Pedestrian & Bicycle Roadway Design — Safe, Smart and Defendable

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Part I: 4 – Safe Design Features

- a) Bike Lanes in cities and villages
- b) 4 lane 3 lane conversions "Road Diets"
- c) Mid-block pedestrian crossings
- d) Signing rural road/shoulders as bike routes

Part II: Liability and Case Law

Michigan Pedestrian and Bicycle Safety Action Plan

Developed in Response to:





Governor's Traffic Safety Advisory Commission

Member Agencies:

Michigan Department of Transportation
Office of Highway Safety Planning
Michigan Department of State
Michigan Department of State Police
Office of Services to the Aging
Michigan Department of Education
Michigan Department of Community Health

Developed: April 2005 Last Updated: January 2008

Developed with input from:

- Federal Highways Administration
- Michigan Department of Transportation
- Michigan Department of Attorney General
- Michigan State Police
- The Greenways Collaborative

Safety & Liability

Does pursuit of safety expose an agency to liability?

- liability for action
- liability for inaction
- liability for trying something new

Safety - Driven by Profession

Liability - Imposed by Law

Safety

Professional best practice:

- AASHTO
 - e.g. "The Green Book"
- ITE / FHWA Guidelines and Research
- MDOT Design Manuals
- MMUTCD
- What has worked elsewhere

What is good pedestrian/bicycle design?

A design that facilitates safe movements for all users, both motorized or non-motorized!

Features that increase motorist expectation of bikes/peds:

- Conspicuous geometry
 - * crossing island
 - * curb extensions
- Conspicuous markings/signs
 - * crosswalk
 - * bike lane
 - * route designation

Bicyclists Belong on the Road

Typical crash scenario

Motorists scan roadway for vehicles, don't often scan sidewalk

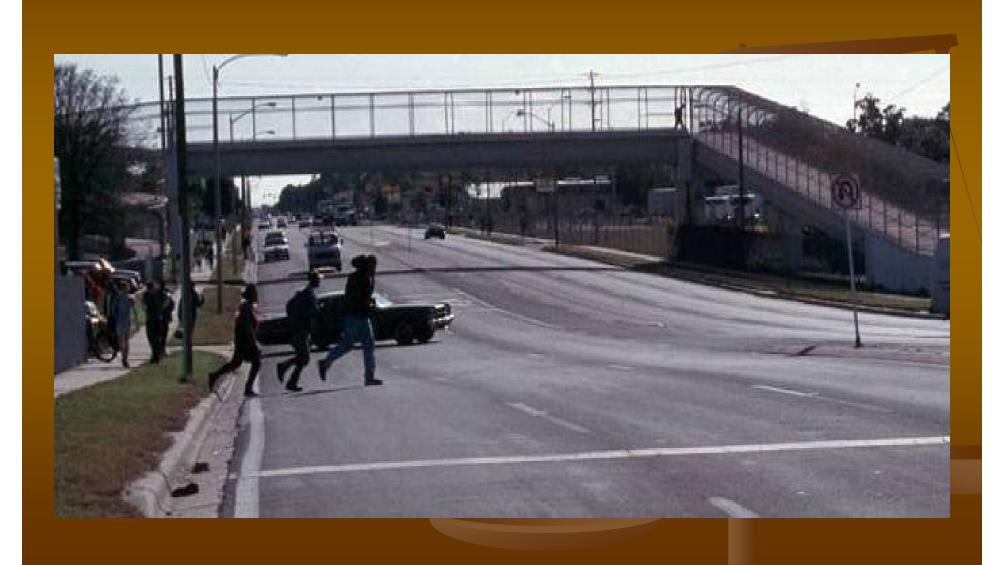
Ideally, Pedestrians would cross at a controlled intersection





But the reality is quite different

PEDESTRIANS WON'T GO OUT OF THEIR WAY!



Pedestrians: Safety in Numbers



More Pedestrians = Increased Driver Expectations of Encountering a Pedestrian = Increased Pedestrian Safety

Four GOOD Design Ideas

to Enhance

Pedestrian and Bicycle Safety

1. BIKE LANES





They're safer than sidewalk

Bicyclist Danger Index

Major Streets w/o Bike Lanes 1.28

Minor Streets w/o Bike Lanes

Streets with Bike Lanes

Sidewalks

Mixed-use Path**

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(* = shared roadway)
**= rail-trail type of facility)
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1.04*

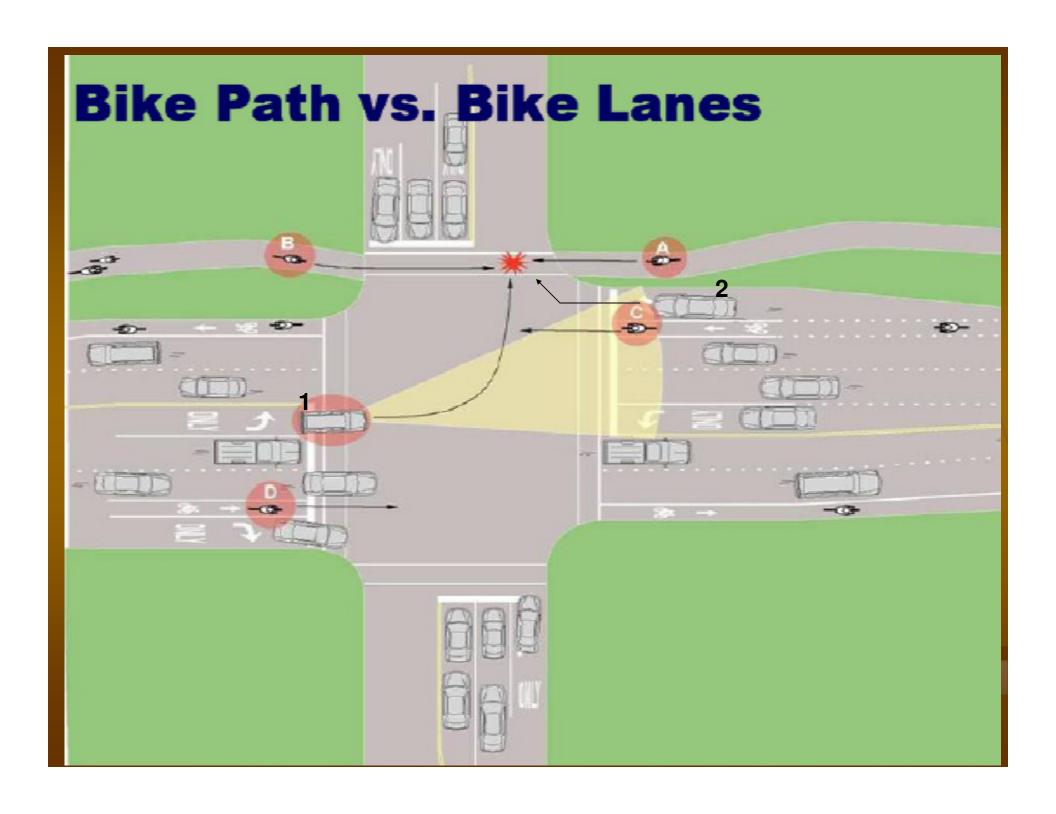
0.50

5.32

0.67

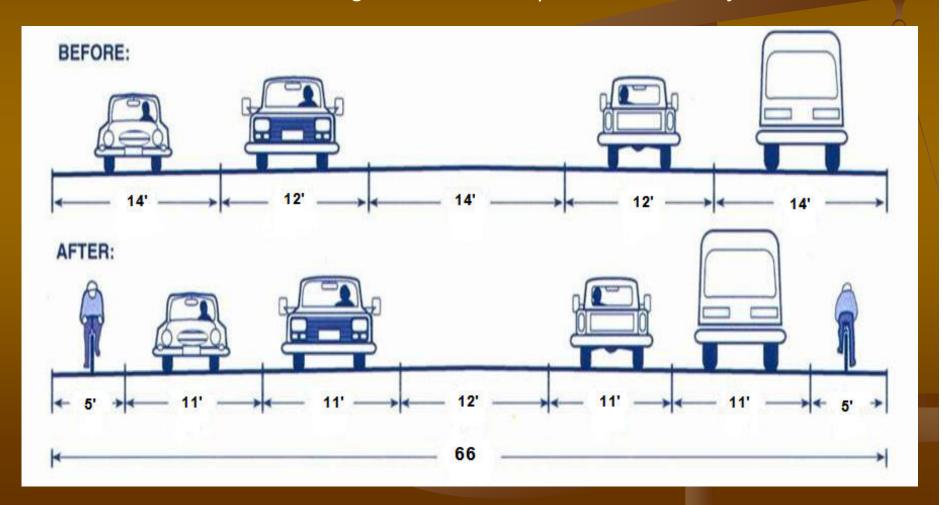
(1.0 = median)

Source: William Morita, U.W. – "Accident Rates for Various Bicycle Facilities" – based on 2,374 riders, 4.4 million miles



SOLUTION: Narrowing Existing Traffic Lanes to Provide Bike Lanes

- Typically done during repaving
- Can have a traffic calming effect on multiple lane roadways.





4-to-3 Lane Conversions - "Road Diets"



Iowa study: 30 locations 14 corridors



24%
Crash
Reduction

Michigan study – 8 corridors



Left turners cross only one lane

Injury crashes

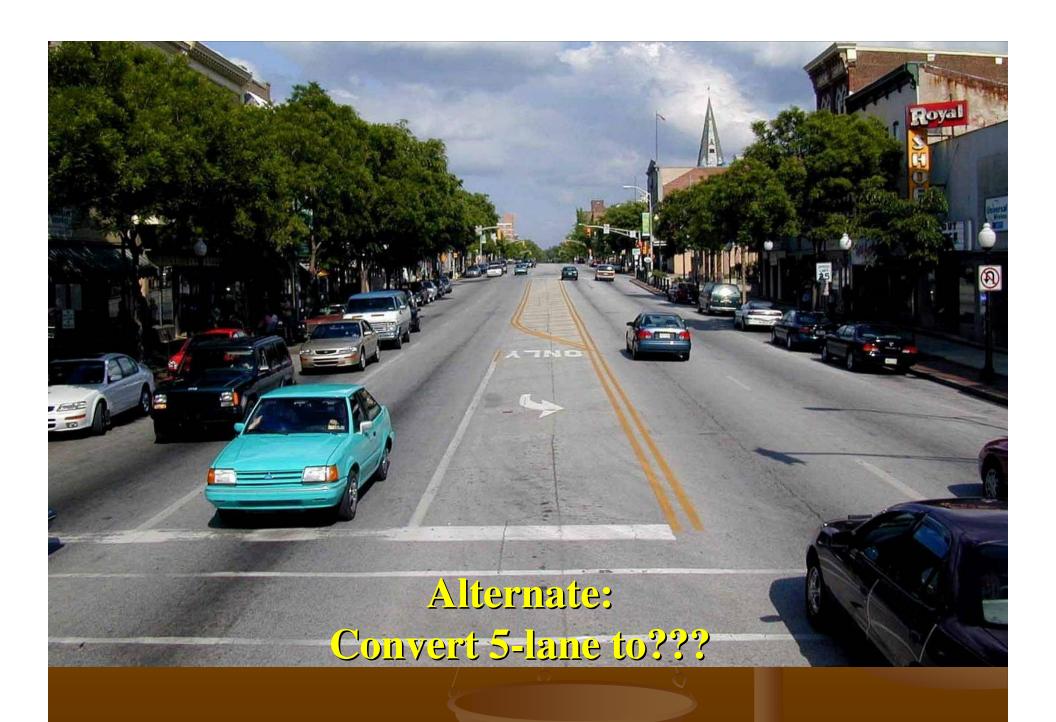


26%

Ped. Injuries



37%





Alternate:

... to 3 + bike lanes + diagonal parking

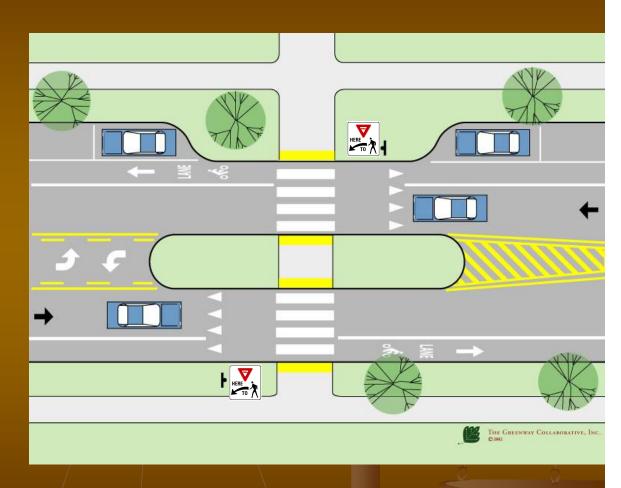
Benefits of Road Diets for Pedestrians

- Reduce the number of travel lanes to cross
- Eliminate or reduce "multiple threat" crash types
- Install medians or crossing island to break a long crossing into 2 shorter crossings
- Reduce top end travel speeds
- Increase sidewalk buffer from travel lanes (parking or bike lane)

3.

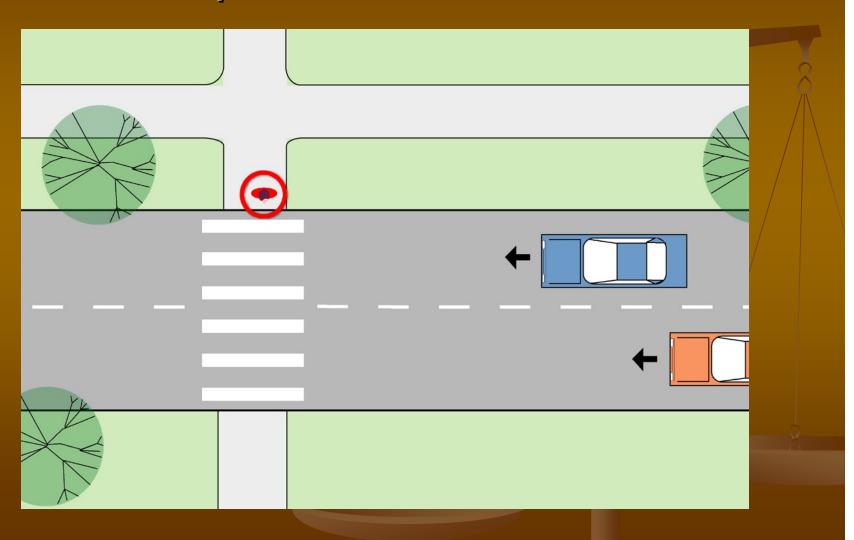
MID-BLOCK CROSSINGS

- People Will CrossAnyway Make it Safer
- No Turning MovementsNo "right-hook"
- Crossing only One Direction of Travel at a Time
- National statistics: refuge islands reduce ped. crashes up to 40%

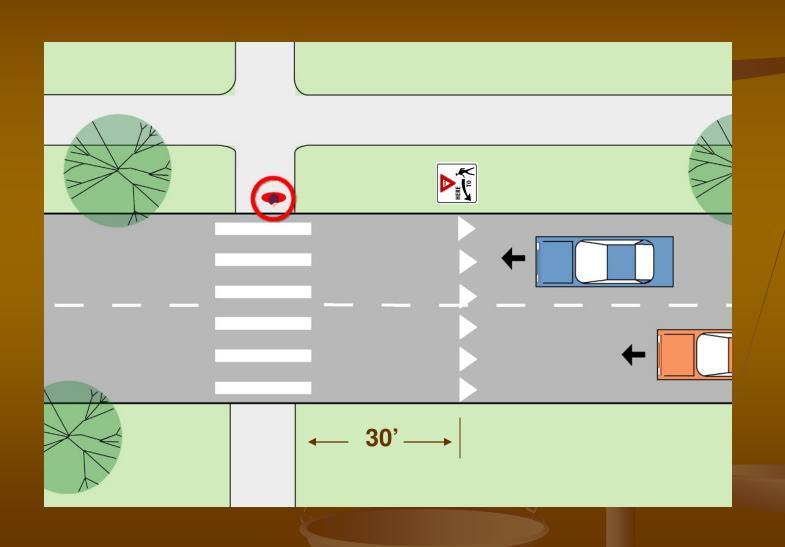


Crossing Islands are a Design Feature and Do Not Increase Liability for Road Agencies

ISSUE: Multiple Lanes Create a Multiple Threat Crash Scenario

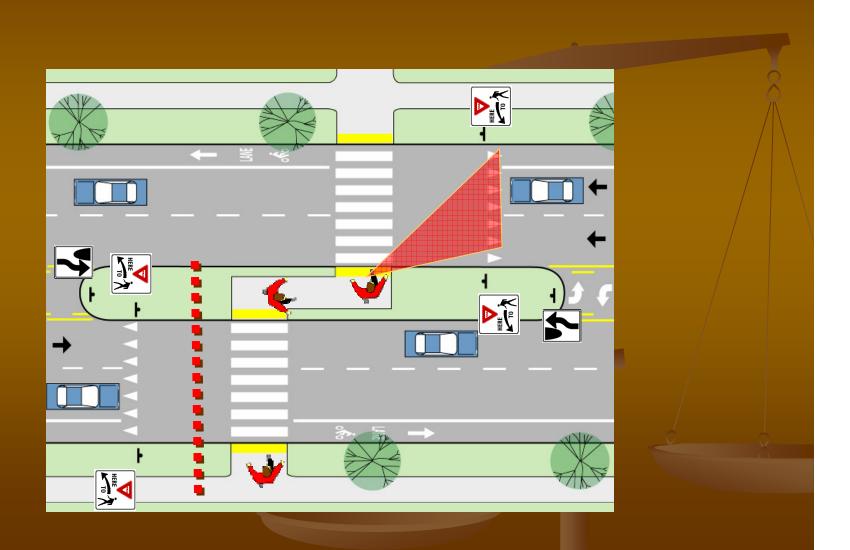


SOLUTION: Set Yield Lines Back



STAGGERED CROSSWALKS

- point pedestrians in right direction





Signing Rural Roads as Bike Routes









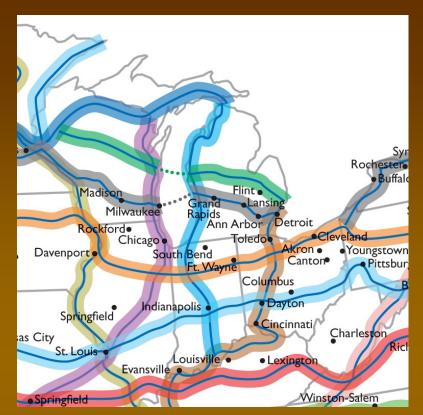
Bike Routes

- Wayfinding tool not a facility
 - Guide to specific destinations
 - Use strategically for less obvious routes
- Route should be appropriate for bicyclists
 - Low volume/speed road
 - Existence of bike lanes, paved shoulder desireable

Shoulders as Bicycle Facilities

AASHTO: Some rural highways are used by touring bicyclist <u>for intercity and</u> recreational travel.

Paved shoulders can significantly improve the safety and convenience of bicyclists and motorists along such routes.



AASHTO / Adventure Cycling – US Bicycle Route Vision



Southern Michigan Cross State Trail



Liability for On-road Facilities



Are these legally defendable?

■ Bike Lanes - YES

■ 4 – 3 Lane Conversions (Road Diet) - YES

Mid-Block Crossings - YES

Signing Rural Bike Routes - YES

Because...

All involve design decisions

 All involve signs, signals, or features outside the road bed surface

 All are recognized as reasonable measures to address specific safety problems

All empirically proven to make travel safer



Highway Exception:

Risk is low because exception is limited:

- Only a duty to repair and maintain
- No design liability
- Excludes signs, signals and structures out side the road surface
- Liability for only unreasonably unsafe defects

Highway Exception:

The Highway Exception:

"...each governmental agency shall maintain the highway in reasonable repair so that it is reasonably safe and convenient for public travel."

Governmental Tort Liability Act - MCL 691.1402(1)

Highway Exception

• The purpose of the highway exception is not ... an unrealistic duty to ensure that travel upon the highways will always be safe. ... [W]e discern that the true intent of the Legislature is to impose a duty to keep the physical portion of the traveled roadbed *in reasonable repair*.

■ Wilson v Alpena Co Rd Comm (2006)

Highway Exception

"Repair and Maintain" only:

- No general duty to make road "safe"
- Repair broken or dilapidated surface
- No requirement to "improve, augment or expand"
- Maintain what was originally built

Nawrocki v Macomb Co Rd Comm (2000)

Traffic signs and signals:

"...state or county road commissions have <u>no</u> <u>duty</u>, under the highway exception, <u>to install</u>, <u>maintain</u>, <u>repair</u>, <u>or improve traffic control</u> <u>devices</u>, <u>including traffic signs</u>."

Nawrocki v Macomb Co Rd Comm (2000)

Street light poles:

"...streetlight poles, like "traffic signals and signs," are not part of the definition of "highway"...(under the highway exception)."

Weaver v Detroit (2002)
[relying on Nawrocki]

■ Traffic signs and signals:

"The highway exception does not impose a duty on municipalities to install, maintain, repair, or improve traffic signals."

Johnson-McIntosh v City of Detroit (2006)

Accumulations of ice and snow

"...the accumulation ... of ice and snow on a sidewalk, regardless of whether it accumulated through natural causes or otherwise, does not constitute a "defect" in the sidewalk"

■ Estate of Buckner v. City of Lansing (2008)

Design or redesign defects:

"The plain language of the highway exception to governmental immunity provides that the road commission has a duty to repair and maintain, not a duty to design or redesign."

Hanson v Board of Rd Comm'rs of Mecosta County (2002)

Liability limited to:

Vehicular travel lanes:*

"The duty ...extends only to the improved portion of the highway <u>designed for vehicular travel</u> and does not include sidewalks, trail ways, crosswalks, or any other installation outside of the improved portion of the highway designed for vehicular travel."

Grimes v MDOT (2006)

*Applies to state and county roads only

Liability limited to:

Road surface "defects":

Maintenance conditions that "... a reasonable road commission would understand ...posed an unreasonable threat to safe public travel..."

Wilson v Alpena Co Rd Comm (2006)

Liability for:

Road surface conditions:

- Rutting
- **Potholes**
- Manhole covers
- Dilapidated road surface
- Traveled (vehicle) lane edge drops
- Missing storm sewer grates

■ Rough or uneven surfaces

"Nearly all highways have more or less rough and uneven places in them, over which it is unpleasant to ride; but because they have, it does not follow that they are unfit and unsafe for travel."

Wilson v Alpena Co Rd Comm (2006)

- Lane width
- Shoulder width
- Normal cross slope
- Horizontal curvature
- Super elevation
- **■** Transition area

- Vertical curvature
- Vertical clearance
- Stopping sight distance
- Bridge width
- Horizontal clearance
- Structural capacity

Individual Employee Liability

Public Employee Liability

- Employee/agent immune from tort liability if all the following conditions are met:
 - Employee acting within the scope of his or her authority.
 - Engaged in the exercise or discharge of a governmental function.
 - Conduct does not amount to **gross negligence** that is the **proximate cause** of the injury or damage.
 - MCL 691.1407 (2)

Public Employee Liability

Gross Negligence means conduct so reckless as to demonstrate a substantial lack of concern for whether an injury results.

- Examples:
 - Stop sign down or covered by vegetation
 - Employee running a stop sign or speeding while talking on cell phone

Public Employee Liability

"The" proximate cause of the injury or damage:

Supreme Court defined as "the most immediate, direct and efficient cause of " damage"

Only one proximate cause

Robinson v Detroit (2000)

No road agency liability for these design features:

- A design decision
- All involve signs, signals, or features outside the road bed surface
- Recognized as a reasonable measure to address a specific safety problem
- Empirical evidence it promotes safer travel

Risk of employee liability-slight

- No gross negligence:
 - Recognized as a reasonable measure to address a specific safety problem
 - Empirical evidence it promotes safer travel

Risk of employee liability-slight

■ Proximate causation

- More than a single cause of the accident and injury
 - Injured driver error
 - Other driver error

LIABILITY SUMMARY:

- AGENCY liability risk low:
 - Repair and Maintain
 - No design liability
 - Road bed surface only
- EMPLOYEE liability risk also low:
 - Gross negligence standard
 - "The" proximate cause requirement

Are these legally defendable?

■ Bike Lanes - YES

■ 4 – 3 Lane Conversions (Road Diet) - YES

Mid-Block Crossings - YES

Signing Rural Bike Routes - YES

Thank You

Questions?



MDOT'S MISSION

Providing the highest quality integrated transportation service for economic benefit and improved quality of life.

