

| PROJECT NO. | SHEET NO. | TOTAL NO. |
|-----------------------|-----------|-----------|
| 2016CPT.10.02.20902.1 | 1 | 6 |

SUMMARY OF QUANTITIES

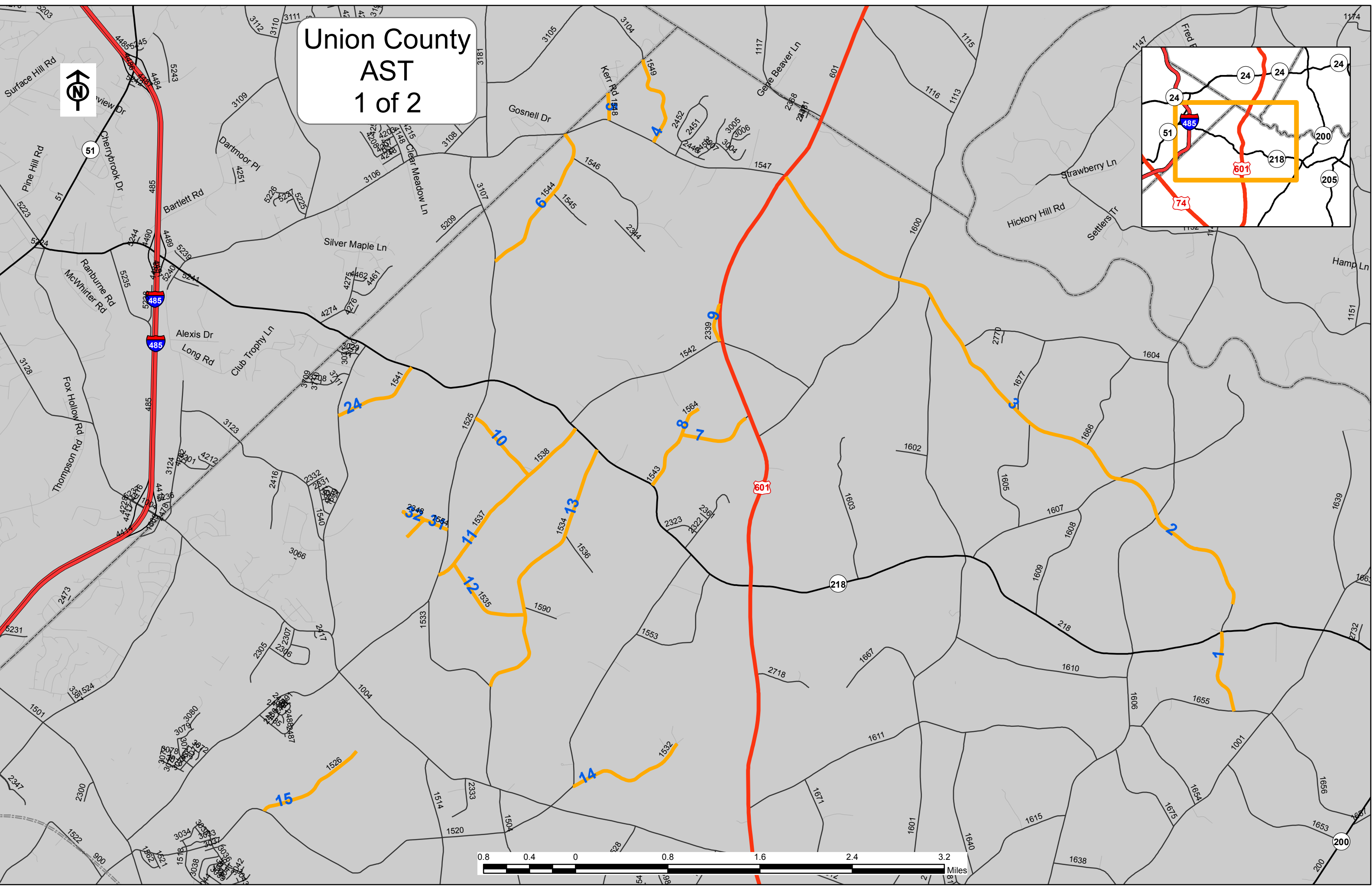
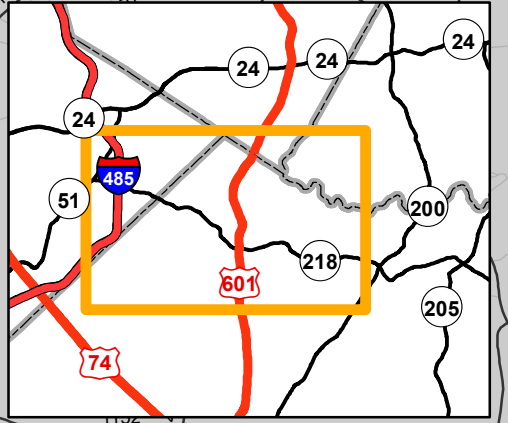
| PROJECT NO | COUNTY | MAP NO | ROUTE | DESCRIPTION | LANES | FINAL SURFACE TESTING REQUIRED | WARM MIX ASPHALT REQUIRED | LENGTH MI | WIDTH FT | ASPHALT SURFACE TREATMENT, DOUBLE SEAL SY | EMULSION FOR ASPHALT SURFACE TREATMENT GAL | BLOTTING SAND TON | WORK ZONE ADVANCE/GENERAL WARNING SIGNING SF | TEMPORARY TRAFFIC CONTROL LS |
|-----------------------------|--------|--------|----------------------------|---|-------|--------------------------------|---------------------------|-------------|----------|---|--|-------------------|--|------------------------------|
| 2016CPT.10.02.20902.1 | Union | 1 | BRIEF RD (SR 1547) | FROM CARRIKER RD (SR 1655) TO NC 218 | 2 | NO | NO | 0.74 | 19 | 8,249 | 4,537 | | 112 | |
| TOTAL FOR MAP NO. 1 | | | | | | | | 0.74 | | 8,249 | 4,537 | | 112 | |
| 2016CPT.10.02.20902.1 | Union | 2 | BRIEF RD (SR 1547) | FROM NC 218 TO SIKES MILL RD (SR 1606) | 2 | NO | NO | 1.2 | 20 | 14,080 | 7,744 | | 112 | |
| TOTAL FOR MAP NO. 2 | | | | | | | | 1.2 | | 14,080 | 7,744 | | 112 | |
| 2016CPT.10.02.20902.1 | Union | 3 | BRIEF RD (SR 1547) | FROM SIKES MILL RD (SR 1606) TO US 601 | 2 | NO | NO | 4.47 | 19 | 49,826 | 27,404 | | 374 | |
| TOTAL FOR MAP NO. 3 | | | | | | | | 4.47 | | 49,826 | 27,404 | | 374 | |
| 2016CPT.10.02.20902.1 | Union | 4 | BLACK RD (SR 1549) | FROM BRIEF RD (SR 1547) TO THE MECKLENBURG CO LINE | 2 | NO | NO | 0.85 | 19 | 9,475 | 5,211 | | 104 | |
| TOTAL FOR MAP NO. 4 | | | | | | | | 0.85 | | 9,475 | 5,211 | | 104 | |
| 2016CPT.10.02.20902.1 | Union | 5 | KERR RD (SR 1548) | FROM BRIEF RD (SR 1547) TO THE MECKLENBURG CO LINE | 2 | NO | NO | 0.24 | 18 | 2,534 | 1,394 | | 48 | |
| TOTAL FOR MAP NO. 5 | | | | | | | | 0.24 | | 2,534 | 1,394 | | 48 | |
| 2016CPT.10.02.20902.1 | Union | 6 | MACHADO RD (SR 1544) | FROM BRIEF RD (SR 1547) TO MILL GROVE RD (SR 1525) | 2 | NO | NO | 1.39 | 20 | 16,309 | 8,970 | | 104 | |
| TOTAL FOR MAP NO. 6 | | | | | | | | 1.39 | | 16,309 | 8,970 | | 104 | |
| 2016CPT.10.02.20902.1 | Union | 7 | CLONTZ RD (SR 1543) | FROM NC 218 TO US 601 | 2 | NO | NO | 1.18 | 20 | 13,845 | 7,615 | | 112 | |
| TOTAL FOR MAP NO. 7 | | | | | | | | 1.18 | | 13,845 | 7,615 | | 112 | |
| 2016CPT.10.02.20902.1 | Union | 8 | JOE LEE HELMS (SR 1564) | FROM CLONTZ RD (SR 1543) TO THE END OF MAINTENANCE | 2 | NO | NO | 0.28 | 18 | 2,957 | 1,626 | | 48 | |
| TOTAL FOR MAP NO. 8 | | | | | | | | 0.28 | | 2,957 | 1,626 | | 48 | |
| 2016CPT.10.02.20902.1 | Union | 9 | JACK CONNELL RD (SR 2339) | FROM OLD DUTCH RD (SR 1552) TO US 601 | 2 | NO | NO | 0.34 | 18 | 3,590 | 1,975 | | 112 | |
| TOTAL FOR MAP NO. 9 | | | | | | | | 0.34 | | 3,590 | 1,975 | | 112 | |
| 2016CPT.10.02.20902.1 | Union | 10 | CROWELL DAIRY RD (SR 1538) | FROM NC 218 TO MILL GROVE RD (SR 1525) | 2 | NO | NO | 1.26 | 20 | 14,784 | 8,131 | | 112 | |
| TOTAL FOR MAP NO. 10 | | | | | | | | 1.26 | | 14,784 | 8,131 | | 112 | |
| 2016CPT.10.02.20902.1 | Union | 11 | NOAH HELMS RD (SR 1537) | FROM CROWELL DAIRY RD (SR 1538) TO MILL GROVE RD (SR 1525) | 2 | NO | NO | 1.17 | 20 | 13,728 | 7,550 | | 120 | |
| TOTAL FOR MAP NO. 11 | | | | | | | | 1.17 | | 13,728 | 7,550 | | 120 | |
| 2016CPT.10.02.20902.1 | Union | 12 | GARRETT RD (SR 1535) | FROM NOAH HELMS RD (SR 1537) TO WEST DUNCAN RD (SR 1534) | 2 | NO | NO | 0.83 | 18 | 8,765 | 4,821 | | 96 | |
| TOTAL FOR MAP NO. 12 | | | | | | | | 0.83 | | 8,765 | 4,821 | | 96 | |
| 2016CPT.10.02.20902.1 | Union | 13 | WEST DUNCAN RD (SR 1534) | FROM NC 218 TO HOWEY BOTTOMS RD (SR 1533) | 2 | NO | NO | 2.49 | 18 | 26,294 | 14,462 | | 182 | |
| TOTAL FOR MAP NO. 13 | | | | | | | | 2.49 | | 26,294 | 14,462 | | 182 | |
| 2016CPT.10.02.20902.1 | Union | 14 | SIMPSON RD (SR 1532) | FROM INDIAN TRAIL-FAIRVIEW RD (SR 1520) TO END OF MAINTENANCE | 2 | NO | NO | 1.08 | 18 | 11,405 | 6,273 | | 56 | |
| TOTAL FOR MAP NO. 14 | | | | | | | | 1.08 | | 11,405 | 6,273 | | 56 | |
| 2016CPT.10.02.20902.1 | Union | 15 | CUNNINGHAM LN (SR 1526) | FROM INDIAN TRAIL-FAIRVIEW RD (SR 1520) TO END OF MAINTENANCE | 2 | NO | NO | 0.99 | 20 | 11,616 | 6,389 | | 56 | |
| TOTAL FOR MAP NO. 15 | | | | | | | | 0.99 | | 11,616 | 6,389 | | 56 | |
| 2016CPT.10.02.20902.1 | Union | 16 | WINCHESTER RD (SR 1556) | FROM WILLIS LONG RD (SR 1509) TO END OF MAINTENANCE | 2 | NO | NO | 0.45 | 19 | 5,016 | 2,759 | | 56 | |
| TOTAL FOR MAP NO. 16 | | | | | | | | 0.45 | | 5,016 | 2,759 | | 56 | |
| 2016CPT.10.02.20902.1 | Union | 17 | POPLIN RD (SR 1508) | FROM ROCKY RIVER RD (SR 1514) TO THE PAVEMENT JOINT NEAR SEEFIN CT. | 2 | NO | NO | 0.74 | 20 | 8,683 | 4,776 | | 112 | |
| TOTAL FOR MAP NO. 17 | | | | | | | | 0.74 | | 8,683 | 4,776 | | 112 | |
| 2016CPT.10.02.20902.1 | Union | 18 | ROANOKE CH RD (SR 1505) | FROM RIDGE RD (SR 1504) TO THE END OF MAINTENANCE | 2 | NO | NO | 0.8 | 19 | 8,917 | 4,904 | | 56 | |
| TOTAL FOR MAP NO. 18 | | | | | | | | 0.8 | | 8,917 | 4,904 | | 56 | |
| 2016CPT.10.02.20902.1 | Union | 19 | ROANOKE CH RD (SR 1505) | FROM RIDGE RD (SR 1504) TO US 601 | 2 | NO | NO | 1.05 | 18 | 11,088 | 6,098 | | 88 | |
| TOTAL FOR MAP NO. 19 | | | | | | | | 1.05 | | 11,088 | 6,098 | | 88 | |
| 2016CPT.10.02.20902.1 | Union | 20 | DUNCAN RD (SR 1529) | FROM RIDGE RD (SR 1504) TO UNIONVILLE-INDIAN TRAIL RD (SR 1367) | 2 | NO | NO | 1.28 | 18 | 13,517 | 7,434 | | 112 | |
| TOTAL FOR MAP NO. 20 | | | | | | | | 1.28 | | 13,517 | 7,434 | | 112 | |
| 2016CPT.10.02.20902.1 | Union | 21 | MAPLE HILL RD (SR 1502) | FROM FOWLER RD TO US 601 | 2 | NO | NO | 1.17 | 20 | 13,728 | 7,550 | | 112 | |
| TOTAL FOR MAP NO. 21 | | | | | | | | 1.17 | | 13,728 | 7,550 | | 112 | |
| 2016CPT.10.02.20902.1 | Union | 22 | HAYWOOD RD (SR 1513) | FROM SECREST SHORTCUT RD (SR 1501) TO LAUREL CREEK RD (SR 3714) | 2 | NO | NO | 0.47 | 22 | 6,066 | 3,336 | | 56 | |
| TOTAL FOR MAP NO. 22 | | | | | | | | 0.47 | | 6,066 | 3,336 | | 56 | |
| 2016CPT.10.02.20902.1 | Union | 23 | HAYWOOD RD (SR 1513) | FROM LAUREL CREEK RD (SR 3714) TO END OF MAINTENANCE | 2 | NO | NO | 0.3 | 18 | 3,168 | 1,742 | | 56 | |
| TOTAL FOR MAP NO. 23 | | | | | | | | 0.3 | | 3,168 | 1,742 | | 56 | |
| 2016CPT.10.02.20902.1 | Union | 24 | RUSSELL RD (SR 1541) | FROM NC 218 TO ROCK HILL CH RD (SR 1539) | 2 | NO | NO | 0.81 | 20 | 9,504 | 5,227 | | 112 | |
| TOTAL FOR MAP NO. 24 | | | | | | | | 0.81 | | 9,504 | 5,227 | | 112 | |
| 2016CPT.10.02.20902.1 | Union | 25 | TOM BOYD RD (SR 1617) | FROM UNIONVILLE RD (SR 1615) TO SIKES MILL RD (SR 1001) | 2 | NO | NO | 0.54 | 20 | 6,336 | 3,485 | | 88 | |
| TOTAL FOR MAP NO. 25 | | | | | | | | 0.54 | | 6,336 | 3,485 | | 88 | |

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| PROJECT NO. | SHEET NO. | TOTAL NO. |
| 2016CPT.10.02.20902.1 | 2 | 6 |

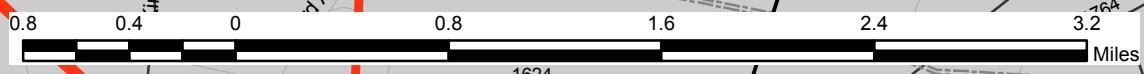
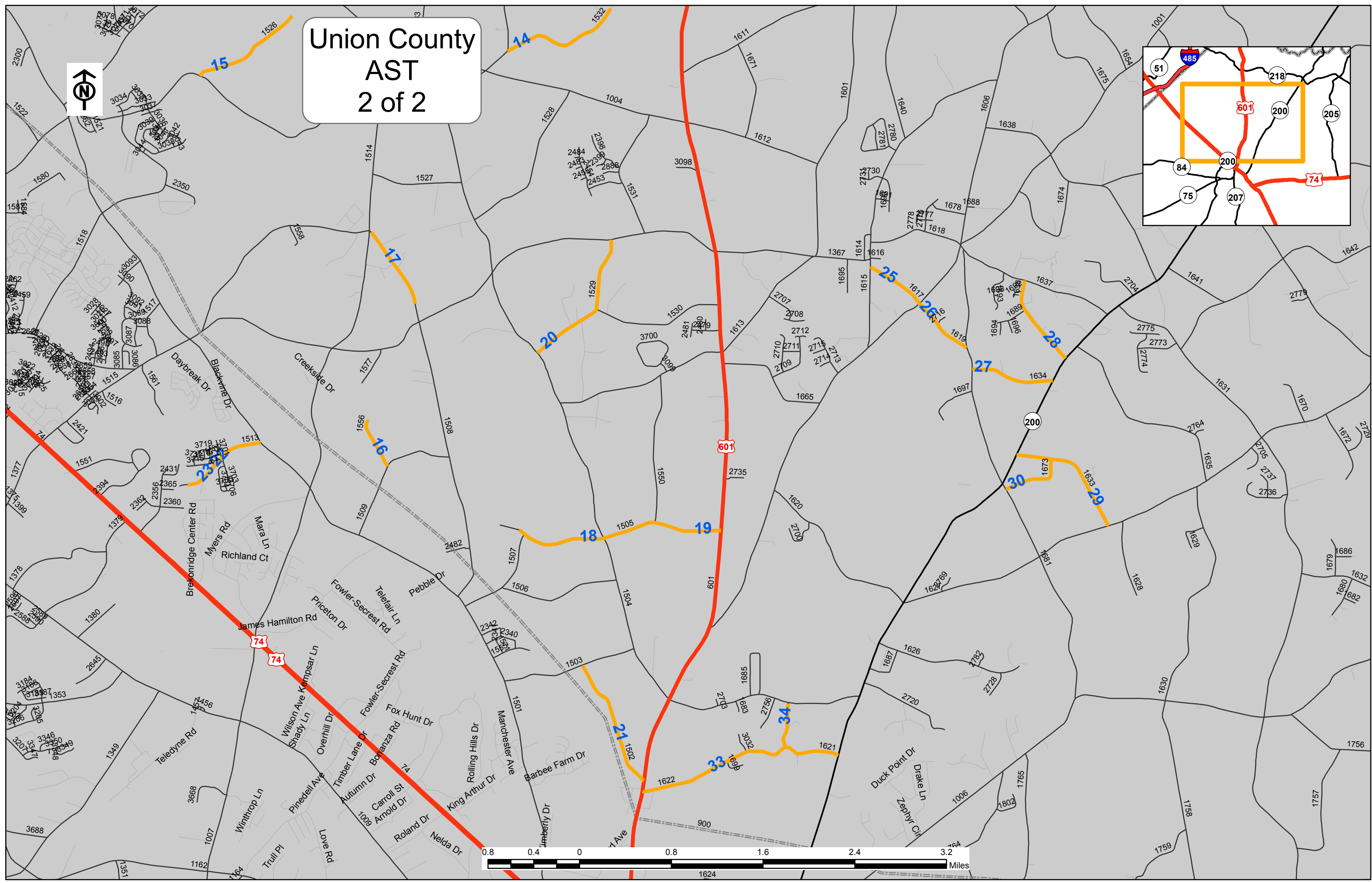
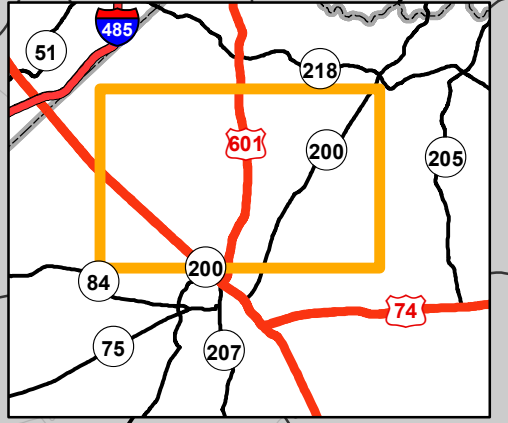
SUMMARY OF QUANTITIES

| PROJECT NO | COUNTY | MAP NO | ROUTE | DESCRIPTION | LANES | FINAL SURFACE TESTING REQUIRED | WARM MIX ASPHALT REQUIRED | LENGTH MI | WIDTH FT | ASPHALT SURFACE TREATMENT, DOUBLE SEAL SY | EMULSION FOR ASPHALT SURFACE TREATMENT GAL | BLOTTING SAND TON | WORK ZONE ADVANCE/GENERAL WARNING SIGNING SF | TEMPORARY TRAFFIC CONTROL LS |
|---|--------|--------|--------------------------------|--|-------|--------------------------------|---------------------------|--------------|----------|---|--|-------------------|--|------------------------------|
| 2016CPT.10.02.20902.1 | Union | 26 | TOM BOYD RD (SR 1619) | FROM SIKES MILL RD (SR 1001) TO OLD CAMDEN RD (SR 1681) | 2 | NO | NO | 0.57 | 20 | 6,688 | 3,678 | | 56 | |
| TOTAL FOR MAP NO. 26 | | | | | | | | | | | | | | |
| 2016CPT.10.02.20902.1 | Union | 27 | MILL CREEK CH RD (SR 1634) | FROM OLD CAMDEN RD (SR 1681) TO NC 200 | 2 | NO | NO | 0.73 | 19 | 8,137 | 4,475 | | 112 | |
| TOTAL FOR MAP NO. 27 | | | | | | | | | | | | | | |
| 2016CPT.10.02.20902.1 | Union | 28 | HONEYCUTT-SIMPSON RD (SR 1636) | FROM NC 200 TO EAST LAWYERS RD (SR 1637) | 2 | NO | NO | 0.82 | 20 | 9,621 | 5,292 | | 112 | |
| TOTAL FOR MAP NO. 28 | | | | | | | | | | | | | | |
| 2016CPT.10.02.20902.1 | Union | 29 | RILA HAMILTON RD (SR 1633) | FROM NC 200 TO NEW SALEM RD (SR 1627) | 2 | NO | NO | 1.13 | 19 | 12,596 | 6,928 | | 112 | |
| TOTAL FOR MAP NO. 29 | | | | | | | | | | | | | | |
| 2016CPT.10.02.20902.1 | Union | 30 | G.B. HILL RD (SR 1673) | FROM RILA HAMILTON RD (SR 1633) TO OLD CAMDEN RD (SR 1681) | 2 | NO | NO | 0.55 | 18 | 5,808 | 3,194 | | 56 | |
| TOTAL FOR MAP NO. 30 | | | | | | | | | | | | | | |
| 2016CPT.10.02.20902.1 | Union | 31 | WRIGHT RD (SR 1554) | FROM MILL GROVE RD (SR 1525) TO END OF MAINTENANCE | 2 | NO | NO | 0.44 | 18 | 4,646 | 2,555 | | 56 | |
| TOTAL FOR MAP NO. 31 | | | | | | | | | | | | | | |
| 2016CPT.10.02.20902.1 | Union | 32 | CULL WILLIAMS RD (SR 2348) | FROM WRIGHT RD (SR 1554) TO END OF MAINTENANCE | 2 | NO | NO | 0.22 | 18 | 2,323 | 1,278 | | 56 | |
| TOTAL FOR MAP NO. 32 | | | | | | | | | | | | | | |
| 2016CPT.10.02.20902.1 | Union | 33 | DEESE RD (SR 1622) | FROM US 601 TO DEESE RD (SR 1621) | 2 | NO | NO | 1.35 | 18 | 14,256 | 7,841 | | 112 | |
| TOTAL FOR MAP NO. 33 | | | | | | | | | | | | | | |
| 2016CPT.10.02.20902.1 | Union | 34 | NEAL BOYCE RD (SR 1621) | FROM DEESE RD (SR 1622) TO BAUCOM DEESE RD (SR 1504) | 2 | NO | NO | 0.88 | 18 | 9,293 | 5,111 | | 56 | |
| TOTAL FOR MAP NO. 34 | | | | | | | | | | | | | | |
| TOTAL FOR PROJ NO. 2016CPT.10.02.20902.1 | | | | | | | | | | | | | | |
| | | | | | | | | 32.81 | | 366,848 | 201,765 | 20.00 | 3,324 | 1 |
| GRAND TOTAL | | | | | | | | | | | | | | |
| | | | | | | | | 32.81 | | 366,848 | 201,765 | 20.00 | 3,324 | 1 |

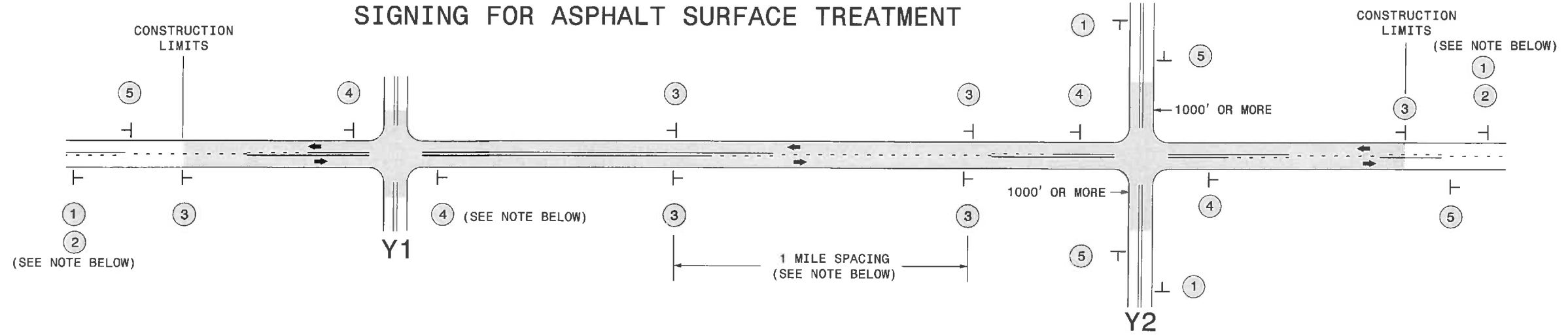
Union County AST 1 of 2



Union County AST 2 of 2



SIGNING FOR ASPHALT SURFACE TREATMENT



| LEGEND | |
|--------|---------------------------|
| | STATIONARY SIGN |
| ← | DIRECTION OF TRAFFIC FLOW |

MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

| | | | |
|---|---|--|--|
| SIGNING NOTES AND PLACEMENT PER DIRECTION | 1 | <small>W20-1 48" X 48"</small> | <p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p> <p>#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)</p> |
| | 2 | <small>W7-30P 24" X 18"</small> | |
| | 3 | <small>W8-7 48" X 48"</small> <small>SP 48" X 48"</small> | <p>ALTERNATE THE FOLLOWING TWO SIGNS:</p> <p>STARTING WITH "LOOSE GRAVEL" (W8-7) FOLLOWED BY "UNMARKED PAVEMENT".</p> <p>PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.</p> |
| | 4 | <small>SP 13106 48" X 48"</small> | <p>THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.</p> |
| | 5 | <small>G20-2 A 48" X 24"</small> | <p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p> |

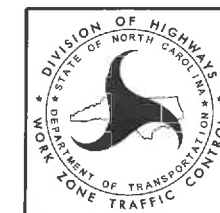
NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

- 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE
- 2) SUBDIVISION ROADS
- 3) DEAD END ROADS

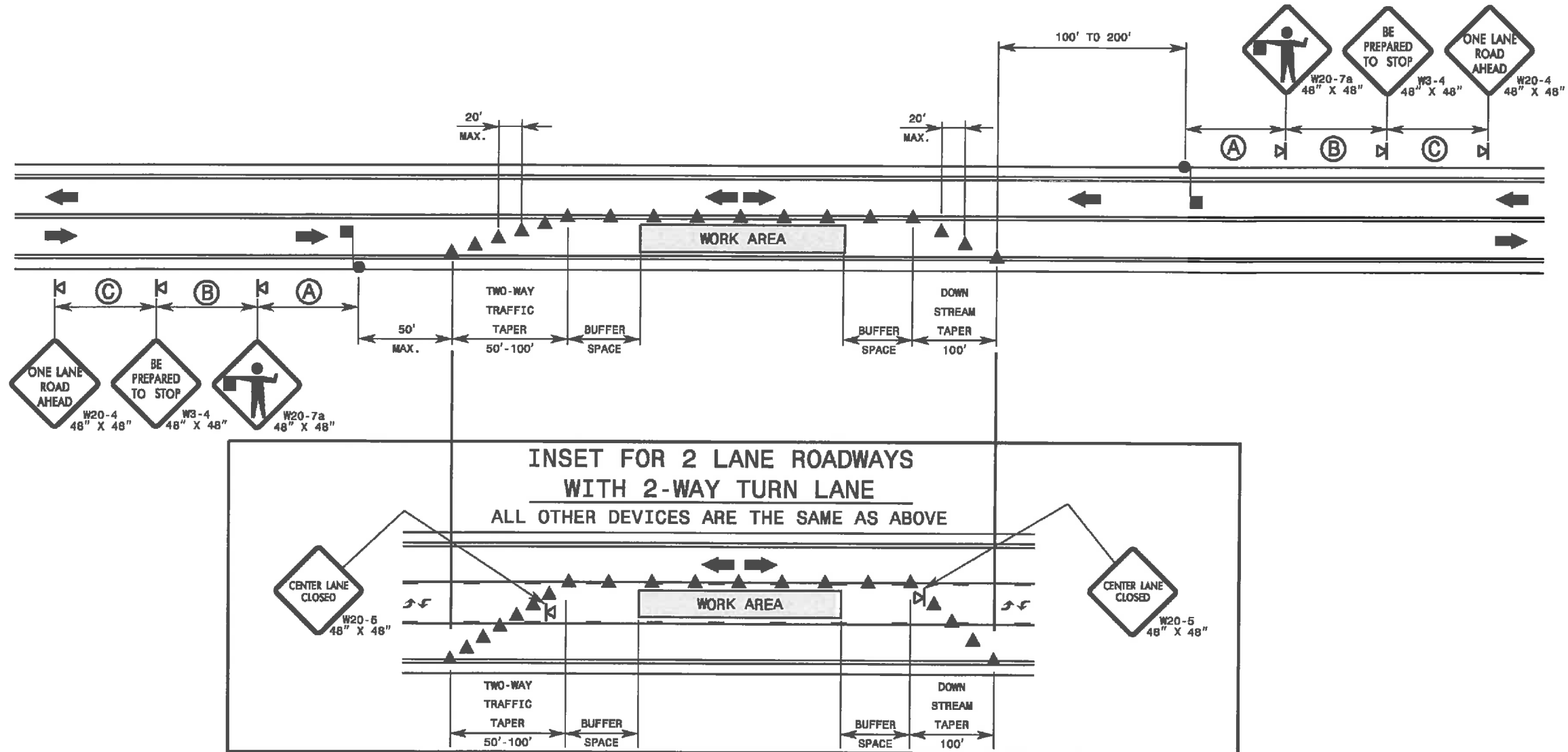
WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.



PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.



ADVANCE WARNING SIGNS
FOR
ASPHALT SURFACE TREATMENTS
2 LANE ROADWAYS



GENERAL NOTES FOR FLAGGER OPERATIONS

- REFER TO STD. 1101.11 SHEET 4 FOR SIGN SPACING.
- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC.
- REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
- PLACE CONES THRU THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.
- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE FLAGGER (REFER TO STD. 1101.11 SHEET 2).
- DO NOT STOP TRAFFIC IN ANY ONE DIRECTION FOR MORE THAN 5 MINUTES AT A TIME.
- DRUMS OR SKINNY-DRUMS MAY BE USED IN LIEU OF CONES. REFER TO ROADWAY STANDARD DRAWING 1180.01 FOR SKINNY-DRUM REQUIREMENTS.
- USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FT. IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS PLACE SIGNALS IN THE FLASH MODE AND RECOMMEND THE USE OF LAW ENFORCEMENT.
- REFER TO 2009 MUTCD, CHAPTER 6, FOR FLAGGER CONTROL, REQUIREMENTS, AND PROCEDURES.
- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.

GENERAL NOTES FOR PILOT CAR OPERATIONS

- USE PILOT CARS WHEN DIRECTED BY THE ENGINEER.
- IF ROADWAY WIDTH IS LESS THAN 22 FEET (EOP TO EOP), CONES MAY NOT BE REQUIRED ALONG WORK AREA, AND AT THE DISCRETION OF THE ENGINEER, CONES MAY BE OMITTED ALONG THE WORK AREA IF USING A PILOT CAR.
- CONES ARE ALWAYS REQUIRED IN THE UPSTREAM AND DOWNSTREAM TAPERS.
- MOUNT SIGN G20-4 "PILOT CAR FOLLOW ME" AT A CONSPICUOUS POSITION ON THE REAR OF THE PILOT VEHICLE.
- DO NOT INSTALL MORE THAN ONE (1) MILE OF LANE CLOSURE, MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.
- ADVISE RESIDENTS AND BUSINESSES WITHIN THE LANE CLOSURE LIMITS ABOUT METHODS OF SAFE EGRESS AND INGRESS FROM DRIVEWAYS DURING FLAGGING AND PILOT CAR OPERATIONS.

LEGEND

- FLAGGER
- CONE
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW