




***Temporary Traffic  
Control Design  
Specialist  
(For Traffic Control  
Supervisors)  
Training Course***



# ***About This Course***

 This material is based upon work supported by the Federal Highway Administration (FHWA) under grant agreement No. DTFH61-06-G-00004



***Developed & Presented by***

***American***

***Traffic***

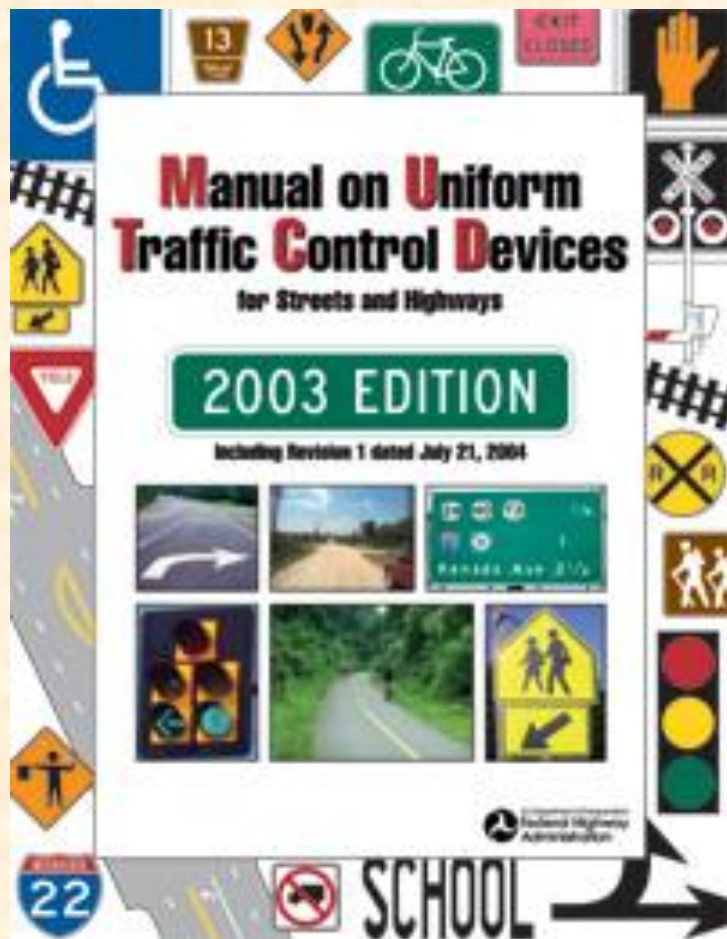
***Safety***

***Services***

***Association***



# ***About this course***



- ◆ Based on the 2003 Edition of the ***Manual on Uniform Traffic Control Devices***
- ◆ Intended for Traffic Control Supervisors and others responsible for designing of Traffic Control Plans (TCP)



# ***About this course***

- ◆ Requires TCS certification
- ◆ If you do not have it, there is a two-day course available
- ◆ TCDS certification available



# ***TCDS Certification for Supervisors Available***

- ◆ Must be applied for separately
- ◆ Application form included in course materials



# ***TCDs Certification Requirements***

- ◆ TCS certification in good standing
- ◆ 80% or better on this course's test
- ◆ One year (2000 hours) work zone design experience
- ◆ Provide two references
- ◆ Be approved by the ATSSA Certification Board



# ***About this course***

- ◆ One-day course
- ◆ Three workshops
- ◆ Ends no later than 5:00 PM



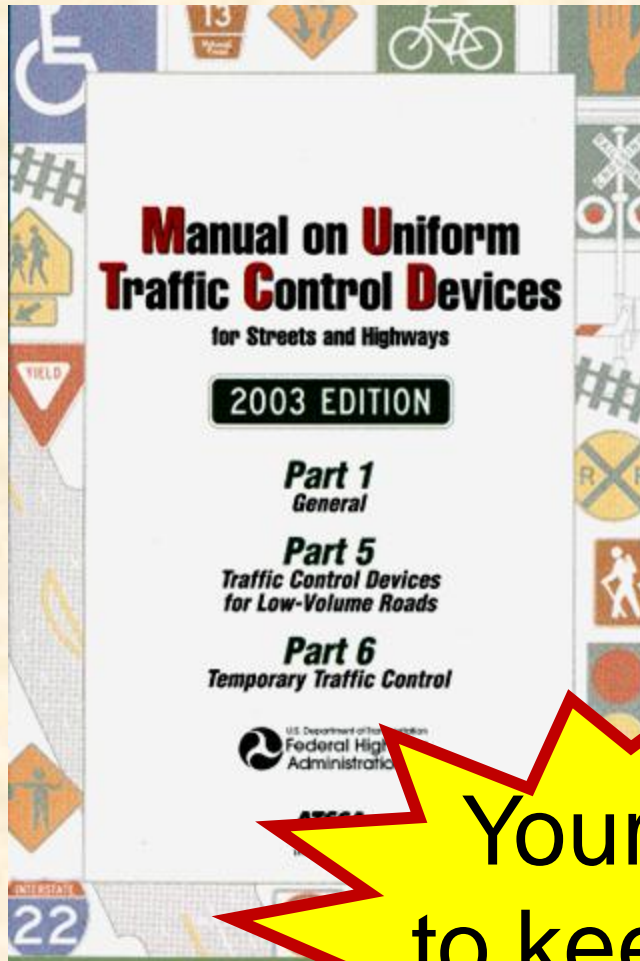
**Flexible  
schedule!!**



# ***Upon completion, you will be able to:***

- ◆ Recognize the design elements of work zone traffic control
- ◆ Apply these to real-world scenarios
- ◆ Design basic traffic control plans
- ◆ Know techniques and procedures for designing effective, efficient and safe TCPs

# Course Materials



- ◆ Course notebook
- ◆ MUTCD (Parts 1, 5, 6)
- ◆ Pencil
- ◆ Tent name sign

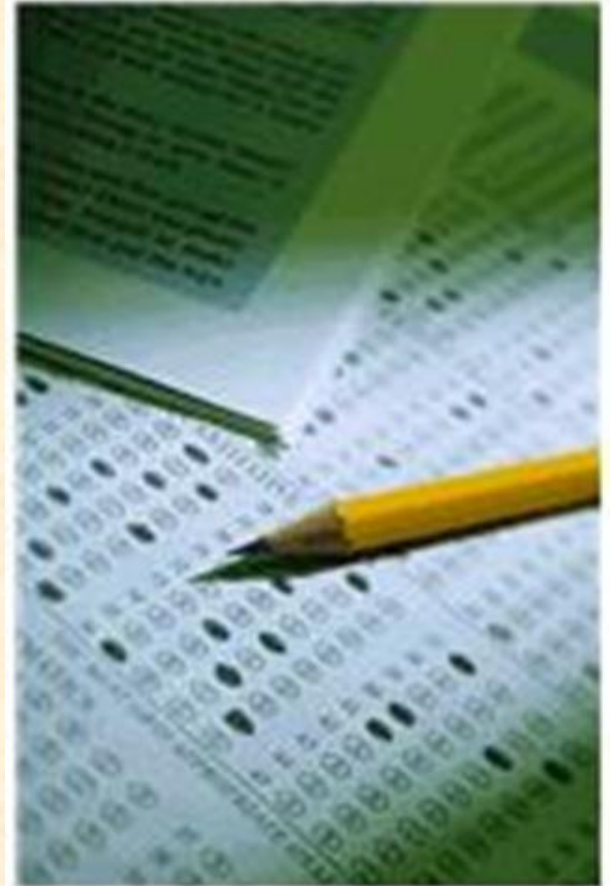
Yours  
to keep!

# ***Course Schedule***

<b>1</b>	Introduction
<b>2</b>	Preliminary Design Concepts
	<b>WORKSHOP 1</b>
<b>3</b>	TTC Design Strategies
	<b>WORKSHOP 2</b>
<b>4</b>	Roadside Design
<b>5</b>	Traffic Control Plan
	<b>WORKSHOP 3</b>
<b>6</b>	Other Considerations
	Closing (EXAM)

# ***Exam***

- ◆ **40 multiple choice questions**
- ◆ 2.5 pts each = 100 pts
- ◆ 60 minutes
- ◆ Open book, open notes
- ◆ Passing grade = 80%





# ***-MODULE 1- Introduction***



# ***Module Objectives***

- ◆ Define work zone traffic control and its impact on safety and mobility
- ◆ Discuss the designer's role in proper work zone traffic control
- ◆ Discuss Transportation Management Plans (TMP)
- ◆ Discuss the source of TTC standards and guidelines

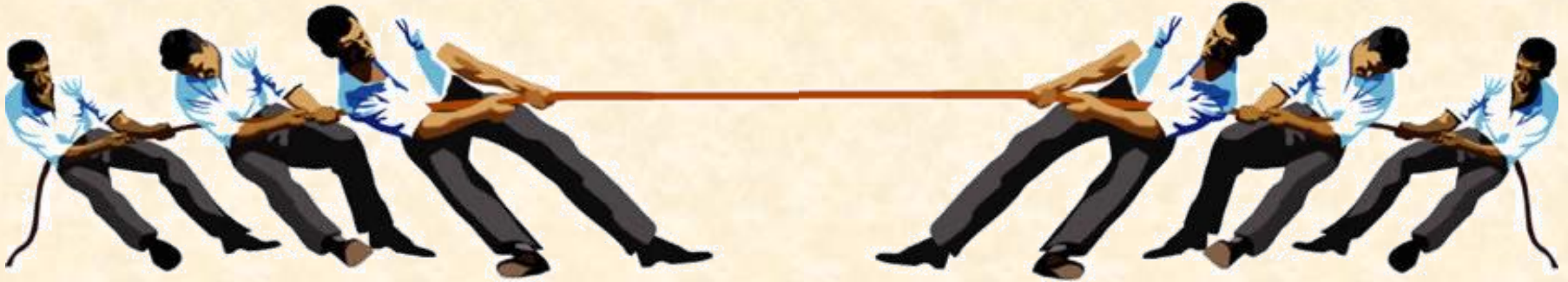
# ***The Positive Side of Work Zones***

- ◆ Better infrastructure
- ◆ Safer roads
- ◆ Added capacity
- ◆ Improved mobility



***Work zones resulted on the  
highways we have today!***

# ***Conflicting goals?***



- Maintain traffic flow
- Keep costs down

Maximum levels  
of safety

***TTC impact on traffic flow is important,  
but not at the expense of safety!***

# ***The Designer's Role***



To consider **ALL** factors and **ALL** users involved, the standards and guidelines, and apply engineering judgment to develop the **BEST** possible **Traffic Control Plan**



# ***What is a "Significant Project"?***



Projects that alone or in combination with other concurrent projects nearby, are anticipated to cause ***sustained work zone impacts*** that are greater than what is considered tolerable based on State policy and/or engineering judgment.



# ***What is a Traffic Control Plan?***

- ◆ A plan that addresses traffic safety and control through the work zone
- ◆ Consistent with the complexity of the project
- ◆ Consistent with MUTCD, Roadside Design Guide, and state standards
- ◆ Adjusted to field conditions

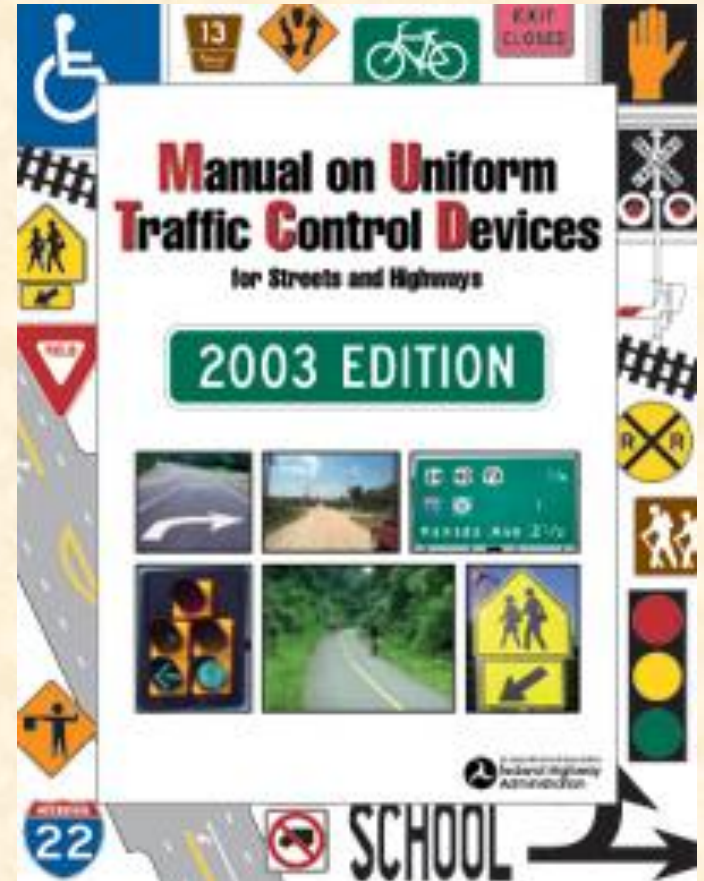
# ***Transportation Operations (TO) Component***

- ◆ Addresses sustained operations and management strategies of the work zone impact area, such as:
  - ◆ Demand Management
  - ◆ Corridor/network Management
  - ◆ Enforcement
  - ◆ Traffic Management

# ***National Standards and Guidelines***

- ◆ Primary source is the ***Manual on Uniform Traffic Control Devices***

Discussed in the TCT  
and TCS courses



# ***Module Recap***

- ◆ How many people die in traffic crashes in the USA every year? In WZ?
- ◆ How do we make work zones safer?
- ◆ What are the 3 components of a TMP?
- ◆ Where do we find National TTC standards and guidelines?
- ◆ What about in this state?



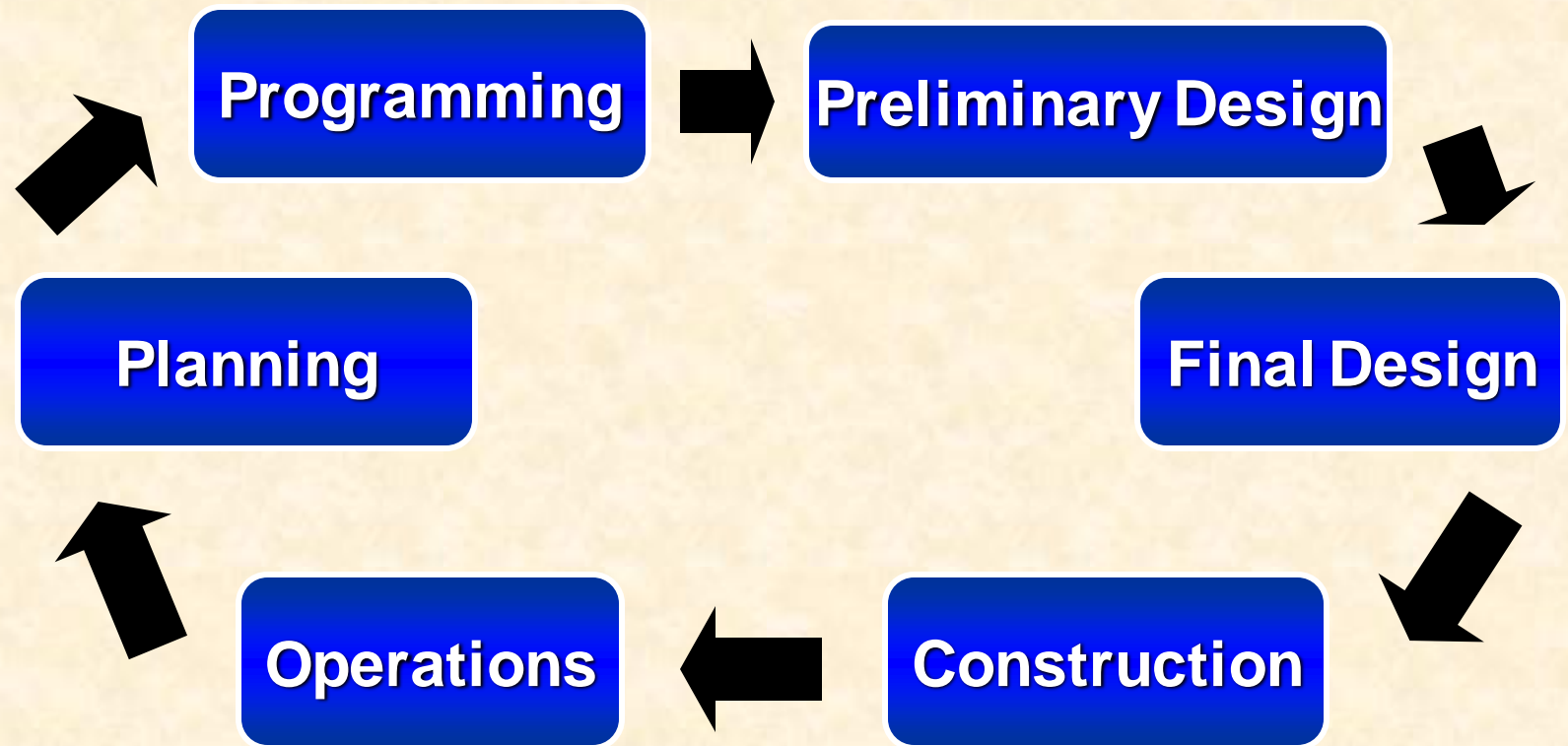
# ***-MODULE 2- Preliminary Design Concepts***



# ***Module Objectives***

- ◆ Discuss preliminary design concepts
- ◆ Review the three factors used to categorize TTC zone applications:
  1. Duration
  2. Location
  3. Work type (constructability)
- ◆ Discuss methods to handle traffic

# ***Integrating TMP Within Project Development***



# ***Work Zone Performance Measures (MOEs)***

- ◆ What makes one work zone strategy better than another one?
  - ◆ Less delay?
  - ◆ Shorter duration?
  - ◆ Shorter queues?

**These are MOEs!**

# ***Other Factors to Consider***

1. Work duration
2. Work location
3. Constructability



# ***MUTCD Categories of Work Duration***

- A. Long-term stationary
- B. Intermediate-term stationary
- C. Short-term stationary
- D. Short duration
- E. Mobile





# ***MUTCD***

## ***"Locations of Work"***

- A. Outside the shoulder
- B. On the shoulder with no encroachment
- C. On the shoulder with minor encroachment
- D. Within the median
- E. Within the travel way

# 3. *Work Type*



- ◆ Nature of the work?
- ◆ Access requirements?
- ◆ Drainage issues?
- ◆ Construction equipment?
- ◆ Size of work area?

*"Constructability"*

# ***Methods to Handle Traffic***

- A. Lane Constriction
- B. Lane Closure
- C. Shared Right-of-Way
- D. Temporary Bypass
- E. Intermittent Closure

- F. Crossover
- G. Shoulder Use
- H. Median use
- I. Detour
- J. Lane Separation
- K. Total Closure

# ***Module Recap***



- ◆ Name three wz MOEs
- ◆ How long are “long-term” projects?
- ◆ What are “simplified procedures?”
- ◆ Name some constructability issues
- ◆ What is lane constriction?
- ◆ What are the potential benefits of full closures?



# ***-MODULE 3- TTC Design Strategies***



# ***Module Objectives***

-  Discuss planning considerations
-  Discuss design strategies:
  1. Use of police services
  2. Phasing/Staging
  3. Contracting

# ***Design Strategies to Discuss***

1. Use of police services
2. Phasing
3. Contracting



# ***3. Contracting Strategies***

◆ Incentives

◆ Alternative contracting strategies



# ***Alternative Contracting Strategies Used in WZ***

1. A+B bidding
2. Design-build contracting
3. Incentive-disincentive provisions
4. Lane rental
5. Flexible notice to proceed



# ***Module Recap***

- ◆ Name some data requirements of work zones
- ◆ What is the difference between police “presence” and “enforcement”?
- ◆ Name some phasing considerations
- ◆ Name two contracting strategies



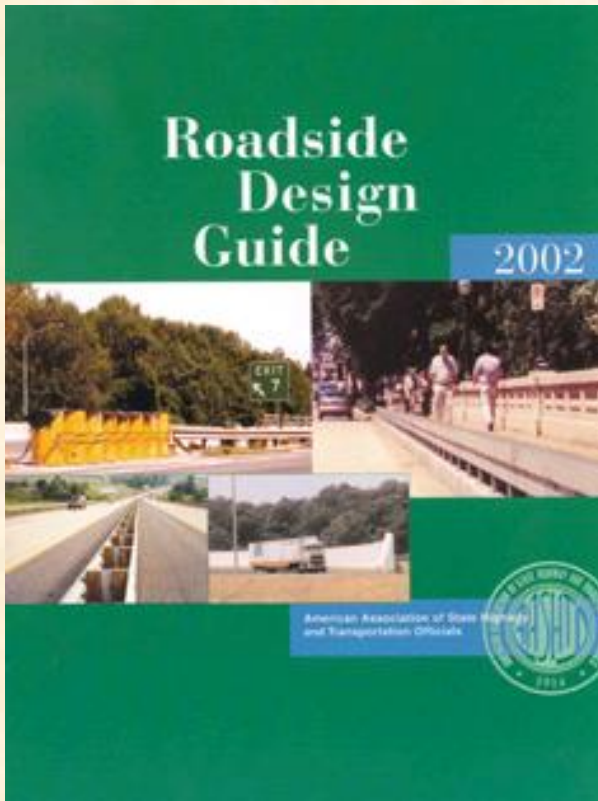
# ***-MODULE 4- Roadside Design***



# ***Module Objectives***

- ◆ Discuss work zone roadside safety concepts
  - ◆ Drop-offs
  - ◆ Above-ground hazards
- ◆ Discuss drop-off protection

# ***Work Zone Roadside Design***



- ◆ Based on concepts from the AASHTO ***Roadside Design Guide*** (Part of MUTCD)
- ◆ The specifics vary from State to State
- ◆ Permanent roadways apply to temporary roadways

# ***Drop-off Protection in Work Zones***

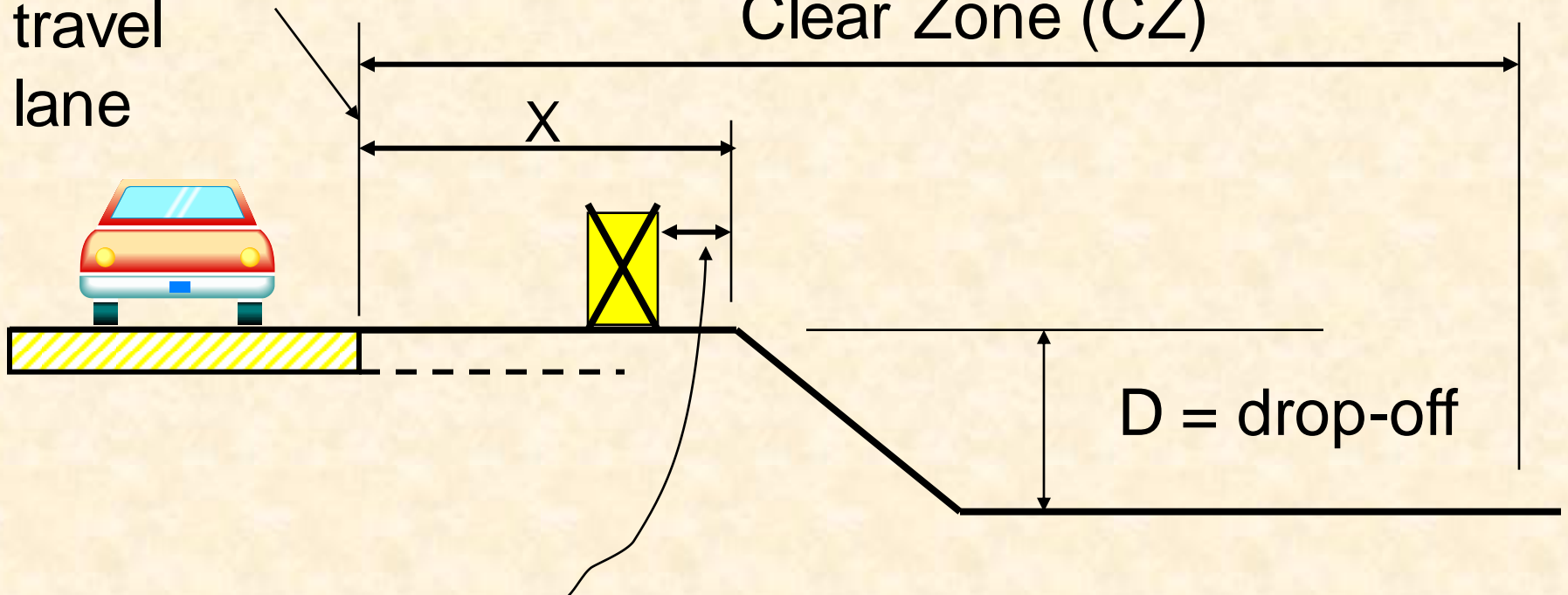
Edge of  
travel  
lane

Clear Zone (CZ)

X

D = drop-off

**Allow for “DYNAMIC  
DEFLECTION”**



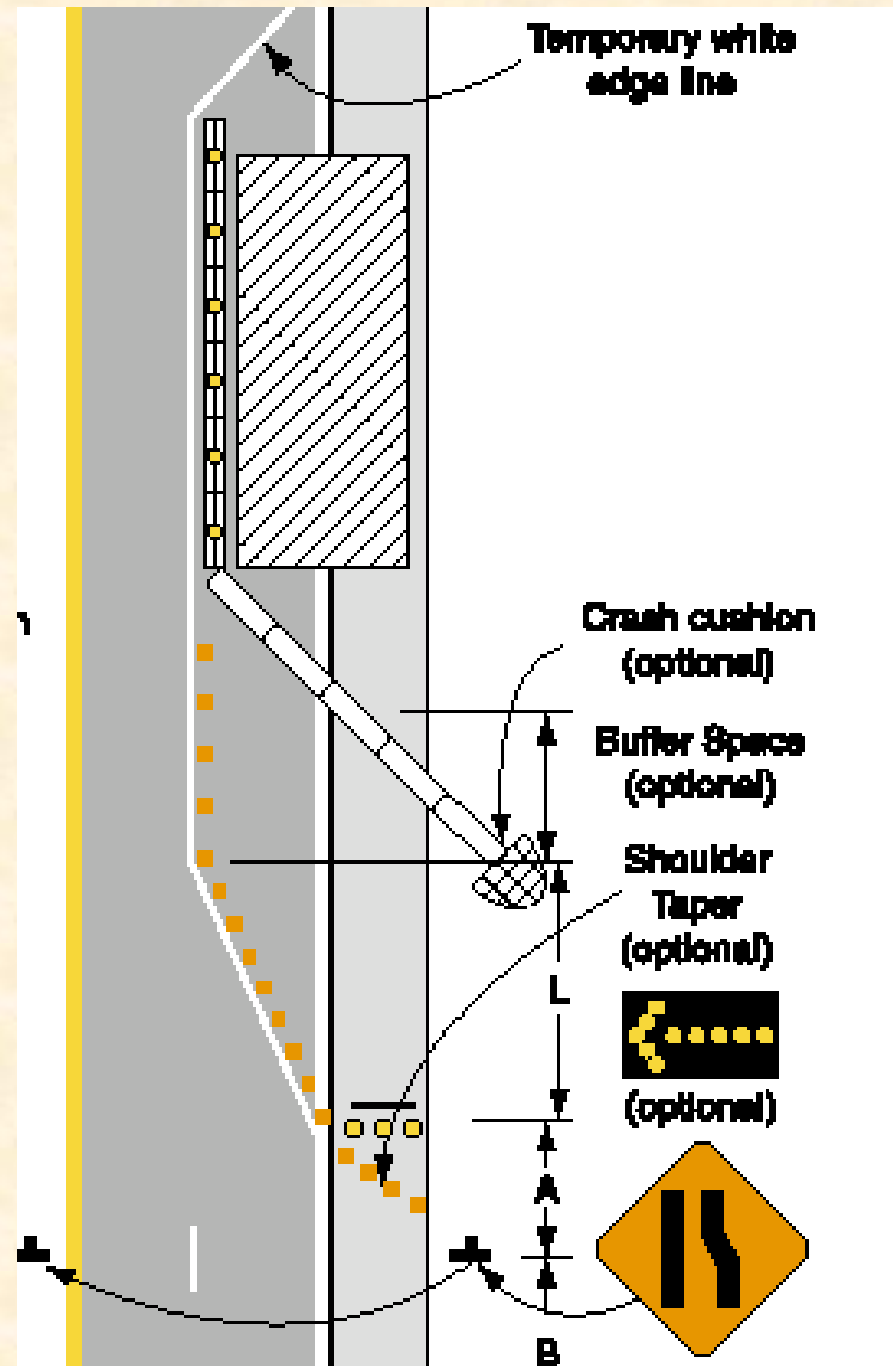




***Which  
Treatment?***



# ***REVIEW: Lane Closure with Barrier***



# ***Module Recap***

- ❖ What is a “drop-off”?
- ❖ What is considered a “non-recoverable slope”?
- ❖ What is the clear zone?
- ❖ Where is the clear zone measured from?
- ❖ How do we protect drop-offs within the clear zone?



# ***-MODULE 5***

## ***Traffic Control Plan (TCP)***

# ***Module Objectives***

- ◆ Discuss strategies used in developing an effective TCP
- ◆ Discuss TCP requirements
- ◆ Discuss component parts of a good TCP

# ***The Traffic Control Plan***

- ◆ Describes temporary traffic control measures to be used for facilitating road users through a work zone
- ◆ Specific requirements may be detailed in various publications, depending on the state

TCP



# ***Putting the TCP Together***

1. Plan orientation
2. Scale
3. Stationing
4. ID/Approval blocks
5. Legend
6. General notes
7. Special notes
8. Typical drawings
9. Detailed drawings
10. Match lines
11. Related documents

# ***Module Recap***

- ◆ What is a TCP?
- ◆ Name typical parts of a TMP
- ◆ Name some tools that can be used to draw TCPs



# ***-MODULE 6- Other Considerations***

# ***Module Objectives***

## Discuss “other” considerations

1. Work in urban areas
2. Pedestrian considerations
  - ADA
3. Motorcycle considerations
4. Bicycle considerations

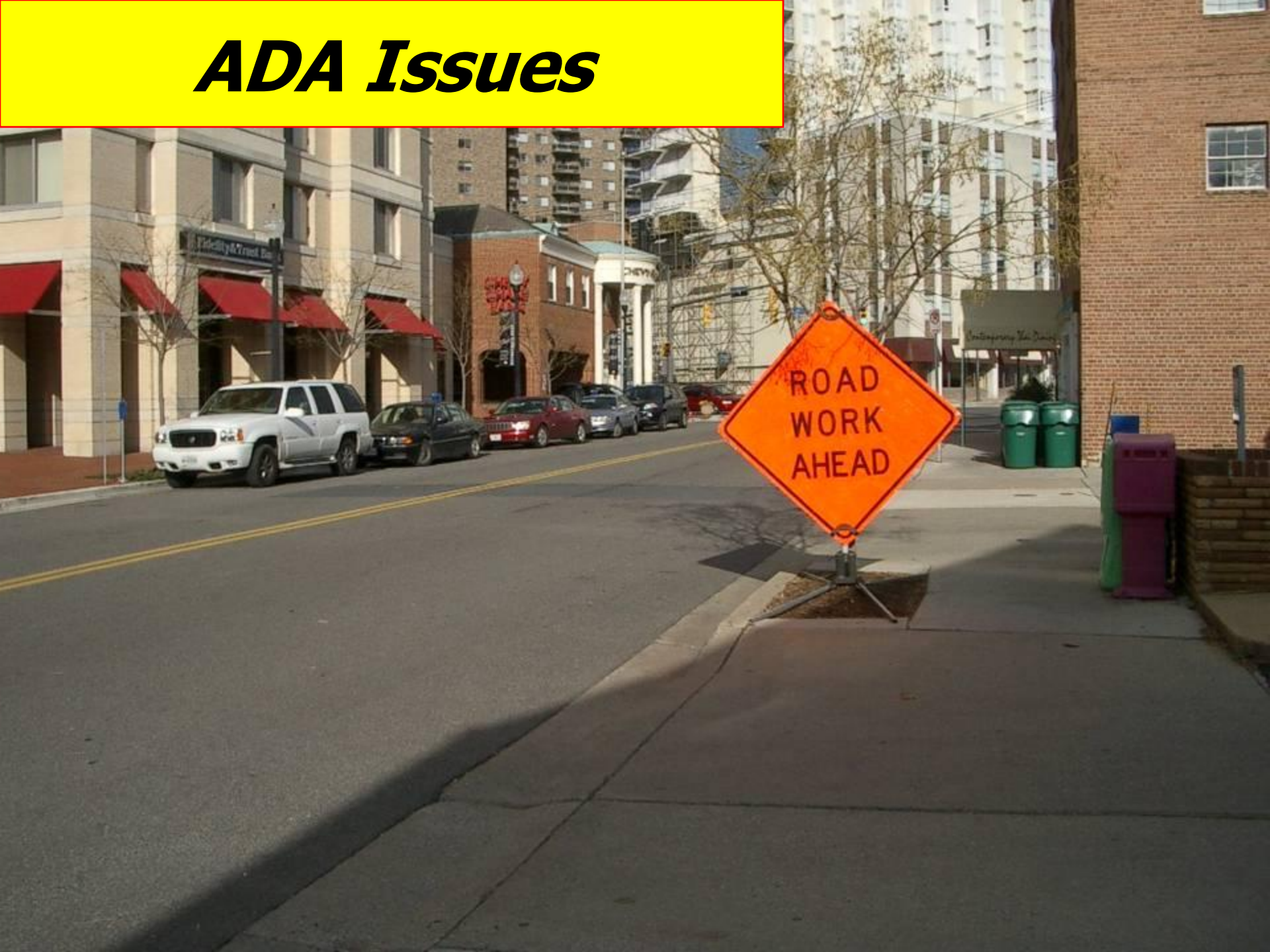
# ***What is an Urban Area?***

- ◆ *An area normally characterized by:*
  - ◆ *Relatively low speeds*
  - ◆ *Wider range of traffic volumes*
  - ◆ *Narrower lanes*
  - ◆ *Frequent intersections & driveways*
  - ◆ *Significant pedestrian traffic*
  - ◆ *More businesses & houses*

Source: 2003 MUTCD



# ***ADA Issues***



# ***The Answer***

***Use your engineering judgment to make the adjustments you feel are necessary to provide for the safest conditions and satisfy user needs!***

# ***3. Motorcycle Considerations***



- ◆ Crashes tend to be serious
  - ◆ 1 of 10 crashes is fatal
- ◆ Crashes are increasing
- ◆ No MUTCD requirements
  - ◆ Considered a “motor vehicle”
- ◆ Some feel they deserve special considerations



# ***Module Recap***

- ◆ What are some of the problems associated with urban work zones?
- ◆ Name some pedestrian considerations? ADA considerations?
- ◆ What are problems associated with motorcycles in work zones?
- ◆ Name some bicycle considerations



***-CLOSING-***



# ***Module Objectives***

- ◆ Review the “Parking Lot”
- ◆ Review course objectives
- ◆ Complete course evaluation form
- ◆ Take exam
- ◆ Adjourn!