

Roadway and Overhead Structure Type	Pier Location	Pier to ETL Offset	Pier Protection Type	Collision Wall Requirement
TLTW, Single	Both Sides	≤ 16 ft	Guardrail w/ GP Trans.	Frame Bent Only
		>16 ft	Shoulder Guardrail	None
TLTW, Twin	Both Sides	≤ 16 ft	Guardrail w/ GP Trans.	Frame Bent & Pier Gap
		>16 ft	Shoulder Guardrail	None
4LD, Single or Tandem	Out-side	≤ 16 ft	Guardrail w/ GP Trans.	Frame Bent Only
		>16 ft	Shoulder Guardrail	None
4LD, Twin	Out-side	≤ 16 ft	Guardrail w/ GP Trans.	Frame Bent & Pier Gap
		>16 ft	Shoulder Guardrail	None
4LD, Single	Median Side	< 25 ft	R2 Attenuator	Frame Bent Only
		≥ 25 ft	ED Attenuator	Frame Bent Only
4LD, Twin	Median Side	< 25 ft	R2 Attenuator	Frame Bent & Pier Gap
		≥ 25 ft	ED Attenuator	Frame Bent & Pier Gap
4LD, Tandem	Median Side	≤ 16 ft	Guardrail w/ GP Trans.	Frame Bent Only
		>16 ft	Shoulder Guardrail	None

Note: TLTW = Two-Lane, Two-Way roadway; 4LD = 4 or more Lanes, Divided; ETL = Edge of Travel Lane; Pier = Pier or frame bent; ED = Energy Dissipation; R2 = Redirective on 2 sides; GP Trans. = Guardrail to bridge Pier Transition. Shoulder guardrail should be used only where all clearance requirements are satisfied; otherwise, guardrail with GP transition should be used.

PIER-PROTECTION REQUIREMENTS

Figure 49-8F