Complete Green Streets Guide

City of Madison

Renee Callaway, Pedestrian Bicycle Administrator

DEPARTMENT OF TRANSPORTATION

Why Develop this Guide?

Current policies, practices, and ordinances have moved us to wider street

Right Sized Streets

28 feet wide

48 feet wide

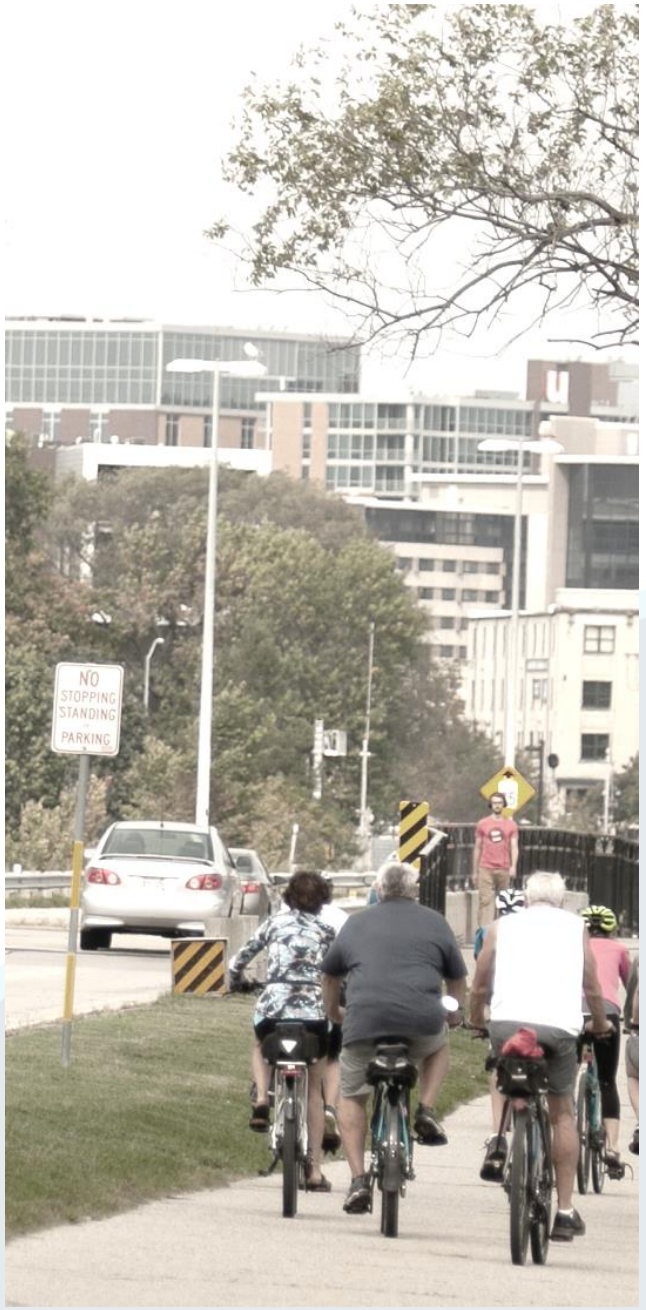
Resident Concerns Over Streets & Safety

Wide streets with low parking utilization lead to people driving fast

Residents want street design changes, even for relatively new streets

Building Better Streets

- **Human Centered Streets**, acknowledging the travel needs of unprotected users (people walking and biking). A street should provide safe accommodations for everyone.
- **Right-sized Streets**, that are not overbuilt. Streets should be designed for today's needs, with additional right of way reserved for the future if needed.
- **Green Infrastructure**, that helps our right of way become both sustainable and a welcoming public place.



Principles of Complete Green Streets

- Complete Streets are for everyone, no matter who they are or how they travel.
- There is no one design of a Complete Street. Each street design considers the specific context of the community, neighborhood & street.
- A Complete Street is designed & operated in a way that prioritizes safety, comfort, and access for people.
- Green streets are part of a healthy, equitable design that are part of designing for a City's resilience.

PROJECT TIMELINE

Winter 2020/2021
Project Initiation and "Street Stats" Analysis

Spring 2021
"Let's Talk Streets" Campaign Launch

Summer 2021
Understanding Community Values

- Street Values

Fall 2021
Confirming Priorities

- Street Use Hierarchy

Fall 2021 - Spring 2022
Translating Values to Decision Tools

- Street Typology
- Overlays and Modal Priority Networks
- Equity Framework & Process
- Tree Canopy and Green Infrastructure Guidance

Summer 2022
Ironing Out the Details

Fall 2022 - Winter 2023
Finalization and Plan Adoption

- Key Engagement Milestone
- Key Deliverable

Engagement

Three phases of engagement

- Listening Phase
- Reflecting Phase
- Testing Phase

Online surveys, a virtual open house, a webinar

One survey focused on gathering input from people with disabilities

Online videos

Each phase had focus groups to talk with people of color & low income residents

Complete Green Streets: Street Design Impact

A process centered in community values

Clear direction on priorities

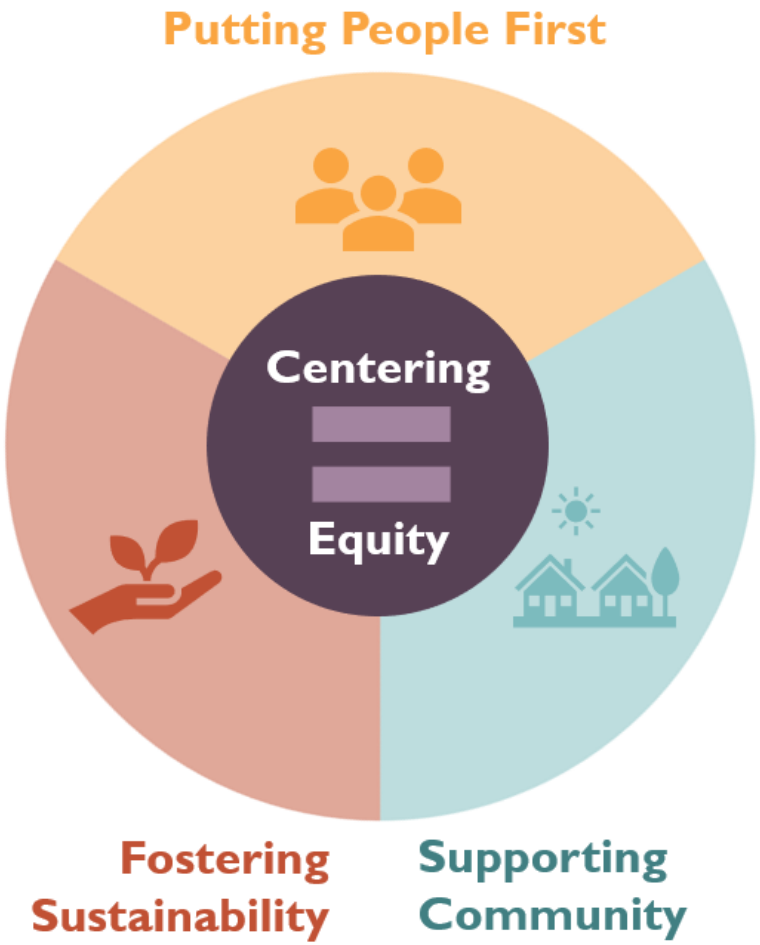
Defined street types to use as starting point for design

Explicit equity framework and associated process

Flexible tool that will evolve over time as Madison evolves

Guide - Process Overview

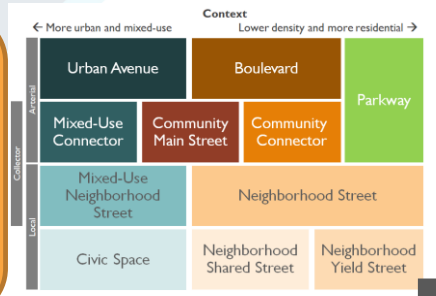
Street Values & Modal Hierarchy



Process and elements

Values

Street Types



Overlays

- **Equity Priority Areas** (includes additional process elements)
- **Transit Priority Network** (prioritizes transit on high frequency transit routes)
- **All Ages and Abilities Bike Network** (key corridors to prioritize high-comfort bikeways)
- **Tree Canopy Priority Areas** (includes detailed decision matrix)
- **Green Infrastructure Priority Areas** (includes detailed decision matrix)
- **NHS* & Truck Routes** (higher traffic streets)

Identify Street Design Priorities

Allocate Street Zone Space

Street Type	Typical # of Travel Lanes (not including any bike facility)	Target Speed (miles per hour)	Typical ADT (motor vehicles)	Total Pavement Width Includes travel lanes, bike facility and any parking (curb to curb)		
				Max.	Typ.	Min.
Urban Avenue	4-6	25	>20,000	102'	96'	74'
Boulevard	4-6	25-30	>14,000	102'	80'	74'
Parkway	2 or 4-6	25-35	>10,000	86'	66'	26'
Mixed-Use Connector	2	25	3,000 to 15,000	56'	40'	38'
Community Main Street	2-3	25	10,000 to 20,000	56'	56'	38'
Community Connector	2-3	25	3,000 to 14,000	66'	54'	24'
Mixed-Use Neighborhood Street	2 lanes, often no centerline	20	<3,000	38'	36'	30'
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Civic Space	2 lanes, often no centerline	15	<2,000	52'	Varies	20'
Neighborhood Shared Street	No centerline	10-15	<500	20'	20'	19'

Design

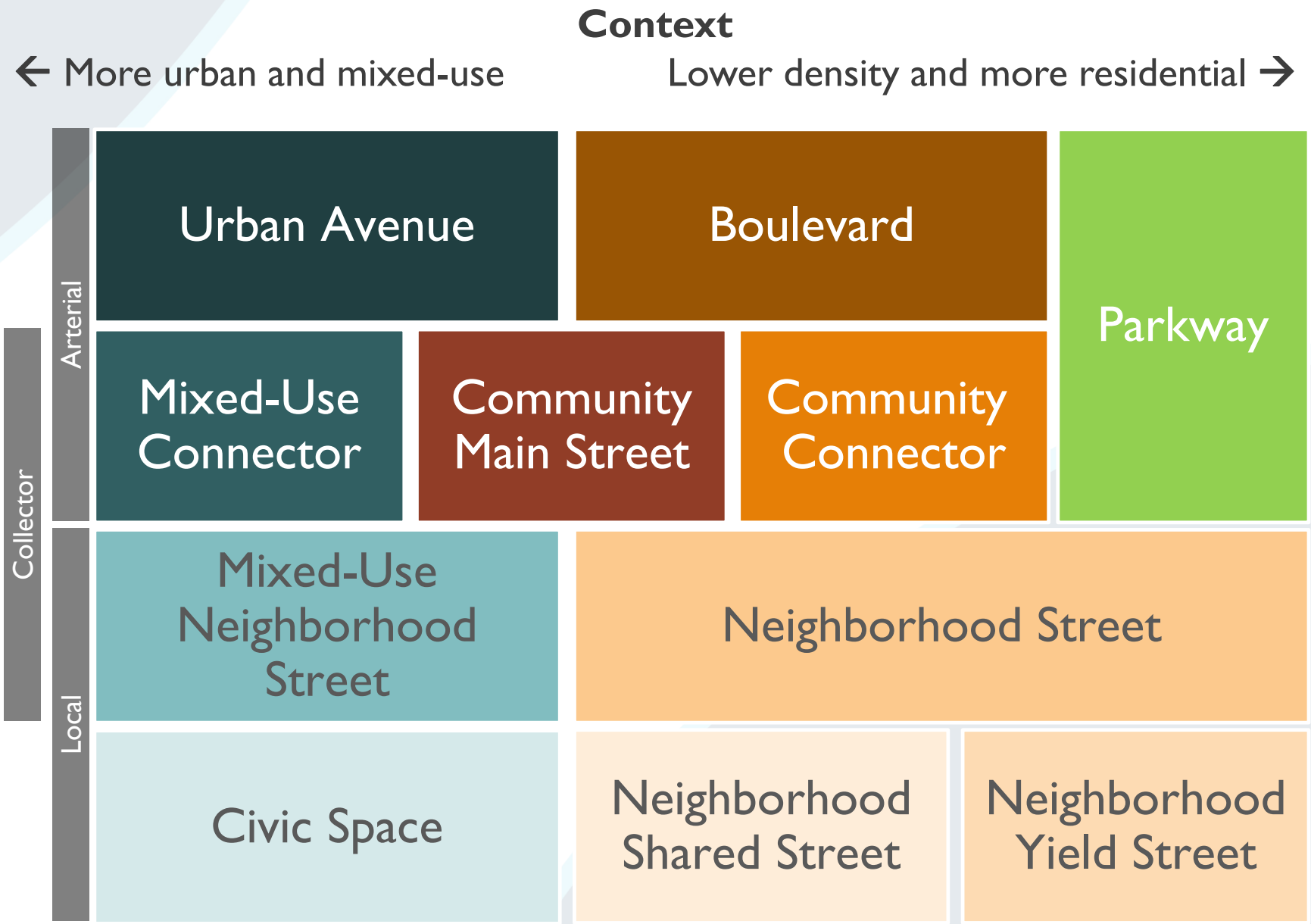
If constrained space, determine tradeoffs

Street Types

CGS is built around a collection of 11 street types (the typology) that describe the spectrum of current and future streets in Madison. They serve as starting points for street design.

The types are based on context and the amount of varied activity occurring.

They are intended to be aspirational.



Street Zones

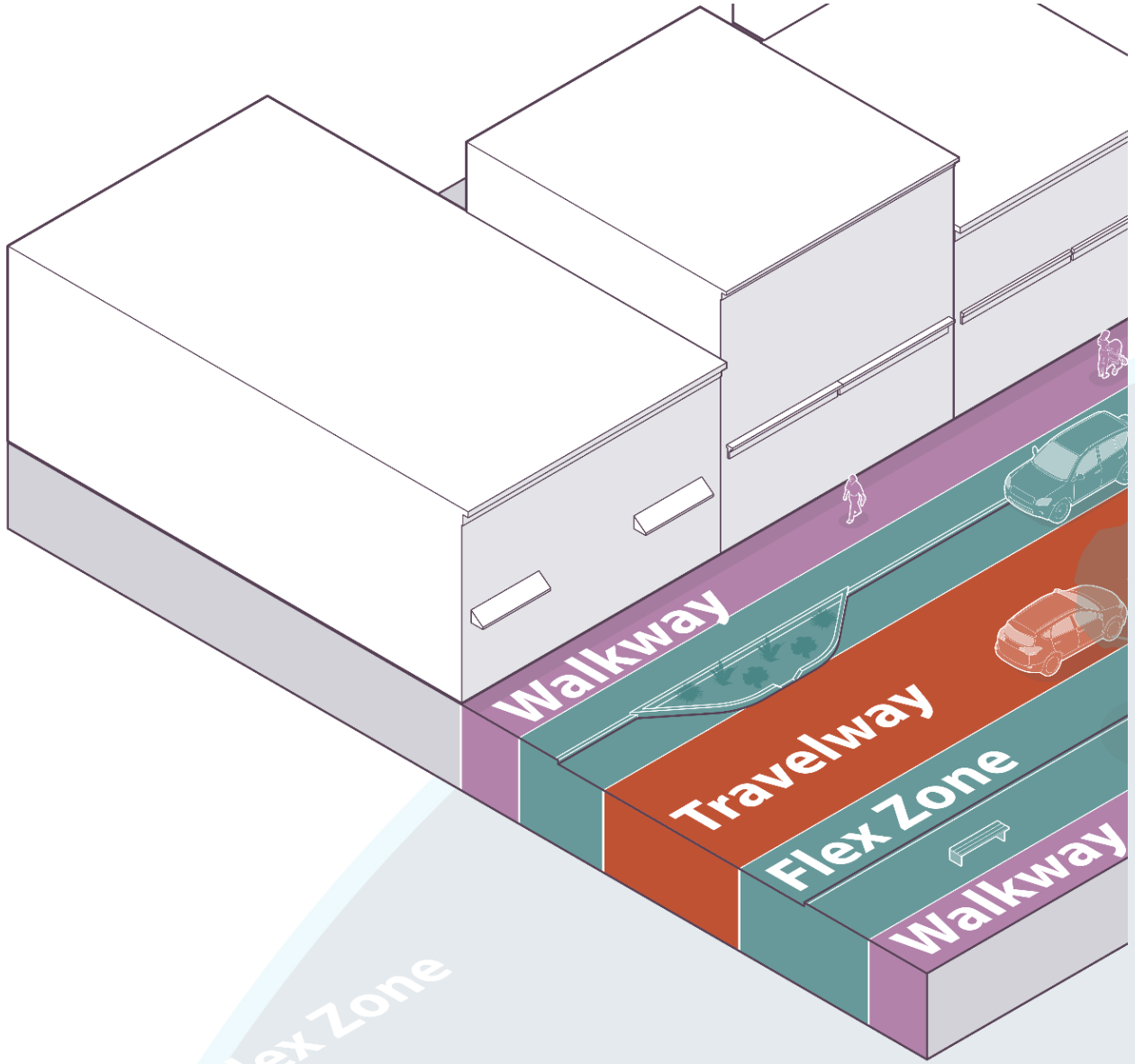
Each street type is divided into zones.

Movement (walking, biking, driving) happens in the walkway and travelway.

Bike facilities might be part of the travelway (lanes or cycletrack) or part of the walkway (a path).

Stationary uses (parking, cafes, trees) occur in the flex zone.

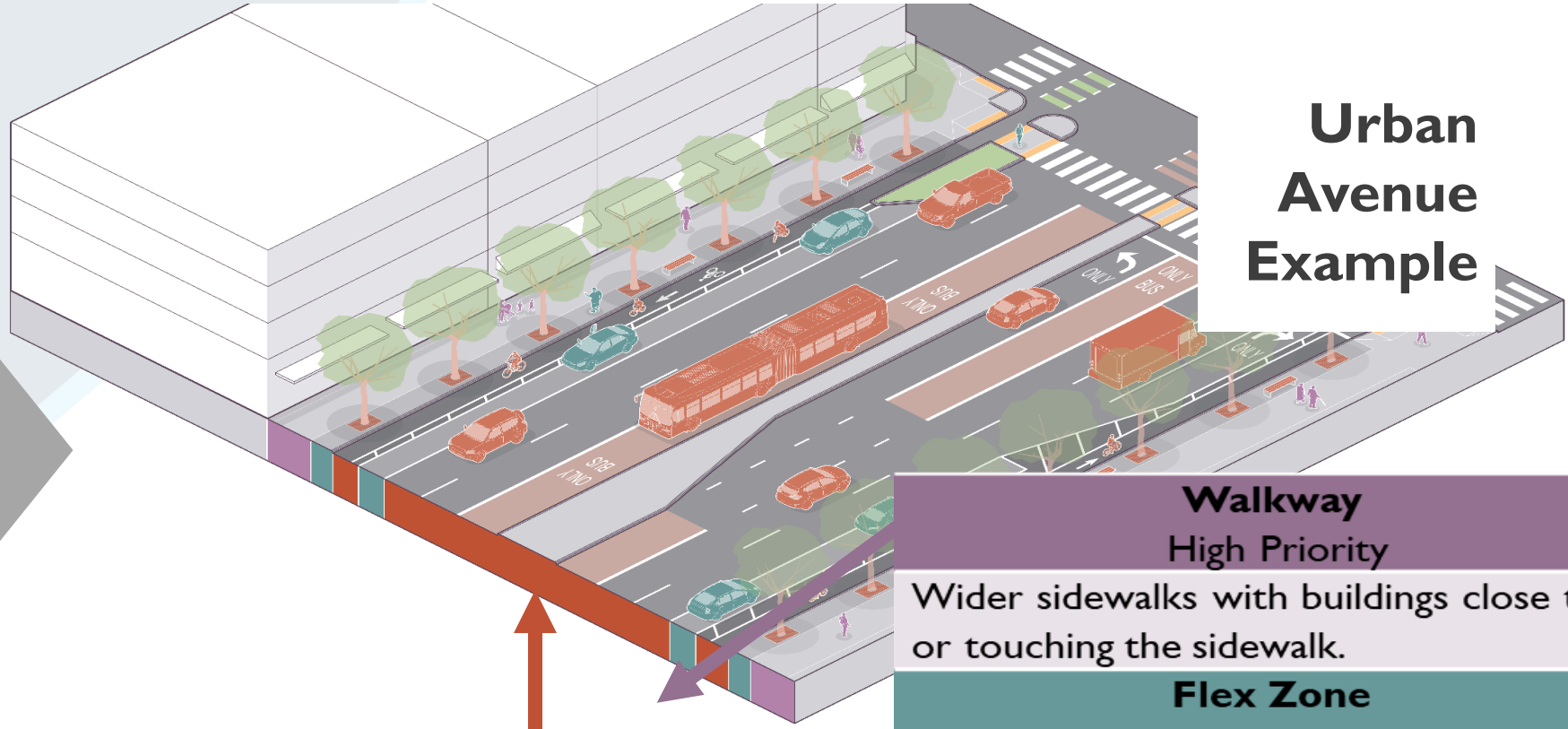
The flex zone can be terrace or part of the roadway.



Street Zones

Each street type graphic identifies the location and relative size of each street zone, with color-coding.

Each street type describes the relative priority of each zone, as well as what is typically provided in each zone, specific to that street type.



Urban Avenue Example

Walkway
High Priority

Wider sidewalks with buildings close to or touching the sidewalk.

Flex Zone
Medium Priority

Street trees, bike racks, and enhanced transit stops. Parallel on-street parking. Loading zones, if needed, should be provided around the corner on intersecting minor streets.

Travelway
High Priority

Dedicated transit lanes, separated bike lanes, often 2 travel lanes per direction, and medians.

Example: Urban Avenue

Major streets that serve as backbones of the street network and convey large numbers of people via multiple modes.

Walkway
High Priority

Wider sidewalks with buildings close to or even at the edge of the right of way.

Flex Zone
Medium Priority

Street trees, bike racks, and enhanced transit stops. Parallel on-street parking. Loading zones, if needed, should be provided around the corner on intersecting minor streets.

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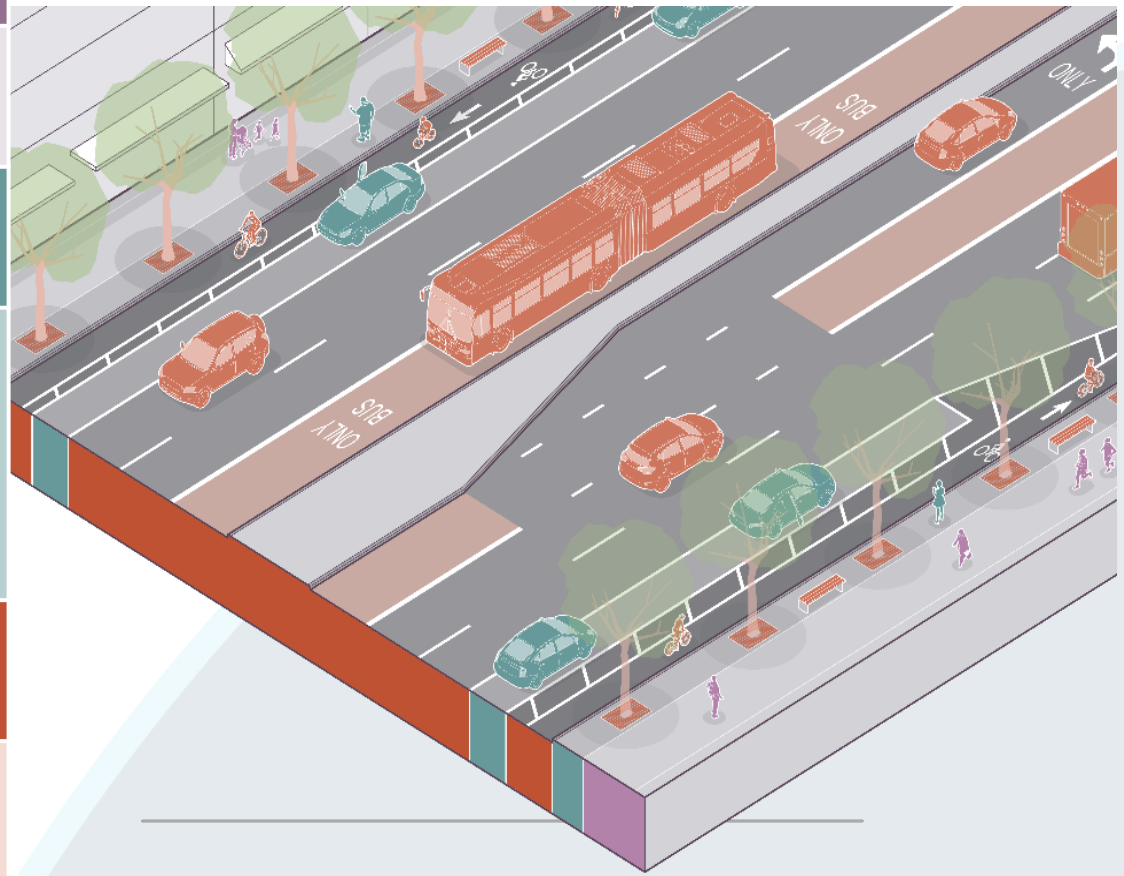
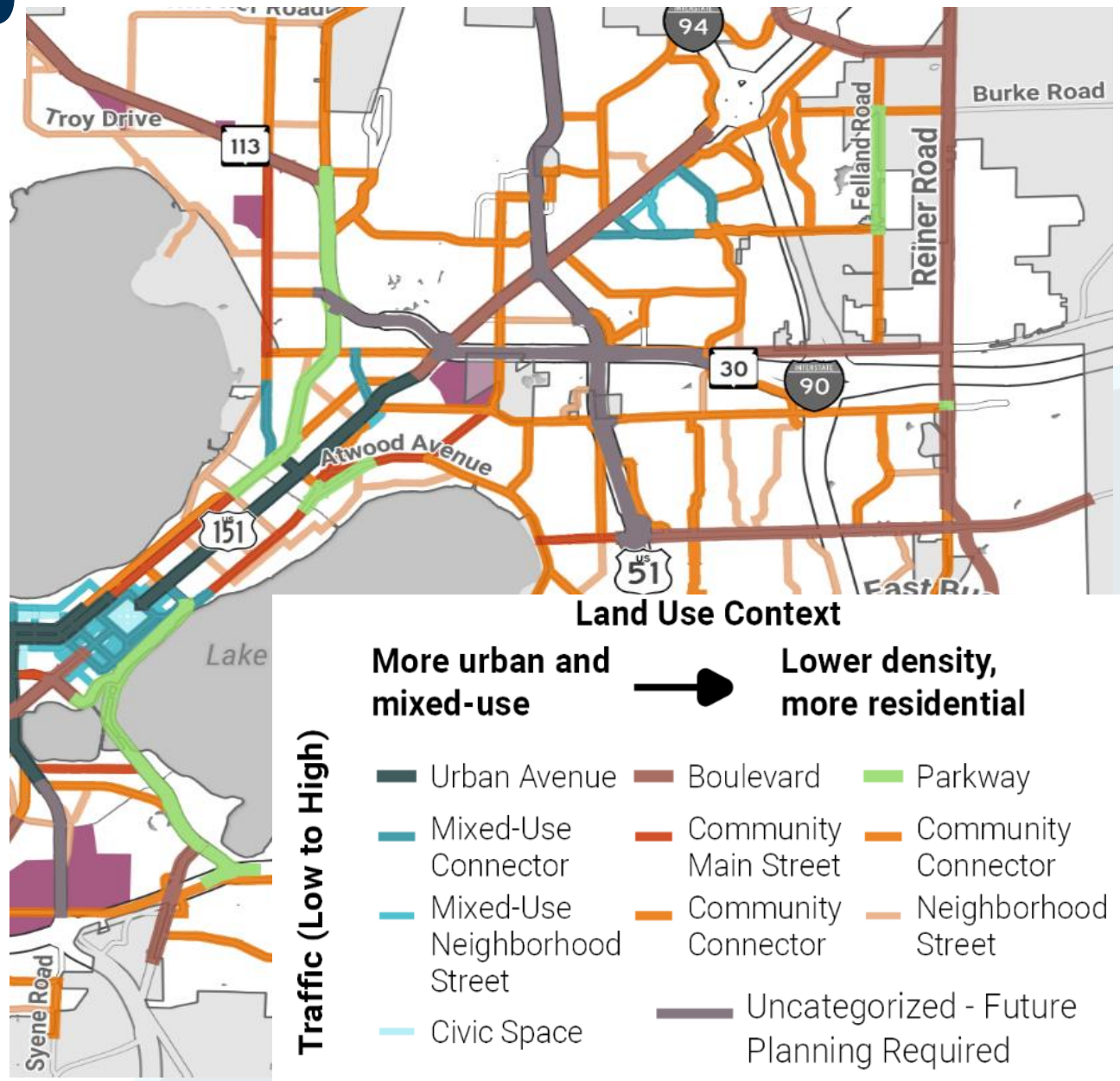
Dedicated transit lanes, separated bike lanes, often 2 travel lanes per direction, and medians.



Initial Street Type Map

The street type map will evolve and change over time as development and land use plans change.

Sub-area plans, instead of recommending typical sections, will instead designate a street type that may have multiple cross sections that achieve desired objectives.



Process and elements

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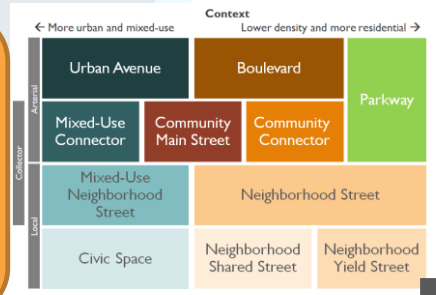
Street Types



Overlays

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Design

If constrained space, determine tradeoffs

Overlays

- Overlays influence design decisions and the priority of various elements.
- Each street type describes the influence of each overlay.

Equity Priority Areas
(includes additional process elements)

Transit Priority Network
(prioritizes transit on high frequency transit routes)

All Ages and Abilities Bike Network
(key corridors to prioritize high-comfort bikeways)

Tree Canopy Priority Areas
(includes detailed decision matrix)

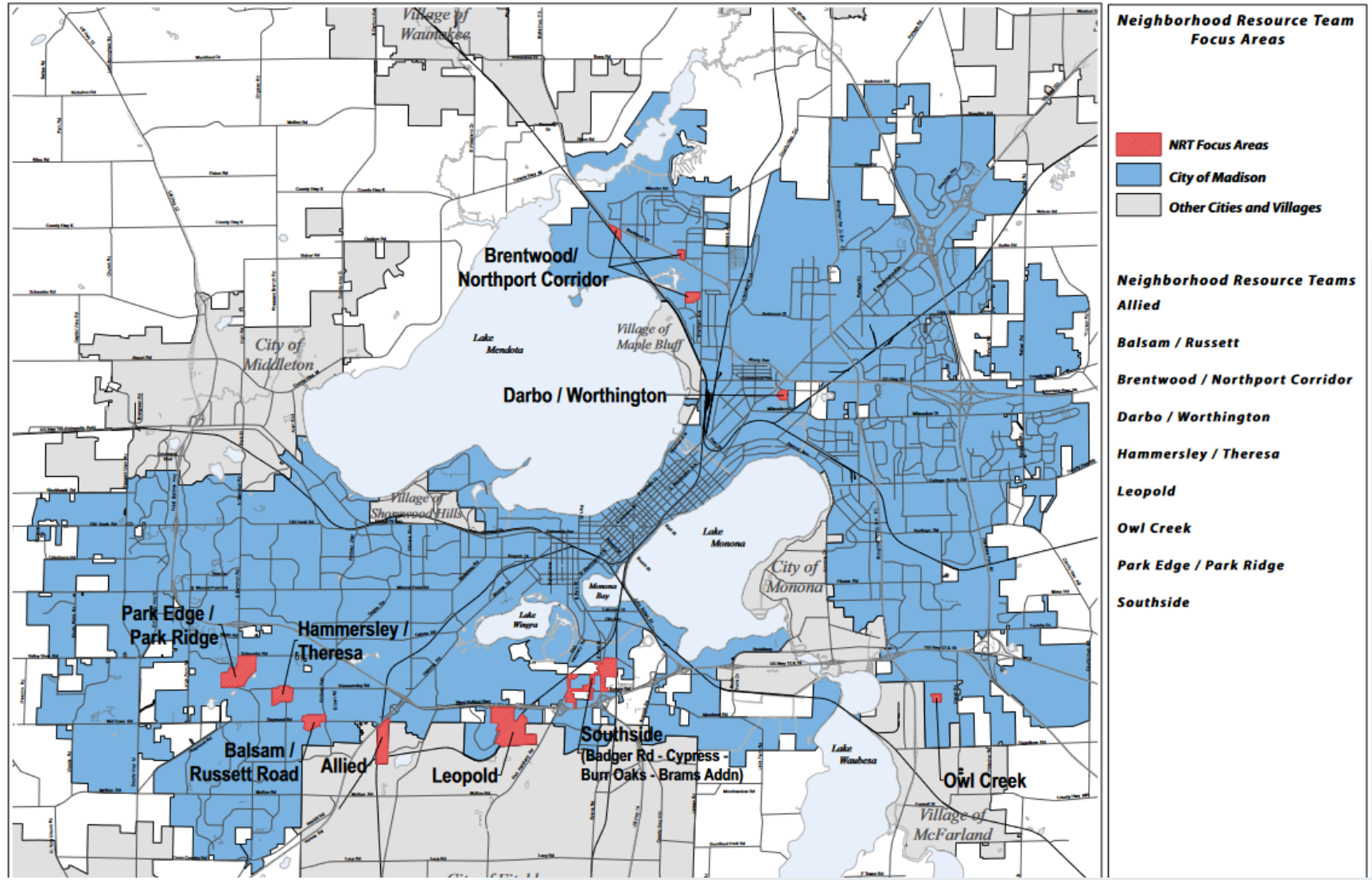
Green Infrastructure Priority Areas
(includes detailed decision matrix)

National Highway System & Truck Routes
(higher traffic streets)

Equity Priority Areas

Consult the Map of Equity Priority Areas (EPAs)

- Initial map based on Neighborhood Resource Team (NRT) areas
  - City project started that will identify additional areas based on demographic data



Equity Priority Areas

- EPA locations trigger additional process steps that will be in the CGS Project Checklist

Is the project within or near an EPA?

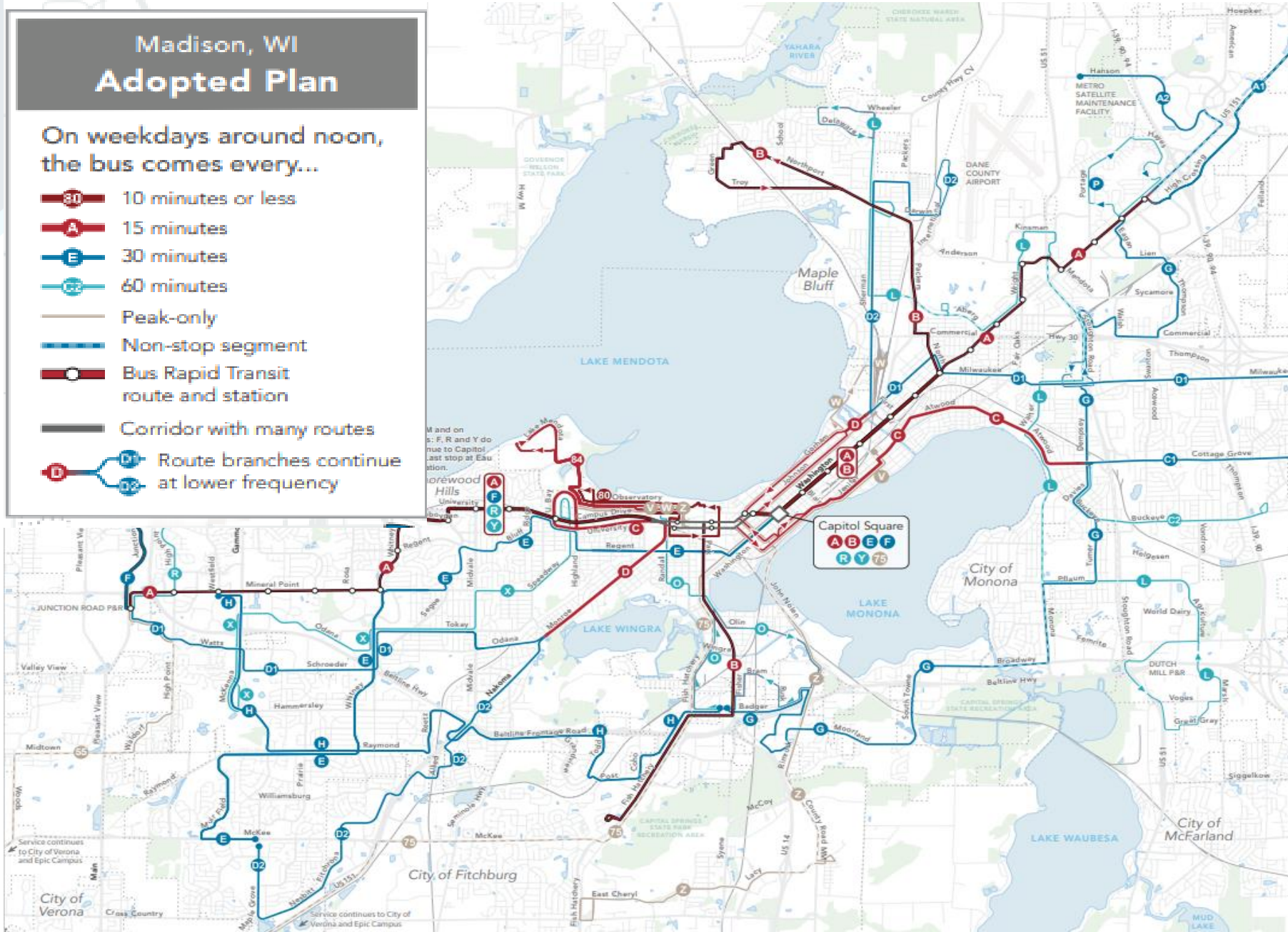
- Engage with community to understand needs
- Engage with NRT
- Review past public input
- Use EPA questions on CGS project checklist

Are there other City departments active in the CGS project area?

- Engage with community to understand needs
- Engage with NRT
- Review past public input & other department projects in area and coordinate work
- Use EPA project checklist

Transit Priority Network

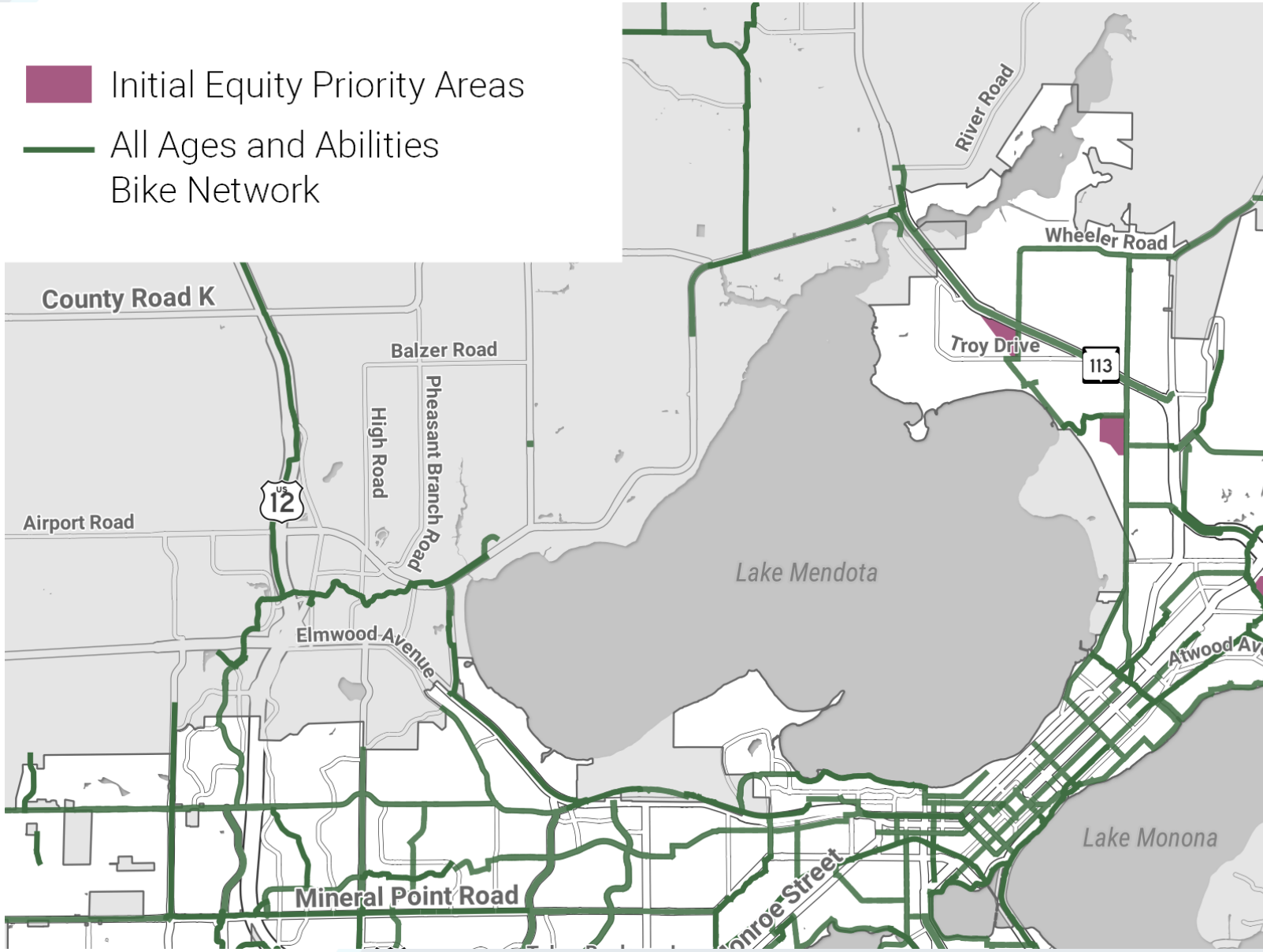
- Transit Priority based on approved routes
  - Priority streets would have 15 minute service on weekdays, midday

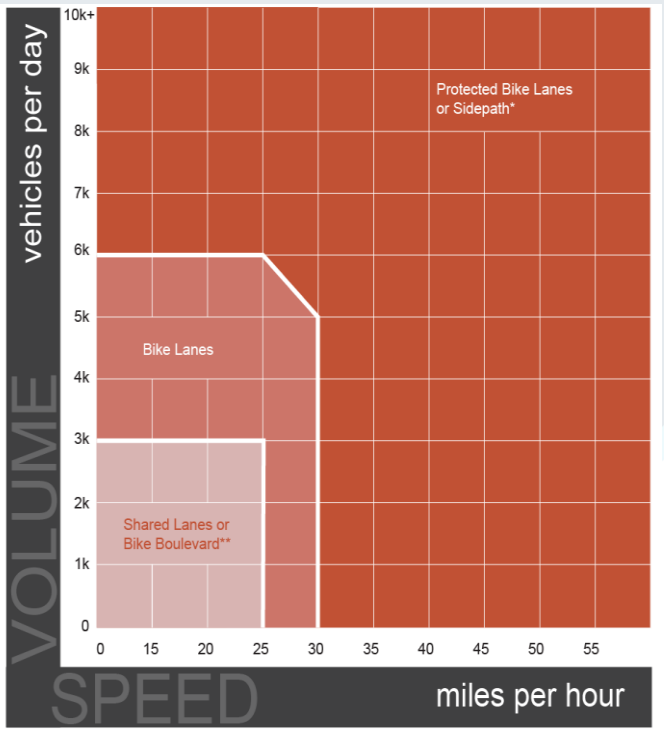


All Ages Ability Bike Network

All Ages Ability Bike Network

- Considered most critical for creating a complete network.
- Designed for all ages and abilities
- Start with interim map & finalize in 2023
- Updates to map approved by Transportation Commission

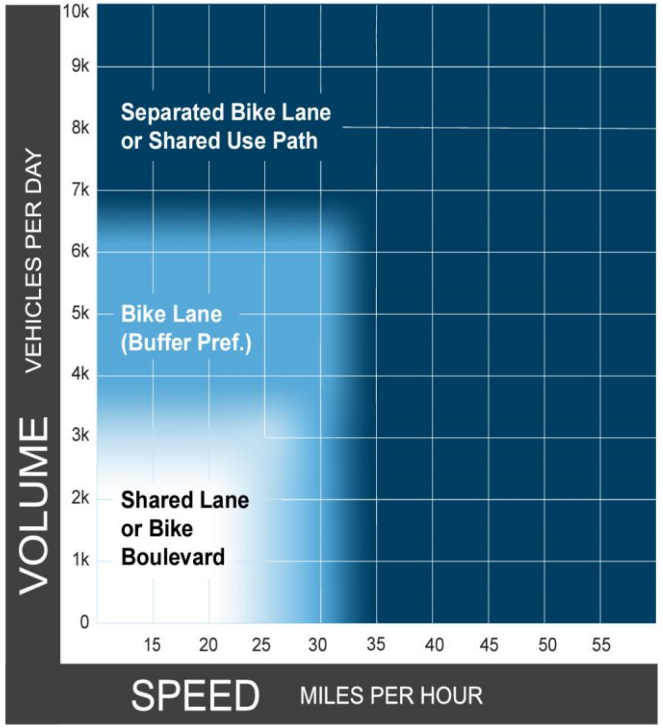




*To determine whether to provide a shared-use path or separated bike lane, consider pedestrian and bicycle volumes or, in the absence of volume, consider land use.
**The preferred traffic volume for bike boulevards and shared lanes is 2,000 vehicles per day or less. Above this volume, additional considerations should be made to reduce speeds and/or limit the possibility for potential future increases in vehicle volumes.

Bike facility selection thresholds for All Ages and Abilities.

vs



vs

Contextual Guidance for Selecting All Ages & Abilities Bikeways

Roadway Context				All Ages & Abilities Bicycle Facility
Target Motor Vehicle Speed*	Target Motor Vehicle Volume (ADT)	Motor Vehicle Lanes	Key Operational Considerations	
Any		*Any*	*Any of the following:* high curbside activity, frequent buses, motor vehicle congestion, or turning conflicts‡	**Protected Bicycle Lane**
< 10 mph	Less relevant	No centerline, or single lane one-way	Pedestrians share the roadway	**Shared Street**
≤ 20 mph	≤ 1,000 – 2,000		< 50 motor vehicles per hour in the peak direction at peak hour	**Bicycle Boulevard**
≤ 25 mph	≤ 500 – 1,500			
	≤ 1,500 – 3,000	Single lane each direction, or single lane one-way	Low curbside activity, or low congestion pressure	**Conventional or Buffered Bicycle Lane, or Protected Bicycle Lane**
	≤ 3,000 – 6,000			**Buffered or Protected Bicycle Lane**
	Greater than 6,000			**Protected Bicycle Lane**
	Any	Multiple lanes per direction		
Greater than 26 mph†	≤ 6,000	Single lane each direction	Low curbside activity, or low congestion pressure	**Protected Bicycle Lane, or Reduce Speed**
		Multiple lanes per direction		**Protected Bicycle Lane, or Reduce to Single Lane & Reduce Speed**
	Greater than 6,000	*Any*	*Any*	**Protected Bicycle Lane**
High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts		*Any*	High pedestrian volume	**Bike Path with Separate Walkway or Protected Bicycle Lane**
			Low pedestrian volume	**Shared-Use Path or Protected Bicycle Lane**

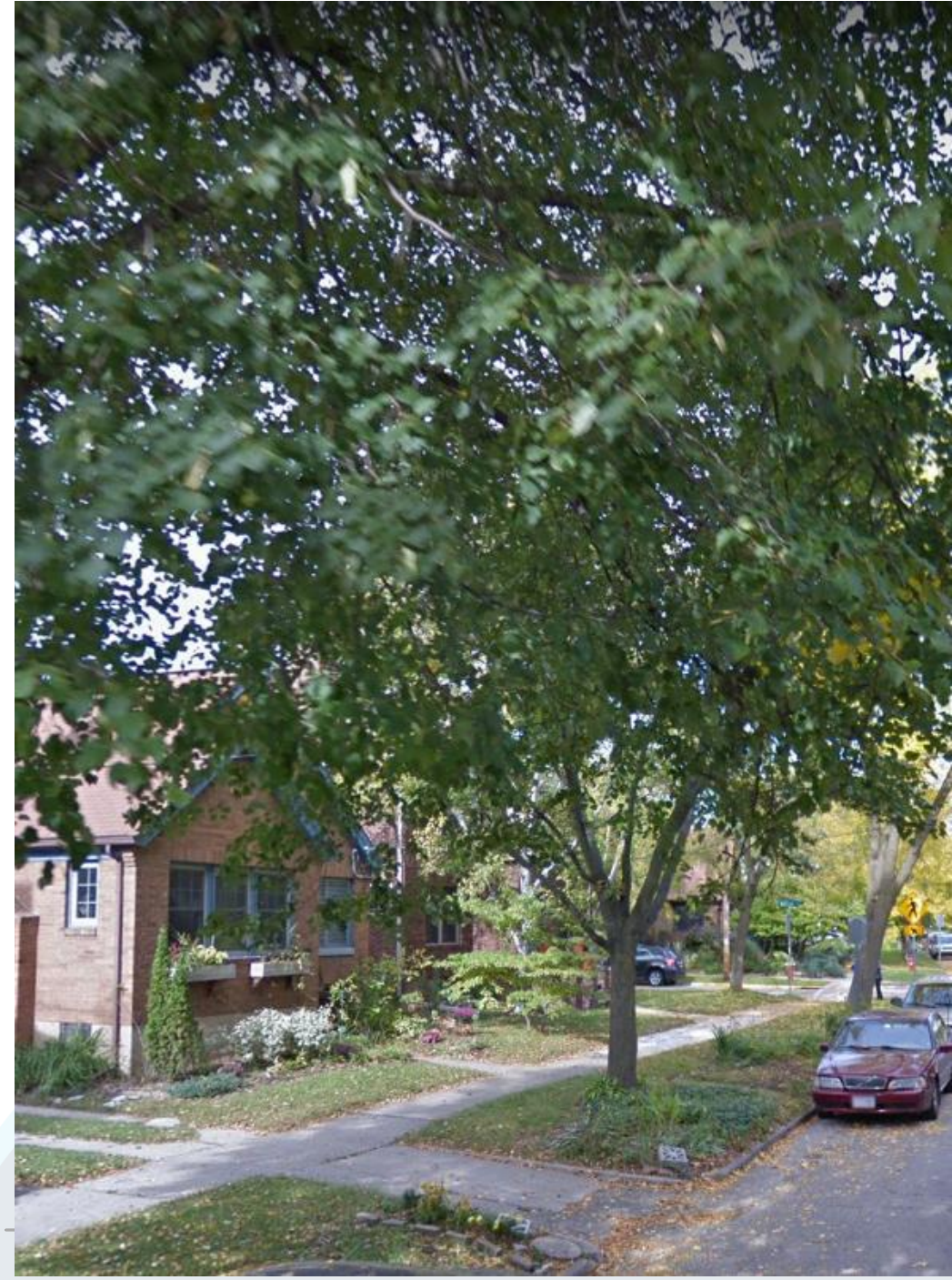
TC requested additional footnote: *** Additional consideration will be given to the overall roadway context and number of motor vehicle lanes as outlined in the NACTO Urban Bikeway Design Guide when selecting an appropriate bike facility.

- Simpler
- Closer to CROW manual guidance
- Provides some flexibility at the edges
  (example Jenifer, Mifflin)

Tree Canopy priority

Purpose & Goals

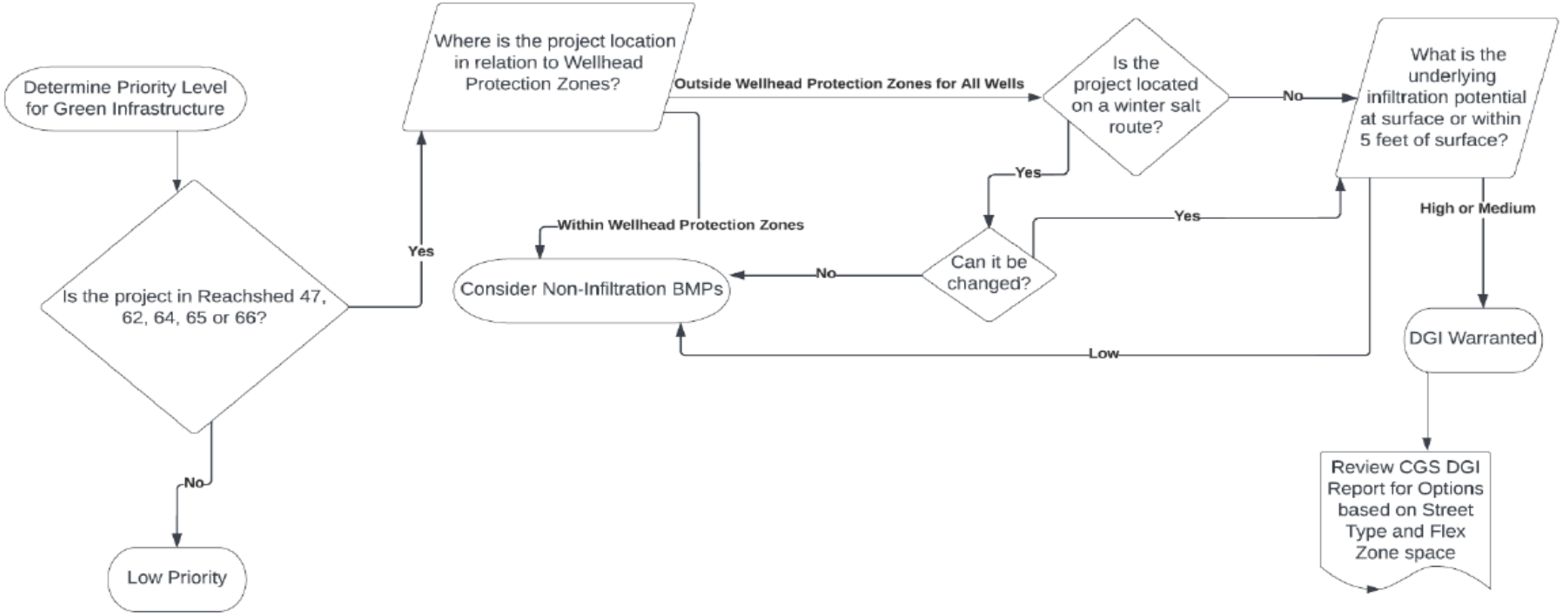
- Reach citywide goal of 40% tree canopy coverage.
- Identify areas with low amounts of existing tree canopy coverage to prioritize space in Flex Zone for trees
- Identify appropriate solutions for planting trees while reducing conflicts with other right-of-way priorities.
- Support for Urban Forestry Task Force Report



Green Infrastructure Priority

Purpose & Goals

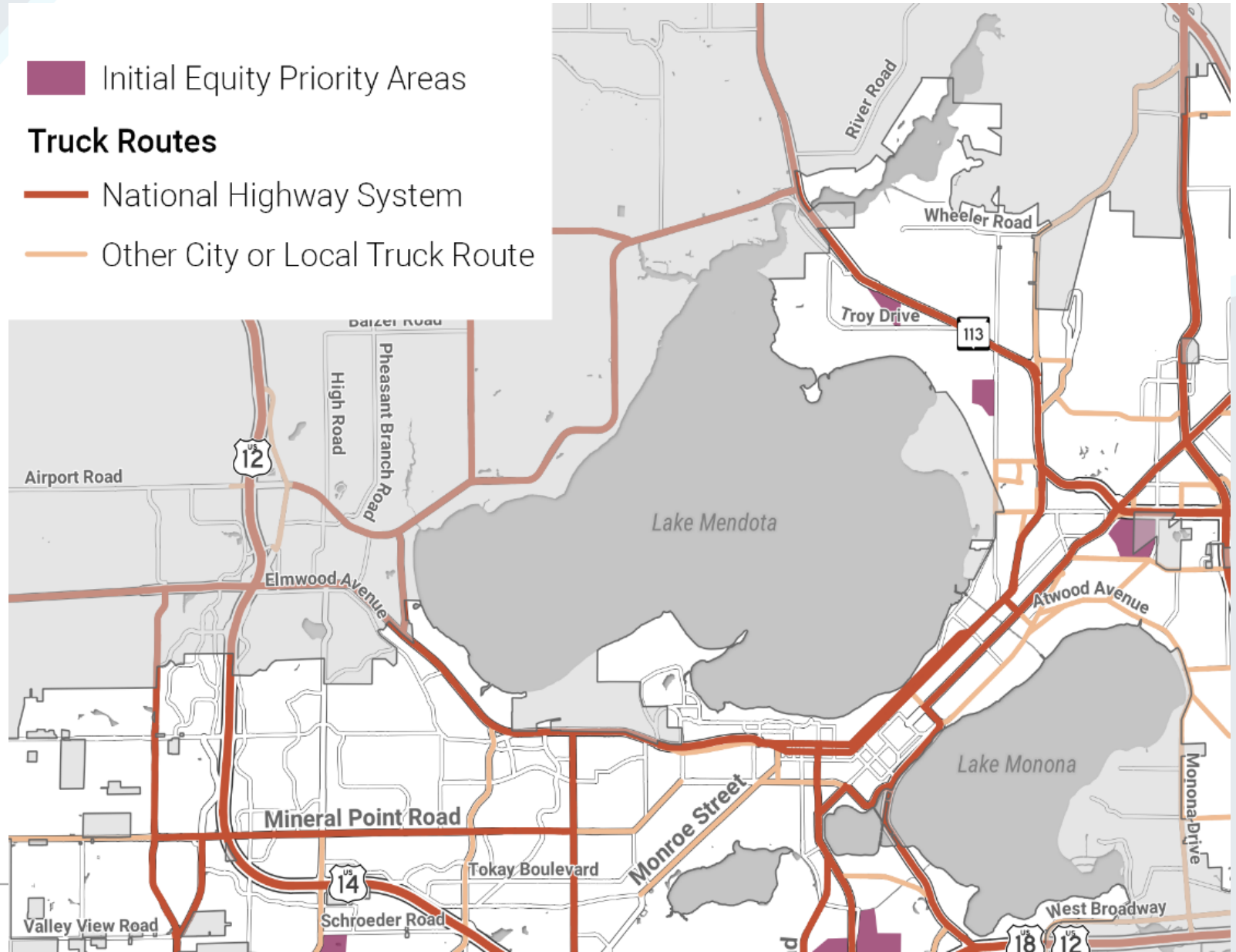
- Identify appropriate and viable locations for distributed green infrastructure (DGI) for stormwater management and water quality improvement and appropriate engineering solutions.



National Highway System & Truck routes

Changes to NHS routes only occur through collaboration with WisDOT and the Greater Madison MPO.

Truck routes must be able to accommodate larger vehicles.



Process and Elements

Values

Street Types

Overlays

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Design

If constrained space, determine tradeoffs

Street Zone Allocation Charts

Charts with widths for each street zone

- May be typical widths and/or minimum/maximums

ROW based on preferred widths for each zone

Street Type	Travelway							Total Pavement Width‡ (curb to curb)		
	Typical # of Travel Lanes*	Lane Width			Center Turn Lane / Median	Target Speed (miles per hour)**	Typical ADT (motor vehicles)			
		Max.	Pref.	Min.				Max.	Typ.	Min.
Urban Avenue	4	11'	10'	10'	Median Standard	25	>20,000	106'	100'	80'
Boulevard	4	11'	10'	10'	Median Standard	25-30	>14,000	106'	84'	80'
Parkway	2-4	11.'	10'	10'	Median standard	25-35	>10,000	64'	64'	26'
Mixed-Use Connector	2	11'	10'	10'	Optional	25	3,000 to 15,000	56'	48'	32'
Community Main Street	2-3	10'	10'	10'	Optional (not common)	25 or less	10,000 to 25,000	60'	52'	40'
Community Connector	2-3	10'	10'	10'	Optional	25 or less	3,000 to 14,000	52'	46'	24'
Mixed-Use Neighborhood Street	No centerline†		N/A†		Not preferred	20-25	<3,000	38'	30'	30'
Neighborhood Street	No centerline†		N/A†		Not preferred	20 or less	<3,000	38'	36'	28' ∞
Neighborhood Yield Street	No centerline		N/A		Not compatible	20 or less	<1,500	32'	28'	24' ∞
Civic Space	No centerline		N/A		Not compatible	20 or less	<2,000	Varies	Varies	24'
Neighborhood Shared Street	No centerline		N/A		Not compatible	10 or less	<500	Varies	Varies	Varies

Street Zone Allocation Charts

Street Type	Total Walkway Width (per side)[a]		Total Flex Zone Width (per side)[b]		Total Travelway Width [c]			Total Right-of-Way Width		Typical ADT (motor vehicles)
	Pref.	Min.	Pref.	Min.	Max.	Typ.	Min.	Typ.	Min.	
Urban Avenue	9'	6'	15'	10'	102	96'	76'	150'	108'	>20,000
Boulevard	7' if sidewalk	6'	15'	10'	102'	80'	76'	146'	108'	>14,000
Parkway	14' [d]	6'	20'	12'	62'	60'	22'	128'	58'	>10,000
Mixed-Use Connector	9'	6'	19'	8'	38'	38'	28' [e]	94'	56'	3,000 to 15,000
Community Main Street	9'	6'	18' [f]	9'	56' [f]	36'	36'	90'	66'	10,000 to 20,000
Community Connector	7' [g]	6' [g]	15'	9'	36'	36' [g]	26'	80'	56'	3,000 to 14,000
Mixed-Use Neighborhood Street	9'	6'	19'	9'	22'	20'	20'	78'	50'	<3,000
Neighborhood Street	6'	6'	15'	10'	22'	20'	18'	64'	50'	<3,000
Neighborhood Yield Street	6' [h]	6' [h]	17'	10'	16'	16'	14'	62'	46'	<1,500
Civic Space	13'	10'	19'	13'	Varies	Varies	20'	Varies	66'	<2,000
Neighborhood Shared Street	7' [i]	6' [i]	Varies	Varies	Varies	NA	NA	Varies	Varies	<500

Street Zone Allocation Charts

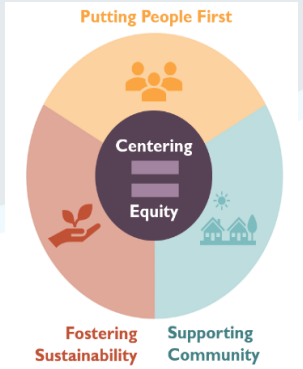
Additional Design Guidance

	Compatibility of Treatments with Street Types (Y=yes; M=maybe; N=no)										
Street Type	Signal Timing	Pedestrian Refuge / Median Islands	Curb Extensions	Road Diets	Raised Intersection	Raised Crosswalk *	Speed Humps **	All-Way Stops	Traffic Diverters	Chicanes	Choker / Pinchpoint
Urban Avenue	Y	Y	Y	Y	M	N	N	N	N	N	N
Boulevard	Y	Y	M	Y	M	N	N	N	N	N	N
Parkway	Y	Y	M	Y	M	M	N	N	N	N	N
Mixed-Use Connector	Y	Y	Y	Y	Y	M	N	M	N	N	N
Community Main Street	Y	Y	Y	Y	Y	M	M	M	N	N	N
Community Connector	M	Y	M	Y	Y	M	M	M	N	N	N
Mixed-Use Neighborhood Street	M	Y	Y	N	Y	Y	M	Y	M	M	M
Neighborhood Street	M	Y	Y	N	M	Y	M	Y	M	M	M
Neighborhood Yield Street	N	M	Y	N	M	Y	Y	Y	Y	Y	Y
Civic Space	Y	M	Y	N	Y	Y	M	Y	M	M	Y
Neighborhood Shared Street	N	N	M	N	Y	Y	Y	Y	Y	Y	Y

*Compatibility regarding crossing the street type listed. These treatments may be suitable parallel to the street type, at intersections with other street types. For example, a raised crosswalk may be compatible across a Mixed-Use Neighborhood Street where it intersects an Urban Avenue. Compatibility with street type does not indicate compatibility with maintenance needs, grades, drainage, and potential for flooding issues.

**Not compatible on transit routes.

Process and Elements



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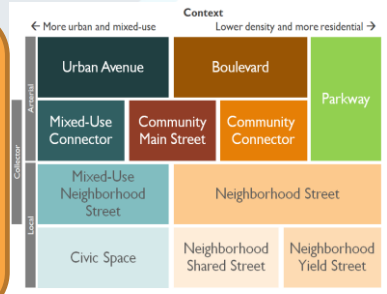

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Identify Street Design Priorities

Allocate Street Zone Space

Street Type	Typical # of Travel Lanes (not including any bike facility)	Target Speed (miles per hour)	Typical ADT (motor vehicles)	Total Pavement Width (includes travel lanes, bike facility and any parking (curb to curb)		
				Max.	Typ.	Min.
Urban Avenue	4-6	25	>20,000	102'	96'	74'
Boulevard	4-6	25-30	>14,000	102'	80'	74'
Parkway	2 or 4-6	25-35	>10,000	86'	66'	26'
Mixed-Use Connector	2	25	3,000 to 15,000	56'	40'	38'
Community Main Street	2-3	25	10,000 to 20,000	56'	56'	38'
Community Connector	2-3	25	3,000 to 14,000	66'	54'	24'
Mixed-Use Neighborhood Street	2 lanes, often no centerline	20	<3,000	38'	36'	30'
Neighborhood Street	2 lanes, often no centerline	20	<3,000	38'	36'	22'
Neighborhood Yield Street	2 lanes, often no centerline	15-20	<1,000	30'	24'	22'
Civic Space	2 lanes, often no centerline	15	<2,000	52'	Varies	20'
Neighborhood Shared Street	No centerline	10-15	<500	20'	20'	19'

Design

If constrained space, determine tradeoffs

Implementation: Checklist

Key elements of the project checklist will include:

- Record of project limits, type, schedule
- Identification of Street Type, Overlays and other context that influences design
- Inventory of current conditions and other data
- Identification of engagement efforts and outcomes
- Initial and final cross section
- Final design elements & communication
- Additional Equity Priority Area engagement, collaboration and issues identified but not resolved by project

Implementation: Resolution

Transportation Commission Responsibilities

- Street construction and reconstruction that vary from the Complete green Street Policy Guide shall only be implemented if approved by the Transportation Commission
- Ability to modify the Complete Green Streets Policy Guide on an annual basis to address unforeseen challenges & remain current with state of the art design practices
- Approve updates to the Transit Priority Network and All Age Ability Bike Network

Board of Public Works Responsibilities

- Shall have the ability to approve updates to the tree canopy and green infrastructure priority area overlays

Implementation: Resolution

Sub Area Plans will recommend street types based on the Complete Green Streets Policy Guide

Sub Area Plans and plats that recommend street facilities and right of way widths that vary from the Complete Green Streets Policy Guide shall only be included if approved by the Transportation Planning and Policy Board

Revision to Sections 16 and 33 of the Madison General Ordinances to be consistent with the Complete and Green Streets Policy Guide.

- Subdivision Ordinance
- Committee Responsibilities

Questions?

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www.cityofmadison.com/transportation/initiatives/complete-green-streets