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TRB Webinar: Tort Implications for Flexibility and Engineering Judgment

March 18, 2025

3:00 – 4:30 PM

PDH Certification Information

1.5 Professional Development Hours (PDH) – see follow-up email

You must attend the entire webinar.

Questions? Contact Andie Pitchford at TRBwebinar@nas.edu

The Transportation Research Board has met the standards and requirements of the Registered Continuing Education Program. Credit earned on completion of this program will be reported to RCEP at RCEP.net. A certificate of completion will be issued to each participant. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the RCEP.



CLE Credit Information

1.25 Continuing Legal Education Credits from the American Bar Association

You must attend the entire webinar

TRB did not seek approval for this workshop from the state board, we advise you contact your state board to see if credit would be accepted

See email following webinar for the certificate to provide to your board

Purpose Statement

This webinar will explore the legal implications of using flexibility in engineering decision-making. Presenters will discuss the engineering perspective on flexible design principles and engineering judgment, legal considerations related to their application, and how these concepts can be incorporated into traffic and traffic operations.

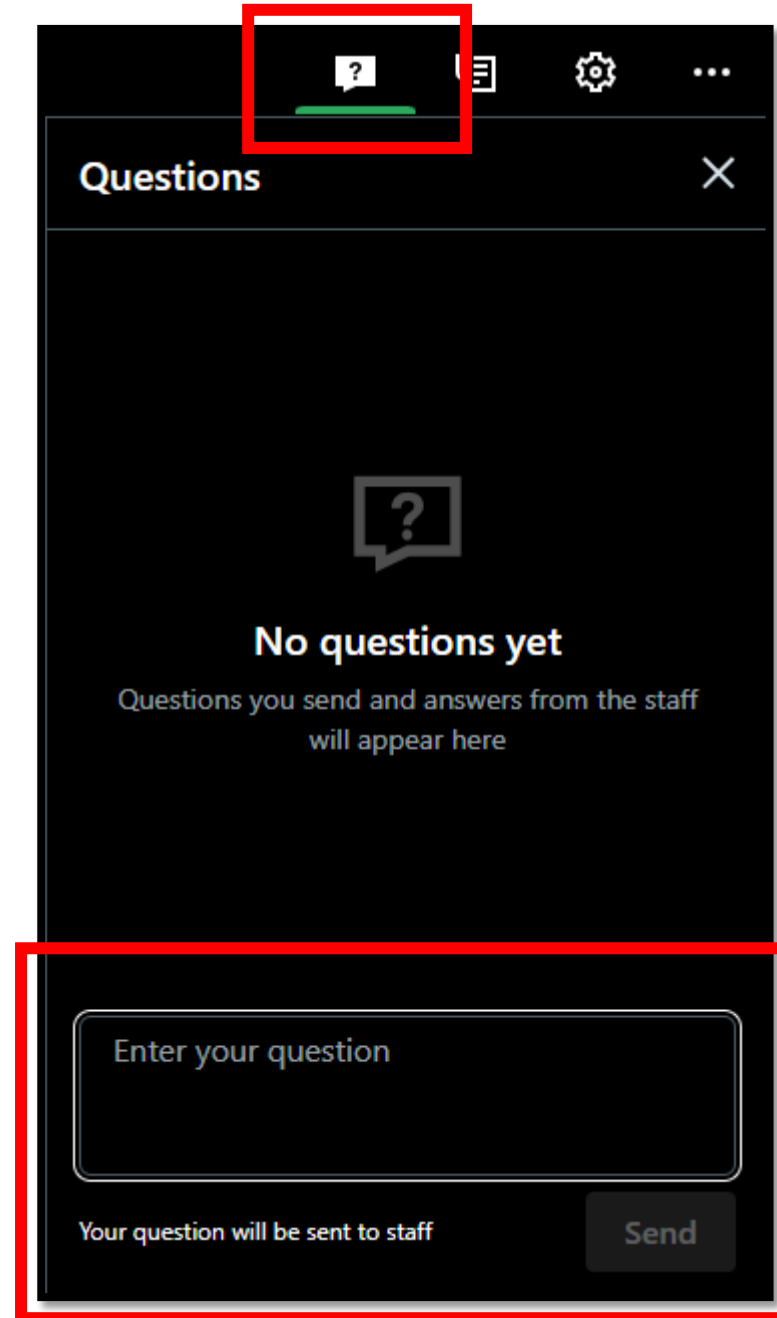
Learning Objectives

At the end of this webinar, participants will be able to:

- Clarify the legal implications of engineering flexibility and judgement

Questions and Answers

- Please type your questions into your webinar control panel
- We will read your questions out loud, and answer as many as time allows



Today's presenters



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Terri Parker
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TORT IMPLICATIONS FOR FLEXIBILITY AND ENGINEERING JUDGMENT

An Engineer Perspective

| Timothy Belcher, P.E. – Assistant Northern Virginia District Location & Design Engineer March 18, 2025

Agenda for This Session

- **What is Engineering Judgment?**
- **Basis of Decisions**
- **Practical/Flexible Design**
- **Design Variances**

- **Learning Objectives:**
 - **Understand that design flexibility is *necessary* due to the case-by-case nature of transportation projects**
 - **Identify resources available to help to support engineering judgment.**

What is Engineering Judgment?

- **Office of Personnel Management (OPM)**
 - “Professional work involves exercising discretion, analytical skill, judgment, personal accountability, and responsibility...”
- **National Council of Examiners for Engineering and Surveying (NCEES)**
 - “...practice in a manner that safeguards the health, safety, and welfare of the public.”
- **Manual of Uniform Traffic Control Devices (MUTCD) Section 1C.02**
 - “the evaluation of available pertinent information including, but not limited to, the safety and operational efficiency of all road users, and the application of appropriate principles, provisions, and practices as contained in this Manual and other sources, for the purpose of deciding upon the design (see Section 1D.03), use, installation, or operation of a traffic control device.”



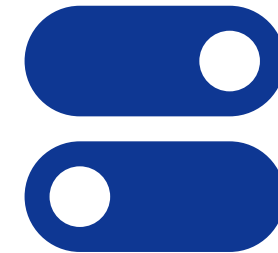
What is Engineering Judgment?

- **Virginia Administrative Code 18VAC10-20-690**
 - **“The regulant [professional engineer] shall recognize that the health, safety, and welfare of the general public are dependent upon professional judgments, decisions, and practices.”**
- **In summary, it:**
 - **Considers the health, safety, and welfare of the general public,**
 - **Requires analysis and evaluation,**
 - **Takes personal accountability and responsibility.**
 - ...although building upon the experience of others is valuable!



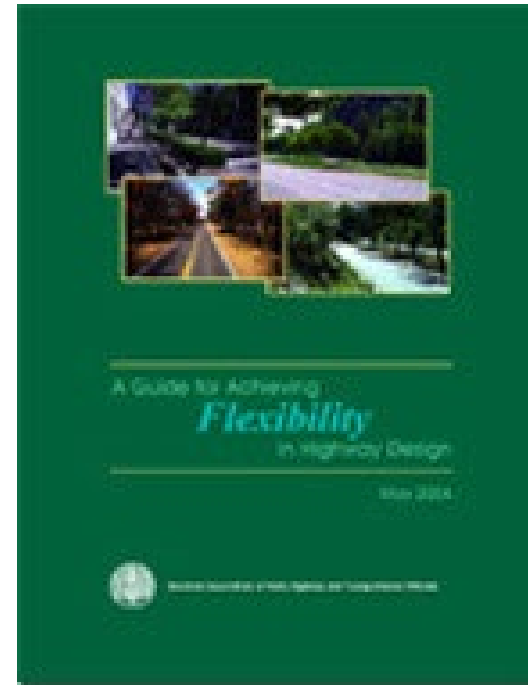
Basis of Decisions

- **Is there a good reason why accepted guidance cannot be met?**
- **Why is the decision to differ from generally accepted guidance still a good idea?**
- **What is the crash history and what effect would this decision have on safety?**
- **Can we provide sufficient measures/strategies to enhance the design?**
- **Is the different analysis and justification appropriate for a spot location versus a corridor?**

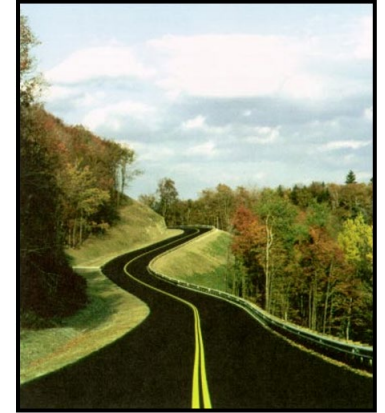


Practical / Flexible Design

- **FHWA Flexibility in Highway Design**
(<https://www.fhwa.dot.gov/environment/publications/flexibility/flexibility.pdf>)
- Introduction says, *“The setting and character of the area, the values of the community, the needs of the highway users, and the challenges and opportunities are unique factors that designers must consider with each highway project.”*
- **AASHTO Flexibility in Highway Design**
(<https://store.transportation.org/Item/PublicationDetail?ID=103>)



Flexibility in Highway Design




U.S. Department of Transportation
Federal Highway Administration

Context Sensitive Solutions

- **Context Sensitive Solutions (CSS) –**
(<https://www.fhwa.dot.gov/planning/css/>)
- **FHWA Definition – “a collaborative, interdisciplinary decision-making process and design approach that involves all stakeholders to develop a transportation facility that fits its physical setting”**

**US Route 460/Southgate Drive Interchange
– Virginia Tech/Blacksburg, VA**



Performance Based Practical Design (PBPD)

- **FHWA**
 - **“PBPD can be articulated as modifying a traditional design approach to a ‘design up’ approach where transportation decision makers exercise engineering judgment to build up the improvements from existing conditions to meet both project and system objectives. PBPD uses appropriate performance-analysis tools, considers both short and long term project and system goals while addressing project purpose and need.”**



Virginia Policy on Flexible Design/CSS/PBPD

VIRGINIA DEPARTMENT OF TRANSPORTATION

LOCATION AND DESIGN DIVISION

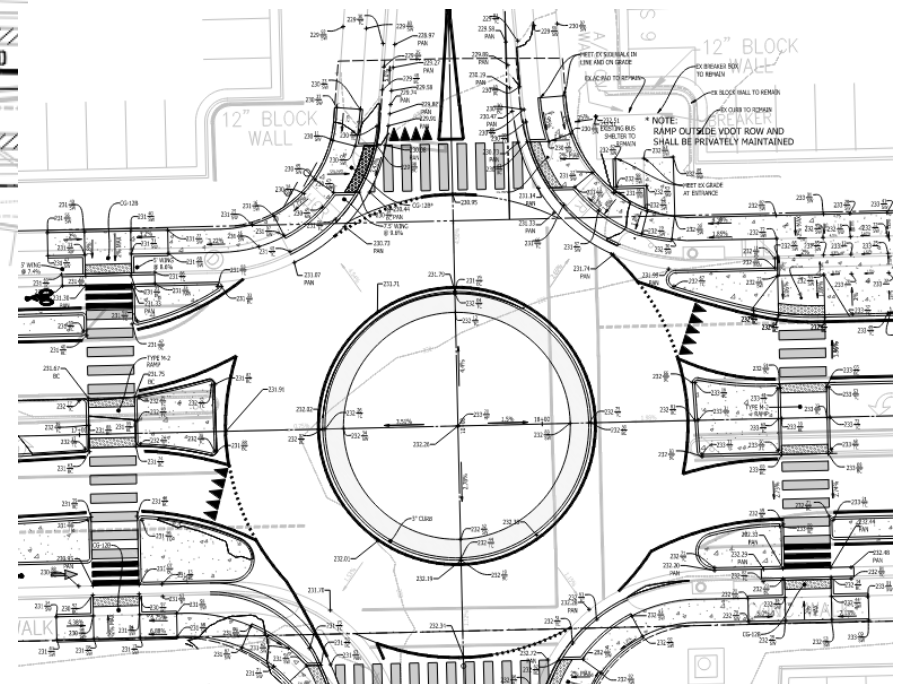
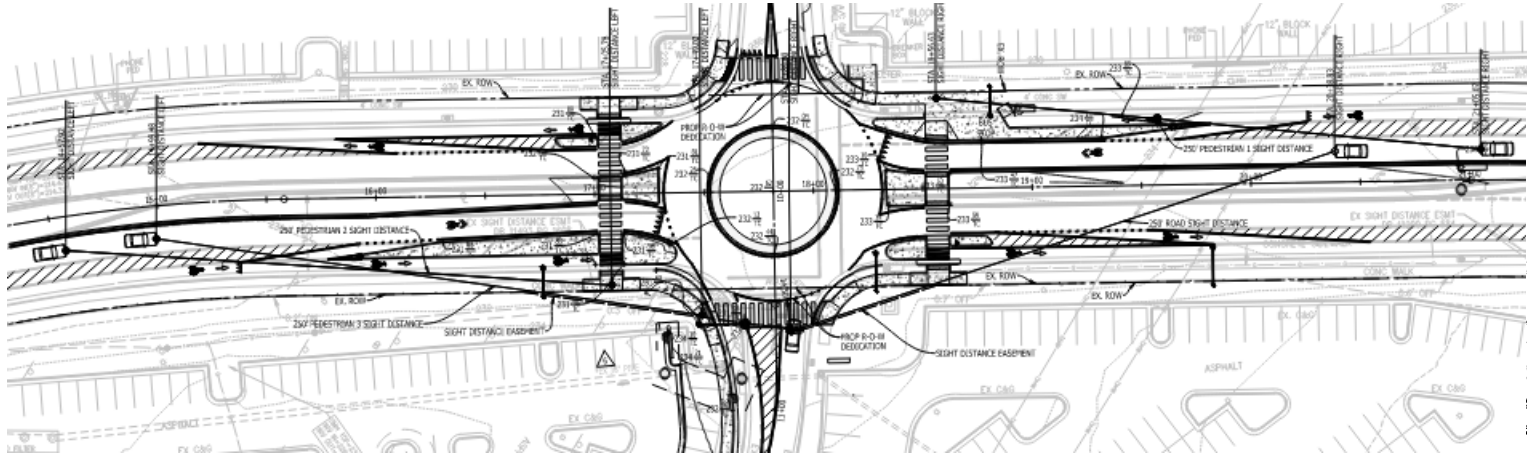
INSTRUCTIONAL AND INFORMATIONAL MEMORANDUM

GENERAL SUBJECT: Context Sensitive Solutions (CSS)	NUMBER: IIM-LD-235.5
SPECIFIC SUBJECT: Performance Based Practical Design (PBPD) and Context Sensitive Solutions to Transportation Challenges	DATE: September 29, 2023
	SUPERSEDES: IIM-LD-235.4
APPROVED:	Emmett Heltzel, P.E. State Location and Design Engineer Approved September 29, 2023

- Virginia Policy is found in Informational & Instructional Memorandum IIM-LD-235 (https://www.vdot.virginia.gov/media/vdotvirginiagov/doing-business/technical-guidance-and-support/technical-guidance-documents/location-and-design/migrated/iim/IIM235_acc11012023_PM.pdf)
- This policy memorandum covers all the previous topics discussed.

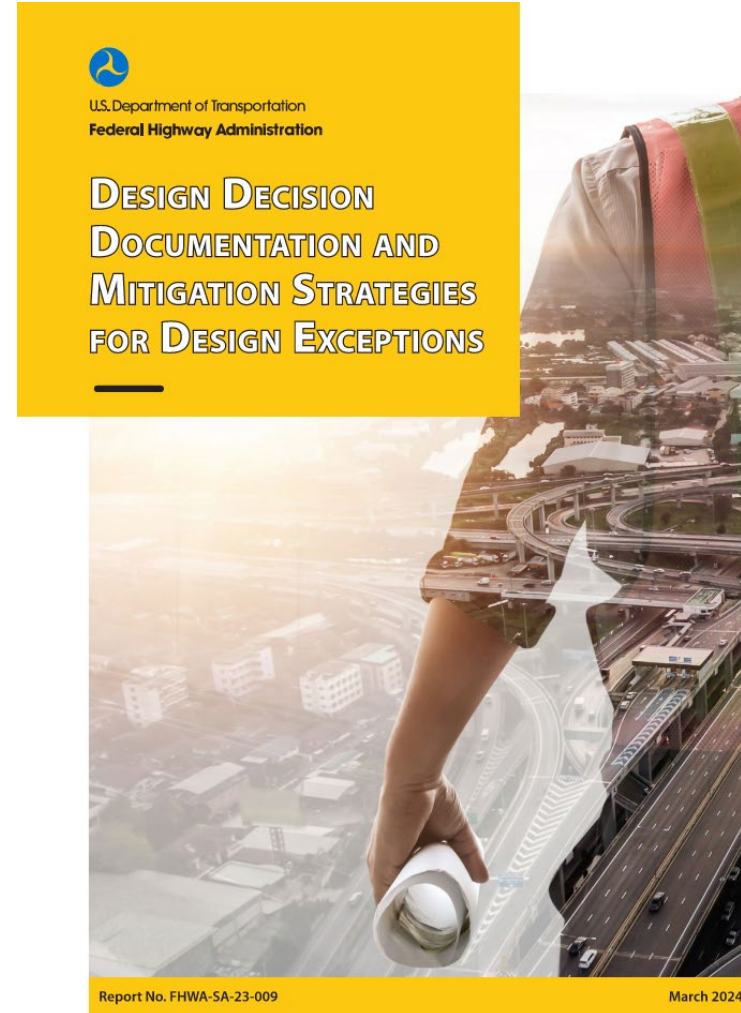
Example of CSS / PBPD

- Private development project for Inova Hospital in Springfield, Virginia
- No power of eminent domain, so had to stay within existing right-of-way
- Convert existing four-lane intersection to roundabout



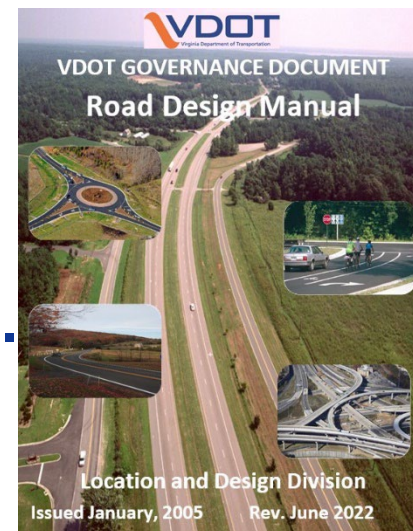
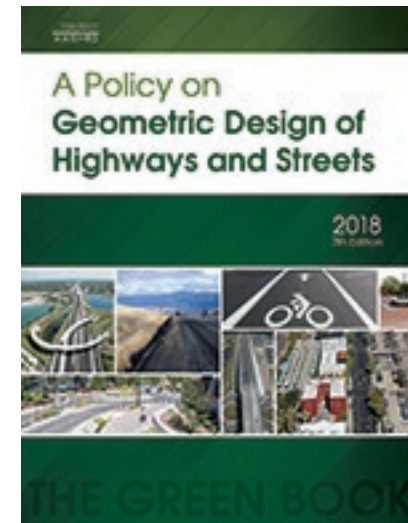
Design Variances

- It is deliberate decision based on a specific set of factors.
- Process to use engineering judgment to ensure that guidance is applied in the proper context.
- ***FHWA 2024 Design Decision Documentation and Mitigation Strategies for Design Exceptions***
 - Provides a list of complementary treatments/betterments
 - https://highways.dot.gov/sites/fhwa.dot.gov/files/Design%20Exceptions%20Mitigation_Strategies%20Guide_508.pdf



Virginia Policy on Design Variances

- Policy is outlined in memorandum IIM-LD-227 (https://www.vdot.virginia.gov/media/vdotvirginiagov/doing-business/technical-guidance-and-support/technical-guidance-documents/location-and-design/migrated/iim/IIM227_acc.pdf):
- In GENERAL:
 - Design criteria that does not meet the AASHTO “Green Book”, is a Design Exception (DE).
 - Design criteria that meets the “Green Book”, but not the VDOT Road Design Manual (RDM) is a Design Waiver (DW).
- Approval Authority (also in IIM-LD-227):
 - DE signed by District, Central Office, and sometimes FHWA.
 - DW signed by District with sometimes Central Office or FHWA concurrence.



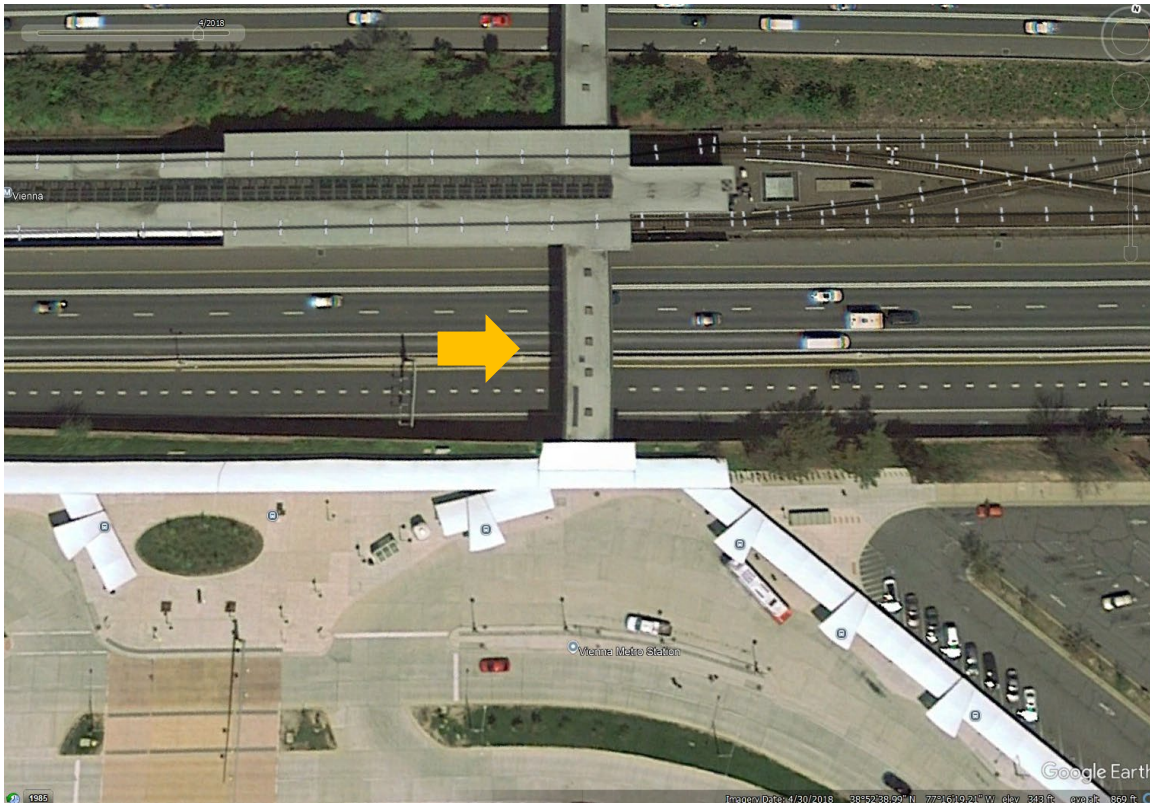
Example on Design Variances – Transform I-66 Project

- **22.5-mile, \$2+ billion project to add express lanes to I-66 in Northern Virginia**
- **This segment was four existing through lanes to five proposed through lanes**
- **Pre-construction picture from 2016 shown at Nutley Street Interchange**



Example on Design Variances – Transform I-66 Project

- Needed space for one additional lane I-66 Eastbound at Nutley Street under pedestrian bridge to Metro station
- Vienna is the terminal Orange Line station serving 3,800+ per weekday



Example on Design Variances – Transform I-66 Project



- Completed picture from 2024 shown
- Purpose of this example is to demonstrate justifying reasoning for our design decisions





Tort Implications for Flexibility and Engineering Judgment

Nicole Hood
Highway Safety and Traffic Engineer



Engineering Judgment AND FLEXIBILITY

- Design and operations perspective
- Practical experience
- Decision making process
- Constraints
- Examples



Why a Shared 4-Lane?

- Design alternative
- Safety
- Traffic growth
- 4-lane highway is desirable but sufficient funds are not available
- Environmental concerns make provision of a 4-lane facility infeasible



DECISION MAKING PROCESS

- Conduct research
- Consider design elements
 - Typical section
 - Median barrier
 - Signing
 - Striping



SHARED 4-LANE

- Retrofitted Shared 4-Lane
 - Various lane/shoulder widths
 - Limited access management
 - Non-continuous passing
- In-Service Performance



BEFORE



AFTER

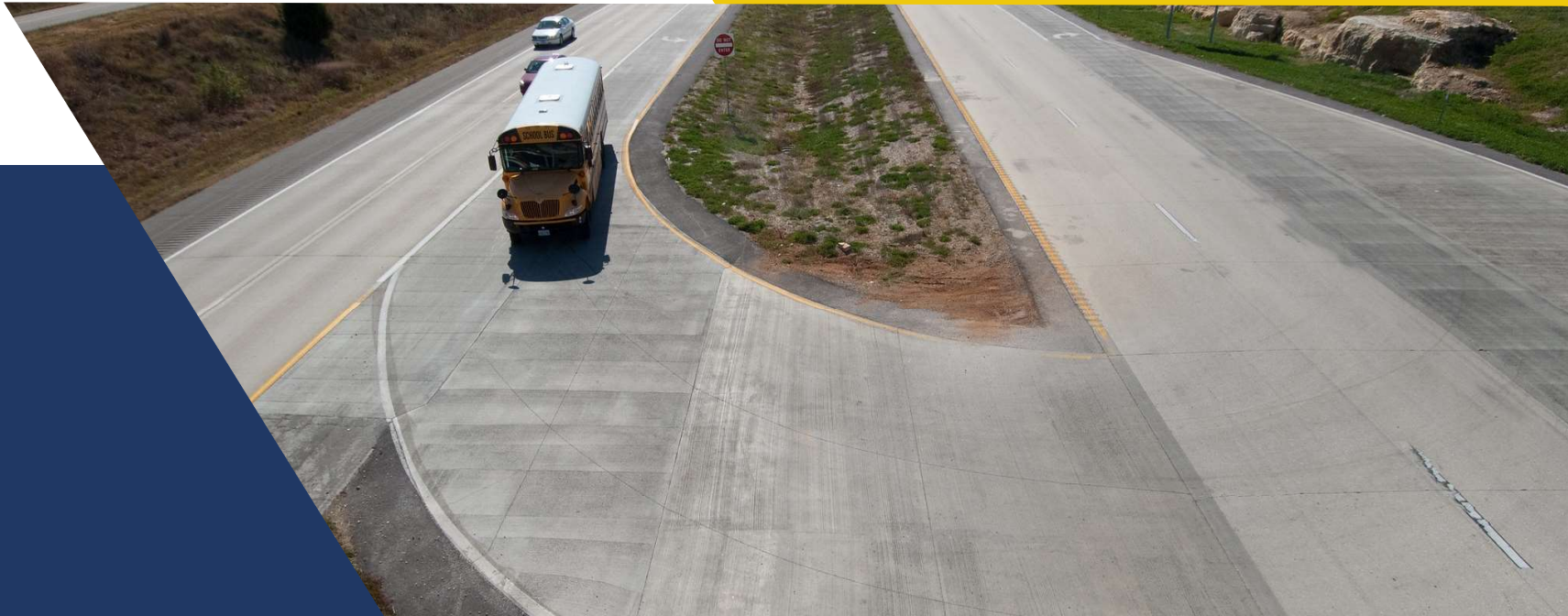
J-TURNS

- Reduce right angle crashes



J-TURNS

- Practical experience
- Do the right thing



Flexibility and Engineering Judgment

- Demonstrate due diligence
- Make observations, be flexible
- Continue learning – practical experience
- Fulfill professional expectations as an engineer



Tort Implications for Flexibility and Engineering Judgment

Terri Parker, Chief Counsel

Missouri Highway and Transportation Commission

JURIES
LOVE
RULES

JURIES LOVE TO HEAR THAT
WE HAVE RULES AND THAT
WE FOLLOWED THEM

YOUR LAWYER LOVES TO
HEAR THAT YOU
FOLLOWED THE RULES

How do we
successfully
defend a claim ?

We know the rules

We followed the
rules



Legal Phrases and Concepts

The basis of a tort claim against a governmental agency is an allegation of a dangerous condition of property. Two concepts are almost always involved:

A “reasonably safe” road – can be shown by evidence of compliance with generally accepted industry guidance

Notice – did the agency know in time to fix or warn of the condition ?



Our Rules

Roadside Design Guide

Green Book

MUTCD

Highway Safety Manual

Engineering Judgment

Engineering Judgment is not issued along with an engineering degree.

It must be developed over time and is based on the individual's education and professional experiences. Those experiences may include field work such as construction inspection, review of sight distances, field work with maintenance professionals, classroom study and practical design work.



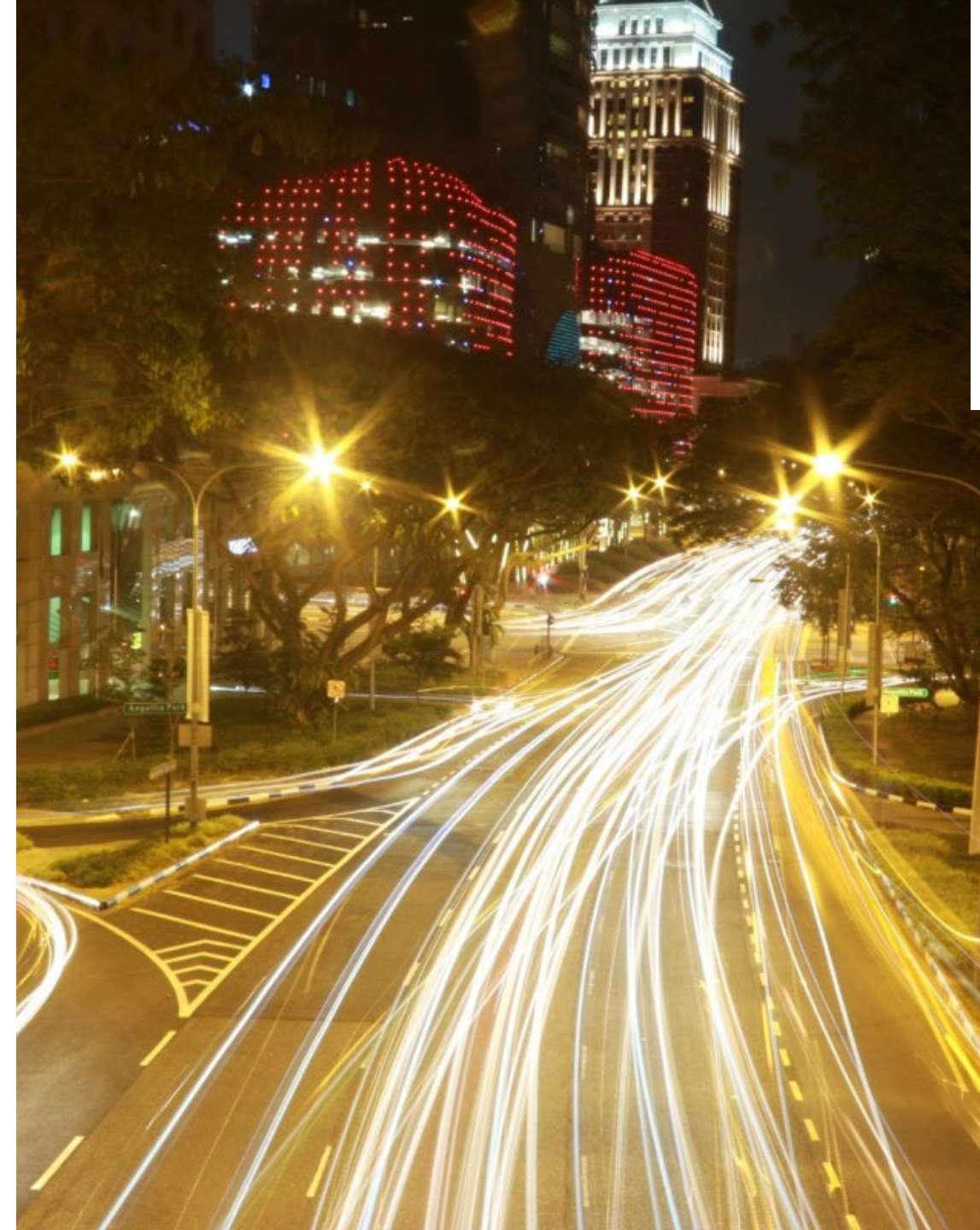
Roadside Design Guide excerpts

This book is a guide. It is not a standard, nor is it a design policy.

This guide is intended to represent the spectrum of commonly available roadside design alternatives.

This guide is not intended to be used as a standard or policy statement.

Knowledgeable design, practically applied at the project level, offers the greatest potential for a continually improved transportation system.



GREEN BOOK QUOTES

The fact that new design values are presented herein does not imply that existing streets and highways are unsafe, nor does it mandate the initiation of improvement projects.

The intent of this policy is to provide guidance to the designer by referencing a recommended range of values for critical dimensions.

A properly equipped and maintained vehicle and reasonable prudent performance by the user are also necessary for safe and efficient operation of the transportation facility.

The information presented in this guide is intended to empower designers and transportation professionals to make knowledgeable decisions about the most appropriate engineering applications on individual projects. By gaining a comprehensive understanding of the spectrum of available roadside design alternatives, engineers can assess the suitability and feasibility of alternatives when addressing specific road conditions. The guidance provided in this resource equips engineers with the tools to evaluate potential tradeoffs such as cost effectiveness and long-term performance of different design alternatives. However, no attempt is made or implied to provide every single design technique or technology for roadside improvements. There is no such thing as “absolute safety” notwithstanding efforts by public officials to maintain, improve and operate roadway facilities to the highest level that public funding allows. There is risk in all highway transportation, due to the variability of user behaviors, environmental conditions, and other factors



Documentation is the
Key to a Successful
Defense-

explain your thought
process – here's how
we followed the rules



Liability Neutral Language is Our Friend

Consider the difference in the implications of these two phrases:

Where hazards are within the clear zone, guardrail or barrier wall shall be provided at least 6 feet off the traveled way.

VS.

Where objects are within the clear zone, guardrail or barrier wall should be considered.

The following list of words is comprehensive, but does not include all the words that can create unintended liability or responsibility for an agency:

Better	Insufficient
Clearly	Is needed
Concern	Mandatory
Danger/Dangerous	Obstacle
Deficient	Poor
Edge/Shoulder Drop off	Problem
Ensure	Require
Essential	Risk/Risky
Excessive	Shall
Hazard	Should
Hot Spot	Trap
Imperative	Unsafe
Inadequate	Worse

Choose Each Word Carefully

Use liability neutral language

Juries will
not be kind
to you if you
don't follow
your own
guidance.

- A conflict between written guidance and the application of the guidance in the field will usually be resolved in favor of the plaintiff rather than the DOT. Example – guidance says repair within 24 hours, practice in field varies considerably.
- Language must match the practices in the field and instructions should be written so all employees can understand and interpret.



Potential liability for context sensitive designs?

- Consultant employee?
- Government Agency employee ?
- Insurance coverage – professional liability coverage
- Compliance with “generally accepted industry practices”

Immunities for the engineer

- Governmental Employee – usually enjoys immunity except for in very rare cases of gross negligence
- Consultant – while the consultant doesn't enjoy statutory immunity, it still has protections such as discussion with and acceptance by the owner and professional liability insurance
- Remember the concept of notice. If agency is aware of need to calm traffic in a particular location, that “awareness” is notice.



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Protections Under 23 U.S.C. § 407

Studies that contain information that an agency has gathered to evaluate highway safety appurtenances may be helpful to the agency in identifying areas that require attention such as improperly placed guardrail posts or guard cable which has not been properly maintained

23 U.S.C. § 407 provides for the protection of reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railroad-highway crossings

This law provides that the data gathered for these purposes shall not be subject to discovery or admitted into evidence in a court proceeding arising from an occurrence at a location that is mentioned or addressed in those reports, surveys, schedules, lists, or data

Safety studies in the custody should not be published or allowed into the public domain

Where to include this information?

- Watermark on reports or studies
- Text at the bottom of each page of report
- Admonishment on databases that are shared with public partners, contractors, consultants
- Possibly in correspondence
- Emails

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Upcoming events for you

64th Annual Workshop on Transportation Law

<https://trb.secureplatform.com/a/page/transportationlaw>

Conference



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Workshop on Transportation Law

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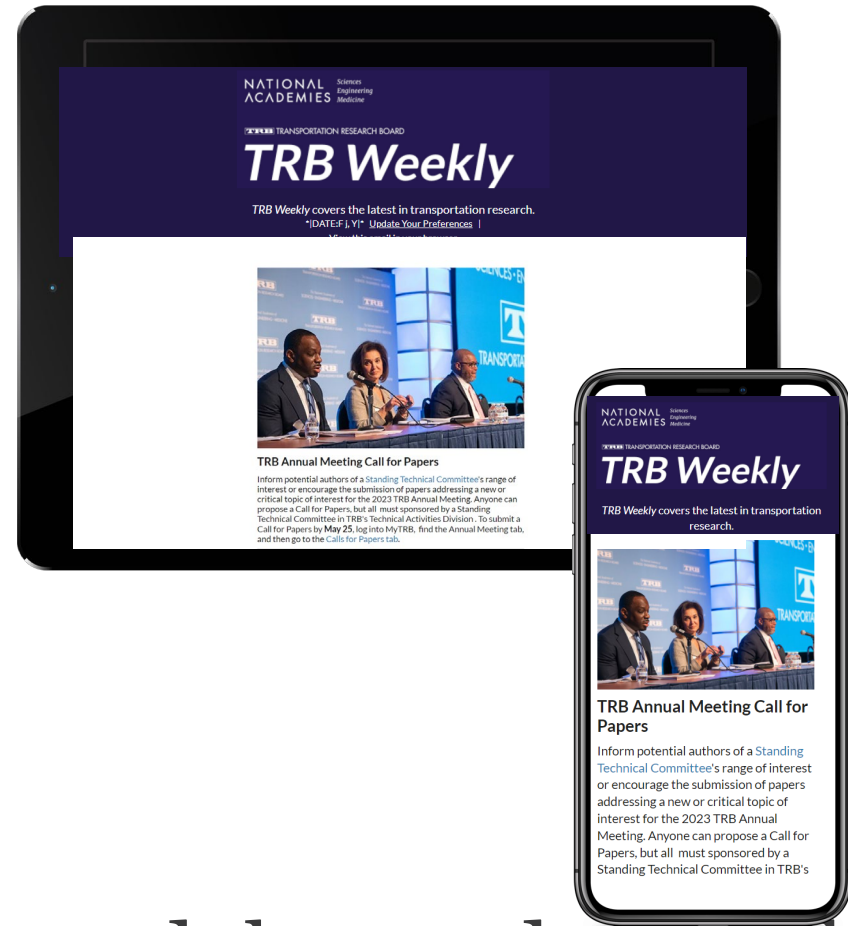
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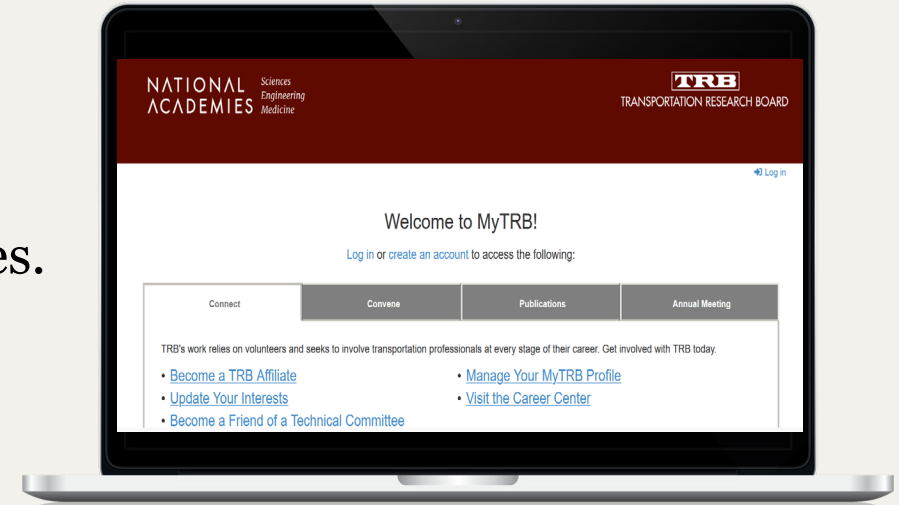


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