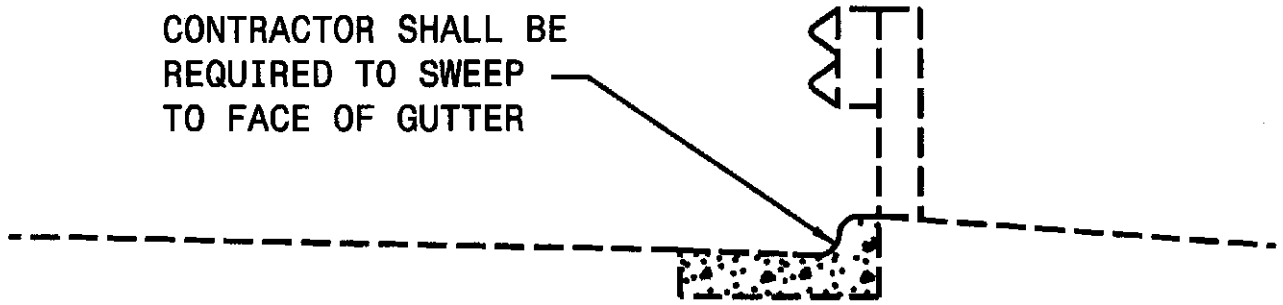
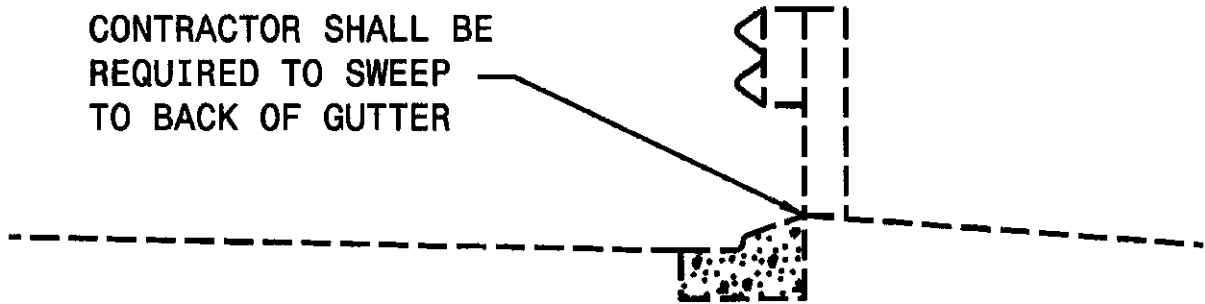
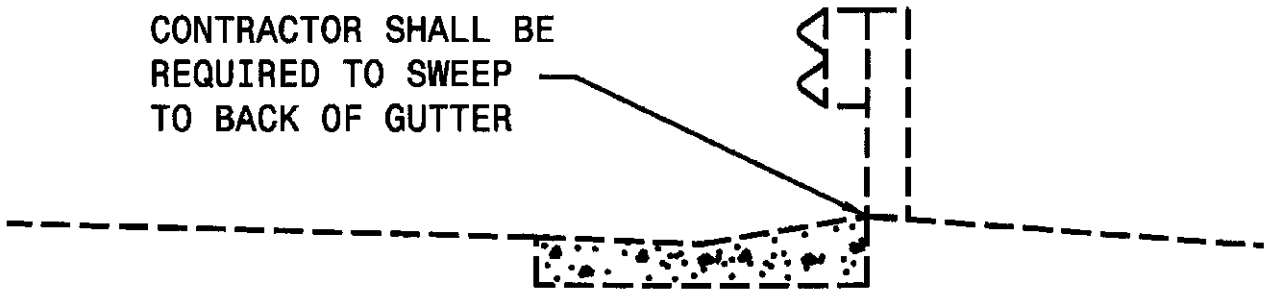

CONTRACTOR SHALL BE
REQUIRED TO SWEEP
TO FACE OF GUTTER



CONTRACTOR SHALL BE
REQUIRED TO SWEEP
TO BACK OF GUTTER



CONTRACTOR SHALL BE
REQUIRED TO SWEEP
TO BACK OF GUTTER



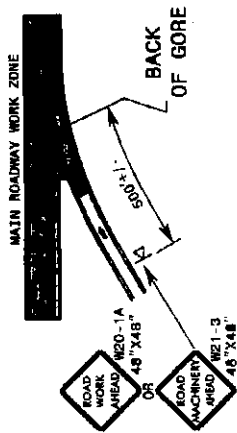
**DETAIL SHOWING SWEEPING
LIMITS ON VARIOUS TYPES OF
CURB AND GUTTER WITH GUARDRAIL**

GENERAL NOTES

- 1- THE FOLLOWING OPTIONS MAY BE USED FOR ADVANCE WARNING SIGNS:
 - A. TRUCK MOUNTED SIGNS
 - B. TRUCK MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
 - C. GROUND MOUNTED ADVANCE WARNING SIGNS
 - D. GROUND MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
- 2- ALL ADVANCE WARNING SIGNS MUST BE 48" X 48" WITH FLUORESCENT ORANGE TYPE VII OR HIGHER SHEETING. IF SPACE LIMITATIONS ON SHOULDER PROHIBIT A 48" X 48" SIGN, A SMALLER SIGN CAN BE USED WITH APPROVAL FROM ENGINEER.
- 3- SIGNS ON VEHICLES SHOULD BE MOUNTED A MINIMUM OF FIVE (5) FEET FROM THE GROUND AND SHOULD NOT BLOCK THE MOTORIST'S SIGHT OF THE FLASHING ARROW BOARD AND/OR LIGHTBAR.
- 4- GROUND MOUNTED ADVANCE WARNING SIGNS SHOULD BE MOUNTED A MINIMUM OF FIVE (5) FEET FROM THE GROUND TO BOTTOM OF SIGN.
- 5- SIGN SPACING SHOULD BE ADJUSTED FOR HORIZONTAL AND VERTICAL CURVES, ETC. TO IMPROVE SIGHT DISTANCES.
- 6- WHEN TRAVELING FROM ONE SIDE OF A BRIDGE TO ANOTHER, BOTH SWEEPER VEHICLE AND TMA MUST WAIT FOR A BREAK IN TRAFFIC AND MOVE OUT INTO THE TRAVELWAY SIMULTANEOUSLY TO GET TO THE OTHER SIDE.
- 7- TOTAL DISTANCE BETWEEN FIRST AND LAST VEHICLE IN CARAVAN SHOULD NOT EXCEED ONE (1) MILE IN LENGTH.
- 8- SIGN W21-5DL "LEFT SHOULDER CLOSED AHEAD" OR W21-SUR "RIGHT SHOULDER CLOSED AHEAD" SHOULD BE PLACED ON BACK OF PROTECTION VEHICLE APPROPRIATELY IN MULTILANE DIVIDED TRAFFIC SO VEHICLES APPROACHING FROM REAR ARE NOTIFIED OF OPERATION.
- 9- RADIO COMMUNICATION BETWEEN VEHICLES IS REQUIRED.
- 10- USE OF A LIGHT SYSTEM ON ALL VEHICLES IS REQUIRED. (REFER TO ROADWAY STANDARD DRAWING 1165.01, SHEET 1 OF 1).
- 11- USE "CAUTION SHOULDER WORK" SIGN ON REAR OF SWEEPER.
- 12- IF WORK IS PERFORMED AT NIGHT, THE WORK AREA MUST BE ILLUMINATED WITH MACHINE AND/OR TOWER LIGHTS AS APPROVED BY THE ENGINEER.
- 13- IF USING GROUND MOUNTED ADVANCE WARNING SIGNS OR STATIONARY CMS, THE TOTAL DISTANCE BETWEEN THE EXCEED FIVE (5) MILES AND SIGN AND SWEEPER VEHICLE SHOULD BE EXCEED FIVE (5) MILES AND SIGN W21-SSP SHOULD READ SHOULDER WORK NEXT 5 MILES.

LEGEND

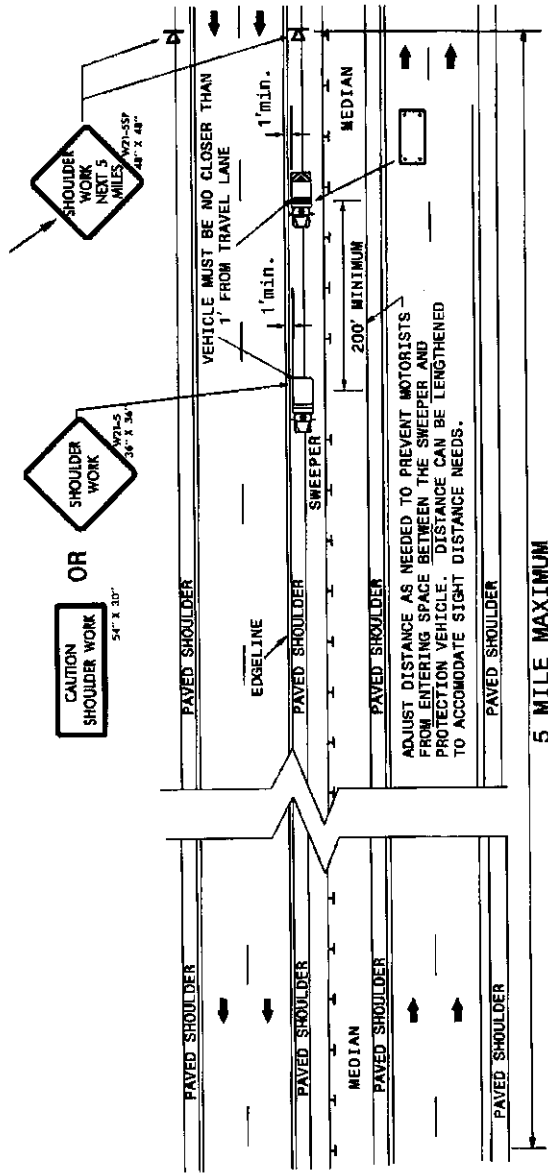
- PORTABLE SIGN. SIGNS MUST BE NCHRP-350 AND MCDOT APPROVED.
- DIRECTION OF TRAFFIC FLOW
- SWEEPING VEHICLE
- PROTECTION (SHADOW) VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA). TMA MUST BE NCHRP-350 TEST LEVEL 3 (80 MPH) APPROVED.
- FLASHING ARROW BOARD, TYPE "C" (86" X 48" MIN.), CAUTION MODE



ENTRANCE RAMP

ADVANCE WARNING SIGNS SHOULD BE INSTALLED AT INTERSECTIONS PER DRAWING 4.

MAY BE SIGNS OR CMS AND EITHER GROUND MOUNTED OR TRUCK MOUNTED



5 MILE MAXIMUM

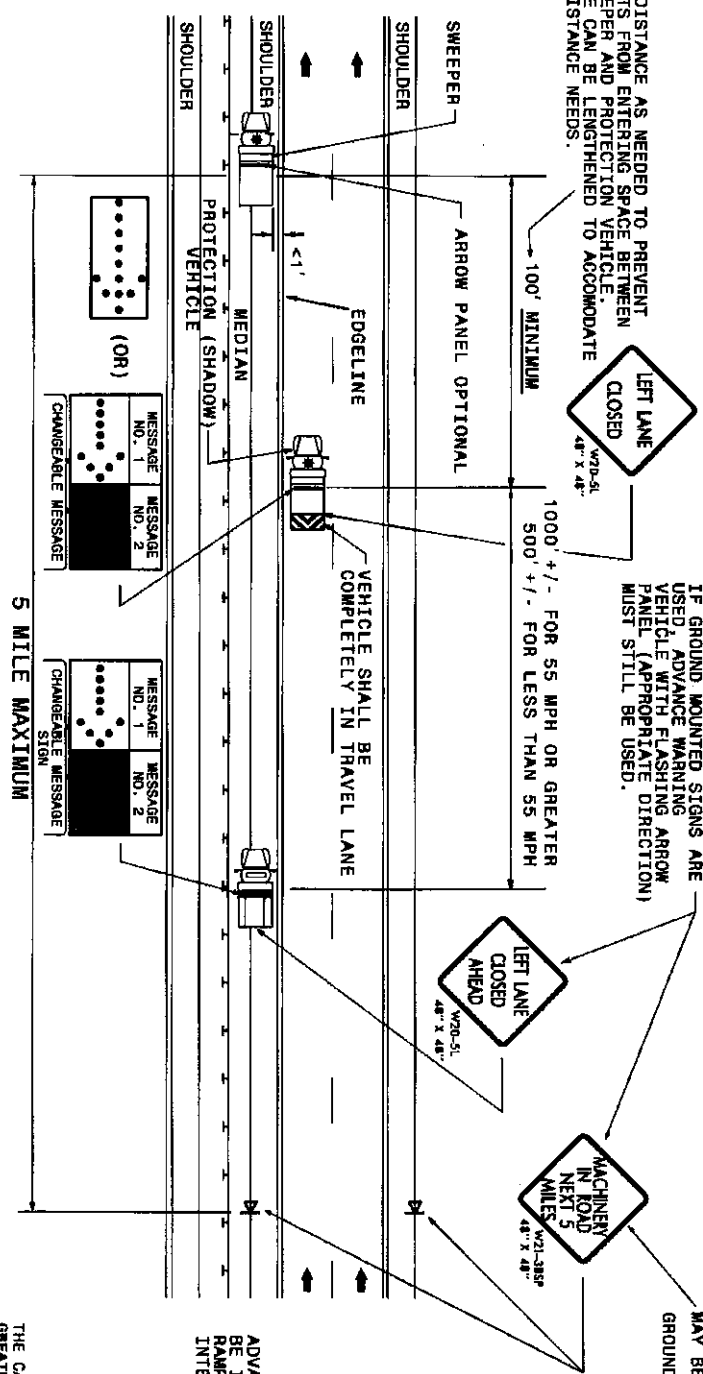
SHOULDER SWEEPING OPERATION
MULTILANE DIVIDED FACILITIES

LOCATION: TIRE OF SWEEPER VEHICLE & TMA NO CLOSER THAN ONE (1) FOOT FROM EDGE LINE (MEDIAN OR SHOULDER)

GENERAL NOTES

1. THE FOLLOWING OPTIONS MAY BE USED FOR ADVANCE WARNING SIGNS:
 - A. TRUCK MOUNTED SIGNS
 - B. TRUCK MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
 - C. GROUND MOUNTED ADVANCE WARNING SIGNS
 - D. GROUND MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
2. ALL ADVANCE WARNING SIGNS MUST BE 48" X 48" WITH FLUORESCENT ORANGE TYPE VIT OR HIGHER SWEETING. IF SPACE LIMITATIONS ON SHOULDER PROHIBIT A 48" X 48" SIGN, A SMALLER SIGN CAN BE USED WITH APPROVAL FROM ENGINEER.
3. SIGNS ON VEHICLES SHOULD BE MOUNTED A MINIMUM OF FIVE (5) FEET FROM THE BOARD AND/OR LIGHTBAR.
4. GROUND MOUNTED ADVANCED WARNING SIGNS SHOULD BE MOUNTED A MINIMUM OF FIVE (5) FEET FROM THE GROUND TO BOTTOM OF SIGN.
5. SIGN SPACING SHOULD BE ADJUSTED FOR HORIZONTAL AND VERTICAL CURVES, ETC. TO IMPROVE SIGHT DISTANCES.
6. TOTAL DISTANCE BETWEEN FIRST AND LAST VEHICLE IN CARAVAN SHOULD NOT EXCEED ONE (1) MILE IN LENGTH.
7. SIGN W20-5L "LEFT LANE CLOSED" SHOULD BE PLACED ON BACK OF PROTECTION VEHICLE AND SIGN W20-5L "LEFT LANE CLOSED AHEAD" ON BACK OF ADVANCE WARNING VEHICLE IN MULTILANE DIVIDED TRAFFIC SO VEHICLES APPROACHING FROM REAR ARE NOTIFIED OF OPERATION.
8. RADIO COMMUNICATION BETWEEN VEHICLES IS REQUIRED.
9. USE OF A LIGHT SYSTEM ON ALL VEHICLES IS REQUIRED (REFER TO ROADWAY STANDARD DRAWING 1166.01, SHEET 1 OF 1).
10. USE OF CMS'S ARE REQUIRED WITH ADVANCE WARNING VEHICLES.
11. IF WORK IS PERFORMED AT NIGHT, THE WORK AREA MUST BE ILLUMINATED WITH MACHINE AND/OR TOWER LIGHTS AS APPROVED BY THE ENGINEER.
12. IF USING GROUND MOUNTED ADVANCE WARNING SIGNS OR STATIONARY CMS, THE TOTAL DISTANCE BETWEEN THE FIRST ADVANCE WARNING SIGN OR CMS AND SWEEPER VEHICLE SHOULD NOT EXCEED FIVE (5) MILES AND SIGN W21-3BSP SHOULD READ MACHINERY IN ROAD NEXT 5 MILES.

ADJUST DISTANCE AS NEEDED TO PREVENT MOTORISTS FROM ENTERING SPACE BETWEEN THE SWEEPER AND PROTECTION VEHICLE. DISTANCE CAN BE LENGTHENED TO ACCOMMODATE SIGHT DISTANCE NEEDS.



IF GROUND MOUNTED SIGNS ARE USED, ADVANCE WARNING VEHICLE (WITH FLASHING ARROW PANEL (APPROPRIATE DIRECTION)) MUST STILL BE USED.

MAY BE SIGNS OR CMS AND EITHER GROUND MOUNTED OR TRUCK MOUNTED

ADVANCE WARNING SIGNS SHOULD BE INSTALLED ALONG ENTRANCE RAMP PER DRAWING 1 AND AT INTERSECTIONS PER DRAWING 4.

THE CARAVAN IS TO MOVE AT 3 MPH OR GREATER TO OBTAIN THE DESIRED LEVEL OF SAFETY FOR THE MOVING OPERATION. IF AT ANYTIME A VEHICLE STOPS DURING THE OPERATION, THE REMAINDER OF THE CARAVAN SHALL CONTINUE MOVING AND WORK OPERATIONS WITHIN 60 SECONDS. OTHERWISE, ALL VEHICLES ARE TO BE REMOVED FROM THE TRAVEL LANE AND THE OPERATION RESET.

SHOULDER SWEEPING OPERATION

MULTILANE DIVIDED FACILITIES
IN AREAS WITH LIMITED SHOULDER AND GUARDRAIL

LOCATION: TIRE OF SWEEPER VEHICLE CLOSER THAN ONE (1) FOOT TO EDGELINE (MEDIAN OR SHOULDER)

LEGEND

- PORTABLE SIGN. SIGNS MUST BE NORTH-350 AND W2001 APPROVED. DIRECTION OF TRAFFIC FLOW
- SWEEPING VEHICLE
- PROTECTION (SHADOW) VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) 150 MPH MUST BE REMOVED. 3
- ADVANCE WARNING VEHICLE 1, 2, 3 PICKUP TRUCK WITH MOUNTED SIGN
- FLASHING ARROW BOARD, TYPE "A" WITH MOUNTED APPROPRIATE DIRECTION INDICATED

DRAWING 2 OF 4
IMPLEMENTATION DATE: 11/05/01
REVISED: 06/06/12

GENERAL NOTES

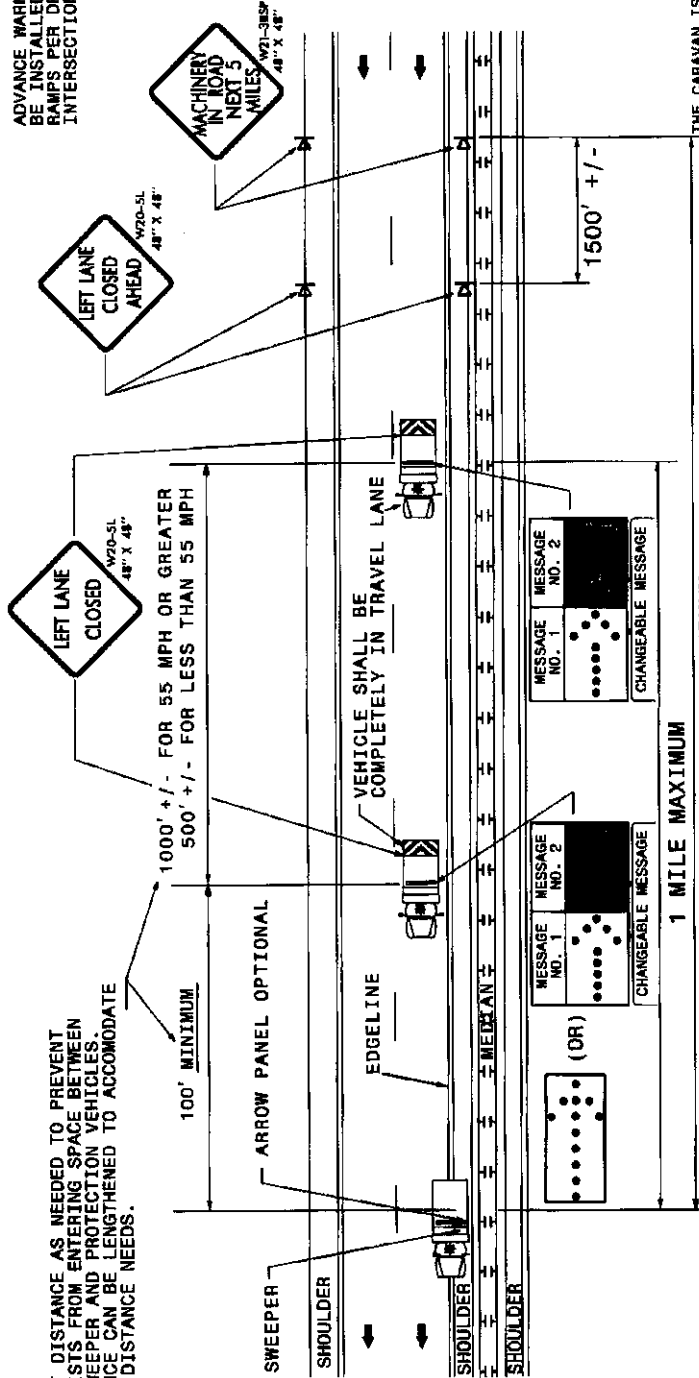
- THE FOLLOWING OPTIONS MAY BE USED FOR ADVANCE WARNING SIGNS:
 - TRUCK MOUNTED SIGN
 - TRUCK MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
 - GROUND MOUNTED ADVANCE WARNING SIGNS
 - GROUND MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
- ALL ADVANCE WARNING SIGNS MUST BE 48" X 48" WITH FLUORESCENT ORANGE TYPE VII OR HIGHER SHEETING. IF SPACE LIMITATIONS ON SHOULDER PROHIBIT A 48" X 48" SIGN, A SMALLER SIGN CAN BE USED WITH APPROVAL FROM ENGINEER. BOARD AND/OR LIGHTBAR.
- SIGNS ON VEHICLES SHOULD BE MOUNTED AT A MINIMUM OF FIVE (5) FEET FROM THE SHOULDER AND SHOULD NOT BLOCK THE MOTORIST'S SIGHT OF THE FLASHING ARROW BOARD AND/OR LIGHTBAR.
- GROUND MOUNTED ADVANCED WARNING SIGNS SHOULD BE MOUNTED AT A MINIMUM OF FIVE (5) FEET FROM THE GROUND TO BOTTOM OF SIGN.
- SIGN SPACING SHOULD BE ADJUSTED FOR HORIZONTAL AND VERTICAL CURVES, ETC. TO IMPROVE SIGHT DISTANCES.

- TOTAL DISTANCE BETWEEN FIRST AND LAST VEHICLE IN CARAVAN SHOULD NOT EXCEED ONE (1) MILE IN LENGTH.
- SIGN W20-5L "LEFT LANE CLOSED" SHOULD BE PLACED ON BACK OF PROTECTION VEHICLES IN MULTILANE DIVIDED TRAFFIC 50 VEHICLES APPROACHING FROM REAR ARE NOTIFIED OF OPERATION.
- RADIO COMMUNICATION BETWEEN VEHICLES IS REQUIRED.
- USE OF A LIGHT SYSTEM ON ALL VEHICLES IS REQUIRED (REFER TO ROADWAY STANDARD DRAWING 1185.01, SHEET 1 OF 1).
- USE OF CMS'S ARE REQUIRED WITH ADVANCE WARNING VEHICLES.
- IF WORK IS PERFORMED AT NIGHT, THE WORK AREA MUST BE ILLUMINATED WITH MACHINE AND/OR TOWER LIGHTS AS APPROVED BY THE ENGINEER.
- IF USING GROUND MOUNTED ADVANCE WARNING SIGNS OR STATIONARY CMS, THE TOTAL DISTANCE BETWEEN THE FIRST ADVANCE WARNING SIGN OR CMS AND SWEEPER VEHICLE SHOULD NOT EXCEED FIVE (5) MILES AND SIGN W21-38SP SHOULD READ "MACHINERY IN ROAD NEXT 5 MILES".

LEGEND

- PORTABLE SIGN. SIGNS MUST BE RCRHP-380 AND MODOT APPROVED.
- DIRECTION OF TRAFFIC FLOW
- SWEEPING VEHICLE
- PROTECTION VEHICLE WITH TRUCK. TRUCK MUST BE RCRHP-350. TEST LEVEL 3 (60-MPH) APPROVED.
- FLASHING ARROW BOARD, TYPE "C" DIRECTION INDICATED

ADVANCE WARNING SIGNS SHOULD BE INSTALLED ALONG ENTRANCE RAMP PER DRAWING 1 AND AT INTERSECTIONS PER DRAWING 4.



1 MILE MAXIMUM

5 MILE MAXIMUM

SHOULDER SWEEPING OPERATION

MULTILANE DIVIDED FACILITIES IN AREAS WITH SHOULDER WIDTHS THAT DO NOT ACCOMMODATE VEHICLES

LOCATION: SWEEPER VEHICLE IN TRAVEL LANE (MEDIAN OR SHOULDER)

THE CARAVAN IS TO MOVE AT 3 MPH OR GREATER TO OBTAIN THE DESIRED LEVEL OF SAFETY FOR THE MOVING OPERATION. IF AT ANYTIME A VEHICLE STOPS DURING THE OPERATION, THE REMAINDER OF THE CARAVAN SHALL CONTINUE MOVING AND THE SWEEPING VEHICLE SHALL RESUME WORK OPERATIONS WITHIN 60 SECONDS. OTHERWISE, ALL VEHICLES ARE TO BE REMOVED FROM THE TRAVEL LANE AND THE OPERATION RESET.

DRAWING 3 OF 4
 IMPLEMENTATION DATE: 11/05/01
 REVISED: 06/06/12

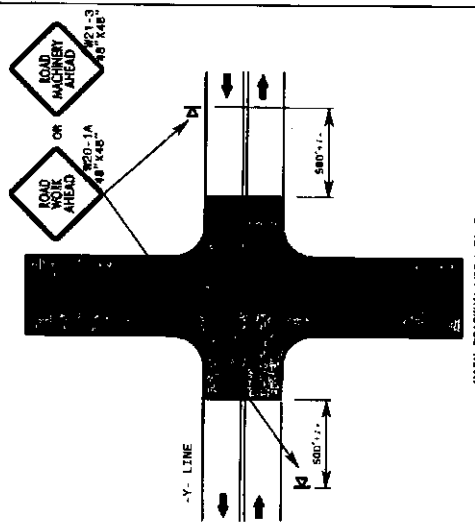
GENERAL NOTES

- 1- THE FOLLOWING OPTIONS MAY BE USED FOR ADVANCE WARNING SIGNS:
 A. TRUCK MOUNTED SIGNS
 B. TRUCK MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
 C. GROUND MOUNTED ADVANCE WARNING SIGNS
 D. GROUND MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
- 2- ALL ADVANCE WARNING SIGNS MUST BE 48" X 48" WITH FLUORESCENT ORANGE TYPE VII OR HIGHER SHEETING. IF SPACE LIMITATIONS ON SHOULDER PROHIBIT A 48" X 48" SIGN, A SMALLER SIGN CAN BE USED WITH APPROVAL FROM ENGINEER.
- 3- SIGNS ON VEHICLES SHOULD BE MOUNTED AT A MINIMUM OF ONE (1) FOOT FROM THE GROUND AND SHOULD NOT BLOCK THE MOTORIST'S SIGHT OF THE FLASHING ARROW BOARD AND/OR LIGHTBAR.
- 4- GROUND MOUNTED ADVANCED WARNING SIGNS SHOULD BE MOUNTED AT A MINIMUM OF ONE (1) FOOT FROM THE GROUND TO BOTTOM OF SIGN.
- 5- SIGN SPACING SHOULD BE ADJUSTED FOR HORIZONTAL AND VERTICAL CURVES, ETC. TO IMPROVE SIGHT DISTANCES.

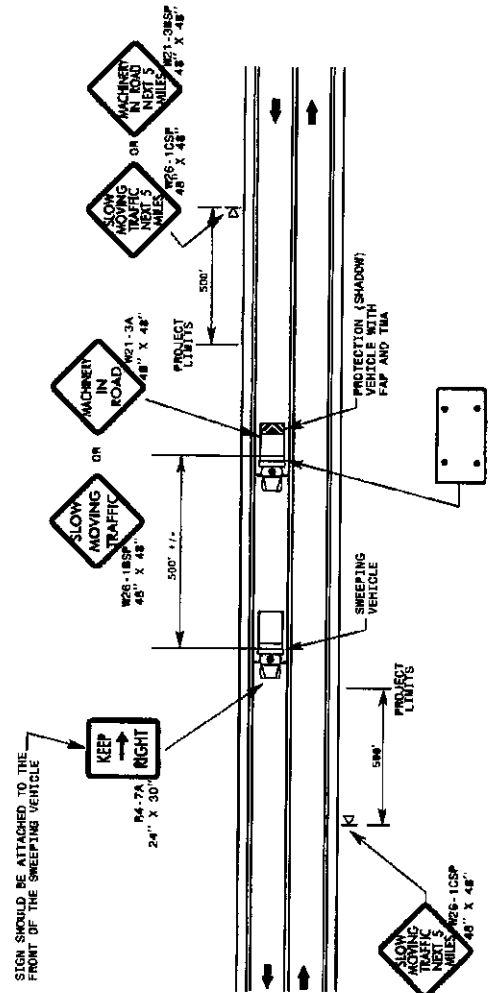
- 6- ADJUST DISTANCE AS NEEDED TO PREVENT MOTORISTS FROM ENTERING SPACE BETWEEN THE APPLICATION AND PROTECTION VEHICLE. DISTANCE CAN BE LENGTHENED TO ACCOMMODATE SIGHT DISTANCE NEEDS.
- 7- WORK ZONE SHOULD NOT EXCEED FIVE (5) MILES IN LENGTH. ROUND UP MILEAGE TO NEXT WHOLE MILE.
- 8- RADIO COMMUNICATION BETWEEN VEHICLES IS REQUIRED.
- 9- USE OF A LIGHT SYSTEM ON ALL VEHICLES IS REQUIRED (REFER TO ROADWAY STANDARD DRAWING 1165.01, SHEET 1 OF 1).
- 10- IF WORK IS PERFORMED AT NIGHT, THE WORK AREA MUST BE ILLUMINATED WITH MACHINE AND/OR TOWER LIGHTS AS APPROVED BY THE ENGINEER.

LEGEND

- PORTABLE SIGN. SIGNS MUST BE MCHRP-350 AND NCDOT APPROVED.
- DIRECTION OF TRAFFIC FLOW
- SWEEPING VEHICLE
- PROTECTION VEHICLE WITH TRUCK MOUNTED FLASHING ARROW BOARD. TYPE "C" (96" X 46" MIN.), "CAUTION MODE"



-Y- LINES



-L- LINES

SHOULDER SWEEPING OPERATION

TWO-LANE TWO-WAY ROADWAYS

LOCATION: SWEEPER VEHICLE IN TRAVEL LANE (MEDIAN OR SHOULDER)

DRAWING 4 OF 4
 IMPLEMENTATION DATE: 11/05/01
 REVISED: 06/06/12