ADMINISTRATIVE INFORMATION:
- This Office of Traffic Safety & Mobility Instruction (TSMI) is effective immediately.
- This TSMI does not supersede any other issuance.

PURPOSE: The purpose of this TSMI is to establish NYSDOT’s policy on wrong-way driving countermeasures for interchange exit ramp termini.

TECHNICAL INFORMATION: Required Countermeasures #1-10 shall be utilized at all interchange exit ramp termini where a wrong way entry could inadvertently be made. In situations where the geometry of the ramp is such that a wrong way entry is not feasible (e.g., slip ramps between the mainline and one-way service roads), the implementation of countermeasures is left to engineering judgment. Where field conditions make implementation of any Required Countermeasures impractical, document the decision. Additional Countermeasures #11-23 may be employed based on engineering judgment and decision documentation.

Required Countermeasures

1. Replace existing signing, if necessary, to meet the following requirements:
   - Sign sizes for the signs at ramp termini are based on the type of facility intersecting the ramp. Sign sizes for the WRONG WAY signs are based on the mainline facility. Larger sizes may be used where engineering judgment indicates a need.
   - All Signs shall utilize Type IX or Type XI sheeting.
   - Signs should be placed at a minimum height of 7'. Where “high” and “low” signs are specified, the lower sign should be placed at a minimum height of 3', and the upper sign at a minimum height of 7'.

2. Relocate or eliminate non-essential signing and clutter that may reduce the target value of ramp termini signs.

3. Keep Right (R4-7) sign in median of adjacent ramps.
   - The Keep Right sign should be installed as close as practical to the ramp terminus.

4. Double-posted DO NOT ENTER (R5-1) signs at regular (7') heights.
   - A DO NOT ENTER sign that is mounted back-to-back with a STOP/YIELD sign should stay within the edges of the STOP/YIELD sign. If necessary, the size of the STOP/YIELD sign should be increased so that the DO NOT ENTER sign remains with the edges of the STOP/YIELD sign.
   - DO NOT ENTER signs should be turned so that they are not viewed by traffic to which they don’t apply. The right-side DO NOT ENTER sign may need to be placed farther from the ramp terminus where insufficient space exists.
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5. Double-posted WRONG WAY (R5-1a) signs at high/low heights.
   - WRONG WAY signs should be placed downstream of the ramp terminus, within sight of a wrong-way driver.
   - WRONG WAY signs should be turned, if necessary, so that they are not viewed by traffic to which they don’t apply.

6. ONE WAY (R6-1) signs at ramp terminus.

7. Retroreflective strips on all Wrong Way regulatory sign posts, except ONE WAY (R6-1).
   - The color of the strip must match the background color of the sign being supplemented. (DO NOT ENTER and WRONG WAY signs use red strips. KEEP RIGHT signs use white strips.)
   - The MUTCD does not allow the use of post strips on a guide sign support.

8. FREEWAY ENTRANCE (D13-3A) sign for adjacent ramps.
   - The sign should use an alternate legend of “EXPRESSWAY ENTRANCE,” “PARKWAY ENTRANCE,” or the name of an unnumbered highway, as appropriate.

9. Pavement markings on off-ramp at ramp terminus (edge lines, stop/yield lines, lane use arrows).
   - Use 685 Standard Sheets for placement of pavement markings.
   - Use a wrong-way arrow where a lane use arrow would not be applicable.

10. Wrong-way arrow for off-ramp.
    - The arrow is placed upstream of the ramp terminus, in line with the first set of WRONG WAY signs.
    - The arrow consists of pavement marking, but red/white snowplowable markers may be added as an additional countermeasure.

**Additional Countermeasures**

Existing geometries like parallel and adjacent ramps at partial cloverleaf or trumpet interchanges, crash histories, and other conditions may warrant consideration of the following additional countermeasures:

11. Wrong-way arrow for on-ramp.
    - The wrong-way arrow may be used near the ramp terminus on the on-ramp where it is desired to highlight the permissive movement. Either pavement markings or red/white snowplowable markers may be used to form the arrow.

12. No Left Turn (R3-2) sign on crossroad.

13. No Right Turn (R3-1) sign on crossroad.

14. Double-posted DO NOT ENTER (R5-1) signs at low height.
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15. 2nd set of double-posted WRONG WAY (R5-1a) signs at high/low heights.

16. Dotted lane extension lines to connect crossroad to ramp.

17. Red/white snowplowable pavement markers outlining the WRONG-WAY arrow.

18. Additional enhanced conspicuity methods (MUTCD Section 2A.15).

19. Red delineators used on the reverse side of ramp delineators for vehicles traveling in the wrong direction (MUTCD Section 3F.03)

20. ITS solutions including detection systems that are triggered by wrong-way motorists. Such systems may alert the wrong-way driver, and/or emergency responders.

21. Where a one-way ramp terminates at a signalized intersection, use vertical GREEN ARROW indications on the crossroad in lieu of CIRCULAR GREEN indications to reinforce the permitted movement. Mandatory Movement Lane Control signs (MUTCD Section 2B.20) may be used to supplement the GREEN ARROW indications.

22. Improved street lighting.
   - Most wrong-way intrusions occur at night.

23. Geometric modifications to the intersection.
   - At diamond interchanges with a one-way ramp, angular corners can help discourage wrong-way right turns.
   - At diamond interchanges with advance left-turn storage lanes that extend past the off-ramp, providing a raised median can help discourage wrong-way left turns.
   - At adjacent ramps, separating the on- and off-ramp termini (e.g., median guiderail, flexible delineators) can help reduce confusion.
     - Refer to HDM Chapter 10 for roadside design/guide rail guidance.
   - At adjacent ramps, reducing the off-ramp terminus throat width, and/or increasing the on-ramp terminus throat width, can help reduce wrong entries.
   - At adjacent ramps, it can be helpful to provide a raised median or dual-faced curb from the ramp terminus to the gore nose.
   - At adjacent ramps, ensure that median barrier does not obscure motorists’ view of both on- and off-ramps.

TRANSMITTED MATERIALS: Standard details for wrong-way driving countermeasures at interchange ramps are attached.

BACKGROUND: Wrong-way driving crashes are rare, but tend to be severe when they occur. As the incorrect entry location is often difficult to ascertain, effective prevention of this type of crash must involve systemic treatments at all possible access points. The guidance included in this document builds upon the required and recommended treatments in Section 2B.41 of the MUTCD.
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REFERENCES:
- NYS Supplement to the MUTCD – Effective March 16, 2011

CONTACT: Direct questions regarding this TSMI to the Office of Traffic Safety and Mobility at (518) 457-0271.
Wrong-Way Driving Countermeasures at Interchange Exit Ramp Termini

Adjacent Ramps
(median less than 30')

NOTE:
1. Per the MUTCD, "the D13-3a sign may display alternate legend in place of FREEWAY, such as EXPRESSWAY or PARKWAY, as appropriate, or may display the name of an unnumbered highway."

Adjacent Ramps
(median greater than 30')

NOTE:
1. Per the MUTCD, "the D13-3a sign may display alternate legend in place of FREEWAY, such as EXPRESSWAY or PARKWAY, as appropriate, or may display the name of an unnumbered highway."
Wrong-Way Driving Countermeasures at Interchange Exit Ramp Termini

One-Way Ramps

Adjacent Ramps (no median)

Additional positive guidance signing may be included at this location if it has been determined, based on engineering judgment, that it is necessary.

NOTE:
1. Per the MUTCD, “the D13-3a sign may display alternate legend in place of FREEWAY, such as EXPRESSWAY or PARKWAY, as appropriate, or may display the name of an unnumbered highway.”
Adjacent Ramps
(Flush median with rail)

NOTE:
1. Per the MUTCD, "the D13-3a sign may display alternate legend in place of FREEWAY, such as EXPRESSWAY or PARKWAY, as appropriate, or may display the name of an unnumbered highway."
Wrong-Way Driving Countermeasures at Interchange Exit Ramp Termini

Mounting Heights

NOTE:
1. Per Std 645-03, the lateral clearance to the edge of the sign shall be as follows:
   a. For shoulders less than 6' wide, a 12' min. offset from the edge of traveled way is required.
   b. For shoulders 6' wide or greater, a 6' min. offset from the edge of shoulder is required.
   c. For curbed sections, a 2' offset (TYP) from the face of curb is required.