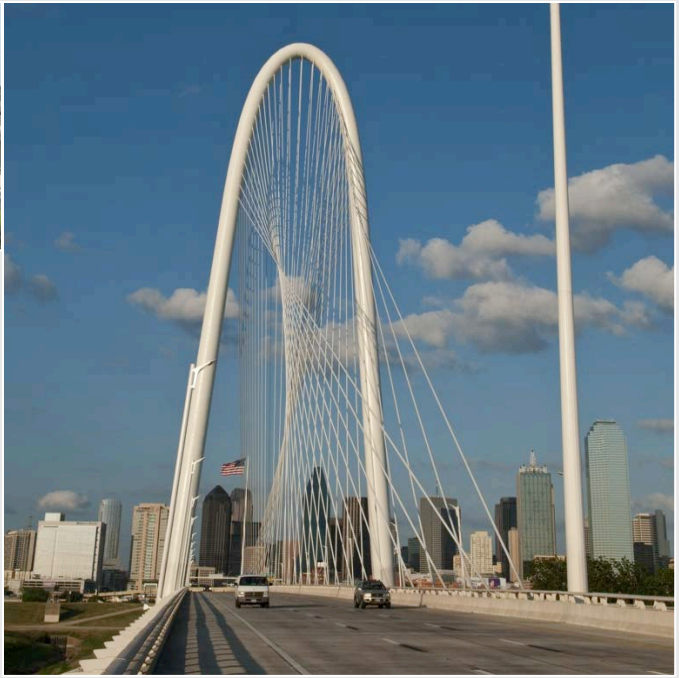


BRIDGE SAFETY

September 13, 2018

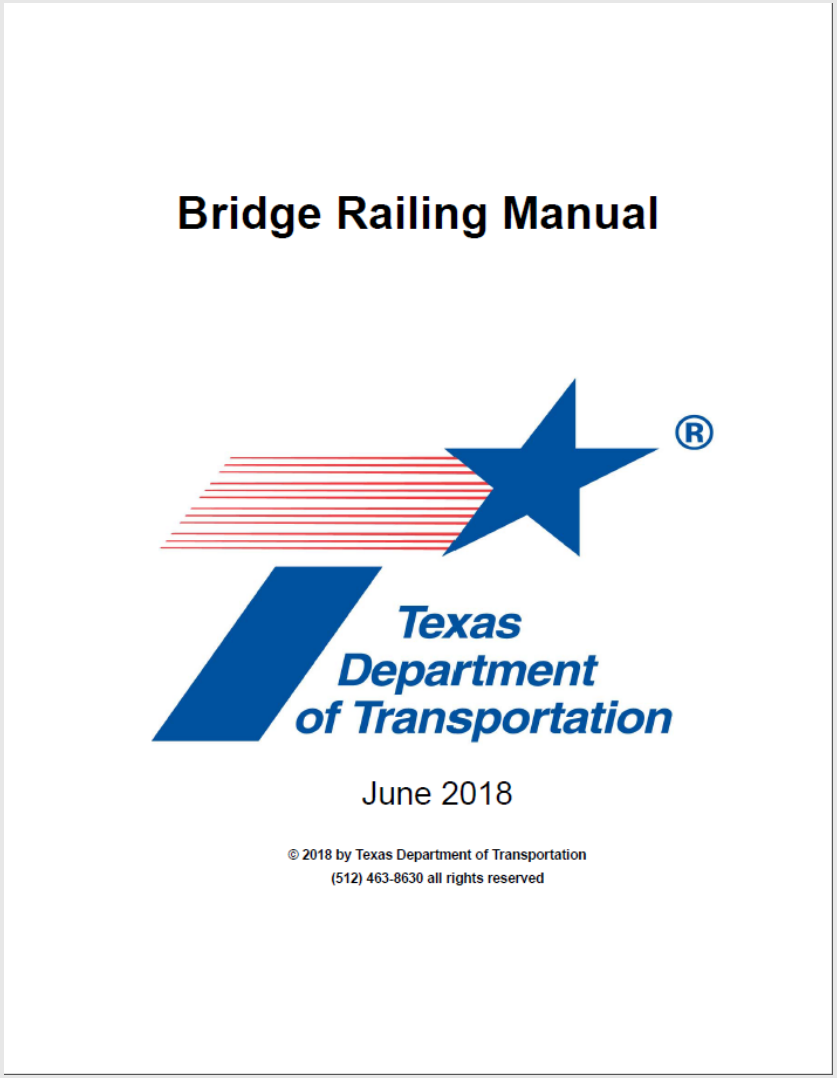
Table of contents

Design

- Design
  - Design per the TxDOT Bridge Design Manual-LRFD.
  - Identify the hazards. Design to mitigate the hazards. (*https://static.tti.tamu.edu/conferences/tsc13/presentations/struct.../retterer.pdf*)
    - Consider precast
    - Consider traffic
    - Consider utilities
    - Consider beam erection

Bridge Railing

- Bridge Railing Manual
  - Provides a list of approved bridge rails.
  - Provides a list of old rails that are still compliant.
- For letting starting January 2020, new rails must be MASH compliant.



Bridge Railing

- Speed - greater of the posted speed or design speed
  - > 50 mph must have railings that meet TL-3 criteria or greater.
  - < 45 mph must have railings that meet TL-2 criteria or greater.
- Protect the ends of bridge railing (MBGF transitions or crash cushions)
  - Exceptions are provided in the Bridge Railing Manual
- Protect the ends of bridge-class pipe and box culverts regardless of horizontal clearance (clear zone) by providing, in order of preference
  - safety end treatments
  - metal beam guard fence
  - bridge railing

Bridge Railing

- Retaining walls that are in-line with the edge of the bridge slab require bridge railing.
- Sidewalks
  - Railings on the outside edge of the bridge adjacent to a sidewalk must have a 42” height.
  - > 50 mph must have a separator rail
  - < 45 mph must have a raised sidewalk

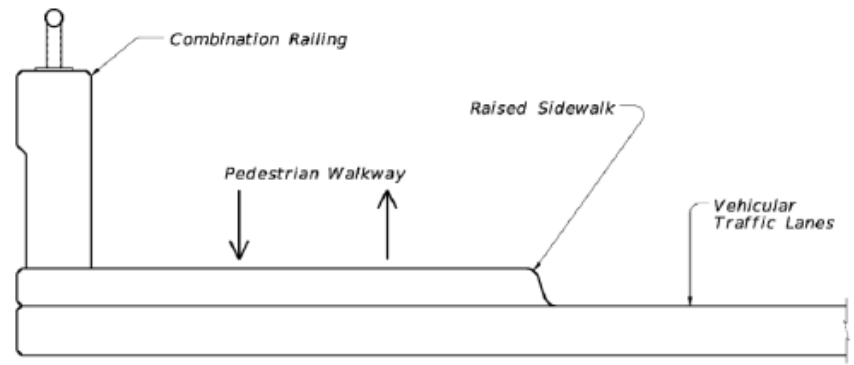


Figure B-2. Bridge railing for vehicular and non-vehicular traffic -- low speed

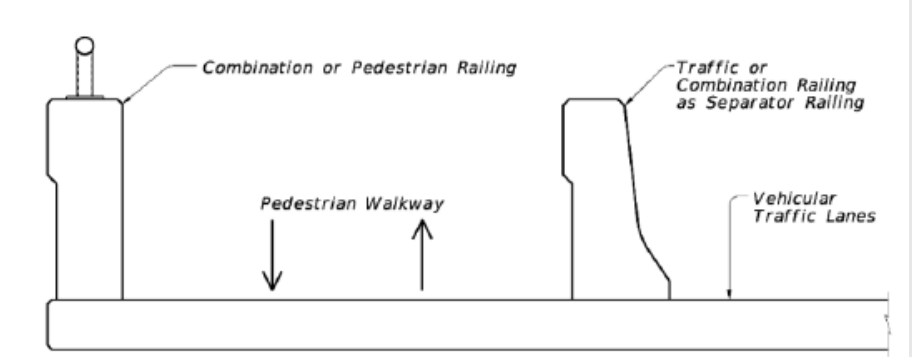


Figure B-3. Bridge railing for vehicular and non-vehicular traffic -- high speed

Pier Protection

- Considerations:
  - Protect the traffic from the bridge.
    - Roadway design using clear zone concepts.
    - Using MBGF or rigid rails and transitions or crash cushions to keep cars from impacting a blunt end (the column).
  - Protect the bridge from traffic.
    - Vehicular collision design.
    - Design for Pier Protection

Questions?

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