

RS 7. A. 11/7/23
Presentation

Road Design 101

November 7, 2023

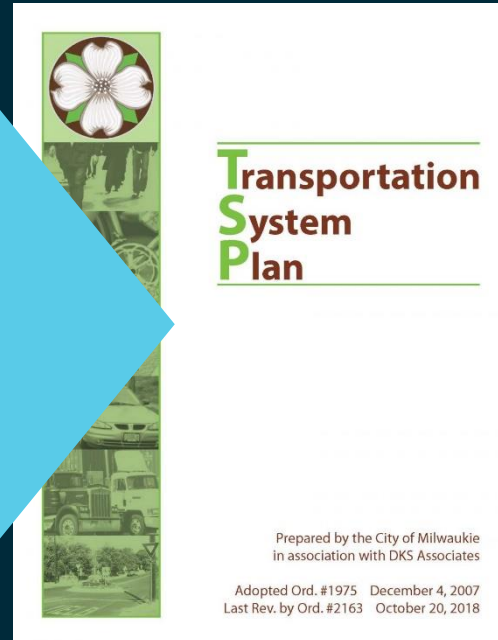
Jennifer Garbely, PE



1. Policy context: Where to find Milwaukie's design requirements?
2. Road types in Milwaukie
3. Traffic calming toolbox
4. Intersection failures
5. Street surface repair methods
6. Sidewalk construction priorities
7. Questions

POLICY CONTEXT

The **TSP** sets out the **goals, policies, and elements** the city seeks to implement to improve its transportation system.



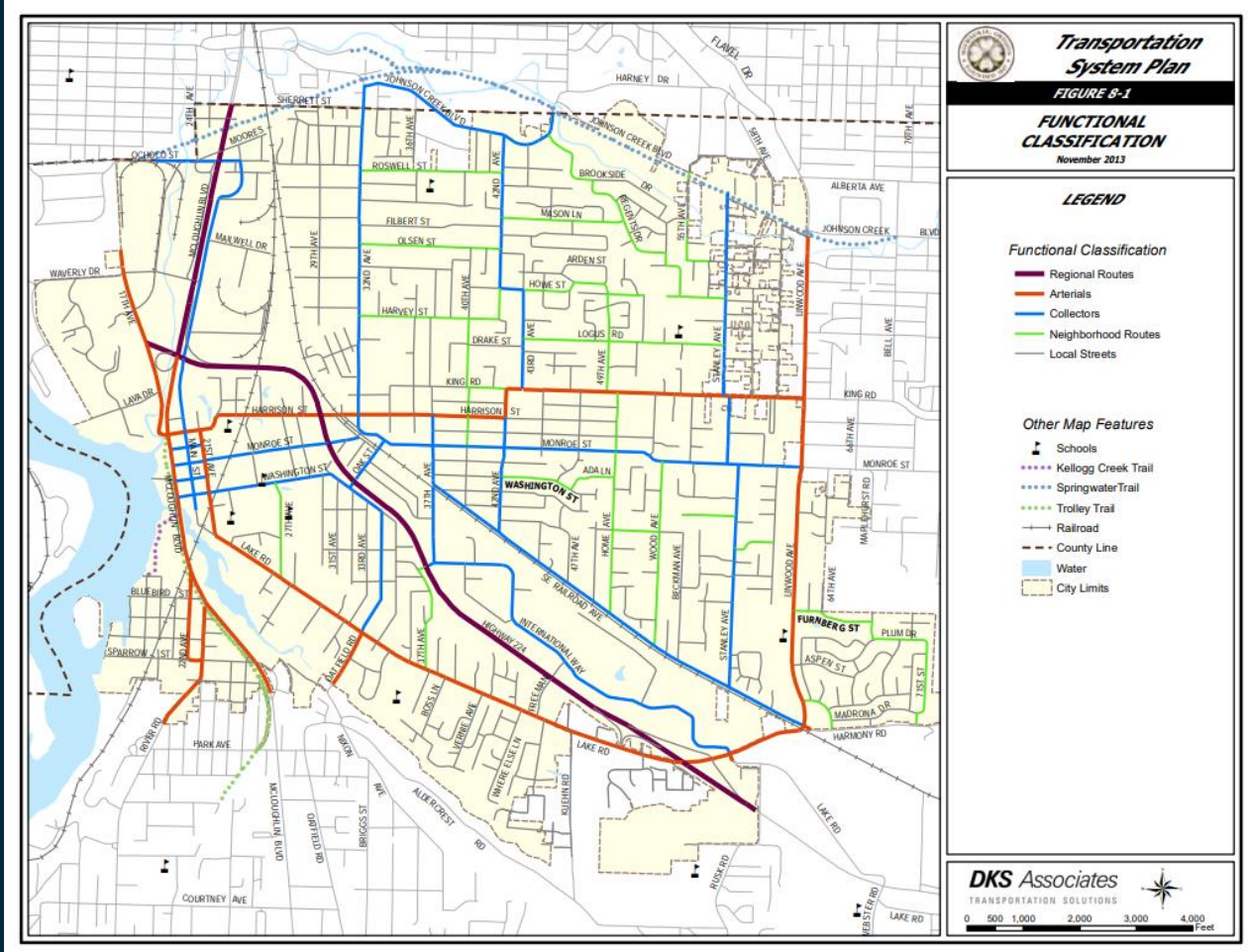
The **Public Works Standards** are the specifications to which city engineers and other external developers must **construct improvements in the right of way.**



The Public Works Standards provide design specifications for elements called out in the TSP

ROAD TYPES IN MILWAUKIE

Road classifications designated in the Transportation System Plan (TSP):



- **Regional Routes:**
 - 20,000 vehicles per day
 - 4 or more lanes
 - Generally high speeds
- **Arterials:**
 - 10,000 vehicles per day
 - 2 or more lanes
 - 30 – 45 MPH
- **Collectors:**
 - 5-10,000 vehicles a day
 - 2-3 lanes
 - 25 – 35 MPH
- **Neighborhood Routes:**
 - 1,500 – 5,000 vehicles a day
 - 2 lanes
 - 25 MPH or lower
- **Local Streets:**
 - Less than 1,500 vehicles a day
 - 2 lanes
 - 25 MPH or lower

Milwaukie's Public Works Standards contain specifications for width, striping, grading, curves, etc. for each classification

WHAT IS TRAFFIC CALMING?

Strategies that “**[reduce] automobile speeds or volumes**, mainly through the use of physical measures, to improve quality of life in both residential and commercial areas and **increase the safety and comfort of walking and bicycling.**” (USDOT FHWA)

- **Horizontal Deflection**
- **Vertical Deflection**
- **Volume Measures**
- **Other Measures**

TRAFFIC CALMING TOOLBOX

Horizontal Deflection

- Bulbouts
- Chokers
- Chicanes
- Curvilinear streets
- Skinny streets/narrow lanes
- Center medians
- Traffic circles
- Offset intersections



TRAFFIC CALMING TOOLBOX



Vertical Deflection

- Raised crosswalks
- Raised intersections
- Speed cushions



TRAFFIC CALMING TOOLBOX

Volume Control Measures

- Full/partial closures
- Center median barriers
- Diverters
- One-way streets



TRAFFIC CALMING TOOLBOX



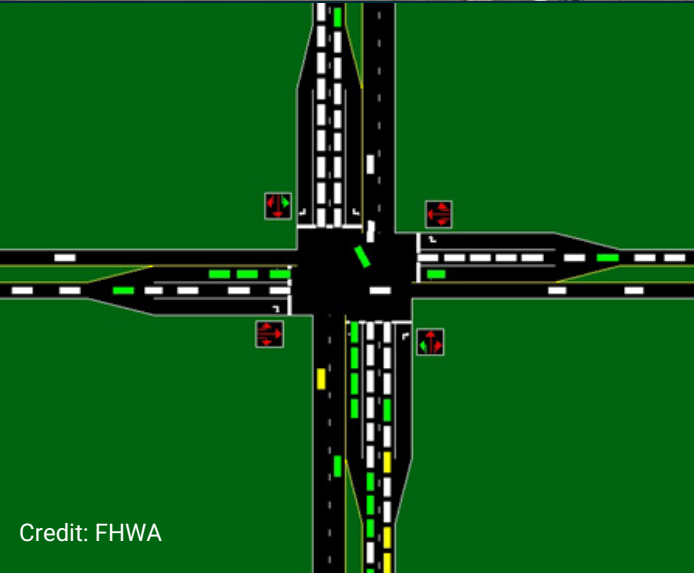
Other Measures

- Pavement alternatives
- Entry treatments
- On-street parking
- Truck restrictions
- Signal timing
- Enforcement and education
- Speed reader boards
- Shared streets
- Trees and Landscaping
- Paint and markings

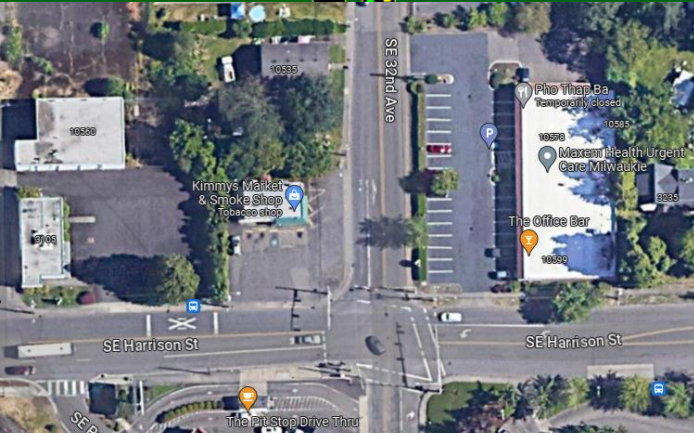
INTERSECTION FAILURES



Credit: Hearst Connecticut Media



Credit: FHWA



- Traffic designers use “level of service” ratings to understand how well a transportation facility is working for all users.
- The Highway Capacity Manual defines level of service scores for evaluating different roadway facilities.
- A “F” level of service score for an intersection means most intersection cycles are not able to clear the queue of cars or large delay times.
- Intersections that are or are close to failing in Milwaukie include:
 - Harrison and 42nd
 - Johnson Creek and 42nd
 - Lake & Harmony
 - Harrison and 32nd upcoming
- Level of service is not the only metric we use to evaluate and prioritize infrastructure improvement needs.

STREET SURFACE REPAIR METHODS



Crack Seal



Slurry Seal

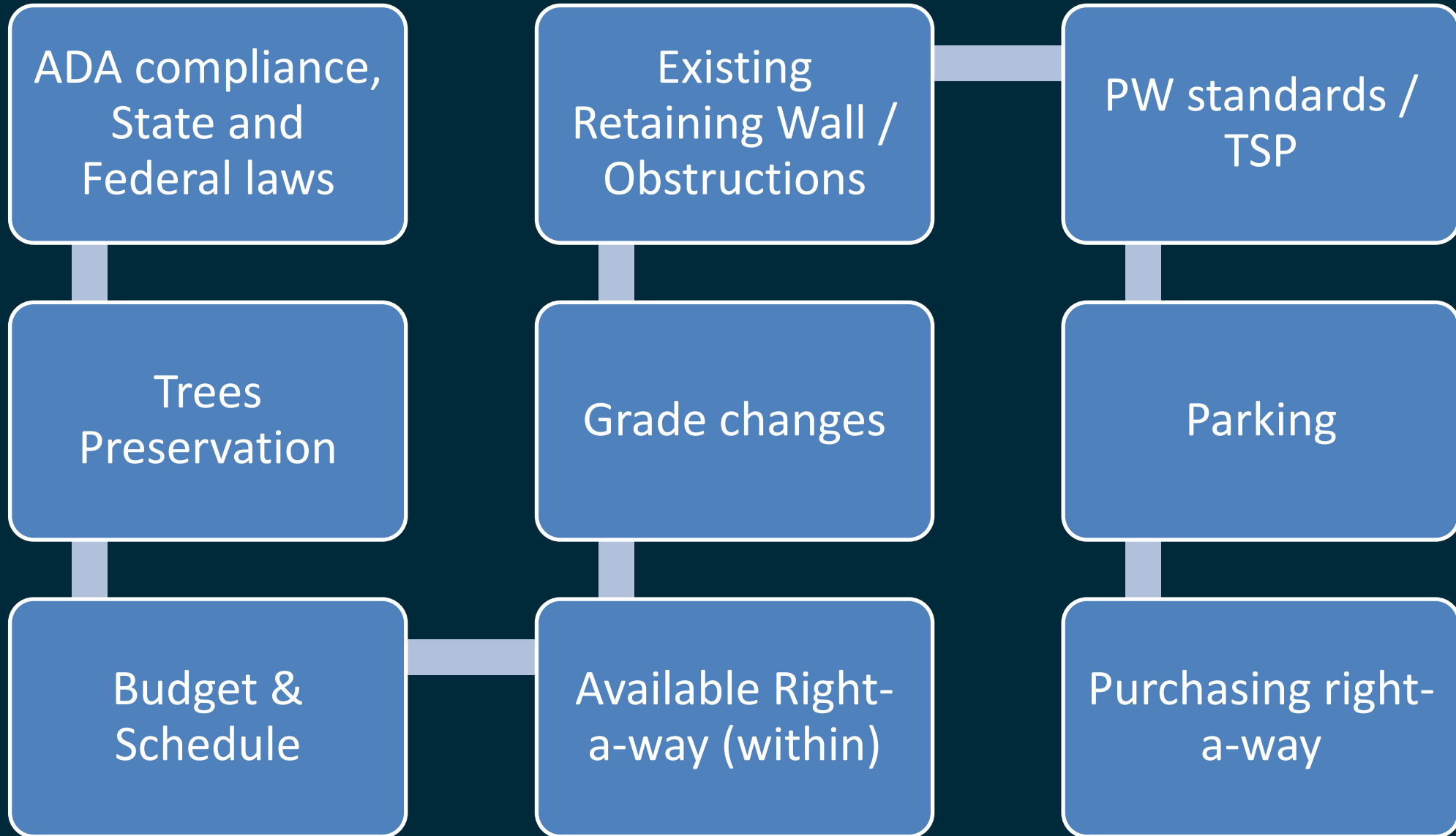


Mill &
inlay/overlay

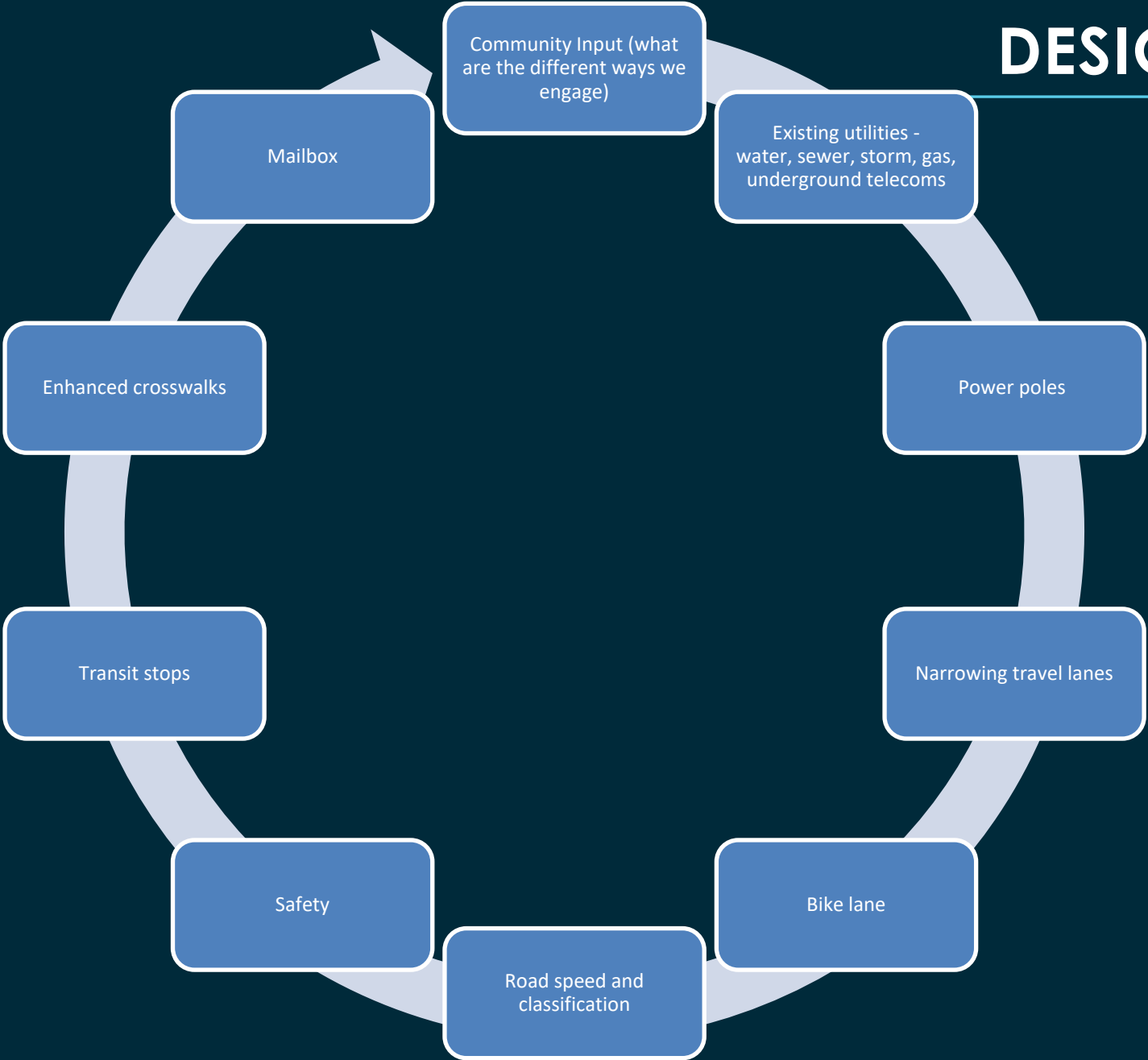


Full depth
repaving

SIDEWALK CONSTRUCTION PRIORITIES



DESIGN CONSIDERATIONS



**QUESTIONS OR
COMMENTS?**