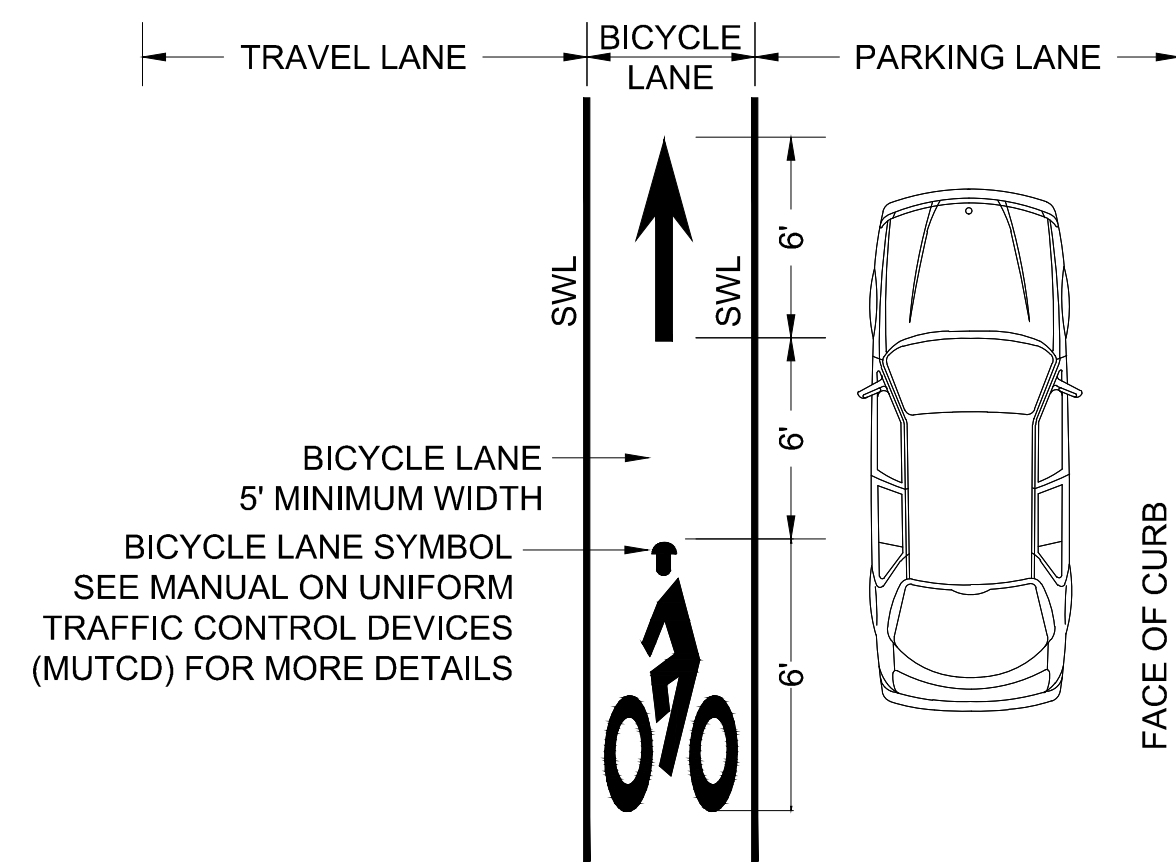
PROPOSED	DESCRIPTION
	REFLECTORIZED PLASTIC DRUM OR 36" CONE
	SIGN
	WORK ZONE
	TYPE III BARRICADE
	POLICE/FLAGGER DETAIL
	DIRECTION OF TRAFFIC
	ONE LANE ALTERNATING TRAFFIC
	ARROW BOARD

* THIS DELINEATION CAN BE REMOVED TO INCREASE CAPACITY OF THE INTERSECTION. POLICE OFFICER CAN BE REMOVED AS WELL

VOLUME 2 - SALEM
PEDESTRIAN / BICYCLE FACILITY UPGRADES

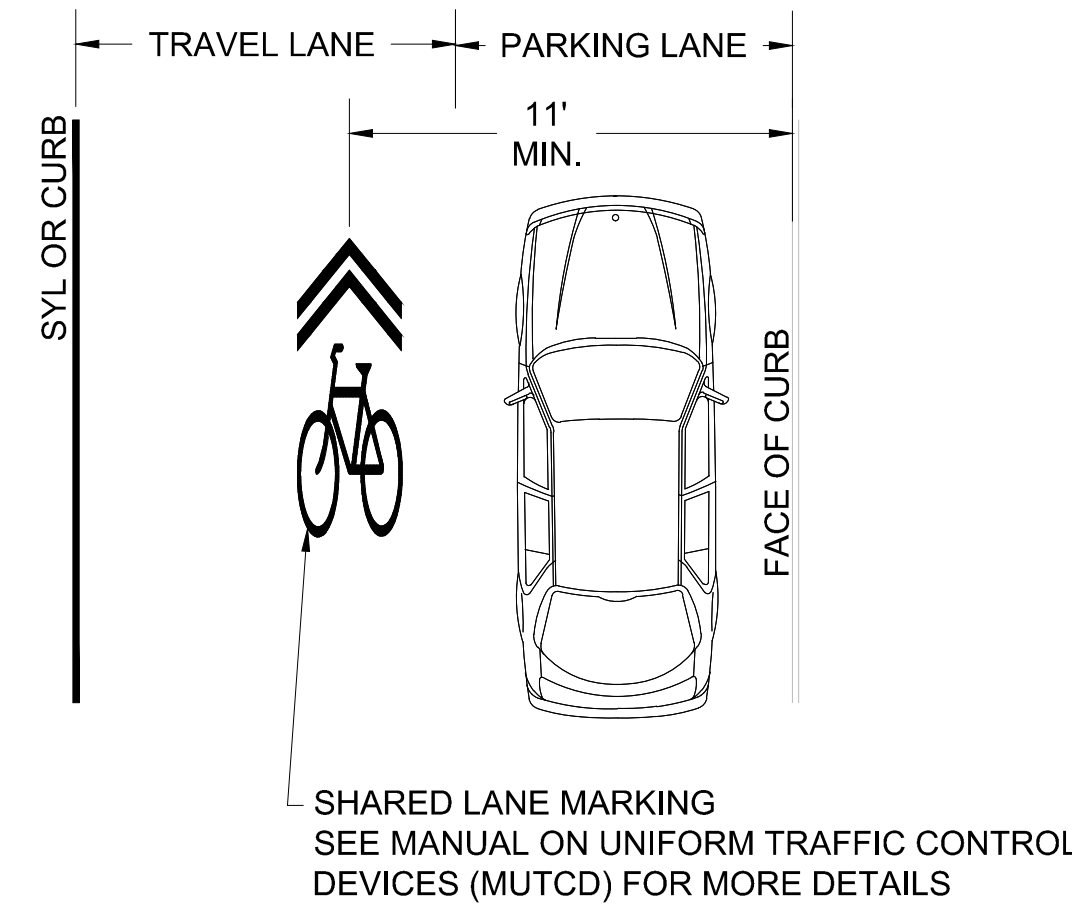
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HS1-003S(104)X	25	44
PROJECT FILE NO.		608732	

CONSTRUCTION DETAILS



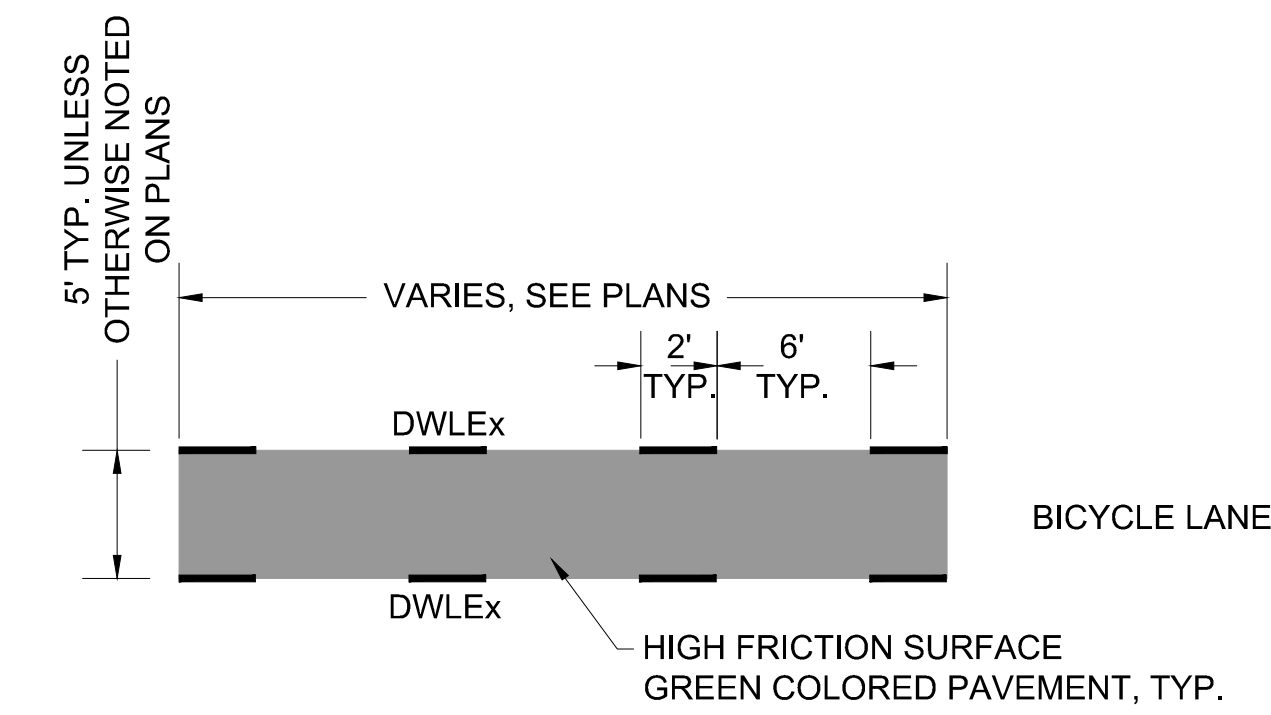
BICYCLE LANE STRIPING NOTES:

- DO NOT PLACE SYMBOLS ON LANE LINES.
- PLACE BICYCLE LANE SYMBOLS WITHIN CENTER OF BICYCLE LANE.
- SEE PLAN SHEETS FOR SYMBOL LOCATIONS.
- TRAVEL AND PARKING LANE WIDTHS ARE AS SHOWN ON THE DRAWINGS.
- DO NOT PLACE SYMBOLS WITHIN DASHED LINES.



SHARED LANE MARKING SYMBOL NOTES:

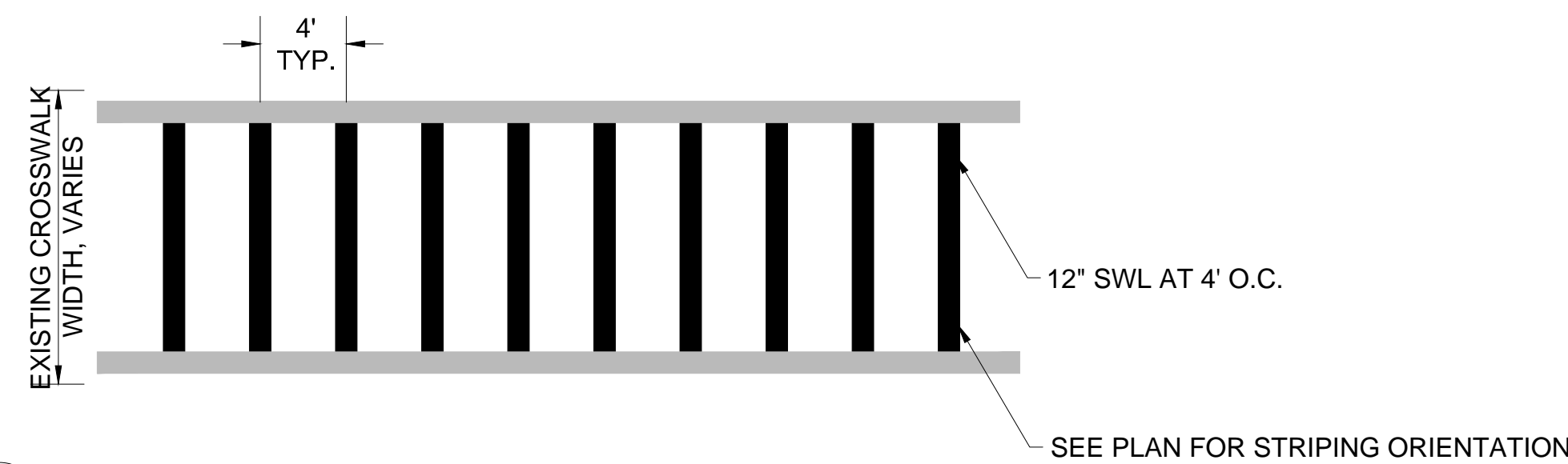
- IN LOCATIONS WITH ON-STREET PARKING, SHARED LANE MARKING SYMBOLS SHALL BE PLACED SO THAT THEIR CENTERS ARE A MINIMUM OF 11 FEET FROM THE ADJACENT FACE OF CURB UNLESS OTHERWISE NOTED ON THE PLANS.
- IN LOCATIONS WITHOUT PARKING, SHARED LANE MARKING SYMBOLS SHALL BE PLACED SO THAT THEIR CENTERS ARE A MINIMUM OF 4 FEET FROM THE ADJACENT FACE OF CURB UNLESS OTHERWISE NOTED ON THE PLANS.
- IN LOCATIONS WHERE LANES ARE NARROWER THAN 14 FEET, SHARED LANE MARKING SYMBOLS SHALL BE PLACED IN THE CENTER OF THE LANE.
- IF LOCATED IN A TURN LANE, SHARED LANE MARKING SYMBOLS SHALL BE CENTERED IN THE LANE UNLESS OTHERWISE NOTED ON THE PLANS.
- DO NOT PLACE SYMBOLS ON LANE LINES.
- SEE PLANS FOR SYMBOL LOCATIONS.



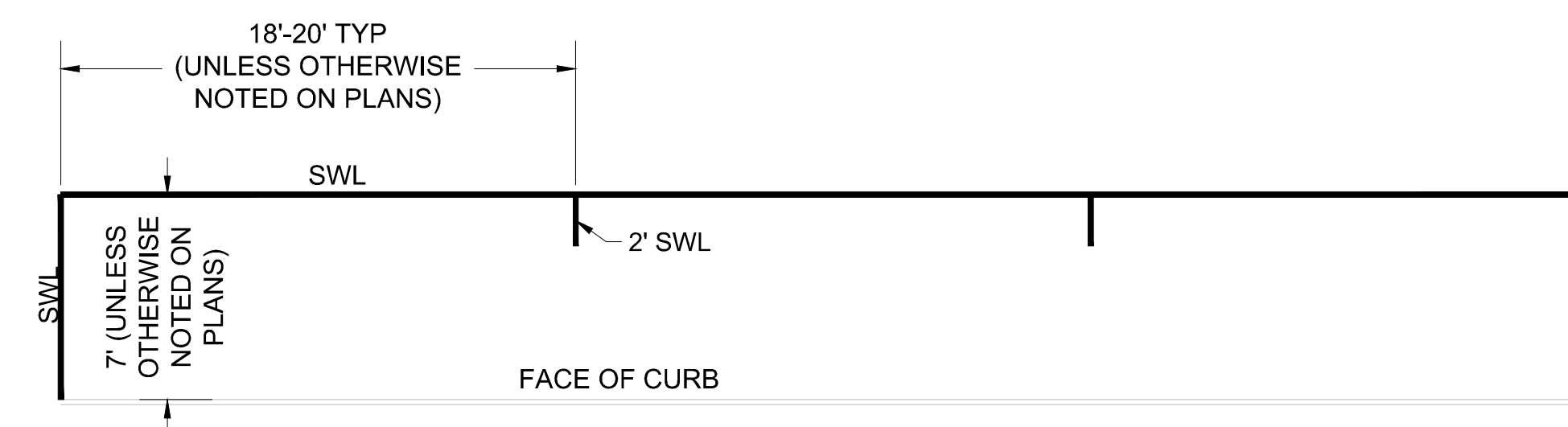
TYPICAL BIKECROSS
NTS

TYPICAL BICYCLE LANE STRIPING ADJACENT TO PARKING
NTS

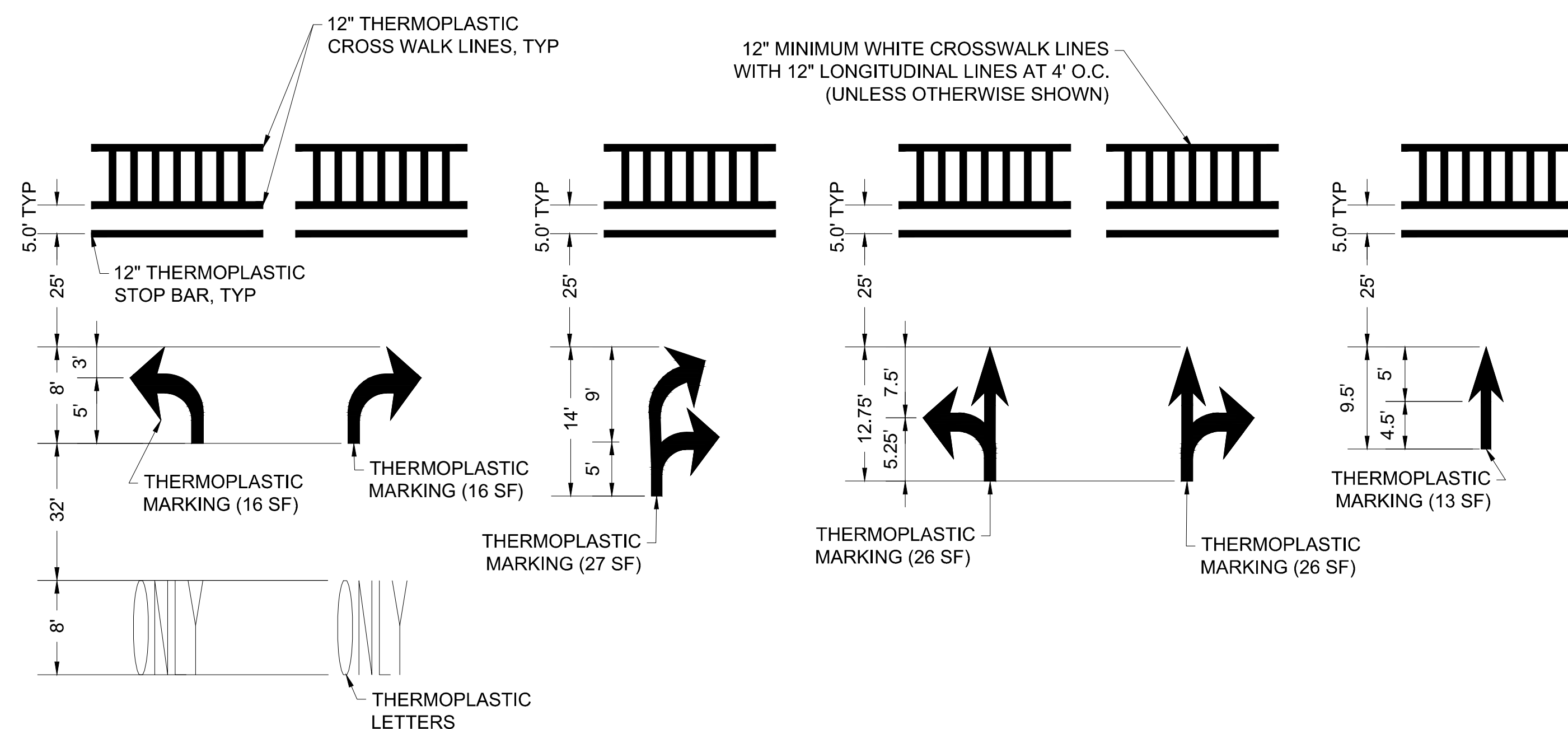
SHARED LANE MARKING SYMBOL
NTS



TYPICAL INFILL CROSSWALK STRIPING
NTS



TYPICAL PARKING STRIPING
NTS



TYPICAL PAVEMENT MARKING SYMBOLS
NTS