

# Accommodating Pedestrians and Cyclists at Alternative Intersections & Interchanges

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# Five key questions to ask



1. How exposed are pedestrians/cyclists to traffic?
2. How fast are vehicles when interacting with pedestrians and cyclists?
3. Do pedestrians/cyclists understand where to cross?
4. Do pedestrians/cyclists understand when to cross?
5. Are drivers aware of pedestrians and cyclists?



# **1. HOW EXPOSED ARE PEDESTRIANS/CYCLISTS TO TRAFFIC?**

# High exposure = High Risk



Source: Bastian Schroeder

# Without Facilities, Travelers are faced with tough choices



Source: ITRE

# Multimodal Facilities can become part of the design for A.I.I.s



Source: ITRE

Source: ITRE

# Watch for Obstacles, Obstruction, and Uncomfortable Walking Environment



Source: ITRE



## **2. HOW FAST ARE VEHICLES WHEN INTERACTING WITH PEDESTRIANS AND CYCLISTS?**

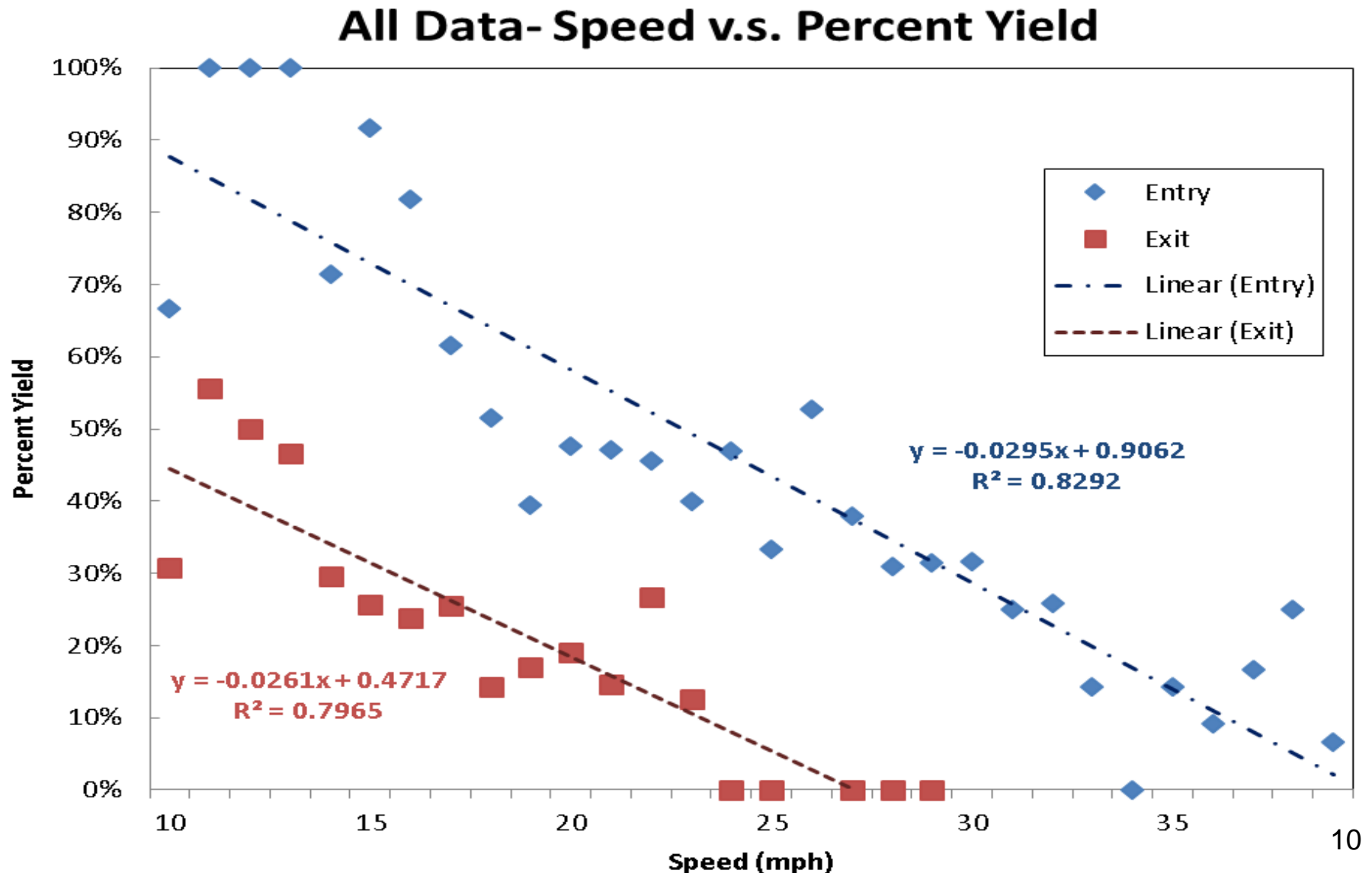
# Geometry Controls Speed



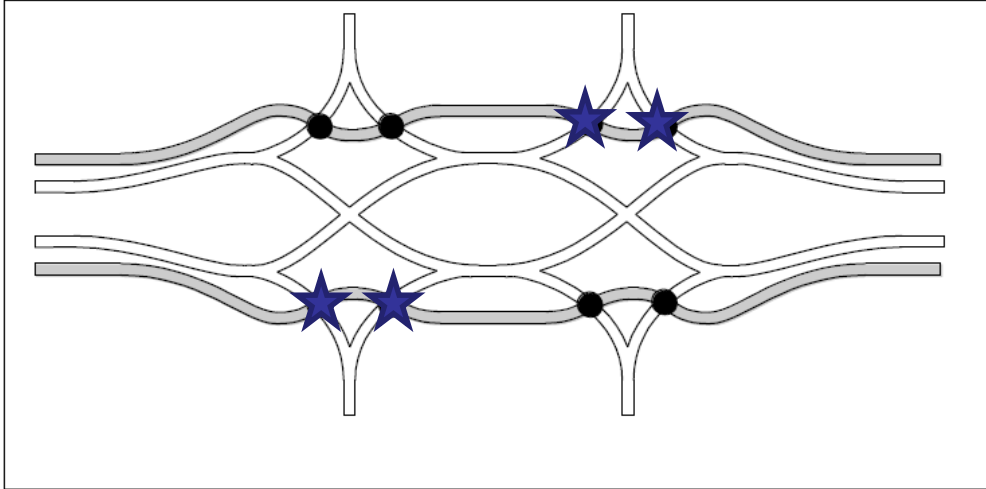
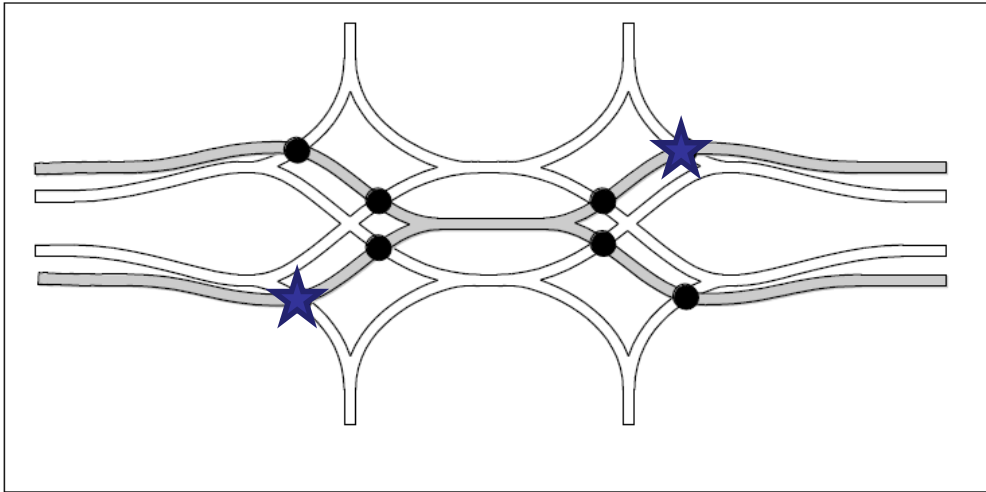
- Larger Radii contribute to greater vehicle speeds and more risky crossing environment

# Faster Speeds = Lower Yielding

## Higher Acceleration = Lower Yielding



# Consider Driver Action



- 8 Conflict Points
  - ★ 2 free/flow or accelerating
    - 6 stopped or decelerating
- 8 Conflict Points
  - ★ 4 free/flow or accelerating
    - 4 stopped or decelerating

# Vehicles accelerating to freeway speeds are unlikely to yield (DDI)



Source: ITRE



### **3. DO PEDESTRIANS/CYCLISTS UNDERSTAND WHERE TO CROSS?**

# Superstreet/RCUT Multi-use Path



Source: Google

# Pedestrian Channelization and Wayfinding



Source: Google



## **4. DO PEDESTRIANS/BICYCLISTS UNDERSTAND WHEN TO CROSS?**

# Communicating Traffic Direction

→ Look Left  
→ Look Right



# Communicating Direction of Traffic



Pedestrian markings to indicate directionality of traffic (Maryland Heights, MO).

# Unusual Geometry brings Unusual Challenges



Source: ITRE



## **5. ARE DRIVERS AWARE OF PEDESTRIANS AND CYCLISTS?**

# Sight Distance and Visibility Matter



- Open sight lines and good visibility can contribute to increased driver awareness and yielding
- Limited sight lines also impact audible information available at the crosswalk

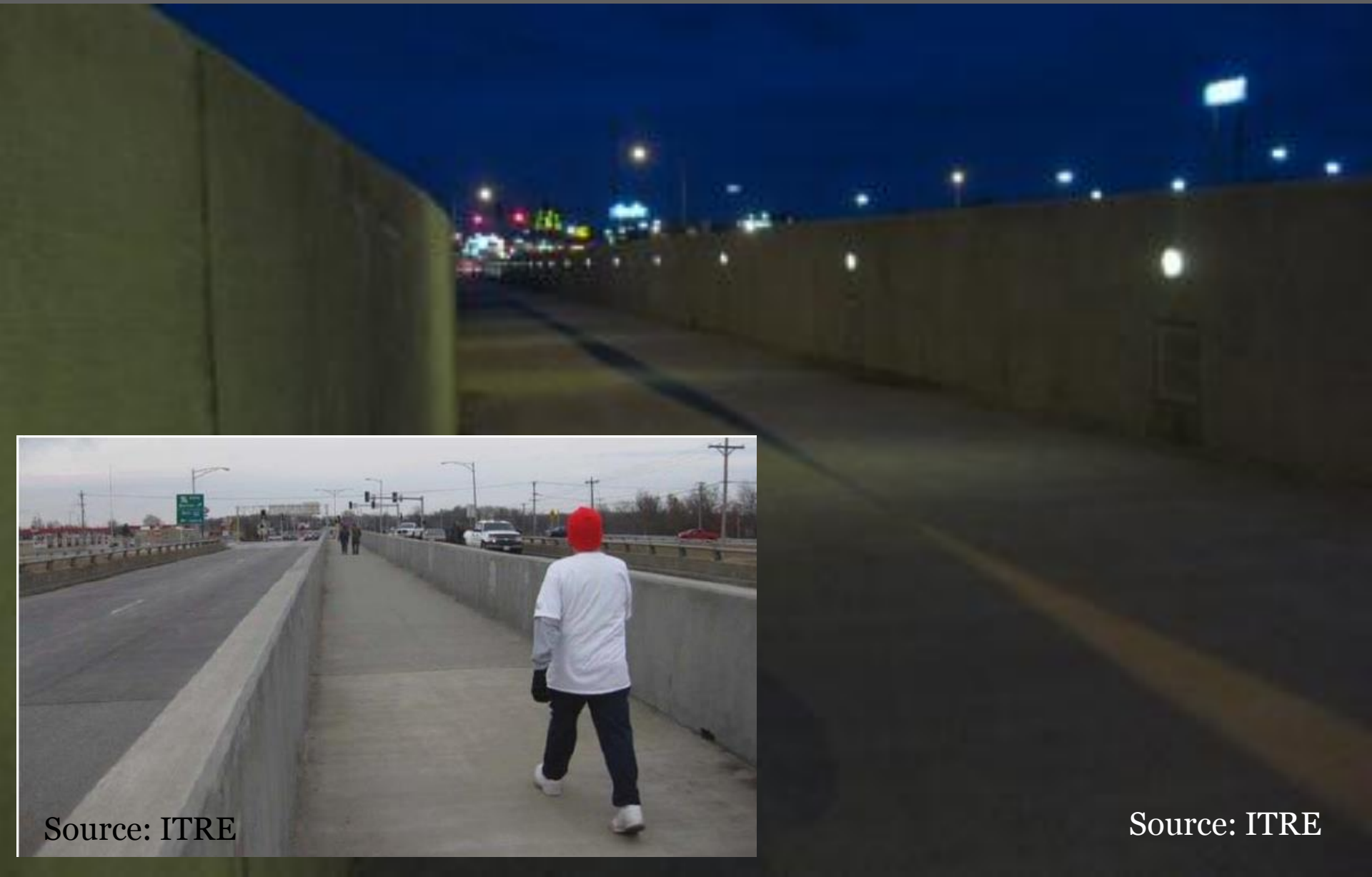


# DDI Free-Left Turn Conflict (for Outside Walkway)



Source: FHWA

# Lighting is Important



Source: ITRE

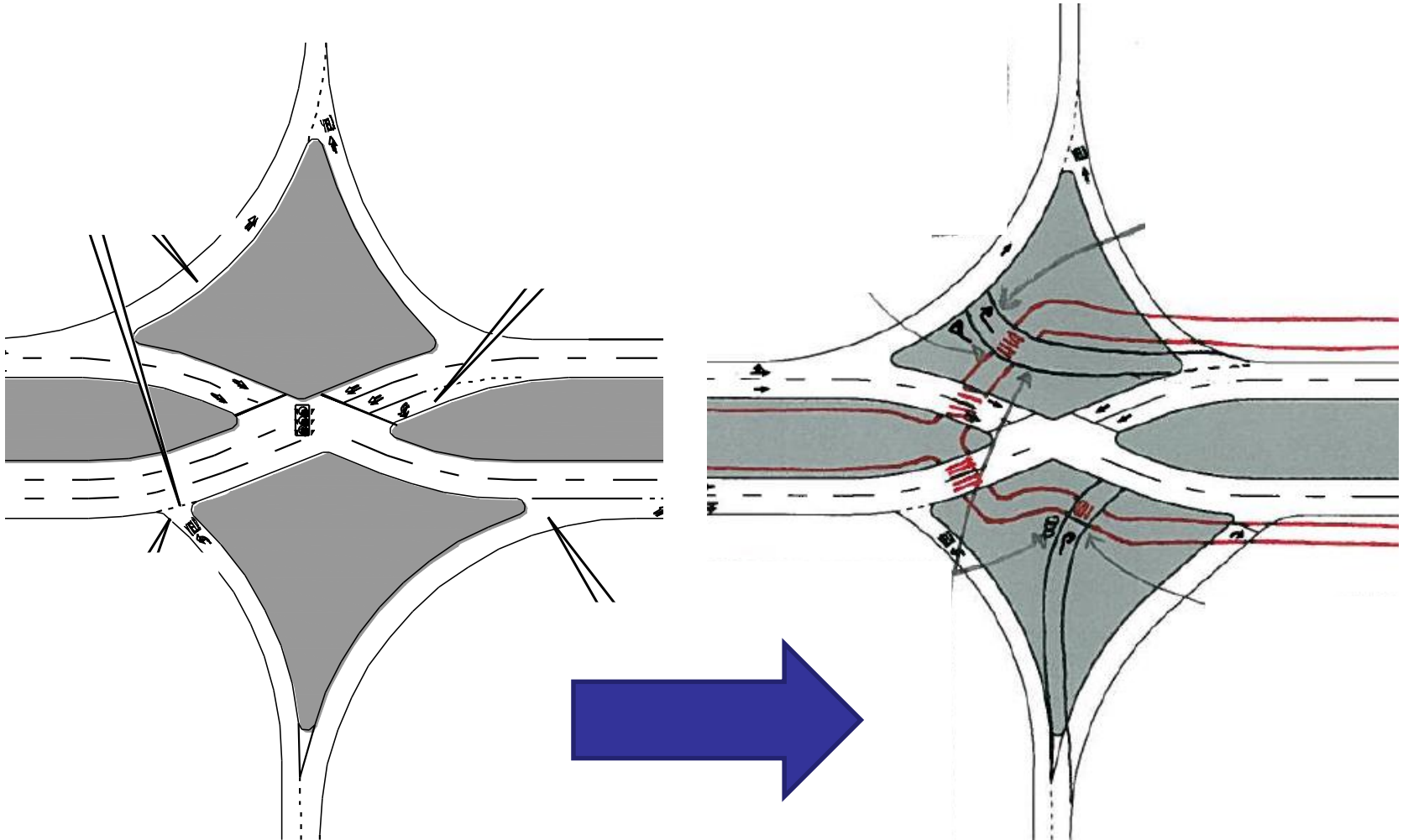
Source: ITRE

# Lighting Matters during Daytime as well



Source: ITRE

# Towards a Multimodal Design

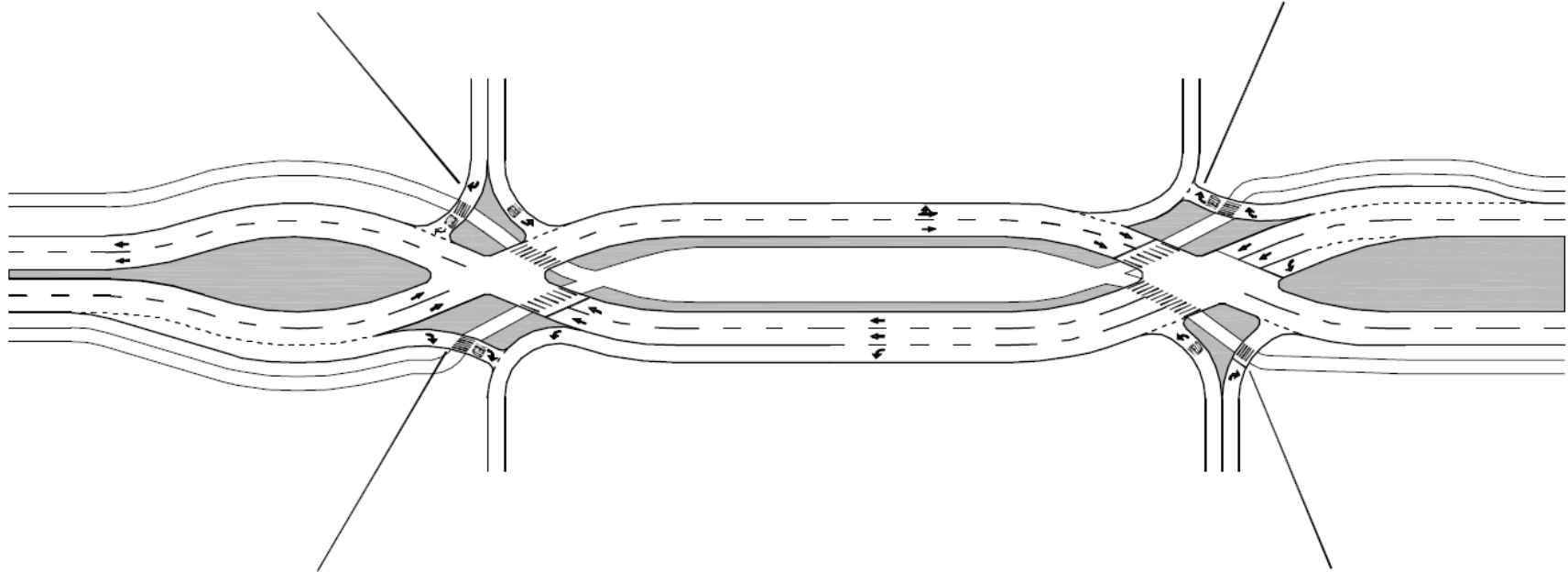


# Questions and Discussion



Provide adequate  
sight distance for  
vehicle approaches  
to crosswalks

Provide one vehicle length  
storage downstream of  
crosswalks for yield-controlled  
vehicle movements



Tight radii for  
right turns to  
reduce speeds at  
crosswalk -  
left turn not affected

Crosswalk behind stopbar for  
signalized vehicle turns