

(1) PAINT VOLUMES ASSUME A 17 MIL [0.432 mm] THICKNESS. EPOXY VOLUMES ASSUME A 22 MIL [0.559 mm] THICKNESS.

0.15 0.20 0.05 0.35 0.09 0.59 0.25 0.33 0.06 0.37 0.21 0.16 0.31 0.40 0.11 0.71 0.10 0.66 0.28 0.37 0.09 0.57 0.25 0.32 0.08 0.51 0.22 0.28 0.09 0.58 0.25 0.32 0.09 0.60 0.26 0.34 0.09 0.60 0.26 0.34 0.06 0.37 0.16 0.21 0.30 0.08 0.53 0.23 0.07 0.46 0.20 0.26 0.10 0.66 0.28 0.37 0.07 0.45 0.19 0.25 0.06 0.38 0.16 0.21 0.07 0.49 0.21 0.27

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWING REFERENCE DWG. NO. 620-00

STANDARD SPEC. SECTION 620

> PAVEMENT MARKINGS (LETTERS)

METRIC QUANTITIES

PAINT

0.22

0.29

0.20

0.26

0.26

0.19

0.23

0.25

0.11

(liters) (liters)

**EPOXY** 

0.29

0.38

0.26

0.34

0.34

0.25

0.30

0.32

0.14

AREA

(m<sup>2</sup>)

0.52

0.68

0.47

0.60

0.61

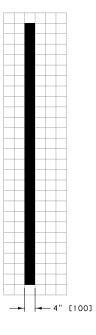
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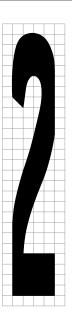
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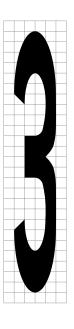
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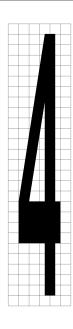
0.25

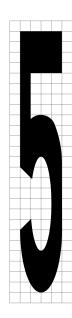


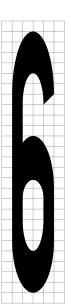




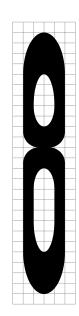


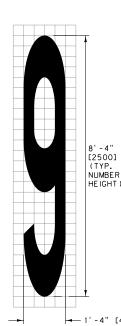


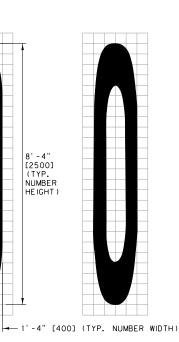












NOTES:

- ① EACH SQUARE EQUALS 4 INCHES [100].
- ② ALL PAVEMENT MARKINGS ARE TO CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND "STANDARD HIGHWAY SIGNS" PUBLICATIONS, FROM THE FEDERAL HIGHWAY ADMINISTRATION.
- 3 ALL NUMBERS ARE TO BE WHITE.
- (4) USE THE SIZES OF NUMBERS SHOWN UNLESS SMALLER OR LARGER SIZES ARE NEEDED. THE SIZE OF NUMBERS MAY BE SCALED PROPORTIONATELY DOWN BY APPROXIMATELY ONE-THIRD FOR LOW-SPEED, URBAN CONDITIONS. THE MINIMUM HEIGHT OF ANY NUMBER IS 6 FEET [1.8 m]. LARGER SIZES MAY BE USED FOR ABOVE AVERAGE SPEEDS AND OTHER CRITICAL LOCATIONS.
- (5) DO NOT EXCEED MORE THAN ONE LANE IN WIDTH FOR ANY PAVEMENT MARKINGS EXCEPT IN THE CASE OF THE WORD "SCHOOL". SEE DTL. DWG. NO. 620-10 FOR MORE INFORMATION.
- (6) FOR MULTIPLE LINES OF INFORMATION, PLACE THE INFORMATION SO IT READS IN THE DIRECTION OF TRAVEL. DO NOT EXCEED THREE LINES OF INFORMATION AT ANY LOCATION.
- (T) WHEN WORDS AND SYMBOLS ARE USED IN COMBINATION, SPACE THEM AT LEAST FOUR TIMES THE HEIGHT OF CHARACTERS FOR LOW-SPEED ROADS, BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTERS UNDER ANY CONDITION.
- (8) ON NARROW, LOW-SPEED BICYCLE PATHS, SIZES OF NUMBERS MAY BE SMALLER THAN SUGGESTED, BUT TO THE RELATIVE SCALE.
- $\ensuremath{ \mathfrak{G}}$  quantities are based on the sizes of pavement markings shown and are for estimating purposes only.
- ( PAINT VOLUMES ASSUME A 17 MIL [0.432] THICKNESS. EPOXY VOLUMES ASSUME A 22 MIL [0.559] THICKNESS.

	QUANTITIES		
#	AREA (FT²)	PAINT (GAL.)	EPOXY (GAL.)
1	2.78	0.03	0.04
2	6.76	0.07	0.09
3	5.97	0.06	0.08
4	5.54	0.06	0.08
5	6.86	0.07	0.09
6	6.94	0.07	0.10
7	4.11	0.04	0.06
8	7. 74	0.08	0.11
9	6.94	0.07	0.10
0	7.11	0.08	0.10

UNITS SHOWN IN BRACKETS [] ARE
METRIC AND ARE IN MILLIMETERS (mm
UNLESS OTHER UNITS ARE SHOWN.

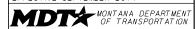
	METRIC QUANTITIES		
#	AREA (m²)	PAINT (liters)	EPOXY (liters)
1	0.25	0.11	0.14
2	0.61	0.26	0.34
3	0.54	0.23	0.30
4	0.50	0.22	0.28
5	0.62	0.27	0.35
6	0.62	0.27	0.35
7	0.37	0.16	0.21
8	0.70	0.30	0.39
9	0.62	0.27	0.35
0	0.62	0.27	0.35

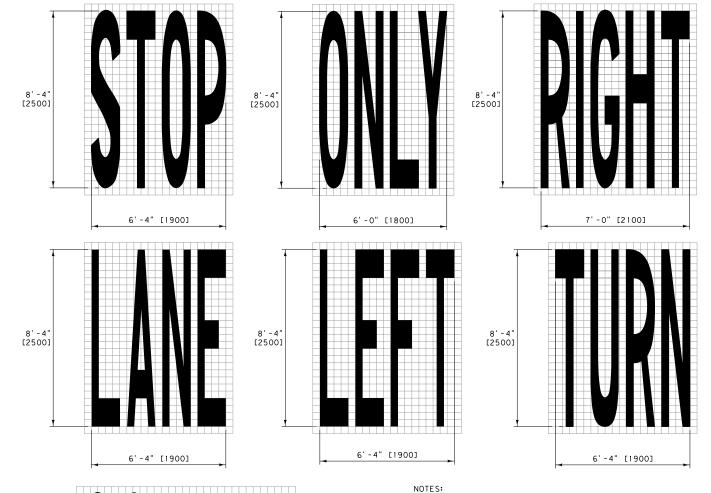
DETAILED DRAWING REFERENCE DWG.

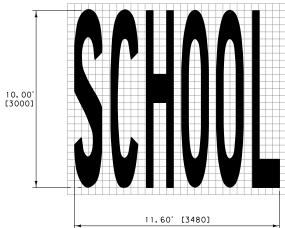
STANDARD SPEC.

DWG. NO. 620-05

PAVEMENT MARKINGS (NUMBERS)







NOTE: EACH SQUARE EQUALS 0.40' [120]

QUANTITIES			
WORD	AREA (FT²)	PAINT (GAL.)	EPOXY (GAL.)
STOP	22.77	0.24	0.31
ONL Y	21.89	0.23	0.30
RIGHT	26.05	0.28	0.36
L ANE	23.94	0.25	0.33
LEFT	20.00	0.21	0.27
TURN	23.98	0.25	0.33
SCHOOL	48.14	0.51	0.66

METRIC QUANTITIES			
WORD	AREA (m²)	PAINT (liters)	EPOXY (liters)
STOP	2.05	0.89	1.15
ONL Y	1.98	0.85	1.11
RIGHT	2.34	1.01	1.31
L ANE	2.16	0.93	1.21
LEFT	1.80	0.78	1.01
TURN	2.16	0.93	1.21
SCHOOL	4.54	1.96	2.54

- 1) UNLESS OTHERWISE NOTED EACH SQUARE EQUALS 4 [100] INCHES.
- ② ALL PAVEMENT MARKINGS ARE TO CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND "STANDARD HIGHWAY SIGNS" PUBLICATIONS, FROM THE FEDERAL HIGHWAY ADMINISTRATION.
- 3 ALL WORDS ARE TO BE WHITE.
- (4) USE THE SIZES OF WORDS SHOWN UNLESS SMALLER OR LARGER SIZES ARE NEEDED. THE SIZE OF WORDS MAY BE SCALED PROPORTIONATELY DOWN BY APPROXIMATELY ONE-THIRD FOR LOW-SPEED, URBAN CONDITIONS. THE MINIMUM HEIGHT OF ANY WORD IS 6 FEET [1.8 m]. LARGER SIZES MAY BE USED FOR ABOVE AVERAGE SPEEDS AND OTHER CRITICAL LOCATIONS.
- (5) DO NOT EXCEED MORE THAN ONE LANE IN WIDTH FOR ANY PAVEMENT MARKINGS, EXCEPT IN THE CASE OF THE WORD "SCHOOL". WHEN "SCHOOL" IS EXTENDED TO THE WIDTH OF TWO LANES, SCALE THE WORD UP PROPORTIONATELY TO FIT THE APPLICATION WIDTH.
- (6) FOR MULTIPLE LINES OF INFORMATION, PLACE THE INFORMATION SO IT READS IN THE DIRECTION OF TRAVEL. DO NOT EXCEED THREE LINES OF INFORMATION AT ANY LOCATION.
- (T) WHEN WORDS AND SYMBOLS ARE USED IN COMBINATION, SPACE THEM AT LEAST FOUR TIMES THE HEIGHT OF CHARACTERS FOR LOW-SPEED ROADS, BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTERS UNDER ANY CONDITION.
- ® ON NARROW, LOW-SPEED BICYCLE PATHS, SIZES OF LETTERS MAY BE SMALLER THAN SUGGESTED, BUT TO THE RELATIVE SCALE.
- OUANTITIES ARE BASED ON THE SIZES OF PAVEMENT MARKINGS SHOWN AND ARE FOR ESTIMATING PURPOSES ONLY.
- (1) PAINT VOLUMES ASSUME A 17 MIL [0.432] THICKNESS. EPOXY VOLUMES ASSUME A 22 MIL [0.559] THICKNESS.

DETAILED	DRAWING
REFERENCE	DWG. NO.
STANDARD SPEC. SECTION 620	620-10

PAVEMENT MARKINGS (WORDS)



## DIRECTIONAL ARROW FOR BIKE LANE

AREA = 4.56 FT<sup>2</sup> [0.41 m<sup>2</sup>]
P = 0.05 GAL. [0.18 L]
E = 0.06 GAL. [0.23 L]
(1 SOUARE = 4" [100])

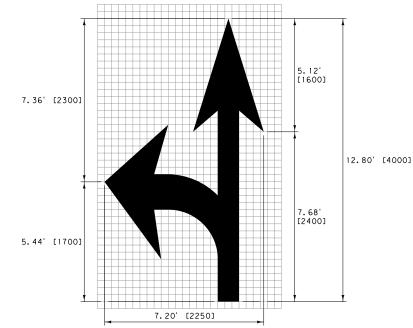
#### COMBINED ARROW

AREA = 25.99 FT<sup>2</sup> [2.54 m<sup>2</sup>] P = 0.28 GAL. [1.10 L] E = 0.36 GAL. [1.42 L] (1 SQUARE = 0.32' [100])

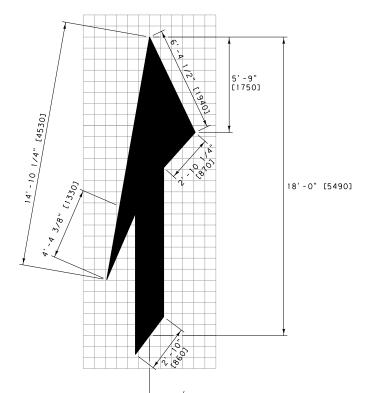
## 18' [5.5m] LANE-REDUCTION ARROW (RIGHT)

(FOR LEFT LANE, USE MIRROR IMAGE)

AREA = 38.63 FT<sup>2</sup> [3.83 m<sup>2</sup>] P = 0.41 GAL. [1.65 L] E = 0.53 GAL. [2.14 L] (1 SQUARE = 8" [200])



NOTE: REFER TO STRAIGHT & TURN ARROWS FOR MORE DETAIL.



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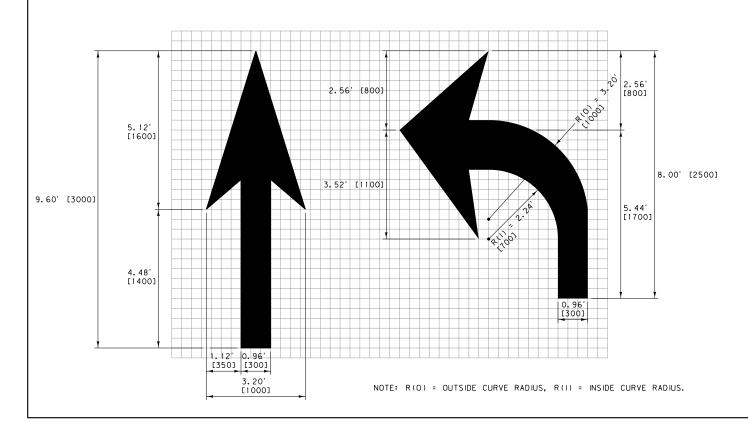
## STRAIGHT ARROW

2'-0" [600]

AREA = 11.42 FT<sup>2</sup> [1.12 m<sup>2</sup>] P = 0.12 GAL. [0.48 L] E = 0.16 GAL. [0.63 L] (1 SQUARE = 0.32' [100])

# TURN ARROW

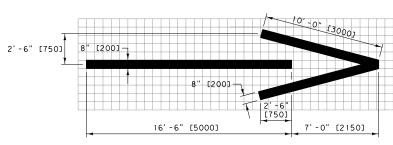
AREA = 15.57 FT2 [1.52 m2]
P = 0.16 GAL. [0.66 L]
E = 0.21 GAL. [0.85 L]
(1 SQUARE = 0.32' [100])



6'-0" [1800]

# FREEWAY AND RAMP ARROW

AREA =  $23.64 \text{ FT}^2$  [2.15 m<sup>2</sup>] P = 0.25 GAL. [0.93 L] E = 0.32 GAL. [1.20 L] (1 SQUARE = 8" [200])



## NOTES:

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- ② ALL ARROWS ARE TO BE WHITE.
- ③ USE THE SIZES OF ARROWS SHOWN UNLESS SMALLER OR LARGER SIZES ARE NEEDED. THE SIZE OF ARROWS MAY BE SCALED PROPORTIONATELY DOWN BY APPROXIMATELY ONE-THIRD FOR LOW-SPEED, URBAN CONDITIONS, LARGER SIZES MAY BE USED FOR ABOVE AVERAGE SPEEDS AND OTHER CRITICAL LOCATIONS.
- (4) DO NOT EXCEED MORE THAN ONE LANE IN WIDTH FOR ANY PAVEMENT MARKINGS EXCEPT IN THE CASE OF THE WORD "SCHOOL". SEE DTL. DWG. NO. 620-10 FOR MORE INFORMATION.
- (5) WHEN WORDS AND SYMBOLS ARE USED IN COMBINATION, SPACE THEM AT LEAST FOUR TIMES THE HEIGHT OF CHARACTERS FOR LOW-SPEED ROADS, BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTERS UNDER ANY CONDITION.
- (6) QUANTITIES ARE BASED ON THE SIZES OF PAVEMENT MARKINGS SHOWN AND ARE FOR ESTIMATING PURPOSES ONLY.
- (P) PAINT VOLUMES ASSUME A 17 MIL [0.432] THICKNESS. (E) - EPOXY VOLUMES ASSUME A 22 MIL [0.559] THICKNESS.

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ETAILED DRAWING REFERENCE STANDARD SPEC. SECTION 620

DWG. NO. 620-15

PAVEMENT MARKINGS (ARROWS)



## ACCESSIBILITY PARKING SPACE SYMBOL

(STANDARD)

(SPECIAL)

AREA = 11.00 FT2 [1.02 m2] P = 0.04 GAL. [0.14 L] WHITE P = 0.08 GAL. [0.30 L] BLUE (1 SQUARE = 4" [100])

AREA = 24.06 FT<sup>2</sup> [2.24 m<sup>2</sup>] P = 0.08 GAL. [0.30 L] WHITE P = 0.17 GAL. [0.64 L] BLUE (1 SQUARE - 5.857" VERTICALLY) (1 SQUARE = 6" [150]HORIZONTALLY)



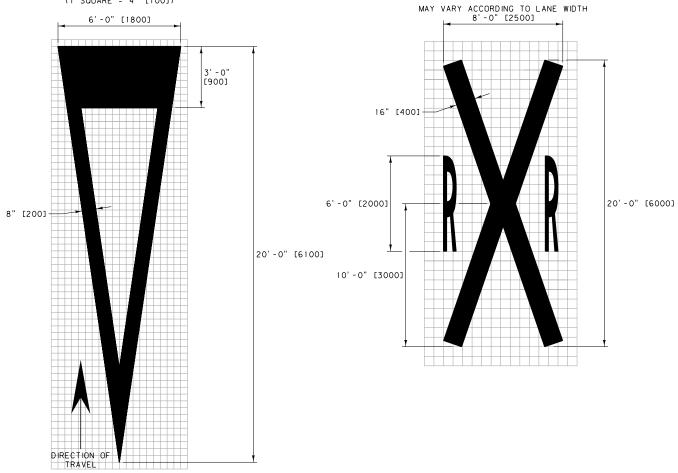
CENTER SYMBOL IN PARKING STALL.
BORDER REQUIRED UNLESS CONTRACT STATES OTHERWISE.
USE STANDARD SYMBOL UNLESS CONTRACT STATES OTHERWISE.

\*\* STROKE WIDTH: STD. 3" [75] SPECIAL 4" [100]

#### YIELD AHEAD TRIANGLE

(HIGH SPEED)

AREA =  $36.54 \text{ FT}^2 [3.33 \text{ m}^2]$ P = 0.39 GAL. [1.44 L] E = 0.50 GAL. [1.86 L] (1 SQUARE = 4" [100])

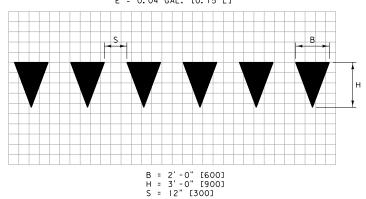


NOTE:
FOR LOW SPEED INSTALLATIONS, THE 3'-0" [900] AND 20'0" [6100] DIMENSIONS MAY BE REDUCED TO 2'-6" [750] AND 13'-0" [4000] RESPECTIVELY.

## YIELD LINE LAYOUT

(QUANTITIES PER TRIANGLE)

(B = 2'-0" [600]) AREA = 3.00 FT<sup>2</sup> [0.27 m<sup>2</sup>] P = 0.03 GAL. [0.12 L] E = 0.04 GAL. [0.15 L]



#### NOTES:

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RAILROAD CROSSING SYMBOL

AREA = 58.10 FT2 [5.42 m2]

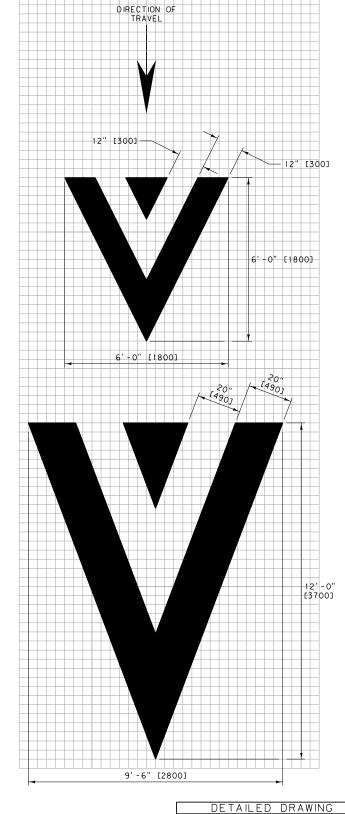
P = 0.62 GAL. [2.34 L] E = 0.80 GAL. [3.03 L]

(1 SQUARE = 8" [200])

- ② ALL SYMBOLS ARE TO BE WHITE EXCEPT FOR THE ACCESSIBILITY PARKING SPACE SYMBOL WHICH HAS A BLUE BACKGROUND AND WHITE HANDICAPPED SYMBOL AND BORDER.
- (3) DO NOT EXCEED MORE THAN ONE LANE IN WIDTH FOR ANY PAVEMENT MARKINGS EXCEPT IN THE CASE OF THE WORD "SCHOOL". SEE DTL. DWG. NO. 620-10 FOR MORE INFORMATION.
- (4) WHEN WORDS AND SYMBOLS ARE USED IN COMBINATION, SPACE THEM AT LEAST FOUR TIMES THE HEIGHT OF CHARACTERS FOR LOW-SPEED ROADS, BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTERS UNDER ANY CONDITION.
- (5) QUANTITIES ARE BASED ON THE SIZES OF PAVEMENT MARKINGS SHOWN AND ARE FOR ESTIMATING PURPOSES ONLY.
- (6) (P) PAINT VOLUMES ASSUME A 17 MIL [0.432]THICKNESS. (E) EPOXY VOLUMES ASSUME A 22 MIL [0.559]THICKNESS.

## SPEED HUMP MARKINGS

AREA = 50.42 FT<sup>2</sup> [4.56 m<sup>2</sup>] P = 0.53 GAL. [1.97 L] E = 0.69 GAL. [2.55 L] (1 SQUARE = 4" [100])



REFERENCE DWG. NO. STANDARD SPEC. 620-20 SECTION 620

PAVEMENT MARKINGS

METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN. (SYMBOLS)

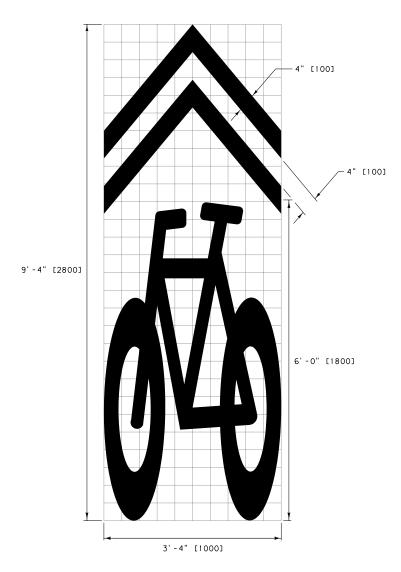
-- REVISED-- EFFECTIVE: SEPTEMBER 2014 JULY 2016

UNITS SHOWN IN BRACKETS [] ARE

MONTANA DEPARTMENT OF TRANSPORTATION

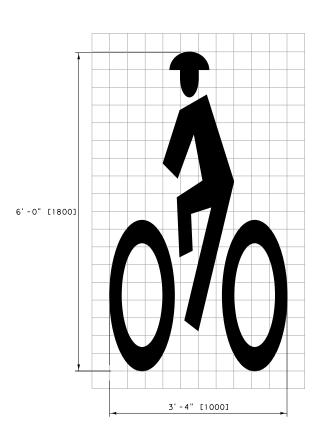
#### SHARROW SYMBOL

AREA = 12.52 FT2 [1.12 m²]
P = 0.13 GAL. [0.48 L]
E = 0.17 GAL. [0.63 L]
(1 SQUARE = 4" [100])



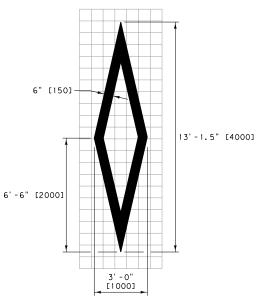
#### BIKE LANE SYMBOL

AREA = 5.95 FT<sup>2</sup> [0.54 m<sup>2</sup>] P = 0.06 GAL. [0.23 L] E = 0.08 GAL. [0.30 L] (1 SQUARE = 4" [100])



# PREFERENTIAL LANE SYMBOL

AREA = 11.16 FT<sup>2</sup> [1.05 m<sup>2</sup>]
P = 0.12 GAL. [0.45 L]
E = 0.15 GAL. [0.59 L]
(1 SOUARE = 0.65' [200])



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- ② ALL SYMBOLS ARE TO BE WHITE EXCEPT FOR THE ACCESSIBILITY PARKING SPACE SYMBOL WHICH HAS A BLUE BACKGROUND AND WHITE BORDER OPTIONS.
- ③ DO NOT EXCEED MORE THAN ONE LANE IN WIDTH FOR ANY PAVEMENT MARKINGS EXCEPT IN THE CASE OF THE WORD "SCHOOL". SEE DTL. DWG. NO. 620-10 FOR MORE INFORMATION.
- WHEN WORDS AND SYMBOLS ARE USED IN COMBINATION, SPACE THEM AT LEAST FOUR TIMES THE HEIGHT OF CHARACTERS FOR LOW-SPEED ROADS, BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTERS UNDER ANY CONDITION.
- $\ensuremath{\mathfrak{G}}$  Quantities are based on the sizes of pavement markings shown and are for estimating purposes only.
- (6) (P) PAINT VOLUMES ASSUME A 17 MIL [0.432]THICKNESS. (E) EPOXY VOLUMES ASSUME A 22 MIL [0.559]THICKNESS.

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DETAILED DRAWING
REFERENCE DWG. NO.
STANDARD SPEC.
SECTION 620

DRAWING
620-25

PAVEMENT MARKINGS (SYMBOLS)

