


OTEC 2008

# Accommodating Bikes, Ped's and Motorcycles in Highway Maintenance and Design

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Office of Traffic Engineering



# Some Issues

- ▶ **Peds** – Providing a walking path including during maintenance of traffic;
  - ▶ **Peds** – ADA;
  - ▶ **Peds** – Pedestrian Buttons and Heads;
  - ▶ **Bikes/Motorcycles** – Traffic Signal Detection;
  - ▶ **Roadway Surfaces**
- 

# Peds – A Walking Path During MOT

11) SEPARATOR TYPE WHEN USED BETWEEN THE WORK AREA AND A PEDESTRIAN WALKWAY

SEPARATOR TYPE	WORK CHARACTERISTICS		SEPARATOR CHARACTERISTICS	
	W-1	W-2	S-1	S-2
1.1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1
1.1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1
1.1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1
1.1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1	1.1.1.1.1.1

**GENERAL NOTES**

1. Used for work areas for pedestrian use only and always maintain traffic control when this separator is required.
2. All signs and lights facing pedestrian use must have reflective sheeting for pedestrian use. All signs not on temporary equipment must be made reflective sheeting for pedestrian use. All signs not on temporary equipment must be made reflective sheeting for pedestrian use.
3. Plans for pedestrian control during construction should be made prior to construction of the pedestrian walkway. Plans for pedestrian control during construction should be made prior to construction of the pedestrian walkway.
4. For major or important work involving pedestrian use on both sides of the street, the signs should be placed on the side of the street facing the work area.
5. At night, temporary lighting shall be provided for pedestrian use and pedestrian control during construction. Plans for pedestrian control during construction should be made prior to construction of the pedestrian walkway.
6. The purpose of the traffic control device provided herein is to direct and guide pedestrian use when work is being done on the work area. The contractor shall take sufficient care to ensure an adequate level of pedestrian use when work is being done on the work area.
7. The traffic signs of the vehicle-mounted separator should be placed on the side of the separator facing the pedestrian use when work is being done on the work area.
8. All signs and lights facing pedestrian use must have reflective sheeting for pedestrian use. All signs not on temporary equipment must be made reflective sheeting for pedestrian use.

**SEPARATOR REQUIREMENTS**

1. Signs for temporary pedestrian walkways shall be a minimum of 18" x 18" in size and spaced at 10-12 ft intervals.
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MT-110.10 SPACE OF TRAFFIC SEPARATORS DETOUR OF PEDESTRIANS TO TEMPORARY WALKWAY ON ROADWAY 10-11-02

MT 101.10

12) SEPARATOR TYPE WHEN USED BETWEEN THE WORK AREA AND A PEDESTRIAN WALKWAY

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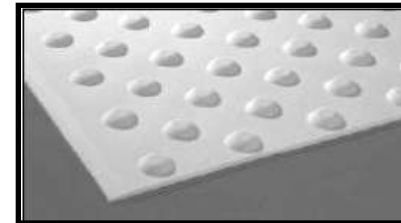
MT-110.20 SPACE OF TRAFFIC SEPARATORS DETOUR OF PEDESTRIANS TO OTHER SIDE OF STREET 10-11-02

MT 101.20

# Peds – American Disability Act (ADA)

▶ <http://www.ada.gov/>

▶ Detectable Warning Systems

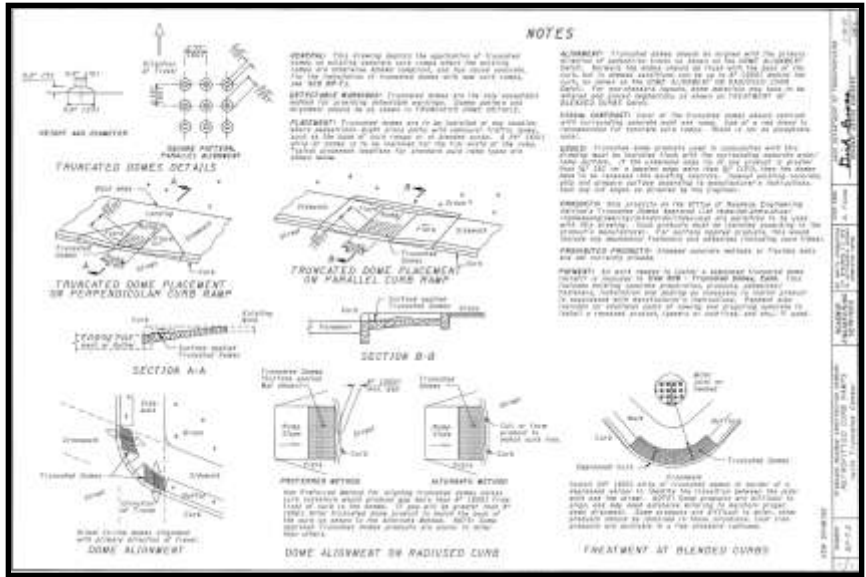


▶ Curb Ramps – Do **NOT** assume an existing curb ramp meets current standards (in terms of both construction and location)

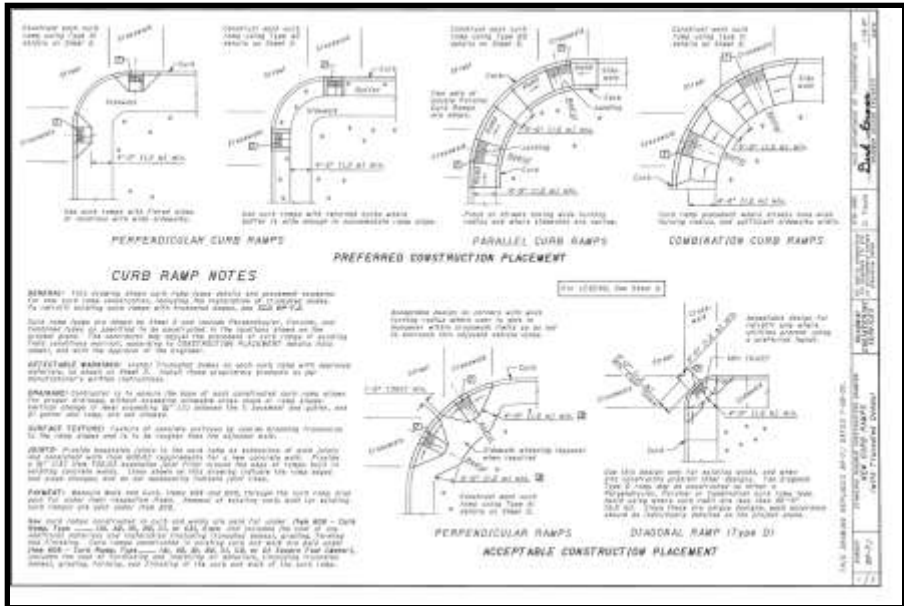
# Peds – American Disability Act (ADA)

## ► Curb Ramp Construction

**Don't** Assume Existing Ramps Meet Standards.



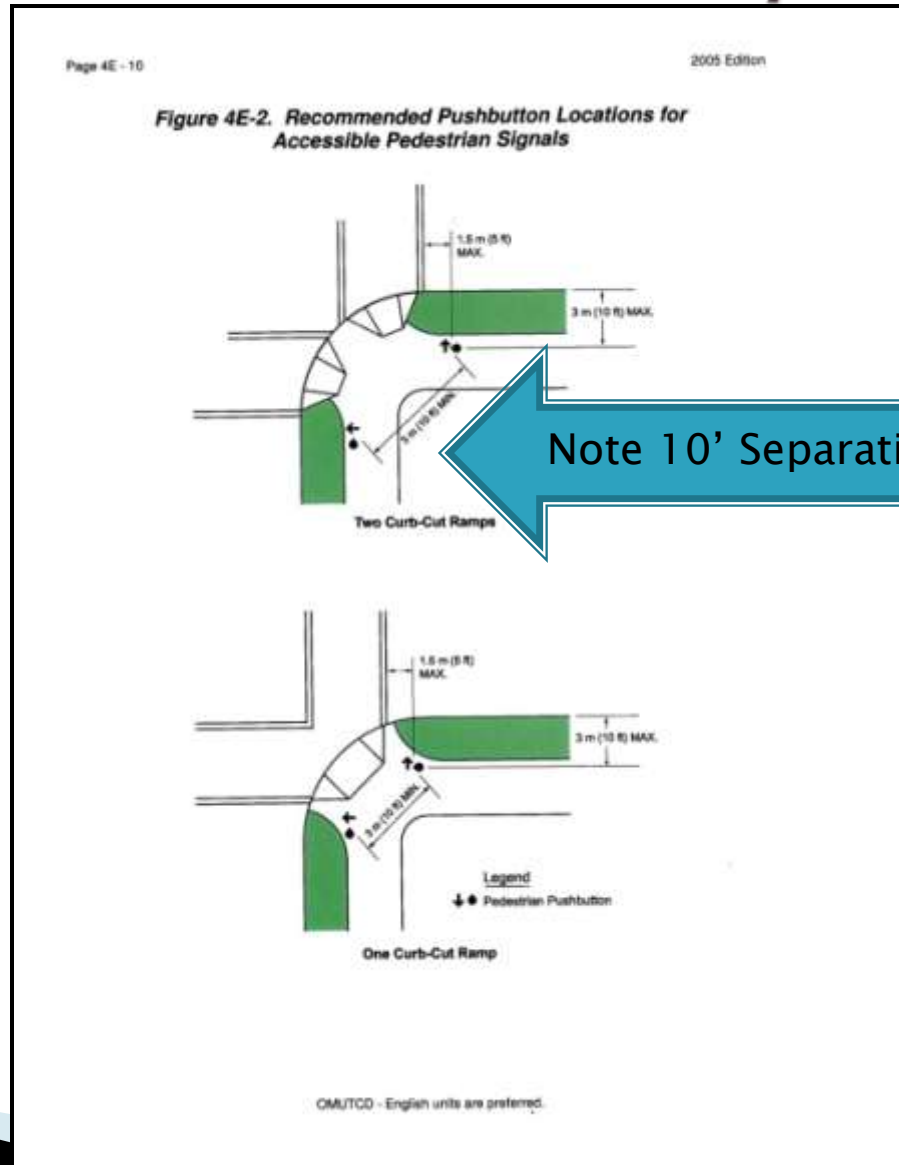
Retrofit



New Curb Ramp

# Peds –American Disability Act (ADA)

See Current  
OMUTCD and  
Propoposed  
MUTCD. Lot's of  
“Standard”  
requirements



Note 10' Separation of Ped Buttons

# Peds – American Disability Act (ADA)

- ▶ ADA & ODOT (Accessible)– We provide Accessible devices on request AND after the location is reviewed by a blind advocacy group.
- ▶ Accessible Devices Can Include:
  - Audible Ped Heads;
  - Pushbuttons with Locator Tones;
  - Vibro–Tactile Arrows;
  - Voice Messages

# Peds –Pedestrian Buttons & Heads Just Plain Old Ped Stuff – Not ADA


- ▶ ODOT TEM – Provide for pedestrians whenever there is a “reasonable expectation” of them being present.
- ▶ Can be as simple as a button to cross the main (recall) street. Location is important. More frequently used crossing should provide more information (heads, crosswalks, etc)
- ▶ CANNOT just put up “No Ped X’ing” signs.

# Pedestrian Buttons and Heads


- ▶ Cool Mid-Block Pedestrian Crossing Treatment:



# Traffic Signals – Motorcycles & Bikes

- ▶ ODOT Experience Limited – Frankly we weren't that aware of a problem until approached by the AMA.
  - ▶ We're now working with the AMA to address their concerns.
  - ▶ Biggest Issue (by far) is detection
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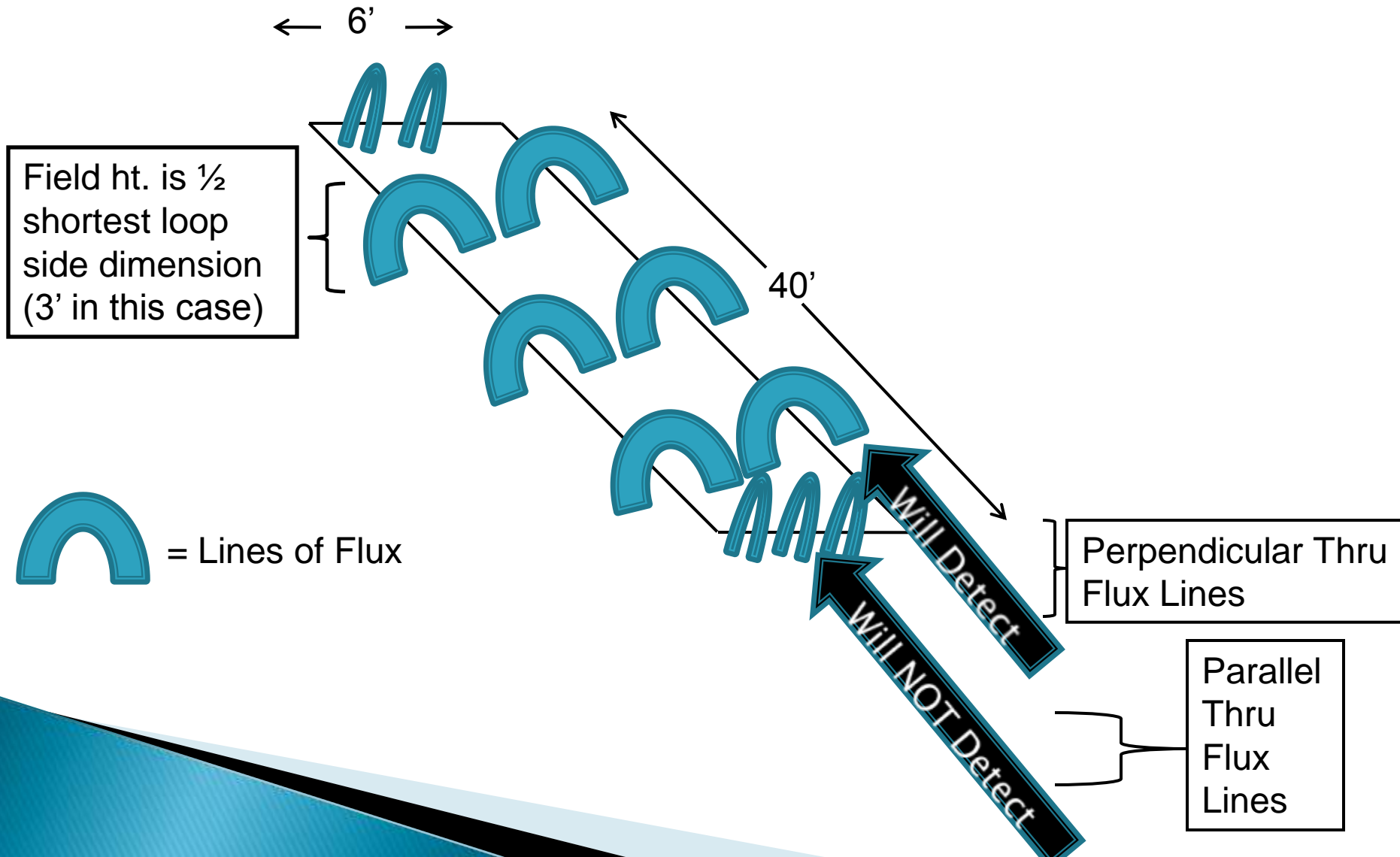
# Traffic Signals – Motorcycles & Bikes

- Traditional detection is inductive loops with video coming on strong
  - Loops create an inductive field that detects metal in cars, trucks, motorcycles and bicycles.
  - The more metal – the easier it is to detect. Motorcycles and Bikes don't have a lot of metal.
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# Traffic Signals – Motorcycles & Bikes

- Loop abilities to detect are not uniform across its area. The geometry of the loop creates “hot” and “cold” spots for detection.
- A 6' x 40' loop (pretty common) is “cold” right in the middle but “hot” along the 40' sides.
- A motorcycle can stop in the middle of a loop and not be detected. Can be somewhat overcome by increasing the detector sensitivity.

# Traffic Signals – Motorcycles & Bikes



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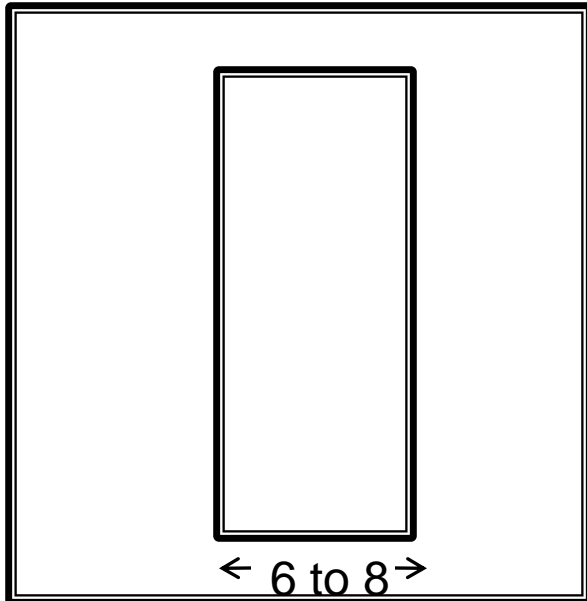


NOT Good Detection

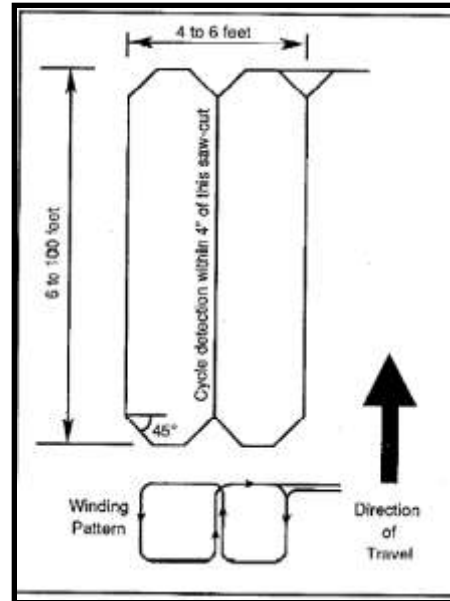


Good Detection

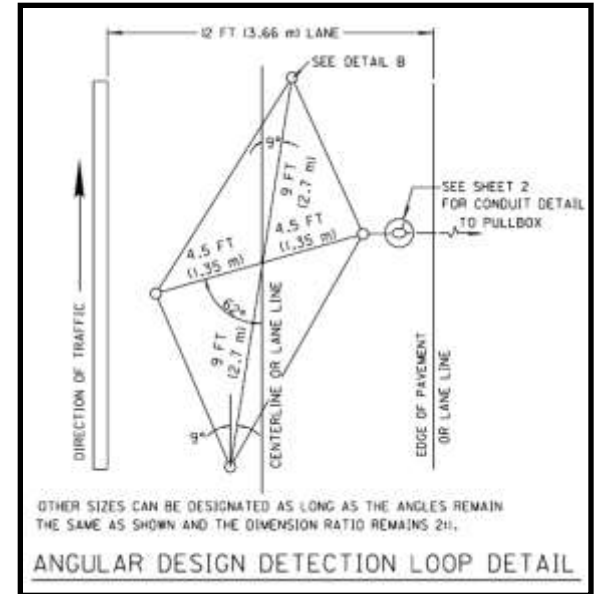
# Traffic Signals – Motorcycles & Bikes



Traditional Loop – Field  
Field Ht is  $\frac{1}{2}$  narrow  
dimen. “Cold” in the  
middle.

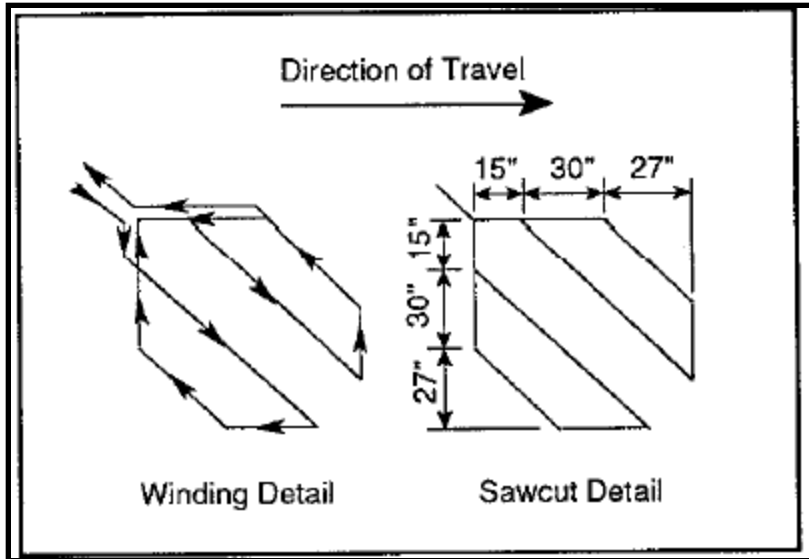


QuadroPole – Field  
Ht is  $\frac{2}{3}$  of  
narrowest dimn.  
“Hot” in the middle.

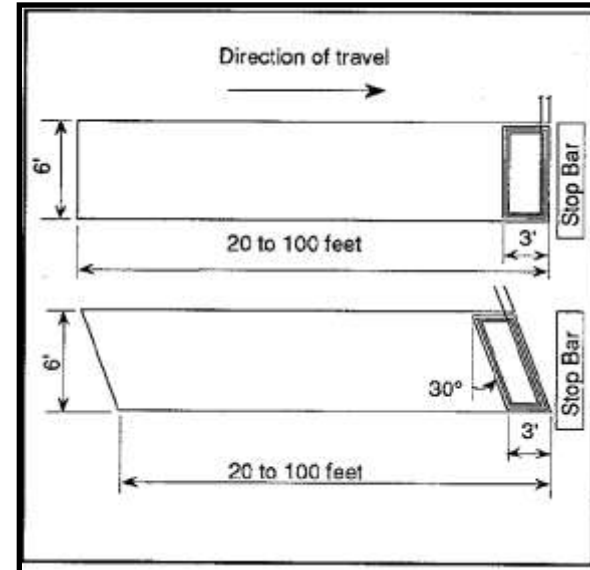


ADD Loop – Only “cold”  
spot is the obtuse  
corners. Good for all  
vehicles.

# Traffic Signals – Motorcycles & Bikes



Caltrans Type D Detector – Good for Bikes and Motorcycles



Traditional Loop with Power Head – Good for Bikes and Motorcycles

# Traffic Signals – Motorcycles & Bikes



Placed on the pavement surface ON TOP of the loop edge.  
Visual indication telling riders where to stop with best  
chance of being detected.

# Traffic Signals – Motorcycles & Bikes

- ▶ ODOT (Near) Future Actions
  - Establish one phone number for bike and motorcycles to report non-responsive traffic signals.
  - Mandatory design standards for detection that are “pro” bicycle and motorcycle.

# Maintenance Issues – Roadway Surface

- ▶ Roadway surface can be a concern for bicycles and motorcycles. Some issues include:
  - Excessive Crack Sealant
  - Milling
  - Pavement Marking Materials
  - Loose gravel

# Maintenance Issues – Roadway Surface

- ▶ Excessive Crack Sealant – From the ODOT Maintenance Administration Manual (MAM):

“Excessive crack sealing occurs when the sealant, sealing the crack, exceeds four (4) inches in width.”



# Maintenance Issues – Roadway Surface

- ▶ Milling – Creates an uneven surface that can cause a loss of control.



# Maintenance Issues – Roadway Surface

- ▶ Pavement Marking Materials:
  - Most common long life marking material for asphalt is Thermoplastic (note the “plastic” part)
  - Wet plastic becomes slippery and can cause steering issues for bikes and motorcycles. Don’t use Thermoplastic markings on bike paths & curb ramps.



This was a BAD idea on curb ramps – no longer allowed

Thank You