NOTES:
1. A work vehicle without a flashing arrow board shall be followed by a protection vehicle at a distance of R. The protecting vehicle shall be equipped with a flashing arrow board and should have a truck mounted attenuator.
2. All shadow vehicles operating totally or partially in a traffic lane should be equipped with a truck mounted attenuator.
3. The lateral placement of shadow vehicle 1 may be adjusted to create a taper when a Protection Vehicle is used.
4. Shadow Vehicle 1 may be omitted on non-freeway design roadways.
5. Shadow Vehicle 2 may encroach into the traffic lane when the shoulder is too narrow to drive on.
6. If the operation does not move at least the Decision Sight Distance (D) every 15 minutes, Layout 50 or the appropriate stationary layout should be used.
7. The PCMS shall be used for nighttime operations.
8. When the PCMS is used, the RIGHT LANE CLOSED sign becomes optional.
NOTES:
1. All shadow vehicles operating totally or partially in a traffic lane should be equipped with a truck mounted attenuator.
2. The lateral placement of shadow vehicle 1 may be adjusted to create a taper when a Protection Vehicle is used.
3. Shadow Vehicle 1 may be omitted on non-freeway design roadways.
4. Shadow Vehicle 2 may encroach into the traffic lane when the shoulder is too narrow to drive on.

As stated in Layout 45, the Protection Vehicle may be omitted when the Work Vehicle has an operating flashing arrow board.

* Shadow Truck 2 Operator is responsible for detecting the traffic queue and changing the PCMS message appropriately for the conditions. Operators of the two PCMS’s shall have radio communication.

Signage shall be at least Distance $F$ before queue (area where traffic slows).
NOTES:
1. The protection vehicle should remain positioned near the ramp gore to prevent traffic from using the exit ramp. If a protection vehicle follows the work vehicle up the ramp, then it shall remain a minimum distance from the work area.
2. Any shadow or protection vehicle operating totally or partially in a traffic lane should be equipped with a truck mounted attenuator.
3. The vehicles blocking the exit ramp should not encroach into lanes open to traffic.
4. If the ramp cannot be reopened within 15 minutes, the appropriate stationary layout should be used.
5. The PCMS shall be used for nighttime operations.

* The PCMS’s shall display the “RAMP CLOSED” message.

Vehicle should not encroach into traffic lane except where the shoulder is too narrow.

MOBILE RAMP CLOSURE EXPRESSWAY/FREeway
15 MINUTES or LESS 6K-47 LAYOUT 47
NOTES:
1. The protection vehicle should remain positioned near the ramp gore to prevent traffic from using the exit ramp. If the operation requires one protection vehicle to follow the work vehicle up the ramp, then it shall remain a minimum distance R from the work area.
2. Any shadow or protection vehicle operating totally or partially in a traffic lane should be equipped with a truck mounted attenuator.
3. The vehicles blocking the exit ramp should not encroach into lanes open to traffic and should allow traffic to use the escape lane.
4. If the ramp can not be reopened within 15 minutes, the appropriate stationary layout should be used.
5. The PCMS’s shall be used for nighttime operations.
6. The optional second protection vehicle may be needed to block wider exit ramps.

MOBILE RAMP CLOSURE with ESCAPE LANE
EXPRESSWAY/FREeway

15 MINUTES or LESS 6K-48 LAYOUT 48
NOTES:
1. The protection vehicle should remain positioned near the ramp gore to prevent traffic from using the exit ramp. If a protection vehicle follows the work vehicle up the ramp, then the flashing arrow display shall change to the caution mode shall remain a minimum distance R from the work area.
2. Any shadow or protection vehicle operating totally or partially in a traffic lane should be equipped with a truck mounted attenuator.
3. The vehicles blocking the exit ramp should not encroach into lanes open to traffic.
4. If the ramp can not be reopened within 15 minutes, the appropriate stationary layout should be used.
5. The PCMS shall be used for nighttime operations.
6. The optional second protection vehicle may be needed to block wider exit ramps.

MOBILE RAMP CLOSURE with LANE DROP
EXPRESSWAY/FREeway

15 MINUTES or LESS
6K-49
LAYOUT 49
NOTES:
1. All Shadow and Protection Vehicles shall be equipped with a truck-mounted attenuator.
2. The lateral placement of Shadow Vehicle 1 may be adjusted to create a taper.
3. Shadow Vehicle 2 may encroach into the traffic lane when the shoulder is too narrow to drive on.
4. If the operation does not move at least the Decision Sight Distance once each hour, the appropriate stationary layout should be used.
5. A typical message should be ROAD WORK AHEAD and RIGHT LANE CLOSED.

SHORT DURATION LANE CLOSURE
MULTI-LANE ROAD

1 HOUR or LESS

6K-50 LAYOUT 50
NOTES:
1. The Lane Reduction sign and the MERGE sign may be omitted when the posted speed limit is 40 mph or less.
2. In order to use this layout, two flashing arrow boards, at least one PCMS, and advance warning signs shall be used. If these devices are not available, either Layout 52 shall be used.
3. When using a combination of cones (28 inch minimum height) and Direction Indicator Barricades every third device in the merge taper and every tenth device in the tangent area shall be a Directional Indicator Barricade.
4. All shadow vehicles operating totally or partially in a traffic lane should be equipped with a truck mounted attenuator.
NOTE:
1. If traffic volumes are low, a double lane closure is preferred.
NOTES:
1. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
2. The Lane Drop symbol sign and the Merge with arrow sign may be omitted when the posted speed limit is 40 mph or less.
3. Use the appropriate traffic control devices for a right lane closure.
NOTES:
1. This layout should be used on high speed roadways where traffic queues may extend at least 0.5 mile upstream of the taper. If little or no queuing is anticipated, use the typical lane closure Layout 52.
2. Use the appropriate traffic control devices for a left lane closure.
3. A PCMS may be used in place of a pair of USE BOTH LANES DURING BACKUPS signs.
4. Distance plaques are recommended when the distance is 2 miles or more.
NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.
NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.

RIGHT LANE CLOSURE
WORK SPACE BEYOND INTERSECTION
MULTI-LANE DIVIDED ROAD

NOTES:
1. Use the appropriate advance warning sign spacing for the speed on the cross road.
2. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
3. The Lane Drop symbol sign and the MERGE with Arrow sign may be omitted when the posted speed limit is 40 mph or less.
NOTES:
1. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
2. The Lane Drop symbol signs, the Merge with arrow signs, and the arrow board may be omitted when the posted speed limit is 40 mph or less.
3. If the flashing arrow board will not fit entirely on the left shoulder, it should be placed behind the taper, encroaching on the lane as little as possible.
4. When the Lane Drop symbol sign or the MERGE with arrow sign is used, the same sign shall be used for both lane closures in each direction.
NOTES:
1. The flashing arrow board shall be used when the posted speed limit is 45 mph or greater.
2. The Lane Drop symbol sign and the Merge with arrow sign may be omitted when the posted speed limit is 40 mph or less.
3. When the Lane Drop symbol sign or the MERGE with arrow sign is used, the same sign shall be used for both lane closures in each direction.
NOTES:
1. Install a Type III barricade at the beginning of each work space and at intervals from 500 feet minimum to 1000 feet maximum within the closed lane.
2. The Type III barricade within the work space may be omitted when the work space is occupied.
3. For advance signing, placement of traffic control devices, and lane taper, see the appropriate stationary layout.
NOTES:
1. For one lane of traffic only.
2. Continue the pattern and the spacing of devices for additional lateral shift.
3. For advance signing, placement of traffic control devices, lane taper, see the appropriate stationary layout.
4. The Lane Shift sign may be omitted when the posted speed limit is 40 mph or less.
5. Directional arrows shall be used on either the drums or the Type III barricade.
NOTES:
1. Adjust the ramp exit to fit the conditions.
2. For advance signing, placement of traffic control devices, and lane closure, see the appropriate stationary layout.
NOTES:
1. The advance warning sign spacing is dependent on the ramp length and the location of inplace signing. The spacing should be as long as is practical.
NOTES:
1. Adjust the ramp entrance to fit the conditions.
2. The advance warning sign spacing is dependent on the ramp length and the location of inplace signing. The spacing should be as long as is practical.
3. For advance signing, placement of traffic control devices, and lane closure, see the appropriate stationary layout.
NOTES:
1. Truck off-tracking should be considered when determining whether the 12 foot minimum lane width is adequate.
2. Use a minimum of a 250 foot taper.
3. For Loops use 25 foot spacing between devices.
   For Ramps use 50 foot spacing between devices.
4. The spacing for advance warning signs is dependent on the design of the interchange, and the location of inplace signing.
NOTE:
1. The spacing for advance warning signs is dependent on the ramp length and design, and the location of inplace signing. The spacing should be as long as practical.
2. The taper length is dependent on traffic speeds and volumes and should be as long as practical.
3. Detour signing should be considered if the ramp is closed for an hour or greater.
NOTES:
1. Detour signing should be considered if the ramp is closed for an hour or greater.