Ann Arbor Crosswalk Review

Safely walking across a street

Presentation to Ann Arbor City Council
Work Session
December 12, 2011

Ann Arbor Crosswalk Review

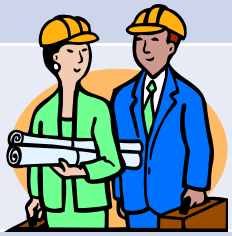
Ann Arbor Non-motorized Transportation Plan

- Vision

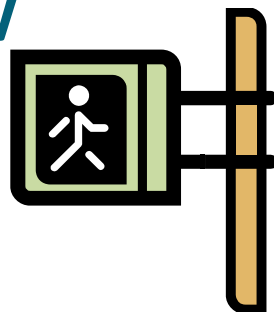
  " … A physical and cultural environment that supports and encourages safe, comfortable and convenient ways for pedestrians… to travel"

Ann Arbor Crosswalk Review

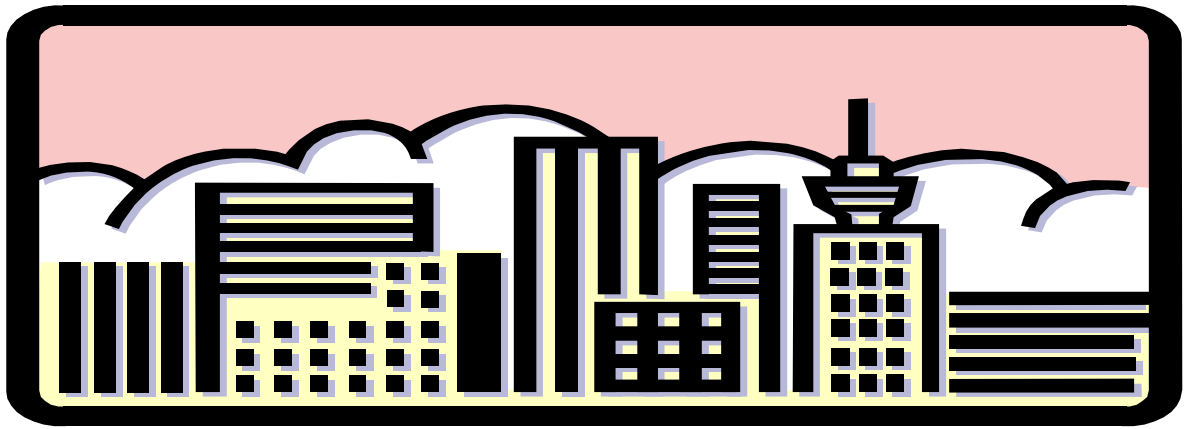
Ann Arbor's Five E Framework

	Primary Activities	City Lead
Encouragement	Promoting walking	ALT Transportation and Communications
Engineering 	Planning and physical domain	ALT Transportation and Project Management
Education	Information on rules of, and sharing the road	ALT Transportation and Communications
Enforcement 	City Code and police actions	Police, City Attorney and ALT Transportation
Evaluation	Monitoring	ALT Transportation and Project Management

Ann Arbor Crosswalk Review



- Crosswalk Research findings
  - 23 of largest 50 Cities have regulations
    - Fines range from $50 to $242
  - MN, MD, WA, OR, CO, FL & GA have “Stop” Laws
  - NJ and IL, adopted “Stop” in 2010
    - Rationale – Stop - Clearer than Yield
  - MI UTC is available for adoption, is not law without local action



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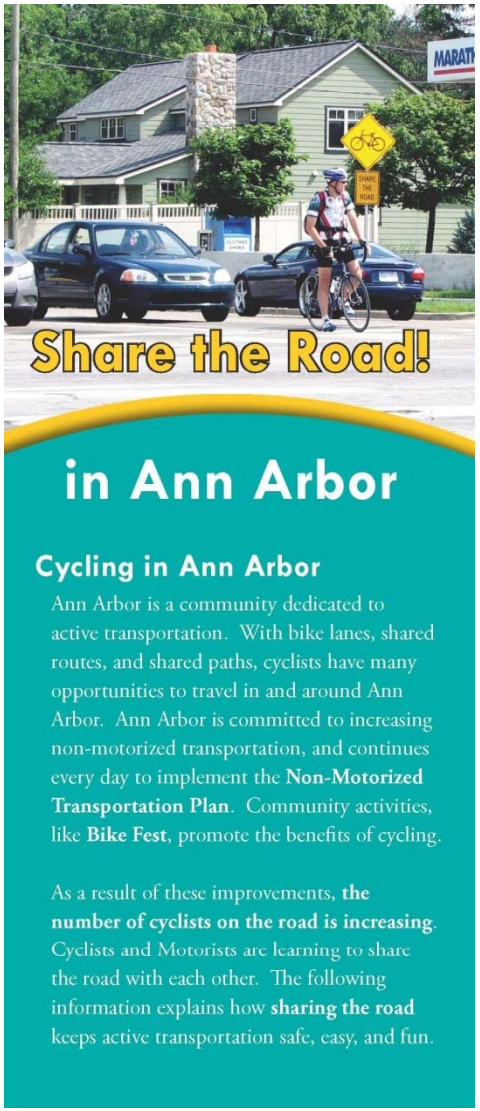
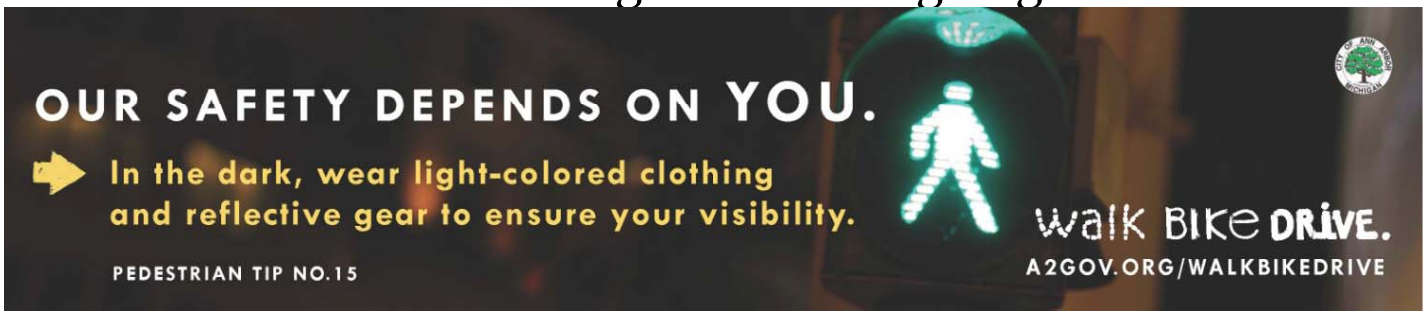
- Encouragement and Education
  - Awareness
  - Emphasis safety, roles and responsibility
  - Outreach Mechanisms
    - Brochures, posters, advertisements, inserts
    - Bus Advertising – inside and outside
    - Fleet operators, City, AATA, UM, USPS, Private Carriers
    - Employers via getDowntown Program
    - CTN, Radio and other outlets
    - In-road & Changeable Message signs





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- Engineering
  - Non-motorized Plan sets policy and context
  - Aligned with AASHTO and MMUTCD
  - Physical Environment
    - Pavement Markings
    - Warning devices
    - Innovation
    - Signs
    - Visibility
    - Bus Stops
  - Travel Characteristics
    - Roadway: Speed, Volume, Transit Operations
    - Pedestrian: Volume, Characteristics i.e. elderly

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- Enforcement
  - Code Provisions
  - Police activities
    - Targeted enforcement

- Evaluation
  - Monitor effectiveness
    - Pedestrian crashes and volumes
    - Crosswalk Stop Rate
    - others

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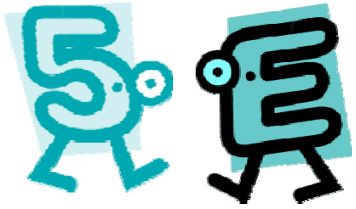
- Code modifications
  - Staff Recommendations (from First Reading version)
    - Keep "Stop"
    - "Curb line"
    - Multilane exception (UTC language)

  - Note also Current Code:
    - UTC section **R 28.1703 Rule 703.**
    - Do not pass stopped vehicle at marked crosswalk

Ann Arbor Crosswalk Review

- Summary
  - Five E's provide organizing framework
  - Educate and Encourage
    - Rights and Responsibilities
  - Enforcement
    - Code modifications recommended
    - AAPD role
  - Evaluation
  - Engineering recommendations



Crosswalk Ordinance:

City Bus Stops At Crosswalks

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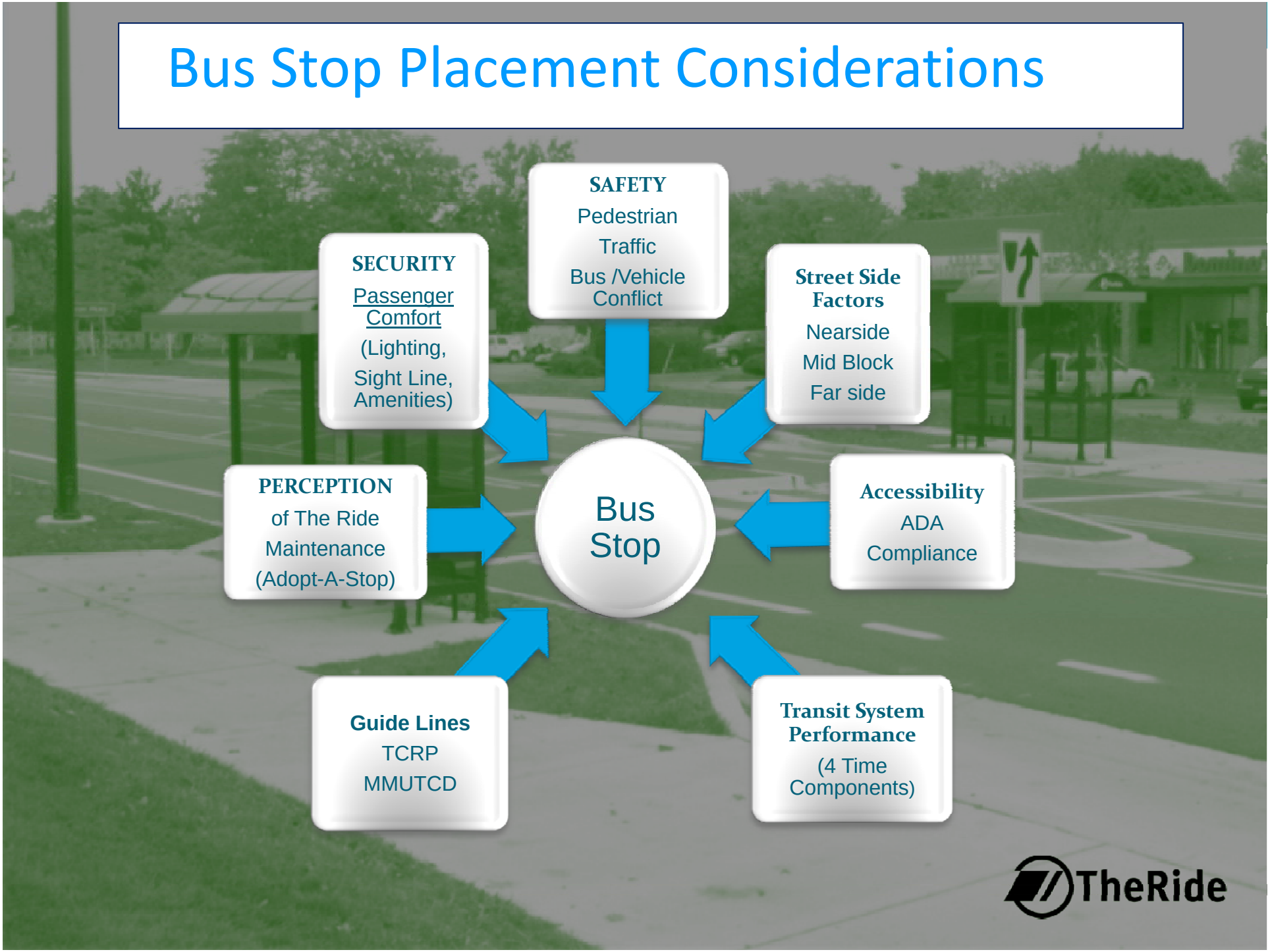
TheRide

Bus Stop Placement Considerations



Standard crosswalk configuration : Bus stop far side of the crosswalk

Standard crosswalk configuration : Bus stop far side of the crosswalk

- Encourages pedestrians exiting the bus to use the crosswalk.
- Better site lines for motorists and pedestrians.
- Coordinates transit operations with traffic patterns
- Takes advantage of lighting features

- ***Bus stops should be located close to adequate crossing facilities to encourage pedestrians to use crossing and reduce jaywalking*** - **FHWA**

TheRide

Plymouth at Beal: *Is under review*

- Winter Conditions

Plymouth at Beal

Bus Stop Improvement Program

Washtenaw non motorized path

Pedestrian Facilities.

Amenities at bus stops.

Comfortable Waiting Areas
Encourage Greater
Transit Use

ADA compliance at bus stops.

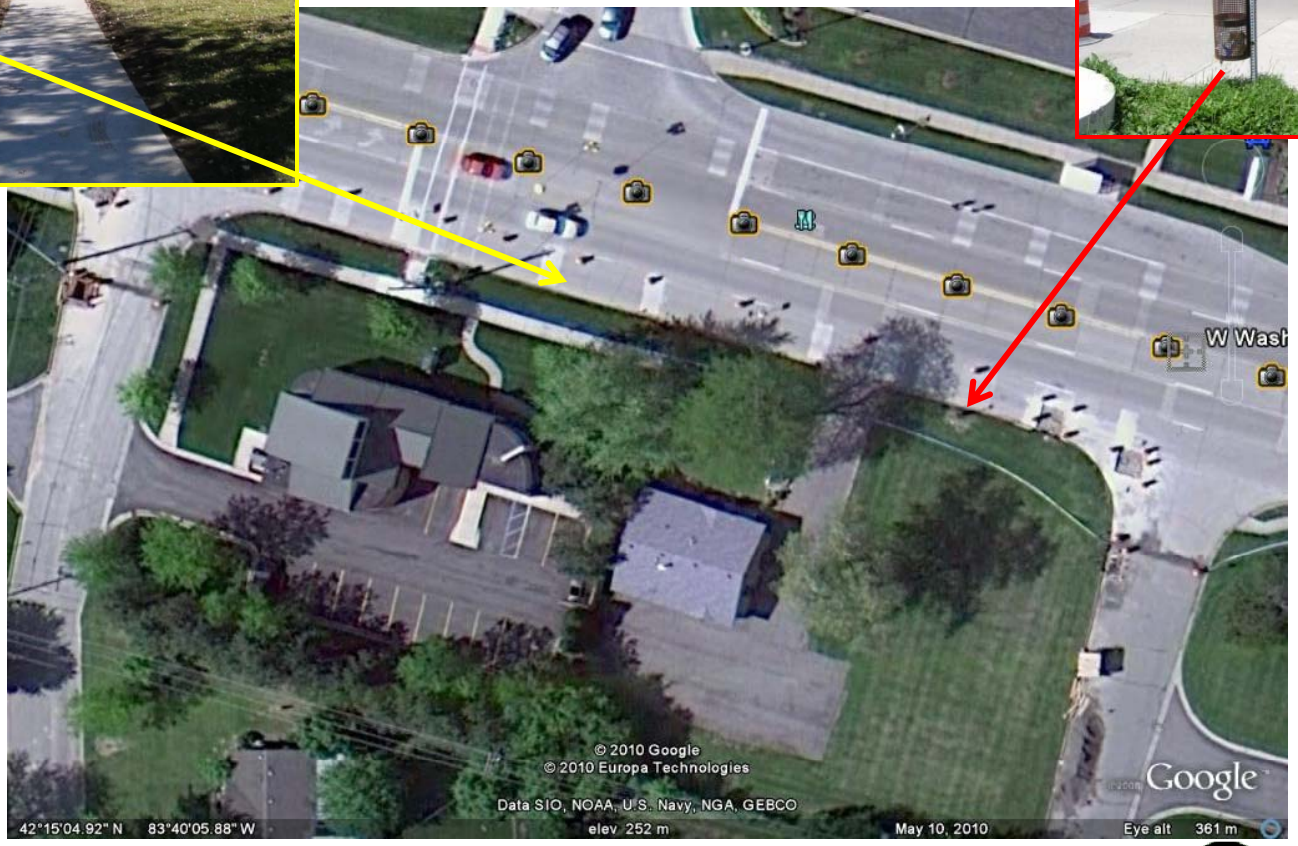
Pedestrian Facilities.

TheRide

Bus stop placement influences pedestrian behavior

After

Before



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- Public Transit riders are pedestrians twice during their journey.

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Pedestrian Crossing Improvements

Project Management Services Unit

City Council Work Session

December 12, 2011

Crosswalk Defined

"Cross-walk" means:

(a) That part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs, or in the absence of curbs from the edges of the traversable highway.

Crosswalk Definition – cont.

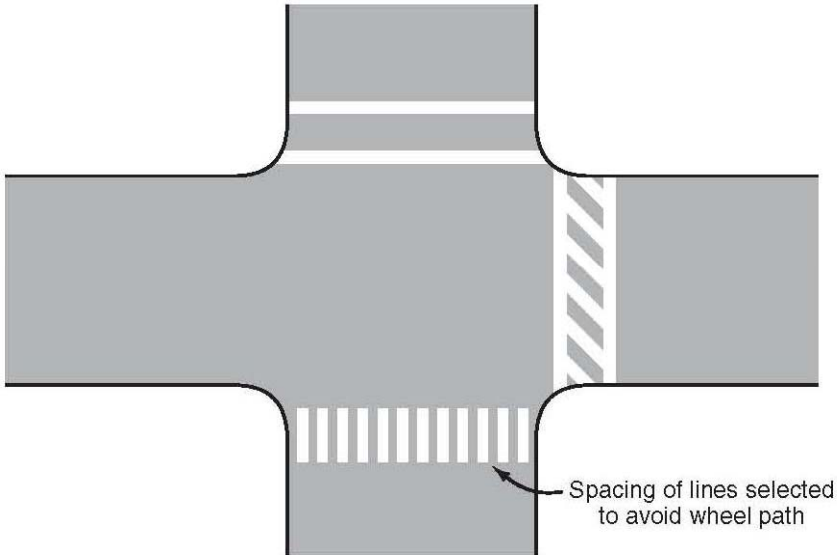
"Cross-walk" means:

(b) Any portion of a highway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface.

Crosswalk Styles

- Unmarked
- Traditional
- Special Emphasis

Figure 3B-16. Examples of Crosswalk Markings



In Road signs

No state law for uncontrolled crosswalks

Stop for pedestrians primary message

Sign is MMUTCD sign

- Size for in road only
- Uniform look for all
- Within Crosswalk standard language

Rear End Crashes

- Citywide 2006-2010 rear end crashes = 5534 (avg. 1100 per yr.)
- Rear end crashes largely property damage only (78%)
- Newly installed traffic signals increase number of traffic crashes
  - Avg. freq. Signalized intersection 14 per yr.
  - Avg. Freq. Unsignalized 4 per year
  - Predominantly rear end crashes
  - Drivers make a decision each cycle change
- 88% fail to stop in assured clear distance

Pedestrian Crashes

- Citywide 2006-2010 Pedestrian crashes = 225
- Pedestrian crashes predominantly injury crashes (95%)

Crosswalk Improvements

- Markings and signage
- Enhanced markings and signage
- Overhead signage
- Street lighting
- Textured pavement
- Raised crosswalk (minor streets only)
- In pavement lights
- Rectangular Rapid Flashing Beacons (RRFB)
- HAWK or Pedestrian Hybrid signal
- Conventional signal

Plymouth near Beal

- 22,000 vpd
- Speed Limit 35
- Five (5) lane cross section with pedestrian crossing island
- No recent crash history
- Site of two pedestrian fatalities in 2003

Washtenaw near Tappan M.S.

- State trunkline hwy (BL-94)
- ADT of 19,500
- Speed Limit 45 mph / school zone 30 mph
- 4 lane cross section
- No crash history

Selected Pedestrian Improvements

- In pavement lights
- LED airport strobes
- Reported 75% yielding
- MUTCD complaint
- Costly to install (requires trenching)
- Possible maintenance issues

Selected Pedestrian Improvements

- Blinker Sign
- LEDs in border
- Claimed 80% yielding
- Not MUTCD compliant ?
- Low cost and solar power

Selected Pedestrian Improvements

- Rectangular Rapid Flashing Beacon (RRFB)
- LEDs strobe in stutter flash
- Pedestrian actuated
- High 80% yielding rate
- MUTCD compliant
- No warranting volumes set
- Low cost and solar power

Maryland Ave near UNLV

Selected Pedestrian Improvements

- Pedestrian Hybrid Beacon or HAWK
- Red / Yellow signal
- Pedestrian actuated
- 90% yielding rate
- MUTCD complaint – warrant required
- High cost and requires power

Recommended Improvements

- Installation of RRFBs at all four (4) Plymouth island locations
  - Lower cost and complements existing infrastructure
  - High yielding rates
  - Consistent treatment along the corridor

- Washtenaw Ave near Tappan under study by MDOT
  - Pedestrian volumes likely not warranting HAWK

Budget and Schedule

- Estimated $65,000 cost for all four RRFBs
- No dedicated funding
- Use fund balance from major streets
- Projected start early February and complete by March 31

Thank You

Questions?