

# City of Battle Creek Bike Lanes

## Planning to Implementation

MRPA Trails Summit  
February 3, 2009



## Today's Presentation

Non-Motorized Transportation Master Plan Process  
(Leah Groya)

Bike Lane Implementation  
(Martin Parker)



## Non-Motorized Transportation MP

- Parks Department had developed an extensive system of shared use paths along Kalamazoo river
- User group pushing Council to develop bike lanes and connections to shared use paths
- "Cereal City" – healthy lifestyle is their mantra
- Began Master Plan in May 2005
- 10 month process – Plan adopted in March 2006



## Purpose of the Non-Motorized Transportation Master Plan

Develop a plan and vision for the City that:

Provides a non-motorized choice that is convenient, safe, and links people, schools, businesses, parks, natural resources, and landmarks to each other and to adjacent communities.



## Goals For the Master Plan

- Be implementation oriented and serve as a guide for non-motorized trail and bike lane planning, funding, design, and construction.
- Communicate in a highly illustrative manner, the vision, goals, and possibilities for non-motorized connections.
- Communicate the various benefits of a connected non-motorized system.



## Goals For the Master Plan

- Utilize community and stakeholder involvement and input to develop the non-motorized vision.
- Utilize the plan to establish Battle Creek as a non-motorized friendly community.



## Project Elements

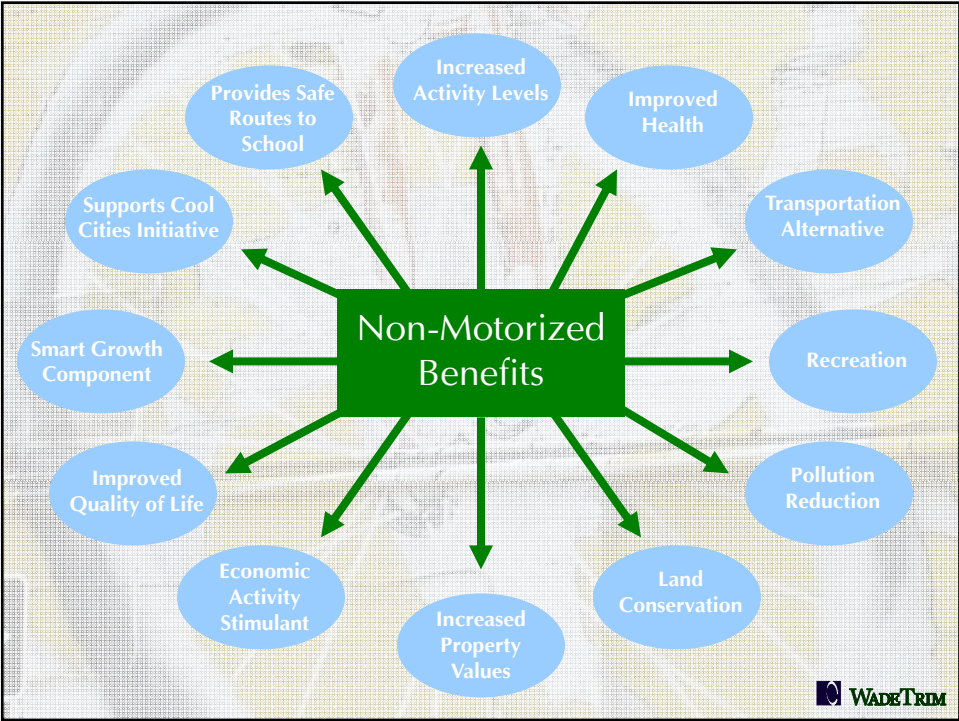
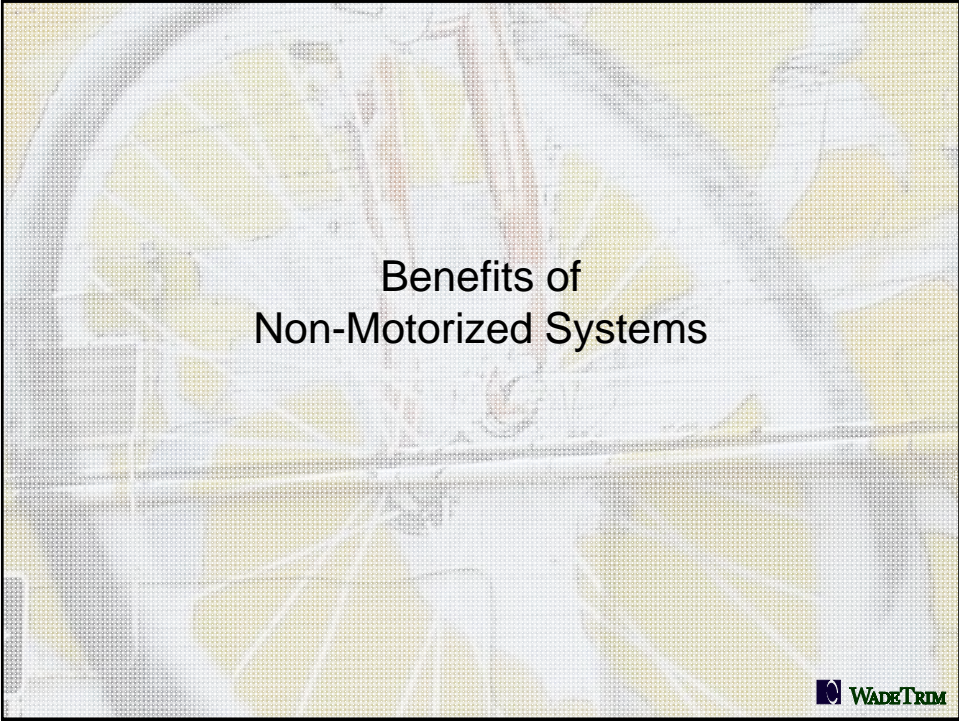
- Existing Conditions Inventory
- Preliminary Route and Corridor Alternatives
- Workshop #1 – Identify Preferred Routes
- Develop Draft Plan (recommended routes, policies, ordinances, education, phasing plan, probable cost estimates, design guidelines)
- Concept Plans (decision document) for 3 specific projects

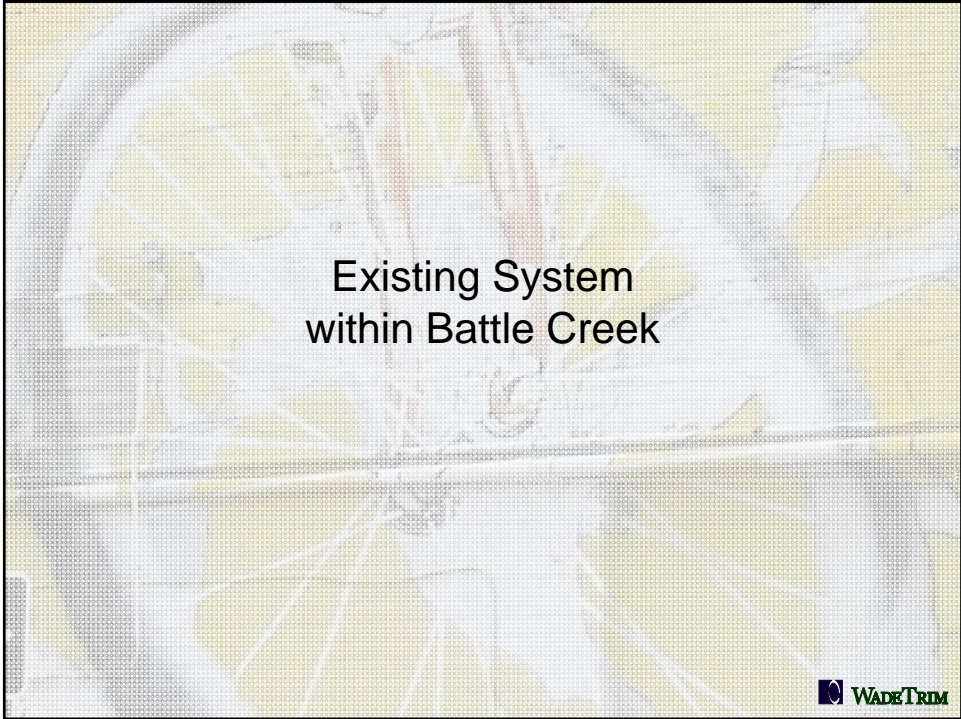


## Project Elements

- Workshop #2 –  
Gather comments on draft plan
- Present Final Plan to City Commission







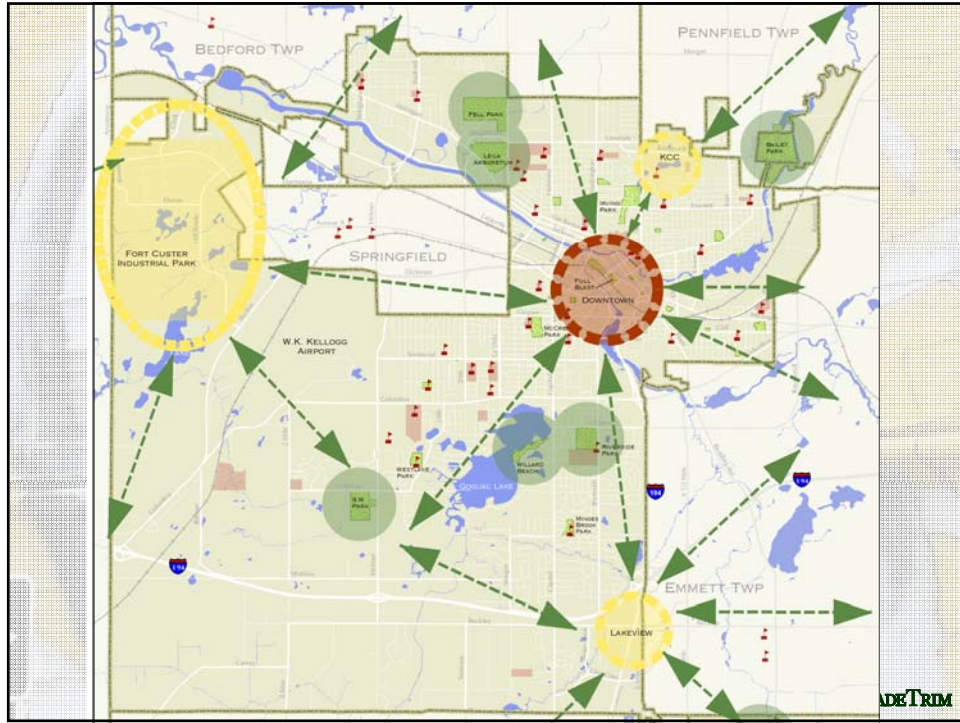
## Existing System within Battle Creek



## Clusters of Activity and Destinations

- Downtown Battle Creek
- Parks
- Schools
- Fort Custer Recreation Area
- Kellogg Community College
- Fort Custer Industrial Park
- Lakeview Mall Area



















## Other Factors Considered

- Population Density
- Future Land Use
- Vehicular Speed Limits
- Vehicular Traffic Volumes
- Bus Routes
- Planned Road/Bridge Improvement Projects
- Existing Policies and Ordinances



## Collaboration

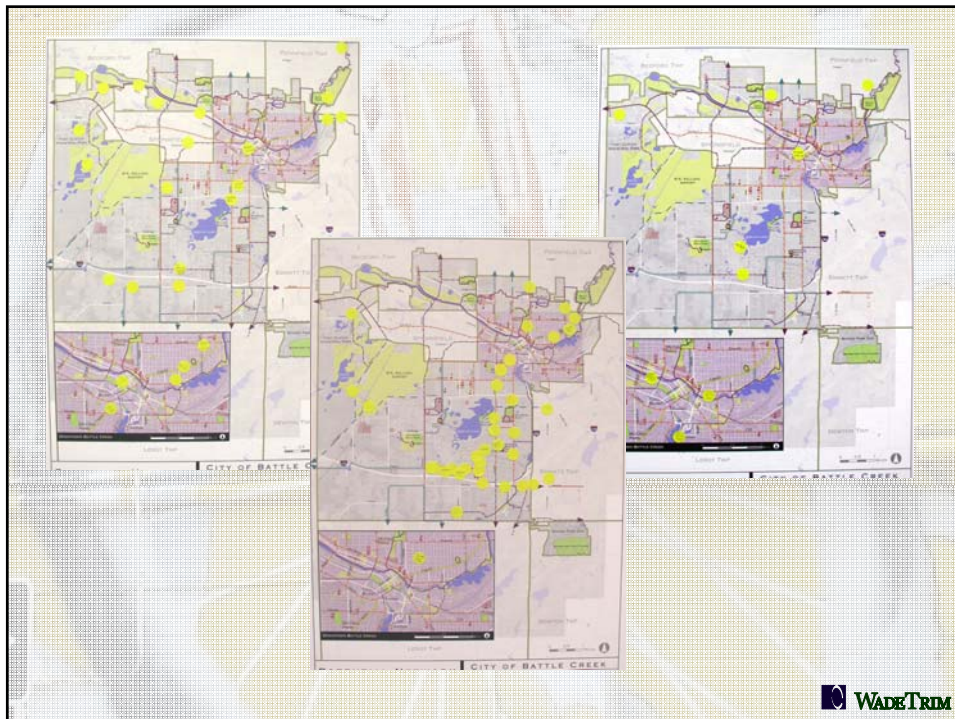
- City officials and staff
- Nearby communities and MDOT
- Non-motorized interests
- Public workshops
- Commission Presentation





## Public Workshop #1 (9-27-05)

- Approx. 40 people attended
- Participants provided input and noted priority routes and corridors on the draft maps.





## Public Workshop #2 (12-13-05)

- Approx. 25 people attended
- Participants reviewed and commented on the potential non-motorized network, discussed implementation strategies and design considerations.





## Planned Network of Non-Motorized Routes and Corridors



## Types of Proposed Systems

- Shared Use Trail / Linear Park
- Bike Lane
- Paved Shoulder
- Route Signage Only

Estimated Distances of  
Non-Motorized Network

**Planned (2006)**

Bike Lanes 5.4 miles

**Potential**

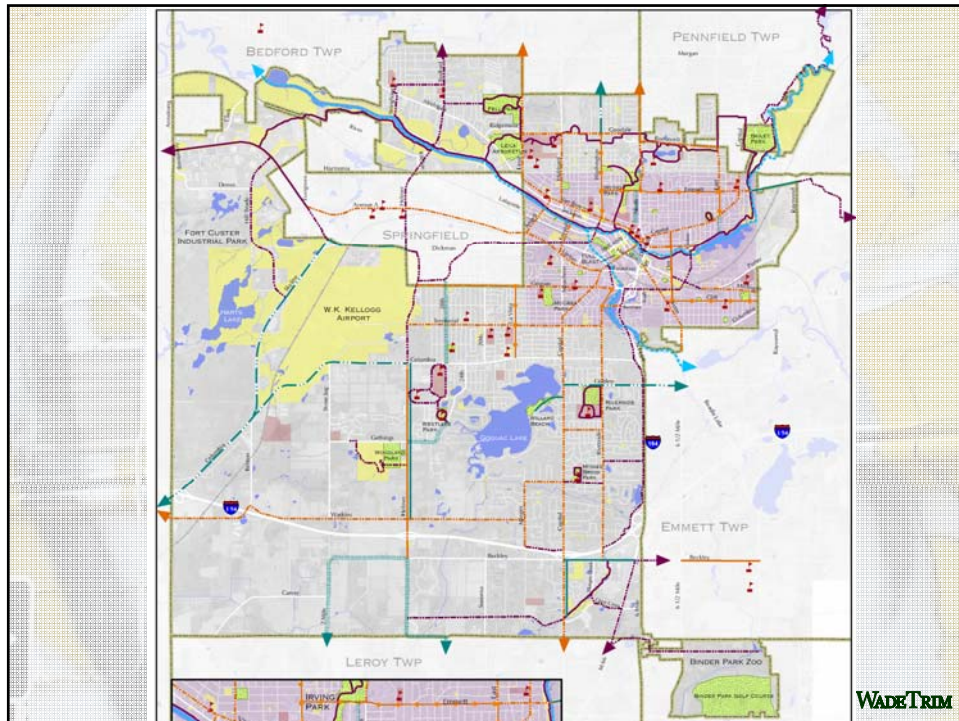
Shared Use Trail 34.4 miles

Bike Lane 42.9 miles

Paved Shoulder 10.1 miles

Route Signage Only 6.2 miles






## Design Considerations

- Shared Use Trails
- Bike Lanes
- Paved Shoulders
- Route Signage
- Water Trails
- Railroad Crossings
- Bike Racks and Parking
- Drainage Inlet Grates
- Maintenance
- Safety





## Implementation Strategies



## Short-Term Actions (0-5 yrs)

- Incorporate into Comp. Master Plan
- Bikes on Buses
- City Bike Rack Program
- Ordinance and policy language
- Safety and education media campaign
- Dedicated maintenance program
- Coordinated signage and wayfinding
- Identify and designate bike routes



## On-Going Actions

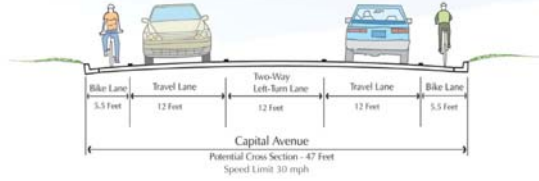
- Annual mtg with agencies to discuss upcoming projects
- Raise level of awareness internally and externally
- Review and update Non-Motorized Network Map on annual basis
- Encourage developers to include non-motorized connections
- Expand Safe-Routes-To-School program
- Investigate land acquisition opportunities that would enable extensions
- Coordinate with Battle Creek Police Dept.



## Concept Plans

- Design Decision documents completed for 3 routes
- Looked at typical sections of route
- Existing geometry
- Proposed geometry
- Level of Service Analysis for intersections
- Reviewed crash history (non-motorized)
- Identified outstanding issues





In this concept design plan alternative, 5' to 5.5' wide bike lanes are illustrated along Capital Avenue from Columbia to North Avenue.

This treatment would require the reduction of the number of vehicular lanes. The section above illustrates two, 12-foot wide travel lanes and one 12-foot wide center two-way left-turn lane.

**Estimated Cost for Implementation\*:**

Plan Development	\$5,000
Signing	\$7,200
Marking	\$15,000
<b>TOTAL</b>	<b>\$27,200</b>

\*Assumes bike lanes will be signed and marked following resurfacing of the roadway.

Costs are probable estimates that can change depending on bidding, climate as well as numerous field conditions. These should be used only to understand magnitude of costs. Potential projects should be reviewed by an Engineer to develop accurate cost estimates for implementation.

It should be noted that face of curb to face of curb widths vary along the corridor and the provision of non-motorized facilities can be accomplished in a variety of ways. These concepts represent a potential alternative for further consideration.

**LEVEL OF SERVICE (LOS) ANALYSIS**

**Existing LOS**

- Columbia - LOS E, 59 seconds/vehicle
- Territorial - LOS C, 32 seconds/vehicle
- Fountain - LOS A, 9 seconds/vehicle
- Van Buren - LOS B, 14 seconds/vehicle

**LOS if reduced to 3 lanes with 5' to 5 1/2' bike lanes**

- Columbia - LOS F, 82 seconds/vehicle
- Territorial - LOS D, 40 seconds/vehicle
- Fountain - LOS B, 11 seconds/vehicle
- Van Buren LOS C, 20 seconds/vehicle

**OUTSTANDING ISSUES & CONCERNS**

- Significant reduction in vehicle level of service at major intersections could result in motorist complaints.
- Must reduce travel lanes to provide space for bike lanes at Columbia and to improve safety.
- Long-term implementation requires resurfacing to mark travel lanes and bike lanes.

**RECOMMENDATION**

Reducing the number of through vehicular lanes from 4 to 2 is physically feasible, however, there is a significant reduction in the level of traffic service. Implementation should be considered in the future after numerous other bike lanes are installed on other routes and the City has had the opportunity to evaluate the actual impact of those facilities.

**BIKE LANE  
CONCEPT DESIGN 1  
CAPITAL AVENUE  
(COLUMBIA TO NORTH)**



**CAPITAL AVENUE SEGMENT A  
(AT COLUMBIA AVENUE)**

**EXISTING GEOMETRY**

Width from curb to curb:  
58 Ft. 1 (at intersections north and south of Columbia)

Number of thru lanes: 4

**POTENTIAL GEOMETRY**

Width from curb to curb:  
58 feet

Number of thru lanes: 2 with center left-turn lane





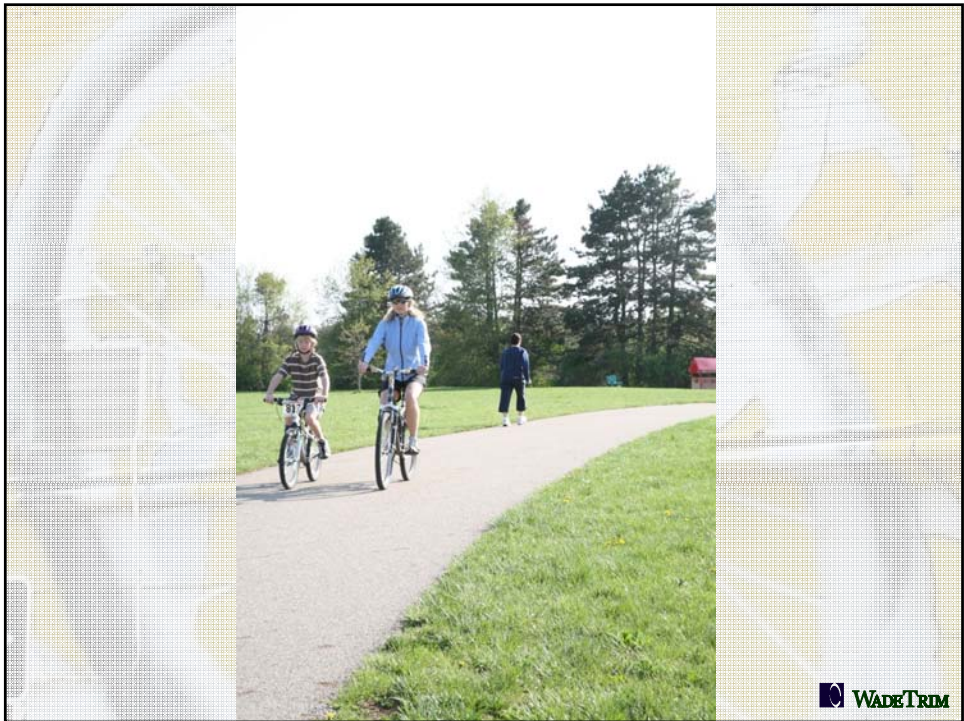
## Implementation



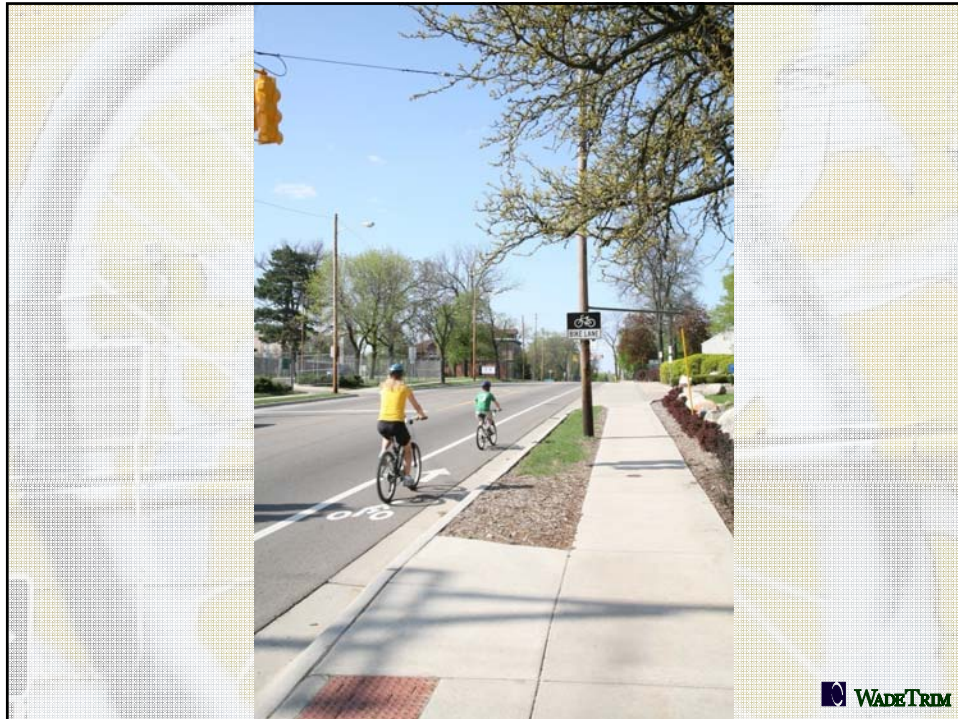
## Factors Affecting Implementation of Routes

- Ease of implementation (few design conflicts and associated costs)
- Serves multiple destinations
- Coincides with other projects
- Will improve/ensure non-motorized safety
- Connects to existing non-motorized facilities
- Part of planned network
- Connects to other transportation modes
- Frequency of estimated usage
- School-related usage
- Degree of effect on vehicular traffic capacity









## Factors That Affect Pedestrians

- Presence of a sidewalk
- Separation of pedestrians and motorized vehicles
- Lateral separation of pedestrians and motorized vehicles
- Presence of physical barriers and buffers (including parking) between automobiles and pedestrians
- Motorized vehicle volume
- Motorized vehicle speed

## Factors That Affect Bicyclists

- Presence of bicycle lane or paved shoulder
- Proximity of bicyclists to motorized vehicles
- Motorized vehicle volume
- Motorized vehicle speed
- Motorized vehicle type (percent truck/commercial traffic)
- Pavement condition
- Percent on-street parking





## Basic Strategies

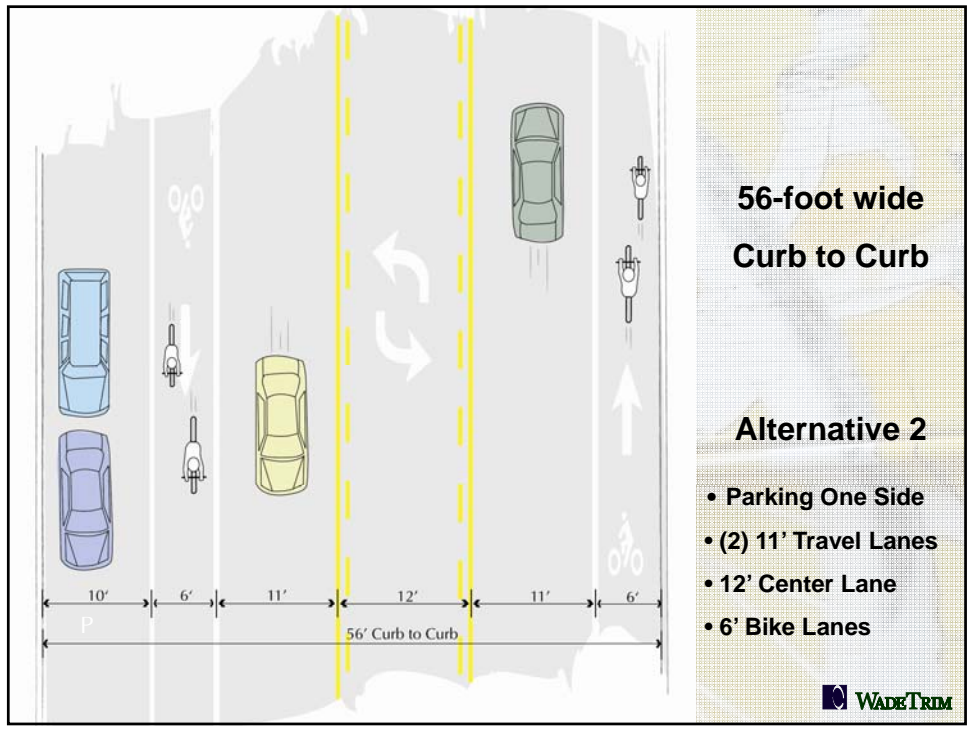
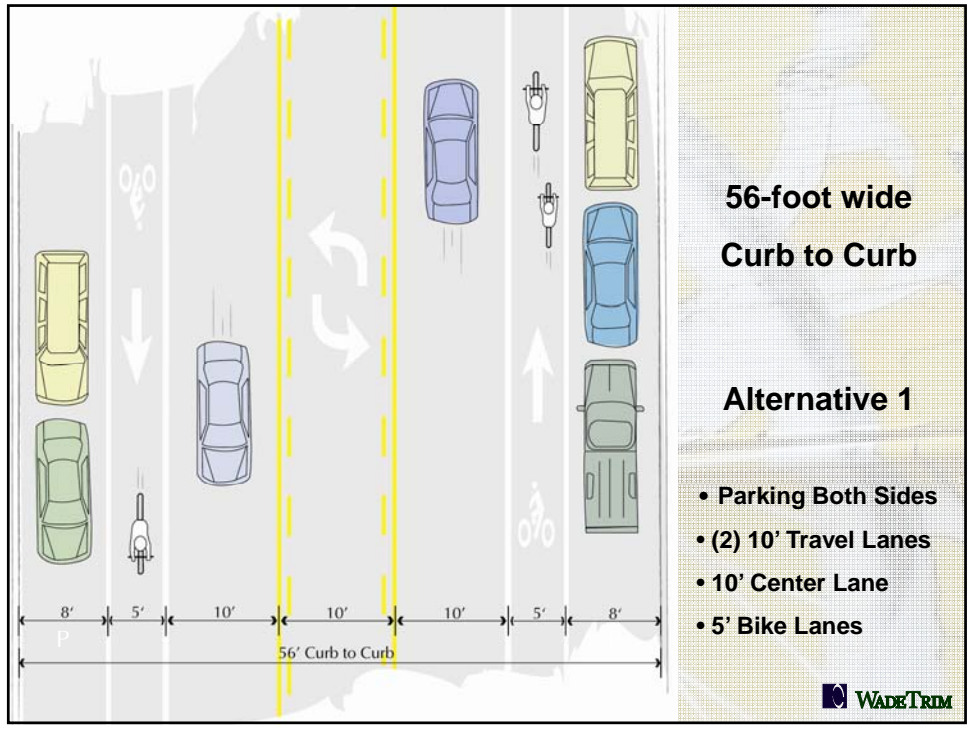
- Add bike lanes through striping/signage
- Reduce number of lanes
- Eliminate center turn lane, if possible
- Reduce vehicle lane width
- Eliminate parking (one side or both sides)
- Other combinations

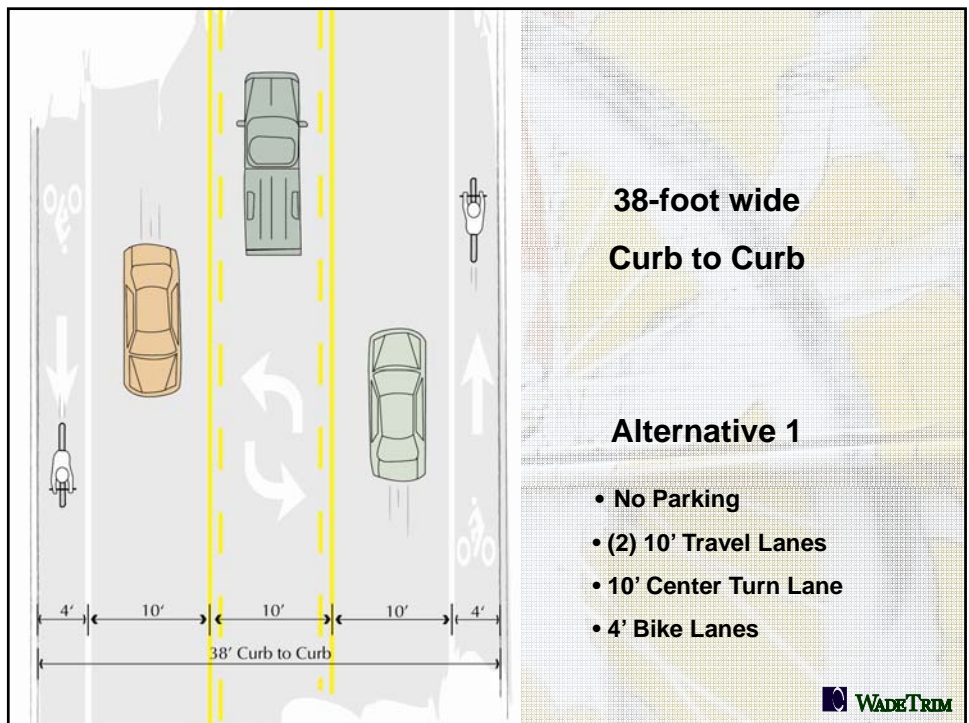
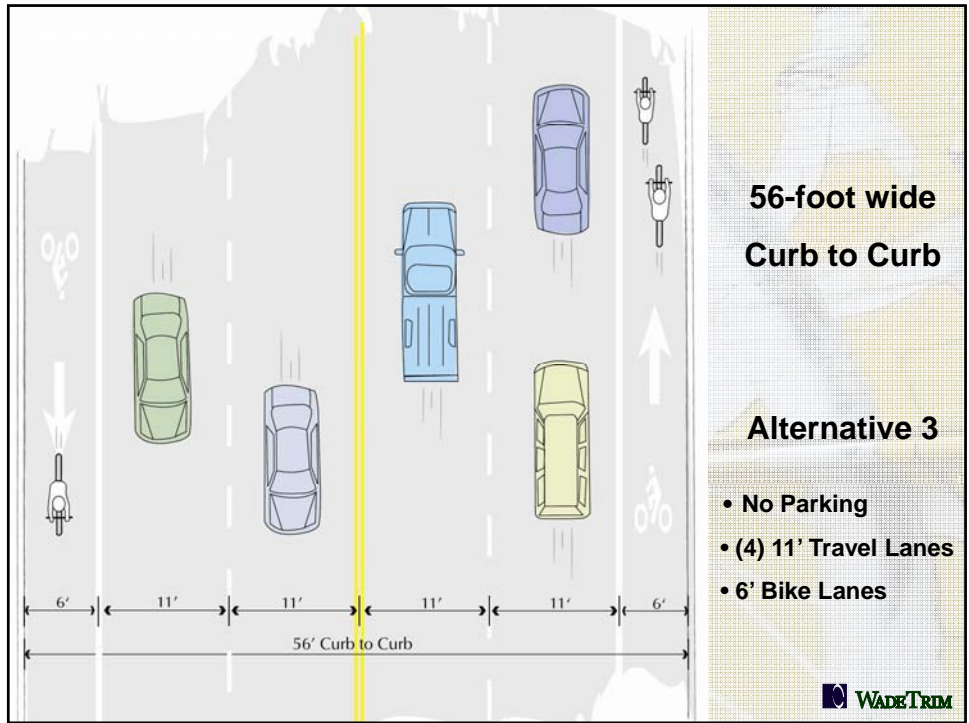


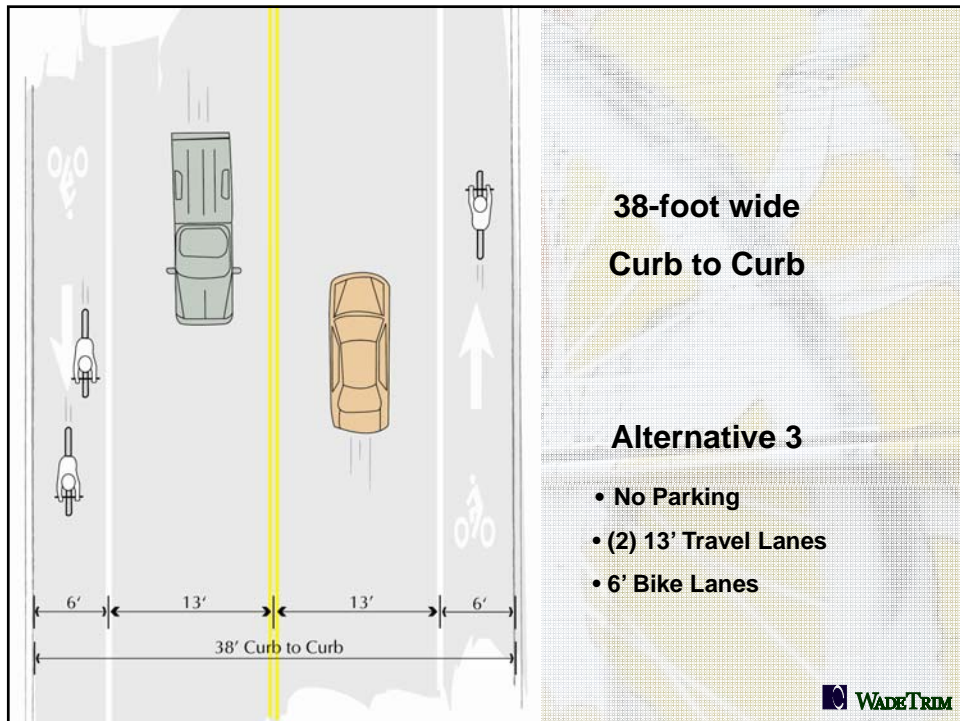
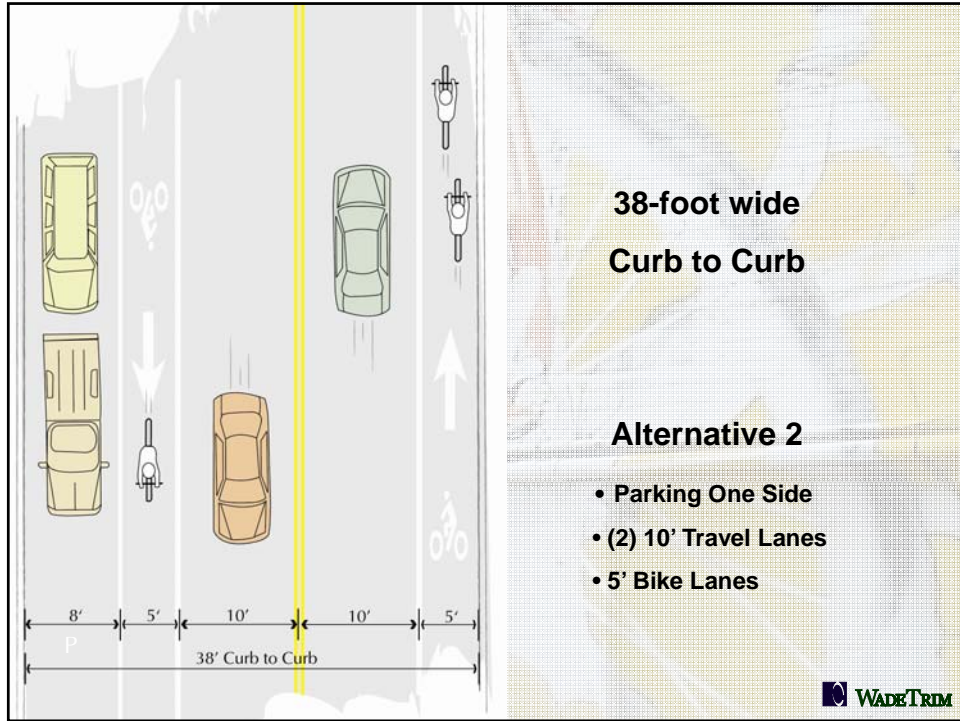
## Implementation Tools

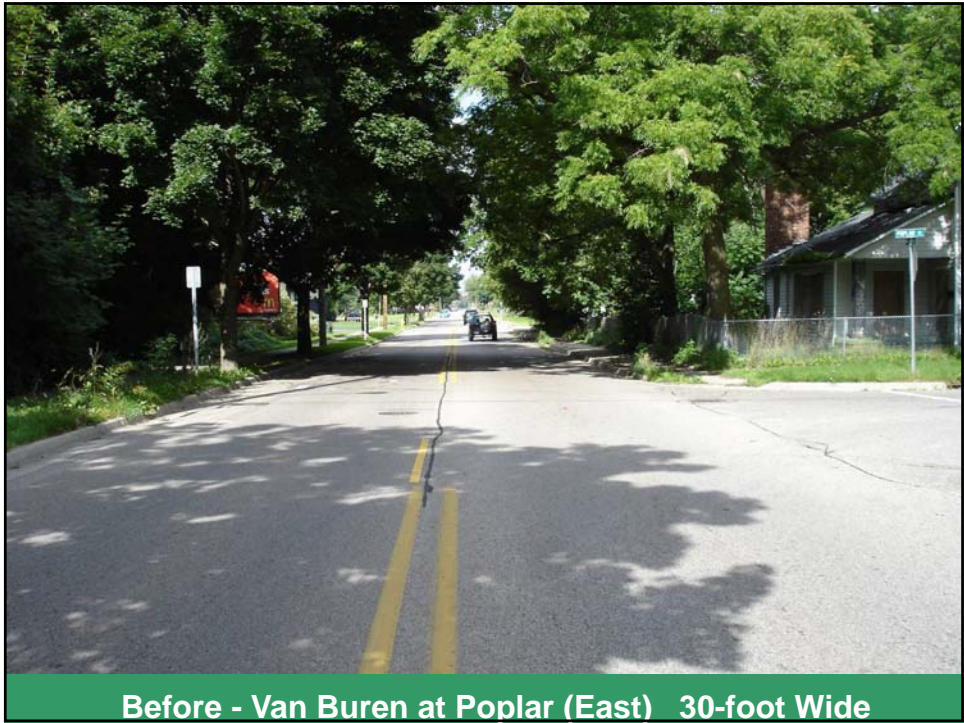
- Plan View Graphics
- Photo Manipulations (Before/After)



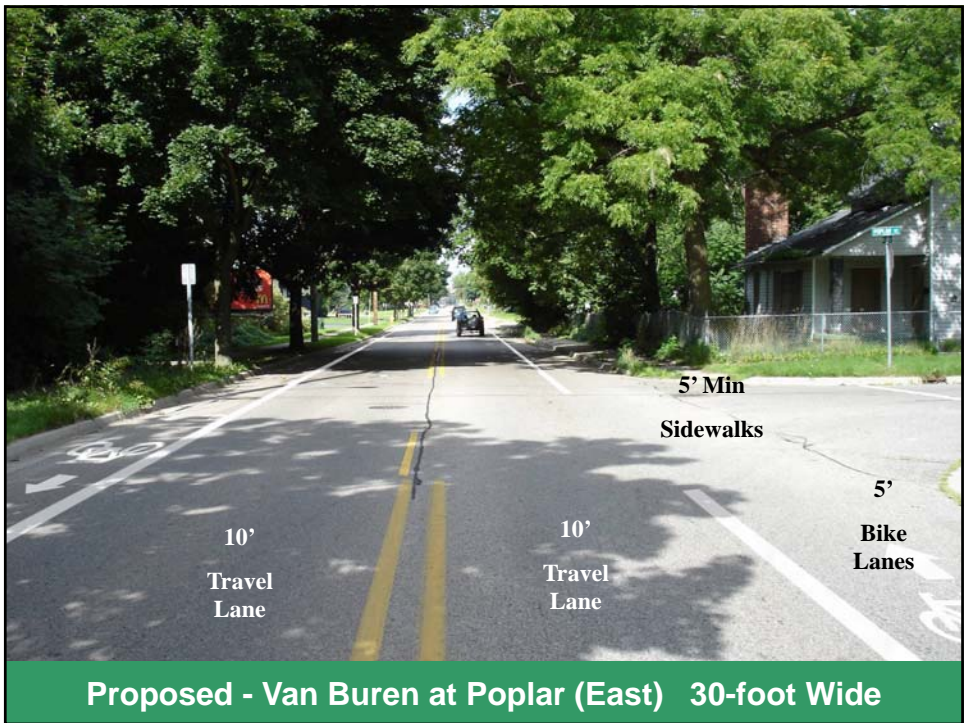






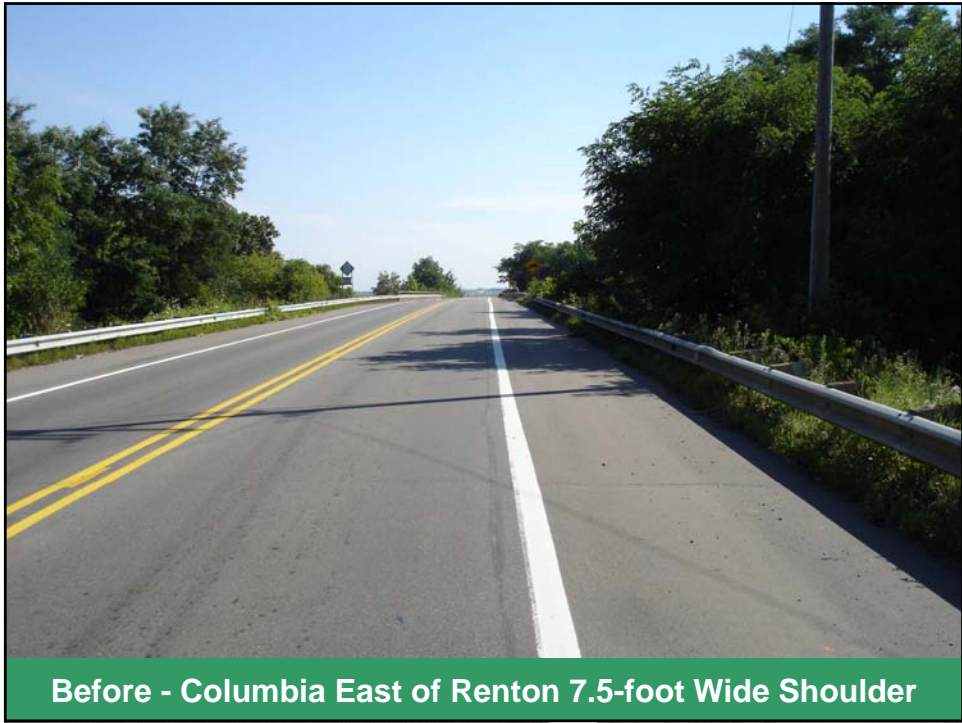


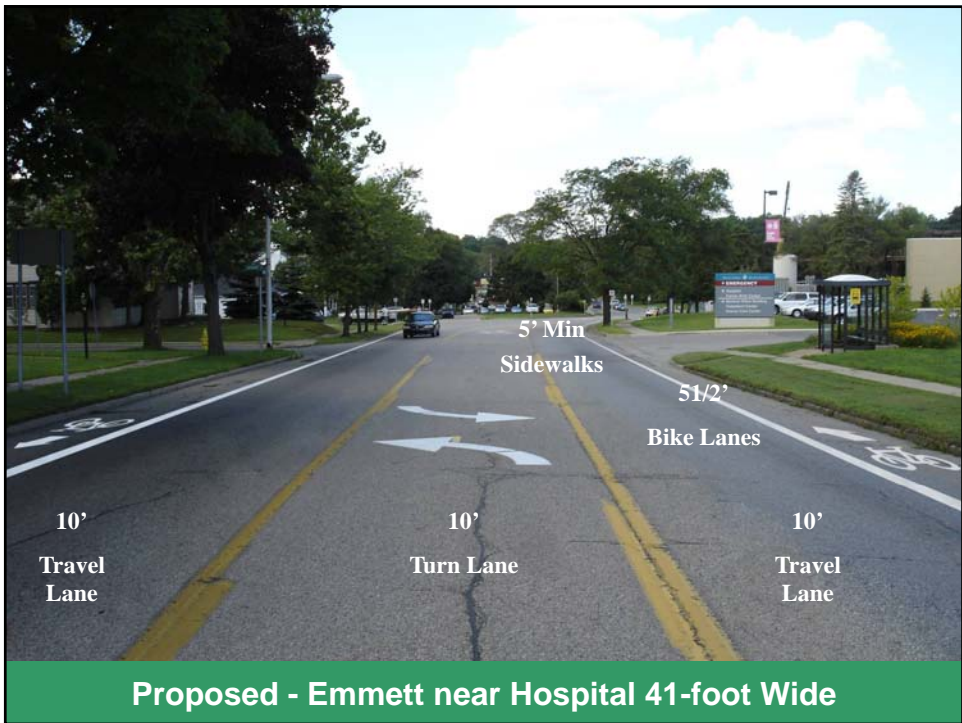
**Before - Van Buren at Poplar (East) 30-foot Wide**



**Proposed - Van Buren at Poplar (East) 30-foot Wide**

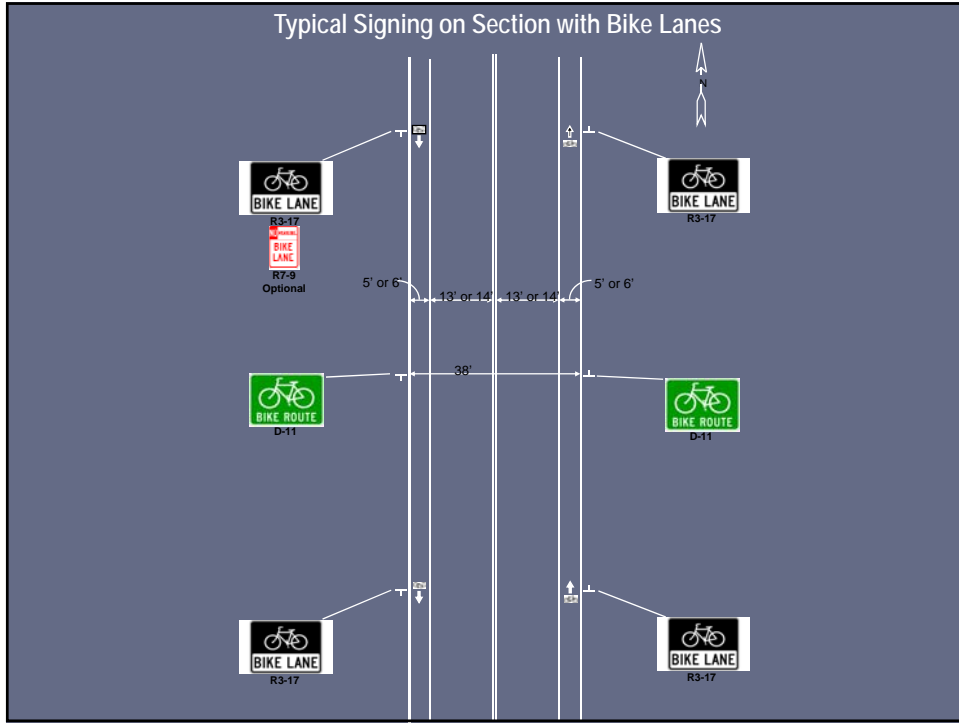




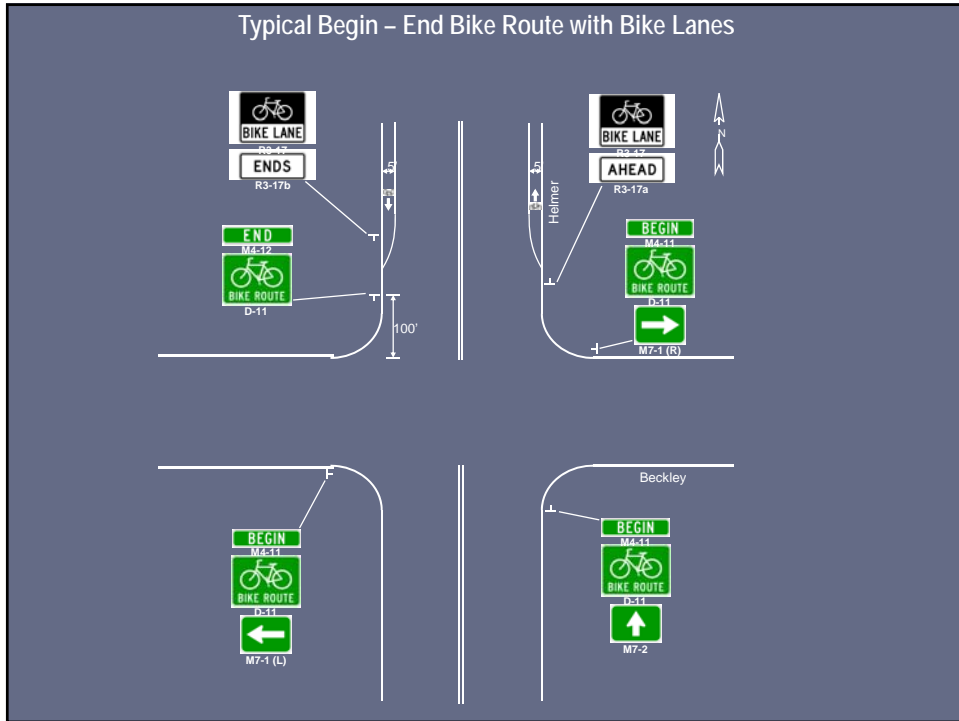




### Typical Signing on Section with Bike Lanes

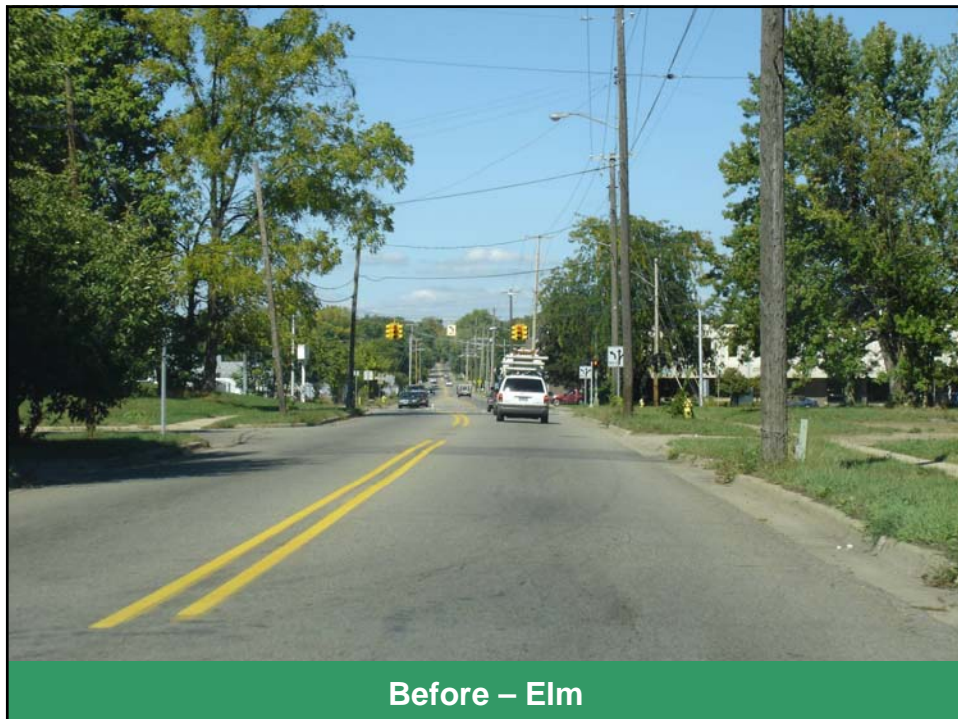


### Typical Begin – End Bike Route with Bike Lanes



## 2005 Pilot Projects

- Elm – 31- to 42-foot cross section
- Helmer – 38-foot cross section



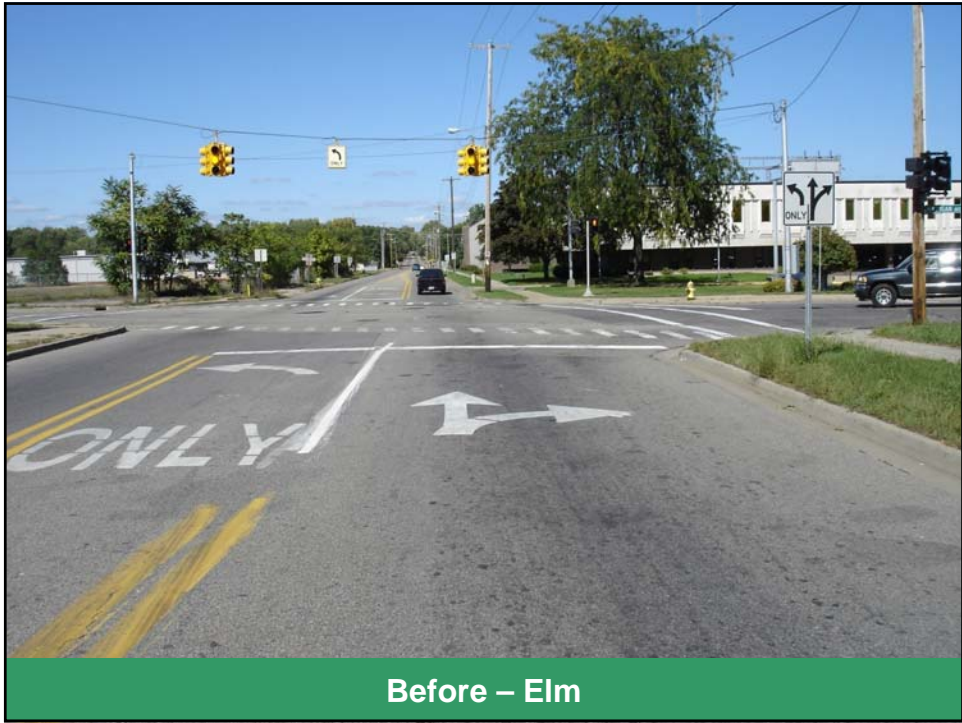
Before – Elm

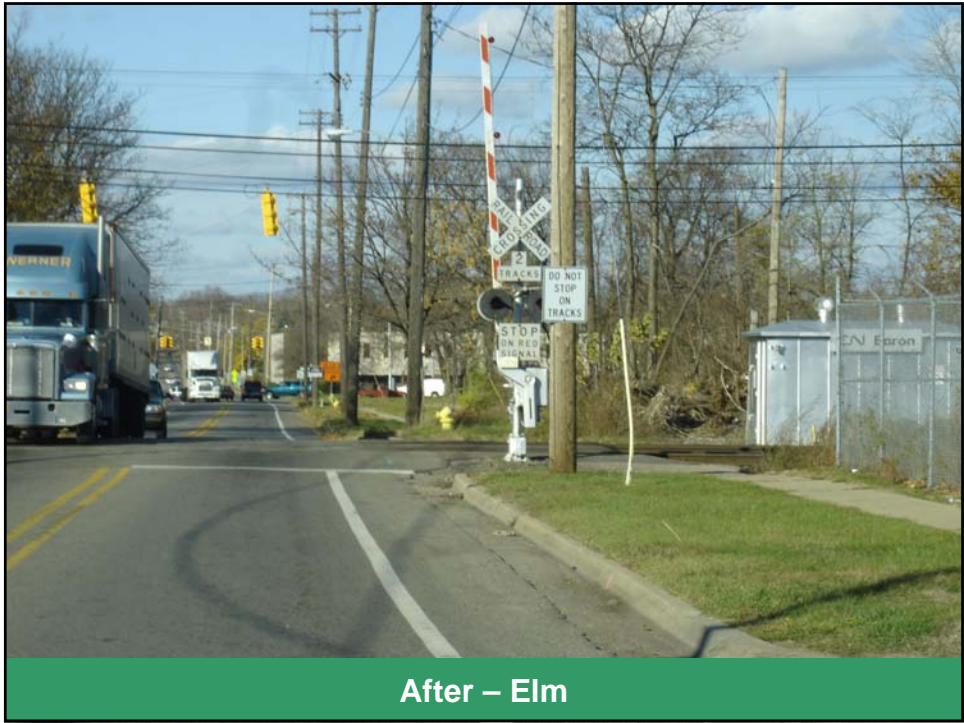


Before – Elm



Before – Elm









Before – Helmer



After – Helmer

## Plan Development Summary

- Stakeholders and multidisciplinary team
- Tailored to meet circumstances
- Satisfies transportation mobility and safety
- Harmony with community values
- Efficient use of available resources
- Minimal disruption to the community
- Lasting value



## Implementation

- 2006, 2007 and 2008 Resurfacing Schedule
- 21 Streets
- 66 Road Miles
- 132 Bike Lane Miles
- \$660,000 Cost to Date





**Before – Capital Avenue Four Through Lanes**



**Before – Capital Avenue Four Through Lanes**



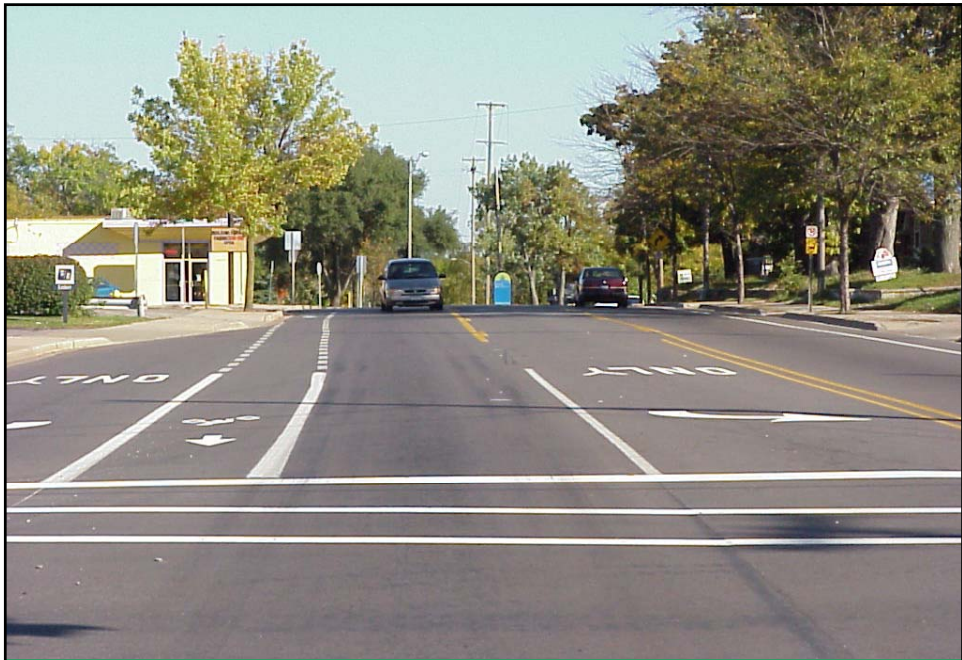
After – Capital Avenue Two Lanes with Center Turn



After – Capital Avenue Two Lanes and Bike Lanes



Before – Capital Avenue at Columbia



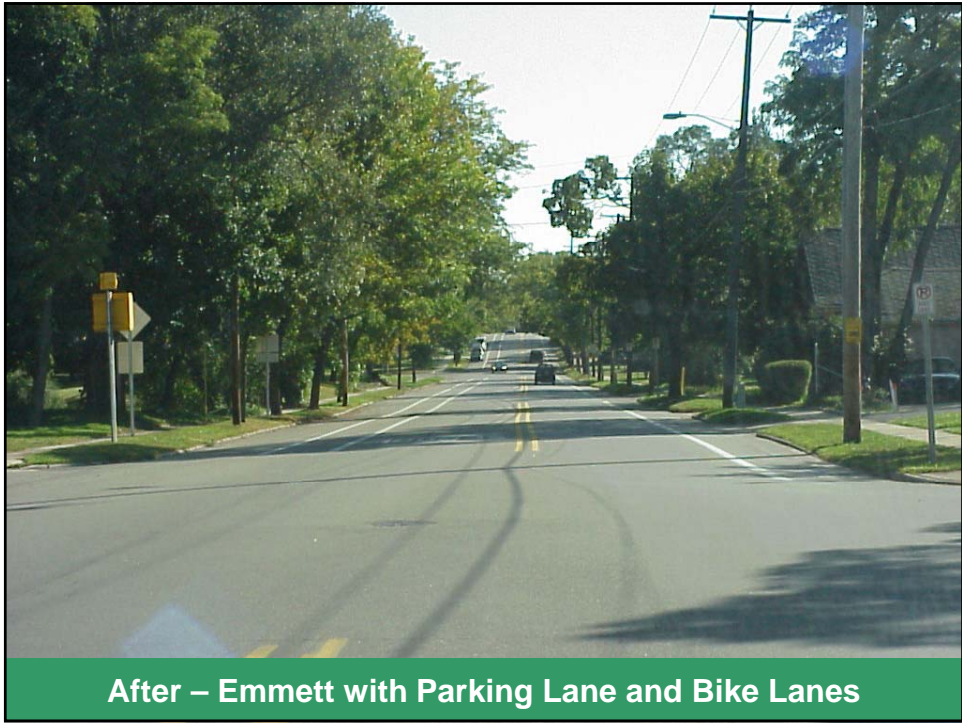
After – Capital Avenue SW at Territorial Road



After – Capital Avenue SW at Territorial Road



Before – Emmett with Parking Lanes



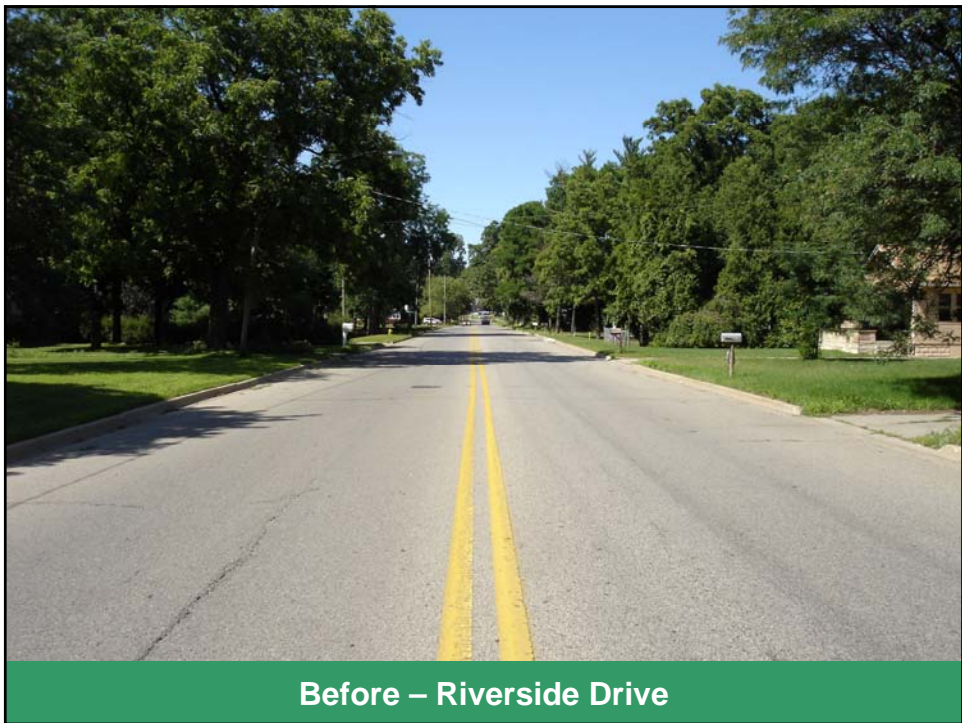
After – Emmett with Parking Lane and Bike Lanes

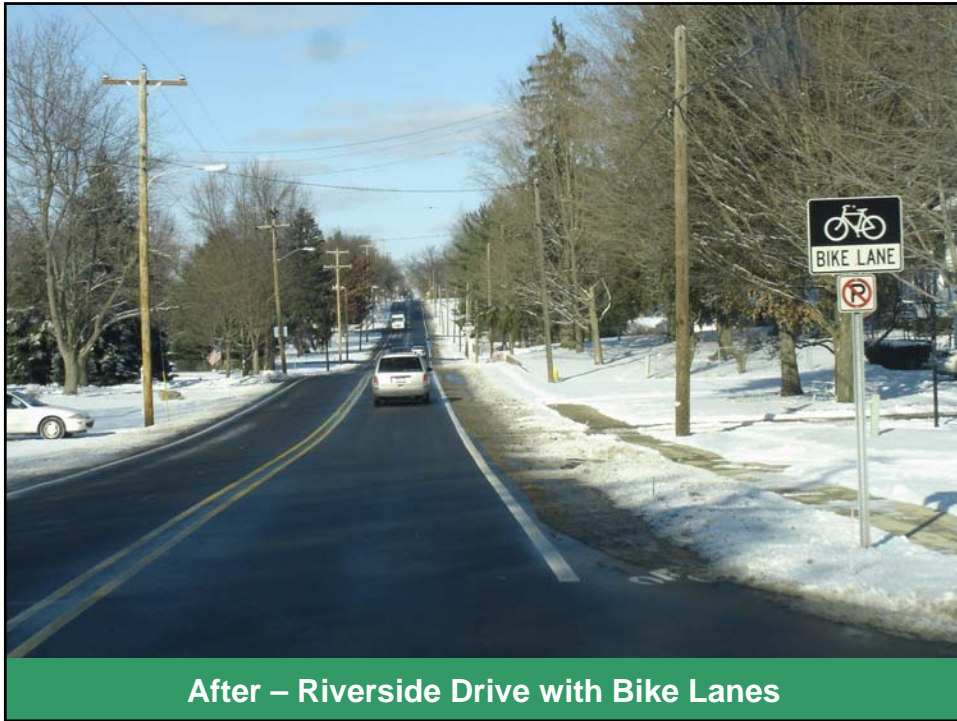


After – Parking Violation in Bike Lane on Territorial Road









## Implementation Summary

- 132 Bike Lane Miles Added
- Citizen Input
- Minor Issues
- Continuing Program

## Lessons Learned

- Build Council support early
- Implement 1 or 2 easy pilot projects first
- Engage user groups and staff early and often
- During design, meet with property owners to discuss project
- Educate the community about benefits and vehicular behavior – newspaper, association meetings
- Coordinate signage and marking simultaneously



Questions

