



Innovative Initiatives that Promote a Culture of Highway Safety

Module 6: Road Safety 365: Reading the Road
(Reference: Module 4, Road Safety 365, FHWA)

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CIAPR - Mayagüez Chapter





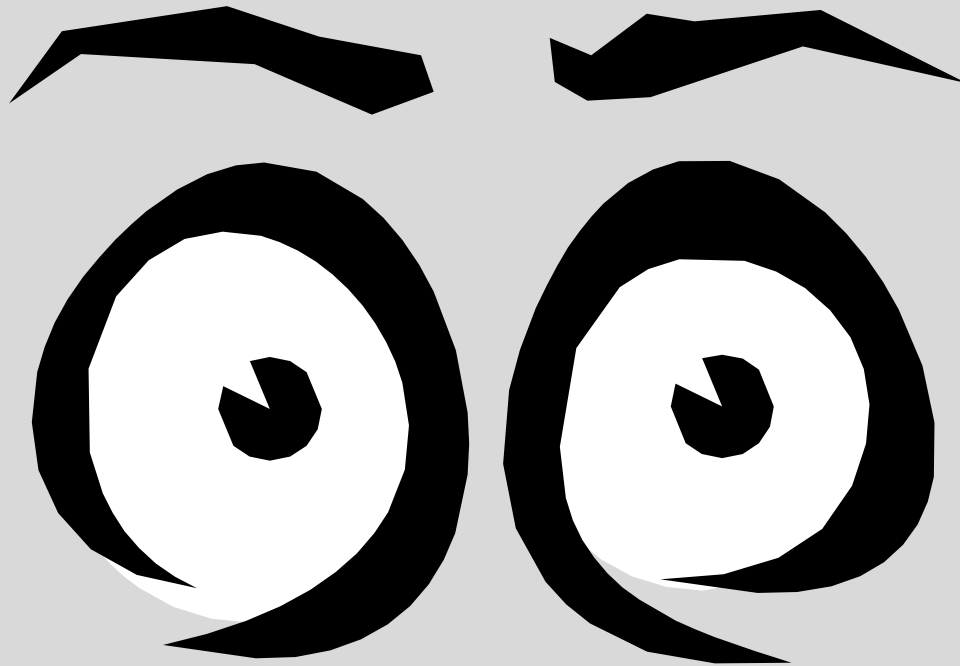
Module 4: Reading the Road

How You Can Help
Improve Safety in
Your Community



Learning Outcomes

- Explain the meaning of developing a “safety attitude.”
- Demonstrate how to “read the road.”
- Give examples of the roadway safety consequences of day-to-day construction and maintenance activities (or inactions in this regard).



“Extra Eyes for Safety”

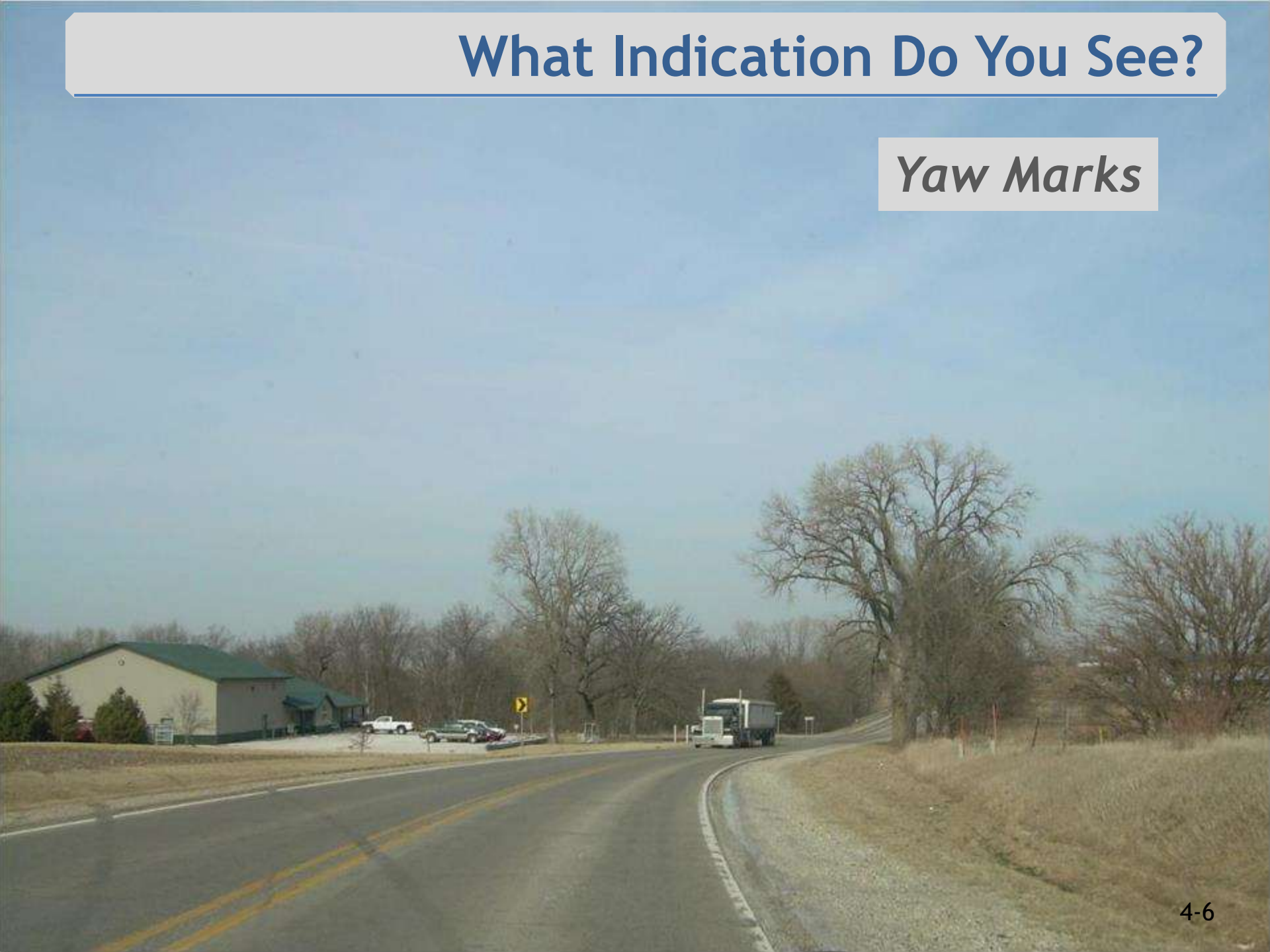
Reading the Road



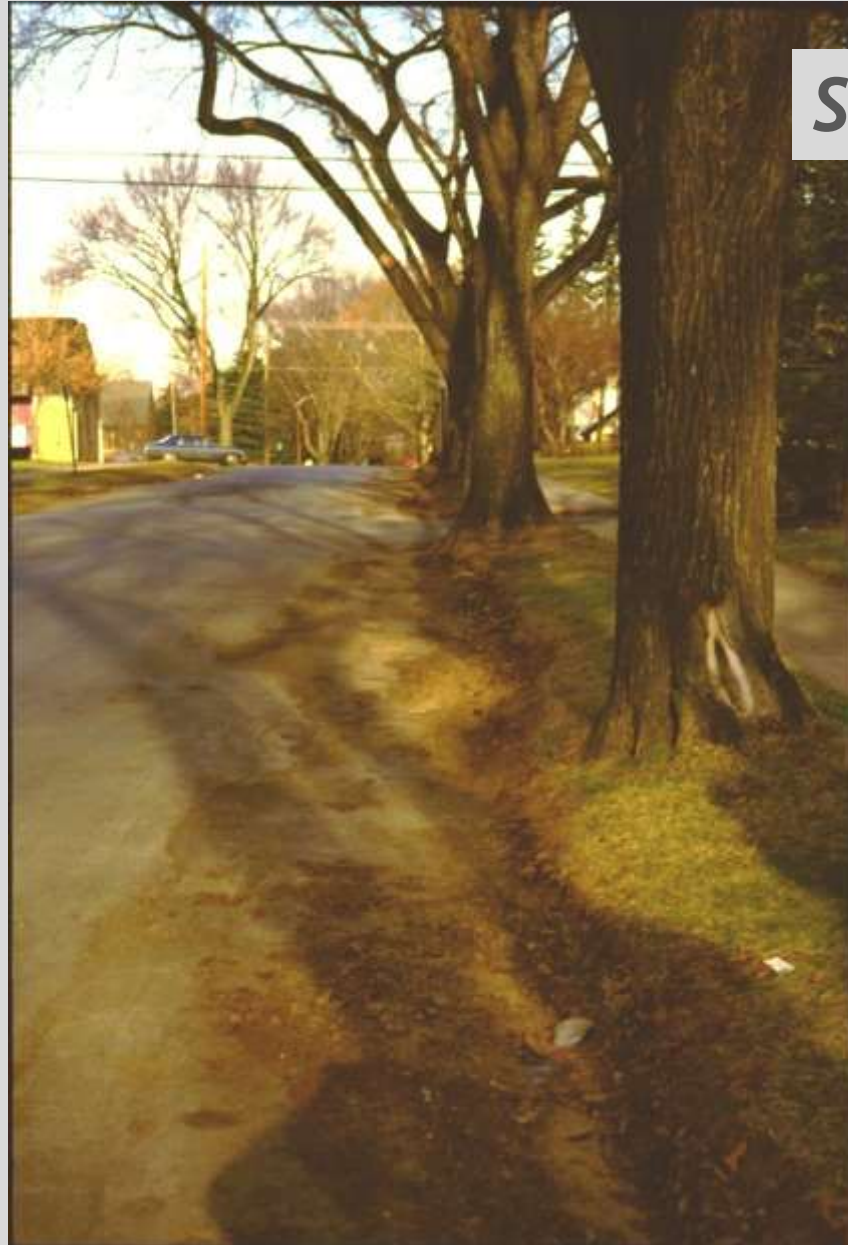
Looking for indications that road users may be having problems travelling a section of roadway.

What Indication Do You See?

Yaw Marks



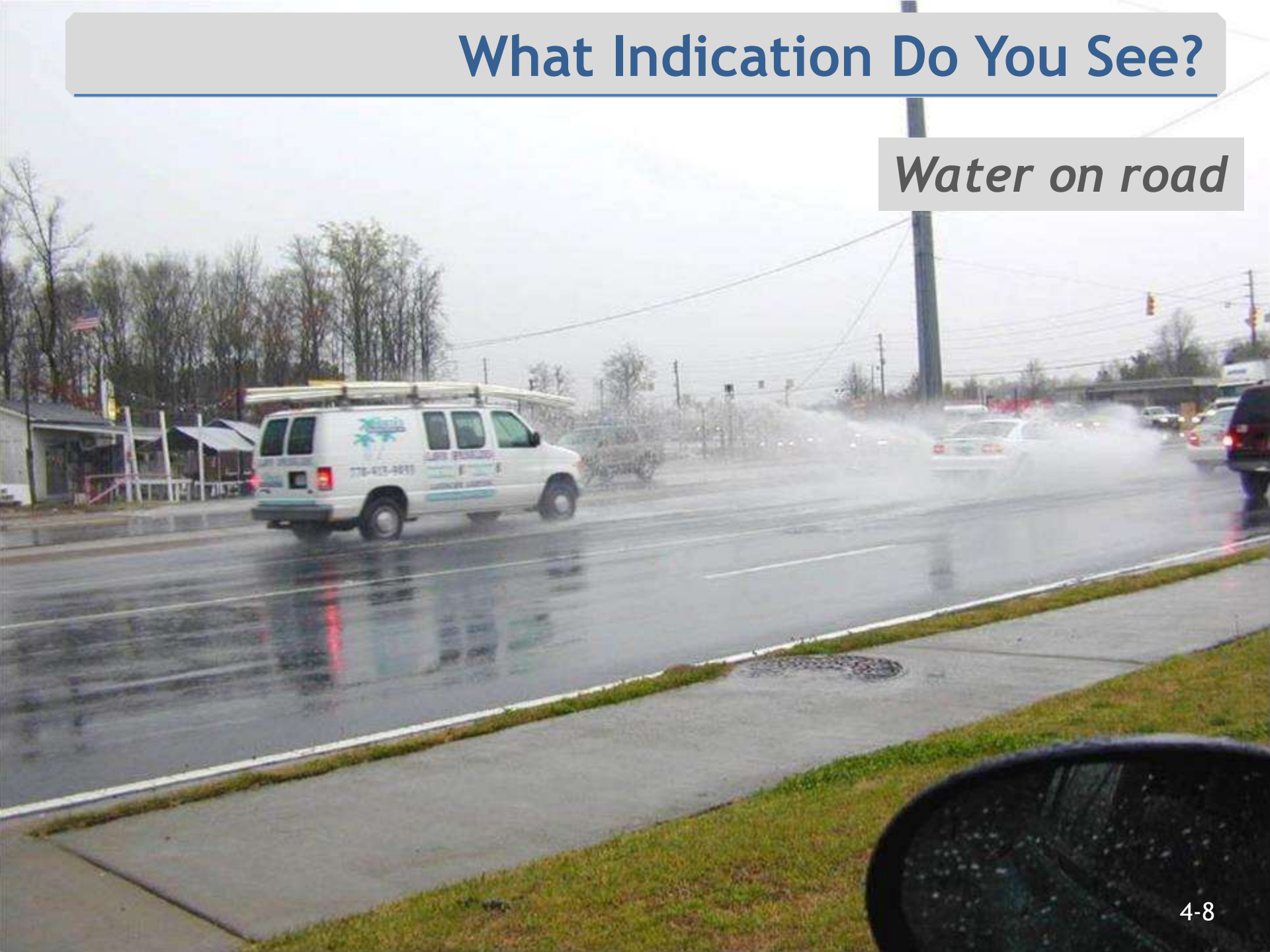
What Indication Do You See?



Scar on tree

What Indication Do You See?

Water on road



What Indication Do You See?

Object Marker



What Indication Do You See?

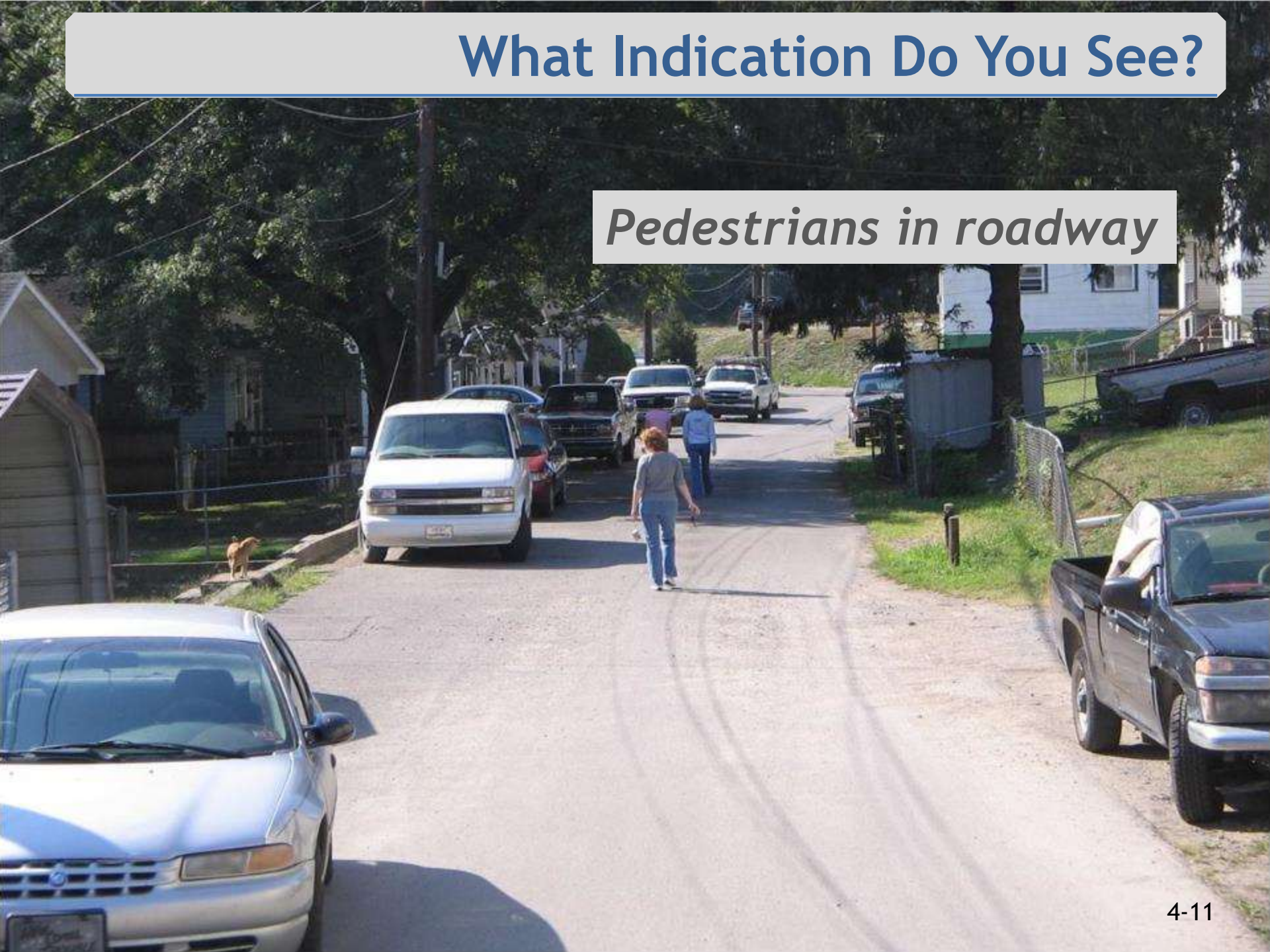


Damaged guardrail

Clear
Creek

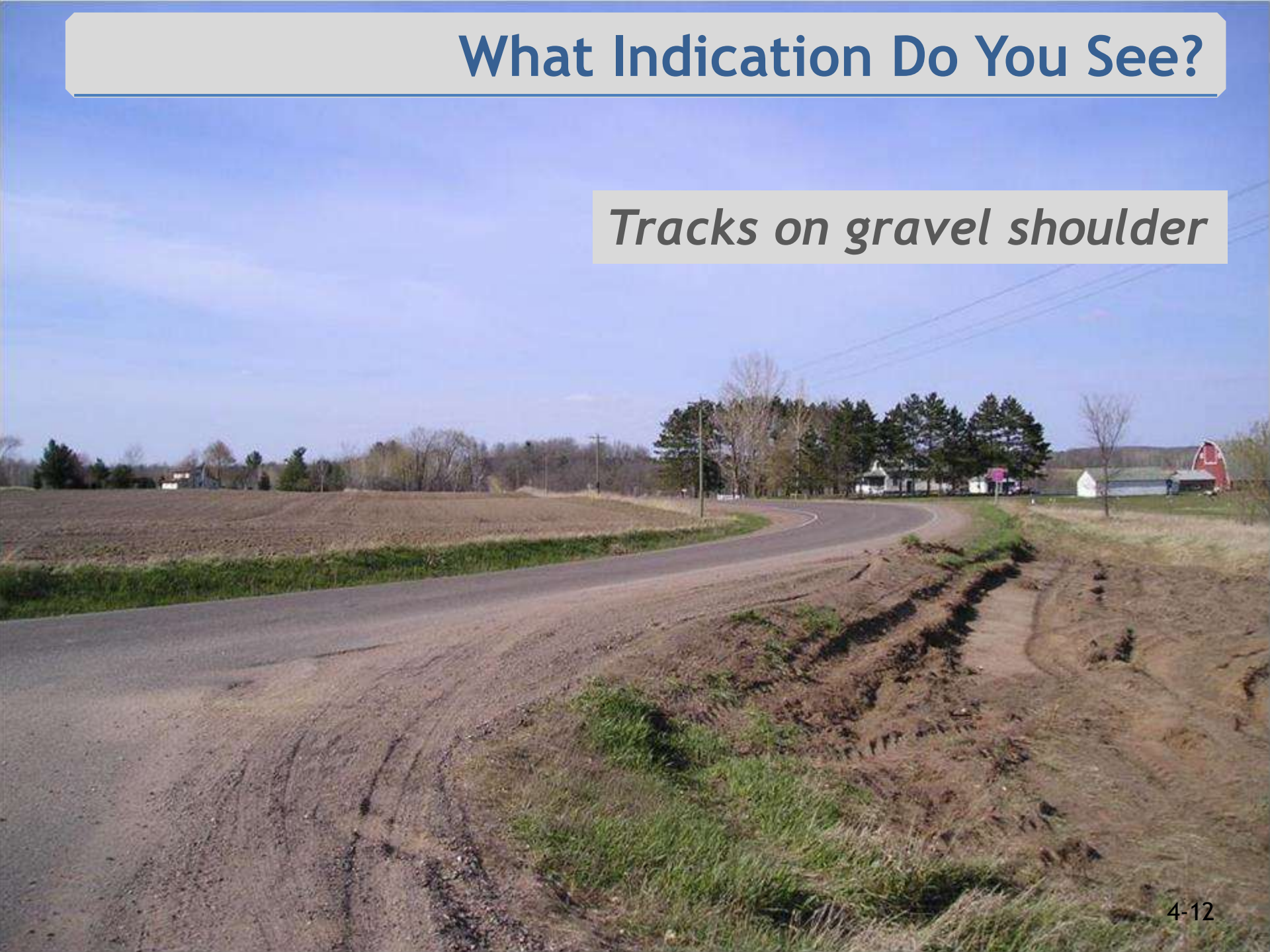
What Indication Do You See?

Pedestrians in roadway



What Indication Do You See?

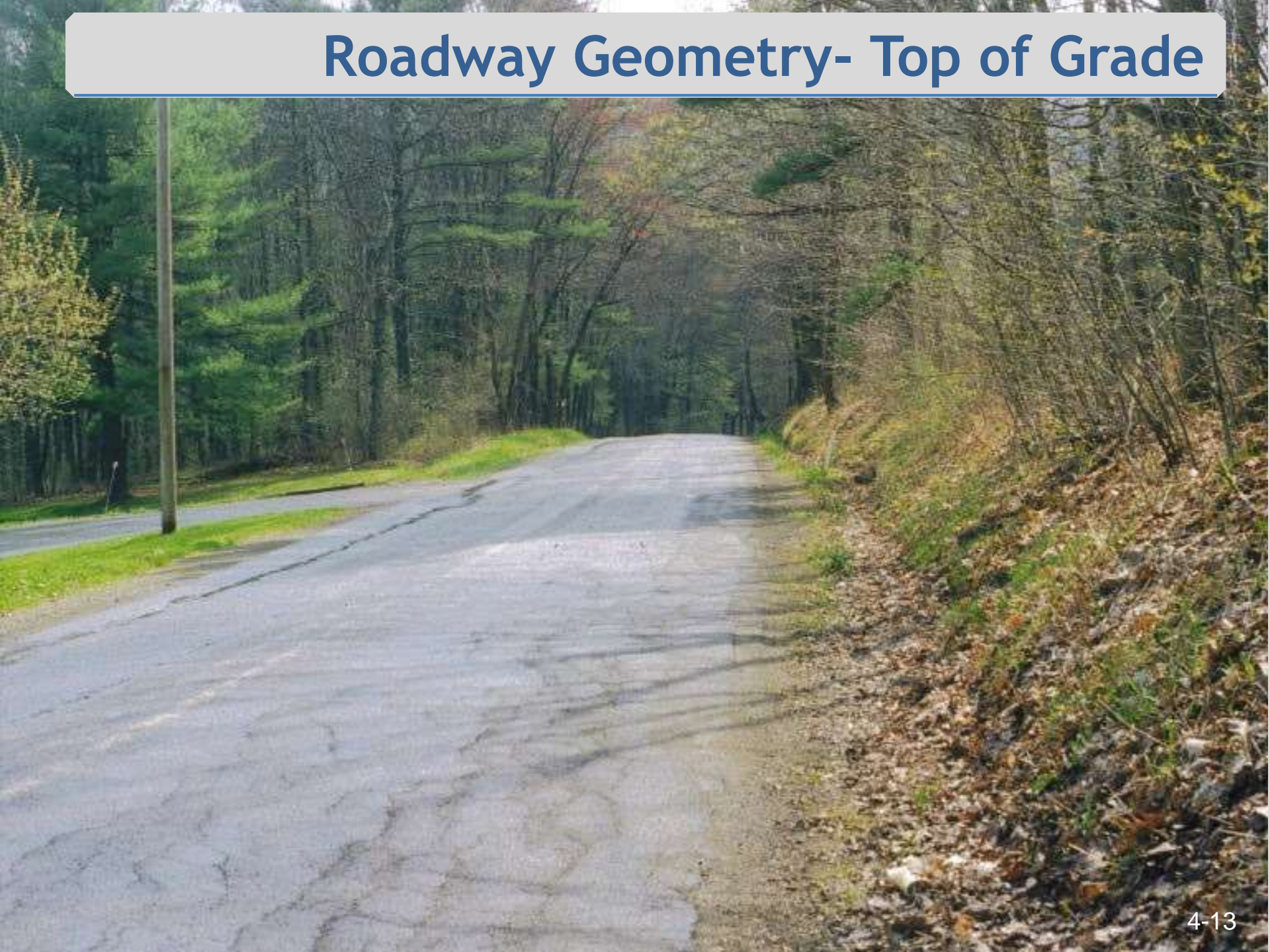
Tracks on gravel shoulder



What Indication Do You See?



Roadway Geometry- Top of Grade



Roadway Geometry- Approaching Curve Near Bottom



Roadway Geometry- Upgrade View from Center of Curve



Truck at Final Rest

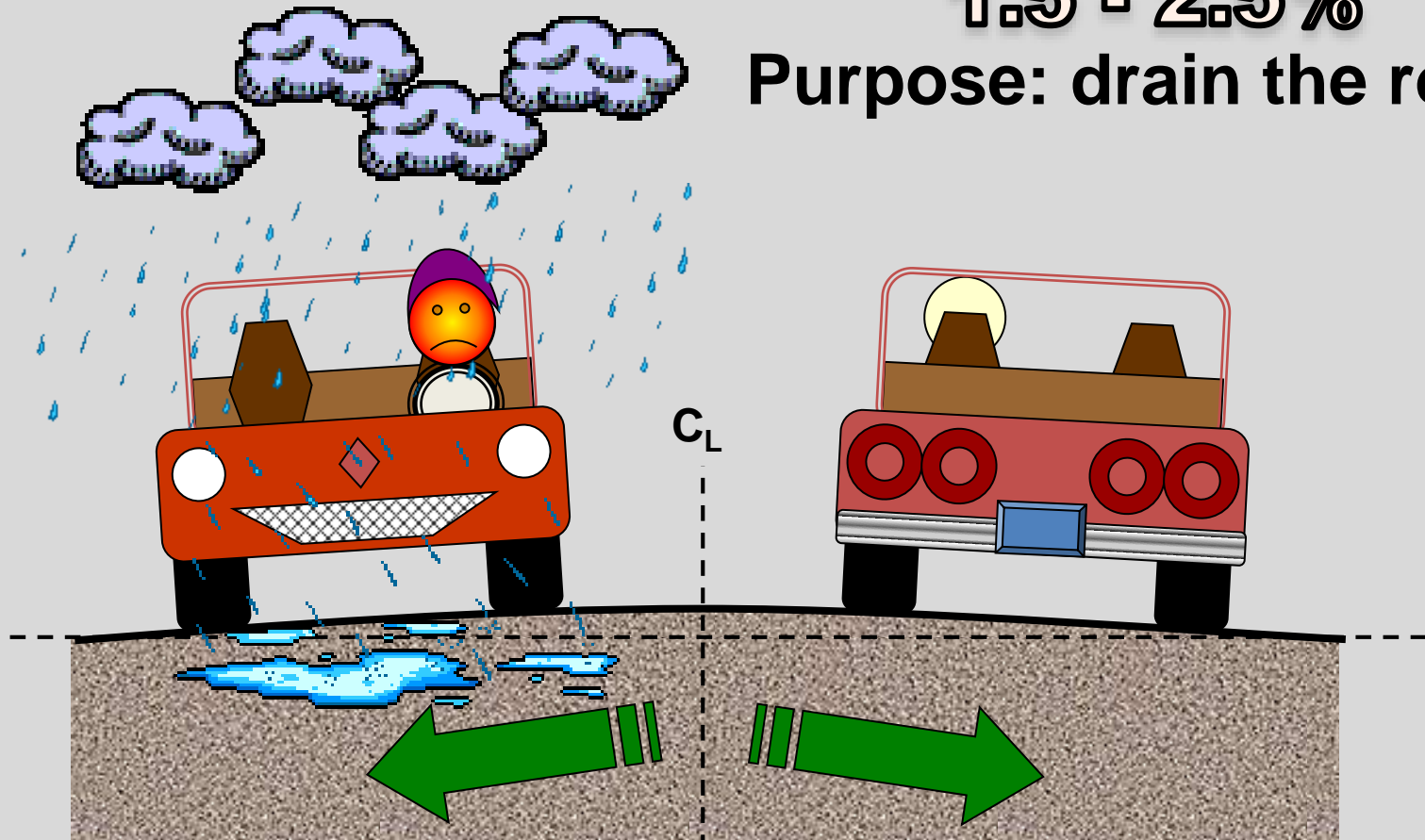


Roadway Crown on Tangent

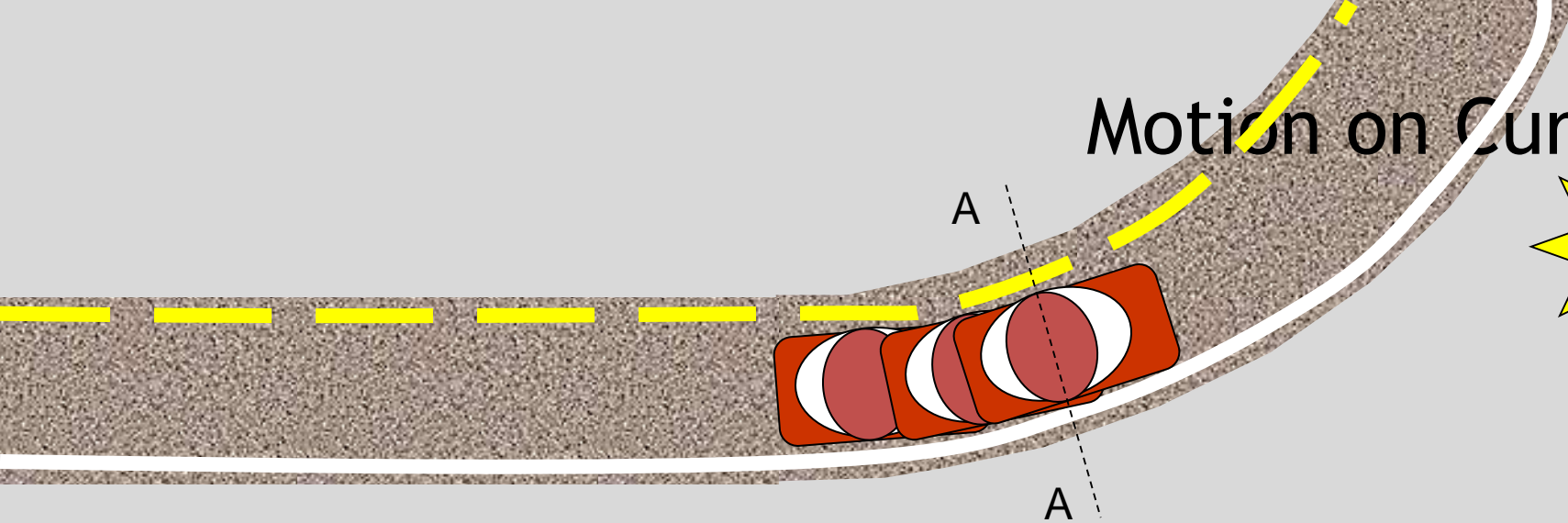
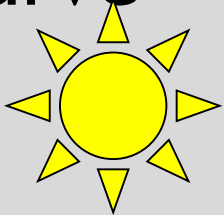
Normal Crown

1.5 - 2.5%

Purpose: drain the road

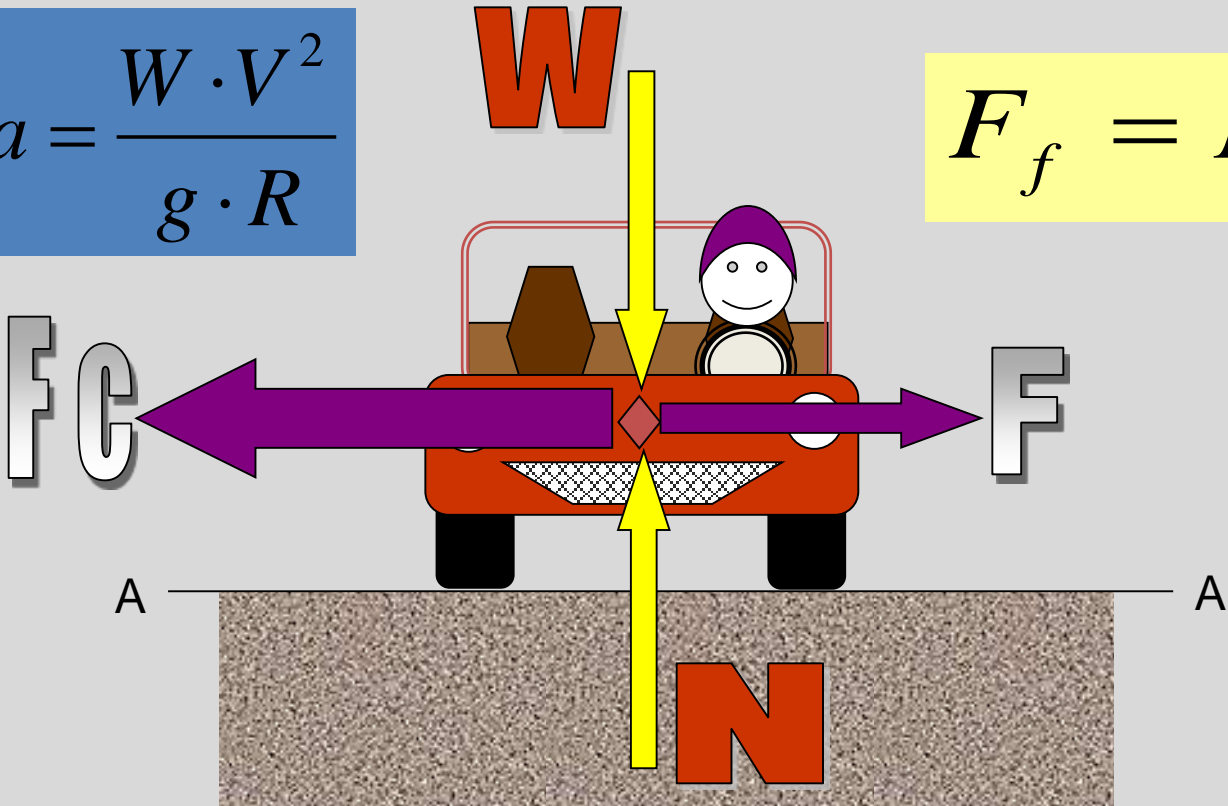


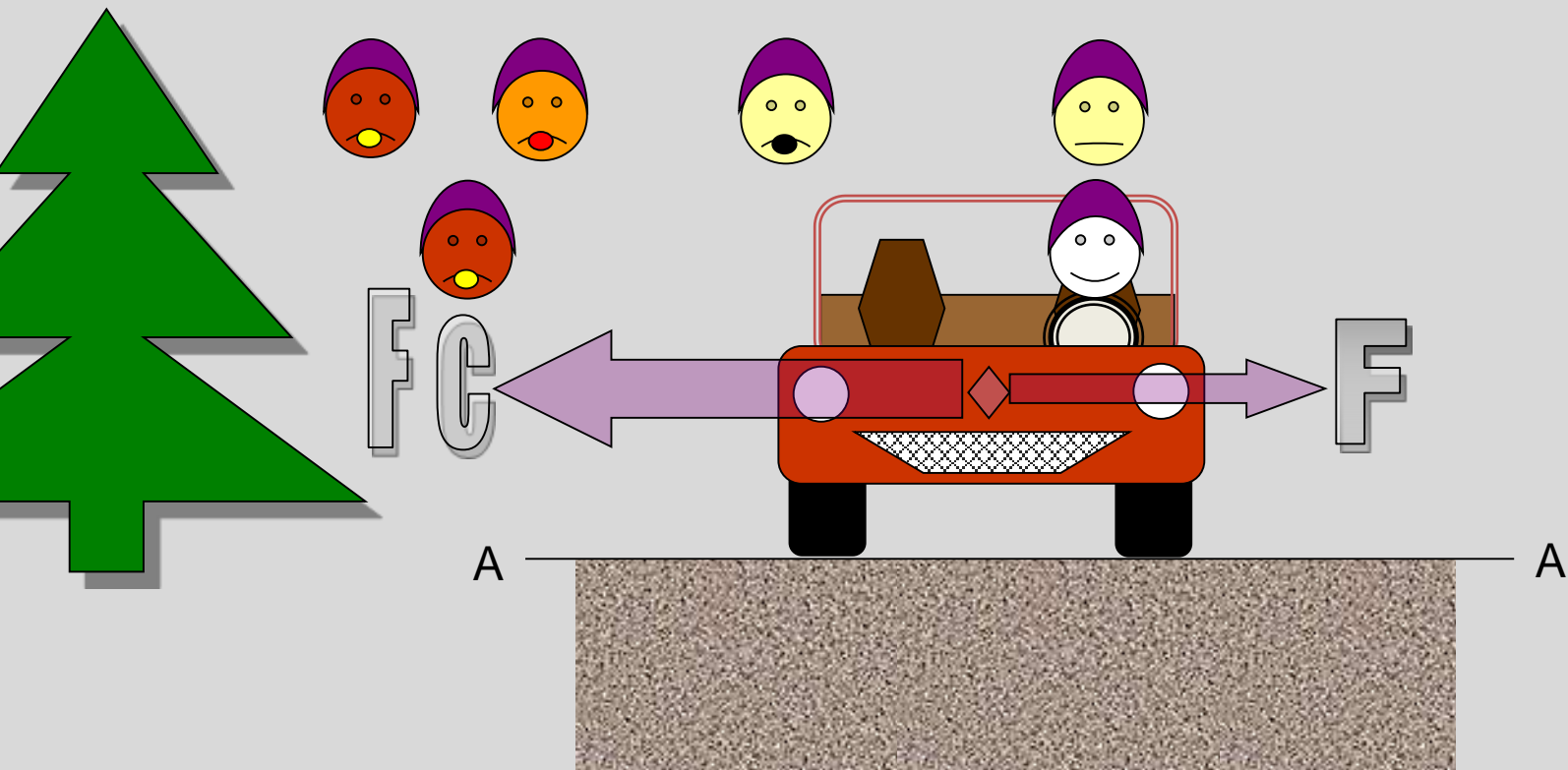
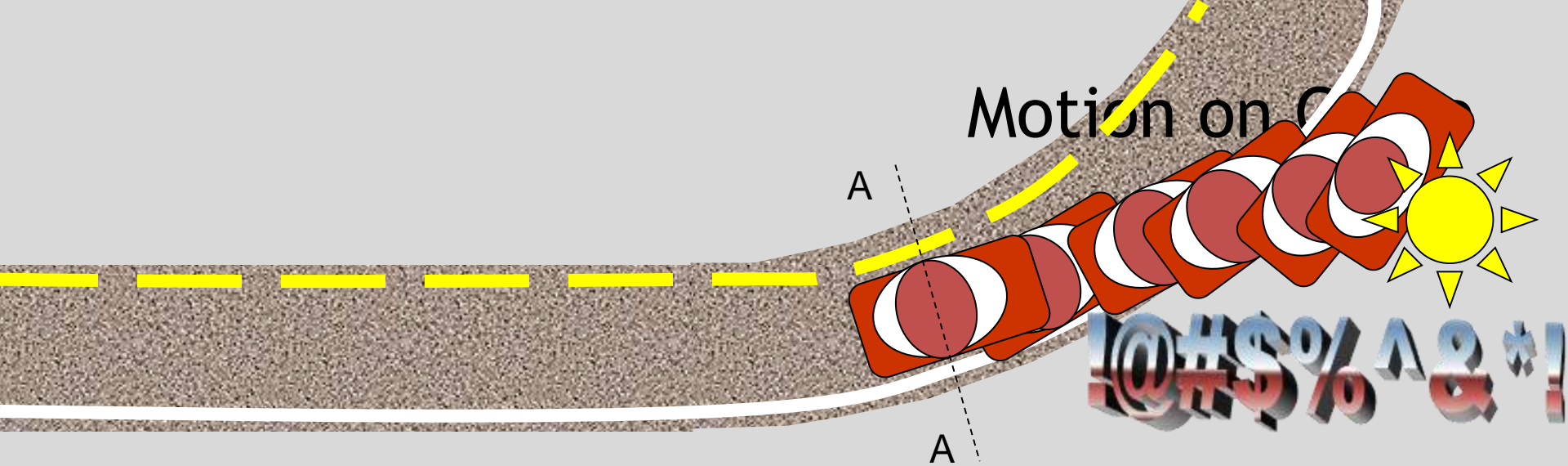
Motion on Curve



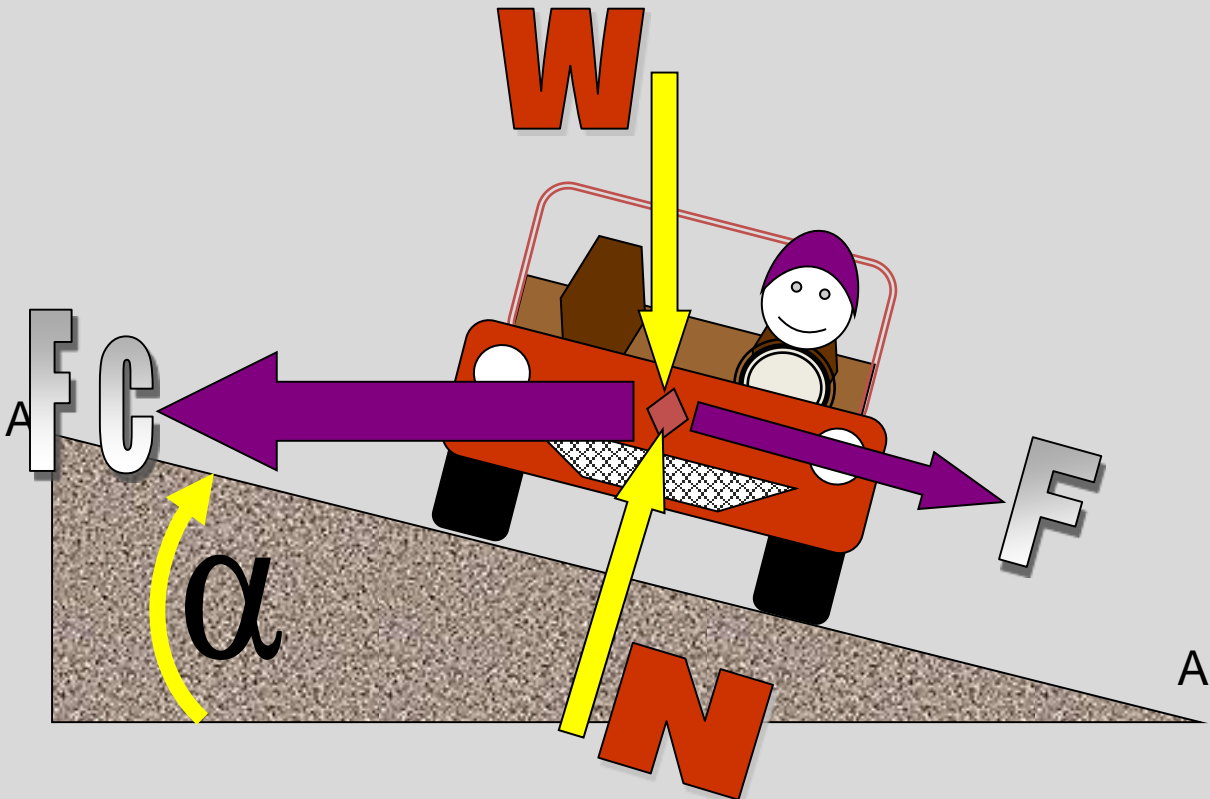
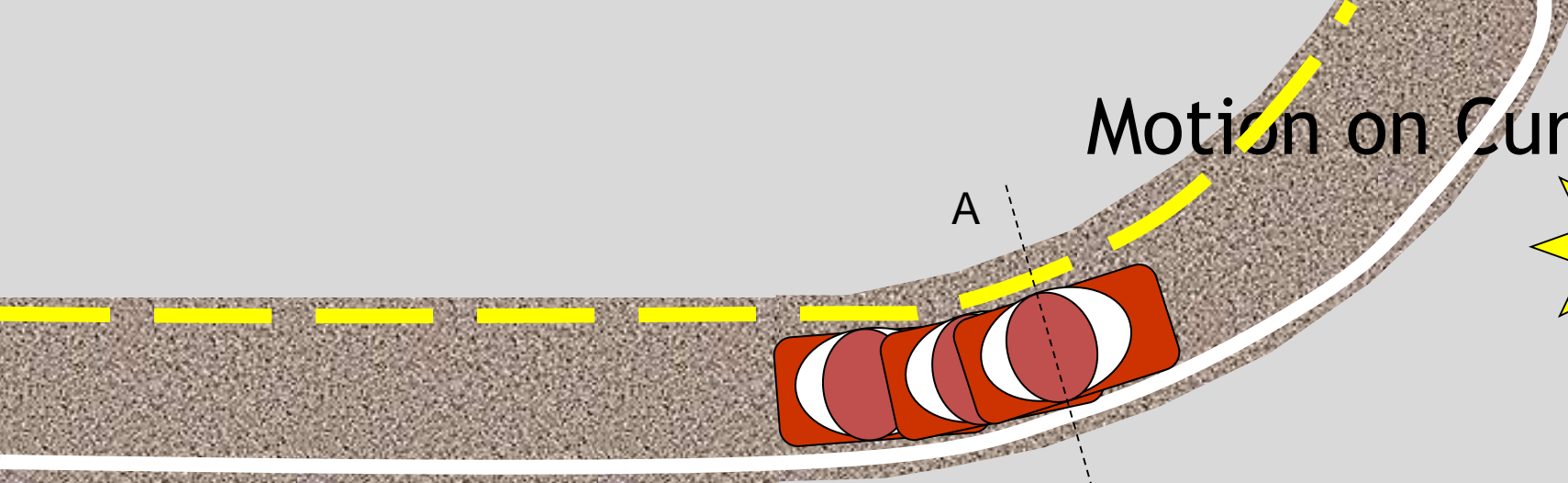
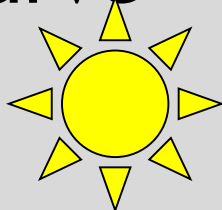
$$F_C = m \cdot a = \frac{W \cdot V^2}{g \cdot R}$$

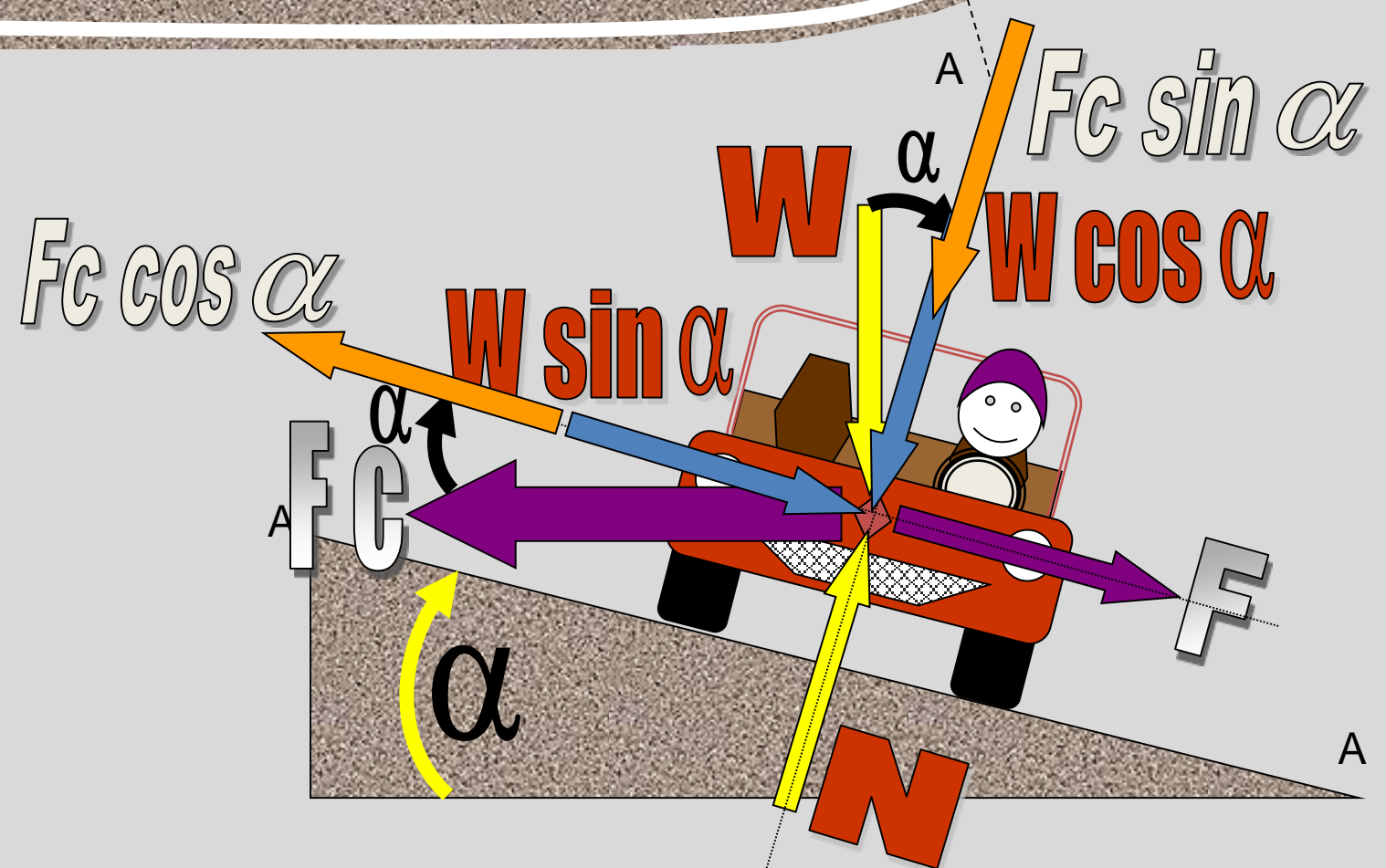
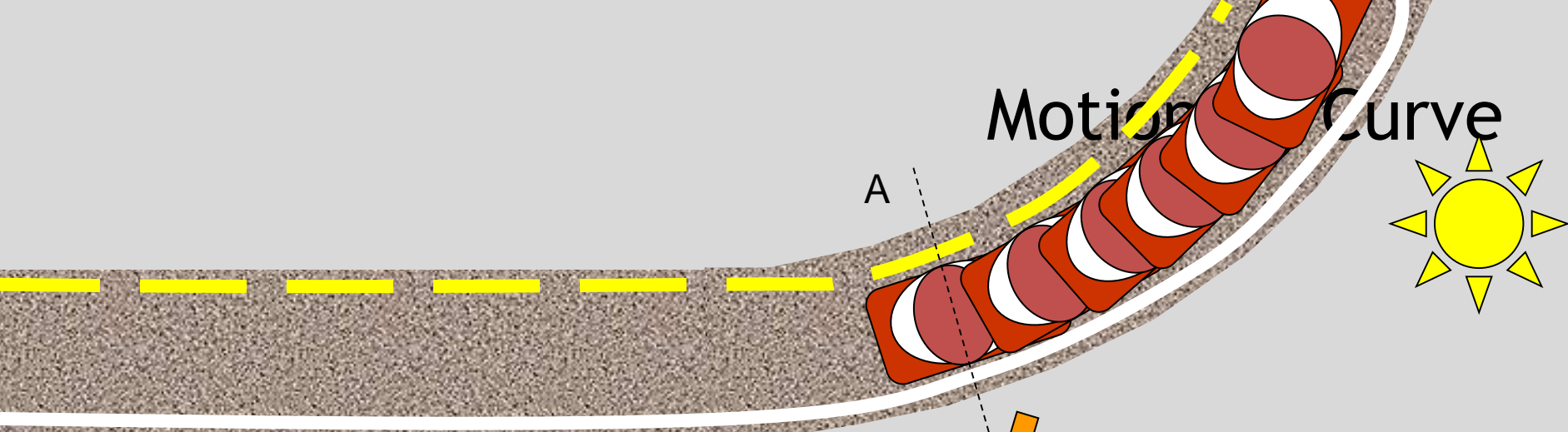
$$F_f = N \cdot f$$





Motion on Curve





What are Potential Safety Issues?



What are Potential Safety Issues?



What are Potential Safety Issues?



What are Potential Safety Issues?



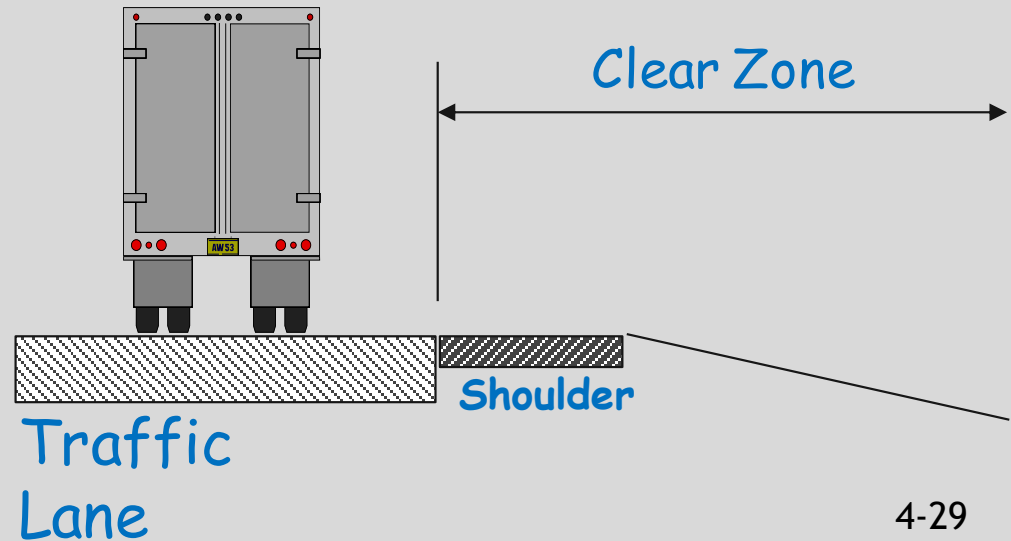


What are Potential Safety Issues?



Roadside Clear Zone

- Unobstructed, relatively flat area provided beyond the edge of the traveled way for the recovery of errant vehicles
 - Includes shoulders or auxiliary lanes
 - Width determined by design speed, traffic volume and side slope



Roadside Design Options

1. Remove the obstacle
2. Redesign the obstacle
3. Relocate the obstacle
4. Reduce impact severity
5. Shield the obstacle
6. Delineate the obstacle

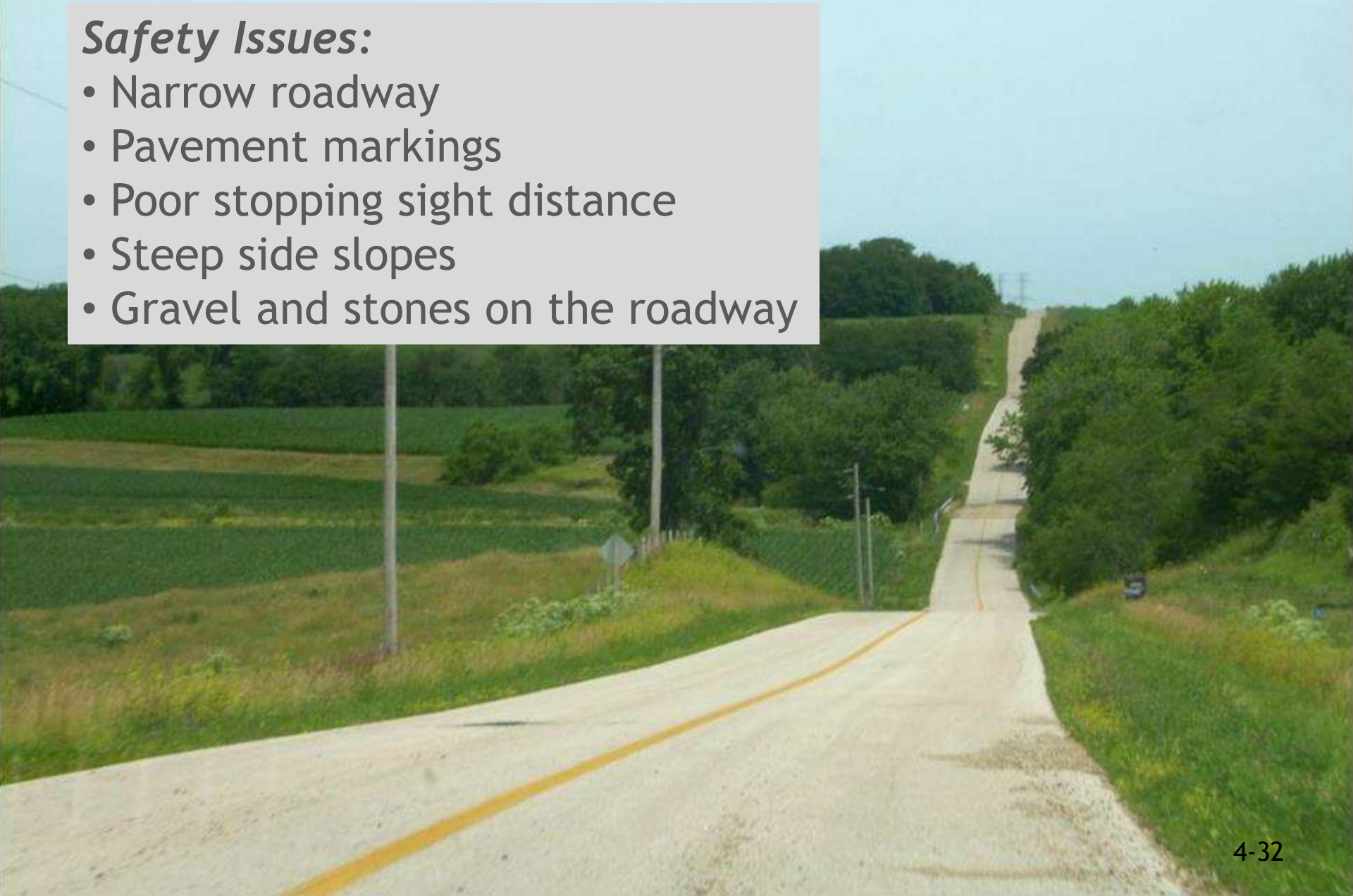




What are Potential Safety Issues?

Safety Issues:

- Narrow roadway
- Pavement markings
- Poor stopping sight distance
- Steep side slopes
- Gravel and stones on the roadway



What are Potential Safety Issues?



Safety Issues:

- Water on roadway
- No shoulder/edgeline

What are Potential Safety Issues?



Safety Issues:

- Bleeding pavement
- Lack of delineation

What are Potential Safety Issues?



Safety Issues:

- Trees in clear zone
- Limited sight distance
- Lack of signs and delineation

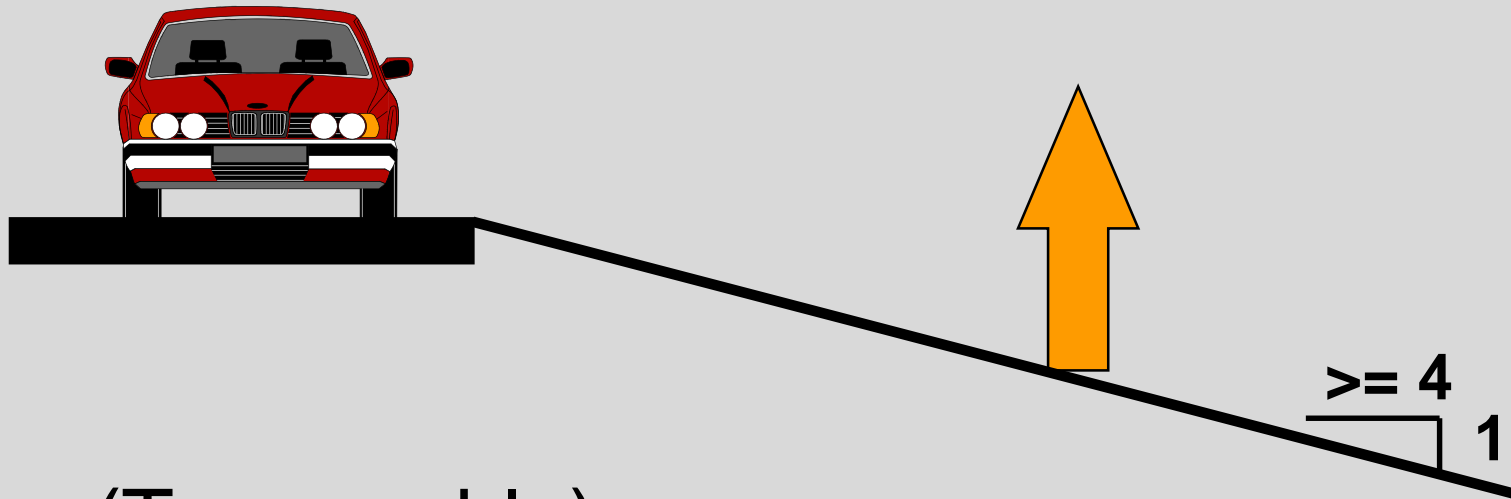
What are Potential Safety Issues?



Safety Issues:

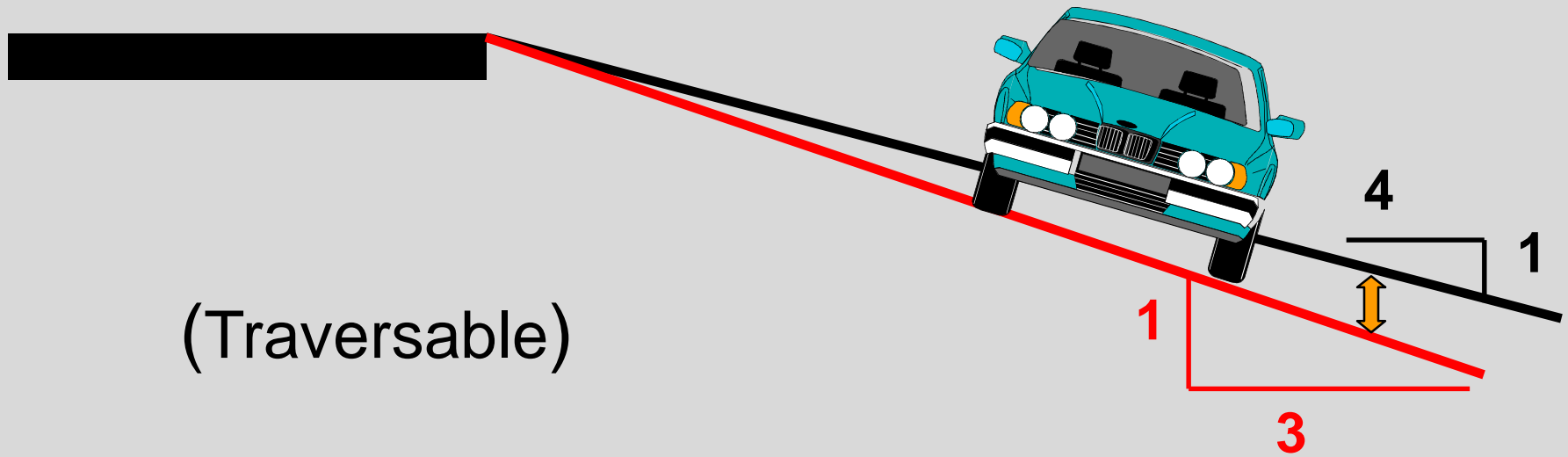
- Fixed objects in clear zone
- Unrecoverable steep side slopes

Recoverable Side Slope

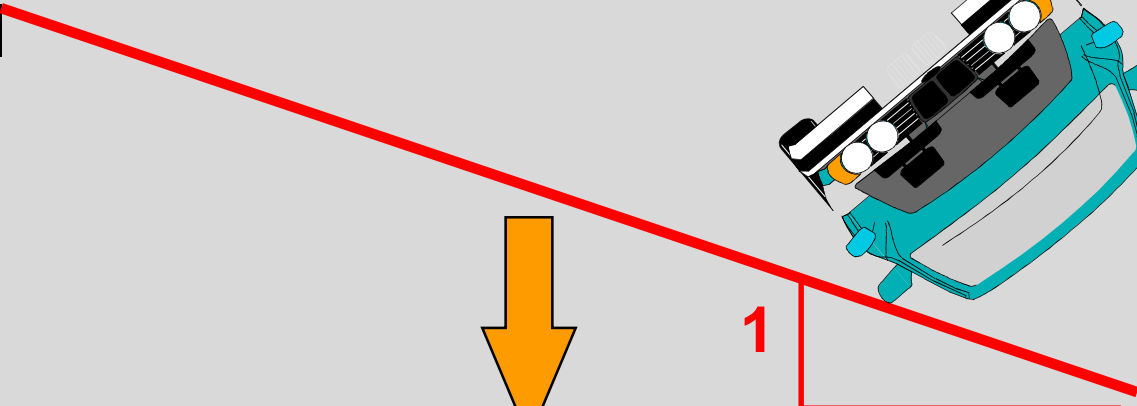
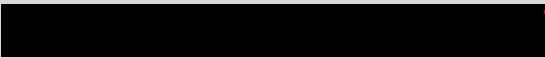


(Traversable)

Non-Recoverable Side Slope



Critical Side Slope



(Not Traversable)

What are Potential Safety Issues?



Safety Issue:

- Bridge structure is a fixed object







What are Potential Safety Issues?



Safety Issue:

- Pavement edge drop-off

A photograph of a paved road with faded yellow double lines. On the left side of the road, there is a concrete barrier and dense green foliage. The road curves to the right in the distance. A semi-transparent white box with a grey border is overlaid on the right side of the road, containing text.

Safety Issues:

- Faded pavement markings
- Concrete fixed object

What are Potential Safety Issues?

What are Potential Safety Issues?



Safety Issue:

- Deteriorated sign retroreflectivity

What are Potential Safety Issues?



Safety Issue:

- Fence blocks sidewalk path

What are Potential Safety Issues?



What are Potential Safety Issues?



What are Potential Safety Issues?







How does the condition of the roadside potentially increase the chances of a crash?

- A roadside with numerous fixed objects and/or steep side slopes means that the vehicle will strike something or roll over before it can be stopped or re-directed.
- A safe roadside allows the driver to safely stop the vehicle or get back on the roadway.

What does the term “reading the road” mean?

Looking for indications that road users may be having problems travelling a section of roadway.

Briefly describe the PennDot program “Extra Eyes for Safety.”

Safety program encouraging everyone in the community to be on the look out for problems along the roadway.

- Explain the meaning of developing a “safety attitude.”
- Demonstrate how to “read the road.”
- Give examples of the roadway safety consequences of day-to-day construction and maintenance activities (or inactions in this regard).

Questions?