MADISON MULTIMODAL TRANSPORTATION PLAN

MADISON IN MOTION

Madison in Motion: Overview/Purpose

- **Help Create Walkable, Bikeable, Transit-Oriented City**
  - Strengthen **Neighborhoods**: Existing and New Development
  - Emphasize **Transportation Choices** and Mode **Connectivity**
  - Support Madison's **Community Vision**

- Resource for Transportation Decision-Making
  - **Guide to Implementation of Projects**

Madison in Motion Planning Process

-Three Community-Wide Meetings

-Targeted Stakeholder/Focus Group Outreach

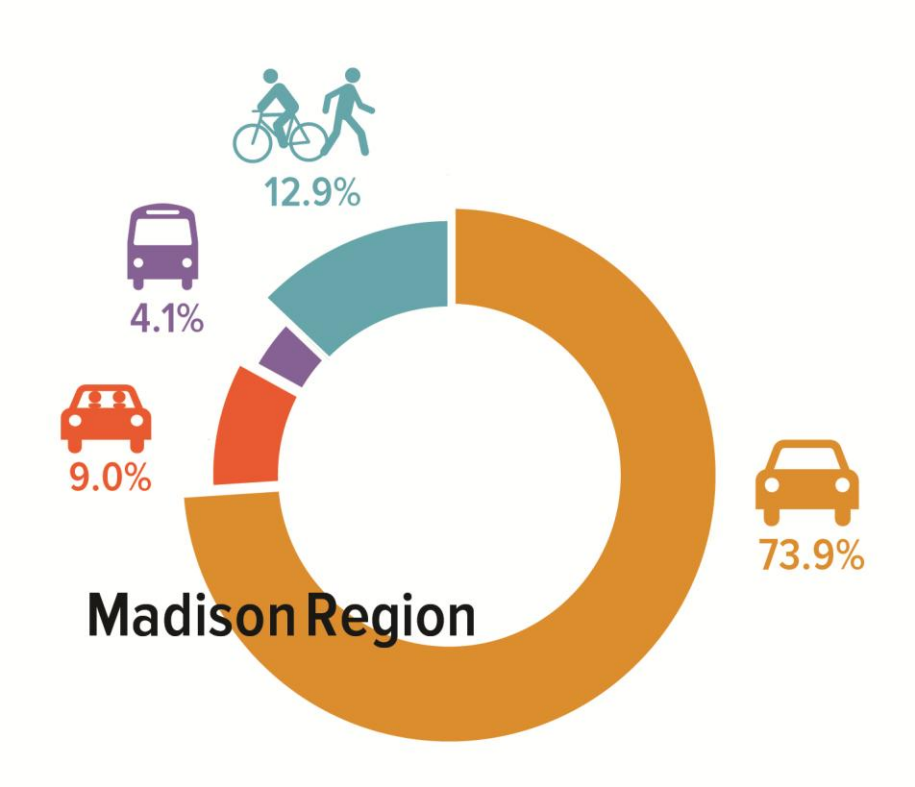
- Low-Income and Senior Representatives
- Job Training Agencies
- Business Interest Groups
- Mode Advocacy Groups (Biking, Transit)
- Millenials (100 State)

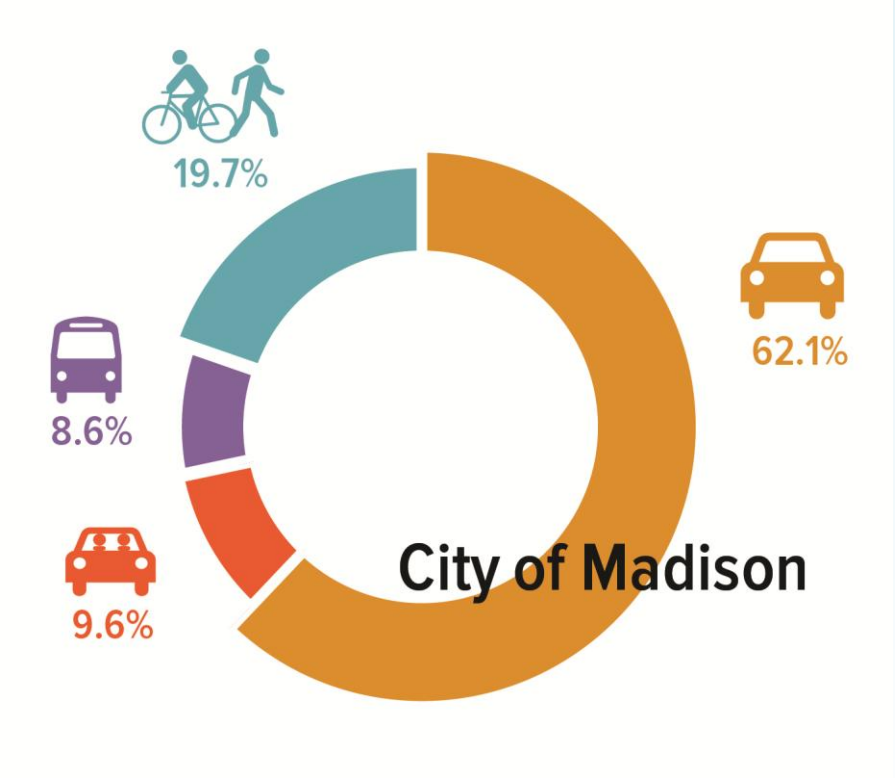
-Feedback via Project Web Page

→ *Draft* Plan Recommendations (Community and Stakeholder Review: Fall/Winter 2016-17)

Land Use & Transportation System Coordination

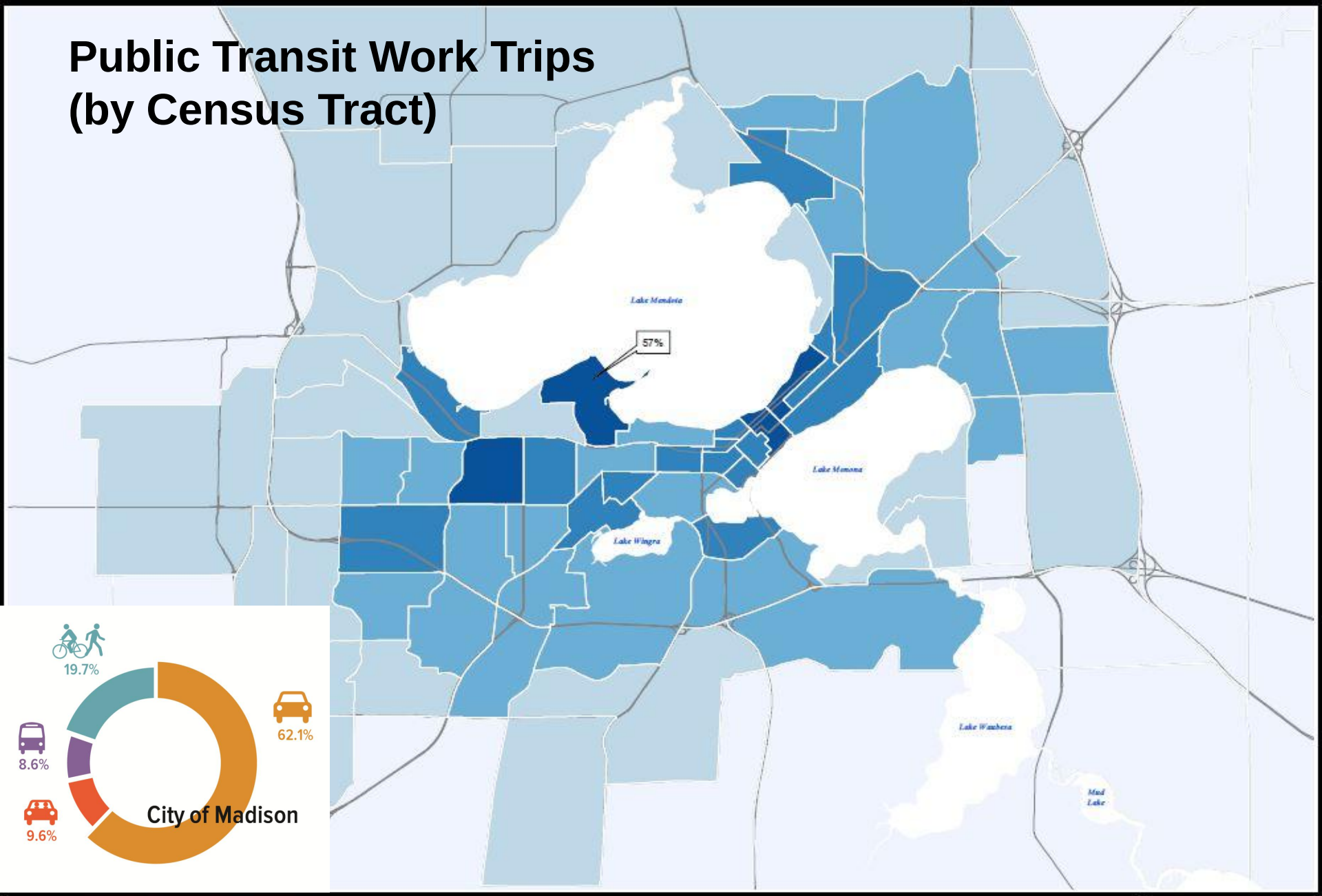
How do area residents travel to work?





Source: US Census American Community Survey, 2008-2012

Public Transit Work Trips (by Census Tract)



Means of Transportation to Work: Public Transportation
By Census Tract

Source: ACS 5YR B08301 2009-2013

Percent of Total Commuters

0% - 1%
2% - 5%
6% - 11%
12% - 18%
19% - 30%

Prepared by staff to the:
Madison Area T.P.B. Transportation Planning Board

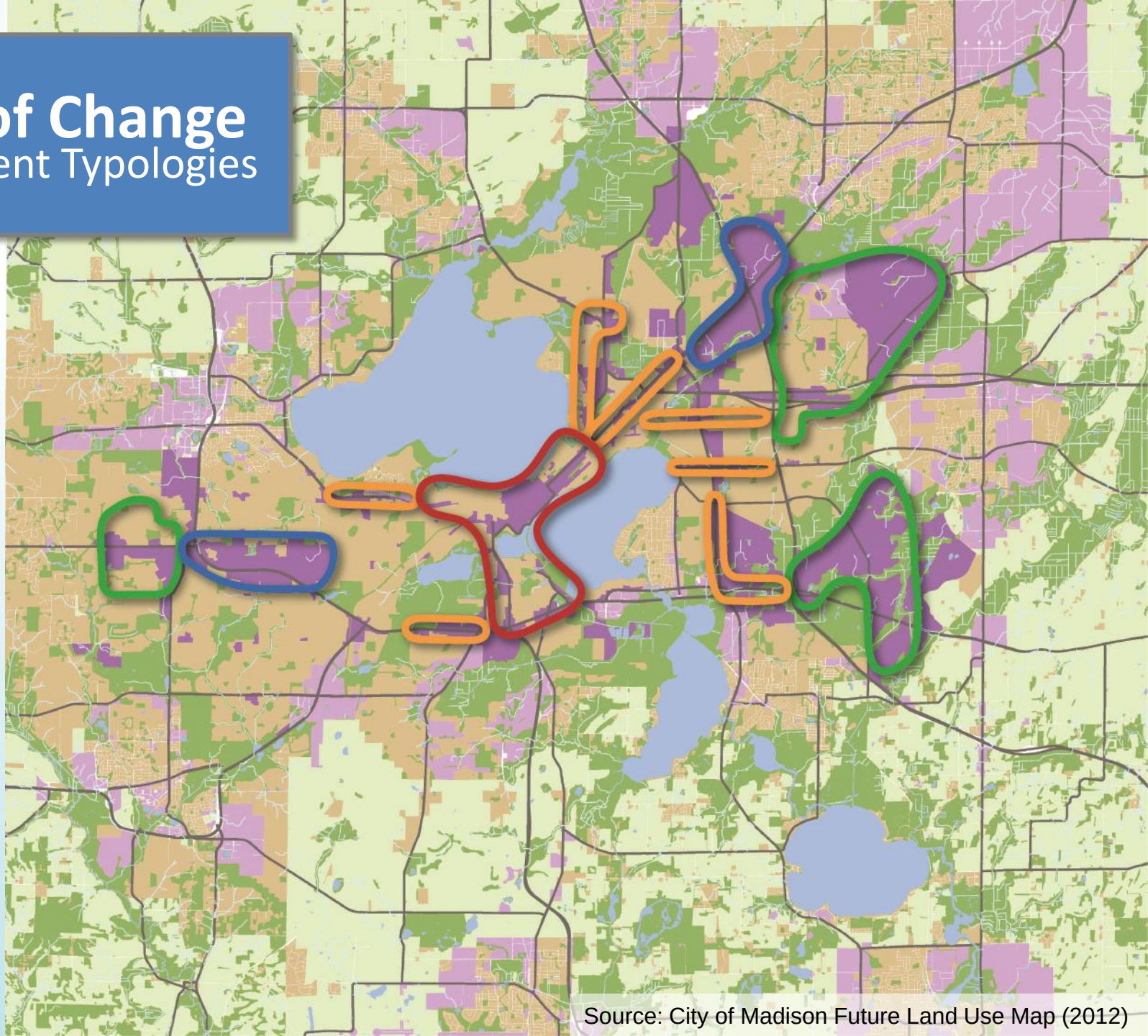
Date Revised: 1/9/2015

N

0 1 2 Miles

Areas of Change
Development Typologies

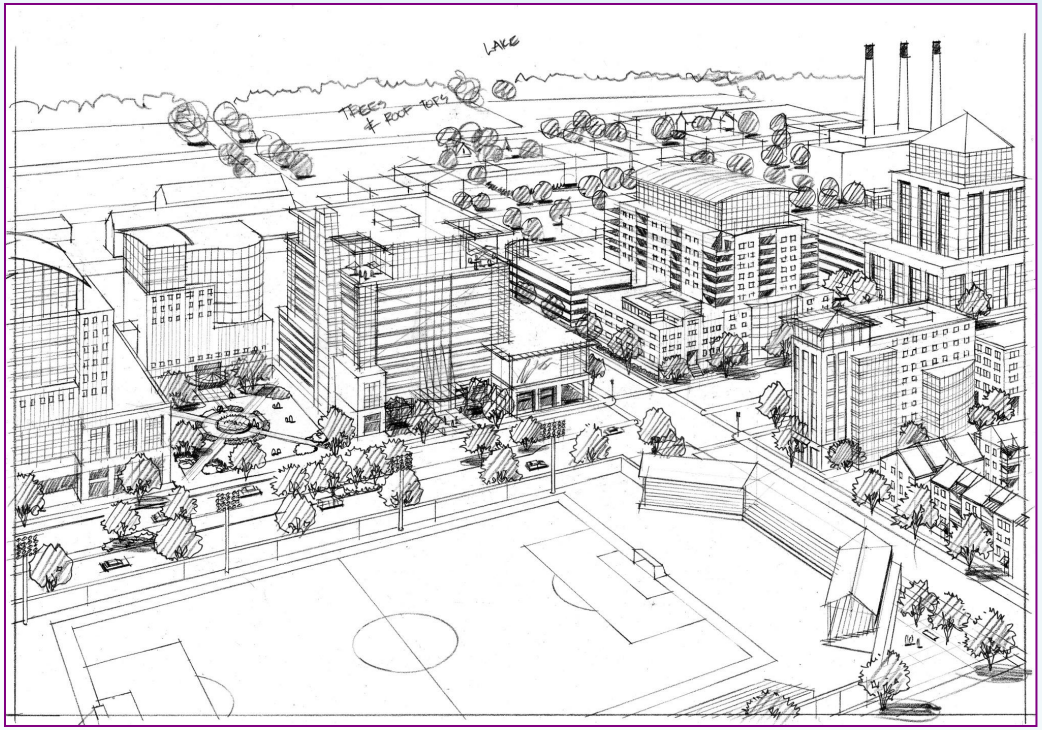
- Central City
- Urban Corridors
- Regional Retail and Employment Centers
- East/West New Growth Areas



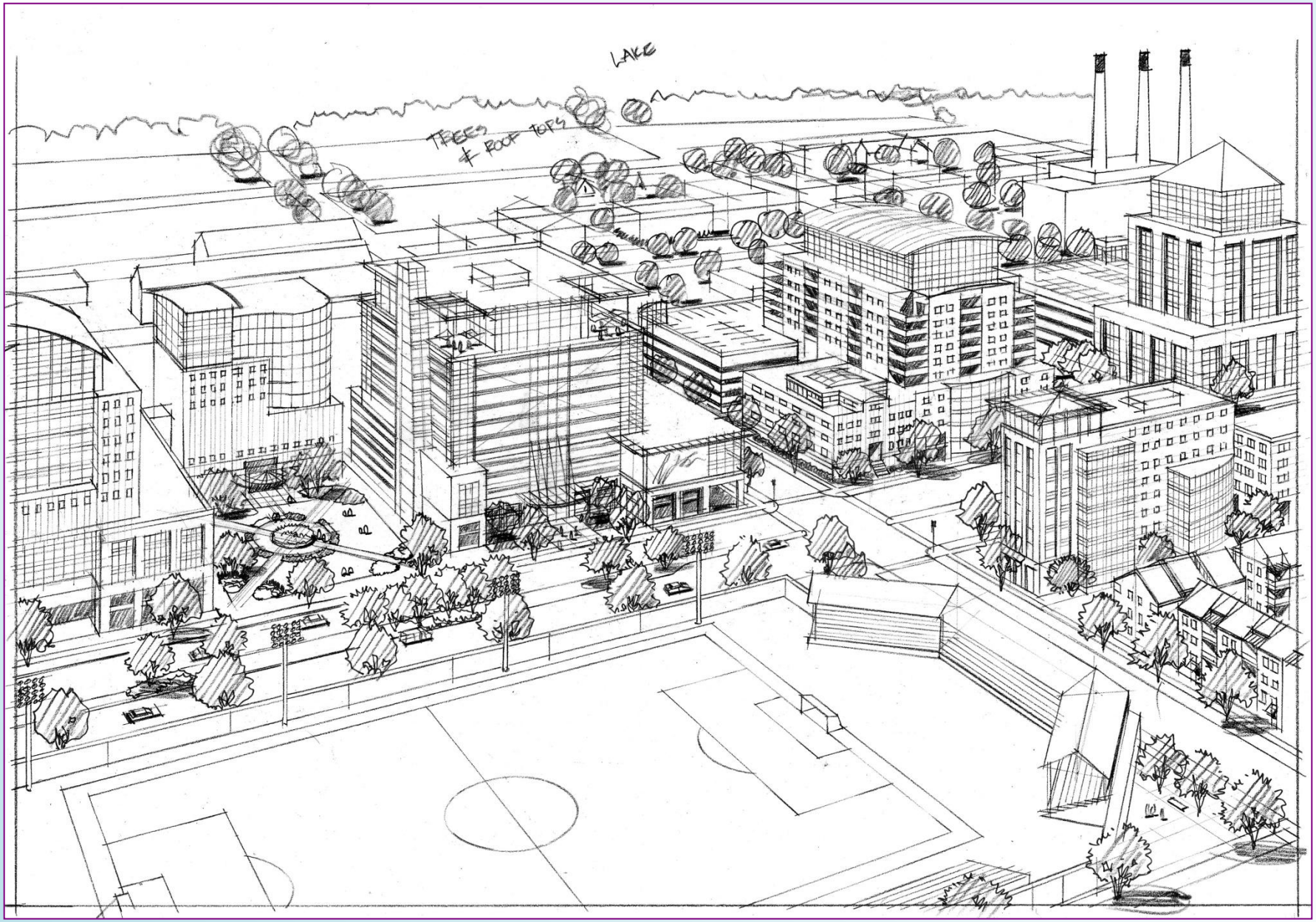
Source: City of Madison Future Land Use Map (2012)

"Activity Center" Planning

- Transit-Oriented Development
- High density **mix of land uses** (commercial, residential, community services, etc.)
- **High frequency transit** services/transfer opportunities
- Secure **bicycle parking/bike share**
- Engaging **pedestrian environment** (lighting, streetscapes, amenities, etc.)
- Structured auto parking to support development (possible **park-and-ride**)



East Rail Corridor: Redevelopment Concepts



Neighborhood-Scale Activity Center: Node Concepts

Activity Center/Redevelopment Area: Park Street

Activity Center/Redevelopment Area: Cottage Grove Rd

Activity Center/Redevelopment Area: Oscar Mayer

General Scenario Assumptions

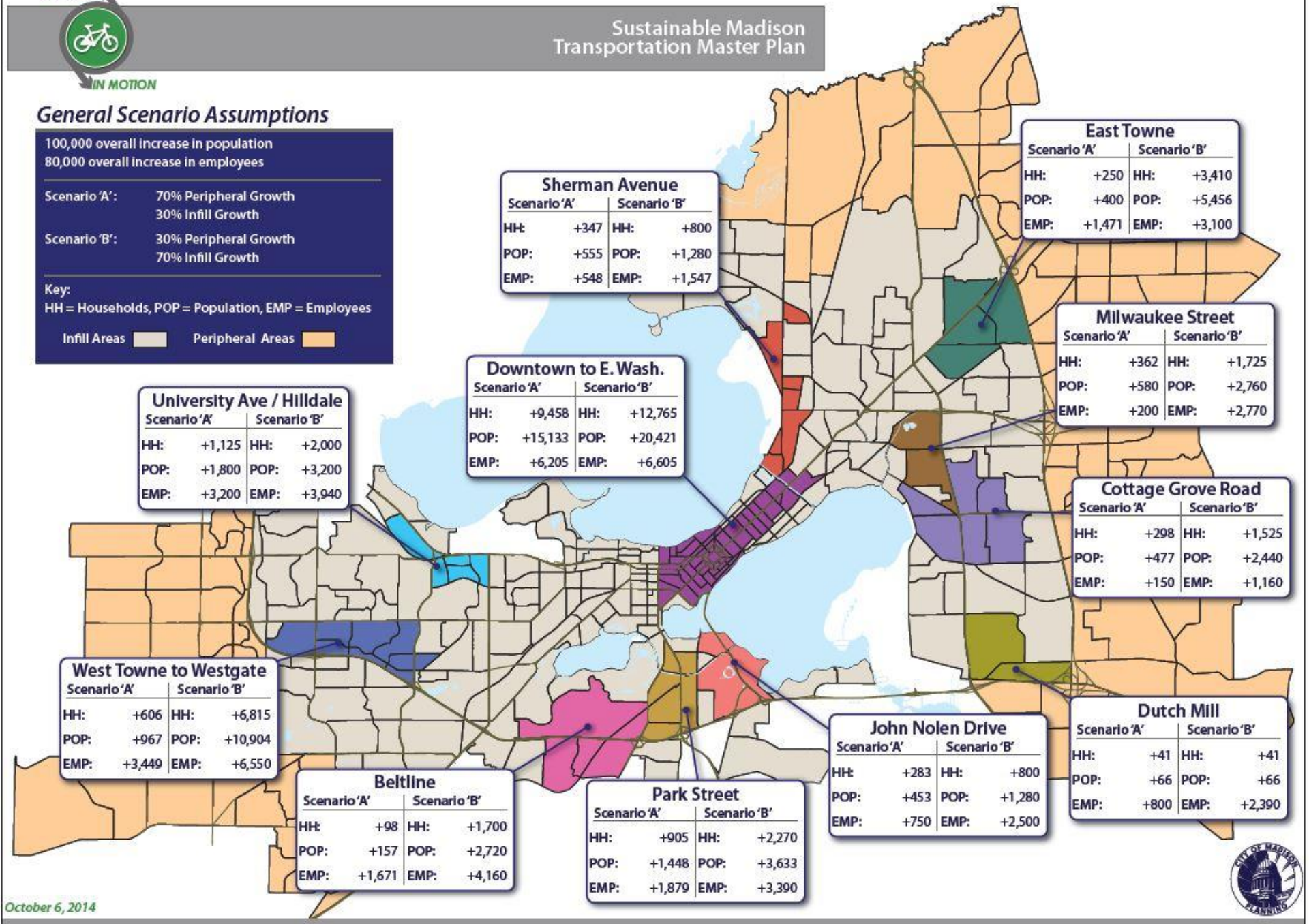
100,000 overall increase in population
80,000 overall increase in employees

Scenario 'A': 70% Peripheral Growth, 30% Infill Growth

Scenario 'B': 30% Peripheral Growth, 70% Infill Growth

Key:
HH = Households, POP = Population, EMP = Employees

Infill Areas Peripheral Areas



Sherman Avenue

Scenario 'A'		Scenario 'B'	
HH:	+347	HH:	+800
POP:	+555	POP:	+1,280
EMP:	+548	EMP:	+1,547

East Towne

Scenario 'A'		Scenario 'B'	
HH:	+250	HH:	+3,410
POP:	+400	POP:	+5,456
EMP:	+1,471	EMP:	+3,100

Milwaukee Street

Scenario 'A'		Scenario 'B'	
HH:	+362	HH:	+1,725
POP:	+580	POP:	+2,760
EMP:	+200	EMP:	+2,770

Downtown to E. Wash.

Scenario 'A'		Scenario 'B'	
HH:	+9,458	HH:	+12,765
POP:	+15,133	POP:	+20,421
EMP:	+6,205	EMP:	+6,605

University Ave / Hilldale

Scenario 'A'		Scenario 'B'	
HH:	+1,125	HH:	+2,000
POP:	+1,800	POP:	+3,200
EMP:	+3,200	EMP:	+3,940

Cottage Grove Road

Scenario 'A'		Scenario 'B'	
HH:	+298	HH:	+1,525
POP:	+477	POP:	+2,440
EMP:	+150	EMP:	+1,160

West Towne to Westgate

Scenario 'A'		Scenario 'B'	
HH:	+606	HH:	+6,815
POP:	+967	POP:	+10,904
EMP:	+3,449	EMP:	+6,550

Beltline

Scenario 'A'		Scenario 'B'	
HH:	+98	HH:	+1,700
POP:	+157	POP:	+2,720
EMP:	+1,671	EMP:	+4,160

Park Street

Scenario 'A'		Scenario 'B'	
HH:	+905	HH:	+2,270
POP:	+1,448	POP:	+3,633
EMP:	+1,879	EMP:	+3,390

John Nolen Drive

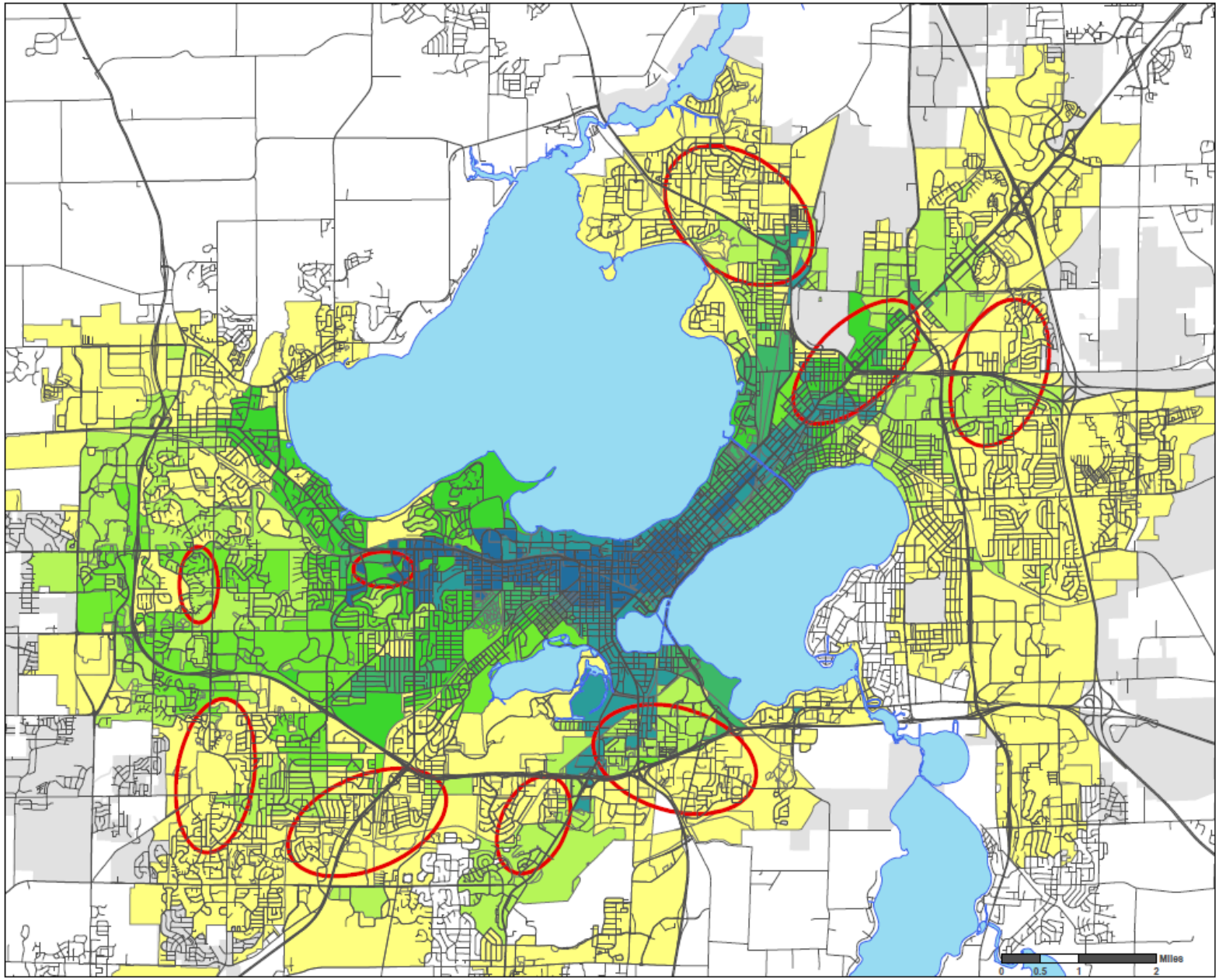
Scenario 'A'		Scenario 'B'	
HH:	+283	HH:	+800
POP:	+453	POP:	+1,280
EMP:	+750	EMP:	+2,500

Dutch Mill

Scenario 'A'		Scenario 'B'	
HH:	+41	HH:	+41
POP:	+66	POP:	+66
EMP:	+800	EMP:	+2,390

October 6, 2014

Public Transit: Housing/Employment Connections



MADISON IN MOTION
Sustainable Transportation Master Plan

Access to Opportunity

- Concentrated Low Income Areas

Jobs within 30 min via transit

- 0% - 5%
- 5.1% - 10%
- 10.1% - 15%
- 15.1% - 20%
- 20.1% - 25%
- 25.1% - 30%
- 30.1% - 40%
- 40.1% - 50%
- 50.1% - 65%
- City of Madison

Concentrated low income areas are generally comprised of census block groups having greater than 50% of the population in a household with an income less than 200% of the poverty level. Certain areas below this threshold have been added based on staffs judgement. Large non-residential areas have been removed from certain block groups to improve focus of diagram (airport, arboretum, etc.).

Source:
2014 ACS 5 Year Estimates Table C17002
Ratio Of Income To Poverty Level
Block Group Level
Madison Area Transportation Planning Board (MPO)
2010 Land Use

September, 2016

MiM: Public Transit Recommendations

- **Bus Rapid Transit (BRT)**
- **Local Bus Coordination/Improvements**
  - **Park-and-Ride**
  - **First-Mile/Last-Mile**
  - **Regional Transit Finance**

Bus Rapid Transit (BRT)

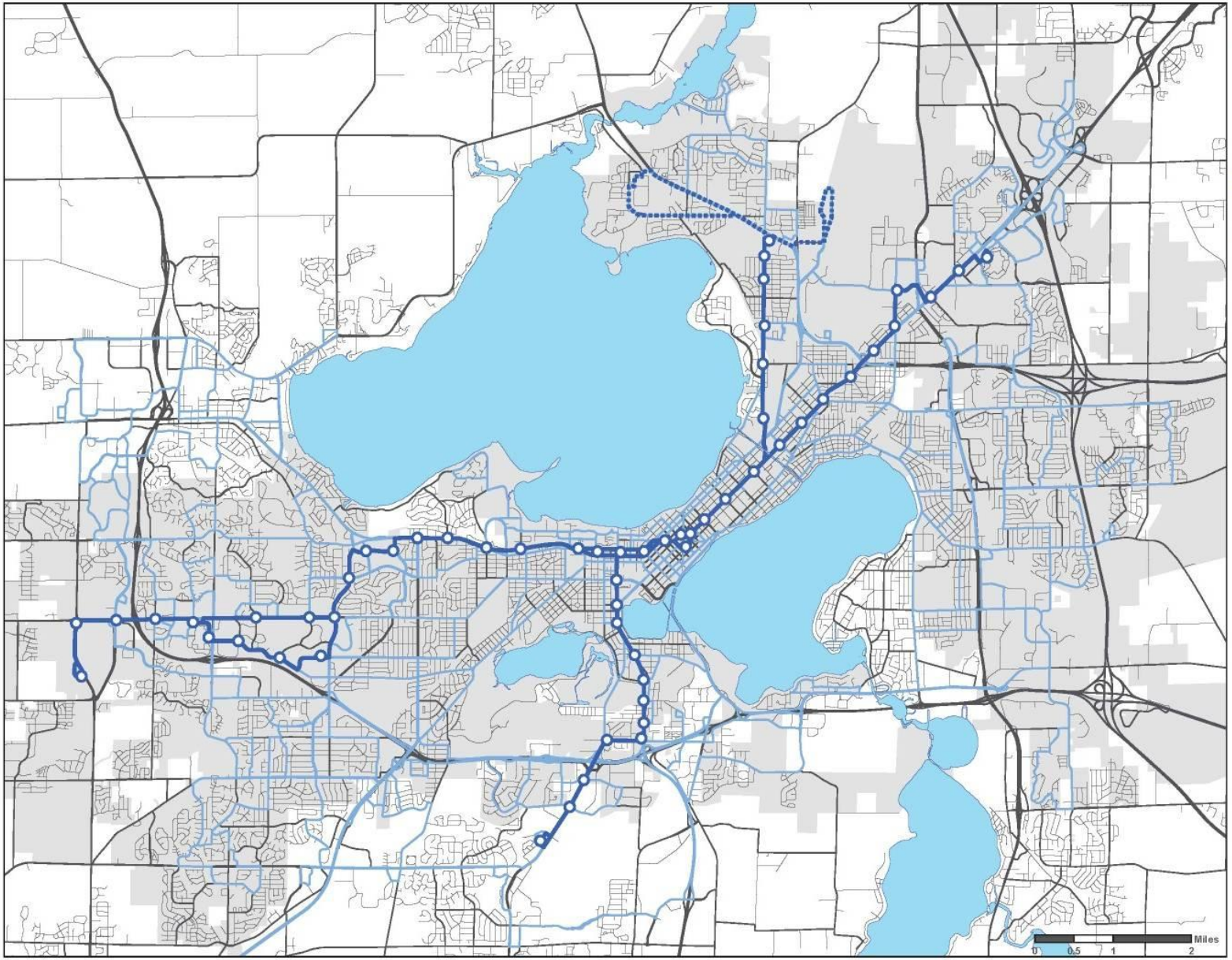
Madison Urban Area System Proposal

Bus Rapid Transit (BRT)
Conceptual Elements

BRT vs. Local Bus (differing characteristics)

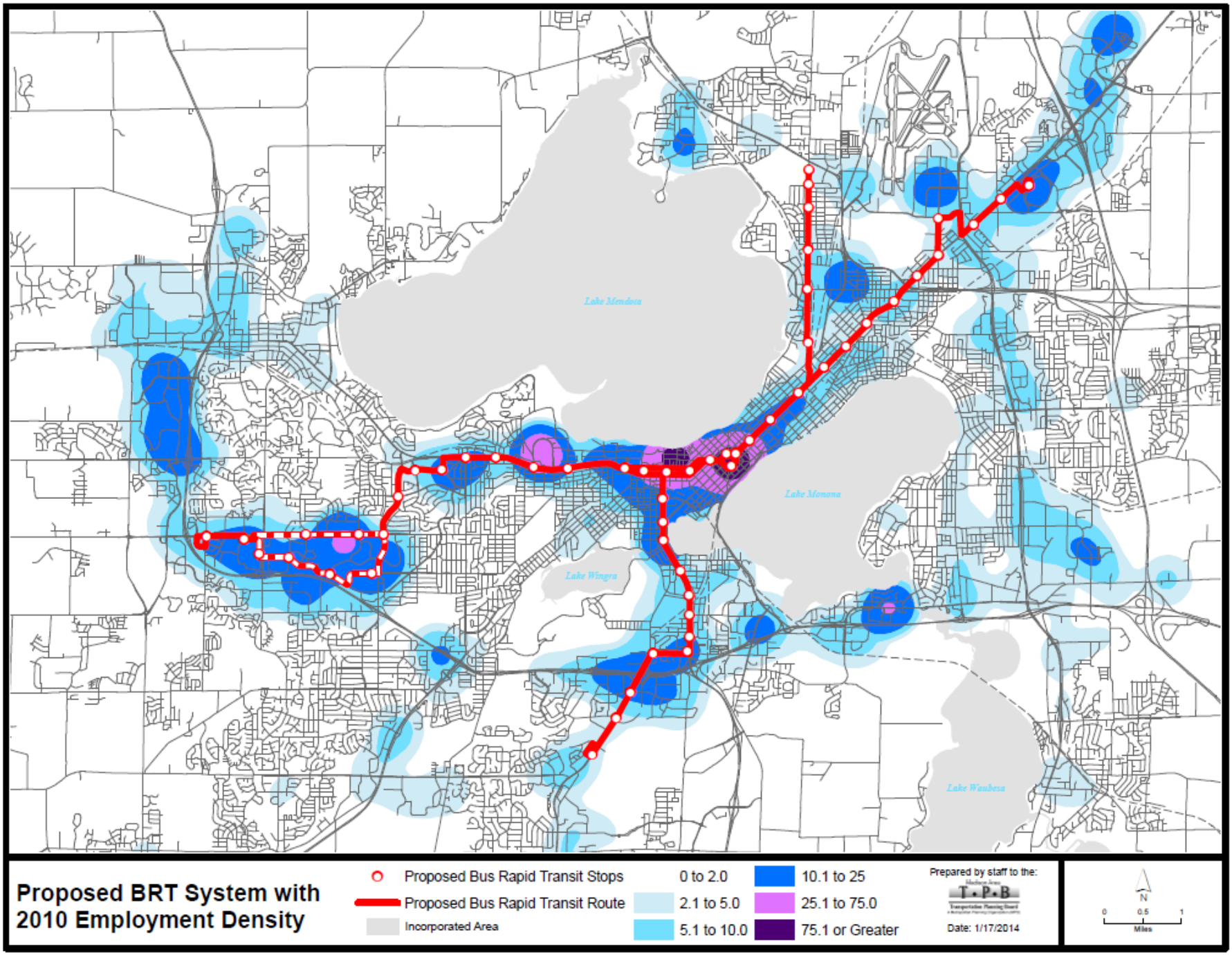
- Direct Routes/Fewer Stops
- Simple, Frequent All-Day Service (every 10-15 min.)
- Branded Stations and Buses
- Transit Signal Priority
- Off-Board Fare Payment
- Bus-Only Lanes (median or curb; full or partial)

Potential Bus Rapid Transit (BRT) Routes

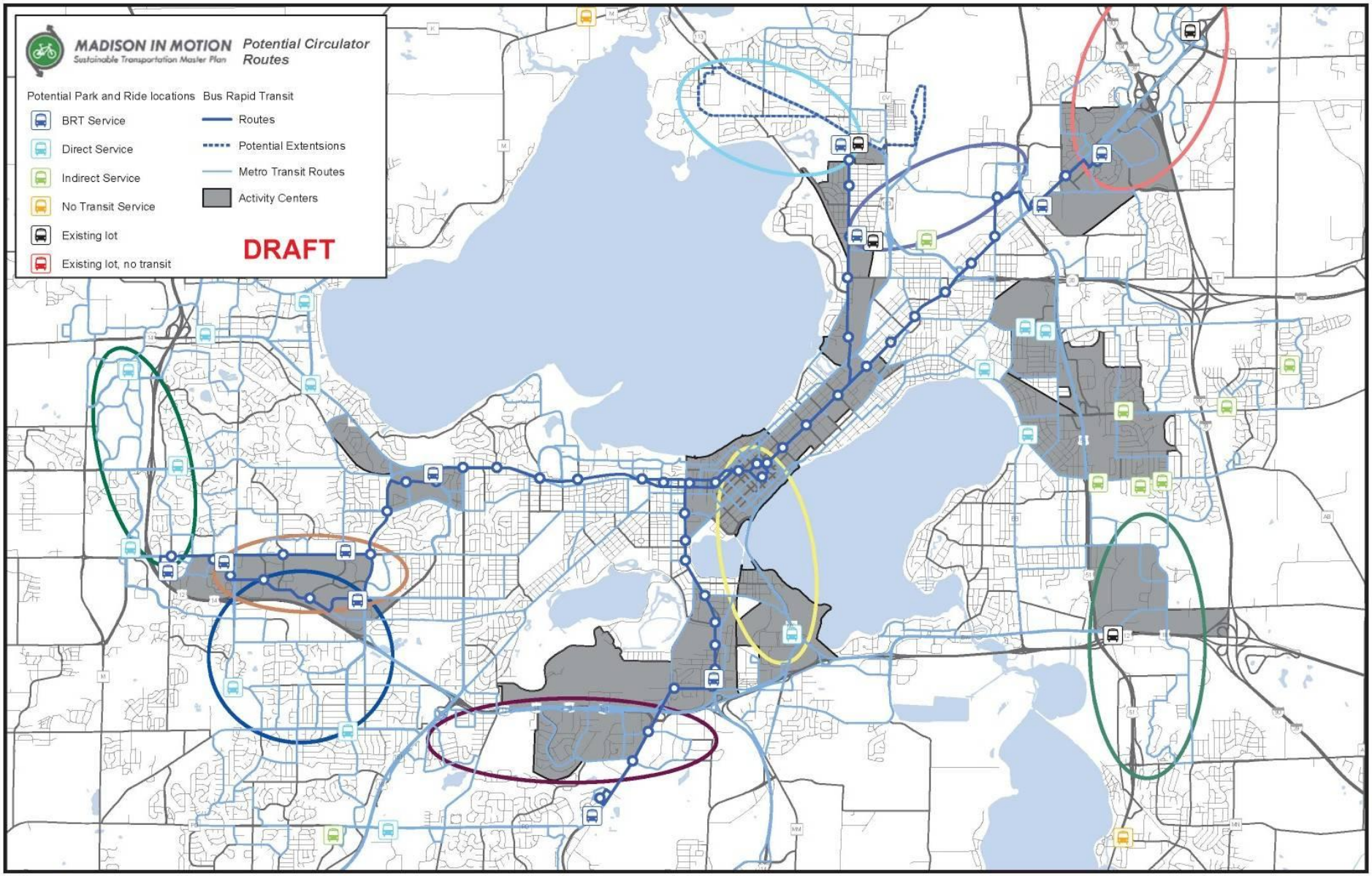


Source:
Madison Metro
MATPB (MPO)

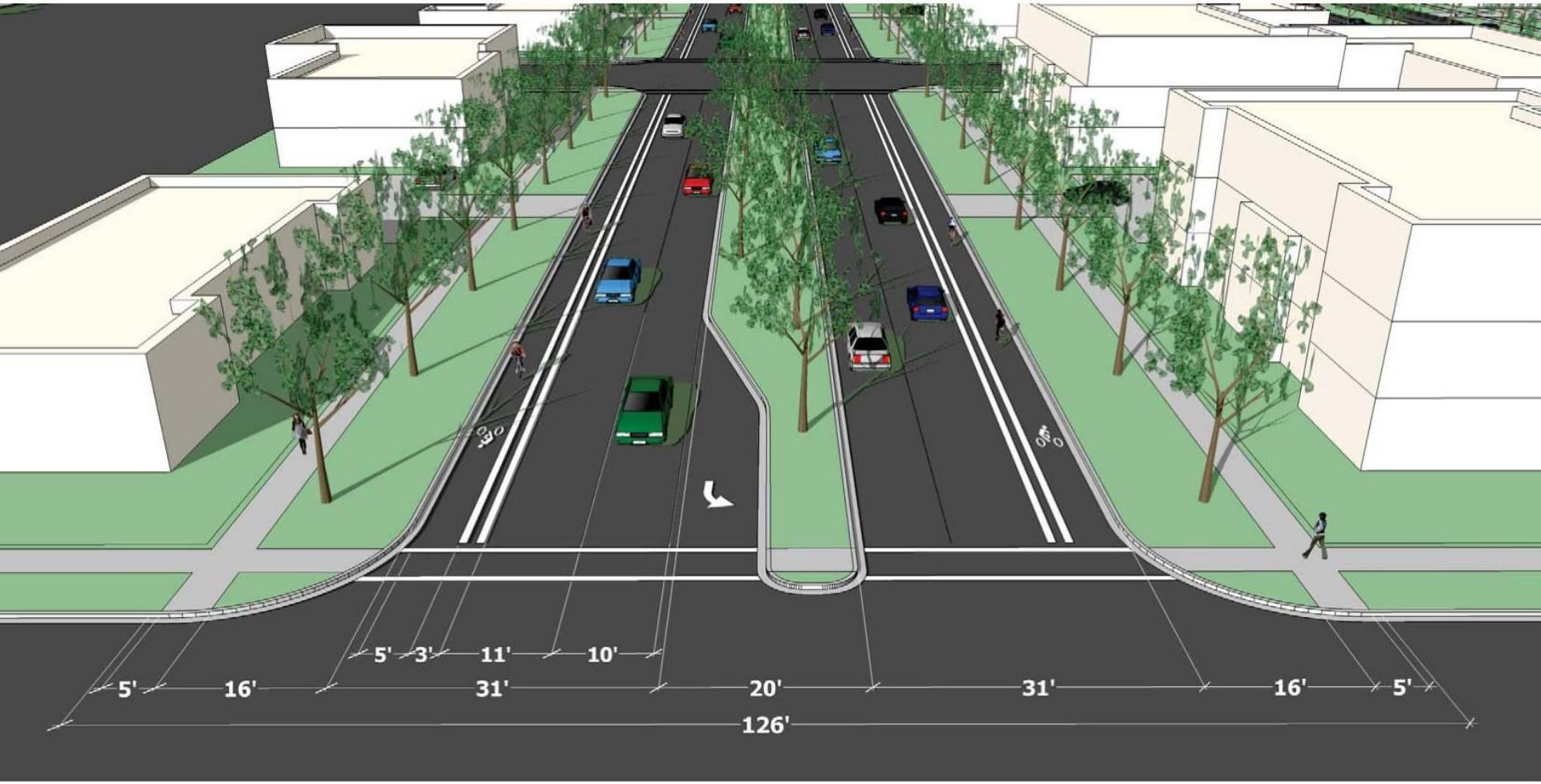
February, 2016


Lake Mendota
Lake Monona
Lake Wingra
Lake Waubesa
Proposed BRT System with 2010 Employment Density
Proposed Bus Rapid Transit Stops
Proposed Bus Rapid Transit Route
Incorporated Area
0 to 2.0
2.1 to 5.0
5.1 to 10.0
10.1 to 25
25.1 to 75.0
75.1 or Greater
Prepared by staff to the:
Date: 1/17/2014
N
0 0.5 1
Miles
User: pljpg
Path: M:\MPO_GIS\GIS_Users\Jeff_G\ArcMapPrj\BRT\BRT_w_Employment.mxd
Date Saved: 1/17/2014 2:10:48 PM

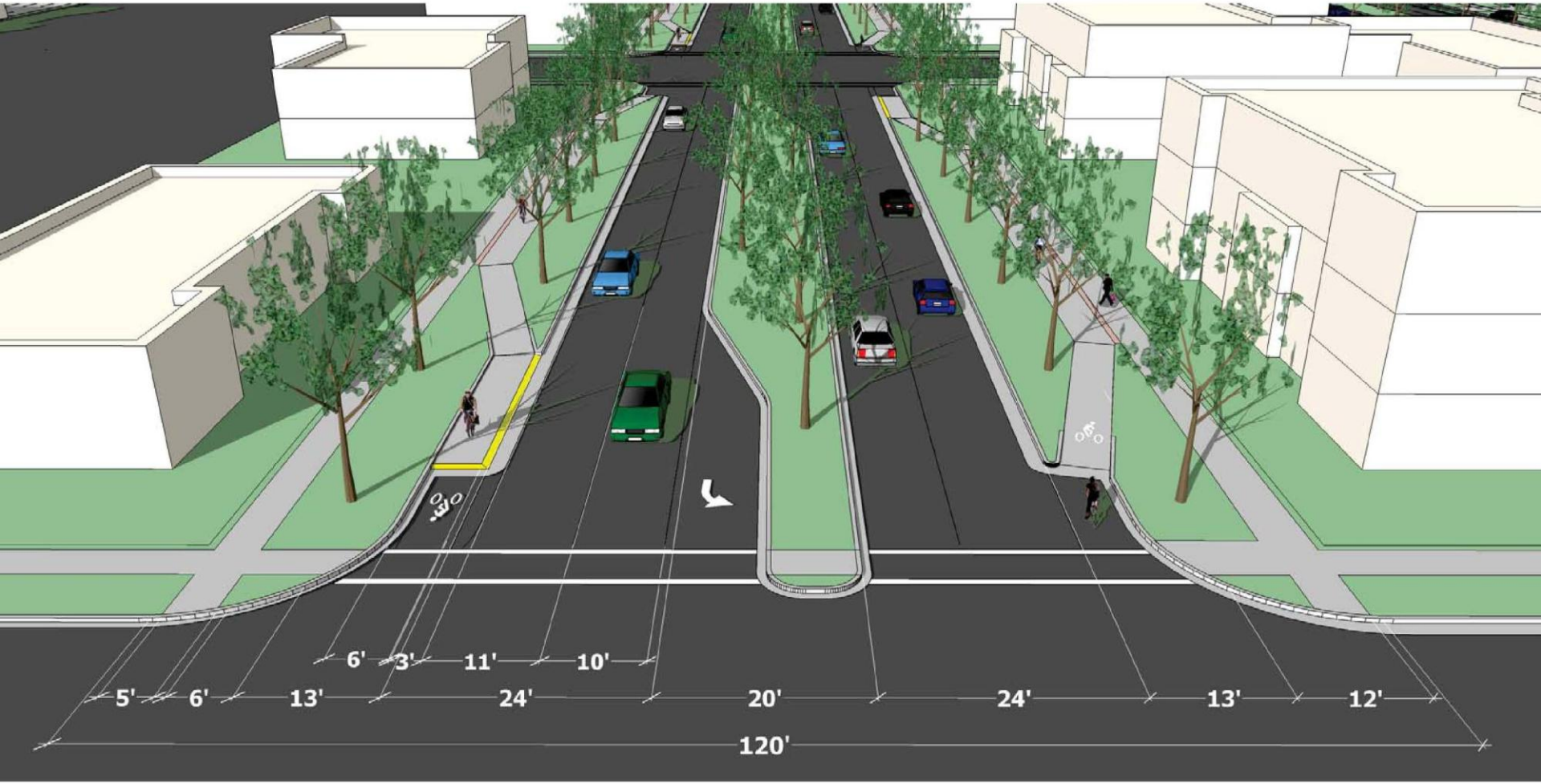
First-Mile/Last-Mile Opportunities



Street Typologies - Arterial Buffered Bike Lane



Street Typologies - Arterial Cycle Track



Madison in Motion: Next Steps

- Technological Change: Monitoring & Deployment
  - Implement Pilot Projects, as Appropriate

→ Real-Time Data re: Transportation Options

→ All-Mode Payment Cards (T-Card: transit, parking, car share, etc.)

→ Car Sharing Services (Car-2-Go, Zip Car, other?)

→ Electric Bicycles/Bike Sharing (B-Cycle)

→ Driverless Vehicles and Connected Vans

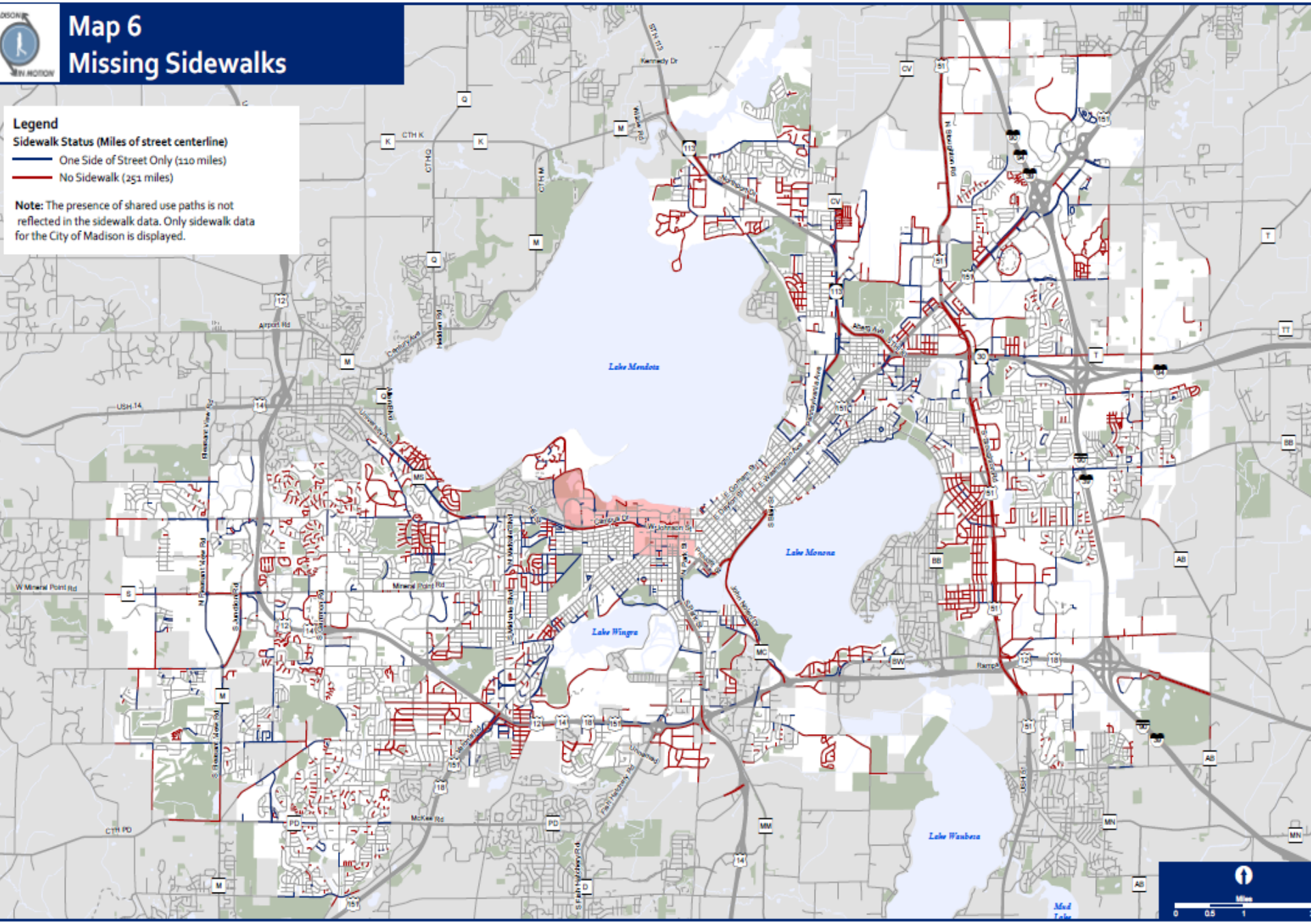
→ Fully-Automated Parking Facilities

MADISON MULTIMODAL TRANSPORTATION PLAN

MADISON IN MOTION

Pedestrian Network

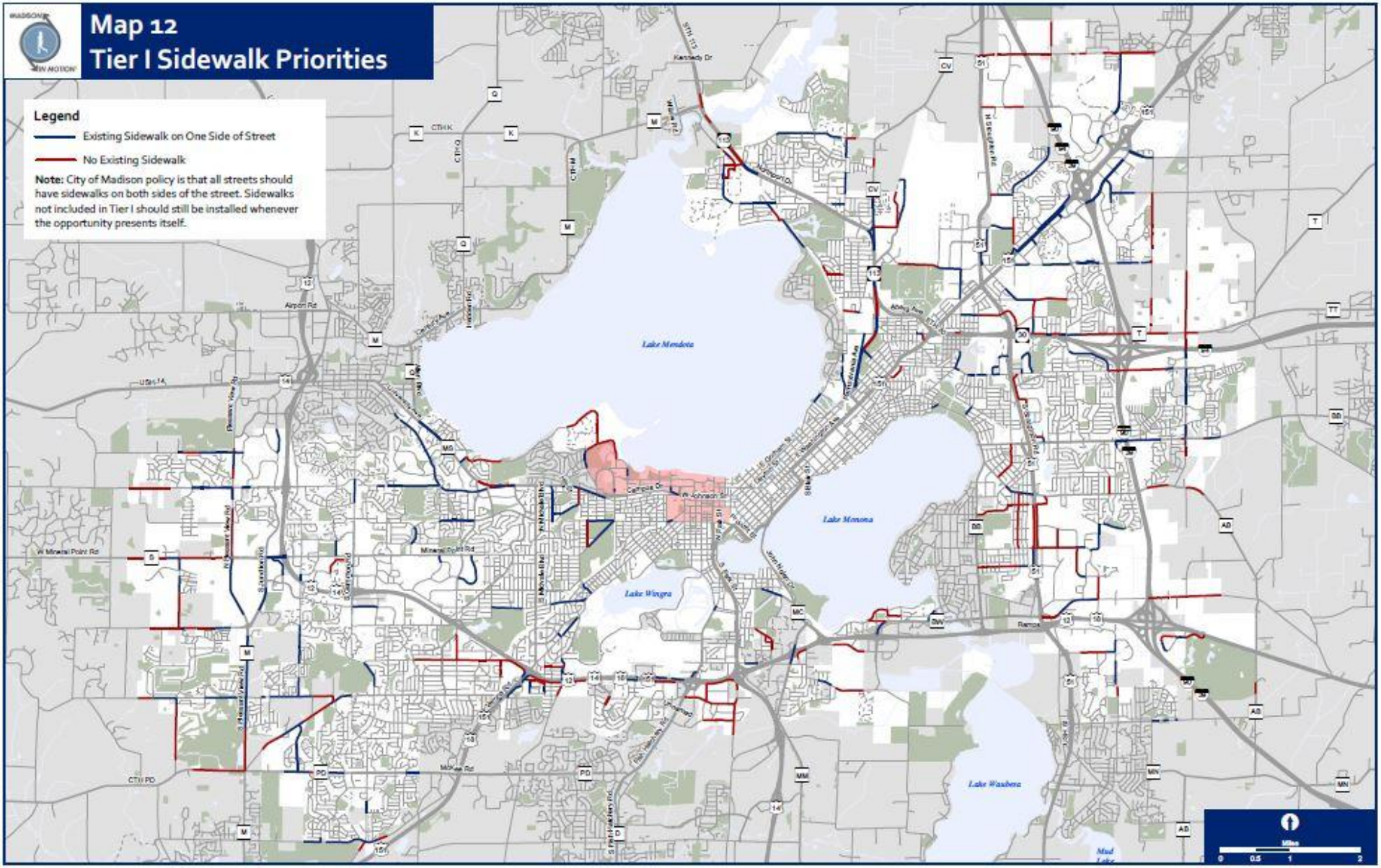
Map 6
Missing Sidewalks



Recommendations (Policy)

→ **Continue the City's sidewalk installation policy** in new development areas and existing neighborhoods.

→ **Prioritize Tier 1 Streets for sidewalk additions** without street reconstruction



Recommended Tier I Sidewalk Facilities

Pedestrian Facility Best Practices

Pedestrian Facility Types and Treatments

Sidewalk

- The pedestrian facility adjacent to most streets
- May be used by bicyclists in Madison when buildings are not immediately adjacent to the sidewalk
- Typically concrete and 5 feet wide, although wider sidewalks are desirable in areas with heavy pedestrian usage such as downtown

Shared Use Path

- Path fully separated from a street or road
- Typically paved and 10 - 12 feet wide
- Open to most non-motorized uses
- Often installed in urban areas in rail corridors, utility corridors or along streams, rivers or other linear features

Crosswalk - Marked

- A marked portion of a street for pedestrian use
- Connect pedestrian facilities on one side of a street to facilities on the other side of the street
- Pedestrians always have right-of-way in a crosswalk except at a signalized intersection where they must follow the appropriate signal

Crosswalk - Unmarked

- The unmarked connection between a pedestrian facility on one side of a street to a pedestrian facility on the other side of the street
- Pedestrians always have right-of-way in a crosswalk, marked or unmarked, except at a signalized intersection where they must follow the appropriate signal indication

Woonerf / Play Street

- Street designed primarily for use by pedestrians and bicyclists with limited motor vehicle use
- Encourage social interactions and allow place for children to play and people to congregate
- Generally at sidewalk level without curbs
- Motor vehicles are allowed to use street, but at very low speeds that are compatible with the other uses
- Photo courtesy John Greenfield / Streetsblog

Pedestrian Hybrid Beacon

- Pedestrian-activated warning device located at mid-block pedestrian crossings
- Beacon is dark until activated by a pedestrian; when activated the beacon displays a yellow signal followed by a red signal to drivers and a "walk" signal to pedestrians
- Image courtesy FHWA

Rectangular Rapid Flashing Beacon

- Pedestrian-activated warning device located at pedestrian crossings
- Beacon is dark until activated by a pedestrian; when activated the beacon flashes yellow strobe lights to indicate to drivers that a pedestrian is present

Median Refuge Island

- Median in the center of a street that provides space for pedestrians crossing the street
- Allows pedestrians to cross one direction of traffic at a time
- Makes it easier to cross busier streets where traffic may not yield to pedestrians

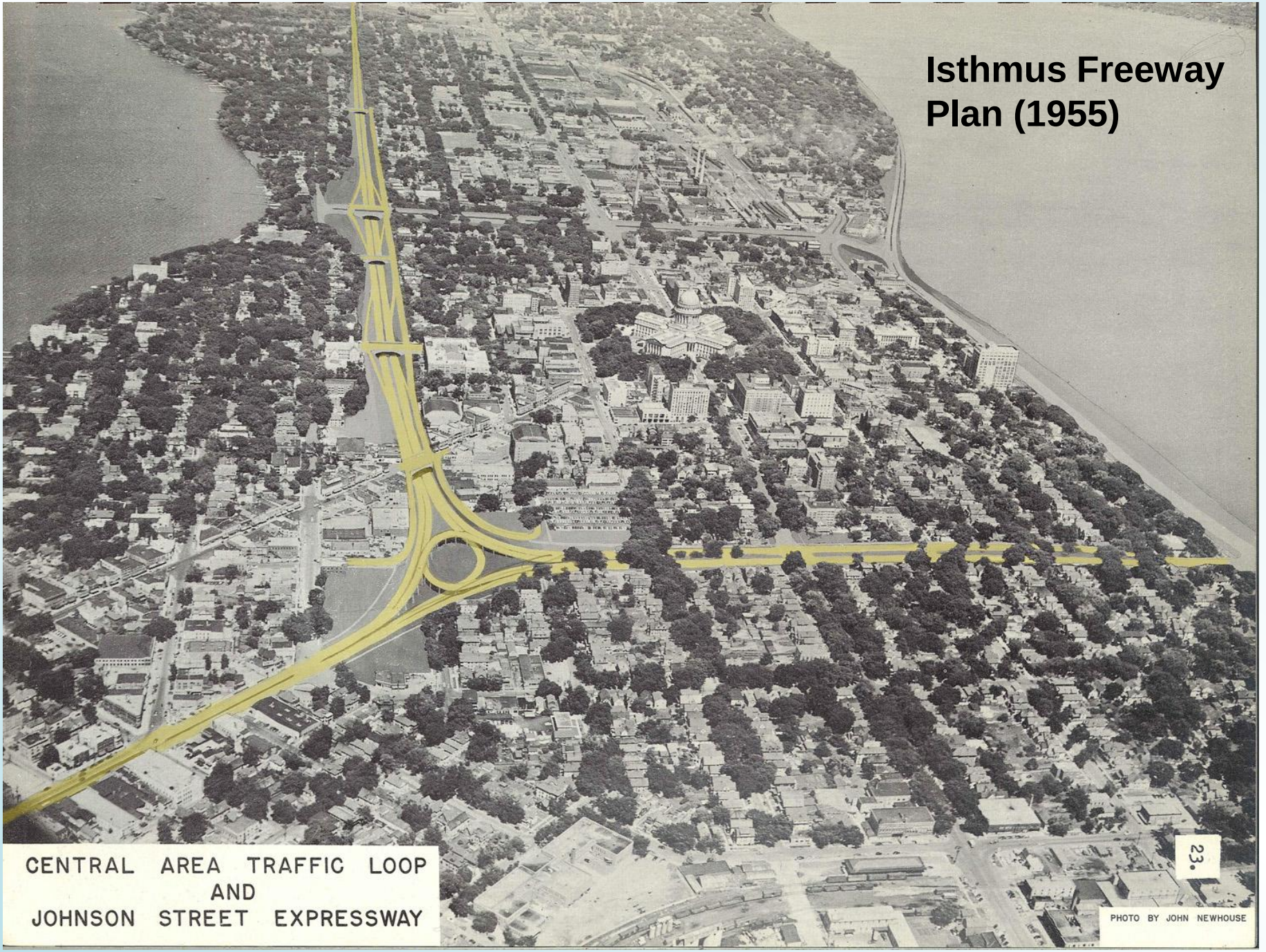
Pedestrian Bumpout / Curb Extension

- Area where a curb is extended into the street
- Shortens the street crossing distance for pedestrians
- May reduce traffic speeds by narrowing the usable roadway

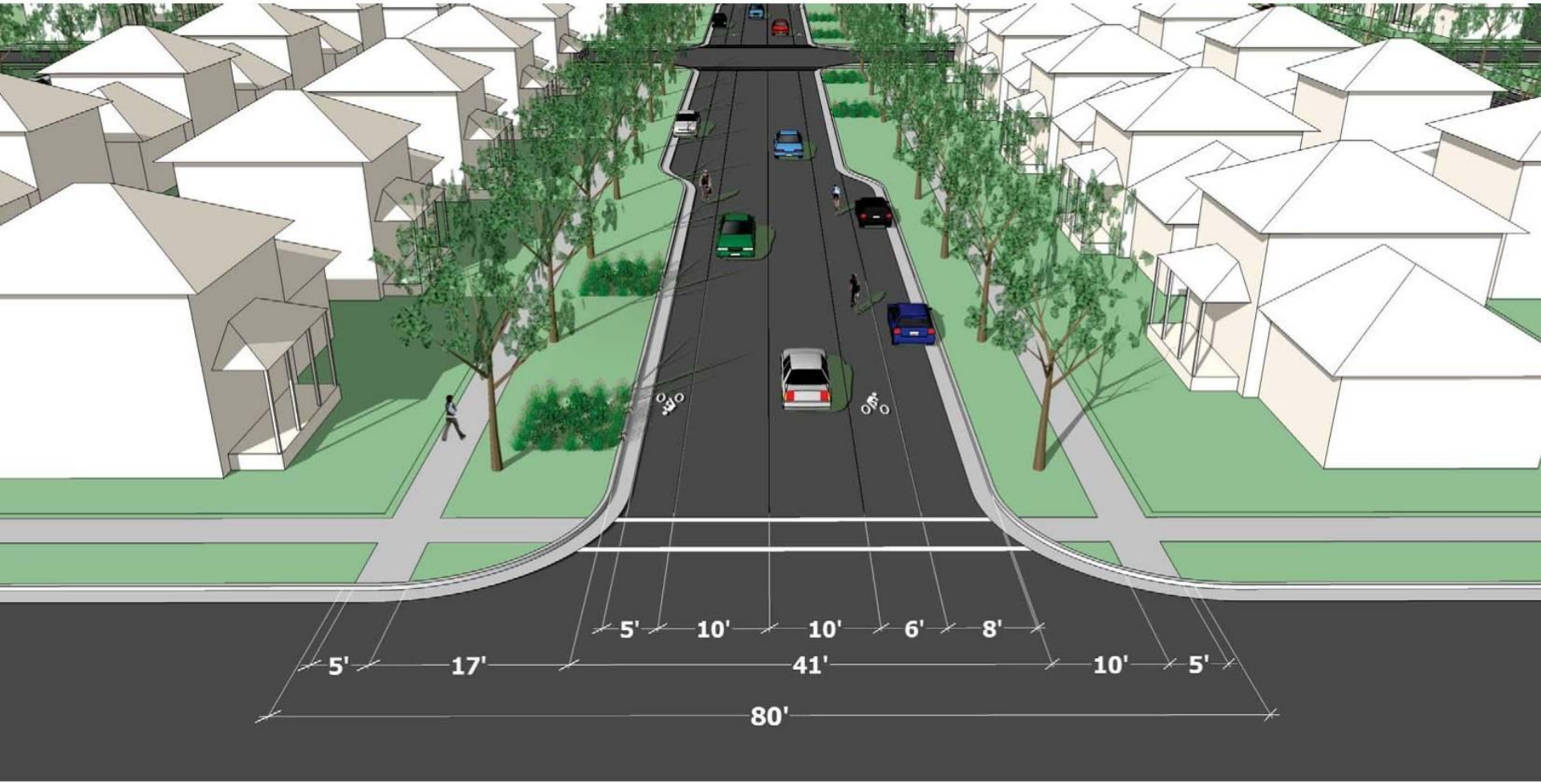
Wayfinding Signage

- Signage to indicate to users the direction to specific locations
- May include distance and approximate travel time
- Placed at key intersections and decision points

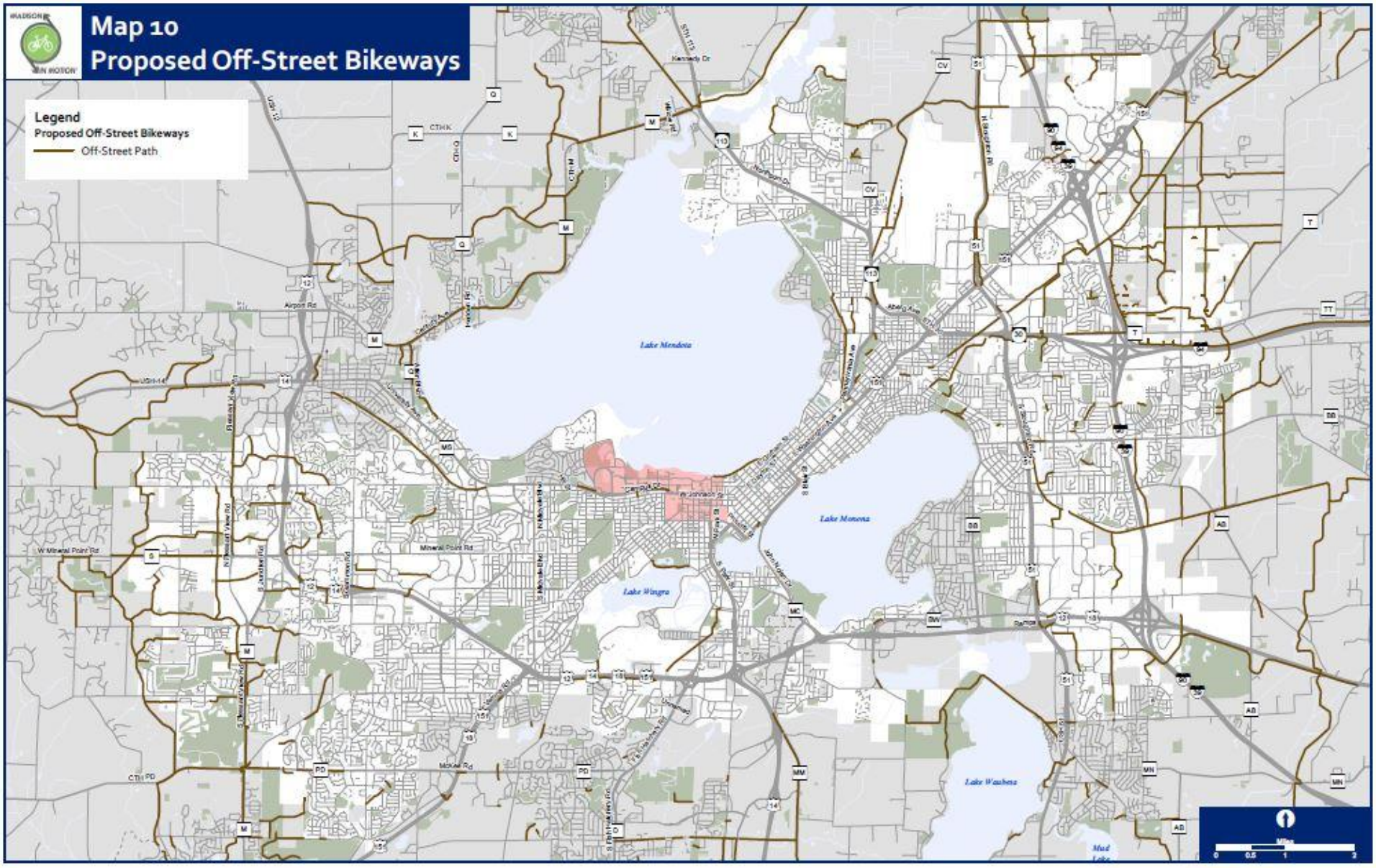
Streets and Roadway Recommendations


Isthmus Freeway
Plan (1955)
CENTRAL AREA TRAFFIC LOOP
AND
JOHNSON STREET EXPRESSWAY
23.
PHOTO BY JOHN NEWHOUSE

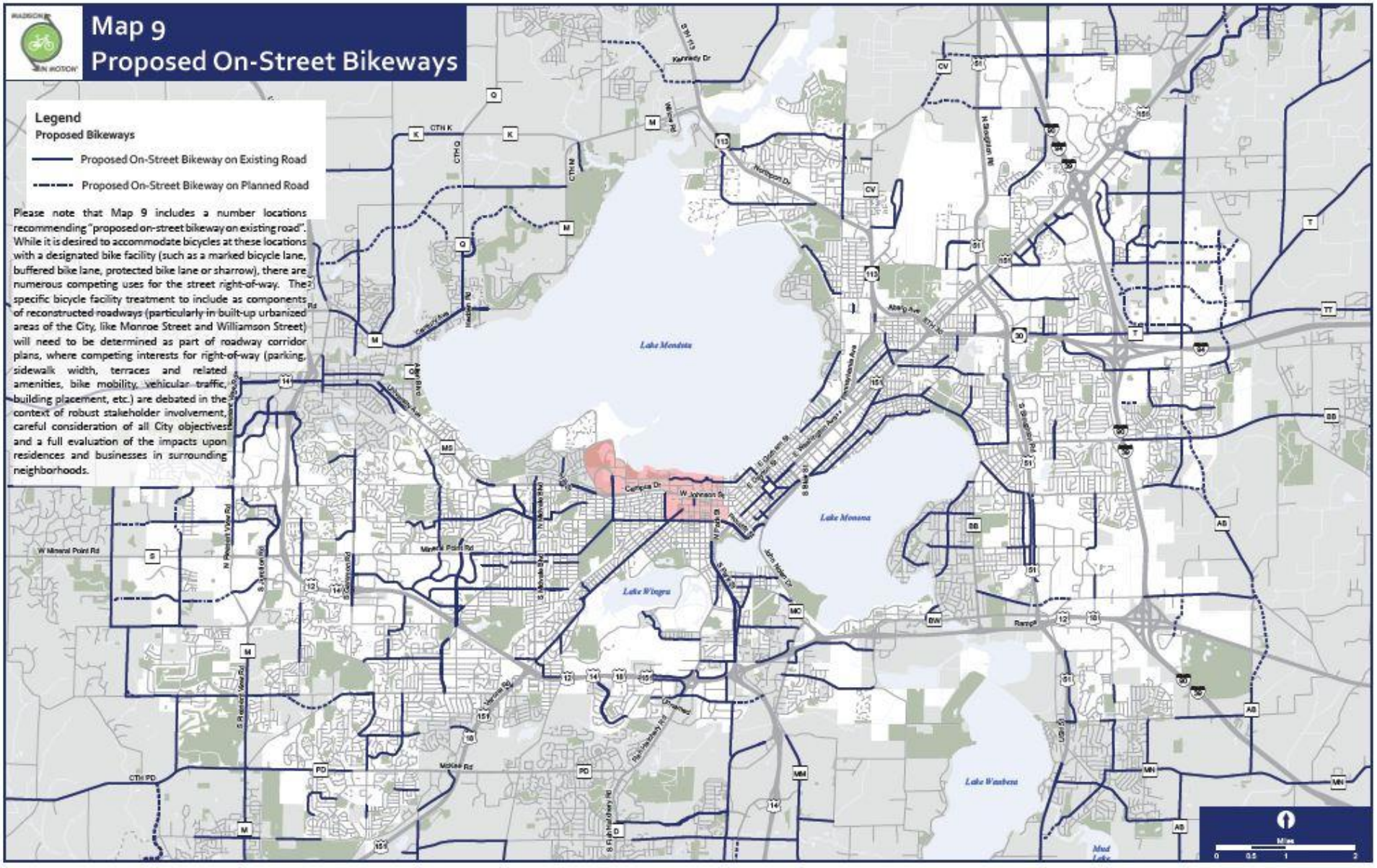
Street Typologies - Collector Chicane



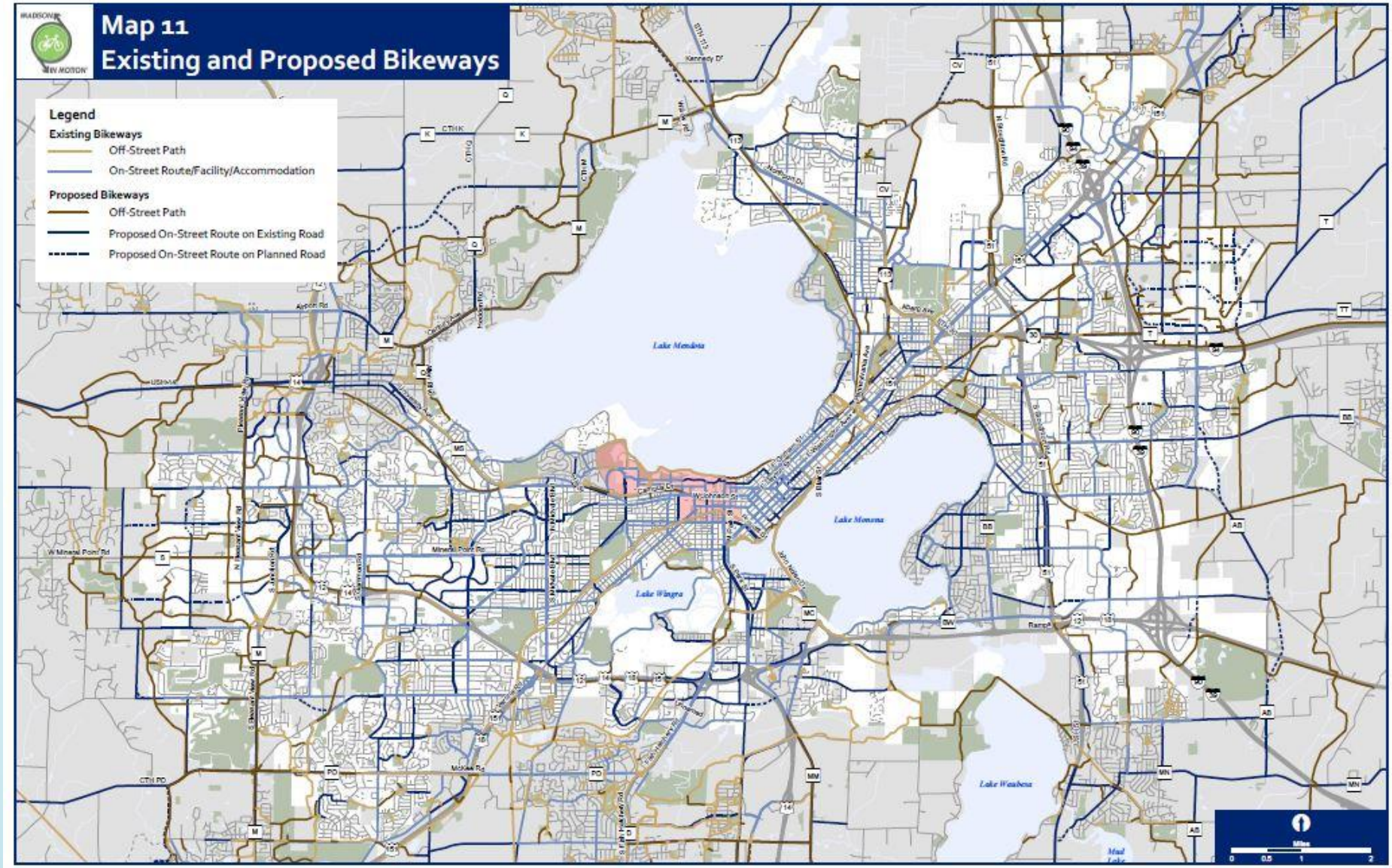
Bicycle System Recommendations



Recommended Off-Street Bicycle Facilities



Recommended On-Street Bicycle Facilities



Existing and Proposed Bikeways

Facility Best Practices

Protected Bike Lanes

Bicycle Facility Types and Treatments

Bicycle Lane – Conventional or Counterflow

- Designated space exclusively for bicyclists with pavement markings and signage
- Located adjacent to vehicle travel lanes
- Generally flows with vehicle traffic, on the right side of the street, but can be counterflow and/or on the left
- Used on medium and high volume streets
- May use green color to highlight the lane, particularly through intersections and conflict areas

Bicycle Lane – Buffered

- Conventional bicycle lanes paired with a designated painted buffer space
- Buffer may separate the bicycle lane from the motor vehicle travel lane, the parking lane or both
- Increases operating space and comfort for bicyclists
- Typically used on medium and high volume streets
- May use green color to highlight the lane, particularly through conflict areas

Bicycle Lane – Protected

- Bicycle facility within the street right of way that provides physical separation from the travel lane
- Separation may be provided with curbs, bollards, parked cars or other means
- Cycle track may be at street level, sidewalk level or an intermediate level
- Typically used on medium and high volume streets with few intersections or driveways

Shared Lane Marking ("Sharrow")

- Street markings used to indicate a shared lane for bicyclists and motorists
- Sharrows indicate to bicyclists where they should position themselves in a lane
- Sharrows reinforce to motorists that bicyclists belong in the lane
- Typically used on low- and medium-volume streets where bicycle lanes cannot be accommodated

Bicycle Boulevard

- Streets with low motorized traffic volumes and speeds designated to provide priority to bicyclists
- Discourage speeding and cut-through traffic
- Often used to connect schools and parks and as an alternative to a nearby busy street
- May include traffic calming devices such as speed tables or traffic circles

Shared Use Path / Sidepath

- Path fully separated from a street or road
- Typically paved and 10 - 12 feet wide
- Open to most non-motorized uses
- Often installed in rail corridors, utility corridors or along streams, rivers or other linear features
- Sidepaths are shared use paths parallel to a street
- Sidepaths can present safety and operational challenges at intersections and driveways

Bicycle Signal

- Traffic signal to indicate bicycle movements at an intersection
- Can be user activated or a programmed signal phase
- Bicycles and motor vehicles have different movement cycles

Bicycle Crossing

- Exclusive street crossing for bicycle facilities or shared use paths.
- May be parallel to an adjoining street or crosswalk (ie. the Monroe/Regent crossing) or a diagonal crossing of an intersection (ie. Atwood @ Dunning)
- Reduces conflicts with pedestrians and motor vehicles
- Typically use a bicycle signal to control movements

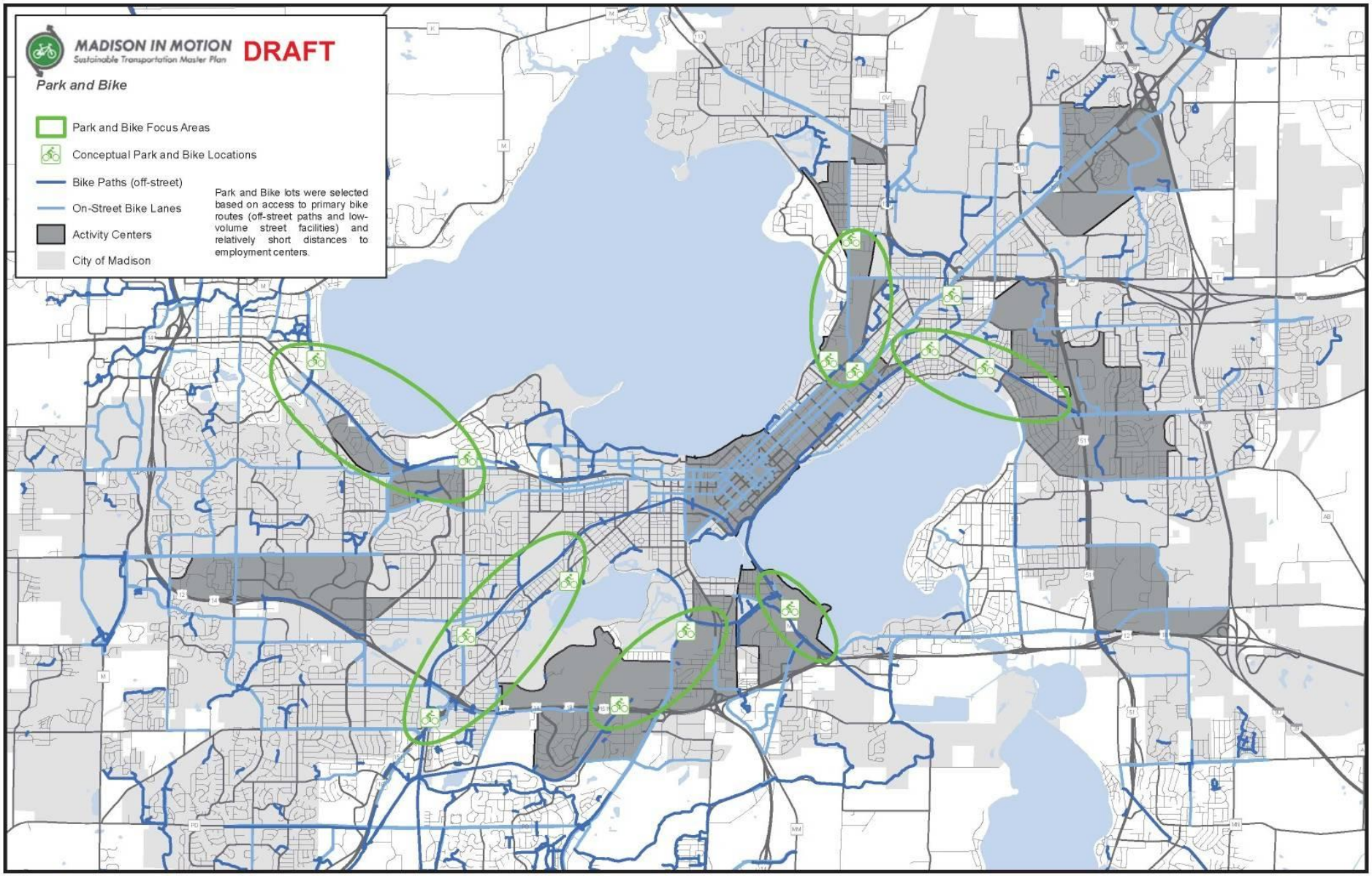
Colored Pavement Treatment

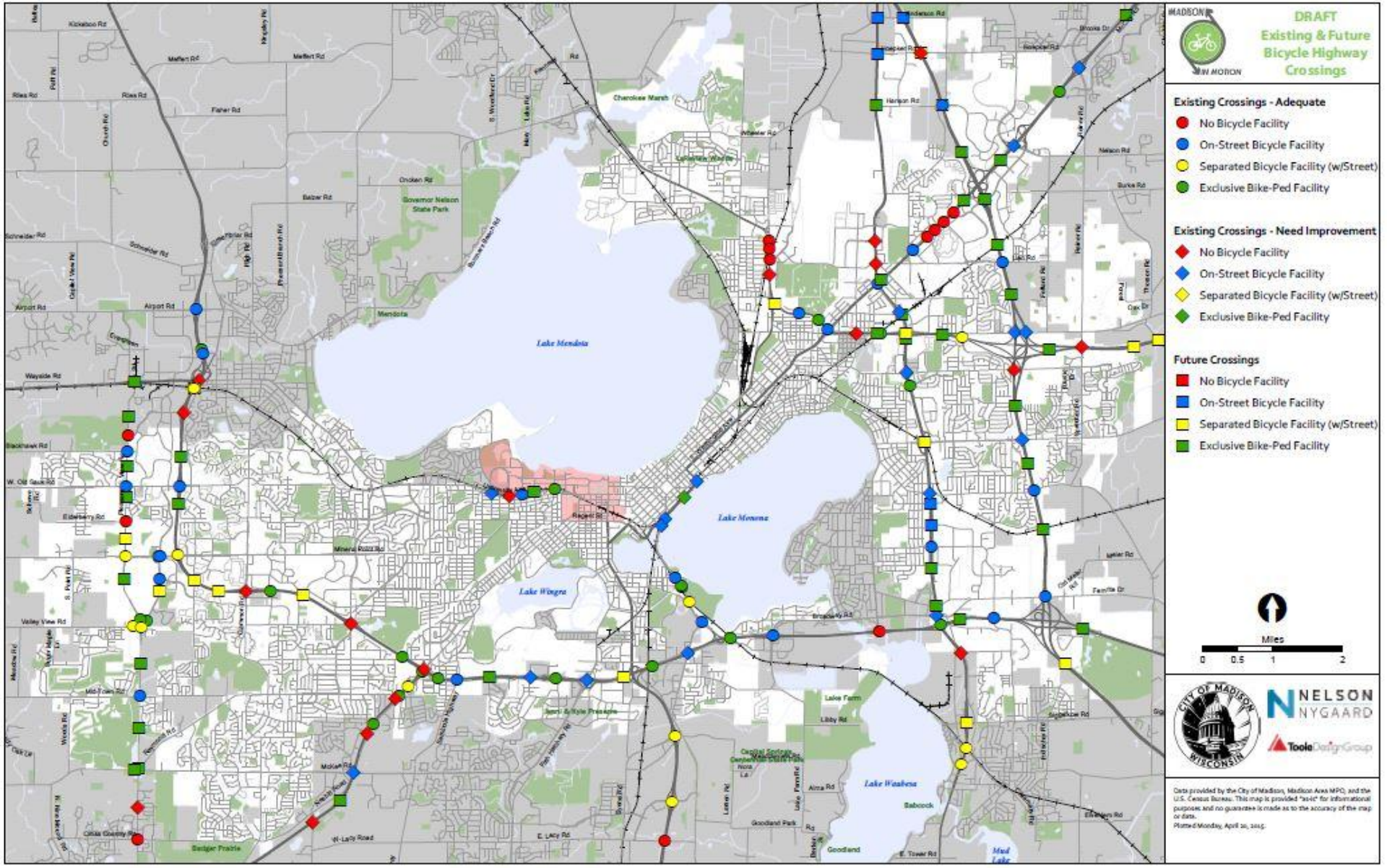
- Colored lane markings to highlight bikeway crossings of streets, continuous lanes, or potential conflict areas
- Green colored and often marked with cyclist icon
- May be solid colored or striped

Wayfinding Signage

- Signage to indicate direction to major destinations, areas of interest and key bicycle facilities
- May include distance and approximate travel time
- Placed at key intersections and decision points

Park and Bike Opportunities





Bicycle/Pedestrian Facility Crossing Evaluation

Addressing System Gaps & Barriers