

# Design Exceptions

## Local Agency Bridge Projects

### Local Agency Programs Bridge Unit

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# Design Exceptions

When needed?

A design exception is required for any design element that does not meet the American Association of State Highway Transportation Officials' (AASHTO) guidelines.

# Design Exceptions

Most Common Elements:  
(all based on design speed)

- Lane and/or Shoulder Widths
- Horizontal Alignment & Superelevation
- Vertical Alignment

# “Minimum” Design Criteria (for design exceptions)

- ❑ 3R Guidelines
  - ❑ Shoulder Width based on Average Daily Traffic: 2.0 Feet to 6.0 Feet
  - ❑ Lane Width based on Average Daily Traffic: 9.0 Feet to 12.0 Feet
- ❑ “Minimum” Design Speed: 30 mph  
Unless the Posted Speed is Less

# Design Exception Process

- ❑ One Form for All Design Elements not meeting AASHTO guidelines
- ❑ Form Submitted by Designer with:
  - Traffic Crash Analysis (for safety)
  - Cost Analysis vs meeting AASHTO
- ❑ Reviewed by LAP's Bridge Unit

# Special Considerations

- ❑ Excessive Impacts to Environment
  - ❑ Areas of Excessive Cut and/or Fill
  - ❑ Major Impacts to Watercourse / Wetlands
  - ❑ Severe Impacts to Homes & Businesses
- ❑ The Designer Needs to Work With DEQ
- ❑ MDOT Depends on DEQ Review
- ❑ Special Consideration is Given When DEQ Finds a Design That Meets AASHTO or 3R Guidelines Environmentally Unacceptable

# Example Project: Huff Road over Pine Creek Manistee County

- ❑ To Meet Minimum 30 mph Design Speed
  - ❑ Raise Existing Roadway Grade by 15 Feet
  - ❑ Cut Back Hill in SW Quadrant
  - ❑ Construct Large Wall in NW Quadrant
  - ❑ Significantly Steepen Residential Driveway
  - ❑ Necessitated a 3 Span Structure



# Example Project: Huff Road over Pine Creek Manistee County

- ❑ Preliminary Drawings Created by Designer
  - ❑ 1 Set to DEQ for Review
  - ❑ 1 Set to LAP's Bridge Unit
- ❑ Due to Impacts, DEQ Permit Rejected
  - ❑ Designer Notified LAP's Bridge Unit
  - ❑ Special Design Minimums Considered

# Example Project: Huff Road over Pine Creek Manistee County

- ❑ Special Considerations Made
  - ❑ Design Speed: 20 mph
  - ❑ Reduced Bridge Length to 1 Span
  - ❑ Reduced Large Earth Fills and Cuts
  - ❑ Bridge to be Constructed with Minimal Impact to Watercourse
- ❑ Design Acceptable to DEQ, MDOT, and Manistee County

# Huff Road over Pine Creek



# Huff Road over Pine Creek NW Quad Retaining Wall



# Working Together

- ❑ Bridge Unit of LAP Responsible for Compliance of Federal Regulations and Ensuring Designs Meet AASHTO and/or 3R Guidelines
- ❑ Designs Also Need to Meet DEQ's Environmental Requirements

# Working Together

- ❑ Good Communication Between LAP's Bridge Unit, DEQ, and the Local Agency Helps Expedite the Design Process
- ❑ The Design Exception "Minimums" Can Be Adjusted for Site Specific Conditions
- ❑ Public Safety and Protection of the Environment are Key in an Acceptable Bridge Design

# Questions?

