OREGON DEPARTMENT OF TRANSPORTATION TECHNICAL SERVICES

Section or Unit Name BULLETIN

SUBJECT	FINAL NUMBER	EFFECTIVE DATE	VALIDATION DATE	RESCIND DATE
Horizontal and Vertical Clearances for Large Loads on Interstate Freeways	RD05-01(B)	4/01/2005		11/23/2007
	WEB LINK(S) http://egov.oregon.gov/ODOT/HWY/TECHSERV/techguidance.shtml			
TOPIC/PROGRAM Highway Design Manual	APPROVED SIGNATURE Original signed by Tom Lauer, P.E. Roadway Engineering Section Manager			

ISSUE

Manufactured houses are now allowed to be 16’ wide and 16’-4” high. The current ODOT Design Standard for horizontal clearance is 16’ between barriers and 16’ for vertical clearance.

Revising design standards for horizontal and vertical clearances is critical since ODOT is entering into a large construction program to replace or repair many aging bridges on the Interstate facilities. These aging bridges are typically narrow and may not have adequate vertical clearance for the new loads.

DISCUSSION

Horizontal clearance standards needed to accommodate a 16’ width load are directly related to the curvature of the roadway. The standard crossover for traffic control during construction is limited to a 2 degree curve (2865’/875 m radius). Horizontal radius of our freeway system is limited to 3.25 degree curve (1765’/540 m radius) for flat and rolling terrain, and 5 degree curve (1145’/350 m radius) for mountainous terrain. The clear width between barriers will need to be increased only when traffic is constrained to a single lane due to construction as the two-lane width will accommodate the 16’ loads.

Based on the given constraints, a track width of 17’-0” was determined to be the maximum impact horizontally, within the maximum curvature specified. An additional foot of shy distance is included each side of the load, thus the required width of the horizontal clearance will be 19’-0”.

Vertical clearances need to accommodate a 16’-4” vertical load. Motor Carrier Transportation Division (MCTD) requires a minimum of an additional 4” for clearance. The resulting 16’-8” dimension is rounded to 17’-0” for vertical clearance. While 17’-0” is the existing standard for vertical clearance on 4R projects, we also require additional clearance for overlays. The Pavements Unit has agreed that we can limit this additional height to 6”, except above PCC (Portland Cement Concrete) pavement. In this case, they require the designer to discuss the appropriate clearance for the section with the Pavements Unit.

The current 3R standard is to try to maintain vertical clearance wherever possible, with 16'-0" minimum vertical clearance required. Maintaining an existing vertical clearance between 16'-0" and 17'-0", or reducing vertical clearance while still exceeding 17'-0" with the finished product, requires notifying MCTD. If an existing vertical clearance is being decreased, with the resulting clearance below 17'-0", then MCTD needs to be consulted during the design phase of the project. This standard will be maintained as is.

The recommended clearances are 19'-0" for horizontal, and 17'-6" for vertical on all projects, including during construction. Horizontal and vertical shy distance is inclusive with these clearance values. On projects where it would be difficult to maintain the clearances during construction, the Traffic Control Plan (TCP) designer shall identify an appropriate detour route, with the participation of MCTD. This will maintain existing freight mobility throughout the state, while improving the routes that currently don't meet this standard.

In addition to the above clearances, due to the notification agreements between MCTD and ODOT Maintenance, MCTD needs to be notified if the horizontal clear width is less than 22'-0".

ACTION

The standard horizontal clearance envelope will be a minimum of 19'-0" for interstate freeways. An additional two feet (2'-0") will be added to the horizontal clearance envelope to any obstacle that is 8'-0" or higher. The standard vertical clearance envelope will be 17'-6" for all new construction/reconstruction, inclusive of 0'-6" for future overlay. Where a structure crosses over PCC (Portland Cement Concrete) pavement, the designer will discuss the appropriate clearance with the Pavements Unit. For 3R, structures between 16'-0" and 17'-0" will at least maintain the existing clearance. For clearances less than 16'-0", raising the structure and/or lowering the roadbed will be considered.

Based on notification agreements between MCDT and ODOT Maintenance, MCTD will be notified if the horizontal clear distance is less than 22'-0".

The Highway Design Manual will be updated to reflect this new standard. The attachment to this bulletin will illustrate the concept. This will result in designs that accommodate the freight loads of the facility.

If you have any questions regarding this change, please don't hesitate to contact us.

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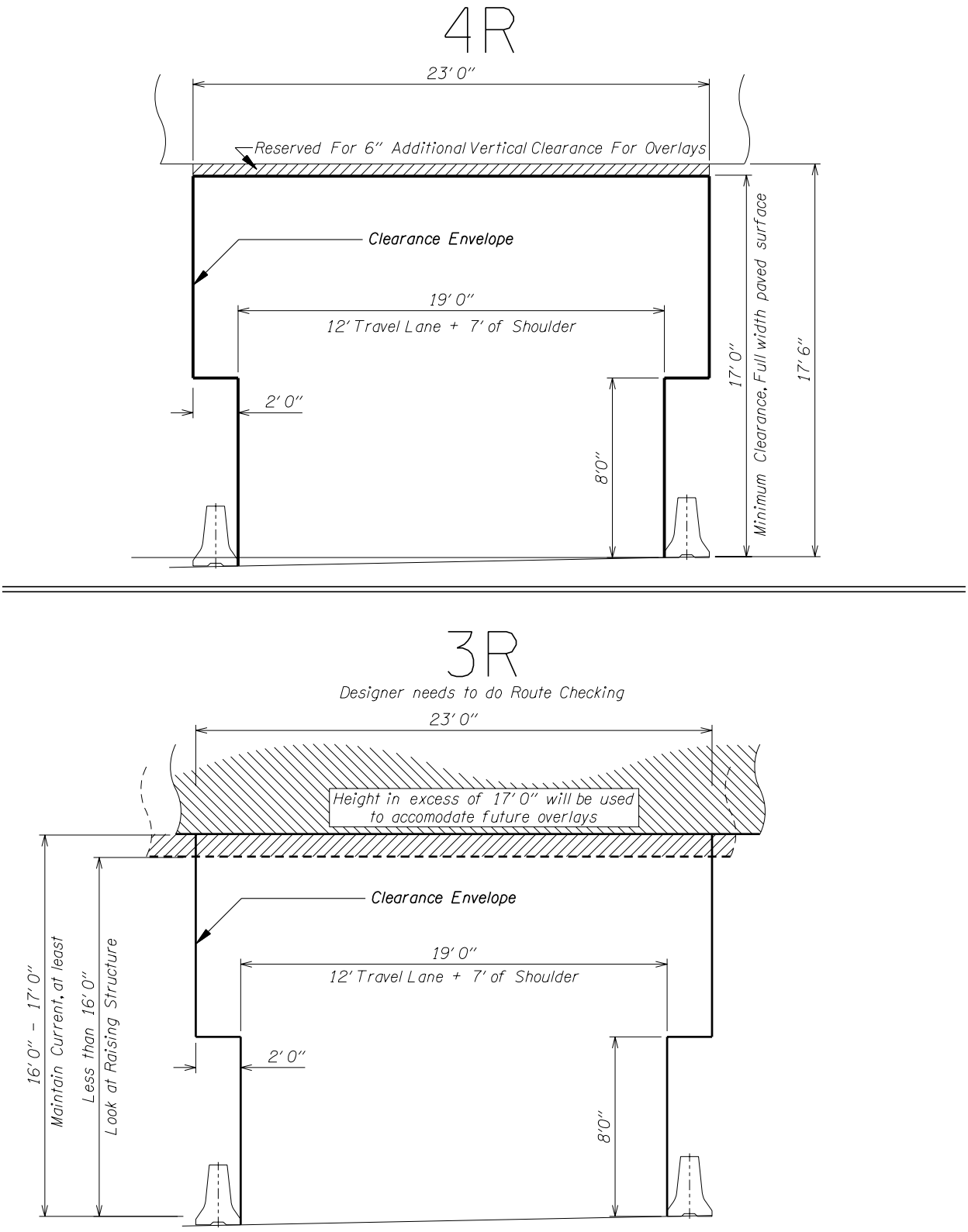

Clearance envelopes
for single lane Interstate