## **ABC's of Traffic Sensors**

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# Choosing a Sensor – 4 Factors

- Sensor Technology
- 2. Data needed
- 3. Site limitation
- 4. Cost consideration



# 1 - Sensor Technology (most common)

- Road tubes
- Video detection
- Radar/microwave
- Magnetometers/loops
- Piezos:
  - Polymer
  - Coax (channelized)
  - Quartz
- Bending plates
- Load cells



# 2 - Data to Be Collected: Volume, Speed or Class

- Array needed (number and spacing of sensors)
  - Volume: one sensor (axle hits)
  - Speed: 2 sensors
  - Length Class: 2 sensors
  - Axle Class: 2 to 4 sensors
- Desired accuracy and detail:
  - 2 loops or magnetometers
  - 2 axle sensors (full lane or partial lane)
  - 2 axle sensors and one loop (presence only)
  - 4 axle sensors (done by wheel path)
- Per vehicle storage or binned data

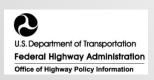


## 2 – Data to Be Collected: Weight

- Polymer Piezo (class 1)
- Coaxial Piezo
- In-line strain gauge
- Quartz Piezo
- Bending plate
- Load cell

#### Array to use:

- Double threshold (best WIM array to use see TMG page 3-73)
- Full width or partial
- 16' spacing best to reduce influence of vehicle dynamics
- 400' approach, array and exit distance



#### 3 - Site Limitations

- Pavement type and condition
- Sensor array
- Roadway right of way
- Communications, power and grounding
- Others



#### 4 – Cost Consideration

- Road tubes \$100 or less
- Loops \$500 \$1,000
- Radar/Microwave
- Magnetometers
- Polymer piezo (11' class 2) \$1,000
- Linear quartz or in-line strain gauge
- Bending plate or load cell



## **Questions and Comments**

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