

City of Ann Arbor Non-motorized Transportation Plan 2007 - Appendix

Prepared for:



City of Ann Arbor Planning and Development Services
and the Alternative Transportation Program

Prepared by:



THE GREENWAY COLLABORATIVE, INC.

In conjunction with:



CONSULTING, INC.



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6. Appendix

6.1 Project Advisory Committee

A Project Advisory Committee was formed to help guide the project.... The composition of the Project Advisory Committee includes representatives of key city departments, city advisory committees, affected public agencies, and the general citizenry.

- City of Ann Arbor Planning Department – Jeff Kahan, Project Manager
- City of Ann Arbor Engineering Department – Don Todd
- City of Ann Arbor Parks and Recreation Department – Amy Kuras
- City of Ann Arbor Police Department – Mike Logghe
- City of Ann Arbor Planning Commission - Braxton Blake, Jennifer Hall and Eric Lipson
- City of Ann Arbor Downtown Development Authority – Susan Pollay
- University of Michigan Facilities Planning – Sue Gott
- Ann Arbor Transportation Authority – Chris White
- Washtenaw Area Transportation Study – Jane Kent
- Ann Arbor Chamber of Commerce / GetDowntown Program – Erica Briggs
- City of Ann Arbor Bicycle Coordinating Committee – Ken Clark
- Washtenaw Walking and Bicycling Coalition – John Hritz, Jr.
- Ann Arbor Public Schools Facilities & Systems – Randy Trent
- Michigan Department of Transportation – Todd Kauffman
- Citizen at Large – Sam Breck
- Citizen/Student at Large – Isaac Brown, SNR&E

6.2 Meeting Summary:

The following meetings were held for the project:

- **Project Advisory Committee Meeting** – Thursday, February 12, 2004 at 3:00 PM, City Hall 4th floor Conference Room. Project initiation meeting to discuss project expectations and the public involvement plan.
- **Public Workshop** – Wednesday, March 10, 2004 from 7:00 – 9:00 PM, Public Issue Identification Workshop, Forsythe School Media Center.
- **Project Advisory Committee Meeting** – Thursday, March 11, 2004 at 2:00 PM, City Hall 4th floor Conference Room. Brainstorming workshop to identify key issues and impediments to improving conditions.
- **Public Workshop** – Thursday, March 11, 2004 from 12:00 Noon – 1:00 PM, Business Brownbag, Michigan Theater Screening Room
- **Project Advisory Committee Meeting** – Thursday, May 13, 2004 at 3:00 PM, City Hall 5th floor Conference Room. Preliminary plan review for the West Planning Area preceding the public workshop.
- **Public Workshop** – Wednesday, May 19, 2004 at 7:00 – 9:00 PM, West Planning Area Workshop, Bach Elementary School Media Center.
- **Project Advisory Committee Meeting** – Thursday, June 10, 2004 at 3:00 PM, City Hall 5th floor Conference Room. Preliminary plan review for the Northeast Planning Area preceding the public workshop.
- **Public Workshop** – Wednesday, June 16, 2004 at 7:00 – 9:00 PM, Northeast Planning Area Workshop, Clague Middle School Media Center.
- **Project Advisory Committee Meeting** – Thursday, July 8, 2004 at 3:00 PM, City Hall 5th floor Conference Room. Preliminary plan review for the South Planning Area preceding the public workshop.
- **Public Workshop** – Wednesday, July 14, 2004 at 7:00 – 9:00 PM, South Planning Area Workshop, Tappan Middle School Media Center.
- **Project Advisory Committee Meeting** – Thursday, September 2, 2004 at 3:00 PM, City Hall 4th floor Conference Room. Preliminary plan review for the Central Planning Area preceding the public workshop..
- **Public Workshop** – Wednesday, September 15, 2004 at 7:00 – 9:00 PM, Central Planning Area Workshop, Community High Media Center.

6.3 Summary of Public Input

Desired Project Outcomes

Collected During Project Advisory Committee Meetings (February 12, 2004 & March 11, 2004) and Public Workshops (March 10, 2004 and March 11, 2004)

Project Advisory Committee (Ranked)

- 1) Increase walking to schools, parks, and libraries****
- 2) Safe, coherent network that supports adolescent mobility independence***
- 3) City development standards encourage non-motorized trans***
- 4) Incorporate non-motorized facilities in initial stages of trans projects***
- 5) Increase % of non-motorized commuting***
- 6) Transportation improvements based on the number of people, not number of motor vehicles**
- 7) More pedestrian-friendly community**
- 8) Mainstream retail located in/near downtown core (pedestrian access)**
- 9) Revamp policy hierarchy to:**
 - i) Pedestrian
 - ii) Bike
 - iii) Bus
 - iv) Motor vehicles
- 10) Increase awareness and respect of bicyclists on roadways by motorists*
- 11) Provide comprehensive non-motorized infrastructure*
- 12) Increase non-motorized shortcuts*
- 13) Easy way to get through downtown/campus on bike*
- 14) Audible warnings for hazardous situations
- 15) Increased awareness of special needs of disabled people
- 16) Increased awareness and respect of pedestrians by motorists
- 17) Prepare for and address external transportation demands on the system
- 18) Finance non-motorized through parking fees
- 19) Convenient non-motorized access to non-core commercial
- 20) Provide incentives to NOT drive
- 21) Better lighting at downtown intersections
- 22) Less re-parking → park once and walk
- 23) Revamp mindset of City traffic engineers

Public Information Evening Workshop (All)

- 1) Completion and addition of more bicycle lanes in the city
- 2) Better bus schedules especially weekends, more perimeter bus routes during rush hours - around sides of city
- 3) Bicycle safety education/enforcement, city and private groups
- 4) More city bicycle maps distributed
- 5) Bike and pedestrian access to business and schools
- 6) Better connections outside city
- 7) Greenways for commuters on bikes
- 8) Shortcuts opening neighborhoods
- 9) Connecting corridors for bikes
- 10) Shortcuts
- 11) Bikepaths
- 12) Making all the hiking trails connect
- 13) It should be easy to make the decision to bike anywhere in Ann Arbor as it is to decide to drive
- 14) Pedestrians should have safe, controlled crosswalks wherever they need them, not where it's most convenient for automobile traffic
- 15) Roads and intersections are designed to be safe for all users rather than just maximizing traffic flow
- 16) Reduce the demand on parking system downtown
- 17) Be able to ride my bike everywhere on good, safe, on-street lanes
- 18) Get more people in mass transit/park and ride
- 19) Bike lane, Miller and Newport to Spring – more lanes
- 20) Bike lockers in the State and Main areas – more lockers
- 21) Bike lane on the Broadway Bridge – let's get a lane on the Bridge!
- 22) Zoning changes
- 23) Stop treating motorists better than non-motorists. Ann Arbor becomes known as different from southeast Michigan.
- 24) Mixed-use development and higher densities to support non-personal automobile transportation
- 25) All governmental units actively support and use non-SOA transportation
- 26) A new high school built with very little parking and lots of bikepaths, sidewalks, and neighborhood connections
- 27) My daughter doesn't ask me for a car because she can walk and bike safely everywhere in town
- 28) Pedestrians and bicyclists have DDA-built facilities from them downtown and no more car-parking structures are every built downtown
- 29) Woonerfs

- 30) Land-use/urban design – increase density, mixed-use neighborhoods throughout city
- 31) Interconnected network of bicycle lanes and paths, connect to Ypsilanti
- 32) Along with transit, non-motorized transportation as a viable, accepted, even preferred option to complete all daily tasks
- 33) Increased area of urbanization within the city
- 34) Denser peripheral networks
- 35) Repurposing of existing automobile infrastructure to accommodate changing public consensus
- 36) Kids are walking around more to school or to play and they know and recognize their neighbors
- 37) There are as many safe, accessible, and legal places to lock your bike downtown as park your car
- 38) People walk to Kroger
- 39) I'd like to see parents more willing to let kids bike to downtown destinations or across the city, and for kids to feel safe doing so
- 40) Get bikes off the sidewalks – bike lanes in streets
- 41) Sidewalks on every street, crosswalks at regular intervals
- 42) Retail spread throughout/closer to neighborhoods which are denser
- 43) Bike lanes throughout city; slower speeds
- 44) Visible bike lanes, like Madison downtown
- 45) Respect toward bikers/walkers – attitude
- 46) Walking streets, river walk, outdoor cafes
- 47) Be able to bicycle and walk safely to “strip” areas of town – Washtenaw, Stadium, etc.
- 48) Be able to bicycle/walk to river along entire city
- 49) Have school children walk to school rather than drive or be driven
- 50) All sidewalks and paths kept clear of snow and ice
- 51) All city parking accessed by satellite shuttle transport
- 52) All connector routes have bike lanes and expressway overpasses
- 53) Great pedestrian and bicycle access to all public libraries
- 54) Dedicated pedestrian and bike paths through retail parking lots
- 55) 5 and 10 year plans for implementing uniform bike path policy
- 56) Plan all buildings for mixed use
- 57) More sidewalks, cut throughs, bicycle lanes, and lane markings
- 58) More traditional “grid” road layouts – lead to easier transportation
- 59) I want to see a lot fewer people driving – there's too much gridlock
- 60) People shouldn't assume that they have to own a car
- 61) No free parking
- 62) Continuous network of paths and pedestrian bridges across the city

- 63) Downtown streets converted to pedestrian only
- 64) Semi-trucks deliver to warehouses outside of beltways; smaller vans make deliveries from those warehouses
- 65) More connections between points of interest (bridges, walkways)
- 66) More pedestrian friendly access at intersections
- 67) More traffic calming devices
- 68) Connector trail system to inner ring of townships
- 69) Multi-use zoning that encourages grocery stores, drug stores, hardware stores, and clothing stores to be within walking distance of downtown
- 70) Housing for all income groups in the downtown area
- 71) Commuting train connections to downtown from the surrounding towns and suburbs
- 72) Safer (crime rate) sidewalks everywhere
- 73) Increased auto awareness with refuge islands, speed limits lower
- 74) No cars in the city center
- 75) No trucks in the city; empty their load into smaller cars to distribute around
- 76) No cars within a 2-mile circle around downtown center; max 25mph speed limit elsewhere
- 77) “Desire lines” through private properties to allow shortest ped distance to various destinations
- 78) Commitment to make Ann Arbor the #1 walkable city rather than #70 below Flint and Detroit

Public Information Evening Workshop (Ranked Table Worksheets)

- 1) Shortcuts****
- 2) School routes for future citizens****
- 3) Connect parks to neighborhoods****
- 4) As easy to bike as to drive***
- 5) Update zoning to mandate/encourage pedestrian friendly design***
- 6) Design intersections and roads for all users, not just for traffic flow***
- 7) From every neighborhood – access points to the river***
- 8) Ability to walk/ride to big strip malls from neighborhoods***
- 9) Big visible bike lanes downtown***
- 10) Slower car speeds in city***
- 11) Commuting train connections from outlying areas***
- 12) Allow property lines to become “desire lines”***
- 13) A lot fewer people driving***
- 14) Uniform city-wide bike path system***
- 15) Increase density and mixed-use neighborhoods, infill***
- 16) Reduce demand on parking system downtown**

- 17) Mixed use development and higher densities to support non-personal automobile transportation**
- 18) Sidewalks on every street**
- 19) No cars in city center (at least no trucks in city center)**
- 20) Connecting trails across the county**
- 21) Refuge islands in all high-traffic roads**
- 22) Multi-use zoning everywhere**
- 23) All sidewalks and paths kept clear of snow and ice**
- 24) Connected retail parking with dedicated bike and pedestrian pathways*
- 25) Add pedestrian/bike connectors to neighborhoods that are not linked to existing systems*
- 26) Pedestrian bridges over highways*
- 27) Walk to school*
- 28) No free parking*
- 29) People shouldn't have to assume that they need to own/use a car*
- 30) Bike lane on "the Bridge" (Broadway)*
- 31) Good on-street bike lanes everywhere, I need them*
- 32) All government units actively support and use non-SOA transportation*
- 33) Complete network of bike lanes*
- 34) Denser peripheral networks*
- 35) Build ped and bike facilities and no more parking structures (especially downtown)*
- 36) Provide safe ped crossings where good for peds, not just where it's good for cars*
- 37) Safe, accessible, legal places to park bikes*
- 38) Better City-UM cooperation, especially on north campus
- 39) Get more people in mass transit and park & ride
- 40) A new high school is built with little parking and lots of sidewalks, paths, and neighborhood connections
- 41) Require connected layout for new developments
- 42) Inventory of destinations along trails
- 43) Continue Clark Rd, connect Ypsilanti, cross US-23
- 44) Stop treating motorists better than non-motorists
- 45) Independence for children (kids don't ask for car)
- 46) Parents willing to let kids bike around town
- 47) Retail, cafes, grocery spread in neighborhoods
- 48) Bikes off sidewalks
- 49) More, many more bike lockers
- 50) All connector routes have bike lanes and expressway overpasses

- 51) More mixed-use (business/commercial) buildings
- 52) Central city serviced by satellite parking with convenient access via 24hr mass transit
- 53) Kids as pedestrians in neighborhood
- 54) Attitude change: respect toward bikers/walkers crossing train tracks
- 55) Changing attitudes to affect infrastructure changes
- 56) Neighborhood parking pricing program

Fax-Back/Drop-Off Forms

- 1) Complete sidewalks on major streets (Washtenaw, Ellsworth, etc.)
- 2) Bike routes into downtown/campus for commuting
- 3) Walkways to connecting residential access with schools and commercial areas to provide more direct routes than along streets
- 4) Although not mentioned in the presentations, the strategy of walking bikes on sidewalks or along with traffic in the street is soon to be tested at State and Liberty, should be considered at a few other highly-congested areas.
- 5) More people will be living in a more dense but pedestrian friendly downtown and walking or biking to nearby destinations rather than using their cars.
- 6) The increased pedestrian traffic in the downtown will be safer from auto traffic at crosswalks and bicycles on the sidewalks.
- 7) Cyclists will be able to safely move with auto traffic on the streets with improved bike paths and lanes and signs and educational programs that insure the safety of their shared use of the streets.
- 8) Design changes in buildings – encourage using stairs vs. elevators, buildings near streets (not parking lots) in front.
- 9) Encourage downtown density – put people where they can use walking/bike to get to work.
- 10) I want to be able to walk anywhere in town.
- 11) Provide opportunities (incentives?) for property owners to eliminate unneeded parking (e.g. back end of Arbor Farms, Maple Village, Mervyn’s lot, etc. have parking that’s never used). This creates opportunities for greater density, reduces storm water capture, and in the case of Mervyn’s, makes Ann Arbor Saline Rd. more pedestrian friendly.
- 12) Fund non-motorized transportation infrastructure and maintenance at a much higher level to make up for past imbalance relative to motorized system.
- 13) Totally separate bicycle and pedestrian paths/lanes/walks by adding bike lanes where they’re lacking.
- 14) Decentralize “necessity” commercial areas to serve local residents instead of entire city or area of the city and the adjacent townships.
- 15) Change priorities: plan first for walkers and bikes. That will reduce vehicular traffic.
- 16) Add sidewalks, crosswalks, even footbridges where warranted. Bud sidewalks are a must!
- 17) When pedestrians complain, stop jumping in right away with reasons nothing can be done!
- 18) Traffic calming belongs way down on the list – controversial – has been poorly implemented in some neighborhoods.

Places of Concern

Collected During Project Advisory Committee Meetings (February 12, 2004 & March 11, 2004) and Public Workshops (March 10, 2004 and March 11, 2004)

Project Advisory Committee

Location	Issue
Washtenaw at S. University	Intersection crossing times
Stadium Blvd	Long stretches between lights so can't cross west to east
Geddes Rd	Walking from campus to Gallup Park – asphalt "sidewalk" only on north side is breaking up, foliage has overgrown large sections and there is no separation between walk and road
Maple Rd	No sidewalk north of Miller so you can't walk to the river
State at Hoover	No crosswalk signal as you cross State on the north side of Hoover
Washington at Division	Dangerous, mainly at night → poorly lit 3 lanes of traffic moving very fast
Huron at 4 th and Huron at 5 th	Dangerous to cross Huron at night → poor lighting on street. Corner buildings are also unlit (this seems to help at other intersections)
Ellsworth Rd: Shadowwood to State	Lack of sidewalks limits access to schools. High volume of low income, youth, and people with disabilities.
Washtenaw Ave: Manchester/ Overridge to Tuomy	Absence of sidewalk on both sides. No good crossings for schools. Too wide at Overridge.
Washtenaw Ave: Huron Pkwy to US-23	No sidewalk/bikepath.
Exits from parking structures	There is no audible warning to pedestrians of vehicle leaving
Citywide	Irresponsible cyclists on crowded sidewalks getting bikes to walk in crowded areas.
Jackson at Maple	Not enough time for peds to cross intersection.
Packard: Stadium outbound	Continuation of bike lane needed, many driveways.
Washtenaw	Segments of missing sidewalk, difficult/dangerous cycling, lots of driveways, narrow lanes
Platt to Huron	Missing segments by golf course, ideal to link from Ellsworth to Huron @ Washtenaw
Main at Huron River Drive	Dangerous crossing for bicyclists, especially getting from right lane to left lane so that you can turn
Dexter/Huron/Jackson Rd	Pedestrians can't cross at most logical spot, you have to wait in the median island for 2 series of lights
Main St: railroad bridge to M-14	No sidewalk on west side
Huron and 7 th	Offset intersection creates challenges for peds and bikes. Near school, so lots of peds, some bikes, kids.
Huron: between 5 th and Division	Dangerous for pedestrians, fast and aggressive drivers (cars, trucks), fast-moving bikes
Plymouth Rd: Murfin to Nixon	Strong desire for pedestrian crossing, but hardly any safe places to do it. Very suburban building and parking placement.
Ped access to Mallets creek library from the north	Rationalize crossing for pedestrians at Packard/ Eisenhower. Multiple, unsynchronized pedestrian activated signals to

	make crossing. Stone School and Eisenhower has similar issues with sidewalk on one side of Stone School.
Washtenaw: Manchester to Platt	Enormous expanse of road with one unsignalized crosswalk at the County Rec building. Incomplete sidewalks on north side.
Stadium at Main	Large numbers of pedestrians walk to Michigan Stadium and Chrisler Arena from south and east. No sidewalks on south Stadium connecting to the golf course. No sidewalks on east side of Main adjoining golf course.
Platt at Lorraine to Scarlett and Mitchell	Needs guard for Mitchell in the afternoon
Nixon Rd at Bluett	Tree cuts down visibility
State St: Ellsworth to Platt	East-west problem
Stadium at Main	Southeast corner – no sidewalk
Huron/Dexter/Jackson Rd.	Functionality of intersection
Bonisteel	Bike safety

Public Information Evening Workshop

Location	Issue
West Stadium	Need clearly marked bicycle lanes need sidewalks away from traffic and free of obstacles
UM Diag, Liberty Park, elementary schools	Need bicycle racks/resources to encourage walking/biking
West Side	Link Eberwhite Woods and Liberty street with a walking trail
Buhr Park	No easy access from South of Packard
Stone School Rd	Needs bike/ped connection to Ellsworth
State St	Needs bike route south of Eisenhower
Washtenaw and US-23, Clark Rd connect	Connect Ypsilanti to Ann Arbor
Liberty: Wagner to Stadium	Connect sidewalks/bikepaths
Stadium: Packard to Platt	Open connector shortcuts
Hubbard at Huron Parkway	Ped lights timed so cars get extreme high priority (press button, wait a long time) then have to run across or get stuck
Plymouth Rd: East of Green	On-road bicycling very difficult and hazardous
Downtown core	No bike lanes anywhere
Jackson-Stadium area	Snow plowed onto sidewalks and in bike lanes
State St: Eisenhower to Ellsworth	Improve ped and bike lanes so through connections can be made
Washtenaw at US-23	No man’s land
Plymouth at Nixon	Cooperate with UM to provide a better crosswalk
Madison: Division to Fifth	One-way bike lane
Packard onto Platt, Platt parking lot	Extend bike lane
Plymouth Rd, especially at Traver Mall	Generally bad for cyclists, the particular location is terrible for peds
100 N. Fifth Ave	Lots of problems here, mostly apathy and animosity to cyclists and peds
Pontiac at Barton: intersection and area	Lots of rude non-residents pouring off the expressway
Newport Rd: Sunset to Maple	Needs at least bike lanes, if not sidewalks – so what if a few

	trees have to be removed? Walkers, bikers, dogs, baby strollers, joggers always in travel lanes all year
Red Oak at Mixtwood	Narrow intersection from all directions to make it safer for peds/bikes. Visibility poor for drivers, so pull pretty far into intersection to see before turning.
Plymouth Rd	Pedestrian safety – crosswalks are few and poorly placed – add median, narrow lanes, ped lights
Central Campus	More crosswalks needed at logical points where people cross anyway
Pontiac Trail: Longshore to Broadway	No shoulder, bike lane, or sidewalk on right side of street – unsafe to bike down
Northeast/Plymouth Rd corridor	Impassable automobile thoroughfare and lack of destinations
2 nd Ward area	Incomplete networks
Eisenhower corridor	Impassable thoroughfares
Westgate	Bad sidewalks on Stadium, poor crossings, HUGE parking lot
Downtown	Bike parking, ped/bike conflict
Fuller Rd to West Side transfer	Lack of connectivity
Industrial/Stadium, into Park and Golden	Complicated crossing
Plymouth Rd, generally	Pedestrian crossings – <u>several</u>
West Stadium	Lack of any pedestrian friendly linkages to cross street, or along it
Brockman	Crossing from Tappan onto Shadford
Packard St: Carpenter to State and thru downtown	Bike lanes in street
Independence to Manchester to Washtenaw	Continuous sidewalks
Washtenaw	Bike lane
Downtown	Long waits for crosswalks, too fast, too many cars, bikes
Long straight-aways out of strip malls	Connections – long trails connected
Barton Dam, Gallup Park	Crossing train tracks
Huron/Dexter intersection	Crosswalk directly across Huron
Main St: entry to Huron River Dr	Unsafe
Main St: connection across Lake Shore Dr to Bluffs Park	Two green areas, need a safe connection
Miller at 7 th St	Most drivers ignore (east) no turn on red and don't see pedestrians while turning
Washtenaw: Huron Parkway to Carpenter	
Westside Library	No clear pathway for pedestrians or bikes through busy parking lot
Carpenter Rd: Washtenaw to Ellsworth	Dangerous for pedestrians to cross even at the few intersections
Arborland entrance	Difficult for bikes and pedestrians to enter. Residents on south side of Washtenaw don't have good access.
S State St: Eisenhower to Ellsworth	Bad movement of traffic, high speed, no bike/ped signage
Hogback/Huron River/Dixboro area	Narrow, frequently in disrepair, poor visibility, hilly, needs to be more user-friendly
Carpenter Rd	No bike/ped facilities
Packard: Carpenter to City limit	During rush hour in evening, I have to wait behind ~30 cars

	at Platt (several cycles of the light), I want a bike lane!
Pittsfield at Washtenaw (light)	Trying to turn right from Pittsfield onto Washtenaw – light doesn't detect bikes. I've had to sit through 4 cycles of the eight waiting for a car to show up and set it off. There's too much traffic to go through without a green light.
Main St: Lakeshore Dr to Bluffs Park	Pedestrian bridge (?) I want to walk park to park without fighting heavy traffic
Power line right-of-way from Clark Rd to behind Arborland	A good place for a pedestrian bridge: SAFER than \$1 million proposed sidewalk on Washtenaw under US-23
Huron Parkway	Plant trees in extension, otherwise traffic is too loud and close
Main St at Oakbrook: Montessori School	Traffic safety crossings and lights for private schools
Stadium Blvd and Main St (UM Athletic Campus)	Bike lanes need to be added vs. riding or sidewalks
Scio Church west to City boundary	Bike lanes needed
State St Overpass	Bike lanes needed
Plymouth Rd near Nixon	Student housing residents crossing to Kroger or Islamic Center
Stadium Blvd: bridge crossing State	Very narrow pedestrian walkway with traffic driving by at fast speed; no room for bike
Eberwhite subdivision: between Pauline and Liberty	Need some pathways through residential area to access Eberwhite Woods from outside the Eberwhite area
7 th at W Stadium Blvd	Protected crosswalk from school across Stadium
Near Washington and Main St	Cars coming out of parking garages
Madison and Main	Cars and machined coming out of gas station and lumber company (Fingerlie's)
Throughout city	Ice on sidewalks – other jurisdictions require removal and/or grit, but not Ann Arbor
Washtenaw at Devonshire, throughout city	Eliminate flashing lights, which endanger pedestrian crossing
Parks and Rec Center, Washtenaw	Ineffective pedestrian crossing
Washtenaw	Narrow the road

Fax-Back/Drop-Off Forms

Location	Issue
Washtenaw Ave: Stadium to US-23	Discontinuities/missing sidewalk segments despite many walkers. No place for bikes.
W. Stadium: Pauline to Dexter	Too many driveways. Sidewalk on street edge with no separation. No place for bikes.
Main St: Huron to William	High speed bicycle operation on sidewalks, resulting in bike-pedestrian crashes. Bikes should be walked if on sidewalk, or ridden in the street on 4 th or Ashley. This assumes that the Liberty/State test is successful.
Huron and Division (even after the Broadway Bridge is closed)	Unsafe for both walkers and bikers because of the auto traffic patterns and irregular lanes.
Plymouth Rd and Broadway St	Lack of continuity in sidewalks and bicycle path.
The new Broadway Bridge and north of the bridge	Better program for shared use do the bridge sidewalk with walkers and bikers needed. North

	Broadway crossings are not safe for walkers or bikes.
Geddes Rd: Campus to Gallup Park	Sidewalk is in terrible shape and too narrow for the number of people using it to jog, walk, etc.
Huron St: through downtown	Traffic islands on the long blocks (e.g. between 5 th Ave and Division)
Lack of enforcement – property owners not trimming plants or shoveling sidewalks	City has to make a compelling case for us to be better neighbors
South First: Liberty to William	No sidewalk on east side of street. Wide street with no parking on right side => high speeds.
West Stadium and North Maple	No pedestrian connector walks to businesses and narrow sidewalks too close to roadway and no bike lanes.
Plymouth Rd: Green and Dixboro (even Cherry Hill Rd)	I always drive – for safety reasons – even when I’d rather walk to frequent destinations. No sidewalks, crosswalks, or signals at freeway ramps.
Washtenaw Ave: Huron Parkway to central campus area	Needs sidewalks <u>both</u> sides. And more crosswalks.
Dixboro Rd at Huron River park path	Crosswalk would help us walk from Gallup Park to Parker Mill County Park safely.

Wednesday, May 19, 2004 - West Area Public Workshop

Draft Goals and Objectives Input Worksheet

Vision

The purpose of the plan is to identify the means to establish a physical and cultural environment that supports and encourages safe, comfortable and convenient ways for pedestrians and bicyclists to move throughout the city and into the surrounding communities.

It is further envisioned that this environment will result in a greater number of individuals freely choosing alternative transportation modes (walking, bicycling, mass transit, etc.), which will lead to healthier lifestyles and a safer, more sustainable transportation system.

8 Strongly Agree **5** Agree, but with modifications **0** Disagree

Please include any additions, modifications, or strong objections to the statement that you feel are needed:

- First paragraph – Add: Using foot, bicycle, or mass transit – a goal of addition: acknowledge mass transit
- Second paragraph – Concept add: Encourage visitors to join residents in non-motorized transport. (E.g., not all football attendees need to park in town).
- Need strong enforcement of speeding and, especially, stopping before a crosswalk. Traffic calming very important also.
- I don't have a good suggestion about how to address this, but is there any way to make the statements more inclusive of disabled people? Or does "pedestrian" include people in wheelchairs?
- Better environmental effect, i.e. lower ozone levels because of fewer cars
- No road widening in Ann Arbor
- Go for it!
- Purpose statement leaves out rollerblades, skateboards, Segways, etc. used for transportation.
- Why not use the bicycling and walking study goal of doubling the number of trips by bicycling and walking?
- ~~“into between the surrounding adjacent communities... this environment will result in a greater number of individuals freely choosing~~ this system will increase more people who choose ...”
- Great vision... it would help to have the word “connected” or “network” somewhere in the vision (perhaps between safe and comfortable in the first paragraph)
- I wonder if the vision statement might include an expectation that schools be given safe paths and crossings from all neighborhoods surrounding them.
- Outstanding that you are not just focusing on physical features (lanes, crosswalks, etc.) but also the culture in the city that either discourages biking/walking (as is the case now) or encourages/promotes/eases the use of something other than automobiles.
- Thanks for this meeting tonight!

Policy & Planning Integration Goal & Objectives

Strongly Agree	Agree, with modifications	Disagree	Goal:
13			Incorporate non-motorized best practices into all relevant policies, and all aspects and stages of planning available to the City and its partner organizations.

Strongly Agree	Agree, with modifications	Disagree	Objectives:
11	2		1. Develop best practices guidelines that define a true multi-modal perspective for transportation planning.
11	2		2. Identify changes to planning process, city policies and regulations that will further non-motorized transportation.
12	1		3. Define a sustainable financing mechanism for non-motorized transportation needs.

General Comments on GOALS:

- Should there be a measurable goal such as increase percentage of non-motorized travel by AA citizens by X%? Trips taken by schoolchildren by bike/ped increase by X%?
- Educate and effect better environmental outcomes
- No road widening in A2

Comments on Goal 1:

- Mass transit needs to be included in our goal
- #1... based on cities of comparable size that have effective transportation policies (are there any?)
- #1... true multi-modal model or system make it real!
- #2“Identify AND IMPLEMENT changes...”
- #2“Identify and implement changes... that will advance non-motor trans goals.”
- #2... further ~~non-motorized~~ multi-modal transportation.
- #3. Awkward statement, try “Identify long term sources (need several) of revenue for non-motorized transportation.
- #3... for ~~non-motorized~~ multi-modal transportation needs.
- Since non-motorized vehicles will be little-used if unsafe, strong enforcement will be necessary. The police department must buy into this.
- Transportation planning should not sacrifice safe pedestrian and bicycle access for the sake of increasing automobile traffic flow.
- Get outside funding through grants, i.e.: ICE-T funds are available to small towns, we should go for them
- While the plan may focus on non-motorized, the over-reaching goals and objectives should strive for multi-modal (or non-motorized and mass transit) connections. This may made this seem too big picture, however, I don’t know where else this is being addressed at the city level.
- Per Councilmember Woods’ comment at the public meeting, be explicit about definition of “best practices.” Perhaps start developing a glossary, use call-out boxes in project reports to define/clarify these kinds of terms.

Complete System Goal & Objectives

Strongly Agree	Agree, with modifications	Disagree	Goal
11	2		Provide a comprehensive non-motorized network as an integral component of the City's transportation system.

Strongly Agree	Agree, with modifications	Disagree	Objectives:
10	3		1. Provide convenient and safe non-motorized connections between destinations throughout the community, such as residential, commercial, school, recreational, and other areas.
12	1		2. Integrate non-motorized transportation into existing transportation infrastructure.
10	3		3. Eliminate obstacles in the current non-motorized network.
8	4	1	4. Minimize conflict between modes of travel.

Goal:

- Minimize additional paving
- Where network implies contiguous, city-wide non-motor routes
- My agreement depends on what it means by “non-motorized network.” This could be read to mean that we don’t have such a comprehensive network, and therefore people shouldn’t be using non-motorized transportation on the existing network.
- Including future mass transit

Objectives:

- #1. Agreed, as long as a lack of such connections isn't read to mean that people aren't allowed to use the existing routes.
- #1. Delete "between destinations." What if you have no stopping point in mind. One may ride a bicycle or walk for
 - Exercise
 - Mental cleansing
 - General health
 - Saving money
- #1. Encourage inter agency coordination and cooperation to connect the complete system to the region (i.e. other communities and natural areas).
- #2. See Farmington Hills on education goal
- #3. Agreed, except for my earlier concern about the phrase "non-motorized network."
- #3. Seems to be repeating the same objective as #4
- #4. Does Ann Arbor place a higher priority on non-motorized transport?
- #4. This shouldn't be construed as marginalizing travel by alt modes, i.e. "sidewalk bike paths". Too often people assume that "minimizing conflict" implies completely separate facilities.
- #4. This is too easily read as "force non-motorized users off the existing network to minimize conflicts."
- #4. Dedicate funds and people to bicycle lane and pedestrian sidewalk maintenance.
- 1,3 Contiguous routes a strong plus.
- Part of a complete system includes adequate bike parking.
- Find worst case and try to fix them first as good examples of effect on community.
- No road widening in A2.
- Excellent. Creating connections and eliminating gaps/obstacles are clearly important.

Education Goal & Objectives

Strongly Agree	Agree, with modifications	Disagree	Goals
9	4		Increase awareness of the opportunities for, and benefits of, non-motorized transportation, as well as provide information on safe ways to integrate motorized and non-motorized modes of transportation.

Strongly Agree	Agree, with modifications	Disagree	Objectives:
9	4		1. Develop strategies to educate the general public on the available non-motorized transportation network and encourage its use.
10	3		2. Develop strategies to educate the general public on the personal and community wide benefits of non-motorized transportation modes of travel.
10	3		3. Develop strategies to educate the general public on key safety issues related to integrating walking, bicycling and motorized travel.

Goal:

- “Increase awareness AND USE of...”
- Plus strong enforcement – perhaps more police on bicycles as a very visible cultural/enforcement statement
- Should include educating the public about the rights and responsibilities of cyclists and pedestrians
- Delete “awareness”, increase opportunities and benefits for non-motor transp. Provide information.
- Including mass transit
- I would go much further, making this the expectation (that all children be able to walk or bike to school)
- It would be great if part of the education language addressed the notion of education for non-bikers and non-walkers (i.e., car drivers). They need more education than anyone.

Objectives:

- #1. Agreed, except for the earlier concern about the phrase “non-motorized network.”
- On 1 and 2, I would envision a colorful route guide (for sale for profit), but not a “drink mile” type program billboard.
- 1,3 Contiguous routes a strong plus.
- #3. Agree, under the assumption that “general public” means residents, commuters, and other visitors
- Perhaps an incentive (positive and negative) for less driving.
 - Cheap, easy mass transit
 - Areas in city with no driving
 - Cheap parking in areas from which bike, walk, or use mass transit
 - Strong enforcement of traffic laws affecting pedestrians and bikes
- At least one education goal should be directed specifically at drivers, not just “the general public”
- Additional goals
 - Educate the general public on existing laws giving pedestrians right-of-way and cyclists equal rights.
 - Educate the police department and schools on their vital roles in enforcing and education of pedestrians and cyclists existing rights. These two organizations largely create the existing anti-pedestrian and non-motorized vehicle culture.
- How will strategies be implemented?
 - Start time, attainable, reasonable, system feedback
 - How will objectives be evaluated
 - How often
- I think we need a non-motorized commission to approve projects and allocate funds. Farmington Hills has like 20 goals and several pages of guidelines.
- I agree, but I feel the public needs to be educated that the roads also are part of the non-motorized transportation network even if there are no bike lanes, i.e., cyclists have a right to ride on the road and so motorists shouldn’t harass them. Motorists really need to be educated that more bike lanes doesn’t mean cyclists should only ride on bike lanes.
- Need to include an element about safe routes to school. “General public” covers it, but we need to also separate schools into their own objectives.
- I would like to see a 4th point that directly addresses the need to educate car drivers – which fits into the part of the vision statement about nurturing a cultural environment that makes biking and walking easy and natural.
- Less police officers riding on the sidewalk!!!

June 16, 2004 – Northeast Area Public Workshop

General Comments

- I like the infrastructure plans. I hope more definite plans coinciding with these improvements are much better education steps. Driver’s training, gas stations, schools, and a version of shared use signage (especially at entry ways to the City and highway exits).
While refuge islands are great, there should be careful use not to over extend their lengths. The turn land in center also gives cyclists more space and time to cross tow lanes of traffic safely for preparation for a left turn.
- For master plan, should be moving to dedicated bike paths off roads. This will eliminate many conflicts.
Need to make use of paths right of ways for bike paths.
- Maintain very rough sidewalk along Huron Parkway, south of Huron River Drive on big hill.
Need better way to cross Packard at Burr Park.
The plans look great!
- Educate drivers – driver’s ed.
Parking of bikes
”Yellow” bikes? Someplace took old bikes, painted them and had them available for anyone to use in a certain area (e.g. downtown)
- Bike lanes along Murfin if at all possible; seen as more heavily trafficked, higher priority than Bonisteel Blvd.

Draft Goals and Objectives Input Worksheet

Vision

The purpose of the plan is to identify the means to establish a physical and cultural environment that supports and encourages safe, comfortable and convenient ways for pedestrians and bicyclists to move throughout the city and into the surrounding communities.

It is further envisioned that this environment will result in a greater number of individuals freely choosing alternative transportation modes (walking, bicycling, mass transit, etc.), which will lead to healthier lifestyles, improved air and water quality, and a safer, more sustainable transportation system.

2 Strongly Agree 0 Agree, but with modifications 0 Disagree

Please include any additions, modifications or strong objections to the statement that you feel are needed:

- No comments

Policy and Planning Integration Goal & Objectives

Strongly Agree	Agree, with modificatio	Disagree	Goal:
2			Incorporate non-motorized best practices into all relevant policies, and all aspects and stages of planning available to the City and its partner organizations.

Strongly Agree	Agree, with modificatio	Disagree	Objectives:
2			1. Develop best practices guidelines that define a true multi-modal perspective for transportation planning.
1	1		2. Identify changes to planning processes, city policies and regulations that will further non-motorized transportation.
2			3. Define a sustainable financing mechanism for non-motorized transportation policy development, policy implementation, construction of facilities, education, and other needs that may arise to implement the City’s non-motorized transportation plan.
2			4. Encourage and provide a framework for coordination between the City of Ann Arbor, surrounding communities and regional agencies to facilitate connecting the non-motorized network to the region.

- First bike path was built as an “addition” to the Huron Parkway (when it was being planned and built). Now, after 40 plus years, I’m glad we are adding to what we have. And non-motorized goals, objectives, policies and practices should be an integral part of ALL planning, not just transportation planning.

Complete System Goal & Objectives

Strongly Agree	Agree, with modificatio	Disagree	Goal:
2			Provide a comprehensive non-motorized network as an integral component of the City's transportation system.

Strongly Agree	Agree, with modifications	Disagree	Objectives:
2			1. Provide convenient and safe non-motorized connections between destinations throughout the community, such as residential, commercial, school, recreational, and other areas.
2			2. Integrate non-motorized transportation into existing transportation infrastructure.
2			3. Eliminate obstacles in the current non-motorized network.
2			4. Minimize conflict between modes of travel while still accommodating all modes.

- Long overdue!

Education Goal & Objectives

Strongly Agree	Agree, with modifications	Disagree	Goal:
2			Increase awareness of the opportunities for, and benefits of, non-motorized transportation, as well as provide information to all users on safe ways to integrate motorized and non-motorized modes of transportation.

Strongly Agree	Agree, with modifications	Disagree	Objectives:
2			1. Develop strategies to educate the general public on the available non-motorized transportation network and encourage its use.
2			2. Develop strategies to educate the general public on the personal and community wide benefits of non-motorized transportation modes of travel.
2			3. Develop strategies to educate all transportation system users (motorists, cyclists, pedestrians, etc.) on key safety issues related to integrating walking, bicycling and motorized travel to create an atmosphere of respect among all travelers.
2			4. Develop strategies to incorporate education of the benefits of and opportunities for non-motorized transportation into public schools, including promotion of Safe Routes to School.

- #3 is extremely important!

July 14, 2004 – South Area Public Workshop

General Comments

- Delightful presentation and map! Would like to address neighborhood sidewalks (e.g. Independence) especially near schools. Looks like additional RR crossings are not possible? A pedestrian cut-through on the southern edge of UM golf course would make Busch's more accessible if you could create a ped bridge over railroad.
- The Washtenaw/US-23 area is very expensive to fix. Alternatively, can you talk with Pittsfield to get bike lanes on Packard east of 23? They're going to repave Packard east of 23 this summer.
- There needs to be another east./west route alternative to Eisenhower between Ann Arbor-Saline Rd and Packard (at least) to the east. Eisenhower will not work a shared use. Only the most experienced cyclists would even consider it as an option.
- I am opposed to 4-to-3 lanes on Packard and South Industrial. Put crosswalk buttons on State St by UM-Diag where pedestrians cross the street. Main St. by Pioneer High School should have north and south lanes. Buttons needed at Huron and Fifth Ave.
- Can you influence the City traffic light management? Watch/time the traffic and walk signals at State and William. The State St walk signal is active for <3 seconds, after which William St traffic gets a green light! It's dangerous! By the time pedestrians are min-State St, William St traffic left turns (north) can easily run over >1 person. Work with UM to get educational materials out/used. Students are frequent bike users and don't always consider themselves part of the city, it seems. I like the positive messages in signage, etc., but feel that traffic enforcement is currently minimal. Drivers need to know that they will have a penalty for violating non-motorized space.
- Who takes care of planted medians? Maintenance has been an issue in the past. Stadium needs a bike lane from Washtenaw to Pauline. When will that stretch be re-built?
- Level of service: there is a disadvantage to "better" levels of service and the land that may be required if additional lanes are necessary.
- Shared-use is okay... but even with bicycle lanes, I'm less comfortable when traffic speed limit is 35-40. Bikes and cars interact better at posted speeds of 25-30.
- Your presentation on Washtenaw was great. I did find one picture confusing. ON the slide that shows the Washtenaw/Stadium intersection the name you gave for the right hand street is no the one I am accustomed to.
- Packard: Marlborough and Independence left turn conflicts is 3-lane needed.
- For many reasons, motor vehicle LOS policy of D or E is in Ann Arbor's best interest.
 - Induced demand
 - Different motor vehicle/other LOS
 - Most traffic is non-resident
 - Current City policy widens for motor vehicle LOS <C, ignores bicyclist transit LOS
- The "Respect..." text on signs and flyers should be larger and reverse text.

Draft Goals and Objectives Input Worksheet

Vision

The purpose of the plan is to identify the means to establish a physical and cultural environment that supports and encourages safe, comfortable and convenient ways for pedestrians and bicyclists to move throughout the city and into the surrounding communities.

It is further envisioned that this environment will result in a greater number of individuals freely choosing alternative transportation modes (walking, bicycling, mass transit, etc.), which will lead to healthier lifestyles, improved air and water quality, and a safer, more sustainable transportation system.

13 Strongly Agree 4 Agree, but with modifications 0 Disagree

- I am skeptical that an improved physical and cultural environment will lead to individuals freely choosing to bicycle and walk as alternatives to driving. I believe that some additional motivation over and above these enhancements will be necessary. I suggest that much higher fuel prices and even more congestion will need to occur before these improvements will be freely chosen.
- 2nd Paragraph – “individuals freely choosing alternative transportation modes” should read “people that choose alternative transportation modes”
- 2nd Paragraph – “individuals” should read “residents and visitors”
- Public officials active use of non-motorized alternatives should be encouraged to give visible support to the public funding of these efforts.
- For biking/walking to be viable alternative transportation these modes must be safe. Aggressive enforcement of traffic laws, e.g. speed, encroaching on crosswalks, etc. is essential for success.
- Just brainstorming... what about electric motorized vehicles? It's conceivable that, in the future (near future), on alternative modes of transportation might fall between car/motorcycle and bicycle/walking (Segway Scooters? Etc.)
- With no measurable goals, how [will] we know that more people are using non-automobile modes?
- Add a goal: “Numerical Target – Double the percentage of trips by non-motorized means by 2025”

Policy and Planning Integration Goal & Objectives

Strongly Agree	Agree, with modification	Disagree	Goal:
15	3		Incorporate non-motorized best practices into all relevant policies, and all aspects and stages of planning available to the City and its partner organizations.

Strongly Agree	Agree, with modification	Disagree	Objectives:
14	4		1. Develop best practices guidelines that define a true multi-modal perspective for transportation planning.
14	4		2. Identify changes to planning processes, city policies and regulations that will further non-motorized transportation.
15	3		3. Define a sustainable financing mechanism for non-motorized transportation policy development, policy implementation, construction of facilities, education, and other needs that may arise to implement the City’s non-motorized transportation plan.
14	3	1	4. Encourage and provide a framework for coordination between the City of Ann Arbor, surrounding communities and regional agencies to facilitate connecting the non-motorized network to the region.

- O3: In an era of budget ovises, isn’t it likely that these issues, currently the interest of a minority (I count 17 people here tonight) will face considerable scrutiny?
- Education – should include education of motorists that cyclists have a right to be on the road with goal of reducing harassment of cyclists.
- O2: Identify AND implement
- O3: I don’t know if “implement” is the right term, it just seems like the outcome should be something a little more concrete than a “definition”
- O1: delete “planning”
- O2: switch “planning processes” and “city policies” to correct the emphasis to match the goal
- O4: Ok, but more important would be: “Ensure that all city departments are actively working to encourage non-motorized transportation”
- O1: Don’t guidelines exist? What types of issues do you anticipate and how long will such development take?

- O3: Add: Based on a clearly defined revenue source to allow accurate accounting of costs/benefits.
- O4: This will require intra-governmental cooperation.
- Goal: “All” is very comprehensive. Do we know how much of existing policies and planning will be affected?
- O2: ...will “better balance non-motorized transportation and motorized transportation.”
- O4: Need to prioritize which surrounding communities we will focus on. E.g., those within xxx miles of City of Ann Arbor boundary?
- O1: Some (most?) of the general population probably does not understand the industry jargon “best practices”.
- O2: Shouldn’t the objective be to “identify *and make* changes”? Identify stops with plan publication. Most of the work occurs after the plan is published.
- O1: Sources of best practices should be referenced.
- O2: Financing mechanisms: city, state, federal, grants, donated time and effort from citizens.
- O4: A non-motorized commission should be included.

Complete System Goal & Objectives

Strongly Agree	Agree, with modifications	Disagree	Goal:
15	3		Provide a comprehensive non-motorized network as an integral component of the City's transportation system.

Strongly Agree	Agree, with modifications	Disagree	Objectives:
17	1		1. Provide convenient and safe non-motorized connections between destinations throughout the community, such as residential, commercial, school, recreational, and other areas.
16	2		2. Integrate non-motorized transportation into existing transportation infrastructure.
16	2		3. Eliminate obstacles in the current non-motorized network.
14	3	1	4. Minimize conflict between modes of travel while still accommodating all modes.

- O4: Thanks for changing #4. I'm still concerned about the wording.
- O4: A non-motorized commission should be included.
- O2: Problematic in a litigious society.
- O2: It seems that everyone assumes sidewalks for pedestrians along roadways are the answer for pedestrian needs. But I would like to point out the superiority of independent pathways – perpendicular to roadways – and far from roadways as much as possible – should be the goal. These are much pleasanter (therefore will be more used) and safer, and can be created along utility lines and property lines, and along railroads.
- O2: Need to remember that roads that control cars like arterials, cul-de-sacs, etc. make walking and biking less feasible. Need shortcuts & maps that show them.
- Support the non-motorized connections/network as a supplement to non-motorized inclusions along the main corridors.
- Rollerbladers will also use these facilities.
- O1: include university
- O1: Suggestion – add more bicycle parking at shopping centers, doctor's offices, etc. City code requires bike parking to be added during new construction or renovation, but older shopping centers

still don't have any bike parking, or they have old style bike racks that are worse than a sign post, and so I lock my bike to a sign post instead.

- O2: Already exists to some degree. All roads are bicycle facilities, but there is much room for improvement (detectors at lights, better pavement, etc.)
- O4: I think more emphasis needs to be given to exclusive non-motorized facilities. Focus on modification to existing roadways while trying to maintain usability by motorized transport compromises both modes. Primarily it discourages non-motorized use because of the mere presence of motorized traffic. E.g. eliminate motorized travel from William to Huron closing Main St. In general, close streets and convert Huron to pedestrian travel and bicycle routes.
- Will clearly need to prioritize which parts of network will be for both non-motorized and motorized and which will be for one or the other.
- O4: This is too easily construed as keeping bikes out of the road and on separate paths “where they belong” and “where they’re safer.”
- O1: Have maps widely distributed
- Goal: ... comprehensive **convenient** non-motorized network...
- O2: Add “for residents and visitors.”
- O3: Eliminate **cultural, financial, safety-oriented, and time-based** obstacles... Ex: give an example of the time required to final destination door-to-door, i.e. biking during heavier traffic may be faster than driving and parking. Safety-oriented includes lighting, snow/trash/leaf removal and using fines when needed for both motorized and non-motorized violations.
- Please talk more about the integration of non-motorized traffic and the AATA services. Highlight bus stops and routes along with the nomo plan. How can this integration be improved to reduce inter-city traffic.

Education Goal & Objectives

Strongly Agree	Agree, with modifications	Disagree	Goal:
16	2		Increase awareness of the opportunities for, and benefits of, non-motorized transportation, as well as provide information to all users on safe ways to integrate motorized and non-motorized modes of transportation.

Strongly Agree	Agree, with modifications	Disagree	Objectives:
16	2		1. Develop strategies to educate the general public on the available non-motorized transportation network and encourage its use.
15	3		2. Develop strategies to educate the general public on the personal and community wide benefits of non-motorized transportation modes of travel.
15	3		3. Develop strategies to educate all transportation system users (motorists, cyclists, pedestrians, etc.) on key safety issues related to integrating walking, bicycling and motorized travel to create an atmosphere of respect among all travelers.
15	3		4. Develop strategies to incorporate education of the benefits of and opportunities for non-motorized transportation into public schools, including promotion of Safe Routes to School.

- These are all fine, but the first objective should be: “Develop strategies to educate all transportation users on legal rights and responsibilities for both non-motorized and motorized users, particularly on bicyclist and pedestrian rights-of-way.”
- O1: signs, banners, fliers look good.
- O3: “to integrate system users”
- Goal: “opportunities and benefits associated with non-motorized”
- O4: “education on the benefits and availabilities” (more positive and active)
- O3: ... and decrease harassment.
- O2: Incentives (in addition to education) should be sought to encourage the public to consider alternative modes. Bicycle pools at places of business, charging for “free parking”, free bus rides...
- Goal: Involve public figures, testimonials from officials and employers. Work with employers to create incentives for non-motorized transport.

- O2: Include working with the schools.
- O3: Use penalties to help with cultural change for egregious violations.
- O4: Include work and entertainment.
- Involve local volunteer groups/clubs: encourage bike tours on bike routes in increase visibility of use. AABTS may consider developing an in-town ride.
- Let visitors know: “Come and walk Ann Arbor” – but park outside and make it easy for visitors to get from their cars into town and back. Easy means that the walk to the car or bus ride is available when the visitor is ready to go.
- Education must include enforcement of laws the affect safety for pedestrian and bicyclists. Most of the problems are due to unsafe driving: speeding, not yielding to peds and bicyclists, encroaching on crosswalks, not stopping at stop sighs, etc. Laws are useless without enforcement. I don’t bike now because of increased traffic and less considerate drivers.
- Let’s reclaim the creekways! Line them with shared-use paths.
- Again, it would be nice if the outcomes here were more concrete than a strategy. Maybe a strategy actually adopted by whatever body would be responsible for implementing it. Who would that be? Shouldn’t that be made clear at this point?

Wednesday, September 15, 2004 – Central Area Public Workshop

General Comments

- It may be a good idea to have more people look at this design so they can understand the process that has gone into coming up with this plan. Otherwise, it will be a big surprise when all of this is implemented. There may be more opposition to it simply because people haven't had time to absorb and adjust to future changes. Maybe post the plan at the library or other public places and allow people to comment or at least get used to the ideas before they happen.
- I don't quite understand the need for Bump Outs in the State Street area. The traffic in this areas is always very slow if not stopped. I see pedestrians cross this street at all points. Is this the reason for the bump outs? I just believe this is a lot of parking to loose in the State Street area. Overall, excellent job!
- Very thoughtful plan. Must look at the long term, especially for major road improvements. Should focus on eliminating four-lane (even 3-lane) roads and instead spread traffic over more 2-lane roads. Also, curbs are almost always way too high. In Europe, curbs are never more than 3 inches.
- Put together very well – good job. But don't forget about redoing deteriorating sidewalks and also increasing lighting on side streets at night.
- E.U. should be shared . N.S. Bicycle path through what is now Mill round – about . S.U. and State? Don't take out parking on State, instead expand sidewalk and have a share pedestrian bike space N. & S.
Catherine and Eann could include bike paths on major E/W route.
End of Detroit Street crosswalk across Catherine to the Sculpture Plaza.
We need pedestrian walks and crosswalks in the street level area of Washtenaw & E. Huron.
- Great ideas.
- Keep bike lanes free of obstructions and broken glass. Also please put bike lanes on Packard and S. Industrial ASAP.
- Catherine & Ann to include bike paths as major East/West route.
Expand sidewalk on State for shared bike/ped and leave parking.
Detroit Street (Catherine) crosswalk midblock to Sculpture plaza and open bike/ped route end to end.
Roundabout @ State and S. University
Vacated E.U. shared N/S bike/ped route
Crosswalk @ Street level of Life Science area
- At least on the Detroit/Chicago line, it is a good idea to put path on ROW, anticipate double tracking if commuter rail comes, or speed is increased.
Cops need to get bikes off sidewalk!
Remember that street parking helps walkers
Half of Huron & First, Ashley, Fifth & Division intersections can have refuges on Huron.
- How about 4 to 3 lane conversion on Main between Stadium and William, and add bike lanes? There is a bottleneck once cars reach William anyway, so what purpose does having four traffic lanes serve?
- Recommend that AA adopt UVC for keep right. Move toward "bicycles use full lane" signs on narrow downtown streets. City bike police should use roads. Avoid door zone bike lanes!

Draft Goals and Objectives Input Worksheet

Vision

The purpose of the plan is to identify the means to establish a physical and cultural environment that supports and encourages safe, comfortable and convenient ways for pedestrians and bicyclists to move throughout the city and into the surrounding communities.

It is further envisioned that this environment will result in a greater number of individuals freely choosing alternative transportation modes (walking, bicycling, mass transit, etc.), which will lead to healthier lifestyles, improved air and water quality, and a safer, more sustainable transportation system.

23 Strongly Agree **3** Agree, but with modifications **0** Disagree

Please include any additions, modifications or strong objections to the statement that you feel are needed:

- At the end of the 1st paragraph, add “Establish an implementation process.”
- We need safe walkable sidewalks with pedestrian level lighting in the central neighborhoods. Safety entails more than painting in bike lanes. People deserve a pedestrian right-of-way where they are not likely to trip and fall. This entails lighting amenable to bikers and walkers.
- Include rollerblading, etc.
- It will be wonderful to have citizens “freely choosing” alternative transportation modes, but we must also refrain – by city policy – from expanding the city’s car-serving infrastructure even if people do not “freely choose.”
- To fight against overt and covert efforts that discourage and inhibit non-motorized transportation and to expose such efforts for what they are – such as the auto companies and their supporters encouraging everyone to buy more expensive and newer cars as often as possible (e.g. GM and the trolleys). Railroads are cheaper than trucks, etc.

Policy and Planning Integration Goal & Objectives

Strongly Agree	Agree, with modificatio	Disagree	Goal:
25	1	0	Incorporate non-motorized best practices into all relevant policies, and all aspects and stages of planning available to the City and its partner organizations.

Strongly Agree	Agree, with modificatio	Disagree	Objectives:
25	1	0	1. Develop best practices guidelines that define a true multi-modal perspective for transportation planning.
21	6	0	2. Identify changes to planning processes, city policies and regulations that will further non-motorized transportation.
25	1	1	3. Define a sustainable financing mechanism for non-motorized transportation policy development, policy implementation, construction of facilities, education, and other needs that may arise to implement the City’s non-motorized transportation plan.
22	4	0	4. Encourage and provide a framework for coordination between the City of Ann Arbor, surrounding communities and regional agencies to facilitate connecting the non-motorized network to the region.

- Add: 5. Define the process for prioritizing, scheduling and implementing improvements. Specify who is responsible for these functions. As part of the process, there should be (at a minimum) a yearly list of projects to implement that year, for approval by policy makers.
- 6. Don’t be hamstrung by the nominally available funding. Let the need and the vision help to drive the funding.
- Within the City organization of transportation make sure that people in charge of process and approvals seek always to support alternative transportation directions, not find reasons for not doing them.
- The more regional collaboration / coordination the better.
- #2. You should explicitly recognize the importance of urban design and land use planning in supporting non-motorized transportation. Examples: street mall & density w/mixed uses.
* In addition, explicitly talk about the need to coordinate efforts with the AATA and other regional transit agencies (even Amtrak and Greyhound).
- #4. Students need to be included!

- The school system needs to be brought in as a partner organization. Otherwise, it's strong car orientation will continue to sabotage city goals. E.g. The "new high school" on N. Maple will be drawing students who currently walk to Pioneer. These will have to drive to N. Maple. I propose that the school system be convinced that no students who live within the 1 ½ mile walking radius of a school be compelled to be bussed to another school.
- Hold input workshops every six months!
- #4. Yes! In addition to aiding people who live in Ann Arbor, this could be expanded to integrating commuters from the surrounding townships.
- What are we going to do in the winter?

Complete System Goal & Objectives

Strongly Agree	Agree, with modifications	Disagree	Goal:
26	0	0	Provide a comprehensive non-motorized network as an integral component of the City's transportation system.

Strongly Agree	Agree, with modifications	Disagree	Objectives:
25	2	0	1. Provide convenient and safe non-motorized connections between destinations throughout the community, such as residential, commercial, school, recreational, and other areas.
25	2	0	2. Integrate non-motorized transportation into existing transportation infrastructure.
25	3	0	3. Eliminate obstacles in the current non-motorized network.
25	2	0	4. Minimize conflict between modes of travel while still accommodating all modes.

- #4. More education needed!
- Need to minimize impact on traffic flow and parking in and into commercial areas.
- #2 & 4 are very important. Too often the road engineers work at cross purposes with bike / ped efforts. For example, continuing to make wider roads with the misguided notion that they will improve traffic flow. Wide roads are bad for peds, bikers, and cars and property values.
- #1. Other areas: Regional transite station (Greyhound and Amtrak), AATA bus stops. Also, instead of “throughout” use “in every part” – stronger.
- The sidewalks in the Old Fourth Ward neighborhood are extremely unsafe! They are uneven, broken, and shattered in many places. This makes walking , even in this downtown neighborhood very hazardous. I always watch my feet as I’m walking lest I trip and fall. I can’t imagine how a visually impaired or wheelchair bound person could safely get around. Why can’t we have walkable sidewalks? We also need pedestrian level lighting for the neighborhoods near campus.
- Add #5. Link to regional non-motorized network.

Education Goal & Objectives

Strongly Agree	Agree, with modifications	Disagree	Goal:
23	1	0	Increase awareness of the opportunities for, and benefits of, non-motorized transportation, as well as provide information to all users on safe ways to integrate motorized and non-motorized modes of transportation.

Strongly Agree	Agree, with modifications	Disagree	Objectives:
22	3	0	1. Develop strategies to educate the general public on the available non-motorized transportation network and encourage its use.
21	4	0	2. Develop strategies to educate the general public on the personal and community wide benefits of non-motorized transportation modes of travel.
21	4	0	3. Develop strategies to educate all transportation system users (motorists, cyclists, pedestrians, etc.) on key safety issues related to integrating walking, bicycling and motorized travel to create an atmosphere of respect among all travelers.
23	2	0	4. Develop strategies to incorporate education of the benefits of and opportunities for non-motorized transportation into public schools, including promotion of Safe Routes to School.

- Don't just develop strategies; implement them. Specify who does what when to implement the strategies.
- Build up the involvement of UM in this entire process and make sure it plays a major role in education the student body.
- Explicitly work with police to educate and enforce. (Of course bike cops on sidewalks has to end)
- Ann Arbor needs to conduct a comprehensive study of motorized transportation and parking needs as well, especially in the downtown, before any decisions are made about additional parking facilities.
- The whole attitude I see tonight is wrong. The almost apologetic attitude towards biking. The obsessing unsafety when it is obvious to any moron that a bike accident is light years less in terms of danger potential w/ respect to cars, trucks, etc. There is constant propaganda about cars and the thrill of speed and we are going to counter this with "responsible" publicity. It can't compare in

effectiveness. Kids, for example, could care less about responsible behavior as an argument. It is the thrill of owning a car. As evidence, see insurance rates for under 25 year old males.

- It is very important to identify barriers aside from infrastructure that prevent people from biking in the City. Can be intimidating for 1st time city dwellers – education is KEY!
- Sidewalks - do you know of any material which will allow rainwater to permeate and which will allow tree roots to grow / material will heave flexibly to accommodate roots?
- Great education goals!
- Lead elementary kids on walking tours around schools and outline bike paths and show them how to watch for traffic, etc. Stree health and environmental benefits!
- Have you considered where to add bike parking if you expect a great increase in bike traffic?
- Good people don't need to be told about laws and others will look for ways to break them.

6.4 USDOT Policy Statement on Integrating Bicycling and Walking

In 1999, the United States Department of Transportation issued a policy statement on integrating bicycling and walking into transportation infrastructure entitled *Design Guidance, Accommodating Bicycle and Pedestrian Travel: A Recommended Approach*. This document indicates the federal government's interpretation on how best to address the non-motorized transportation requirements of the Transportation Equity Act for the 21st Century.

Purpose

Accommodating Bicycle and Pedestrian Travel: A Recommended Approach is a policy statement adopted by the United States Department of Transportation. USDOT hopes that public agencies, professional associations, advocacy groups, and others adopt this approach as a way of committing themselves to integrating bicycling and walking into the transportation mainstream.

The Design Guidance incorporates three key principles:

- a) policy statement that bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist;
- b) an approach to achieving this policy that has already worked in State and local agencies; and
- c) a series of action items that a public agency, professional association, or advocacy group can take to achieve the overriding goal of improving conditions for bicycling and walking.

The Policy Statement was drafted by the U.S. Department of Transportation in response to Section 1202 (b) of the Transportation Equity Act for the 21st Century (TEA-21) with the input and assistance of public agencies, professional associations and advocacy groups.

Introduction

Bicycling and walking issues grew in significance throughout the 1990s. As the new millennium dawned public agencies and public interest groups alike were striving to define the most appropriate way in which to accommodate the two modes within the overall transportation system so that those who walk or ride bicycles could safely, conveniently, and comfortably access every destination within a community.

Public support and advocacy for improved conditions for bicycling and walking has created a widespread acceptance that more should be done to enhance the safety, comfort, and convenience of the non-motorized traveler. Public opinion surveys throughout the 1990s demonstrated strong support for increased planning, funding and implementation of shared use paths, sidewalks and on-street facilities.

At the same time, public agencies have become considerably better equipped to respond to this demand. Research and practical experience in designing facilities for bicyclists and pedestrians have generated numerous national, state and local design manuals and resources. An increasing number of professional planners and engineers are familiar with this material and are applying this knowledge in towns and cities across the country.

The 1990 Americans with Disabilities Act, building on an earlier law requiring curb ramps in new, altered, and existing sidewalks, added impetus to improving conditions for sidewalk users. People with disabilities rely on the pedestrian and transit infrastructure, and the links between them, for access and mobility.

Congress and many State legislatures have made it considerably easier in recent years to fund non-motorized projects and programs (for example, the Intermodal Surface Transportation Efficiency Act and the Transportation Equity Act for the 21st Century), and a number of laws and regulations now mandate certain planning activities and design standards to guarantee the inclusion of bicyclists and pedestrians.

Despite these many advances, injury and fatality numbers for bicyclists and pedestrians remain stubbornly high, levels of bicycling and walking remain frustratingly low, and most communities continue to grow in ways that make travel by means other than the private automobile quite challenging. Failure to provide an accessible pedestrian network for people with disabilities often requires the provision of costly paratransit service. Ongoing investment in the nation's transportation infrastructure is still more likely to overlook rather than integrate bicyclists and pedestrians.

In response to demands from user groups that every transportation project include a bicycle and pedestrian element, Congress asked the Federal Highway Administration (FHWA) to study various approaches to accommodating the two modes. The Transportation Equity Act for the 21st Century (TEA-21) instructs the Secretary to work with professional groups such as AASHTO, ITE, and other interested parties to recommend policies and standards that might achieve the overall goal of fully integrating bicyclists and pedestrians into the transportation system.

TEA-21 also says that, "Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation projects, except where bicycle and pedestrian use are not permitted." (Section 1202)

In August 1998, FHWA convened a Task Force comprising representatives from FHWA, AASHTO, ITE, bicycle and pedestrian user groups, state and local agencies, the U.S. Access Board and representatives of disability organizations to seek advice on how to proceed with developing this guidance. The Task Force reviewed existing and proposed information on the planning and technical design of facilities for bicyclists and pedestrians and concluded that these made creation of another design manual unnecessary. For example, AASHTO published a bicycle design manual in 1999 and is working on a pedestrian facility manual.

The area where information and guidance was most lacking was in determining when to include designated or special facilities for bicyclists and pedestrians in transportation projects. There can also be

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TRANSPORTATION AND PEDESTRIAN
WALKWAYS.**

(b) Design Guidance.—

(1) In general.—In implementing section 217(g) of title 23, United States Code, the Secretary, in cooperation with the American Association of State Highway and Transportation Officials, the Institute of Transportation Engineers, and other interested organizations, shall develop guidance on the various approaches to accommodating bicycles and pedestrian travel.

(2) Issues to be addressed. —The guidance shall address issues such as the level and nature of the demand, volume, and speed of motor vehicle traffic, safety, terrain, cost, and sight distance.

(3) Recommendations. —The guidance shall include recommendations on amending and updating the policies of the American Association of State Highway and Transportation Officials relating to highway and street design standards to accommodate bicyclists and pedestrians.

(4) Time period for development. —The guidance shall be developed within 18 months after the date of enactment of this Act.

uncertainty about the type of facility to provide, and the design elements that are required to ensure accessibility. For example, when a new suburban arterial road is planned and designed, what facilities for bicyclists and pedestrians should be provided? The task force felt that once the decision to provide a particular facility was made, the specific information on designing that facility is generally available. However, the decision on whether to provide sidewalks on neither, one or both sides of the road, or a shoulder, striped bike lane, wide outside lane or separate trail for bicyclists is usually made with little guidance or help.

After a second meeting with the Task Force in January 1999, FHWA agreed to develop a Policy Statement on Accommodating Bicyclists and Pedestrians in Transportation Projects to guide State and local agencies in answering these questions. Task Force members recommended against trying to create specific warrants for different facilities (warrants leave little room for engineering judgment and have often been used to avoid providing facilities for bicycling and walking). Instead, the purpose of the Policy Statement is to provide a recommended approach to the accommodation of bicyclists and pedestrians that can be adopted by state and local agencies (as well as professional societies and associations, advocacy groups, and Federal agencies) as a commitment to developing a transportation infrastructure that is safe, convenient, accessible, and attractive to motorized AND non-motorized users alike. The Policy Statement has four elements:

- a) an acknowledgment of the issues associated with balancing the competing interests of motorized and nonmotorized users;
- b) a recommended policy approach to accommodating bicyclists and pedestrians (including people with disabilities) that can be adopted by an agency or organizations as a statement of policy to be implemented or a target to be reached in the future;
- c) a list of recommended actions that can be taken to implement the solutions and approaches described above; and
- d) further information and resources on the planning, design, operation, and maintenance of facilities for bicyclists and pedestrians.

The Challenge: Balancing Competing Interests

For most of the second half of the 20th Century, the transportation, traffic engineering and highway professions in the United States were synonymous. They shared a singular purpose: building a transportation system that promoted the safety, convenience and comfort of motor vehicles. The post-war boom in car and home ownership, the growth of suburban America, the challenge of completing the Interstate System, and the continued availability of cheap gasoline all fueled the development of a transportation infrastructure focused almost exclusively on the private motor car and commercial truck.

Initially, there were few constraints on the traffic engineer and highway designer. Starting at the centerline, highways were developed according to the number of motor vehicle travel lanes that were needed well into the future, as well as providing space for breakdowns. Beyond that, facilities for bicyclists and pedestrians, environmental mitigation, accessibility, community preservation, and aesthetics were at best an afterthought, often simply overlooked, and, at worst, rejected as unnecessary, costly, and regressive. Many states passed laws preventing the use of state gas tax funds on anything other than motor vehicle lanes and facilities. The resulting highway environment discourages bicycling and walking and has made the two modes more dangerous. Further, the ability of pedestrians with disabilities to travel independently and safely has been compromised, especially for those with vision impairments.

Over time, the task of designing and building highways has become more complex and challenging. Traffic engineers now have to integrate accessibility, utilities, landscaping, community preservation, wetland mitigation, historic preservation, and a host of other concerns into their plans and designs - and

yet they often have less space and resources within which to operate and traffic volumes continue to grow.

The additional "burden" of having to find space for pedestrians and bicyclists was rejected as impossible in many communities because of space and funding constraints and a perceived lack of demand. There was also anxiety about encouraging an activity that many felt to be dangerous and fraught with liability issues. Designers continued to design from the centerline out and often simply ran out of space before bike lanes, paved shoulders, sidewalks and other "amenities" could be included.

By contrast, bicycle and pedestrian user groups argue the roadway designer should design highways from the right-of-way limits in, rather than the centerline out. They advocate beginning the design of a highway with the sidewalk and/or trail, including a buffer before the paved shoulder or bike lane, and then allocating the remaining space for motor vehicles. Through this approach, walking and bicycling are positively encouraged, made safer, and included as a critical element in every transportation project rather than as an afterthought in a handful of unconnected and arbitrary locations within a community.

Retrofitting the built environment often provides even more challenges than building new roads and communities: space is at a premium and there is a perception that providing better conditions for bicyclists and pedestrians will necessarily take away space or convenience from motor vehicles. During the 1990s, Congress spearheaded a movement towards a transportation system that favors people and goods over motor vehicles with passage of the Intermodal Surface Transportation Efficiency Act (1991) and the Transportation Equity Act for the 21st Century (1998). The call for more walkable, livable, and accessible communities, has seen bicycling and walking emerge as an "indicator species" for the health and well-being of a community. People want to live and work in places where they can safely and conveniently walk and/or bicycle and not always have to deal with worsening traffic congestion, road rage and the fight for a parking space. Vice President Gore launched a Livability Initiative in 1999 with the ironic statement that "a gallon of gas can be used up just driving to get a gallon of milk."

The challenge for transportation planners, highway engineers and bicycle and pedestrian user groups, therefore, is to balance their competing interest in a limited amount of right-of-way, and to develop a transportation infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel. This task is made more challenging by the widely divergent character of our nation's highways and byways. Traffic speeds and volumes, topography, land use, the mix of road users, and many other factors mean that a four-lane highway in rural North Carolina cannot be designed in the same way as a four-lane highway in New York City, a dirt road in Utah or an interstate highway in Southern California. In addition, many different agencies are responsible for the development, management, and operation of the transportation system.

In a recent memorandum transmitting Program Guidance on bicycle and pedestrian issues to FHWA Division Offices, the Federal Highway Administrator wrote that "We expect every transportation agency to make accommodation for bicycling and walking a routine part of their planning, design, construction, operations and maintenance activities." The Program Guidance itself makes a number of clear statements of intent:

Congress clearly intends for bicyclists and pedestrians to have safe, convenient access to the transportation system and sees every transportation improvement as an opportunity to enhance the safety and convenience of the two modes.

"Due consideration" of bicycle and pedestrian needs should include, at a minimum, a presumption that bicyclists and pedestrians will be accommodated in the design of new and improved transportation facilities.

To varying extents, bicyclists and pedestrians will be present on all highways and transportation facilities where they are permitted and it is clearly the intent of TEA-21 that all new and improved transportation facilities be planned, designed and constructed with this fact in mind.

The decision not to accommodate [bicyclists and pedestrians] should be the exception rather than the rule. There must be exceptional circumstances for denying bicycle and pedestrian access either by prohibition or by designing highways that are incompatible with safe, convenient walking and bicycling.

The Program Guidance defers a suggested definition of what constitutes "exceptional circumstances" until this Policy Statement is completed. However, it does offer interim guidance that includes controlled access highways and projects where the cost of accommodating bicyclists and pedestrians is high in relation to the overall project costs and likely level of use by non-motorized travelers.

Providing access for people with disabilities is a civil rights mandate that is not subject to limitation by project costs, levels of use, or "exceptional circumstances". While the Americans with Disabilities Act does not require pedestrian facilities in the absence of a pedestrian route, it does require that pedestrian facilities, when newly constructed or altered, be accessible.

Policy Statement

1. Bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:

- bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.
- the cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.
- where sparsity of population or other factors indicate an absence of need. For example, the Portland Pedestrian Guide requires "all construction of new public streets" to include sidewalk improvements on both sides, unless the street is a cul-de-sac with four or fewer dwellings or the street has severe topographic or natural resource constraints.

2. In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day, as in states such as Wisconsin. Paved shoulders have safety and operational advantages for all road users in addition to providing a place for bicyclists and pedestrians to operate.

Rumble strips are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of four feet in which a bicycle may safely operate.

3. Sidewalks, shared use paths, street crossings (including over and undercrossings), pedestrian signals, signs, street furniture, transit stops and facilities, and all connecting pathways shall be designed, constructed, operated and maintained so that all pedestrians, including people with disabilities, can travel safely and independently.

4. The design and development of the transportation infrastructure shall improve conditions for bicycling and walking through the following additional steps:

- planning projects for the long-term. Transportation facilities are long-term investments that remain in place for many years. The design and construction of new facilities that meet the criteria in item 1) above should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements. For example, a bridge that is likely to remain in place for 50 years, might be built with sufficient width for safe bicycle and pedestrian use in anticipation that facilities will be available at either end of the bridge even if that is not currently the case.
- addressing the need for bicyclists and pedestrians to cross corridors as well as travel along them. Even here bicyclists and pedestrians may not commonly use a particular travel corridor that is being improved or constructed, they will likely need to be able to cross that corridor safely and conveniently. Therefore, the design of intersections and interchanges shall accommodate bicyclists and pedestrians in a manner that is safe, accessible and convenient.
- getting exceptions approved at a senior level. Exceptions for the non-inclusion of bikeways and walkways shall be approved by a senior manager and be documented with supporting data that indicates the basis for the decision.
- designing facilities to the best currently available standards and guidelines. The design of facilities for bicyclists and pedestrians should follow design guidelines and standards that are commonly used, such as the AASHTO Guide for the Development of Bicycle Facilities, AASHTO's A Policy on Geometric Design of Highways and Streets, and the ITE Recommended Practice "Design and Safety of Pedestrian Facilities".

Policy Approach

"Rewrite the Manuals" Approach

Manuals that are commonly used by highway designers covering roadway geometrics, roadside safety, and bridges should incorporate design information that integrates safe and convenient facilities for bicyclists and pedestrians – including people with disabilities – into all new highway construction and reconstruction projects.

In addition to incorporating detailed design information – such as the installation of safe and accessible crossing facilities for pedestrians, or intersections that are safe and convenient for bicyclists – these manuals should also be amended to provide flexibility to the highway designer to develop facilities that are in keeping with transportation needs, accessibility, community values, and aesthetics. For example, the Portland Pedestrian Design Guide (June 1998) applies to every project that is designed and built in the city, but the Guide also notes that:

"Site conditions and circumstances often make applying a specific solution difficult. The Pedestrian Design Guide should reduce the need for ad hoc decision by providing a published set of guidelines that are applicable to most situations. Throughout the guidelines, however, care has been taken to provide flexibility to the designer so she or he can tailor the standards to unique circumstances. Even when the specific guideline cannot be met, the designer should attempt to find the solution that best meets the pedestrian design principles described [on the previous page]"

In the interim, these manuals may be supplemented by stand-alone bicycle and pedestrian facility manuals that provide detailed design information addressing on-street bicycle facilities, fully accessible sidewalks, crosswalks, Shared-use Paths, and other improvements.

Examples: Florida DOT has integrated bicycle and pedestrian facility design information into its standard highway design manuals and New Jersey DOT is in the process of doing so. Many states and localities

have developed their own bicycle and pedestrian facility design manuals, some of which are listed in the final section of this document.

Applying Engineering Judgment to Roadway Design

In rewriting manuals and developing standards for the accommodation of bicyclists and pedestrians, there is a temptation to adopt "typical sections" that are applied to roadways without regard to travel speeds, lane widths, vehicle mix, adjacent land uses, traffic volumes and other critical factors. This approach can lead to inadequate provision on major roads (e.g. a 4' bike lane or 4' sidewalk on a six lane high-speed urban arterial), the over-design of local and neighborhood streets (e.g. striping bike lanes on low volume residential roads), and leaves little room for engineering judgment.

After adopting the policy that bicyclists and pedestrians (including people with disabilities) will be fully integrated into the transportation system, state and local governments should encourage engineering judgment in the application of the range of available treatments.

For example:

- Collector and arterial streets shall typically have a minimum of a 4' wide striped bicycle lane, however wider lanes are often necessary in locations with parking, curb and gutter, heavier and/or faster traffic.
- Collector and arterial streets shall typically have a minimum of a 5' sidewalk on both sides of the street, however wider sidewalks and landscaped buffers are necessary in locations with higher pedestrian or traffic volumes, and/or higher vehicle speeds. At intersections, sidewalks may need to be wider to accommodate accessible curb ramps.
- Rural arterials shall typically have a minimum of a 4' paved shoulder, however wider shoulders (or marked bike lanes) and accessible sidewalks and crosswalks are necessary within rural communities and where traffic volumes and speeds increase.

This approach also allows the highway engineer to achieve the performance goal of providing safe, convenient, and comfortable travel for bicyclists and pedestrians by other means. For example, if it would be inappropriate to add width to an existing roadway to stripe a bike lane or widen a sidewalk, traffic calming measures can be employed to reduce motor vehicle speeds to levels more compatible with bicycling and walking.

Actions

The United States Department of Transportation encourages states, local governments, professional associations, other government agencies and community organizations to adopt this Policy Statement as an indication of their commitment to accommodating bicyclists and pedestrians as an integral element of the transportation system. By so doing, the organization or agency should explicitly adopt one, all, or a combination of the various approaches described above AND should be committed to taking some or all of the actions listed below as appropriate for their situation.

- a) Define the exceptional circumstances in which facilities for bicyclists and pedestrians will NOT be required in all transportation projects.
- b) Adopt new manuals, or amend existing manuals, covering the geometric design of streets, the development of roadside safety facilities, and design of bridges and their approaches so that they comprehensively address the development of bicycle and pedestrian facilities as an integral element of the design of all new and reconstructed roadways.

- c) Adopt stand-alone bicycle and pedestrian facility design manuals as an interim step towards the adoption of new typical sections or manuals covering the design of streets and highways.
- d) Initiate an intensive re-tooling and re-education of transportation planners and engineers to make them conversant with the new information required to accommodate bicyclists and pedestrians. Training should be made available for, if not required of, agency traffic engineers and consultants who perform work in this field.

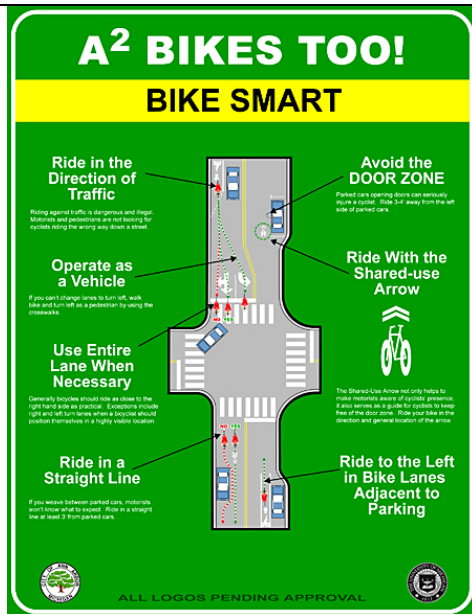
Conclusion

There is no question that conditions for bicycling and walking need to be improved in every community in the United States; it is no longer acceptable that 6,000 bicyclists and pedestrians are killed in traffic every year, that people with disabilities cannot travel without encountering barriers, and that two desirable and efficient modes of travel have been made difficult and uncomfortable.

Every transportation agency has the responsibility and the opportunity to make a difference to the bicycle-friendliness and walkability of our communities. The design information to accommodate bicyclists and pedestrians is available, as is the funding. The United States Department of Transportation is committed to doing all it can to improve conditions for bicycling and walking and to make them safer ways to travel.

6.5 Bicycle & Pedestrian Safety Posters

These posters were designed for the State Street Area Bicycle & Pedestrian Plan and were commissioned by the Ann Arbor Downtown Development Authority. The green and yellow posters were the preliminary design and the blue and yellow posters are the final selected design that are currently displayed throughout the downtown area. These indicate the kind of materials that are used to educate the public about non-motorized options and responsibilities.



6.6 Pedestrian/Motor Vehicle Crash Summary

For the years 1997-1999, raw data provided by SEMCOG

Pedestrian Crashes	1997	1998	1999	Total	Avg.	%
Total Pedestrian Crashes	60	53	52	165	55	
Injury Crashes	58	51	50	159	53	96%
Traffic Control	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors	1	1	3	5	2	3%
1 Traffic signal	21	29	21	71	24	43%
2 Stop sign	9	5	7	21	7	13%
4 None	29	18	21	68	23	41%
Relationship to Road	1997	1998	1999	Total	Avg.	%
1 On roadway	57	52	49	158	53	96%
4 Outside shoulder or curb	1		1	2	1	1%
6 Other/unknown	2	1	2	5	2	3%
Area Type	1997	1998	1999	Total	Avg.	%
1 Freeway entrance or exit ramp		1		1	0	1%
3 Freeway transition area	1			1	0	1%
6 Other freeway area		1		1	0	1%
7 Intersection	15	18	17	50	17	30%
8 Driveway within 150 feet of intersection	1	4	5	10	3	6%
9 Other area near intersection	13	15	13	41	14	25%
10 Straight segment of road	26	10	12	48	16	29%
11 Curved segment of road	1		2	3	1	2%
12 Driveway away from intersections	1	1	2	4	1	2%
13 Parking area along roadside		1		1	0	1%
14 Non-freeway transition area	1			1	0	1%
19 Non-traffic area		1		1	0	1%
20 Other	1	1	1	3	1	2%
Weather Conditions	1997	1998	1999	Total	Avg.	%
1 Clear	24	30	29	83	28	50%
2 Cloudy	20	7	16	43	14	26%
4 Rain	14	13	6	33	11	20%
5 Snow or blowing snow	2	2	1	5	2	3%
8 Other/unknown		1		1	0	1%
Light Conditions	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors			1	1	0	1%
1 Daylight	33	31	33	97	32	59%
2 Dawn	2		5	7	2	4%

3 Dusk	3	1	1	5	2	3%
4 Dark - with street lights on	19	19	11	49	16	30%
5 Dark - without street lights on	3	2	1	6	2	4%

Road Conditions	1997	1998	1999	Total	Avg.	%
1 Dry	39	34	35	108	36	65%
2 Wet	20	17	14	51	17	31%
3 Icy	1			1	0	1%
4 Snowy		1	3	4	1	2%
5 Muddy				0	-	0%
8 Other/unknown		1		1	0	1%

Hazardous Action of Pedestrian	1997	1998	1999	Total	Avg.	%
0 None	23	34	29	86	29	52%
3 Failed to yield right-of-way	6	3	5	14	5	8%
4 Disregarded traffic control	4	3		7	2	4%
9 Turned improperly	1			1	0	1%
13 Other	20	8	13	41	14	25%
14 Unknown	1	2	2	5	2	3%
99 Uncoded/errors	5	3	3	11	4	7%

Action of Pedestrian Prior to Crash	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors		2	1	3	1	2%
1 Going straight *	4			4	1	2%
2 Turning left *			1	1	0	1%
3 Turning right *		1		1	0	1%
14 Entering road *			1	1	0	1%
23 Non - vehicle parked *		1		1	0	1%
24 Crossing at intersection	21	33	30	84	28	51%
25 Crossing away from intersections	23	10	11	44	15	27%
27 Moving in road in direction of traffic	2		1	3	1	2%
28 Moving in road against traffic	2		1	3	1	2%
29 Standing or lying in road	2	1		3	1	2%
31 Doing other work in road		1	1	2	1	1%
33 In road for other reason		2	2	4	1	2%
34 Not in road	6	1	3	10	3	6%
35 Other		1		1	0	1%

* atypical code for pedestrian crash

Pedestrian Drinking	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors	12	11	15	38	13	23%
1 Yes	5	1	1	7	2	4%
2 No	43	41	36	120	40	73%

6.7 Bicycle/Motor Vehicle Crash Summary

For the years 1997-1999, raw data provided by SEMCOG

Bicycle Crashes	1997	1998	1999	Total	%	
Total Bicycle Crashes	74	66	47	187	62	
Injury Crashes	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors	2			2	1	1%
2 A - Incapacitating Injury	5	5	3	13	4	7%
3 B - Non-Incapacitating Injury	22	26	12	60	20	32%
4 C - Possible Injury	36	25	20	81	27	43%
5 O - No Injury	9	10	12	31	10	17%
<i>Total Injury Crashes</i>	63	56	35	154	51	82%
Traffic Control	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors	1	2	3	6	2	3%
1 Traffic signal	19	21	13	53	18	28%
2 Stop sign	17	15	14	46	15	25%
4 None	37	28	17	82	27	44%
Relationship to Road	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors		1		1	0	1%
1 On roadway	61	54	43	158	53	84%
3 On shoulder				0	-	0%
4 Outside shoulder or curb	8	6	1	15	5	8%
5 In gore (convergence of ramp and road)	5	5		10	3	5%
6 Other/unknown			3	3	1	2%
Area Type	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors	1			1	0	1%
1 Freeway entrance or exit ramp	1			1	0	1%
7 Intersection	20	20	21	61	20	33%
8 Driveway within 150 feet of intersection	9	5	4	18	6	10%
9 Other area near intersection	15	19	7	41	14	22%
10 Straight segment of road	14	8	9	31	10	17%
11 Curved segment of road	1		1	2	1	1%
12 Driveway away from intersections	12	10	4	26	9	14%
13 Parking area along roadside		3	1	4	1	2%
15 Divided-highway turnaround	1			1	0	1%
20 Other		1		1	0	1%

Weather Conditions	1997	1998	1999	Total	Avg.	%
1 Clear	42	45	29	116	39	62%
2 Cloudy	27	18	12	57	19	30%
4 Rain	3	2	4	9	3	5%
5 Snow or blowing snow	2		1	3	1	2%
8 Other/unknown		1	1	2	1	1%
Light Conditions	1997	1998	1999	Total	Avg.	%
1 Daylight	56	44	37	137	46	73%
2 Dawn	1		1	2	1	1%
3 Dusk		4	2	6	2	3%
4 Dark - with street lights on	15	17	6	38	13	20%
5 Dark - without street lights on	2	1	1	4	1	2%
Road Conditions	1997	1998	1999	Total	Avg.	%
1 Dry	42	45	29	116	39	62%
2 Wet	27	18	12	57	19	30%
4 Snowy	3	2	4	9	3	5%
5 Muddy	2		1	3	1	2%
8 Other/unknown		1	1	2	1	1%
Hazardous Action of Bicyclist	1997	1998	1999	Total	Avg.	%
0 None	40	40	25	105	35	56%
1 Drove too fast	1			1	0	1%
3 Failed to yield right-of-way	11	9	6	26	9	14%
4 Disregarded traffic control	3	2		5	2	3%
5 Drove wrong way on one-way street	1	1		2	1	1%
6 Drove left of centerline	1	1	1	3	1	2%
7 Passed improperly	1	1		2	1	1%
8 Used lane improperly	1	2	3	6	2	3%
12 Failed to stop in assured clear distance	1	1		2	1	1%
13 Other	9	5	5	19	6	10%
14 Unknown	4	2	5	11	4	6%
99 Uncoded/errors	1	2	2	5	2	3%
Action of Bicyclist Prior to Crash	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors	2		1	3	1	2%
1 Going straight	49	37	31	117	39	63%
2 Turning left	1		3	4	1	2%
3 Turning right	2			2	1	1%
4 Stopped on road	1		1	2	1	1%
6 Changing lanes	1			1	0	1%
9 Slowing or stopping off road	1	1		2	1	1%
10 Starting up on road	1		1	2	1	1%
12 Entering parking spot		1		1	0	1%
14 Entering road	2	4		6	2	3%

17 Overtaking or passing		1		1	0	1%
21 Avoiding vehicle traveling at angle		1		1	0	1%
23 None - vehicle parked		1		1	0	1%
24 Crossing at intersection *	9	14	5	28	9	15%
25 Crossing away from intersection *	3	2	1	6	2	3%
27 Moving in road in direction of traffic *			1	1	0	1%
28 Moving in road against traffic *	1			1	0	1%
34 Not in road *			1	1	0	1%
35 Other	1	3	2	6	2	3%
36 Unknown		1		1	0	1%

* atypical code for bicycle crash

Bicyclist Drinking	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors	11	6	10	27	9	14%
1 Yes	2	4	2	8	3	4%
2 No	61	56	35	152	51	81%

Motor Vehicle Role in Bicycle Crashes	1997	1998	1999	Total	%
Total	74	66	46	186	62

Degree of Injury	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors	5	4	6	15	5	8%
4 C - Possible Injury	1	1		2	1	1%
5 O - No Injury	68	61	40	169	56	91%

<i>Injury Crashes</i>	1	1	0	2	1	1%
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Hazardous Citation	1997	1998	1999	Total	Avg.	%
0 None or uncoded/errors	58	50	34	142	47	76%
1 Hazardous citation only	14	13	12	39	13	21%
2 Other citation only	1	2	0	3	1	2%
3 Both hazardous and other citation	1	1	0	2	1	1%

<i>Total Citations</i>	16	16	12	44	15	24%
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Hazardous Action	1997	1998	1999	Total	Avg.	%
0 None	30	29	15	74	25	40%
1 Drove too fast			1	1	0	1%
3 Failed to yield right-of-way	23	22	19	64	21	34%
4 Disregarded traffic control	1	2	2	5	2	3%
7 Passed improperly	1	1		2	1	1%
8 Used lane improperly			2	2	1	1%
9 Turned improperly		1	1	2	1	1%
11 Backed up improperly		1	1	2	1	1%
12 Failed to stop in assured clear distance			1	1	0	1%
13 Other	14	7	2	23	8	12%

14 Unknown	4	2	2	8	3	4%
99 Uncoded/errors	1	1	0	2	1	1%
<i>Total Hazardous Actions</i>	39	34	29	102	34	55%

Action Prior	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors	1	1	2	4	1	2%
1 Going straight	25	16	13	54	18	29%
2 Turning left	10	12	7	29	10	16%
3 Turning right	12	13	6	31	10	17%
4 Stopped on road	1	4	6	11	4	6%
6 Changing lanes			2	2	1	1%
7 Backing up	3	1	1	5	2	3%
8 Slowing or stopping on road	2	1	2	5	2	3%
9 Slowing or stopping off road	1			1	0	1%
10 Starting up on road	4	5	2	11	4	6%
12 Entering parking spot	2	1	1	4	1	2%
13 Leaving parking spot	2	2		4	1	2%
14 Entering road	7	6	1	14	5	8%
15 Leaving road	1			1	0	1%
16 Making u-turn			1	1	0	1%
17 Overtaking or passing	1	1	1	3	1	2%
21 Avoiding vehicle traveling at angle	1			1	0	1%
23 None — vehicle parked		3	1	4	1	2%
24 Crossing at intersection *	1			1	0	1%
<i>Involving Turning Movements</i>				87	29	47%

Relationship to Road	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors		1				
1 On Road	61	54	42	157	52	84%
2 Outside of Shoulder/Curb	8	6	1	15	5	8%
4 Other/Unknown	5	5	3	13	4	7%

Driver Drinking	1997	1998	1999	Total	Avg.	%
0 Uncoded/errors	9	3	7	19	6	10%
1 Yes	0	1	0	1	0	1%
2 No	64	62	39	165	55	89%

6.8 Crash Diagrams

The following intersections/areas had a high incidence of bicycle/motor vehicle crashes or pedestrian/motor vehicle crashes during the study period 1997 through 1999:

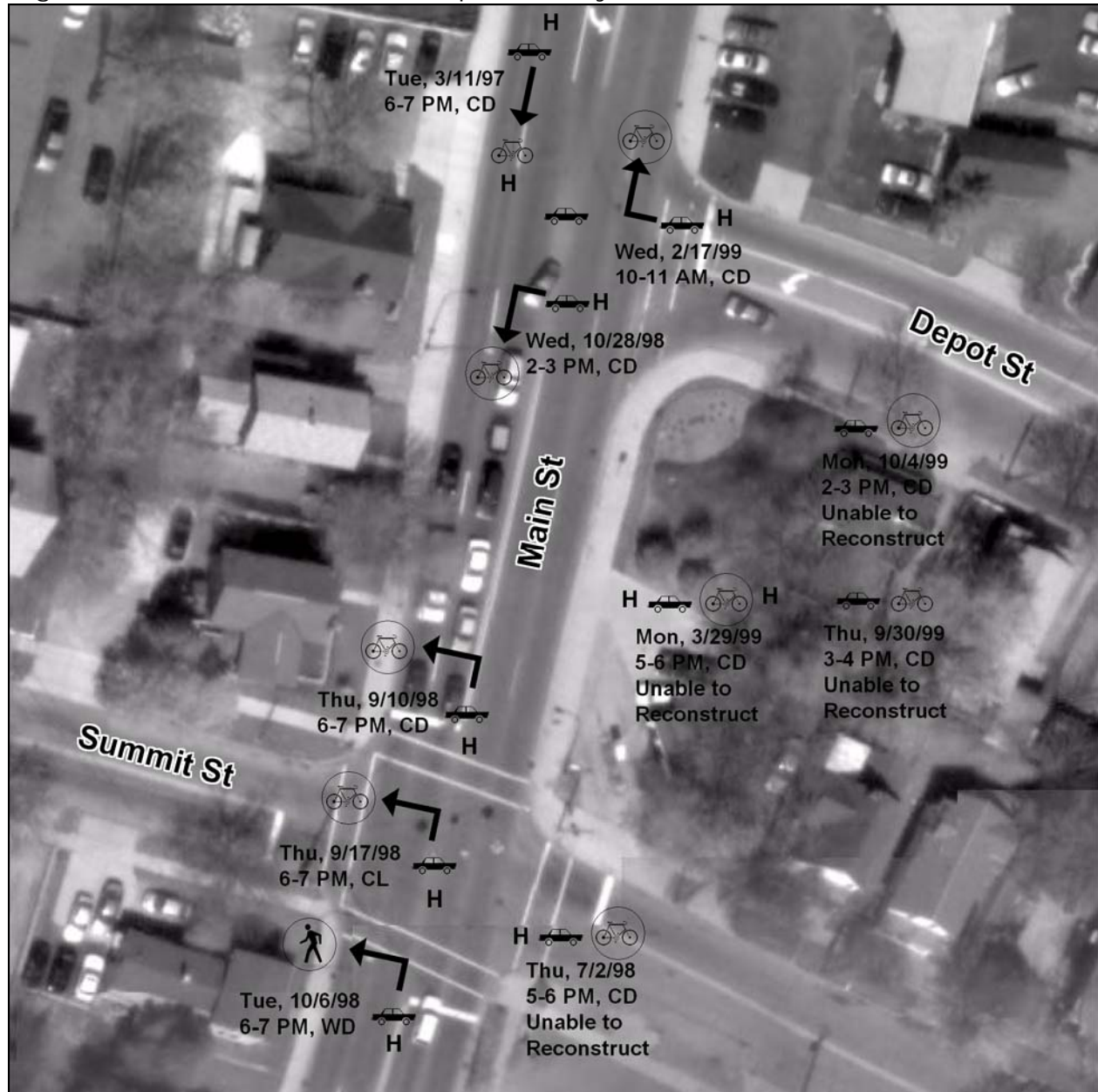
- Main Street/Summit Street/Depot Street
- Broadway St/Maiden Ln/Plymouth Rd/Moore St
- State St / Arch St
- Washtenaw Ave / Hill St
- Huron St / Main St
- Huron St / 4th Ave
- Huron St / 5th
- Huron St / Division St
- Huron St / State St
- 5th Ave / Washington St
- Division St / Liberty St

Using the database supplied by SEMCOG, the crashes were plotted on an air photo as best the data would permit. The action prior to the crash, day of the week, date, time, conditions, hazardous actions and injuries were noted. Observations are noted for each intersection.

In addition to the intersections and areas noted above a high number of crashes were noted in the following areas:

- Maple Road/Stadium Avenue between Dexter and Liberty: Eighty-two percent of non-motorized crashes were between motorists and bicycles between 1997 and 1999. Three of the eleven crashes occurred outside of the curb, all between Liberty and Jackson Roads, and were most likely at driveways to local businesses.
- Main Street, between Jefferson and Stadium: Over 85% of non-motorized crashes were between motorists and bicycles between 1997 and 1999. Two of the sixteen crashes occurred outside of the curb, which likely means that the bicycles were hit while riding on the sidewalk.

Fig. 6.8A. Main St/Summit St/Depot St Bicycle and Pedestrian Crashes



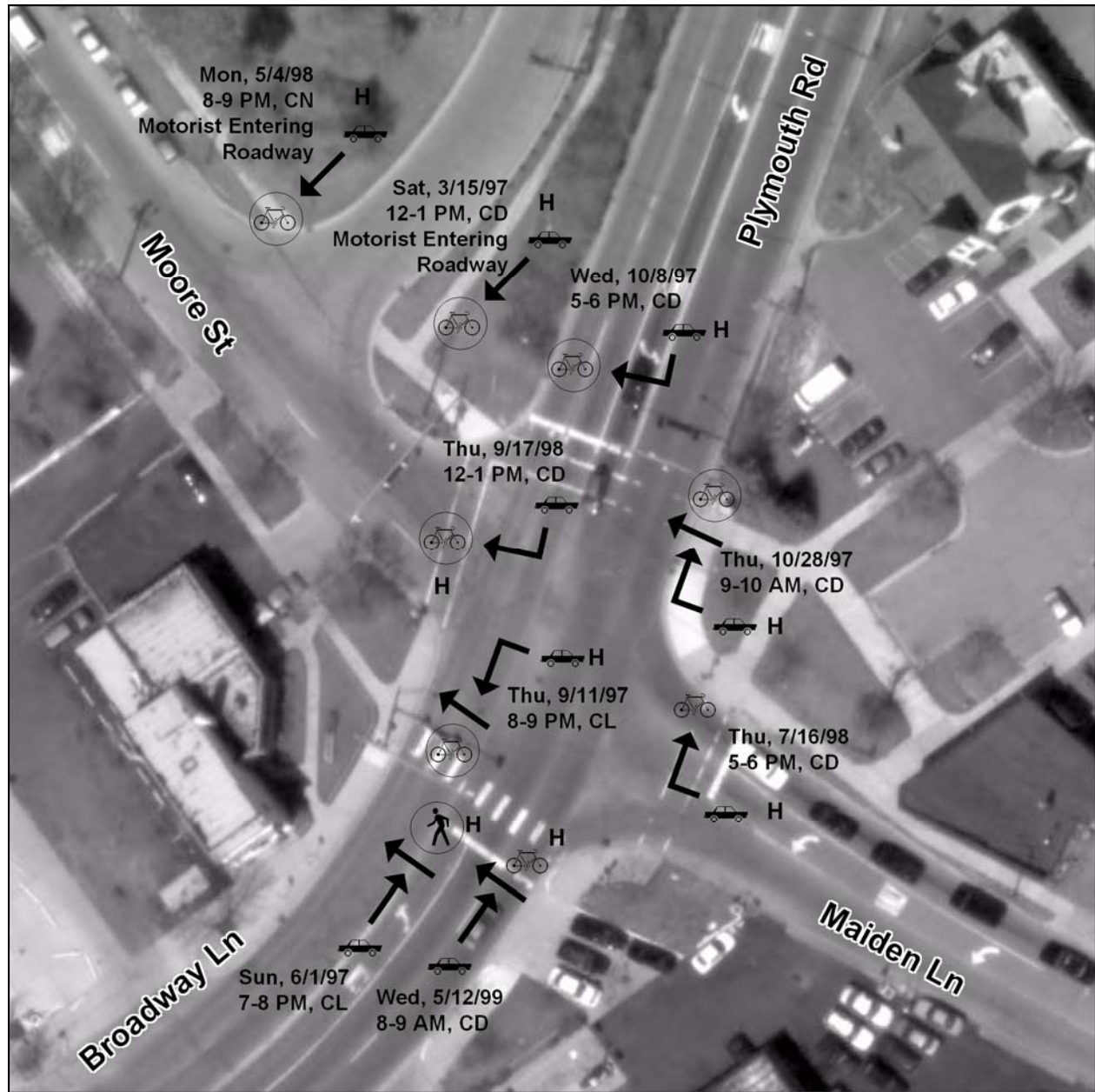
Legend:

	Motor Vehicle	<u>Road Surface:</u>
	Pedestrian	C Dry Clear
	Bicycle	W Wet
	Injury Crash	S Snowy, Icy
	Hazardous Action	<u>Light Conditions:</u>
		D Daylight
		N Dark, No Lights
		L Dark, Street Lights

Observations

- Nine bicycle and one pedestrian crashes across two close intersections
- Seven non-motorized injuries
- Nine of ten crashes occurred on dry pavement
- Hazardous action by motorists responsible for eight crashes, hazardous action by bicyclists responsible for two (in conjunction with hazardous motorist)
- One hit-and-run crash, one bicycle crash off-road
- No alcohol involved in any crashes

Fig. 6.8B. Broadway St/Maiden Ln/Plymouth Rd/Moore St Bicycle and Pedestrian Crashes



Legend:

	Motor Vehicle	<u>Road Surface:</u>
	Pedestrian	C Dry Clear
	Bicycle	W Wet
	Injury Crash	S Snowy, Icy
	Hazardous Action	<u>Light Conditions:</u>
		D Daylight
		N Dark, No Lights
		L Dark, Street Lights

Observations

- Eight bicycle and one pedestrian crashes
- Seven non-motorized injuries
- All crashes occurred on dry pavement
- Hazardous action by motorists responsible for six crashes, hazardous action by bicyclists responsible for two, pedestrian responsible for one
- No alcohol involved in any crashes

Fig. 6.8C State St / Arch St Bicycle and Pedestrian Crashes



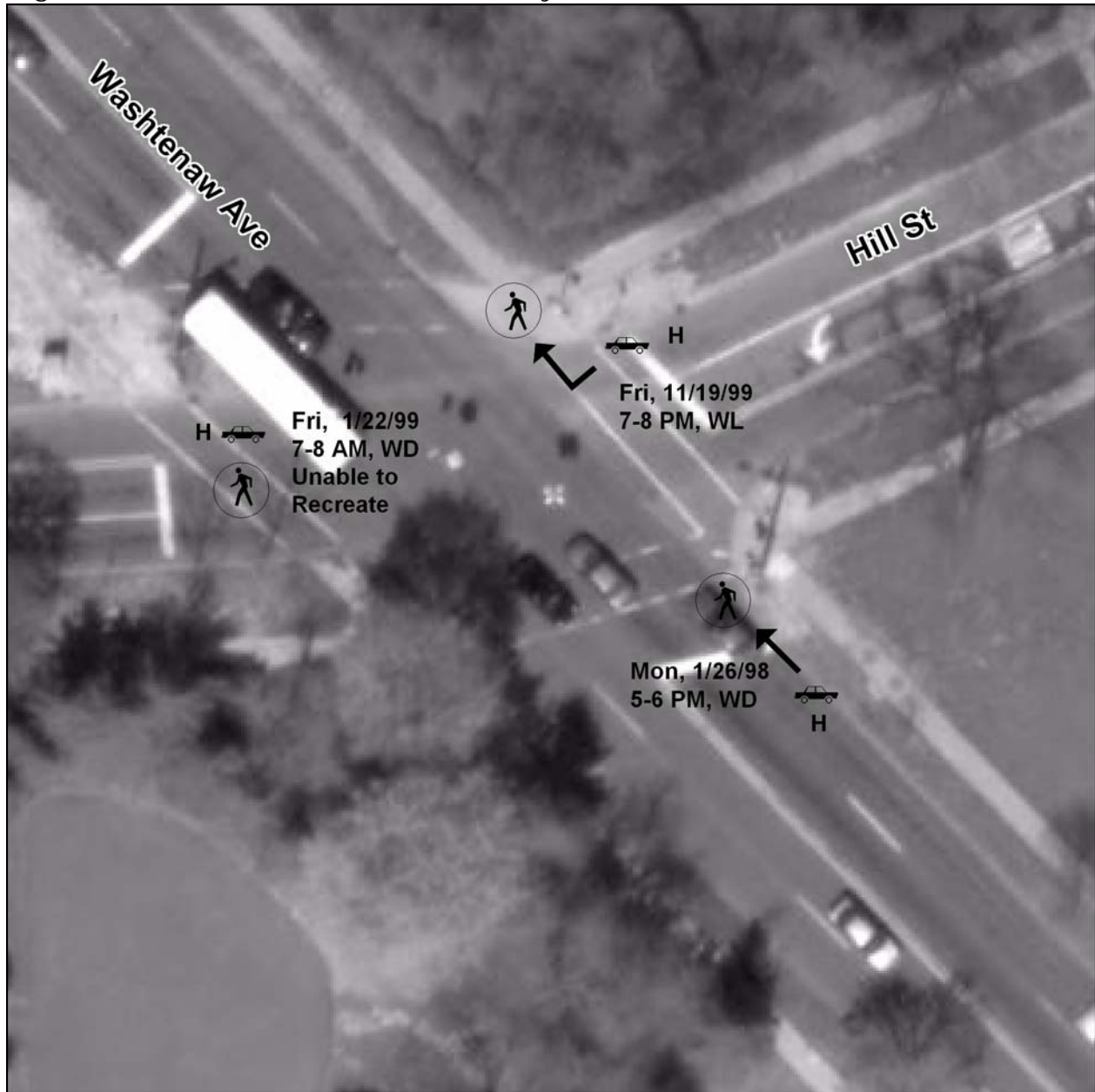
Legend:

	Motor Vehicle	<u>Road Surface:</u>
	Pedestrian	C Dry Clear
	Bicycle	W Wet
	Injury Crash	S Snowy, Icy
	Hazardous Action	<u>Light Conditions:</u>
		D Daylight
		N Dark, No Lights
		L Dark, Street Lights

Observations

- Four bicycle crashes
- Two non-motorized injuries
- Three crashes occurred with bicycle and motorist traveling in opposite directions
- All crashes occurred on dry pavement
- Hazardous action by motorists responsible for one crash, hazardous action by bicyclists for three
- Alcohol involved in one crash

Fig. 6.8D. Washtenaw Ave / Hill St Bicycle and Pedestrian Crashes



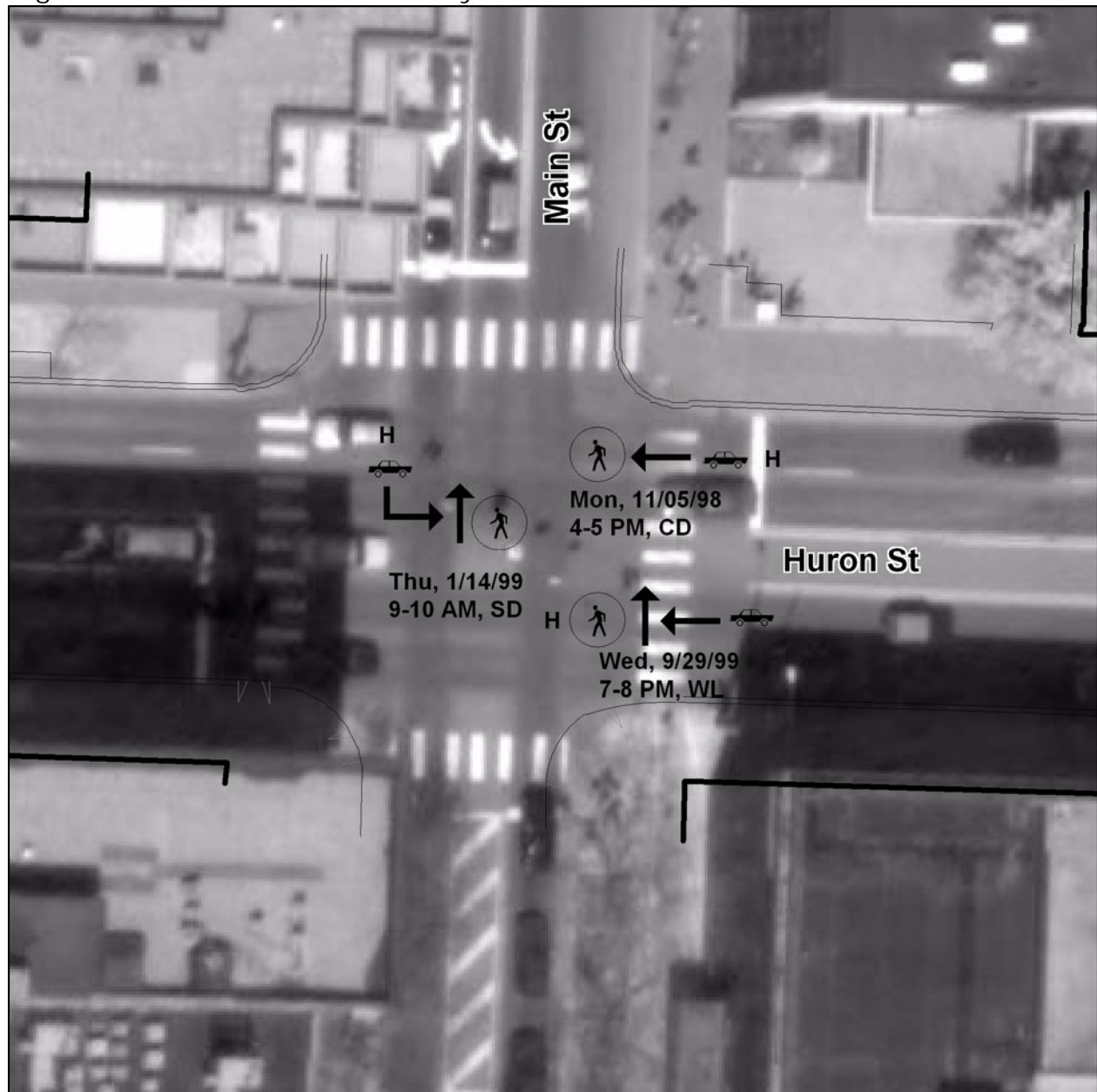
Legend:

	Motor Vehicle	<u>Road Surface:</u>
	Pedestrian	C Dry Clear
	Bicycle	W Wet
	Injury Crash	S Snowy, Icy
	Hazardous Action	<u>Light Conditions:</u>
		D Daylight
		N Dark, No Lights
		L Dark, Street Lights

Observations

- Three pedestrian crashes
- Three non-motorized injuries
- Hazardous action by motorist responsible for all crashes
- All crashes occurred on wet pavement
- All pedestrians crossing at the intersection
- No alcohol involved in any crashes

Fig. 6.8E. Huron St / Main St Bicycle and Pedestrian Crashes



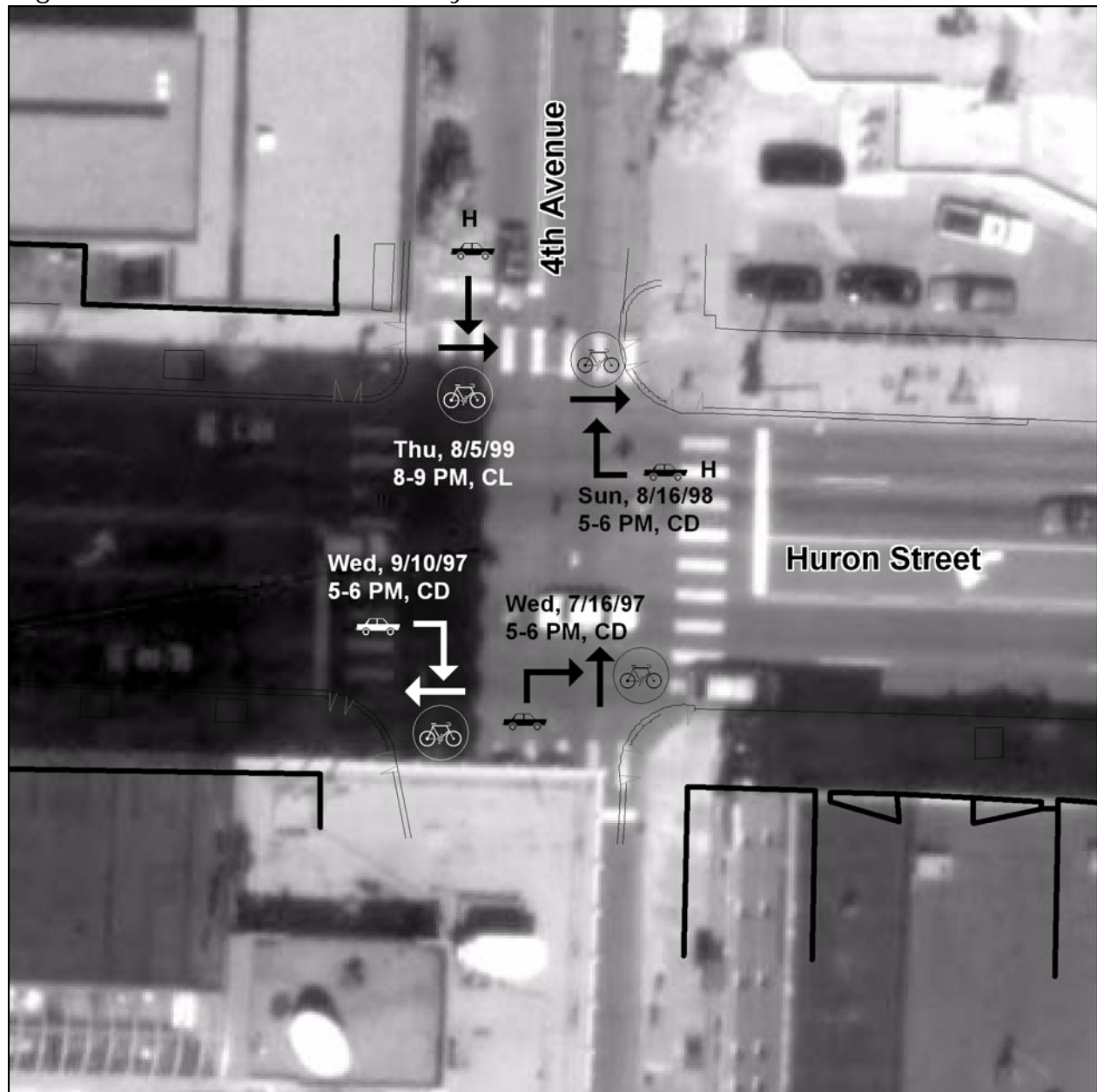
Legend:

	Motor Vehicle	<u>Road Surface:</u>
	Pedestrian	C Dry Clear
	Bicycle	W Wet
	Injury Crash	S Snowy, Icy
	Hazardous Action	<u>Light Conditions:</u>
		D Daylight
		N Dark, No Lights
		L Dark, Street Lights

Observations

- Three pedestrian crashes all were injury crashes
- Hazardous action by pedestrian responsible for one crash (there was alcohol involved)
- Hazardous action by a motorist was responsible for two crashes

Fig. 6.8F. Huron St / 4th Ave Bicycle and Pedestrian Crashes



Legend:

	Motor Vehicle	<u>Road Surface:</u>
	Pedestrian	C Dry Clear
	Bicycle	W Wet
	Injury Crash	S Snowy, Icy
	Hazardous Action	<u>Light Conditions:</u>
		D Daylight
		N Dark, No Lights
		L Dark, Street Lights

Observations

- Four bicycle crashes
- Four non-motorized injuries
- All crashes occurred on dry pavement
- Hazardous action by motorists responsible for three crashes, an error in reporting for the fourth
- No alcohol involved in any crashes

Fig. 6.8G. Huron St / 5th Ave Bicycle and Pedestrian Crashes



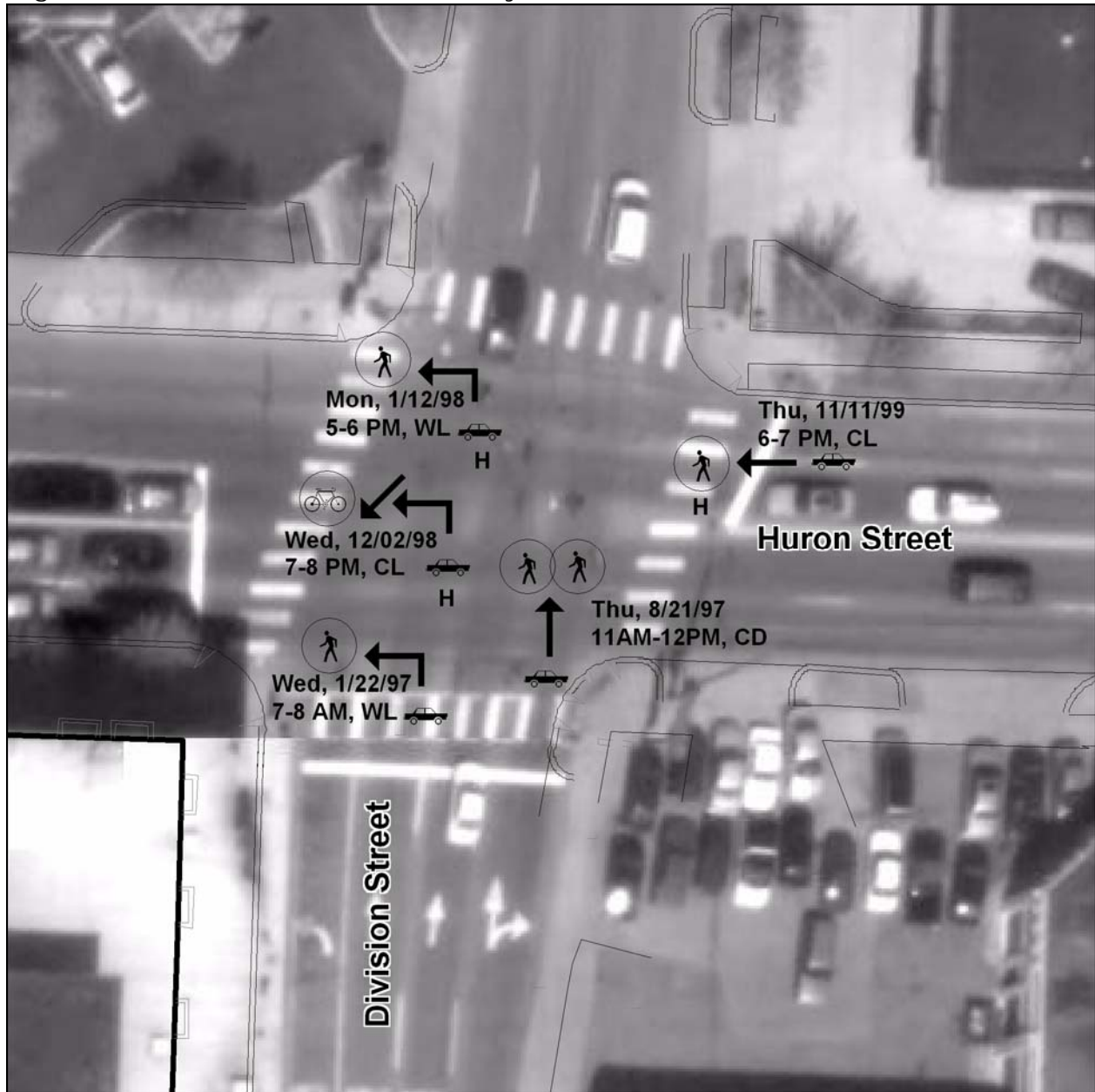
Legend:

	Motor Vehicle	<u>Road Surface:</u>
	Pedestrian	C Dry Clear
	Bicycle	W Wet
	Injury Crash	S Snowy, Icy
	Hazardous Action	<u>Light Conditions:</u>
		D Daylight
		N Dark, No Lights
		L Dark, Street Lights

Observations

- Two pedestrian crashes
- Three non-motorized injuries
- Hazardous action by pedestrian responsible for one crash, hazardous action by motorist responsible for one crash
- No alcohol involved in any crashes

Fig. 6.8H. Huron St / Division St Bicycle and Pedestrian Crashes



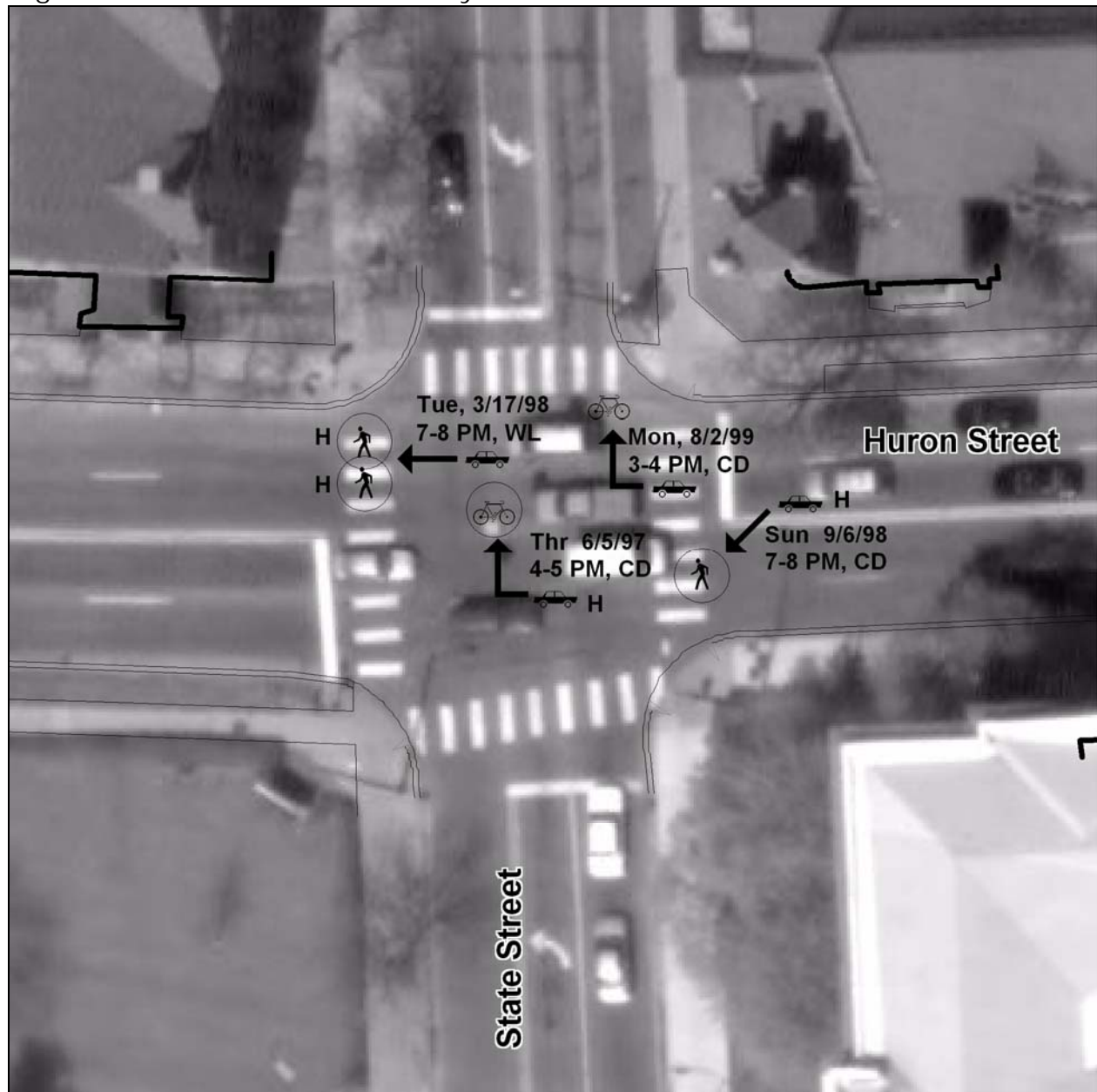
Legend:

	Motor Vehicle	<u>Road Surface:</u>
	Pedestrian	C Dry Clear
	Bicycle	W Wet
	Injury Crash	S Snowy, Icy
	Hazardous Action	<u>Light Conditions:</u>
		D Daylight
		N Dark, No Lights
		L Dark, Street Lights

Observations

- Four pedestrian crashes and one bicycle crash
- Six non-motorized injuries
- Hazardous action by pedestrian responsible for one crash, hazardous action by motorist responsible for three
- All non-motorized travelers crossing at the intersection, bicycle was likely riding on sidewalk prior to crash
- No alcohol involved in any crashes

Fig. 6.8I. Huron St / State St Bicycle and Pedestrian Crashes



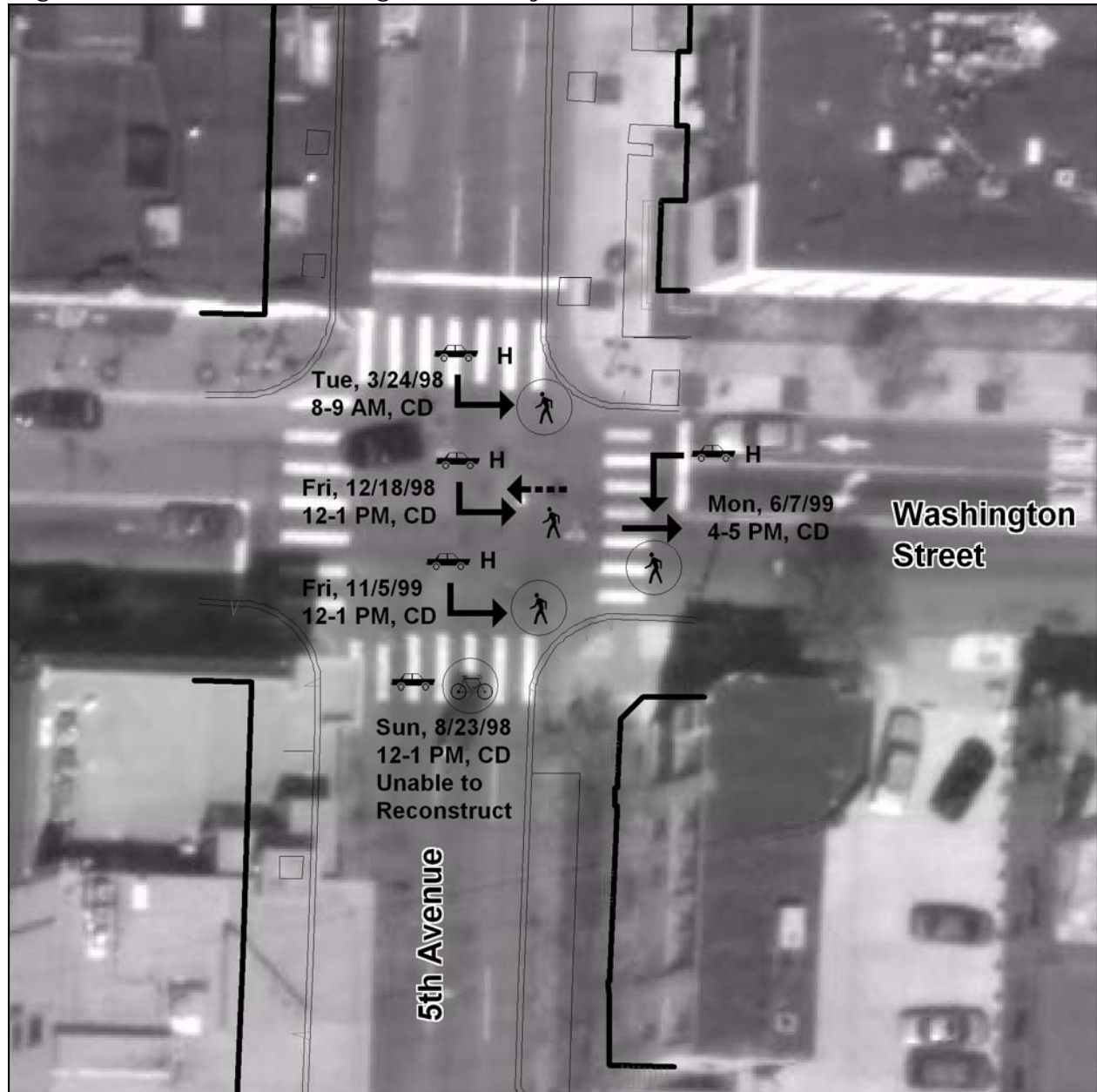
Legend:

	Motor Vehicle	<u>Road Surface:</u>
	Pedestrian	C Dry Clear
	Bicycle	W Wet
	Injury Crash	S Snowy, Icy
	Hazardous Action	<u>Light Conditions:</u>
		D Daylight
		N Dark, No Lights
		L Dark, Street Lights

Observations

- Two pedestrian and two bicycle crashes
- Four non-motorized injuries
- Hazardous action by pedestrians responsible for one crash, hazardous action by motorist responsible for two crashes
- Bicyclists likely were riding on sidewalk prior to crash and where hit riding within crosswalk
- No alcohol involved in any crashes

Fig. 6.8J. 5th Ave / Washington St Bicycle and Pedestrian Crashes



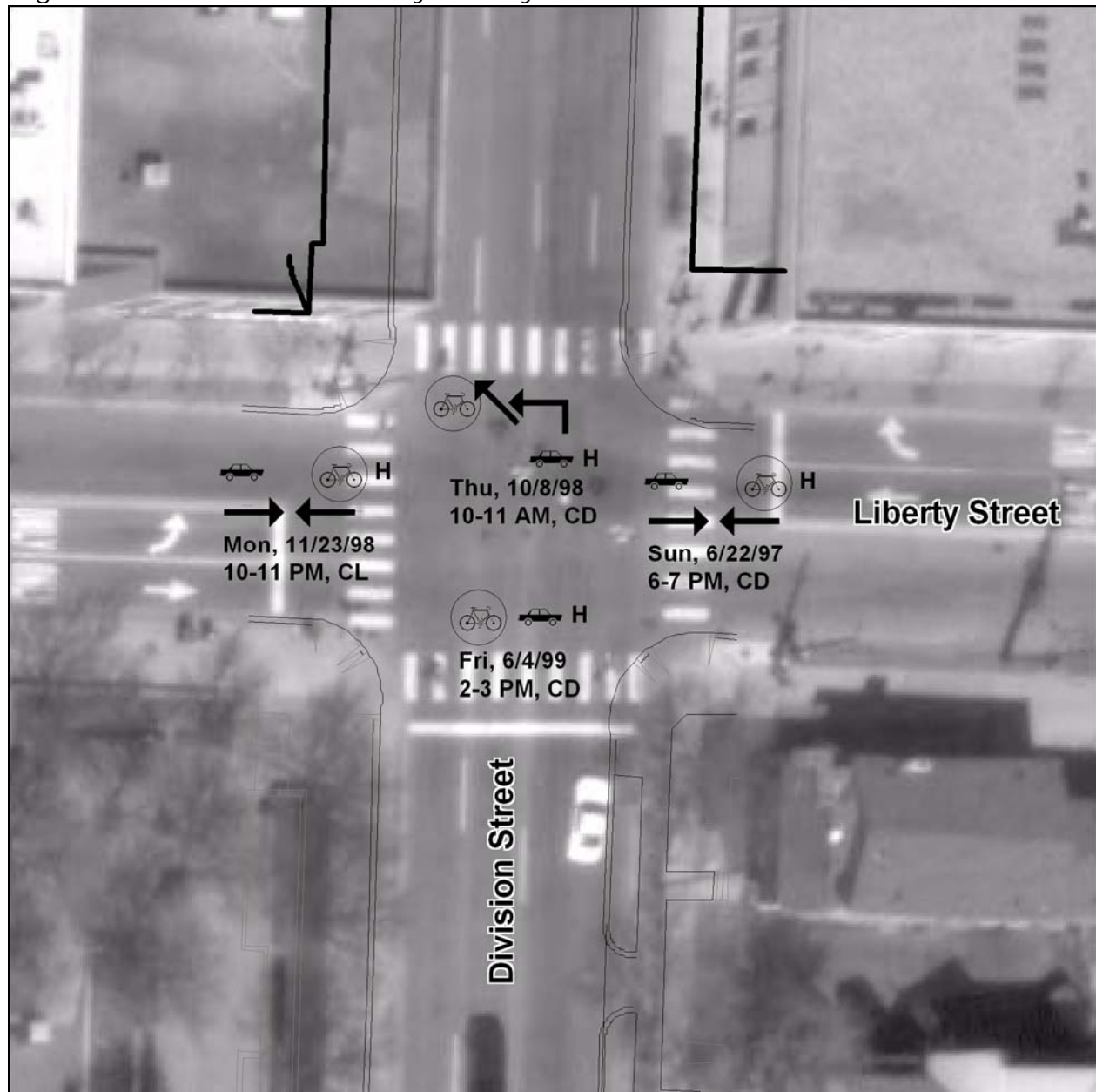
Legend:

	Motor Vehicle	<u>Road Surface:</u>
	Pedestrian	C Dry Clear
	Bicycle	W Wet
	Injury Crash	S Snowy, Icy
	Hazardous Action	<u>Light Conditions:</u>
		D Daylight
		N Dark, No Lights
		L Dark, Street Lights

Observations

- Three pedestrian and two bicycle crashes
- Four non-motorized injuries, one pedestrian injured by a commercial vehicle (truck or bus)
- Hazardous action by motorist responsible for four crashes, no hazardous actions by pedestrians or bicycles
- Alcohol involved in one crash

Fig. 6.8K. Division St / Liberty St Bicycle and Pedestrian Crashes



Legend:

	Motor Vehicle	<u>Road Surface:</u>
	Pedestrian	C Dry Clear
	Bicycle	W Wet
	Injury Crash	S Snowy, Icy
H	Hazardous Action	<u>Light Conditions:</u>
		D Daylight
		N Dark, No Lights
		L Dark, Street Lights

Observations

- Four bicycle crashes
- Four non-motorized injuries
- Hazardous action by parked car responsible for one crash, hazardous action by bicycle responsible for two crashes, hazardous action by motorist responsible for one crash
- Alcohol involved in one crash

6.9 Neighborhood Accessibility Index

A quantitative measurement of a neighborhood's bicycle and pedestrian "friendliness" or accessibility, is an issue that many transportation and planning researches have struggled to define. While there are numerous methods utilized around the country, there is a general consensus that the key issues determining neighborhood accessibility are population density, diversity of land uses, and the design of the physical environment. Some of the most compelling research in the field of neighborhood accessibility and its travel choice implications is the research by Kevin J. Krizek of the University of Minnesota. He has published a series of papers documenting his research on developing a measurement system for neighborhood accessibility.

Using Portland, Oregon as is test case, Krizek developed a neighborhood accessibility index based on generally available data. He developed a model that uses three key indexes to predict neighborhood accessibility. An independent panel that ranked the accessibility of 70 neighborhoods using numerous criteria verified the model. A high correlation was found between the panel's results and the results of the model.

Krizek's model was adapted and refined for this project. All of Washtenaw County was modeled to provide a context for the results in northeast Ann Arbor. The model has six key elements:

1. Disaggregated Data Collection
2. Population Density Measurement
3. Urban Form Measurement
4. Land Use Diversity Measurement
5. Weighting Measurements
6. Interpolation

Disaggregate Data

Because most walking trips are under a ½ mile, and most bicycling trips are less than 1 mile, the traditional transportation analysis zone (TAZ) is too coarse an analysis unit. Also, because the boundaries of a TAZ generally follow major roadways, the aggregation of data to a TAZ may not recognize the potential walking trips from an apartment complex across the street to a shopping center.

To create a pedestrian scaled analysis unit, the county was divided into 330' x 330' cells. These 1/16th of a mile squares are the size of a typical downtown block. A typical walking trip from a home to a store, about ¼ of a mile, would transverse about four of the cells.

Population Density Measurement

Population density has frequently been correlated with high pedestrian activity. Typically, features such as sidewalks and transit services accompany higher population density. Two measurements of population density were used, households per cell and persons per cell. This information was collected from the 2000 census data. Data from the most detailed data source available, the census block, was transferred to the cell level by proportional sum calculation. Thus cells that straddled two or more census blocks would have as accurate a measurement as possible.

Urban Form Measurement

Countless features influence the desirability of a place for walking. The measurements of Quality/Level of Service that were discussed in Section 2.3, Travel Along Road Corridors covers many of them. In addition, amenities such as benches, scenic routes, and interest areas along the way have been correlated with pedestrian and bicycle activity levels. To measure such detailed assessments over any area, the size of Ann Arbor is obviously problematic. Thus a fundamental urban form measurement is used.

Block size is used to measure the fineness of the pedestrian transportation grid. Large block sizes require significant out-of-direction travel that inhibits or eliminates pedestrian activity even though a destination may be a short distance as a crow flies. To measure block size, the census block group data was used as a starting point. This information was compared to the road network and block groups were combined as necessary to represent true block size. Expressways were not used in the definition of block size. Known pedestrian “cut-throughs” that bisect blocks were taken into consideration in defining block size. Then the block size was transferred to the cell using a proportional average calculation.

Land Use Diversity Measurement

Commercially available business point data that includes a business’ Standard Industry Classification (SIC) number and the number of local employees was obtained for all Division G: Retail Trade businesses. From that dataset, all Home-based businesses were eliminated. Then using the SIC codes, the data was sorted to select businesses that would be the frequent destinations for personal/family business. These were as follows:

From Division G: Retail Trade Business the following Major Groups were eliminated:

- Major Group 52: Building Materials, Hardware, Garden Supply, And Mobile Home Dealers with the exception of:
 - 5251 Hardware Stores
- Major Group 55: Automotive Dealers And Gasoline Service Stations
- Major Group 56: Apparel And Accessory Stores
- Major Group 57: Home Furniture, Furnishings, And Equipment Stores

The following Major Groups were included:

- Major Group 53: General Merchandise Stores
 - 531 Department Stores
 - 533 Variety Stores
 - 539 Miscellaneous General Merchandise Stores
- Major Group 54: Food Stores
 - 541 Grocery Stores
 - 542 Meat and Fish (seafood) Markets, Including Freezer Provisioners
 - 543 Fruit and Vegetable Markets
 - 544 Candy, Nut, And Confectionery Stores
 - 545 Dairy Products Stores
 - 546 Retail Bakeries
 - 549 Miscellaneous Food Stores
- Major Group 58: Eating and Drinking Places
- Major Group 59: Miscellaneous Retail – the following Industry Groups were INCLUDED:
 - 591 Drug Stores and Proprietary Stores
 - 592 Liquor Stores

The following Industry groups were EXCLUDED that were within Major Group 59:

- 593 Used Merchandise Stores
- 594 Miscellaneous Shopping Goods Stores
- 596 Nonstore Retailers
- 598 Fuel Dealers
- 599 Retail Stores, Not Elsewhere Classified

The remaining items were visually inspected to remove additional home-based businesses or incorrectly geocoded businesses. To weight the businesses, the number of employees was used. The total number of employees for the indicated business within each cell was the final measurement.

Weighting Measurements

With the population density and land use diversity measurements, a greater number indicates a more positive environment. With the block size, a greater number indicates a more negative environment. Once the inverse of the block sizes is taken into consideration, the numerical measurements are already close to their relative importance. This information was further refined based on the loading factors developed by Krizek:

- Population Density Measurement, 0.907
- Urban Form Measurement, -0.910
- Land Use Diversity Measurement, 0.828

The three different numbers were then added to establish a composite measurement for each cell. The measurement with the greatest range was the Urban Form Measurement. This one measurement could cancel out relatively high population density and land use diversity measurements. While this may seem extreme, it underscores the significance of the urban form.

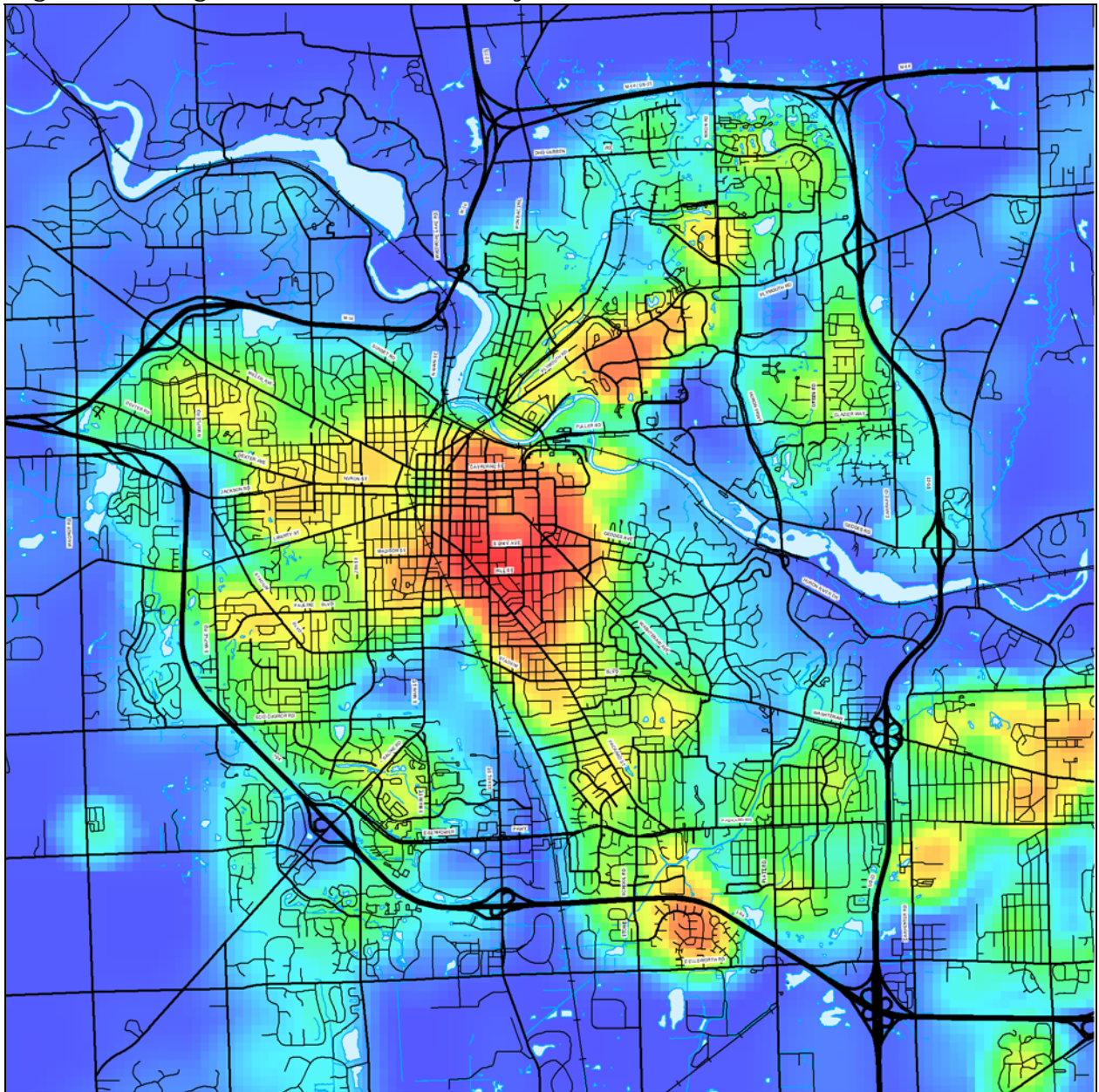
Interpolation

The single weighted measurement for each cell only addresses the environment of that particular cell. The surrounding areas within walking or short bicycle ride distance also need to be considered. To obtain the final measurement, all cells within one half mile were considered. A straight-line inverse distance weighting calculation was used to add emphasis to the trips quarter mile and under.

Validation

While Krizek validated his model with comparative research conducted by a separate panel, a similar detailed validation has not been completed for this model. Based on The Greenway Collaborative Inc.'s familiarity with the city, the model seems to be an accurate depiction of neighborhood accessibility. There is also a strong correlation between the areas of high neighborhood accessibility and the number of bicycle and pedestrian crashes. While this may seem counterintuitive, in general, the number of crashes does reflect the degree of activity in an area. There is also a strong correlation with bus stop location reflecting AATA's assessment of the years of potential pedestrian activity.

Fig. 6.9A Neighborhood Accessibility Index



Legend
Relative Neighborhood Non-motorized Accessibility



6.10 Detail Area Concept Plans

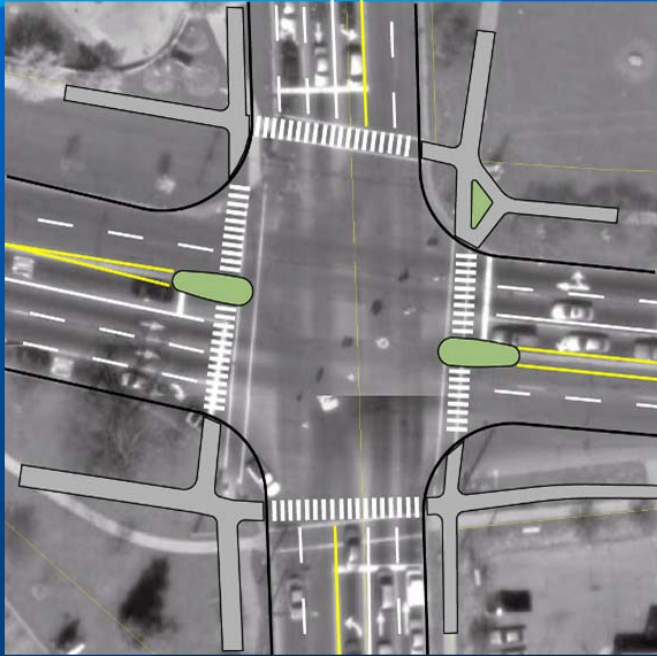
For the following areas concept plans were prepared for the public workshops to show how some of the concepts in the Master Plan may be applied:

- Maple Road / Jackson Boulevard Intersection
- Potential Roundabout at Seventh Street / Pauline Boulevard Intersection
- Jackson Avenue / Dexter Avenue / Huron Street Intersection
- Huron Street / Seventh Street Intersection
- Huron Street near Arbana
- Washington Street / Seventh Street Intersection
- Plymouth Road near Traver Village
- Plymouth Road near the Islamic Center
- Plymouth Road east of Murfin Avenue
- Washtenaw Avenue / Geddes Avenue / Observatory Street Triangle
- Washtenaw Avenue / Geddes Avenue Intersection
- Observatory Street / Geddes Avenue Intersection
- Washtenaw Avenue / Observatory Street Intersection
- Washtenaw Avenue / South University Intersection
- Washtenaw Avenue by the Presbyterian Church
- Washtenaw Avenue / Hill Street Intersection
- Washtenaw Avenue / Baldwin Street
- Washtenaw Avenue / Wayne Street
- Washtenaw Avenue / Devonshire
- Washtenaw Avenue / Brockman Boulevard
- Washtenaw Avenue near Tappan Middle School
- Washtenaw Avenue west of Stadium Boulevard
- Washtenaw Avenue / Stadium Boulevard Intersection
- Washtenaw Avenue / Manchester Road Intersection
- Washtenaw Avenue near County Farm Park
- Washtenaw Avenue / Arlington Boulevard
- Washtenaw Avenue / Platt Road Intersection
- Washtenaw Avenue / Huron Parkway
- Washtenaw Avenue Commercial Strip
- Ann Arbor Saline Road near Northbrook

- Ann Arbor Saline Road / Eisenhower Parkway Intersection
- Ann Arbor Saline Road / I-94 Interchange
- State Street / Eisenhower Boulevard Intersection
- State Street / Mall Drive Intersection
- State Street / Briarwood Circle Intersection
- State Street / Hilton Boulevard Intersection
- State Street / I-94 Interchange
- Madison Street
- East Ann Street

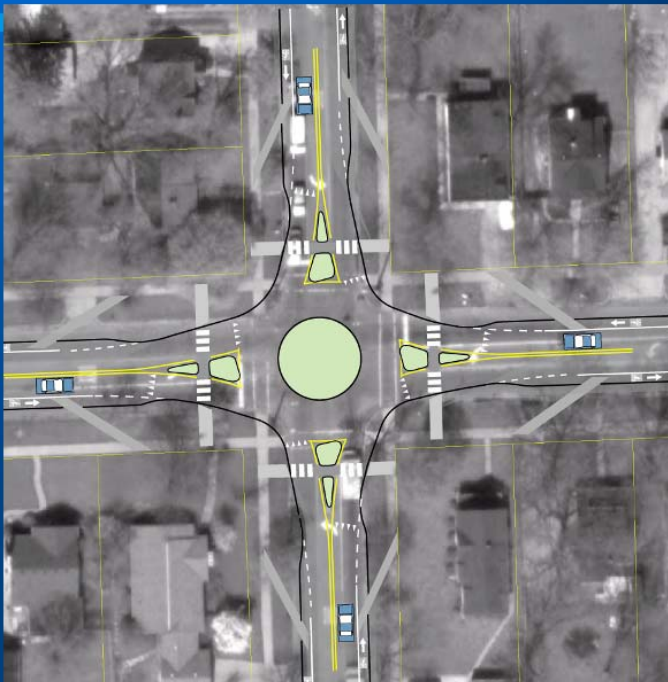
These plans should be viewed as schematic diagrams of alternatives and ideas rather than firm proposals.

Maple / Jackson Intersection



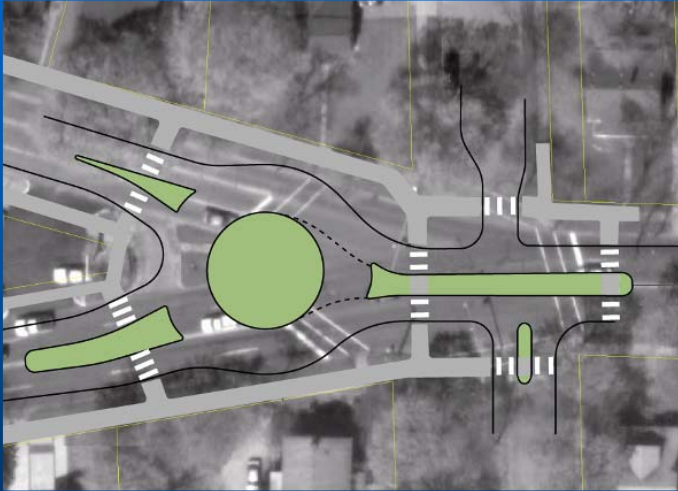
- 120' Existing Crosswalk
- Reduce Distance
- Add Refuge Islands for Pedestrians

Potential Seventh / Pauline Roundabout



- Good Candidate
- Fits Physically
- Improve Motor Vehicle Flow

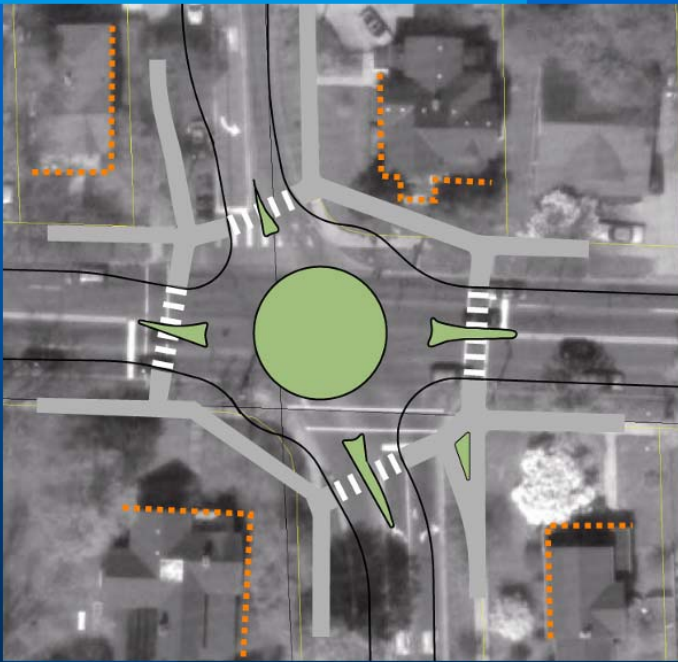
Alt A - Jackson / Dexter / Huron Roundabout



- Can Handle Existing Capacity
- Little Excess Capacity
- Fits Within ROW



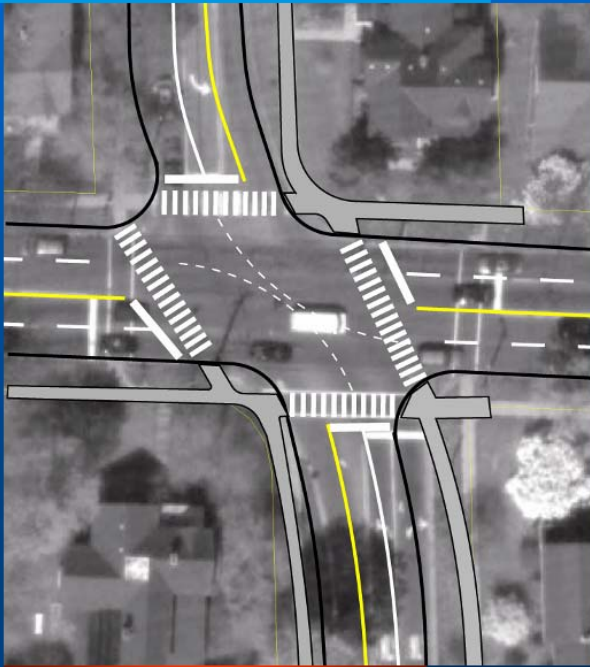
Alt A - Huron / Seventh Roundabout



- Can Handle Existing Capacity
- Not Ideal Use
- Significant Impact to Adjacent Homes
- Alt A May Not be Practical

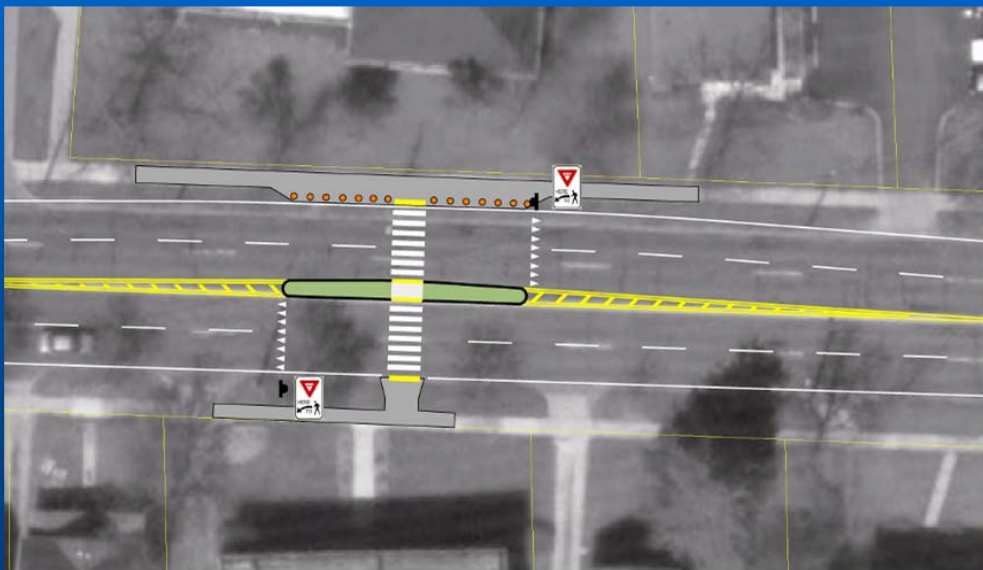


Alt B - Huron / Seventh Intersection

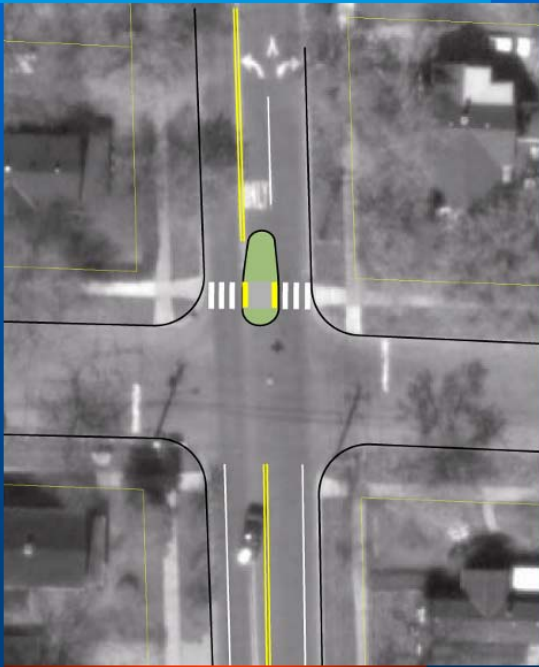


- Improve Alignment
- Improve Visibility of Crosswalks

Alt B - Huron Near Arbana Crosswalk



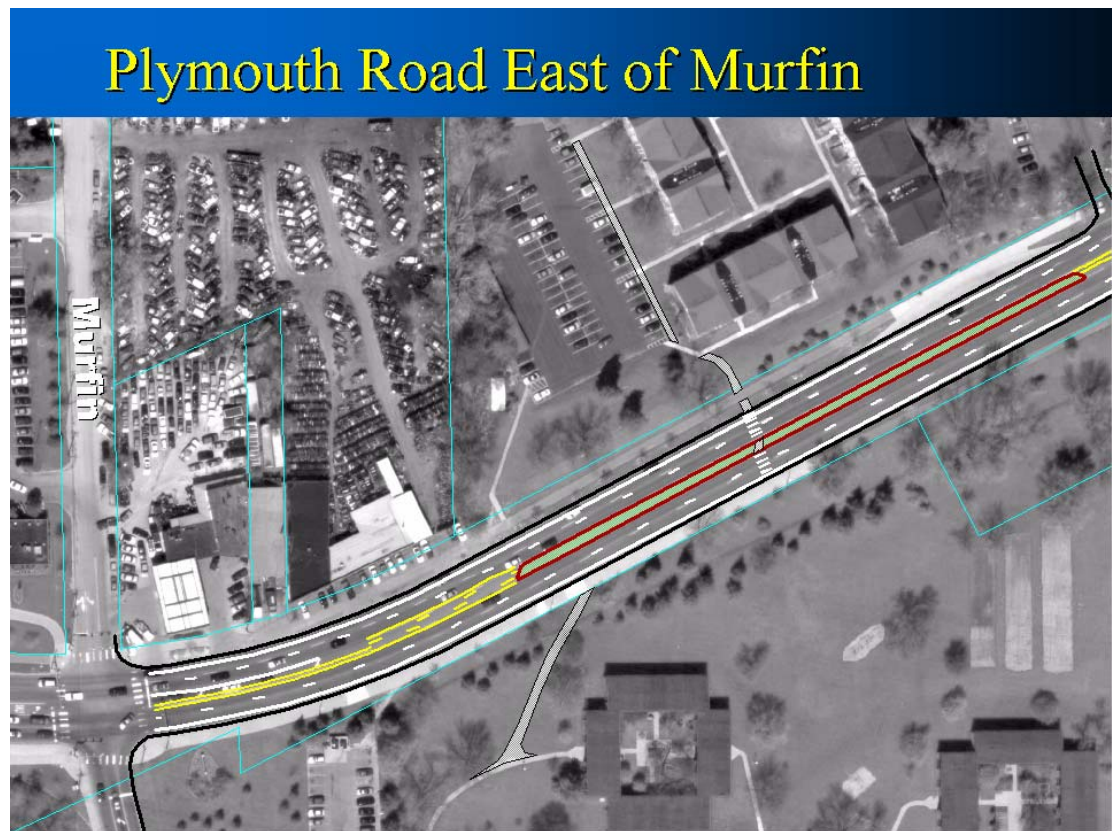
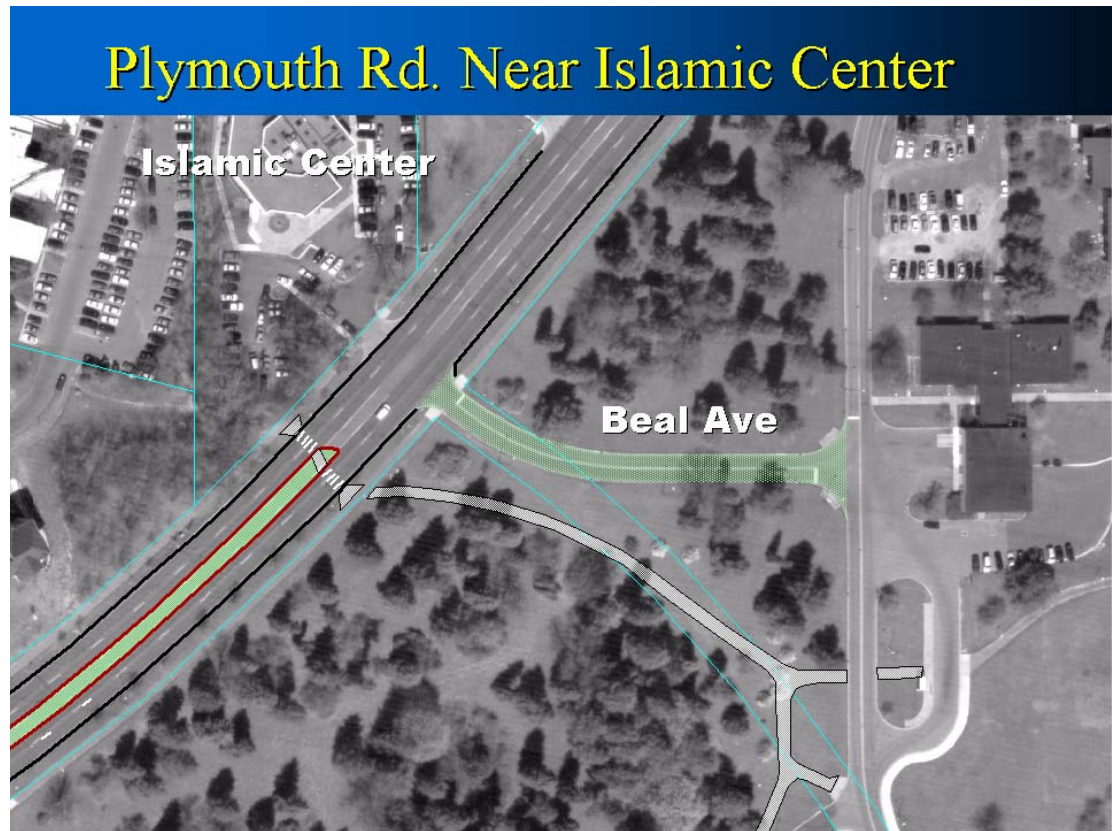
Washington / Seventh Intersection

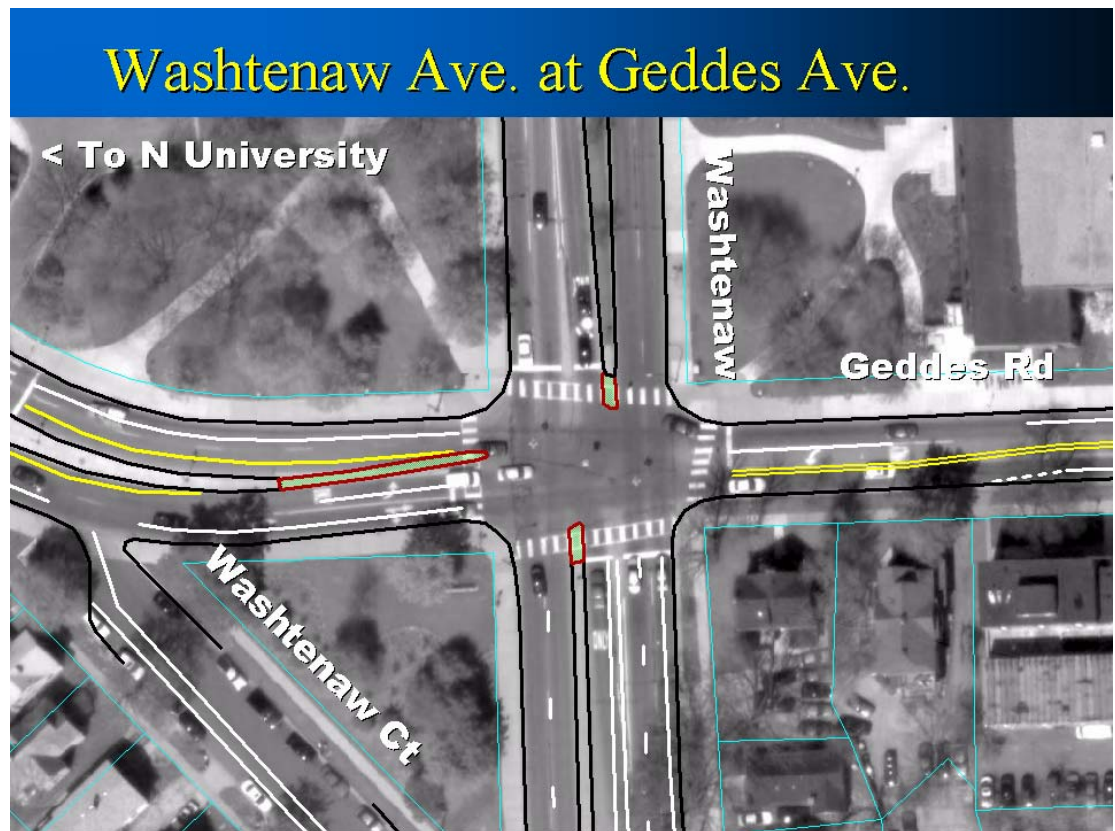
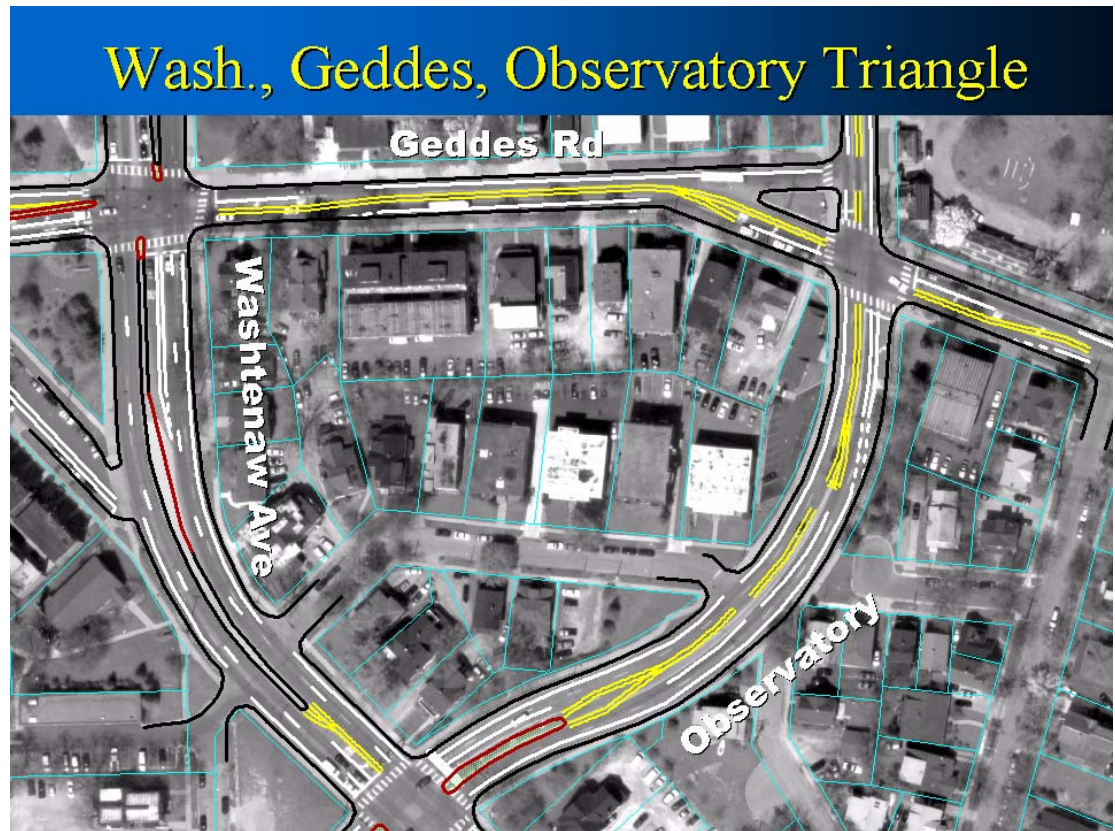


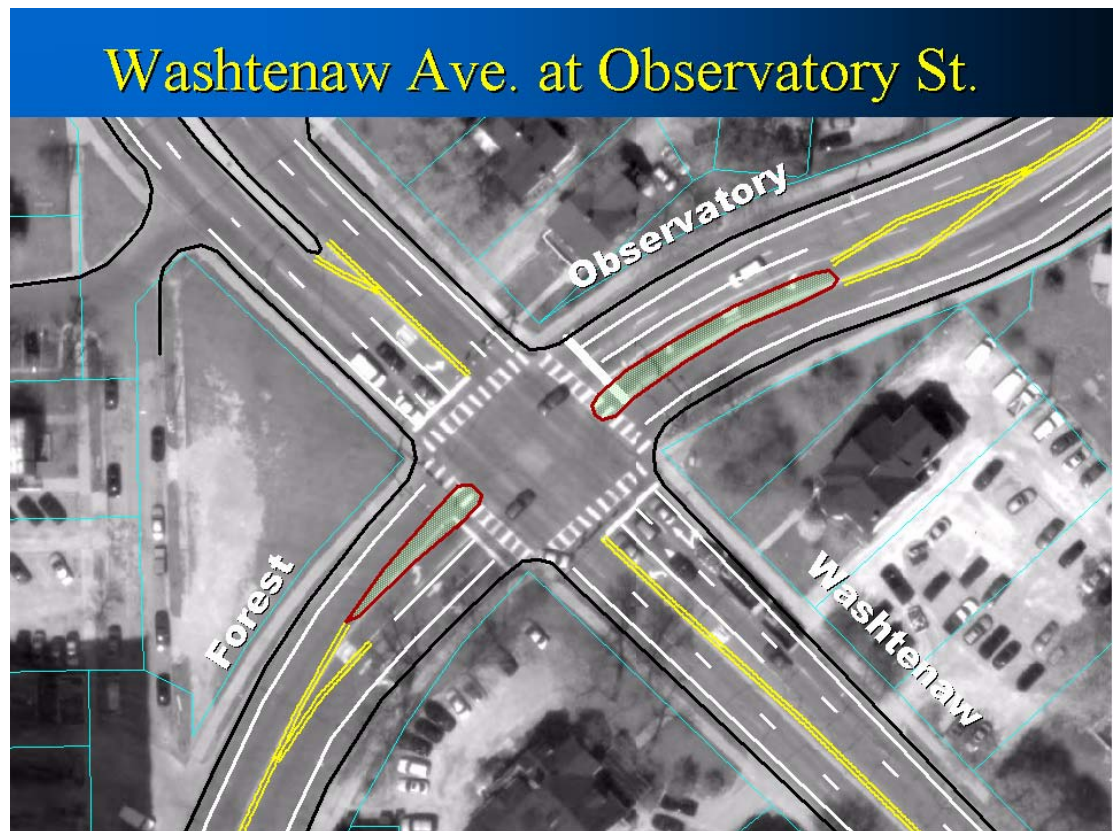
- Add Refuge Island
- Use Shared-use Arrow North for One Block

Plymouth Road at Traver Village

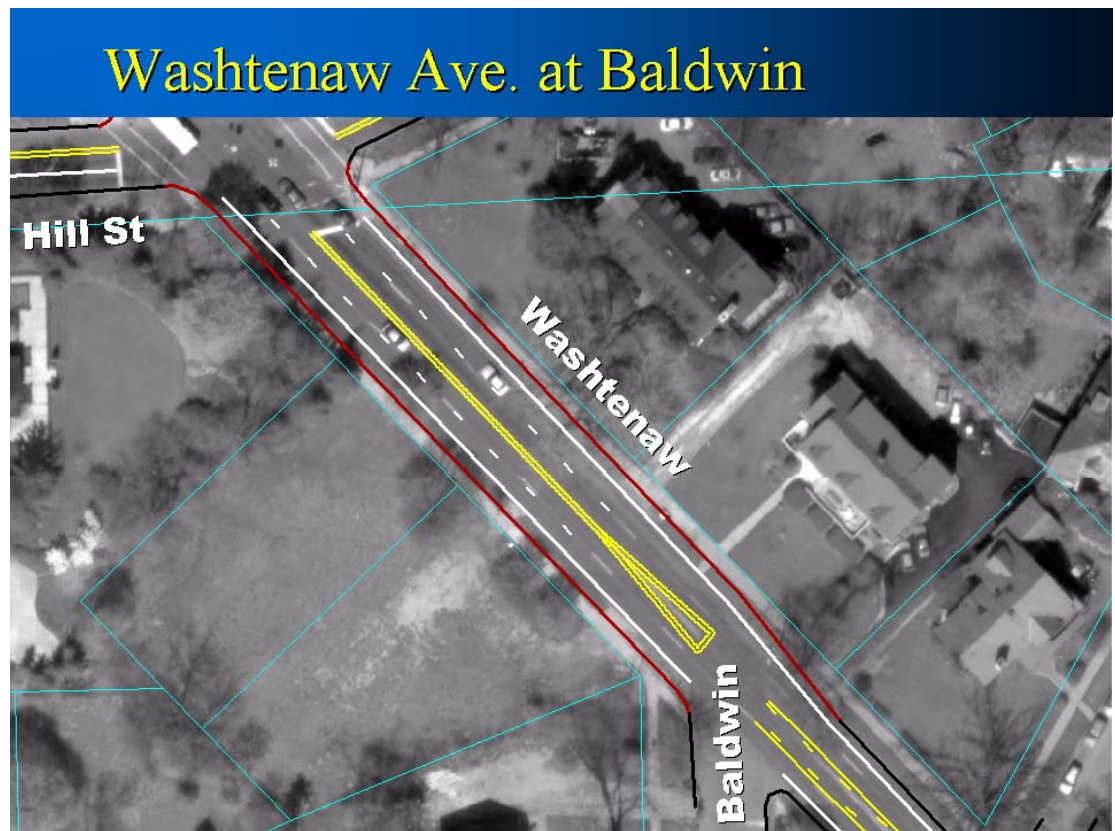


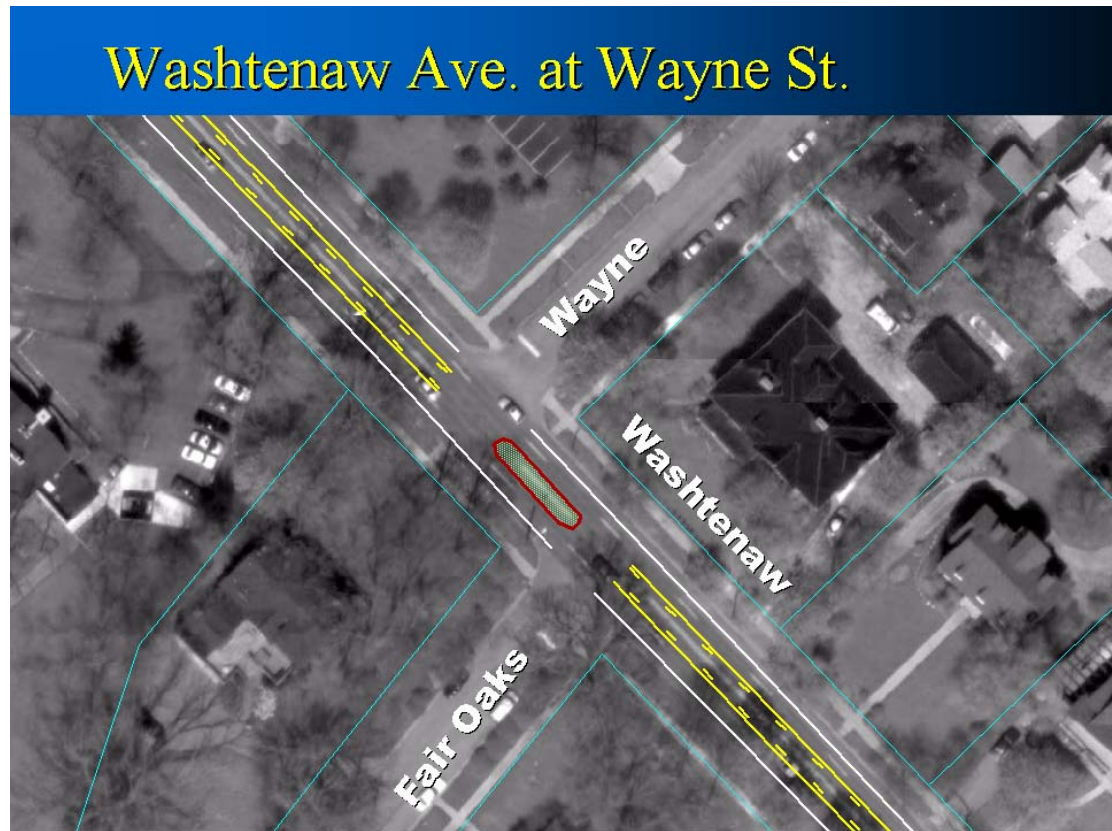




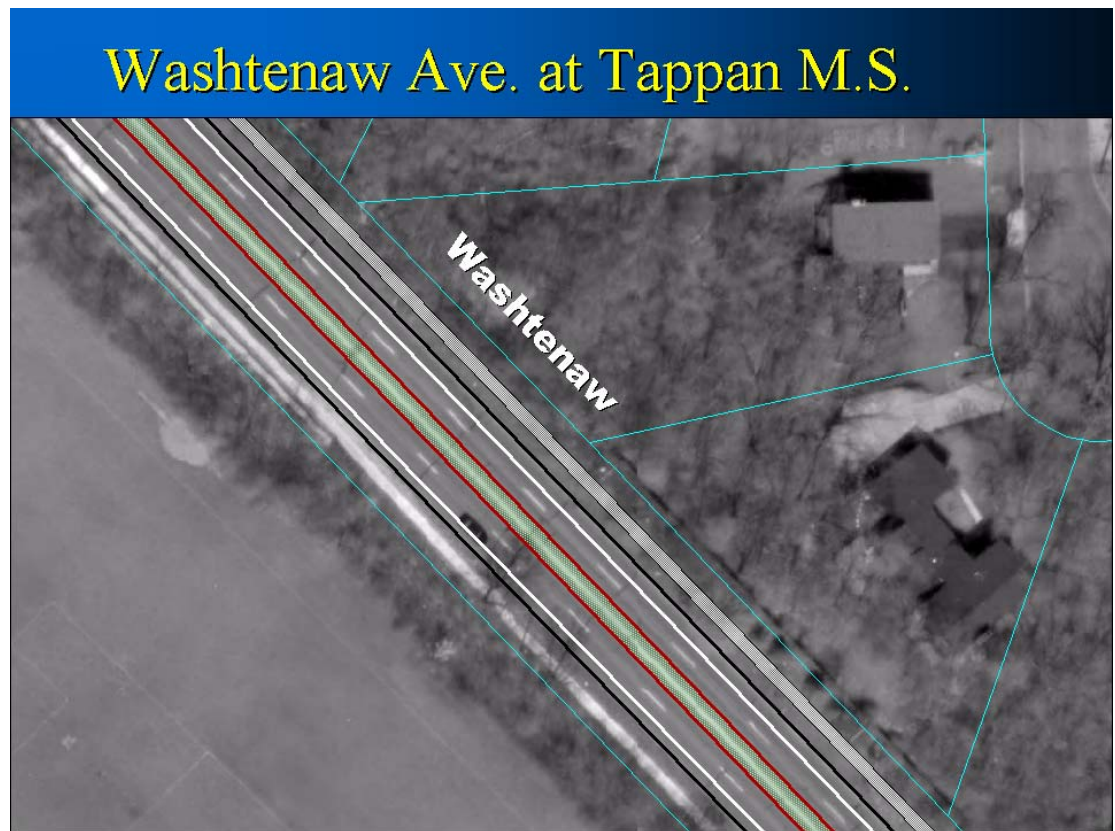


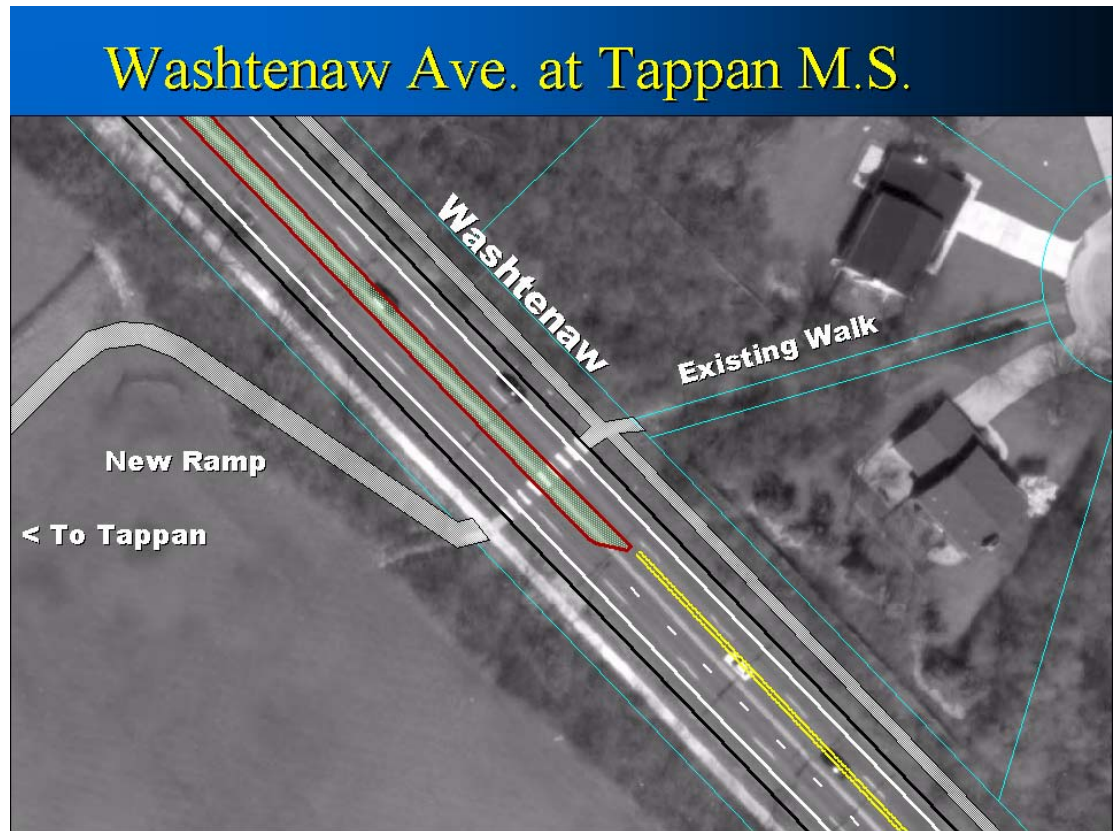




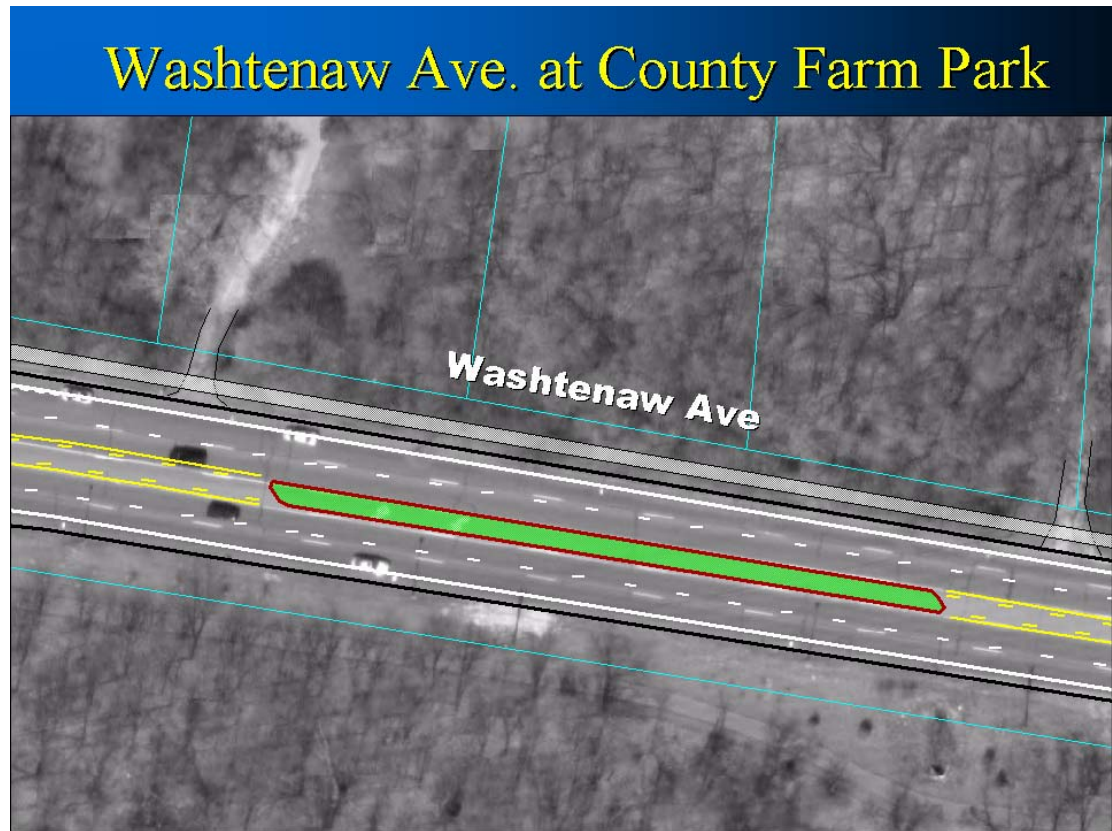


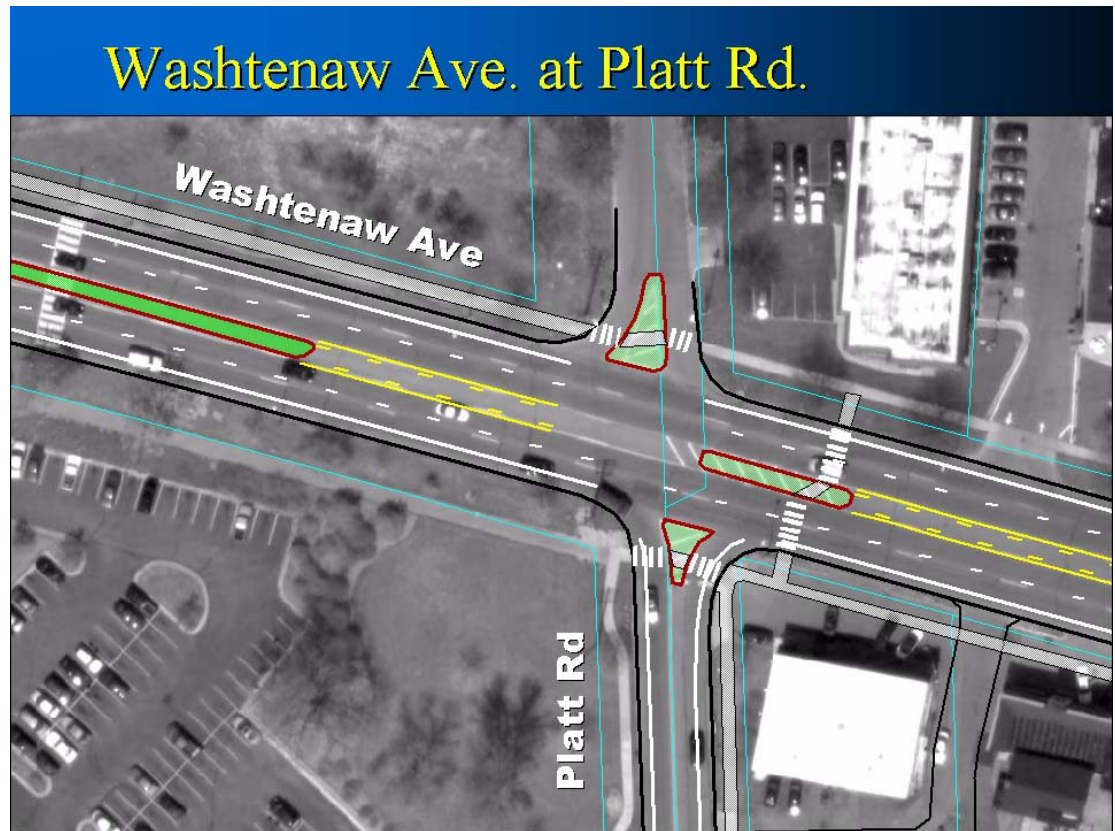




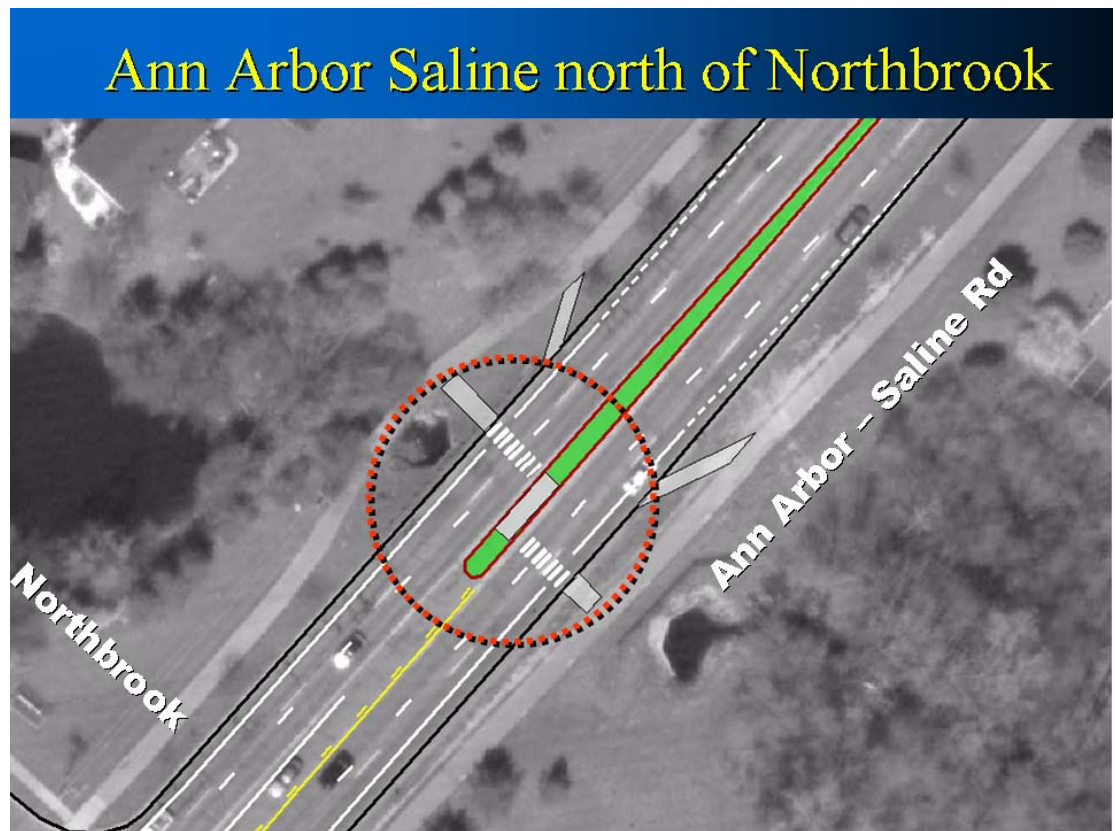


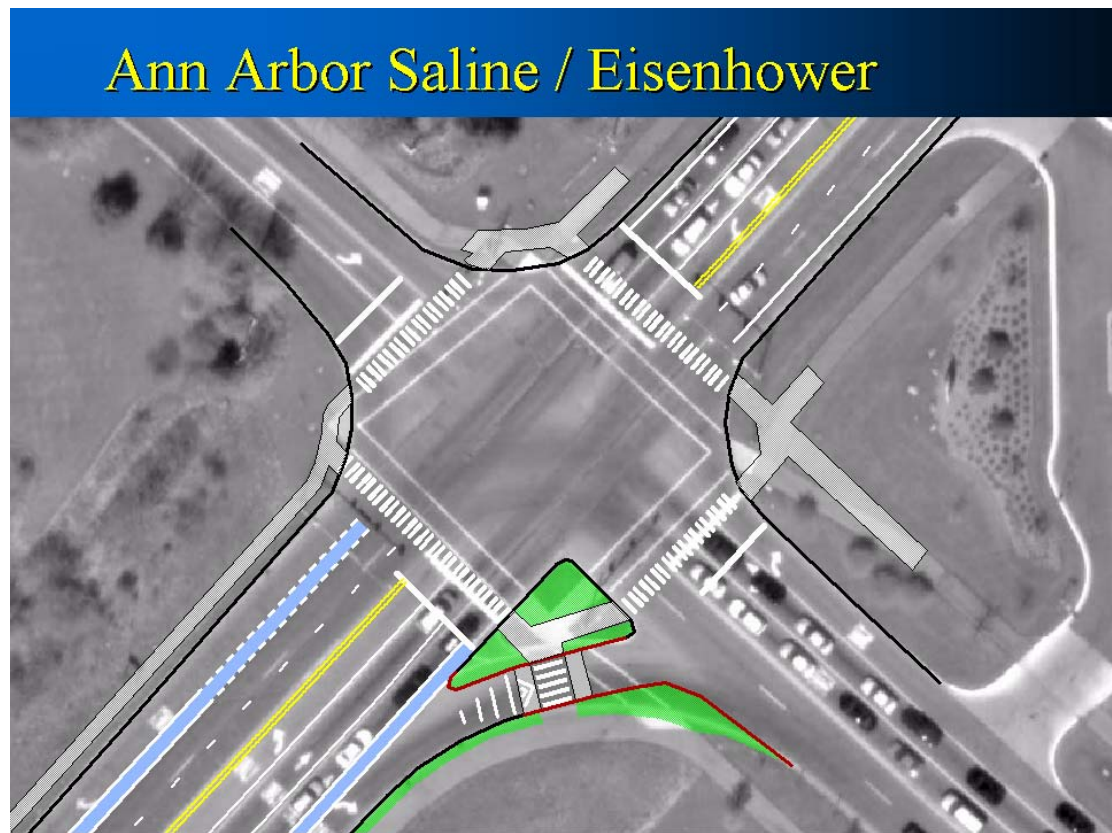
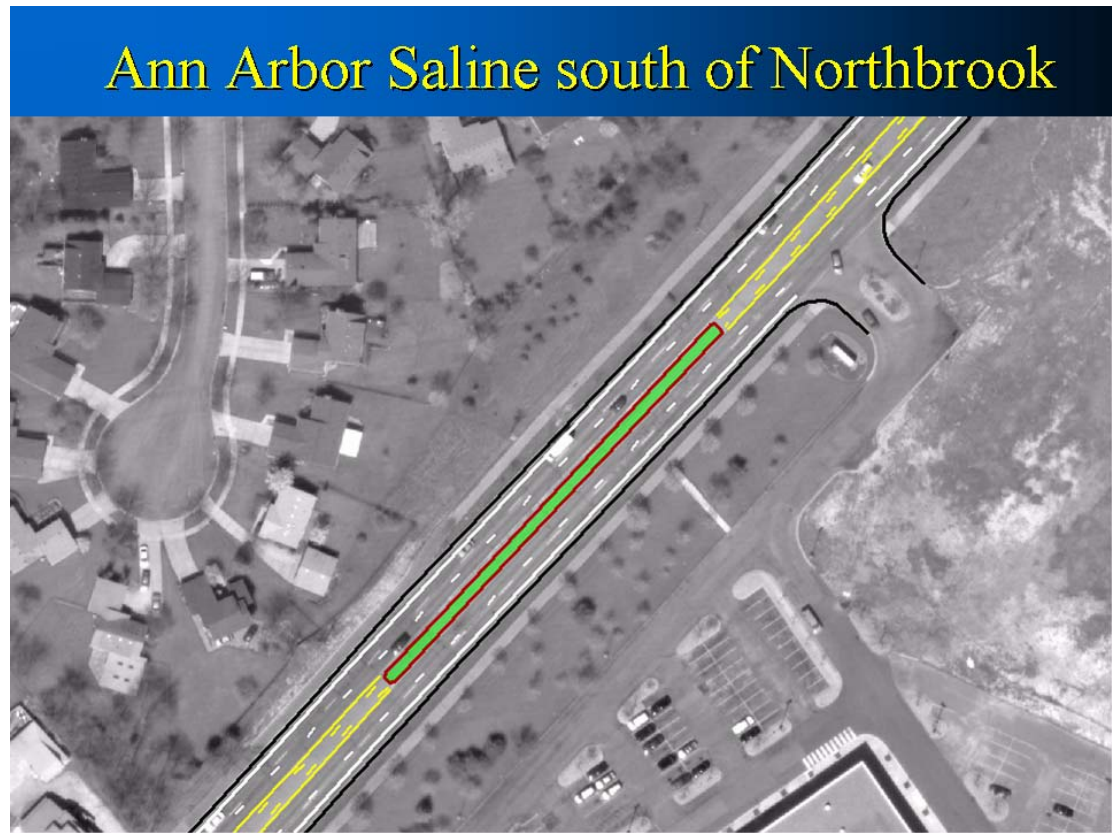


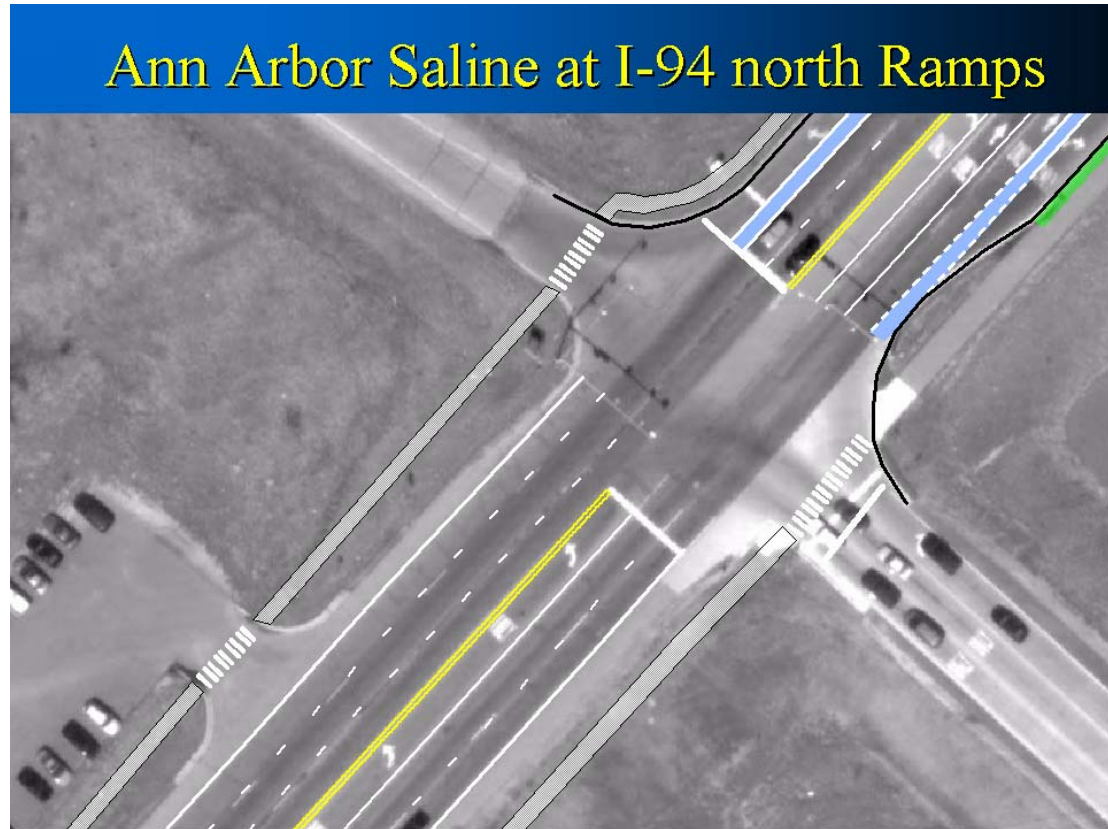


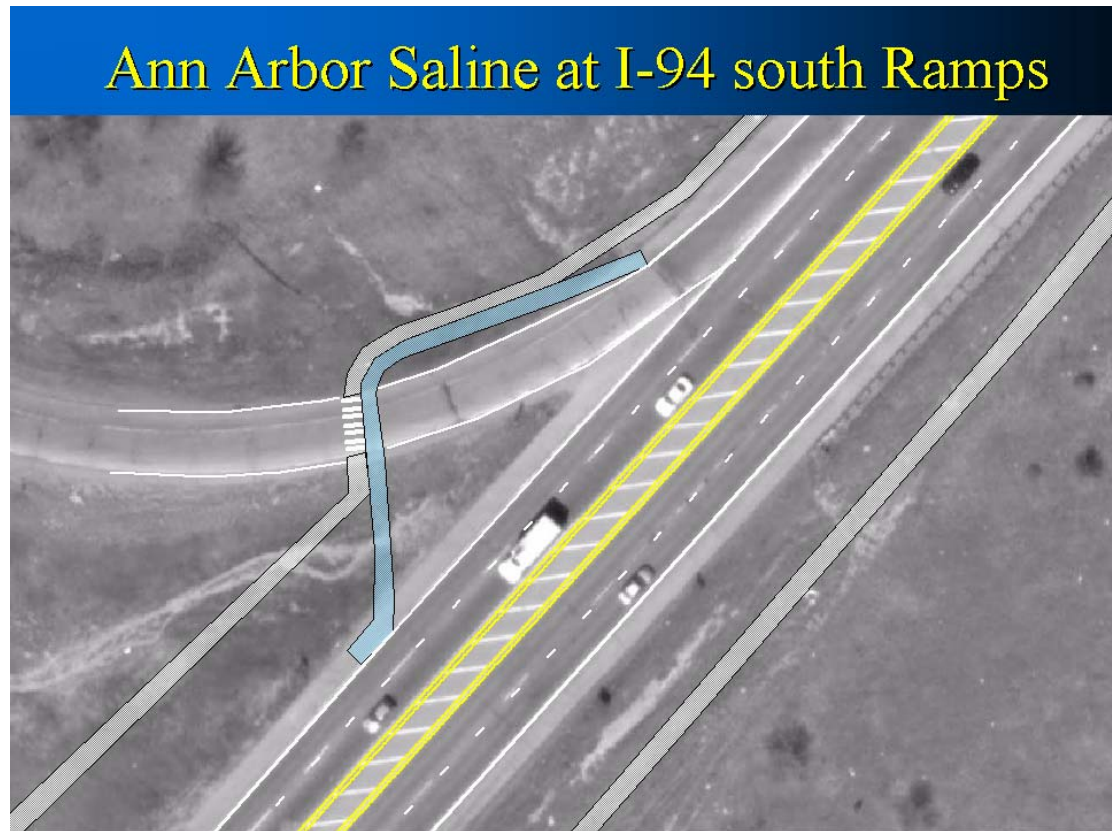


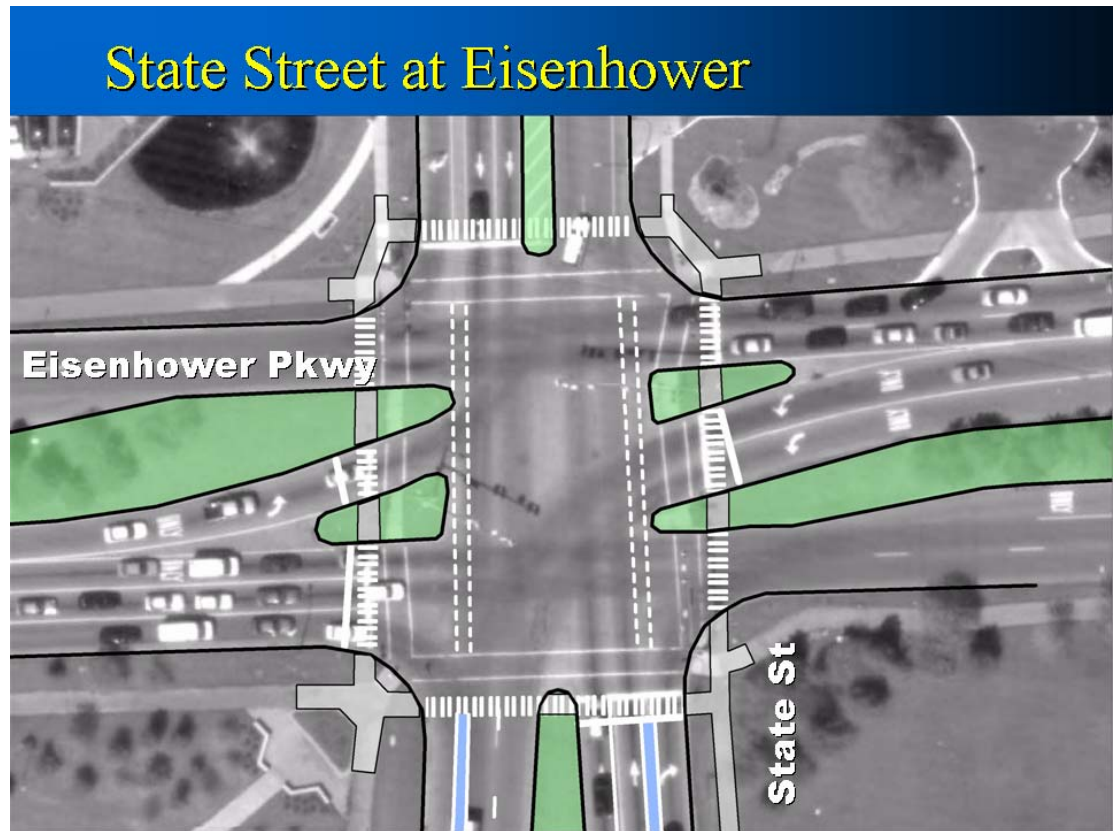




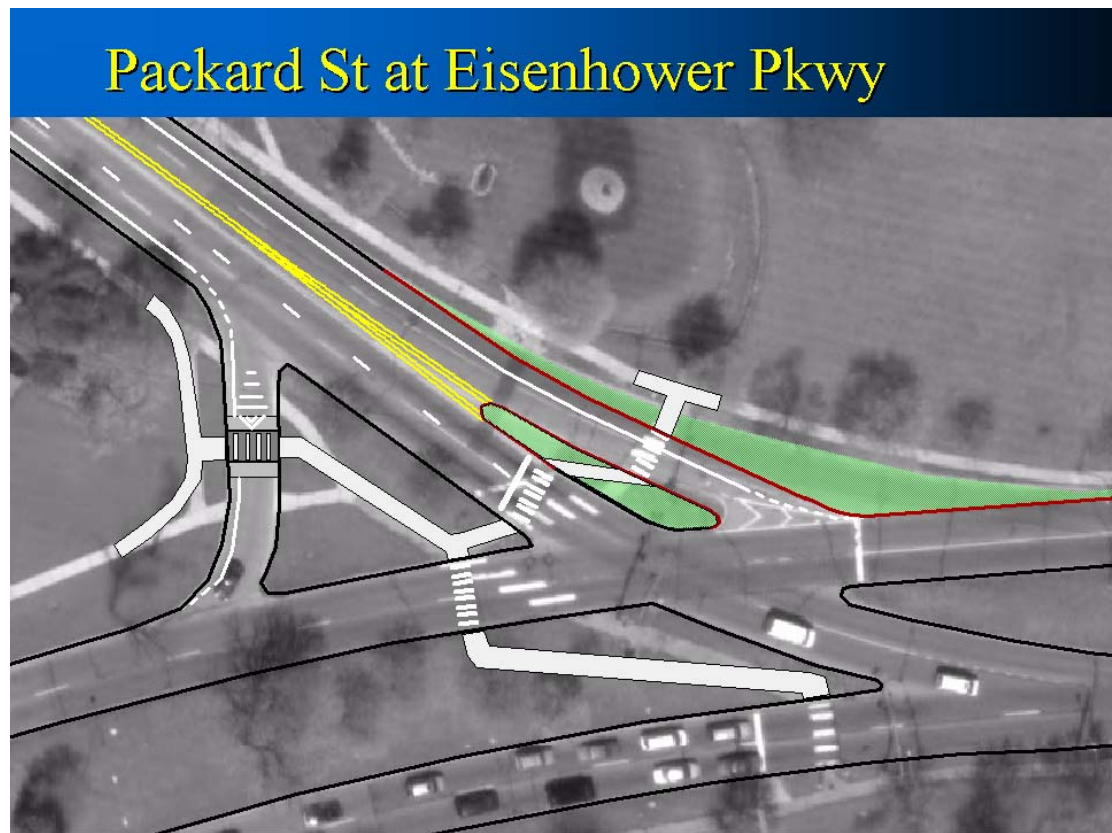
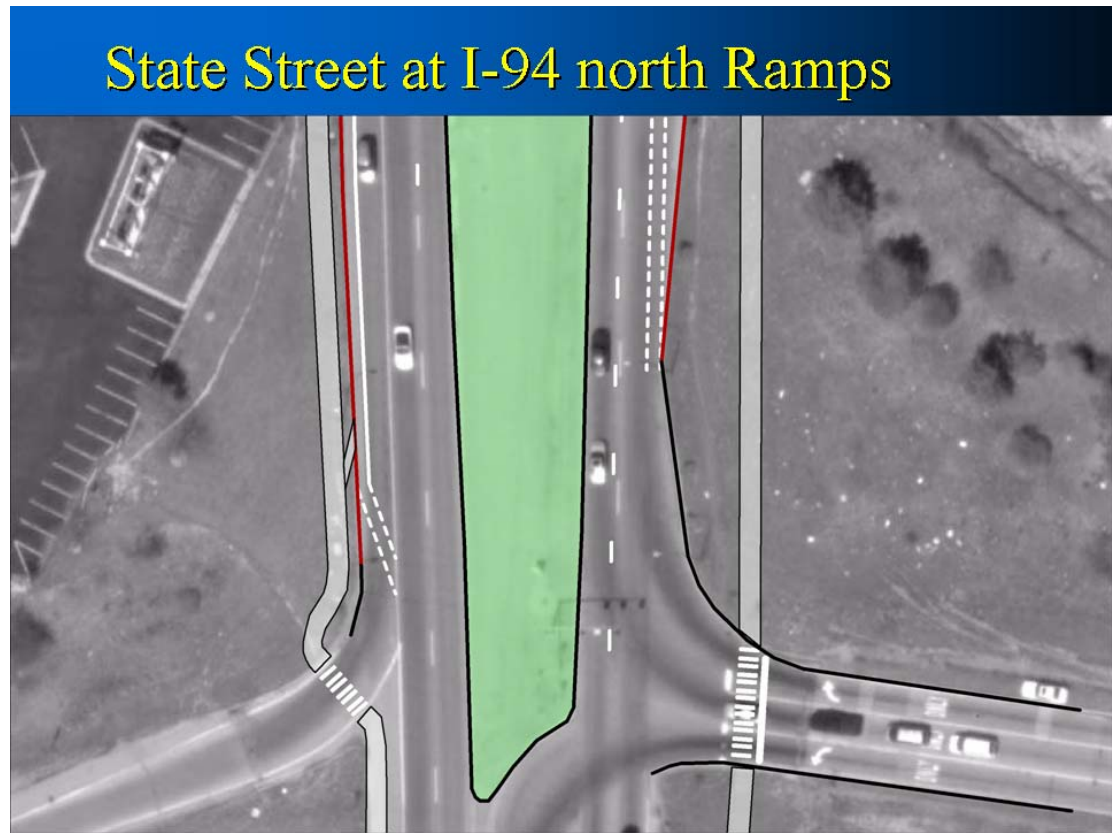






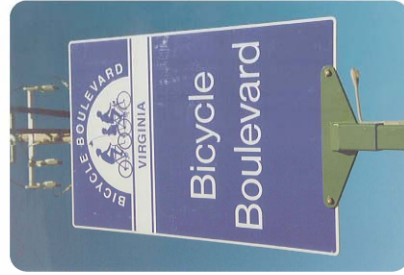








Bicycle Boulevard pavement markings (Berkeley, CA)



Bicycle Boulevard signage (Berkeley, CA)



Restricted motor vehicle access

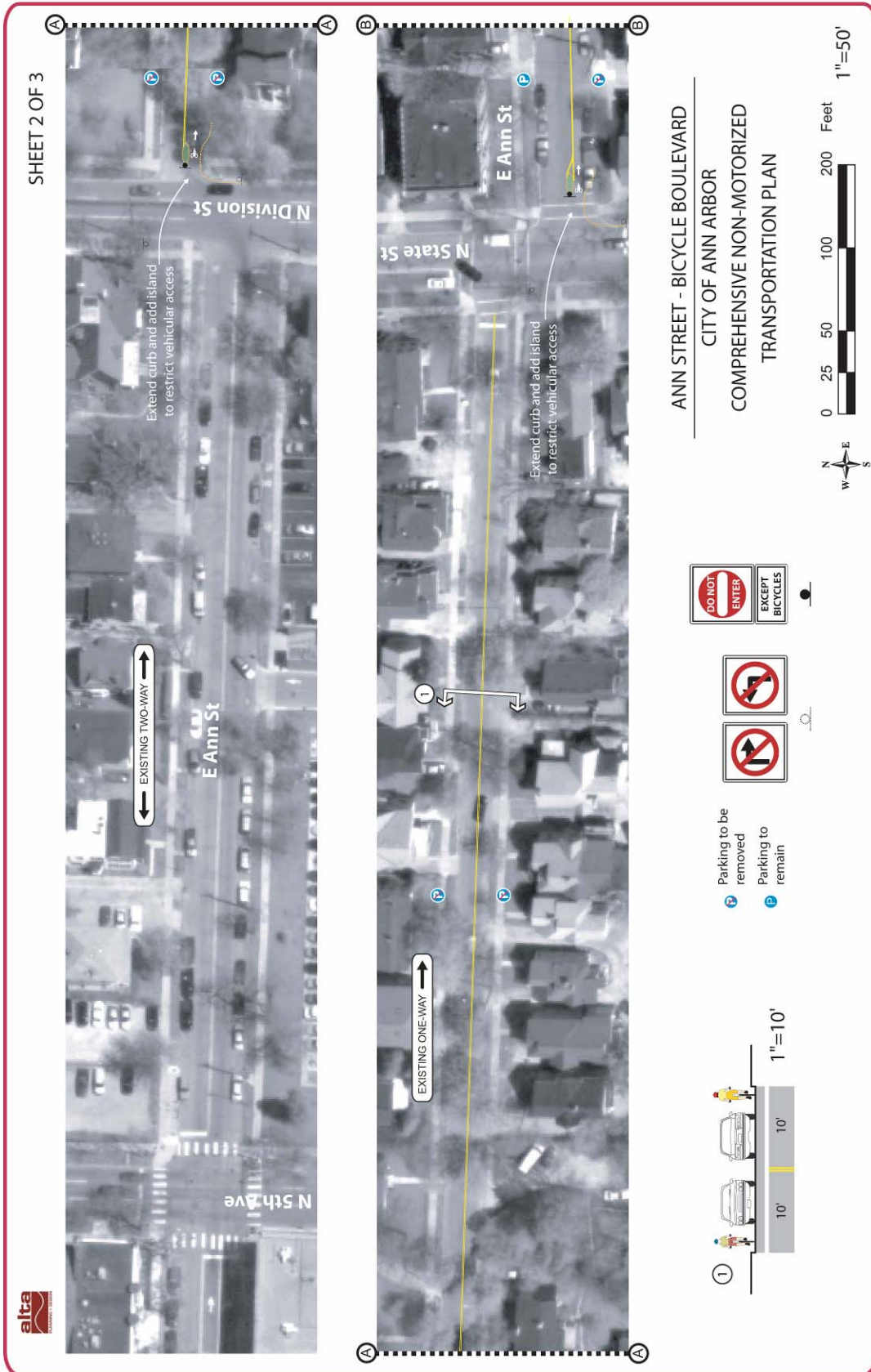
RECOMMENDATIONS

- Install Bicycle Boulevard signage and pavement markings along Ann Street.
- Restrict eastbound motor vehicle access at Division and State Streets by extending curbs and installing islands.
- Install bicycle loop detectors or push buttons at intersection of Ann Street and Glen Avenue.
- Consider installation of STOP signs to control cross-traffic and prioritize bicycle movements at Division, State, Thayer, and Ingalls Streets.
- Consider traffic calming measures to slow motor vehicles along Ann Street, such as speed tables or chicanes.

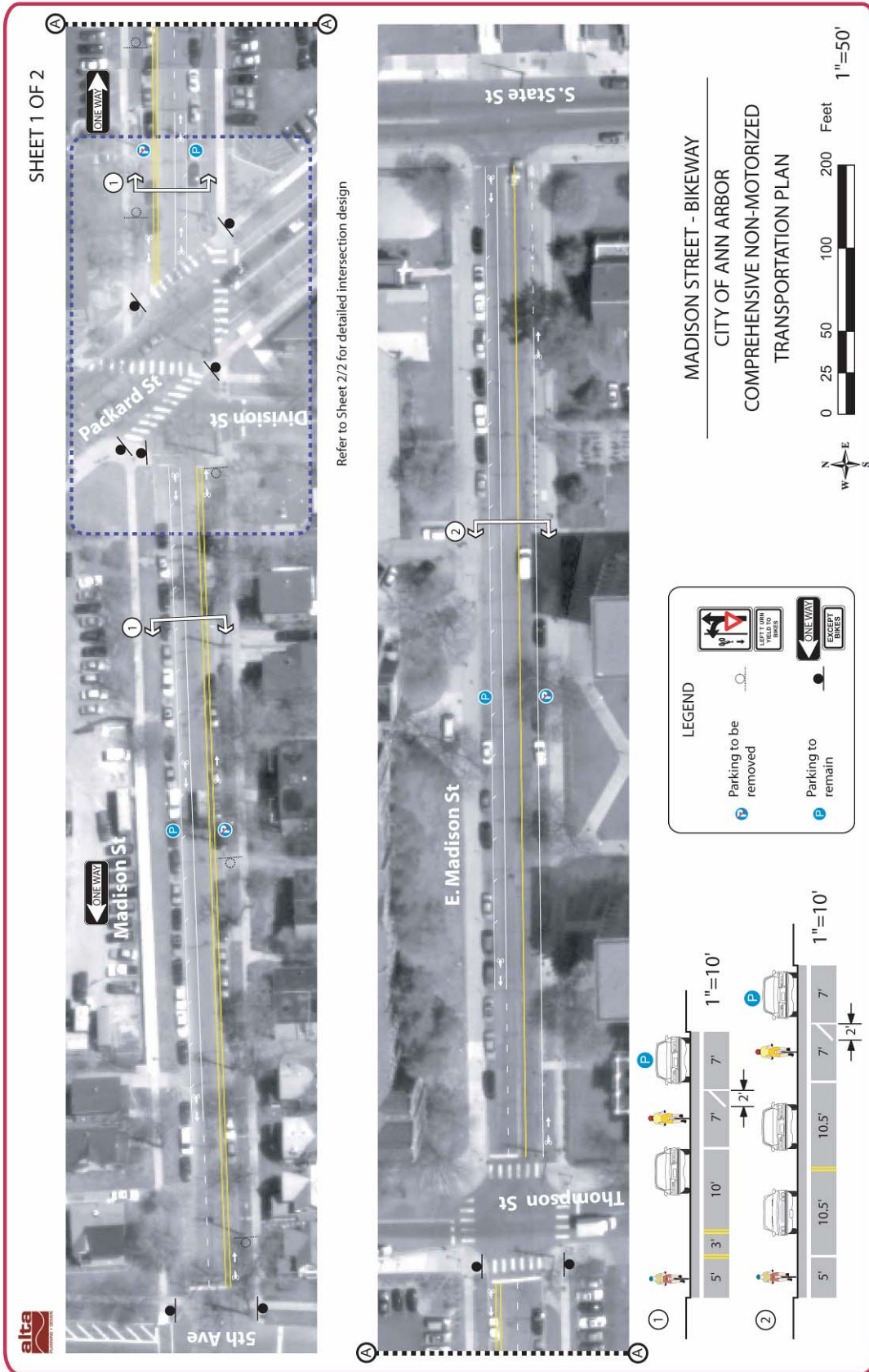
BICYCLE BOULEVARD BENEFITS AND ISSUES

- + Prioritizes bicycle travel
- + Enhances bicycle safety, and potentially pedestrian safety
- + Reduction in motor vehicle speeds/volumes
- + Improves connectivity by converting one-way street into two-way street
- Partial closures and STOP signs may result in traffic impacts or affect emergency vehicle response times
- May divert motor vehicle traffic to neighboring streets
- Results in a loss of parking

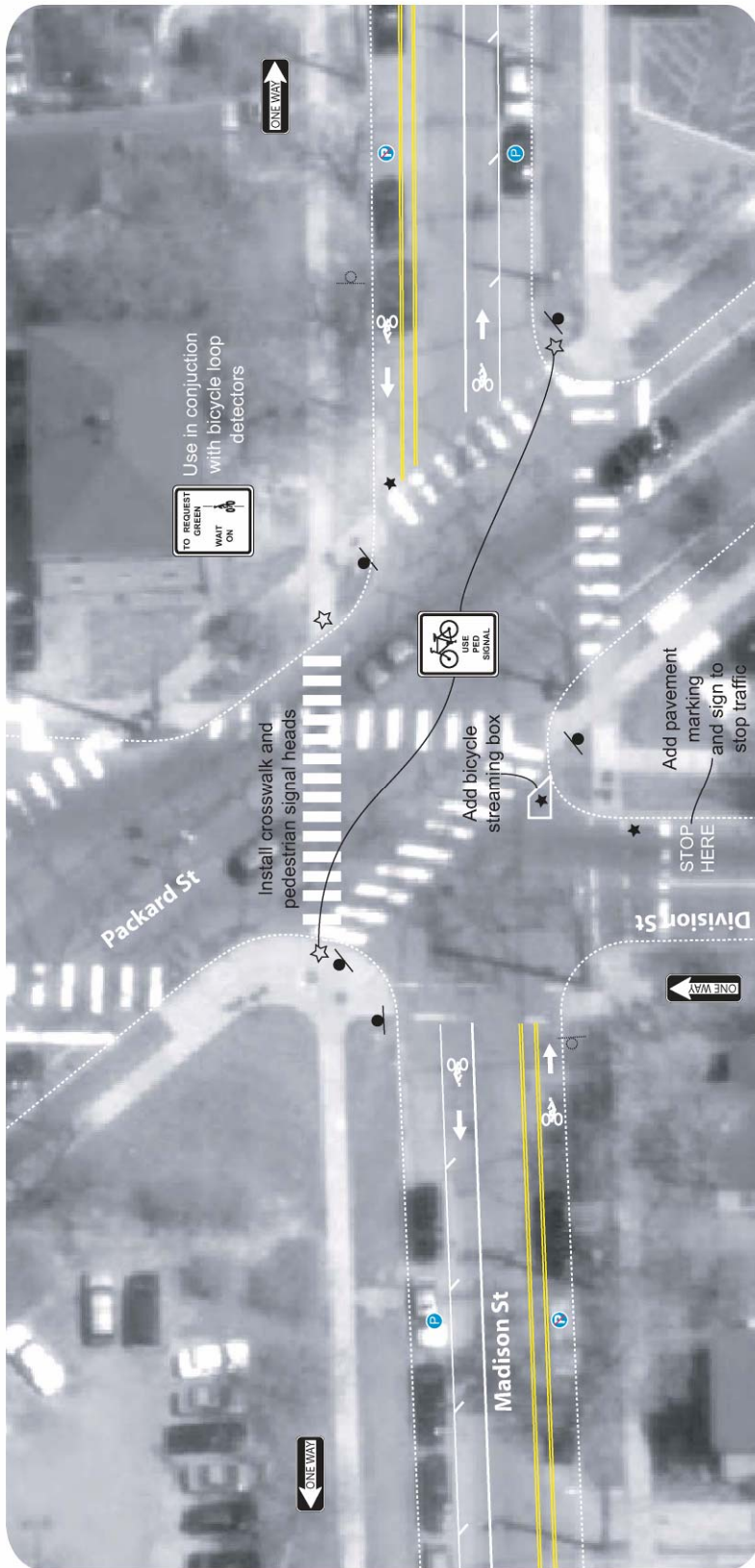
ANN STREET - BICYCLE BOULEVARD
 CITY OF ANN ARBOR
 COMPREHENSIVE NON-MOTORIZED
 TRANSPORTATION PLAN





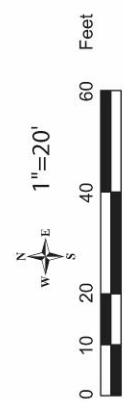


SHEET 2 OF 2



MADISON STREET - BIKEWAY
 CITY OF ANN ARBOR
 COMPREHENSIVE NON-MOTORIZED
 TRANSPORTATION PLAN

- Parking to be removed
- Parking to remain
- Bicycle loop detector or push button
- Pedestrian signal head
- ONE WAY



6.11 Multi-Modal Roadways Typical Cross Sections

The following are cross section options for varying width roadways. Please note that the unique situation of each roadway should be considered in determine the most appropriate solution for any particular roadway.

This format corresponds to the GIS database created for the project. For each road segment the general cross section type called out. For many of the challenging road conversions the road width and specific lane width allocations are called out as well.

Legend:

BL Bike Lane

CBL Contra-Flow Bike Lane

CT Center Turn

P Parking (width assumes presence of 1.5' gutter)

1 Lane, 1 Way, 1 Bike Lane

3.5' BL | 10.5' (14' Total)

4' BL | 11' (15' Total)

5' BL | 11' (16' Total)

1 Lane, 1 Way, 1 Contra-Flow Bike Lane:

4' CBL | 10' (14' Total)

5' CBL | 10' (15' Total)

6' CBL | 10' (16' Total)

6' CBL | 11' (17' Total)

7' CBL | 11' (18' Total)

1 Lane, 1 Way, 2 Bike Lanes (1 Contra-Flow Bike Lane):

3.5' CBL | 10' | 3.5' BL (17' Total)

4.5' CBL | 10' | 3.5' BL (18' Total)

5.5' CBL | 10' | 3.5' BL (19' Total)

5.5' CBL | 11' | 3.5' BL (20' Total)

5.5' CBL | 11' | 4.5' BL (21' Total)

6.5' CBL | 11' | 4.5' BL (22' Total)

7.5' CBL | 11' | 4.5' BL (23' Total)

1 Lane, 1 Way, Parking 1 Side, 1 Bike Lane:

3.5' BL | 10' | 5.5 P (19' Total)

3.5' BL | 11' | 5.5 P (20' Total)

4.5' BL | 11' | 5.5 P (21' Total)

5.5' BL | 11' | 5.5 P (22' Total)

5.5' BL | 12' | 5.5 P (23' Total)

5.5' BL | 13' | 5.5 P (24' Total)

1 Lane, 1 Way, Parking 1 Side, 1 Contra-Flow Bike Lane:

3.5' CBL | 10' | 5.5 P (19' Total)

4.5' CBL | 10' | 5.5 P (20' Total)

4.5' CBL | 11' | 5.5 P (21' Total)

5.5' CBL | 11' | 5.5 P (22' Total)

6.5' CBL | 11' | 5.5 P (23' Total)

7.5' CBL | 11' | 5.5 P (24' Total)

1 Lane, 1 Way, Parking 1 Side, 2 Bike Lanes (1 Contra-Flow Bike Lane):

3.5' CBL | 10' | 5' BL | 5.5 P (24' Total)

3.5' CBL | 10' | 6' BL | 5.5 P (25' Total) cross hatch door zone

3.5' CBL | 11' | 6' BL | 5.5 P (26' Total) cross hatch door zone

3.5' CBL | 11' | 7' BL | 5.5 P (27' Total) cross hatch door zone

4.5' CBL | 11' | 7' BL | 5.5 P (28' Total) cross hatch door zone

5.5' CBL | 11' | 7' BL | 5.5 P (29' Total) cross hatch door zone

5.5' CBL | 11' | 8' BL | 5.5 P (30' Total) cross hatch door zone

1 Lane, 1 Way, Parking 2 Sides, 1 Bike Lane (Same Direction as Motorized Traffic):

5.5 P | 10' | 5' BL | 5.5 P (26' Total)

5.5 P | 11' | 5' BL | 5.5 P (27' Total)

5.5 P | 11' | 6' BL | 5.5 P (28' Total) cross hatch door zone

5.5 P | 11' | 7' BL | 5.5 P (29' Total) cross hatch door zone

5.5 P | 11' | 8' BL | 5.5 P (30' Total) cross hatch door zone

Note Contra-flow Bike Lanes should not be used with parallel parking on both sides of the street. Consider back-in angle parking on one side of the street.

2 Lanes, 1 Way, 1 Bike Lane:

3.5' BL | 10' | 10.5' (24' Total)

3.5' BL | 10.5' | 11' (25' Total)

4' BL | 11' | 11' (26' Total)

5' BL | 11' | 11' (27' Total)

5.5' BL | 11' | 11.5' (28' Total)

5.5' BL | 11.5' | 12' (29' Total)

6' BL | 12' | 12' (30' Total)

2 Lanes, 1 Way, Parking 1 Side, 1 Bike Lane:

3.5' BL | 10' | 10' | 5.5 P (29' Total)

3.5' BL | 10' | 11' | 5.5 P (30' Total)

3.5' BL | 11 | 11' | 5.5 P (31' Total)

4.5' BL | 11 | 11' | 5.5 P (32' Total)

4.5' BL | 11 | 12' | 5.5 P (33' Total)

5.5' BL | 11 | 12' | 5.5 P (34' Total)

5.5' BL | 11 | 13' | 5.5 P (35' Total)

2 Lanes, 1 Way, Parking 2 Sides, 1 Bike Lane:

5.5 P | 5' BL | 10' | 10' | 5.5 P (36' Total)

5.5 P | 6' BL | 10' | 10' | 5.5' P (37' Total) cross hatch door zone

5.5 P | 7' BL | 10' | 10' | 5.5' P (38' Total) cross hatch door zone

5.5 P | 6' BL | 10.5' | 10.5' | 5.5' P (38' Total) cross hatch door zone

5.5 P | 7' BL | 10.5' | 10.5' | 5.5 P (39' Total) cross hatch door zone

5.5 P | 6' BL | 11' | 11' | 5.5' P (39' Total) cross hatch door zone

5.5 P | 7' BL | 11' | 11' | 5.5 P (40' Total) cross hatch door zone

5.5 P | 7' BL | 11' | 12' | 5.5 P (41' Total) cross hatch door zone

5.5 P | 7' BL | 11' | 13' | 5.5 P (42' Total) cross hatch door zone

5.5 P | 7' BL | 11' | 14' | 5.5 P (43' Total) cross hatch door zone

5.5 P | 7' BL | 12' | 14' | 5.5 P (44' Total) cross hatch door zone

5.5 P | 8' BL | 12' | 14' | 5.5 P (45' Total) cross hatch door zone

2 Lanes, 2 Bike Lanes:

- 3' BL | 9' | 9' | 3' BL (24' Total)
- 3' BL | 9.5' | 9.5' | 3' BL (25' Total)
- 3.5' BL | 9.5' | 9.5' | 3.5' BL (26' Total)
- 3.5' BL | 10' | 10' | 3.5' BL (27' Total)
- 3.5' BL | 10.5' | 10.5' | 3.5' BL (28' Total)
- 3.5' BL | 11' | 11' | 3.5' BL (29' Total)
- 4' BL | 11' | 11' | 4' BL (30' Total)
- 4.5' BL | 11' | 11' | 4.5' BL (31' Total)
- 4.5' BL | 11.5' | 11.5' | 4.5' BL (32' Total)
- 5' BL | 11' | 11' | 5' BL (32' Total)
- 5' BL | 11.5' | 11.5' | 5' BL (33' Total)
- 5' BL | 12' | 12' | 5' BL (34' Total)

2 Lanes, Parking 1 Side, 2 Bike Lanes:

- 3.5' BL | 10' | 10' | 5' BL | 5.5 P (34' Total)
- 3.5' BL | 10' | 10' | 6' BL | 5.5 P (35' Total) cross hatch door zone
- 3.5' BL | 10.5' | 10.5' | 5' BL | 5.5 P (35' Total)
- 3.5' BL | 10.5' | 10.5' | 6' BL | 5.5 P (36' Total) cross hatch door zone
- 3.5' BL | 11' | 11' | 5' BL | 5.5 P (36' Total)
- 3.5' BL | 10.5' | 10.5' | 7' BL | 5.5 P (37' Total) cross hatch door zone
- 3.5' BL | 11' | 11' | 6' BL | 5.5 P (37' Total) cross hatch door zone
- 3.5' BL | 11' | 11' | 7' BL | 5.5 P (38' Total) cross hatch door zone
- 4' BL | 11' | 11' | 7.5' BL | 5.5 P (39' Total) cross hatch door zone
- 4.5' BL | 11' | 11' | 8' BL | 5.5 P (40' Total) cross hatch door zone
- 5.5' BL | 11' | 11' | 8' BL | 5.5 P (41' Total) cross hatch door zone
- 5.5' BL | 11.5' | 11.5' | 8' BL | 5.5 P (42' Total) cross hatch door zone
- 5.5' BL | 12' | 12' | 8' BL | 5.5 P (43' Total) cross hatch door zone

2 Lanes, Parking 2 Sides, 2 Bike Lanes:

- 5.5 P | 5' BL | 10' | 10' | 5' BL | 5.5 P (41' Total)
- 5.5 P | 5.5' BL | 10' | 10' | 5.5' BL | 5.5 P (42' Total)
- 5.5 P | 5' BL | 10.5' | 10.5' | 5' BL | 5.5 P (42' Total)
- 5.5 P | 6' BL | 10' | 10' | 6' BL | 5.5' P (43' Total)
- 5.5 P | 5.5' BL | 10.5' | 10.5' | 5.5' BL | 5.5 P (43' Total)
- 5.5 P | 6' BL | 10.5' | 10.5' | 6' BL | 5.5 P (44' Total)
- 5.5 P | 5.5' BL | 11' | 11' | 5.5' BL | 5.5 P (44' Total)
- 5.5 P | 6.5' BL | 10.5' | 10.5' | 6.5' BL | 5.5 P (45' Total)
- 5.5 P | 6' BL | 11' | 11' | 6' BL | 5.5 P (45' Total)
- 5.5 P | 7' BL | 10.5' | 10.5' | 7' BL | 5.5 P (46' Total)
- 5.5 P | 6.5' BL | 11' | 11' | 6.5' BL | 5.5 P (46' Total)
- 5.5 P | 7.5' BL | 10.5' | 10.5' | 7.5' BL | 5.5 P (47' Total)
- 5.5 P | 7' BL | 11' | 11' | 7' BL | 5.5 P (47' Total)
- 5.5 P | 7.5' BL | 11' | 11' | 7.5' BL | 5.5 P (48' Total)
- 5.5 P | 8' BL | 11' | 11' | 8' BL | 5.5 P (49' Total)
- 5.5 P | 8' BL | 11.5' | 11.5' | 8' BL | 5.5 P (50' Total)
- 5.5 P | 8' BL | 12' | 12' | 8' BL | 5.5 P (51' Total)

3 Lanes, 2 Bike Lanes:

- 3' BL | 10' | 9' CT | 10' | 3' BL (35' Total)
- 3.5' BL | 10' | 9' CT | 10' | 3.5' BL (36' Total)
- 3.5' BL | 10' | 10' CT | 10' | 3.5' BL (37' Total)
- 3.5' BL | 10.5' | 10' CT | 10.5' | 3.5' BL (38' Total)
- 3.5' BL | 11' | 10' CT | 11' | 3.5' BL (39' Total)
- 3.5' BL | 11' | 11' CT | 11' | 3.5' BL (40' Total)
- 4' BL | 11' | 11' CT | 11' | 4' BL (41' Total)
- 4.5' BL | 11' | 11' CT | 11' | 4.5' BL (42' Total)
- 5' BL | 11' | 11' CT | 11' | 5' BL (43' Total)
- 5.5' BL | 11' | 11' CT | 11' | 5.5' BL (44' Total)
- 5.5' BL | 11.5' | 11' CT | 11.5' | 5.5' BL (45' Total)
- 5.5' BL | 12' | 11' CT | 12' | 5.5' BL (46' Total)
- 5.5' BL | 12' | 12' CT | 12' | 5.5' BL (47' Total)

3 Lanes, Parking 1 Side, 2 Bike Lanes:

- 3.5' BL | 10' | 9' CT | 10' | 5' BL | 5.5 P (43' Total)
- 3.5' BL | 10' | 10' CT | 10' | 5' BL | 5.5 P (44' Total)
- 3.5' BL | 10.5' | 10' CT | 10.5' | 5' BL | 5.5 P (45' Total)
- 3.5' BL | 11' | 10' CT | 11' | 5' BL | 5.5 P (46' Total)
- 3.5' BL | 11' | 10' CT | 11' | 6' BL | 5.5 P (47' Total) cross hatch door zone
- 3.5' BL | 11' | 10' CT | 11' | 7' BL | 5.5 P (48' Total) cross hatch door zone
- 3.5' BL | 11' | 11' CT | 11' | 7' BL | 5.5 P (49' Total) cross hatch door zone
- 4.5' BL | 11' | 11' CT | 11' | 7' BL | 5.5 P (50' Total) cross hatch door zone

4 Lanes, 2 Bike Lanes:

3' BL | 10' | 10' | 10' | 10' | 3' BL (46' Total) Sub AASHTO Bike Lanes

3.5' BL | 10' | 10' | 10' | 10' | 3.5' BL (47' Total)

3.5' BL | 10.5' | 10' | 10' | 10.5' | 3.5' BL (48' Total)

3.5' BL | 10.5' | 10.5' | 10.5' | 10.5' | 3.5' BL (49' Total)

3.5' BL | 11' | 10.5' | 10.5' | 11' | 3.5' BL (50' Total)

3.5' BL | 11' | 11' | 11' | 11' | 3.5' BL (51' Total)

4' BL | 11' | 11' | 11' | 11' | 4' BL (52' Total)

4.5' BL | 11' | 11' | 11' | 11' | 4.5' BL (53' Total)

5' BL | 11' | 11' | 11' | 11' | 5' BL (54' Total)

5.5' BL | 11' | 11' | 11' | 11' | 5.5' BL (55' Total)

5.5' BL | 11.5' | 11' | 11' | 11.5' | 5.5' BL (56' Total)

5.5' BL | 12 | 11' | 11' | 12 | 5.5' BL (57' Total)

5.5' BL | 12 | 11.5' | 11.5' | 12 | 5.5' BL (58' Total)

5.5' BL | 12 | 12' | 12' | 12 | 5.5' BL (58' Total)

5 Lanes, 2 Bike Lanes

3' BL | 10' | 10' | 9' CT | 10' | 10' | 3' BL (55' Total) Sub AASHTO Bike and CT Lanes

3.5' BL | 10' | 10' | 9' CT | 10' | 10' | 3.5' BL (56' Total) Sub AASHTO CT Lanes

3.5' BL | 10' | 10' | 10' CT | 10' | 10' | 3.5' BL (57' Total)

3.5' BL | 10.5' | 10' | 10' CT | 10' | 10.5' | 3.5' BL (58' Total)

3.5' BL | 10.5' | 10.5' | 10' CT | 10.5' | 10.5' | 3.5' BL (59' Total)

3.5' BL | 10.5' | 11' | 10' CT | 10.5' | 11' | 3.5' BL (60' Total)

3.5' BL | 11' | 11' | 10' CT | 11' | 11' | 3.5' BL (61' Total)

4' BL | 11' | 11' | 10' CT | 11' | 11' | 4' BL (62' Total)

4' BL | 11' | 11' | 11' CT | 11' | 11' | 4' BL (63' Total)

4.5' BL | 11' | 11' | 10' CT | 11' | 11' | 4.5' BL (63' Total)

4.5' BL | 11' | 11' | 11' CT | 11' | 11' | 4.5' BL (64' Total)

4.5' BL | 11' | 11' | 11' CT | 11' | 11' | 4.5' BL (64' Total)

5' BL | 11' | 11' | 11' CT | 11' | 11' | 5' BL (65' Total)

5.5' BL | 11' | 11' | 11' CT | 11' | 11' | 5.5' BL (66' Total)

5.5' BL | 11.5' | 11' | 11' CT | 11' | 11.5' | 5.5' BL (67' Total)

5.5' BL | 12' | 11' | 11' CT | 11' | 12' | 5.5' BL (68' Total)

5.5' BL | 12' | 11.5' | 11' CT | 11.5' | 12' | 5.5' BL (69' Total)

5.5' BL | 12' | 12' | 11' CT | 12' | 12' | 5.5' BL (70' Total)

5.5' BL | 12' | 12' | 12' CT | 12' | 12' | 5.5' BL (71' Total)

Legend:

BL Bike Lane

CBL Contra-Flow Bike Lane

CT Center Turn

P Parking (width assumes presence of 1.5' gutter)

6.12 Cost Opinions

The following cost opinions based on some of the typical plans shown in Section 2, Planning and Design Guidelines

Fig. 6.12A Lane Narrowing (Reference Fig 2.3O)

<u>MDOT Pay Item Code</u>	<u>Description</u>	<u>Units</u>	<u>Qty</u>	<u>Price</u>	<u>Extention</u>
8110095	Pavt Mrkg, Thermopl, 4 inch, White	Ft	200	\$1.00	\$200.00
8117050	Pavt Mrkg, Ovly Cold Plastic, Bike Symbol, Arrow & Legend, Special	Ea	2	\$300.00	<u>\$600.00</u>
Total Per 100 Linear Ft					\$800.00

Note: Unit costs to vary depending on total project quantity

Fig. 6.12A Paving Shoulders (Reference Fig 2.3T)

<u>MDOT Pay Item Code</u>	<u>Description</u>	<u>Units</u>	<u>Qty</u>	<u>Price</u>	<u>Extention</u>
5020005	HMA Surface, Rem	Syd	33	\$10.00	\$330.00
3020001	Aggregate Base	Ton	52	\$25.00	\$1,300.00
1040001	Contractor Staking	LS	1	\$750.00	\$750.00
8120050	Minor Traf Devices	LS	1	\$200.00	\$200.00
8067031	Bicycle Lane, HMA	Ton	35	\$70.00	\$2,450.00
8110095	Pavt Mrkg, Thermopl, 4 inch, White	Ft	200	\$1.00	\$200.00
8117050	Pavt Mrkg, Ovly Cold Plastic, Bike Symbol, Arrow & Legend, Special	Ea	2	\$300.00	\$600.00
8067001	Bicycle Lane Grading, Modified	Ft	200	\$10.00	\$2,000.00
3070106	Shoulder, CI I, 4 inch	Syd	115	\$4.50	\$517.50
8167011	Slope Restoration, Special	Syd	110	\$8.00	<u>\$880.00</u>
Total per 100 Linear Feet					\$9,227.50

Note: Unit prices to vary depending on total project quantities

Fig. 6.12A Four to Two-lane Boulevard Conversions (Reference Fig 2.3S)

<u>MDOT Pay Item Code</u>	<u>Description</u>	<u>Units</u>	<u>Qty</u>	<u>Price</u>	<u>Extention</u>
8110095	Pavt Mrkg, Thermopl, 4 inch, White	Ft	665.0	\$1.00	\$665.00
8117050	Pavt Mrkg, Ovly Cold Plastic, Bike Symbol, Arrow & Legend, Special	Ea	2.0	\$300.00	\$600.00
8120077	Pavt Mrkg, Longit, 6 inch or Less Width, Rem	Ft	50.0	\$0.75	\$37.50
8120050	Minor Traf Devices	LS	1.0	\$200.00	<u>\$200.00</u>
Total per 100 Linear Feet					\$1,502.50

Fig. 6.12A Four to Three-lane Road Conversions (Reference Fig 2.3P)

Restriping

MDOT Pay Item Code	Description	Units	Qty	Price	Extension
8110095	Pavt Mrkg, Thermopl, 4 inch, White	Ft	200	\$1.00	\$200.00
8117050	Pavt Mrkg, Ovly Cold Plastic, Bike Symbol, Arrow & Legend	Ea	2	\$300.00	\$600.00
8120077	Pavt Mrkg, Longit, 6 inch or Less Width, Rem	Ft	250	\$0.75	\$187.50
8110096	Pavt Mrkg, Thermopl, 4 inch, Yellow	Ft	250	\$1.00	\$250.00
8110045	Pavt Mrkg, Ovly Cold Plastic, Lt Turn Arrow Sym	Ea	2	\$150.00	\$300.00
8120050	Minor Traf Devices	LS	1	\$200.00	<u>\$200.00</u>
					<u>\$1,737.50</u>

Note: Cost Estimate includes pavement marking removals and placement only. See Estimate 2.3E No.2 for Island area construction. Unit prices will vary depending on total project quantity

Planted Median

MDOT PayItem Code	Description	Units	Qty	Price	Extension
5020005	HMA Surface, Rem	Syd	220	\$10.00	\$2,200.00
3020001	Aggregate Base	Ton	30	\$25.00	\$750.00
8020038	Curb and Gutter, Conc, Det F4	Ft	220	\$12.00	\$2,640.00
8110095	Pavt Mrkg, Thermopl, 4 inch, White	Ft	1	\$1.00	\$1.00
8117050	Pavt Mrkg, Ovly Cold Plastic, Bike Symbol, Arrow & Legend, Special	Ea	2	\$300.00	\$600.00
8120077	Pavt Mrkg, Longit, 6 inch or Less Width, Rem	Ft	45	\$0.75	\$33.75
5020061	HMA Approach	Ton	26	\$80.00	\$2,080.00
8167011	SLOPE RESTORATION, SPECIAL	Syd	115	\$10.00	\$1,150.00
8120050	Minor Traf Devices	LS	1	\$200.00	\$200.00
8157051	Landscaping	LS	1	\$500.00	\$500.00
1040001	Contractor Staking	LS	1	\$100.00	\$100.00
2080005	Erosion Control, Inlet Protection, Sediment Trap	Ea	2	\$150.00	<u>\$300.00</u>
Total per 100 Linear feet of Blvd. Section					\$10,554.75

Note: Cost include placement of island blvd. section, pavement marking removal and placement on either side of island. Unit prices will vary depending on total project quantity

Fig. 6.12A Mid-block Crosswalk with Refuge Island (Reference Fig 2.4Z)

<u>MDOT Pay Item Code</u>	<u>Description</u>	<u>Units</u>	<u>Qty</u>	<u>Price</u>	<u>Extension</u>
5020005	HMA Surface, Rem	Syd	95	\$10.00	\$950.00
3020001	Aggregate Base	Ton	15	\$25.00	\$375.00
8020038	Curb and Gutter, Conc, Det F4	Ft	125	\$12.00	\$1,500.00
1040001	Contractor Staking	LS	1	\$750.00	\$750.00
5020061	HMA Approach	Ton	13	\$80.00	\$1,040.00
8030011	Sidewalk Ramp, ADA	Sft	250	\$6.00	\$1,500.00
8160050	Slope Restoration	Syd	27	\$10.00	\$270.00
8157051	Landscaping	LS	1	\$600.00	\$600.00
8110102	Pavt Mrkg, Thermopl, 12 inch, Yellow	Ft	44	\$2.25	\$99.00
8110098	Pavt Mrkg, Thermopl, 6 inch, Yellow	Ft	100	\$1.25	\$125.00
8110096	Pavt Mrkg, Thermopl, 4 inch, Yellow	Ft	660	\$1.00	\$660.00
8120050	Minor Traf Devices	LS	1	\$500.00	<u>\$500.00</u>
Refuge Island Total					\$8,369.00

Note: Refuge Island Construction Costs include 50 ft island, sidewalk ramps, special emphasis crosswalk and cross-hatch pavt markings. Bike lane pavement markings and other lane markings not included, see Cost Estimate for Fig. 2E