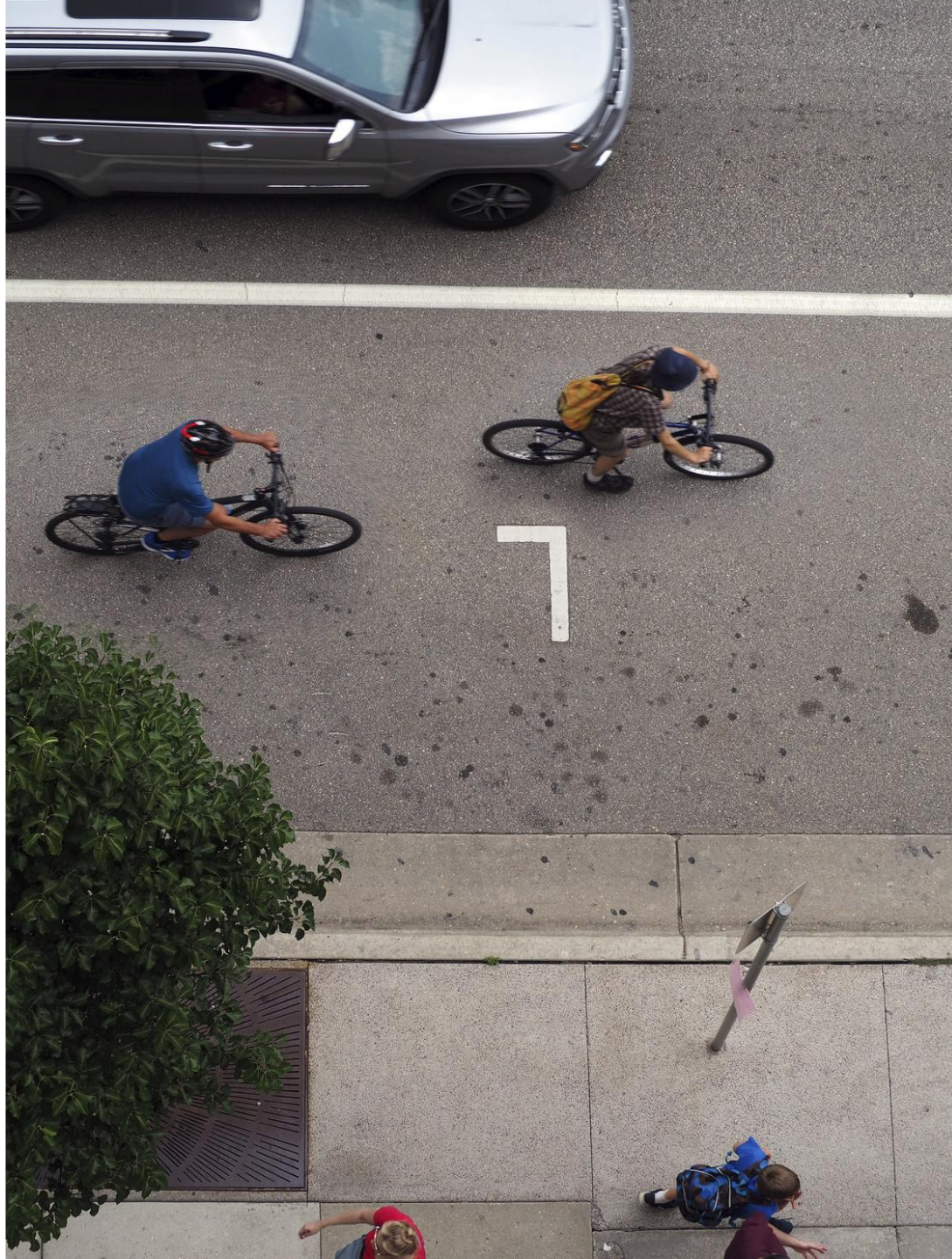


City of Madison
**Complete
Green Streets
Guide**



**Board of Public
Works Review**

September 25, 2024

Approved January 6, 2023

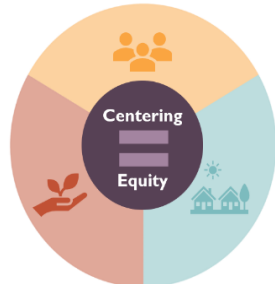
Guide Implementation

- Engineering and Traffic Engineering staff training in August 2023
- Completed the CGS Checklist for 5 reconstruction projects
- Subdivision ordinance updated to follow Complete Green Streets Guide on July 25, 2023
 - One new development came to Transportation Commission for variance to standards
 - Four other new development projects followed Guide without requesting variance
- Northeast and West Area Plans reviewed Street Types and All Ages and Ability Bike Network routing
 - Small number of changes recommended

Process and Elements

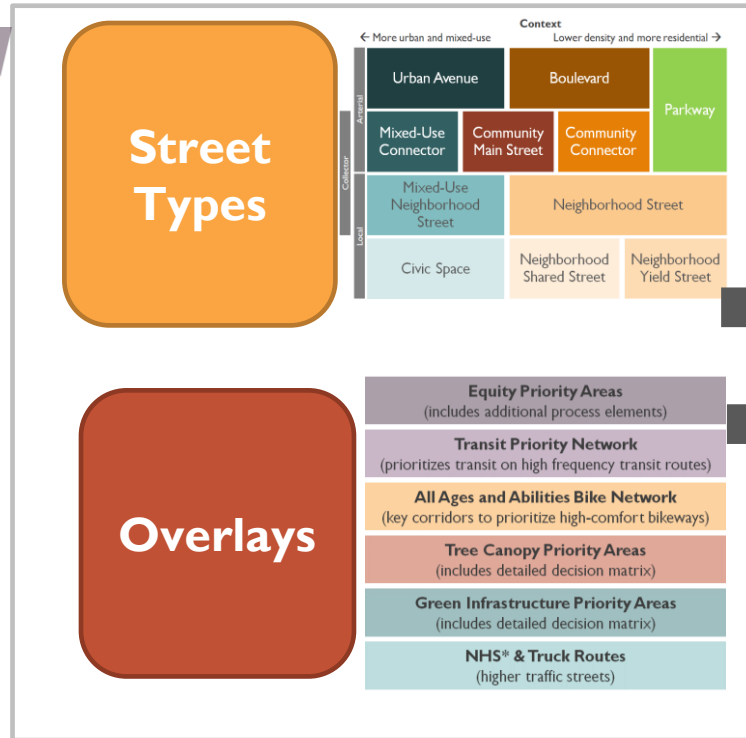


Putting People First

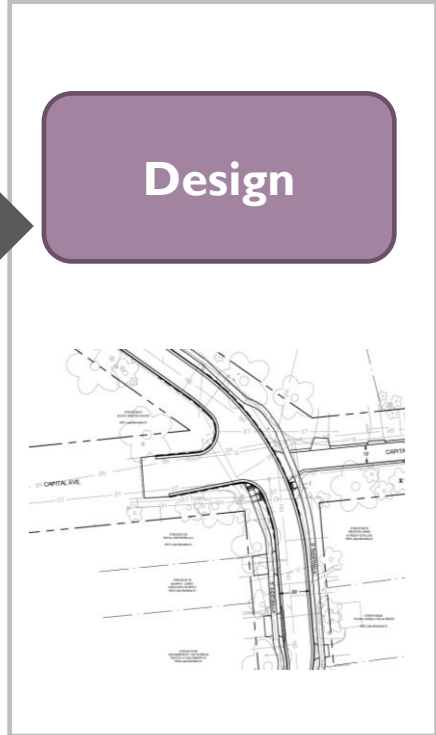


Fostering Sustainability Supporting Community

Values



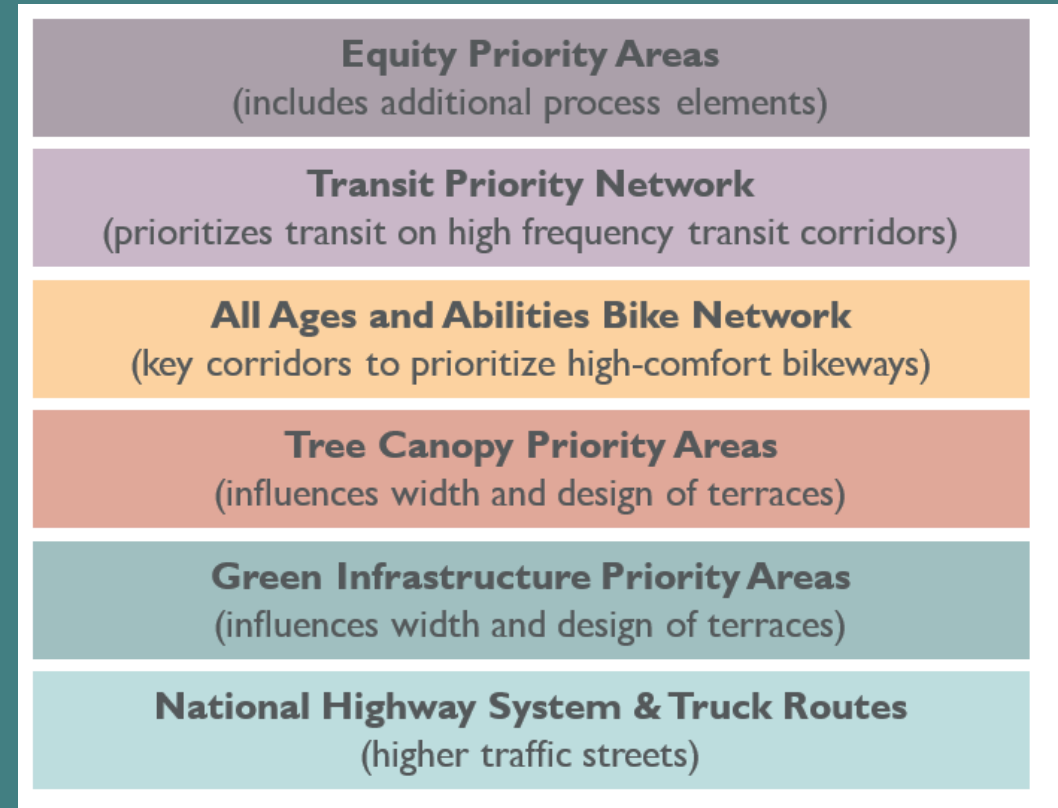
Street Type	Typical # of Travel Lanes (not including bike facilities)	Target Speed (miles per hour)	Typical ADT (motor vehicles)	Total Pavement Width (includes travel lanes, bike facility and any parking (curb to curb))		
				Max.	Typ.	Min.
Urban Avenue	4-6	25	>20,000	102'	90'	74'
Boulevard	4-6	25-30	>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	Varies		20'
Neighborhood Shared Street	No centerline	10-15	<500	20'	20'	19'



If constrained space, determine tradeoffs

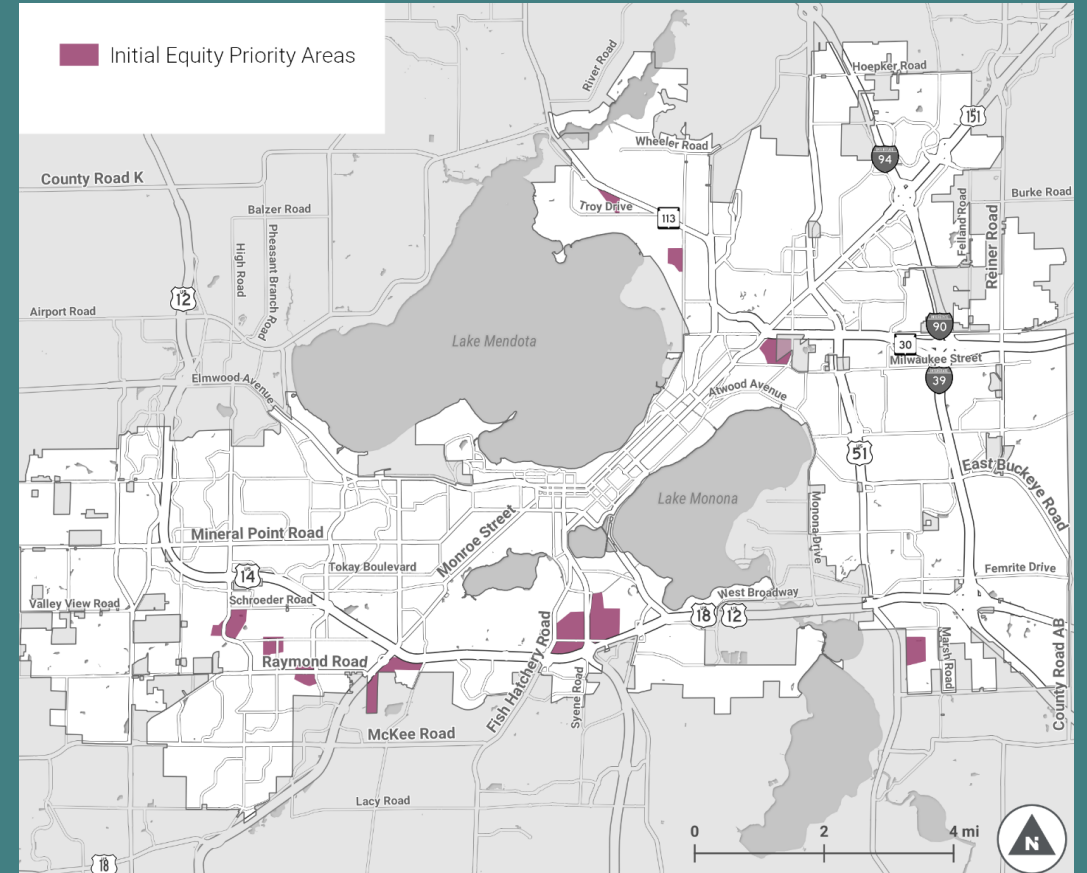
Overlay Recommendations

- Update to Equity Priority Areas
- All Ages and Abilities Bike Network project starting in Fall
 - Approve update with that project
- No other changes recommended



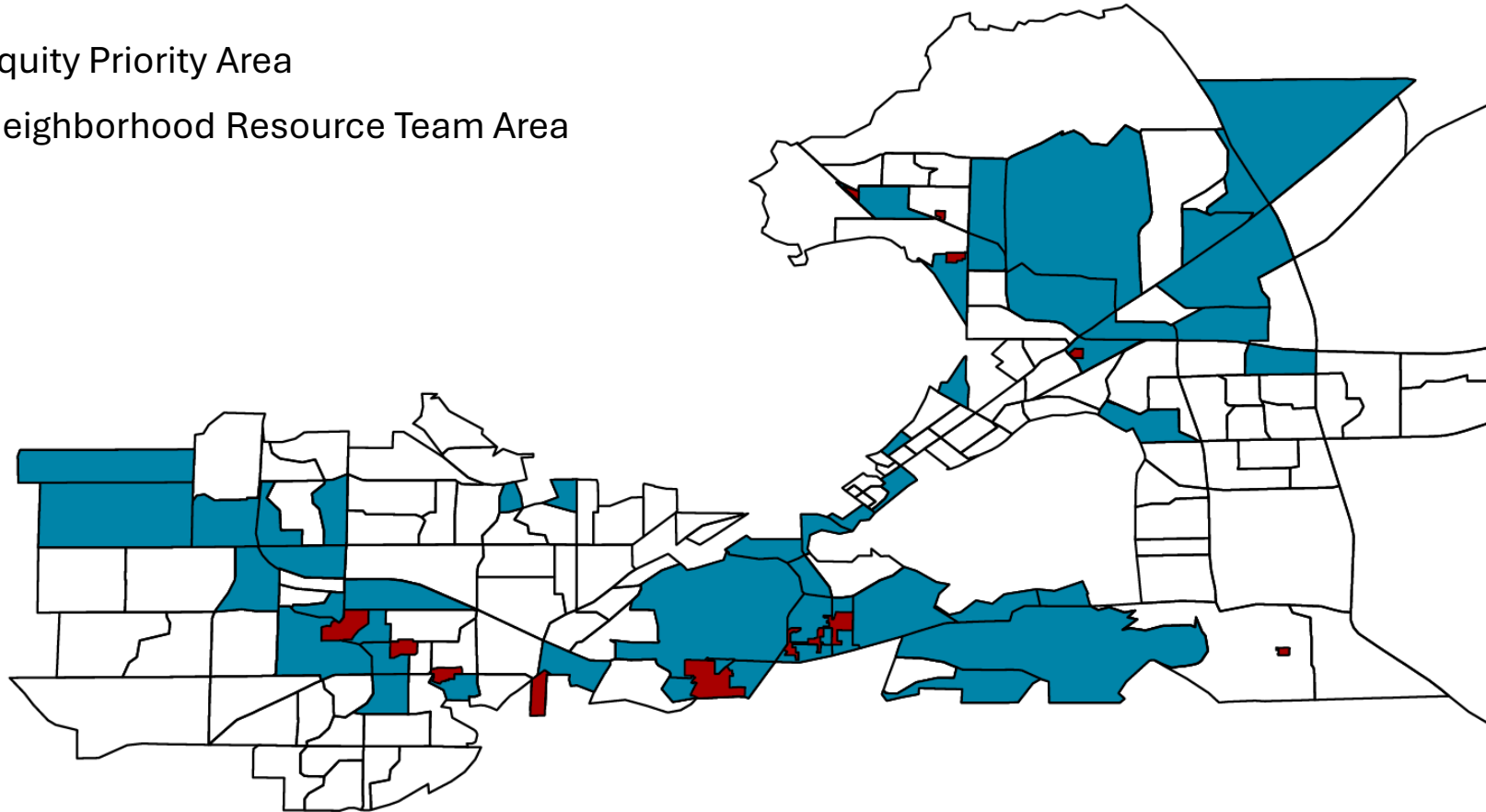
Equity Priority Areas

- Approved Guide calls for expanding this Overlay
- Align with City Equity Areas
 - Align with Transportation Improvement Program scoring



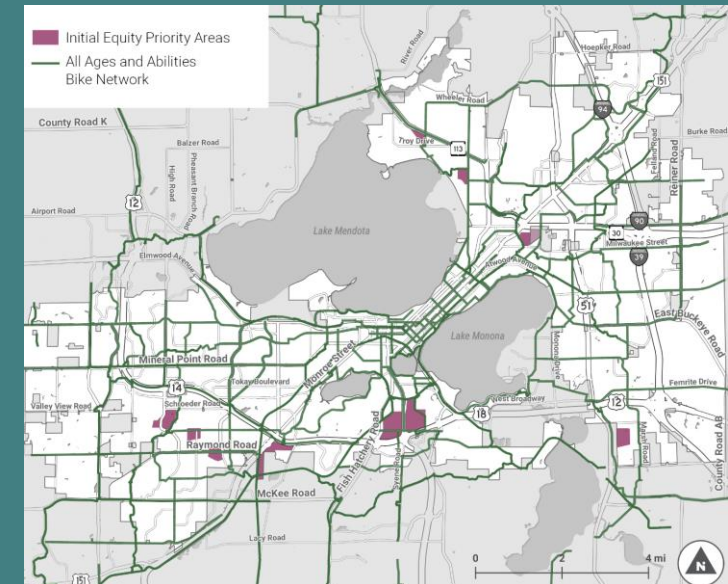
Equity Priority Areas - Recommendation

- Equity Priority Area
- Neighborhood Resource Team Area



All Ages and Abilities Bike Network

- Current map is draft
- Project starting in Fall 2024 to analyze network, do equity analysis, public engagement and develop a recommended final map.
 - Funding through Safe Streets for All grant to do further network analysis and engagement
 - Toole Design Group selected to assist with finalizing network
 - Project will also review current conditions of final network to prioritize projects



Street Types - Recommendation

- Boulevard - recommend adding reference to trees as significant feature:
 - Connecting major streets conveying large numbers of people. Feature tree lined sidewalks, terraces and medians. Frequently part of the Transit Priority Network. May be part of the National Highway System and/or serve as a Truck Route.

6.1 Design Table – Space Requirement

- Total Walkway Width – Recommend changing to Total Walk Zone Width
 - Confusion over that reflecting both the sidewalk width and buffer space to ROW line
- Flex Zone Footnotes
 - Add a footnote: New streets or dedications require an 8' minimum terrace
 - Add a footnote: Measurement for Flex Zone is from face of curb when no parking
- Typical ADT – Remove and leave in 6.2 table

6.1 Design Table – Space Requirements

6.1. Street Type Space Requirements

The combination of design criteria (e.g., number of travel lanes, terrace width, and sidewalks width) determine the typical overall width and minimum right-of-way required for each street type. These widths, and the widths of each zone within the street type, are shown below. Note that while minimum widths are identified, applying only the minimums for each zone in order to avoid making tradeoffs is not a good approach because it erases the priority between zones and results in a street design that does not function well for any use.

Street Type	Total Walkway Width (per side) ^a		Total Flex Zone Width (per side) ^a		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' ^e	6' ^e	15'	9'	36'	36' ^e	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

^a Includes 1' typical buffer between sidewalk and right-of-way line. If a sidepath is provided, the minimum pavement width is 8' and the preferred is 12-14' depending on volumes. At least 2' clear is required on each side of a sidepath.
^b Includes curb, gutter, terrace and on-street parking, if present. See Section 6.2. There may be constrained right-of-way where the minimum may need to be as small as 3'.
^c Total width at a midblock location. Includes all transit lanes, on-street bikeways, travel lanes, center turn lanes, and medians, but NOT on-street parking. Assumes a two-way street, with the exception of Mixed-Use Connector. Does not assume any center turn lane or median for streets where these features are noted as "not preferred" or "not

compatible" in Section 6.2. If and when a right or left turn lane is needed at an intersection, that would be in addition to the total Travelway width unless a lane drop (a travel lane becomes a turn-only lane) is provided. When additional space for a turn lane(s) is needed, space will be taken first from on-street parking, then from the median (if present, retaining a minimum pedestrian refuge space when feasible), and then from the terrace (retaining the minimum Flex Zone width for the street type). If this does not provide adequate space for turn lanes, additional right-of-way will be required.

^d Preferred Walkway may be a shared-use path on one-side and a typical sidewalk on the other side.

^e The minimum Travelway width of the Mixed-Use Connector is based on a one-way street.

^f Max Travelway width and preferred Flex Zone width are likely not both achievable on the same street for Community Main Streets, which are predominately in existing constrained corridors. Rather, if the Travelway width is greater than the typical value (to accommodate peak hour travel lanes), the minimum Flex Zone width is likely to be used.

^g A 6' portion of the Travelway space could be allocated to the Walkway area to create a shared-use path.

^h Neighborhood Yield Street could have a sidewalk on only one side in constrained conditions (e.g., "Court" streets).

ⁱ An accessible pedestrian space will be maintained year-round but it may not be a traditional sidewalk.

6.2 Roadway Design & Space Allocation

Parameters Table

- Typical ADT – Recommend changing to Estimated ADT
 - Allows more flexibility in assigning Street Type
- Neighborhood Yield Street
 - Add a footnote that streets without driveways need to meet the fire lane requirements noted in Section 6.5
- Add new footnote to Community Connector and Community Main Street related to transit:
 - Transit vehicles need a dynamic envelope of a minimum of 10' lane with a buffer such as a 2' gutter.

6.2 Roadway Design & Space Allocation Parameters Table

6.2. Roadway (Travelway and Street Edge) Design & Space Allocation Parameters

Design criteria for roadways are determined using the table below. Deviation from the ranges specified should be carefully considered and occur rarely. When deviations occur, they will be documented appropriately.

Street Type	Typical # of Travel Lanes*	Travelway					Target Speed (miles per hour)**	Typical ADT (motor vehicles)	Total Pavement Width‡ (curb to curb)		
		Lane Width			Center Turn Lane / Median	Max.			Typ.	Min.	
		Max.	Pref.	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	

*Total both directions, not including bikeways or any dedicated transit lanes. Upper limits of these ranges may reduce available Flex Zone Street Edge space for on-street parking or loading zones.

**For new streets, design speeds should match target speeds. For retrofit or reconstruction projects, designs should incorporate speed mitigation tactics to reduce speeding and achieve the target speed, as needed. One aspect of achieving lower speeds is reduced corner radii. Corner radii greater than 15' on local streets and 20' on arterial and collector streets should be reviewed and approved by City Traffic Engineer or City Engineer.

†Unless ADT is above 4,000, then a centerline and lanes 10' min up to 11.5' max are provided.

‡ Total midblock curb-to-curb cross section with for the roadway, including all on-street parking, bike lanes, dedicated transit lanes, center turn lanes, and medians. Non-continuous right turn lanes and other factors that widen the roadway at intersections are not included in this figure.

∞Minimum curb-to-curb width for parking on both sides of the street is 36' for a Neighborhood Street and 28' for a Neighborhood Yield Street.

Add New Section 6.4

6.4 Tree Canopy Enhancement Guidance

The table below identifies the compatibility of various tree canopy enhancement options based on the street type. Options that are “M” or maybe require further evaluation based on the individual street. These options can be considered in areas both in and outside of the Tree Priority Areas.

- Consider the location of any bus stop, bike parking, and similar items and how these can be placed to preserve and/or enhance the tree canopy.
- Review should be done as to options that would improve the health of current canopy trees and allow for future canopy tree additions.
- All projects involving street plantings should include additional excavation and soil replacement in the terrace to provide better growing environment for the tree plantings, consistent with section 201.3(d) of the City’s Standard Specifications.

Street Type	Parking Reduction or Elimination	Curb Bump Out	Terrace Support System	Sidewalk Alignment Changes	Median Trees
Urban Ave	Y	M	M	M	Y
Boulevard	Y	M	M	M	Y
Parkway	Y	M	M	M	Y
Mixed-Use Connector	Y	Y	Y	M	M
Community Main Street	Y	Y	Y	M	M
Community Connector	Y	Y	N	Y	M
Mixed-Use Neighborhood Street	Y	Y	M	Y	M
Neighborhood Street	Y	Y	N	Y	NA
Neighborhood Yield Street	Y	Y	N	Y	NA
Civic Space	Y	Y	Y	Y	M
Neighborhood Shared Street	Y	Y	M	Y	NA

*

Add New Section 6.5

6.5 Complete Green Streets Guide & Alignment with Fire Code

The fire lane requirement referenced is summarized as follows:

- 20' clear for commercial buildings up to 30' in height
- 26' clear is required for buildings over 30' where Aerial Apparatus is required. Required on one side of the building, at least 25% of the building perimeter.

A development team can also design their site to include fire lane requirements on the parcel and not in the street. Where this isn't feasible a development team could choose to upgrade construction methods to follow the equivalency guide such as upgrading a wood frame to steel, providing multiple staircases to the roof or installing an enhanced sprinkler system.

The table below identifies street design solutions for new development that intend to use the street to meet the fire lane requirements.

If no options work for the development, a variance to the Complete Green Streets Guide can be requested from the Transportation Commission. The Transportation Commission would review the project and propose a motion to either approve or deny the variance request.

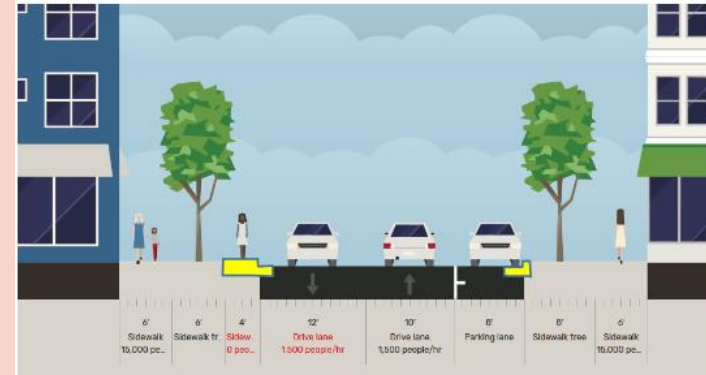
Street Design Option

Option 1 - Limit parking to one side of street

- Include a 4' paved terrace
- Include a 4' rolled curb

Notes:

- Signs and light poles would be allowed in terrace
- Verify 4' curb works with storm management plan
- Sow plowing of terrace will be responsibility of property owner, not City.



Option 2 - Build 26' street with no parking

- 22' pavement with 2' curb pans



Street Design Option

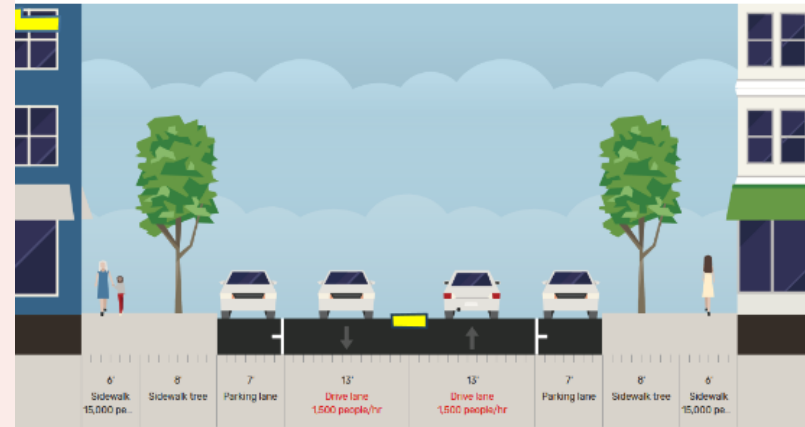
Option 3 - Limit parking to one side of street

- Include a 4' curb pan
- Similar to Option 1. Can be used if stormwater management plan requires full curb head



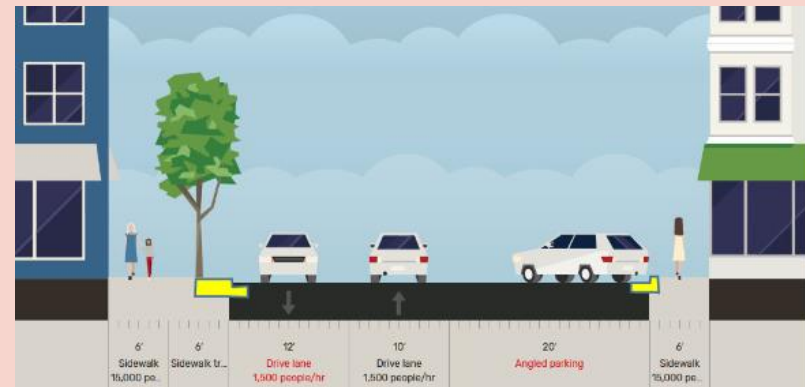
Option 4 – Build a small island in the center of the street

- Not full curb height



Option 5 – Limit parking to one side with back in angled parking

- Include 4' paved terrace



Staff Recommended Changes

- Update Equity Priority Areas using new city map
- Update Boulevard description to add “Feature tree lined sidewalks, terraces and medians.”
- Changes to 6.1 Design Parameters table
 - Change Column Name to: Total Walkway Zone Width
 - Add footnote: New streets or dedications require an 8’ minimum terrace
 - Add footnote that measurement for Flex Zone is from face of curb when no parking
 - Remove typical ADT from this table
- Changes to 6.2
 - Change Typical ADT to Estimated ADT
 - New footnote on Neighborhood Yield Street - Streets without driveways need to meet the fire lane requirements noted in Section 6.5
 - New footnote on Community Connector and Community Main St - Transit vehicles need a dynamic envelope of a minimum of 10’ lane with a buffer such as a 2’ gutter.
- Add Section 6.4 Tree Canopy Enhancement Guidance
- Add Section 6.5 Complete Green Streets Guide & Alignment with Fire Code

Transportation Commission Discussion

- Review of modal hierarchy and if it should change or stay as is
- How best reflect a Neighborhood Yield Street – issue of streets with low parking usage which then don't operate as a yield street
- Street should be last resort for fire code compliance not first choice.
- How do fire lanes that rely on the street impact where trees are planted?
- How should trees impact making safe streets for people? Putting people first and modal hierarchy vs desire to increase tree canopy.
- How does tree planting take into consideration the need for shade at locations like bus stops?
- Could there be a tree “off-set” – if terraces can't be widened in Tree Equity Priority Area to accommodate canopy trees then they would be planted on a nearby street or in a park to meet the broader goal of increased canopy.
- Should the Overlays be ranked in order of importance?
- Where does undergrounding of powerlines fit in this discussion of trees?
- Should DGI be on the Overlay table as it doesn't cause trade-offs in other facilities as often?