



# OHIO DEPARTMENT OF TRANSPORTATION

## INTER-OFFICE COMMUNICATION

Office of Roadway Engineering Services

**TO:** All Production Administrators, Highway Management Administrators and County Managers

**FROM:** Larry F. Sutherland, Administrator Office of Roadway Engineering Services  
**BY:** Monique R. Evans, Roadway Standards Engineer

**DATE:** May 30, 2000

**SUBJECT:** Bridge Terminal Assembly, Guardrail, and End Terminal Upgrades

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FHWA's requirement to install roadside safety features that meet NCHRP Report 350 crash test criteria on the National Highway System has prompted concerns regarding the practicality of upgrading existing non-compliant devices, particularly bridge terminal assemblies, on certain types of projects. The following information is provided to address these concerns.

Below is a current list of ODOT's standard bridge terminal assemblies:

- GR-3.1M      Bridge Terminal Assembly, Type 1      10-21-97  
Used to connect Type 5 Guardrail to the approach ends of concrete median barriers, deflector parapet bridge railings, and bridge sidewalk railings.
- GR-3.2M      Bridge Terminal Assembly, Type 2      10-21-97  
Used to connect Type 5 Guardrail to the trailing end of concrete barriers and bridge parapets.
- GR-3.3M      Bridge Terminal Assembly, Type 3      10-21-97  
Used to connect the approach and trailing ends of three-beam bridge railings to Type 5 Guardrail.
- GR-3.4M      Bridge Terminal Assembly, Type 4      10-21-97  
Used to connect Type 5 Guardrail to tubular backup railings.
- GR-3.5M      Bridge Terminal Assembly, Type 1, Barrier Design      10-21-97  
Used to connect Type 5 Barrier Design Guardrail or Type 1-98 Impact Attenuators to concrete median barriers.

At this time, none of these designs meet NCHRP Report 350 crash test criteria; however, several are scheduled to be tested this year in a regional pooled fund crash testing program.

FHWA has specified that these devices must meet Report 350 criteria by October 31, 2002. If the results of the pooled fund testing indicate that any of these designs will not meet the testing criteria by this deadline, then other options will be explored and subsequent guidance will be issued.

In addition to these standard construction drawings, plan insert sheets are available that detail old bridge terminal assemblies (Types C, D, E, F, G, H & J), which were used primarily with the old safety curb bridge railings. These bridge terminal assemblies are no longer intended for new construction but are available for limited use on rehabilitation projects.

The standard construction drawings and plan insert sheets are available on our website at [www.dot.state.oh.us/roadwayengineering](http://www.dot.state.oh.us/roadwayengineering).

#### Bridge Projects

- Section 304 of the Bridge Design Manual lists specific types of bridge projects that require railing upgrades. The existing bridge terminal assemblies attached to these bridge railings, in addition to the guardrail and end treatments shall be upgraded to current standards.
- Embankment should be included in the plans where needed to provide proper grading for the end terminals.
- When upgraded bridge railings are not required, a positive connection to the existing approach railing using one of the standard bridge terminal assemblies or one of the devices detailed on the plan insert sheets is required but no other railing work is necessary.

#### New Construction and Major Reconstruction Projects

- All railings and bridge terminal assemblies shall meet the requirements specified in the Location and Design Manual, Volume One, Section 600.
- Embankment should be included in the plans where needed to provide proper grading for the end terminals.

#### Guardrail Projects

- On these projects, the existing bridge terminal assemblies attached to the bridge railings, in addition to the guardrail and end treatments should be upgraded to current standards.
- Standard bridge terminal assemblies should be used where practical. If existing conditions are such that it is impractical to install one of the five standard bridge terminal assemblies or one of the devices detailed on the plan insert sheets, then consult this office for guidance.
- Embankment should be included in the plans where needed to provide proper grading for the end terminals.
- Guardrail projects should be coordinated with bridge projects to minimize construction and ensure optimum use of resources.
- No bridge railing upgrade is required, however, a positive connection to the existing approach railing using one of the standard bridge terminal assemblies or one of the devices detailed on the plan insert sheets is required.

#### Other Projects

Standard bridge terminal assemblies should be used where practical. If existing conditions are such that it is impractical to install one of the five standard bridge terminal assemblies or one of the devices detailed on the plan insert sheets, then consult this office for guidance.

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LFS:MRE

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