



To: Members of the Advisory Committee for the City of Milwaukie's Transportation System Plan 2023-2025 Update

From: Laura Weigel, Planning Manager

Date: November 14, 2024, for Thursday, November 21, 2024, TSPAC Meeting #7

Subject: Meeting Materials

Dear Committee Members,

The focus of our upcoming meeting will be to:

- Review the Multimodal Needs and Gaps Summary
- Review the DRAFT Project Evaluation Assessment Table

Please see the packet memo for details about the maps and our upcoming discussion.

We thank you once again for dedicating your time and energy to this process and are excited to be developing a transportation system that benefits all Milwaukie residents. Should you have any questions or require further information, please do not hesitate to reach out. I look forward to seeing you next Thursday.

Sincerely,

Laura Weigel, AICP
Planning Manager

Attachments:

Exhibit A. Multimodal Needs and Gaps Summary

Exhibit B. DRAFT Project Evaluation Assessment Table

Overview

The following sets of maps were created based on input received at the last TSPAC Meeting in August and the supplemental inventory work you helped with in September, **Thank You!**

The inventory work has led to the enclosed updated pedestrian and bicycle level of traffic stress analysis (PLTS and BLTS). Using a methodology rooted in different priority focus areas (Milwaukie Town Center, schools, grocery stores, neighborhood hubs, and transit stops), the maps identify the resulting gaps and deficiencies in the multimodal transportation network.

At the meeting next week, we will discuss the analysis methodology and results in detail, and ask for your input on the following topics:

- Are the identified PLTS and BLTS targets appropriate given the existing urban context and the overall levels of inventory gaps and needs?
- Recognizing that the priority focus areas are a subset of the overall key destinations you helped us develop, do we need to refine these focus areas?

At the meeting we will also provide a look-ahead at how this information will be used to create an overall prioritized list of projects.

Enclosed Pedestrian Facilities and Needs/Gaps Maps

Figure 11. Existing Pedestrian Facilities

Figure 12. Pedestrian Level of Traffic Stress

Figure 13A. Pedestrian Gaps and Deficiencies – Citywide

Figure 13B. Pedestrian Gaps and Deficiencies – Priority Focus Areas

Figure 13C. Pedestrian Gaps and Deficiencies – Milwaukie Town Center

Figure 13D. Pedestrian Gaps and Deficiencies – Primary, Secondary, Post Secondary Schools

Figure 13E. Pedestrian Gaps and Deficiencies – Grocery Stores

Figure 13F. Pedestrian Gaps and Deficiencies – Neighborhood Hubs

Figure 13G. Pedestrian Gaps and Deficiencies – Transit Stops

Enclosed Bicycle Facilities and Needs/Gaps Maps

Figure 14. Existing Bicycle Facilities

Figure 15. Bicycle Level of Traffic Stress

Figure 16A. Bicycle Gaps and Deficiencies – Citywide

Figure 16B Bicycle Gaps and Deficiencies – Priority Focus Areas

Figure 16C Bicycle Gaps and Deficiencies – Milwaukie Town Center

Figure 16D Bicycle Gaps and Deficiencies – Primary, Secondary, Post Secondary Schools

Figure 16E Bicycle Gaps and Deficiencies – Grocery Stores

Figure 16F Bicycle Gaps and Deficiencies – Neighborhood Hubs

Figure 16G Bicycle Gaps and Deficiencies – Transit Stops

Pedestrian and Bicycle Facilities

Pedestrian and bicycle facilities provide infrastructure for people to walk, bike, roll, or use mobility devices. In the City of Milwaukie, the pedestrian and bicycle accommodations primarily consist of on-street facilities and multi-use trails.

Pedestrian Facilities

Pedestrian facilities refer to infrastructure designed for people walking or using mobility devices and typically include sidewalks, trails, crossings, and curb ramps. A well-connected pedestrian network provides safe and efficient links between pedestrian trip generators like schools, commercial areas, neighborhood hubs, residential neighborhoods, and other pedestrian attractors.

Figure 11 illustrates all of the pedestrian facilities within the City of Milwaukie. As shown, this consists of sidewalks on one or both sides of select roadways and a collection of trails and multi-use paths. There are approximately 68 miles of sidewalk/on-street multi-use pathway facilities today, and only 37% of those sidewalks are wider than 5 feet and without identified barriers.

Pedestrian Level of Traffic Stress

The ODOT Analysis Procedures Manual (APM) provides a methodology for evaluating pedestrian environments called Pedestrian Level of Traffic Stress (PLTS). This methodology classifies four levels of traffic stress that a person walking can experience, ranging from PLTS 1 (little traffic stress) to PLTS 4 (high traffic stress). A segment that is rated PLTS 1 has wide sidewalks that are set back from adjacent traffic lanes and is typically suitable for all users, including young children and people using mobility devices. A segment that is rated PLTS 4 is generally located along high speed, multilane roadways with narrow or missing sidewalks and would only be utilized by able-bodied adults with limited route choices. Per the APM, PLTS 2 is considered a reasonable target for pedestrian facilities due to its acceptability for most adults; however, within a ¼ mile of schools, in downtown cores, and near transit stops, a target of PLTS 1 is recommended. The APM also notes that there should be no PLTS 3 or 4 facilities within ¼ mile of elementary schools because of the associated safety concerns. **The City of Milwaukie should strive to achieve PLTS 1 where feasible, particularly in the vicinity of schools, however given the fact that Milwaukie is almost completely built out there are constraints such as the lack of right-of-way available that make a PLTS 1 unfeasible in many situations. Based on the city's constraints the consultant team believes that in Milwaukie PLTS 2 is an acceptable target as it is accessible for most users.**

Figure 12 illustrates the existing PLTS in the planning area. Under existing conditions, approximately 15% of the roadway network¹ in Milwaukie is PLTS 1 or 2. A majority of the roadways in the city have a PLTS 4 score due to the lack sidewalk facilities or they have obstructions that limit the effective sidewalk width.

¹ The roadway network was estimated by multiplying roadway centerline miles by two, recognizing a complete pedestrian network would achieve PLTS 1 or 2 on both sides of the street.

Pedestrian Gaps Inventory

Figure 13A illustrates the citywide pedestrian gaps. Gaps include the following conditions:

- Missing pedestrian facilities
- Segments that are rated PLTS 3 or PLTS 4
- Locations where there have been reported injuries and deaths of people walking or using a mobility device from the most recent 5 years of available crash data (2018-2022)

The vast majority of roadways in Milwaukie do not meet the preliminarily identified PLTS 2 target. Consistent with the new TPR requirements, the Milwaukie TSP will focus on identifying and evaluating projects that are in the Milwaukie Town Center or that are within a ¼ mile walkshed² of schools, grocery stores, neighborhood hubs, and transit stops. Figure 13B illustrates the gaps and needs in those priority focus areas. Figures 13C through 13G provide the individual gaps for each of those respective geographic walksheds.

This map will be used in conjunction with your input and input from the community to develop a prioritized list of constrained and unconstrained improvement projects.

² Quarter-mile walksheds are defined as the roadway segments that could be accessed by walking a quarter linear mile to a destination.

Bicycle Facilities

Bicycle facilities refer to infrastructure designed for people biking, including bike lanes, shared use paths, paved shoulders, and the crossing infrastructure that supports a well-connected bicycle network, such as ramps and rectangular rapid flashing beacons (RRFBs).

Figure 14 maps existing bicycle facilities in the City of Milwaukie. Like pedestrian facilities, bicycle facilities serve a variety of trips, including trips to major attractions such as schools, parks, retail centers, and public facilities; commuter trips; recreational trips; and access to transit. The existing bicycle system in the City of Milwaukie consists of dedicated bicycle lanes, shared use paths/trails, and paved shoulders. There are approximately 16 miles of bicycle lanes, on-street pedestrian and bicycle pathways, and multi-use paths in Milwaukie.

Bicycle Level of Traffic Stress

The ODOT APM provides a methodology for evaluating bicycle environments called Bicycle Level of Traffic Stress (BLTS)³. As applied by ODOT, this methodology classifies four levels of traffic stress that a person biking can experience on the roadway, ranging from BLTS 1 (little traffic stress) to BLTS 4 (high traffic stress). A road segment that is rated BLTS 1 generally has low traffic volumes and travel speeds and/or enhanced bicycle facilities and is typically suitable for all users, including children. A road segment that is rated BLTS 4 generally has high traffic volumes and travel speeds and is perceived as unsafe by most adults. Per the ODOT APM, BLTS 2 is considered a reasonable target for bicycle facilities due to its acceptability for most adults; however, within a ¼ mile of schools, a target of BLTS 1 is recommended. **The City should strive to achieve BLTS 1 where feasible, particularly in the vicinity of schools and along priority bicycle routes.**

Figure 15 illustrates the existing BLTS in the planning area. Under existing conditions, approximately 73% of existing roadways in Milwaukie are BLTS 1 or 2. The majority of roadways in Milwaukie are low-stress, local streets – however roadways within the Town Center have higher volumes and therefore higher traffic stress.

³ This methodology was completed using assumptions to fill in some missing data including precise bike lane widths, precise average daily traffic volumes on some streets, and roadway grades.

Bicycle Gaps Inventory

Figure 16A illustrates the citywide bicycle gaps. Gaps include the following conditions:

- Missing bicycle facilities on arterials or collectors⁴
- Segments that are BLTS 2, BLTS 3, or BLTS 4
- Locations where there have been reported severe injuries and deaths of people biking from the most recent 5 years of available crash data (2018-2022)

Consistent with the new TPR requirements, the TSP will focus on identifying and evaluating projects that are in the Town Center or that are within ¼ mile bikeshed⁵ of schools, grocery stores, neighborhood hubs, and transit stops. Figure 16B illustrates the gaps and needs in those priority focus areas. Figures 16C through 16G provide the individual gaps for each of those respective bikesheds.

This map will be used in conjunction with your input and input from the community to develop a prioritized list of constrained and unconstrained improvement projects.

⁴ Due to the low volume and speed nature of local streets, designated bicycle facilities are not required on local streets.

⁵ Quarter-mile bikesheds are defined as the roadway segments that could be accessed by biking a quarter linear mile to a destination.



FIGURE 12

**Pedestrian
Level of Traffic Stress**

Legend

- PLTS 1
- PLTS 2
- PLTS 3
- PLTS 4
- No Sidewalk
- Schools
- Grocery Store
- Farmers markets
- Hospital (Providence Milwaukie)
- Library
- Neighborhood Hub
- Church
- Large Adult Care Facility
- Large Childcare Facility
- Housing
- MAX Station
- Park
- Milwaukie City Boundary
- Milwaukie Town Center
- Parks

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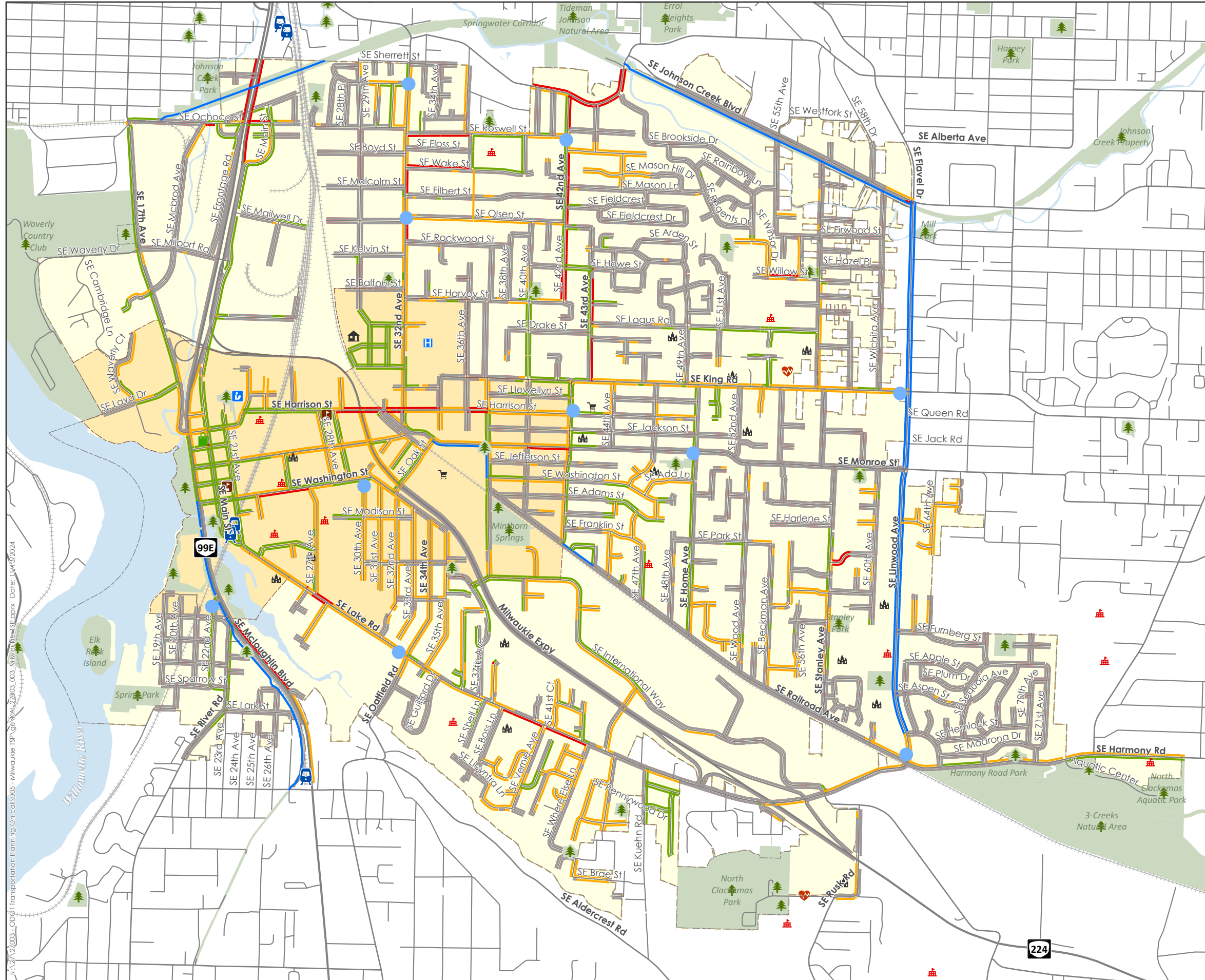











FIGURE 13A
Pedestrian Gaps and Deficiencies
Citywide

Legend

-  Pedestrian Facility Does Not Meet the PLTS 2 Target
-  No Sidewalk
-  Fatal Pedestrian Crash
-  Severe Injury Pedestrian Crash
-  Milwaukie City Limits
-  Milwaukie Town Center
-  Parks

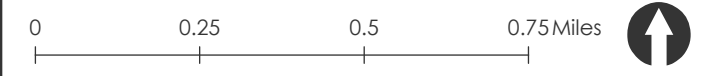
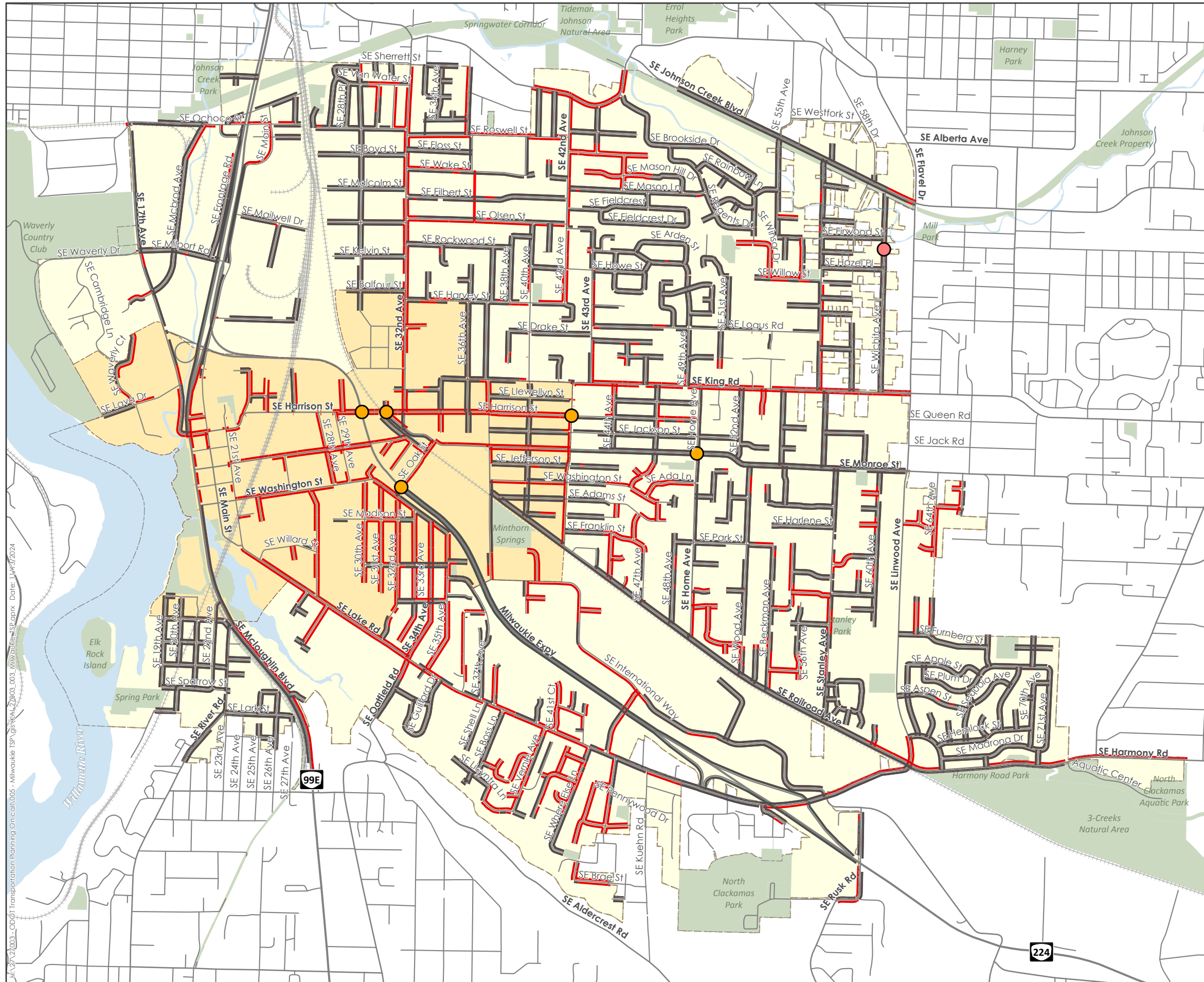





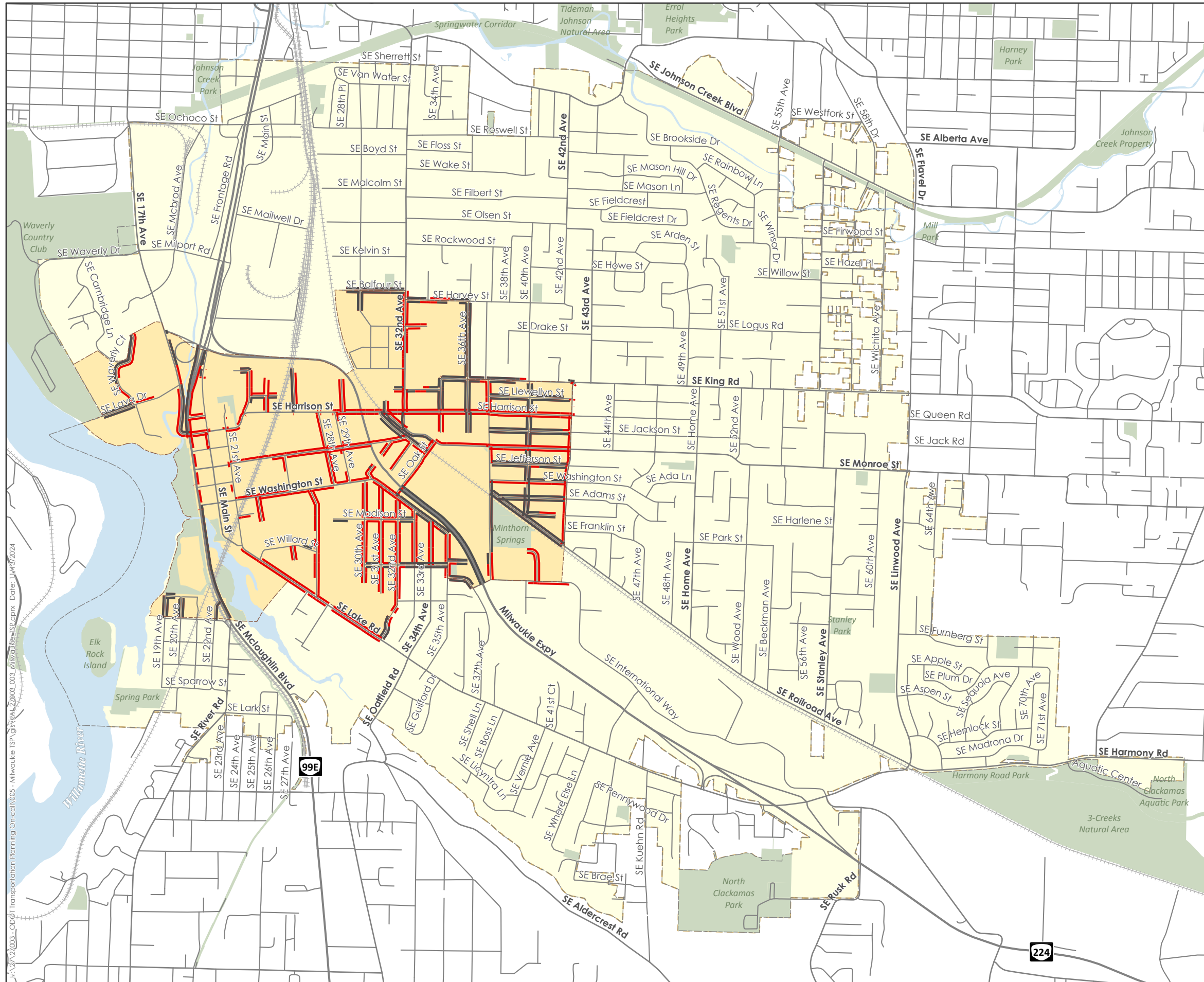




FIGURE 13C
Pedestrian Gaps and Deficiencies
Milwaukie Town Center

Legend

-  Pedestrian Facility Does Not Meet the PLTS 2 Target
-  No Sidewalk
-  Milwaukie City Limits
-  Milwaukie Town Center
-  Parks



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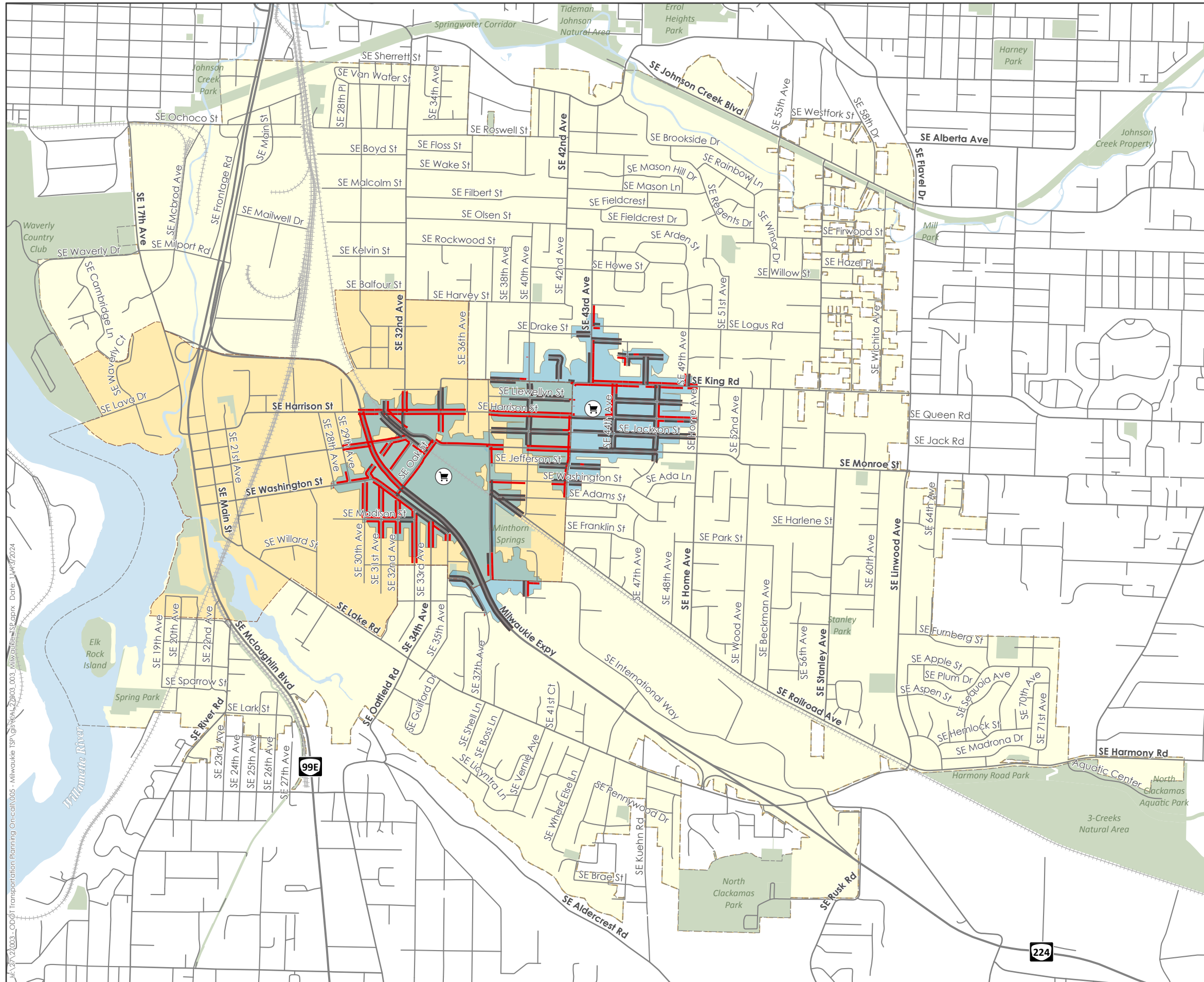




FIGURE 13E
Pedestrian Gaps and
Deficiencies
Grocery Stores

Legend

- Grocery Store
- Pedestrian Facility Does Not Meet the PLTS 2 Target
- No Sidewalk
- Quarter-Mile Walkshed Area
- Milwaukie City Limits
- Milwaukie Town Center
- Parks



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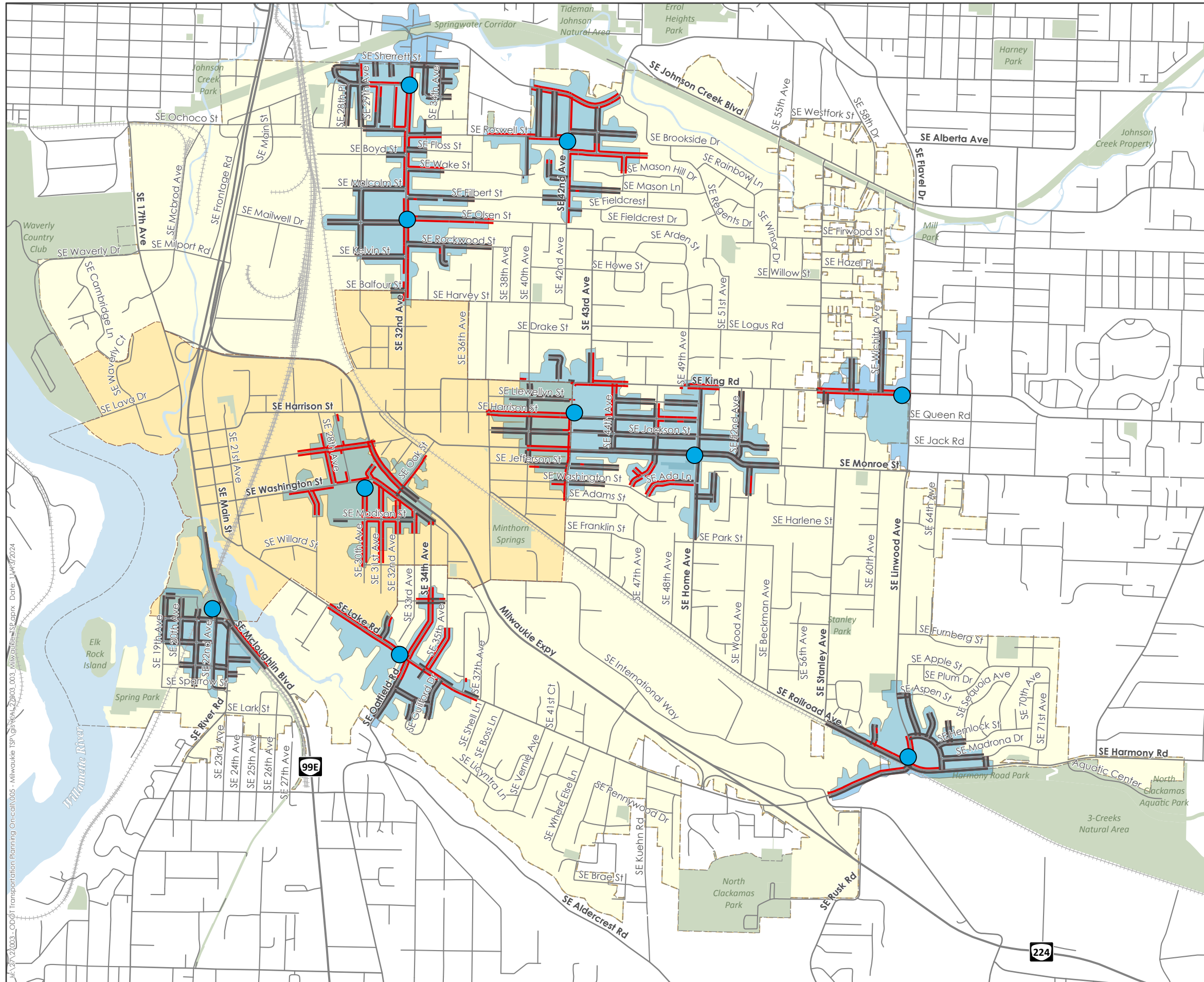
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FIGURE 13F
Pedestrian Gaps and Deficiencies
Neighborhood Hubs

Legend

-  Neighborhood Hub
-  Pedestrian Facility Does Not Meet the PLTS 2 Target
-  No Sidewalk
-  Quarter-Mile Walkshed Area
-  Milwaukie City Limits
-  Milwaukie Town Center
-  Parks



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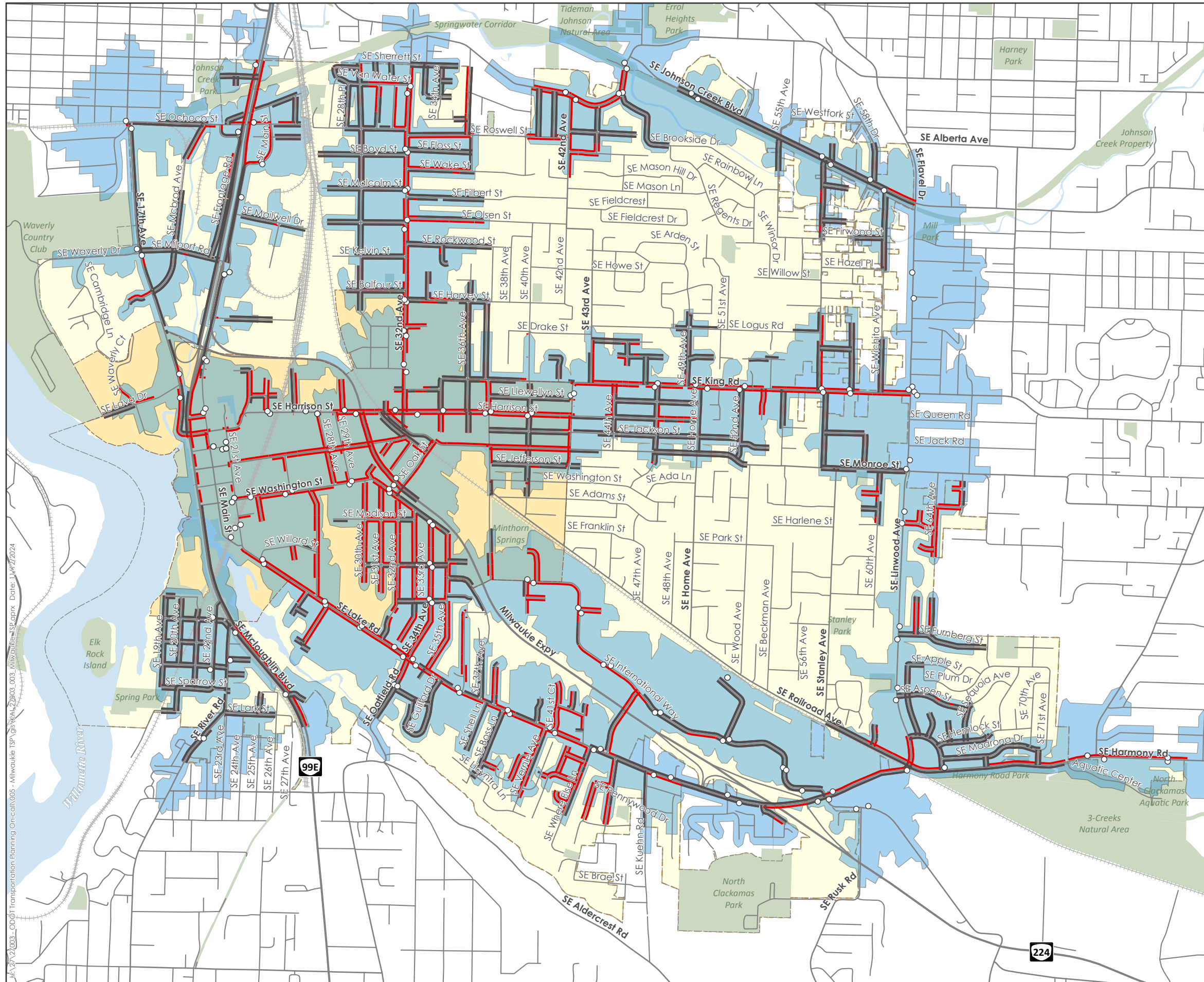




FIGURE 13G
Pedestrian Gaps and Deficiencies
Transit Stops

Legend

- Bus Stop
- Pedestrian Facility Does Not Meet the PLTS 2 Target
- No Sidewalk
- Quarter-Mile Walkshed
- Milwaukie City Limits
- Milwaukie Town Center
- Parks



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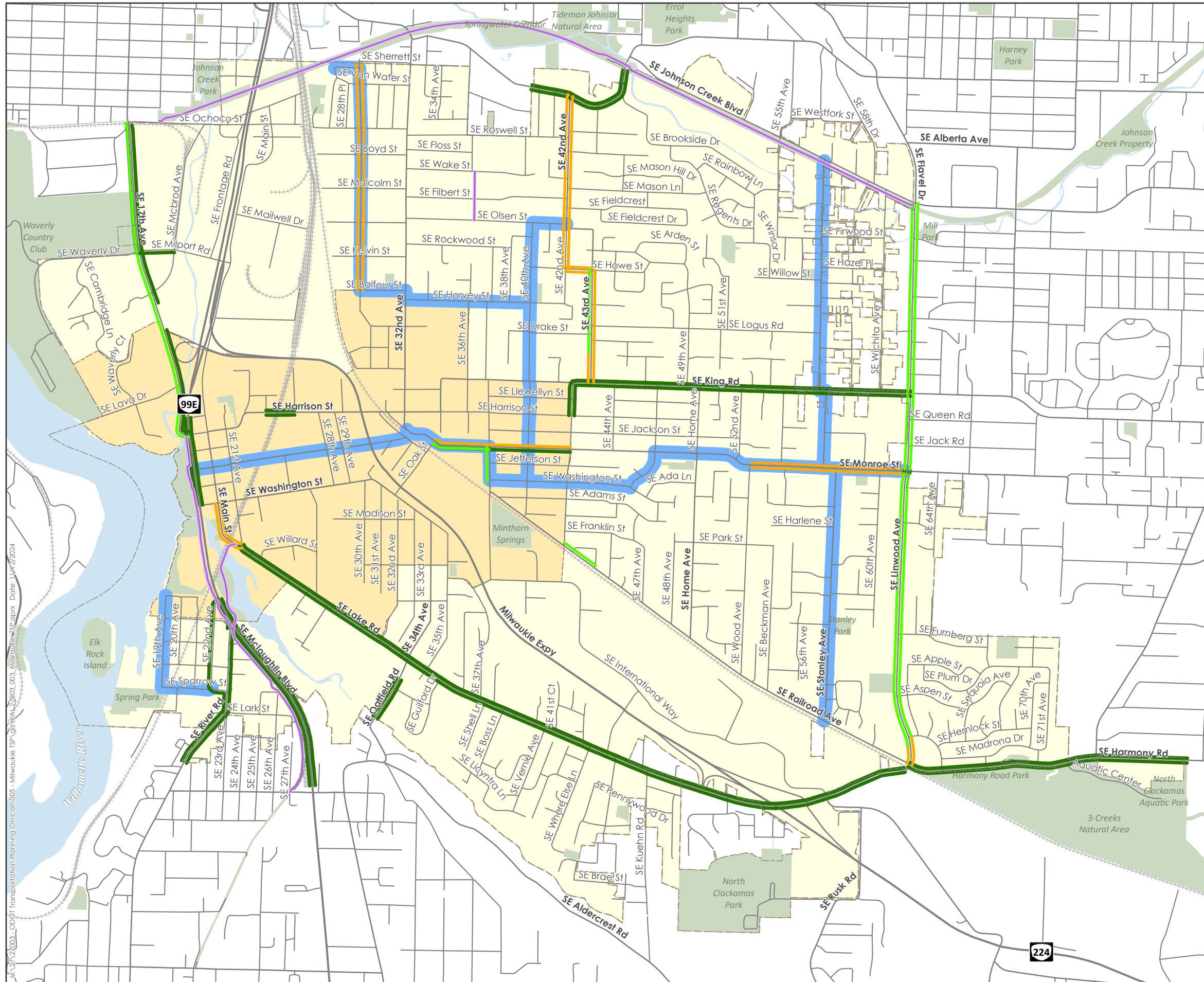


FIGURE 14

Bicycle Facilities

Legend

-  Bicycle Lanes
-  Shared Roads
-  On-Street Ped/Bike Pathway
-  Multi-Use Path
-  Greenway (Overlay Designation)
-  Milwaukie City Limits
-  Milwaukie Town Center
-  Parks



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0 0.25 0.5 0.75 Miles



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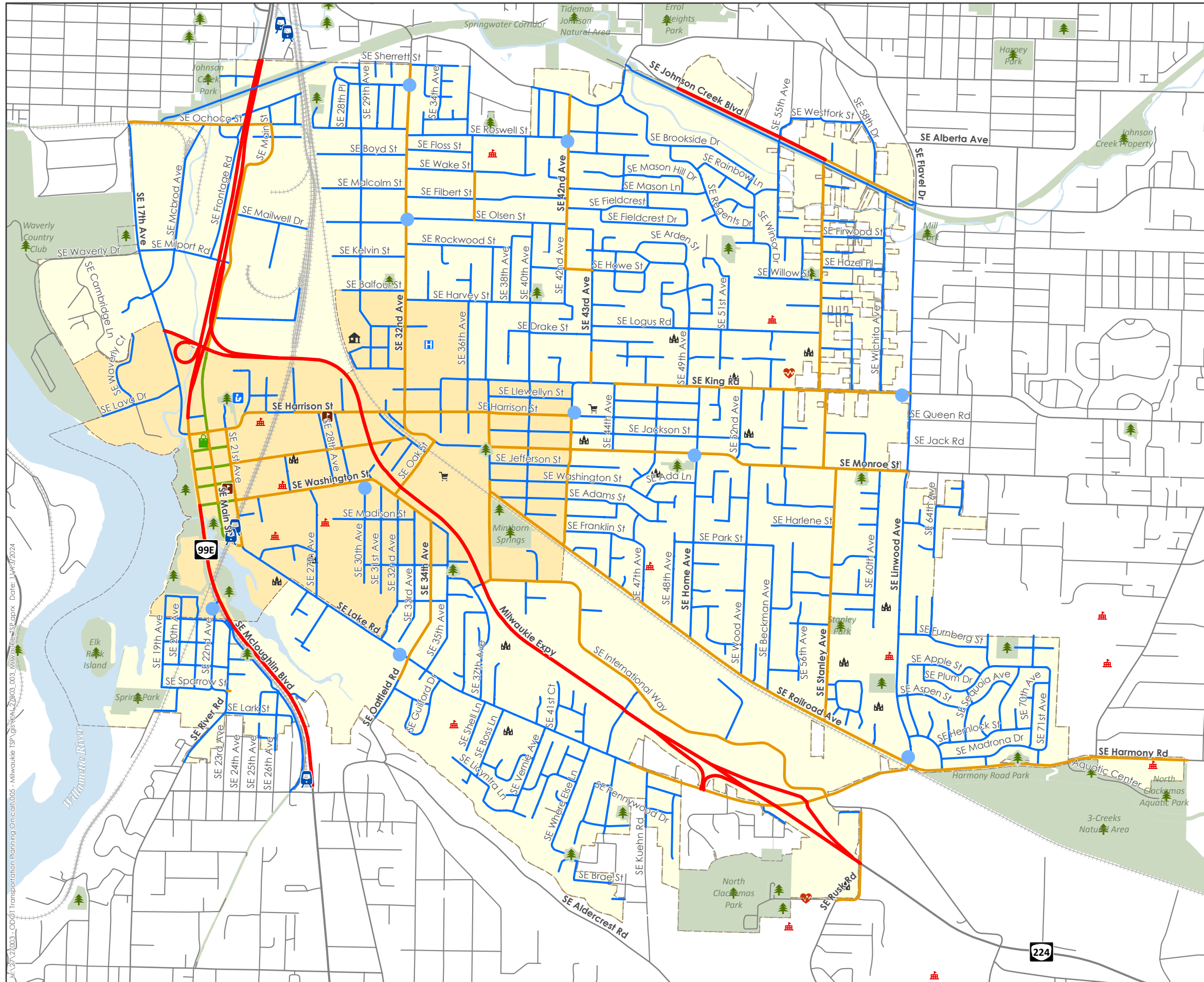


FIGURE 15

**Bicycle
Level of Traffic Stress**

Legend

- BLTS 1
- BLTS 2
- BLTS 3
- BLTS 4
- Schools
- Grocery Store
- Farmers markets
- Hospital (Providence Milwaukie)
- Library
- Neighborhood Hub
- Church
- Large Adult Care Facility
- Large Childcare Facility
- Housing
- MAX Station
- Park
- Milwaukie City Boundary
- Milwaukie Town Center
- Parks



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0 0.25 0.5 0.75 Miles





FIGURE 16A
Bicycle Gaps and Deficiencies
Citywide

Legend

-  Bicycle Facility Does Not Meet the BLTS 1 Target
-  No Bicycle Facility
-  Severe Injury
-  Milwaukie City Limits
-  Milwaukie Town Center
-  Parks

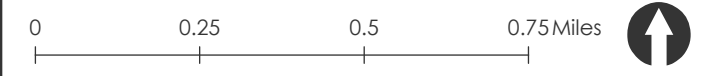
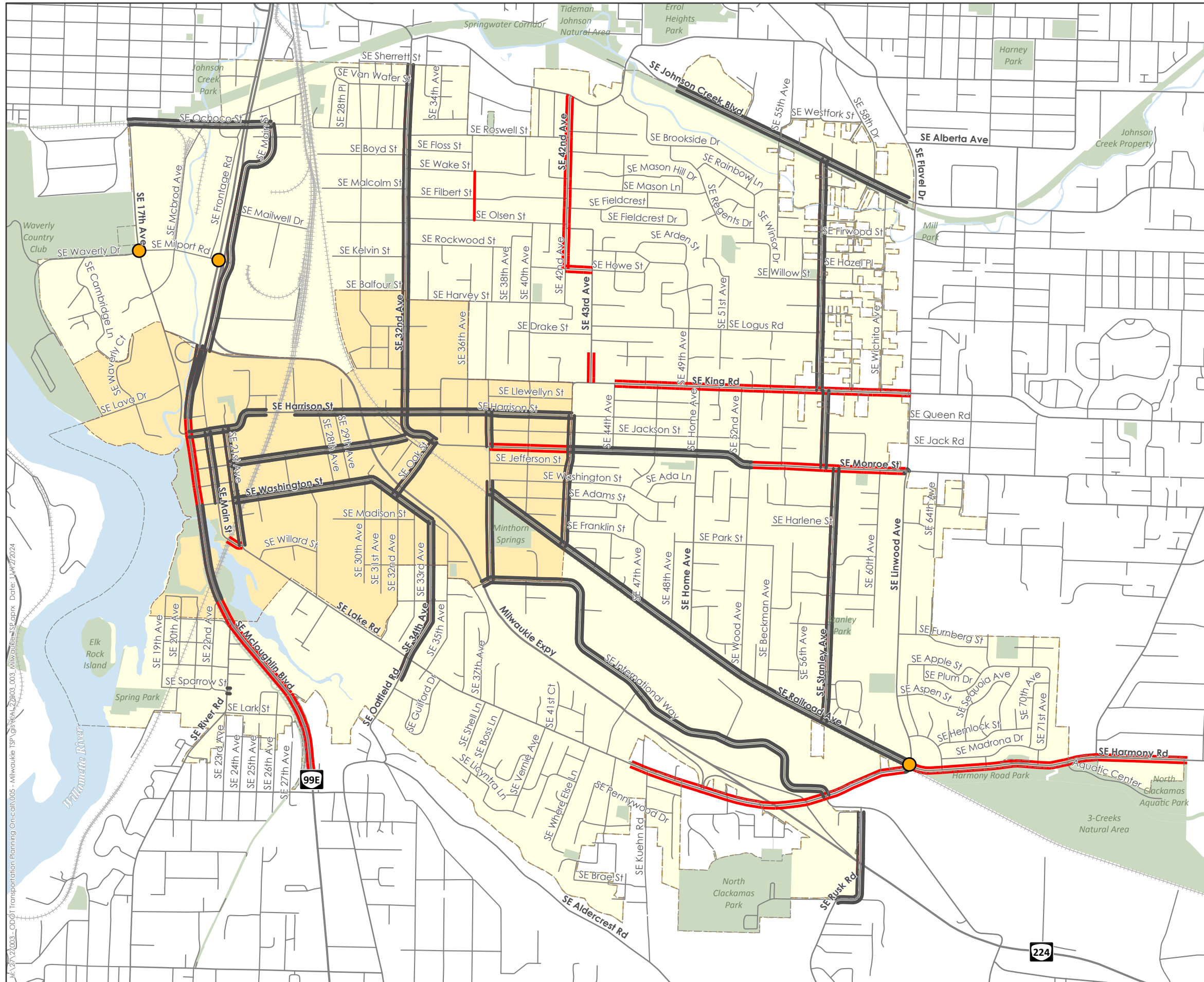









FIGURE 16B
Bicycle Gaps and Deficiencies
Priority Focus Areas

Legend

-  Bicycle Facility Does Not Meet the BLTS 1 Target
-  No Bicycle Facility
-  Priority Focus Area
-  Milwaukie City Limits
-  Parks

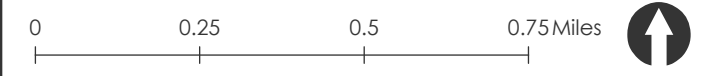
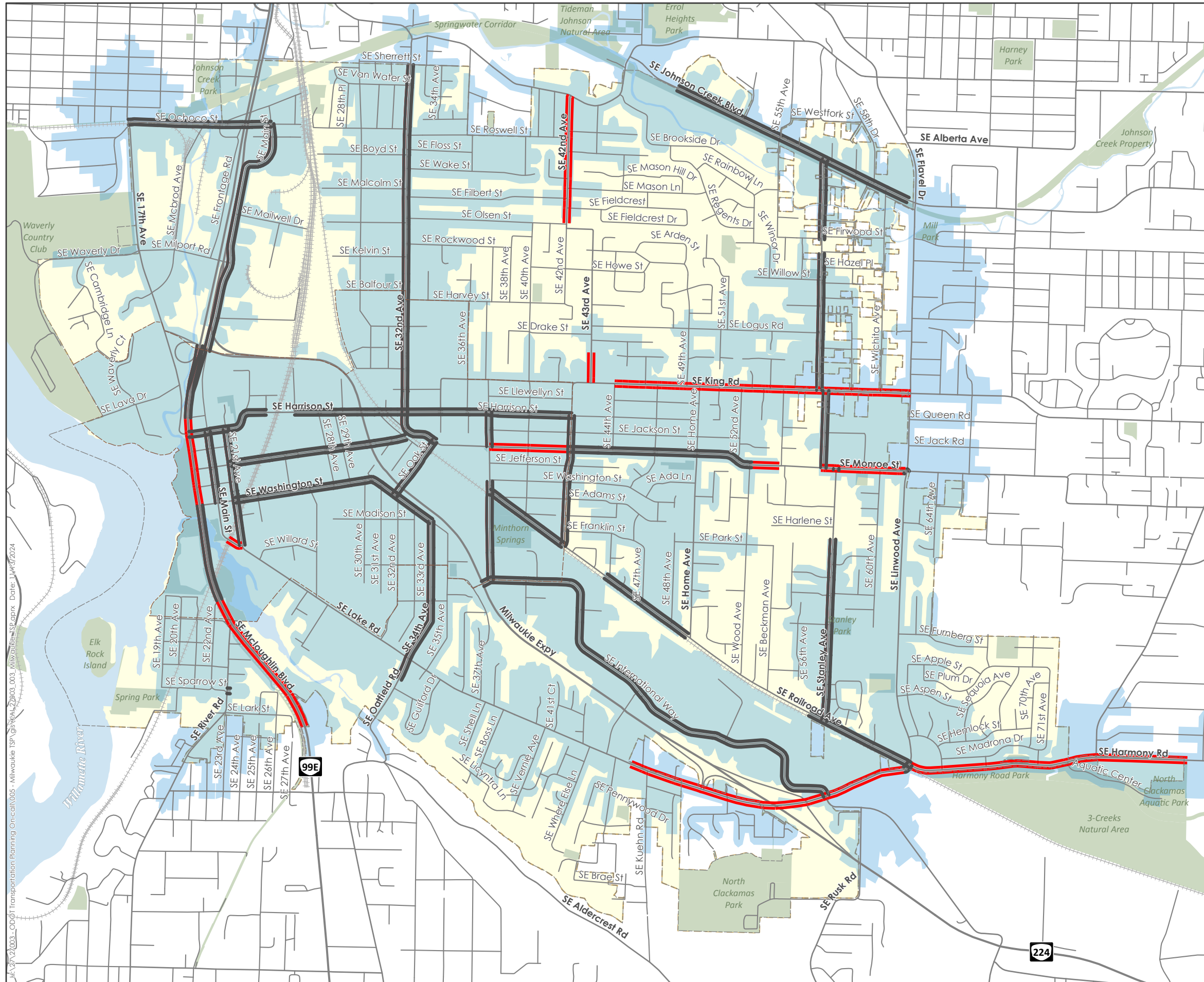





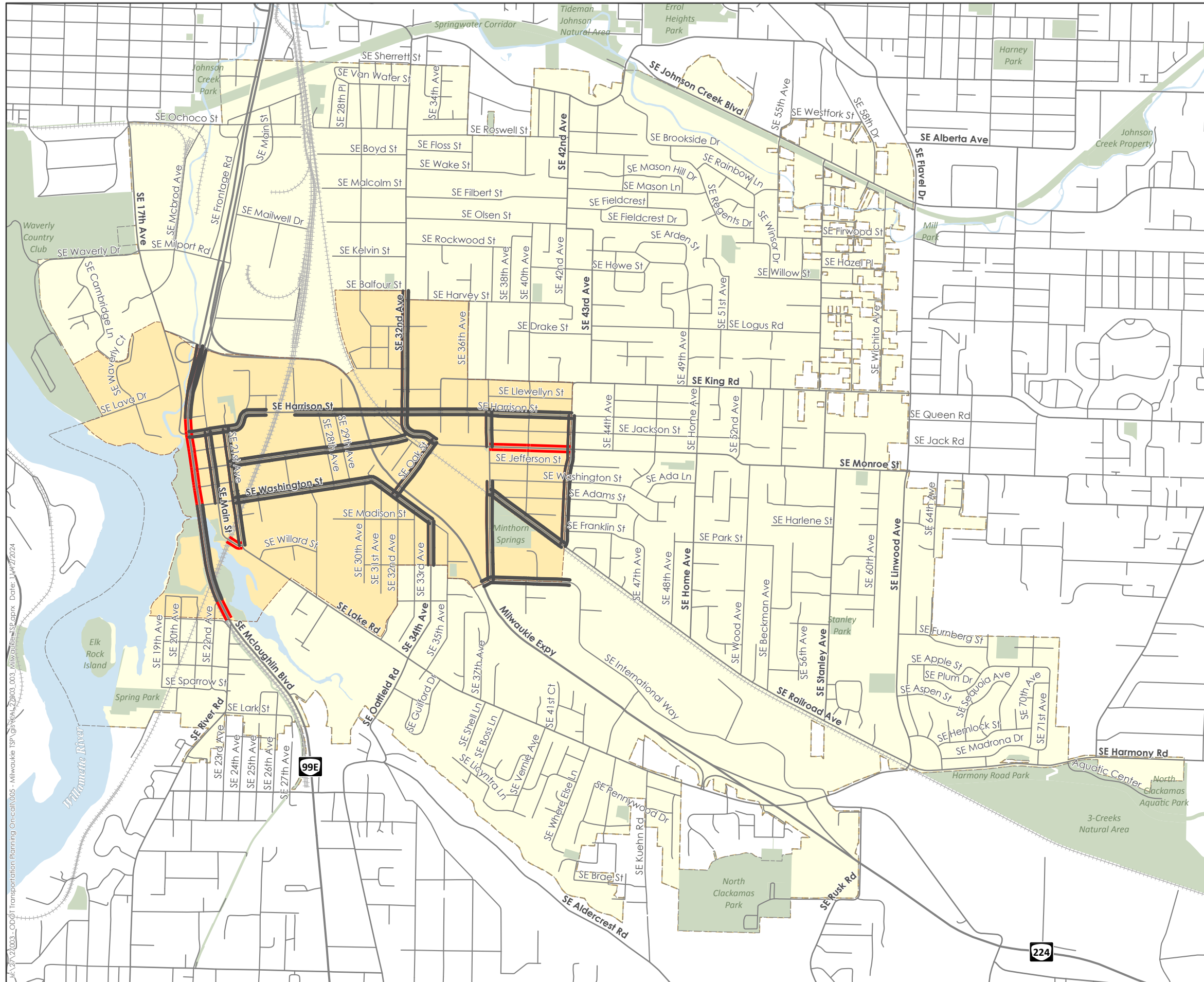




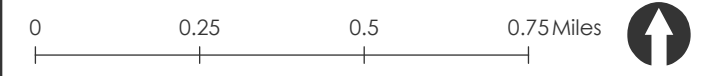
FIGURE 16C
Bicycle Gaps and Deficiencies
Milwaukie Town Center

Legend

-  Bicycle Facility Does Not Meet the BLTS 1 Target
-  No Bicycle Facility
-  Milwaukie City Limits
-  Milwaukie Town Center
-  Parks



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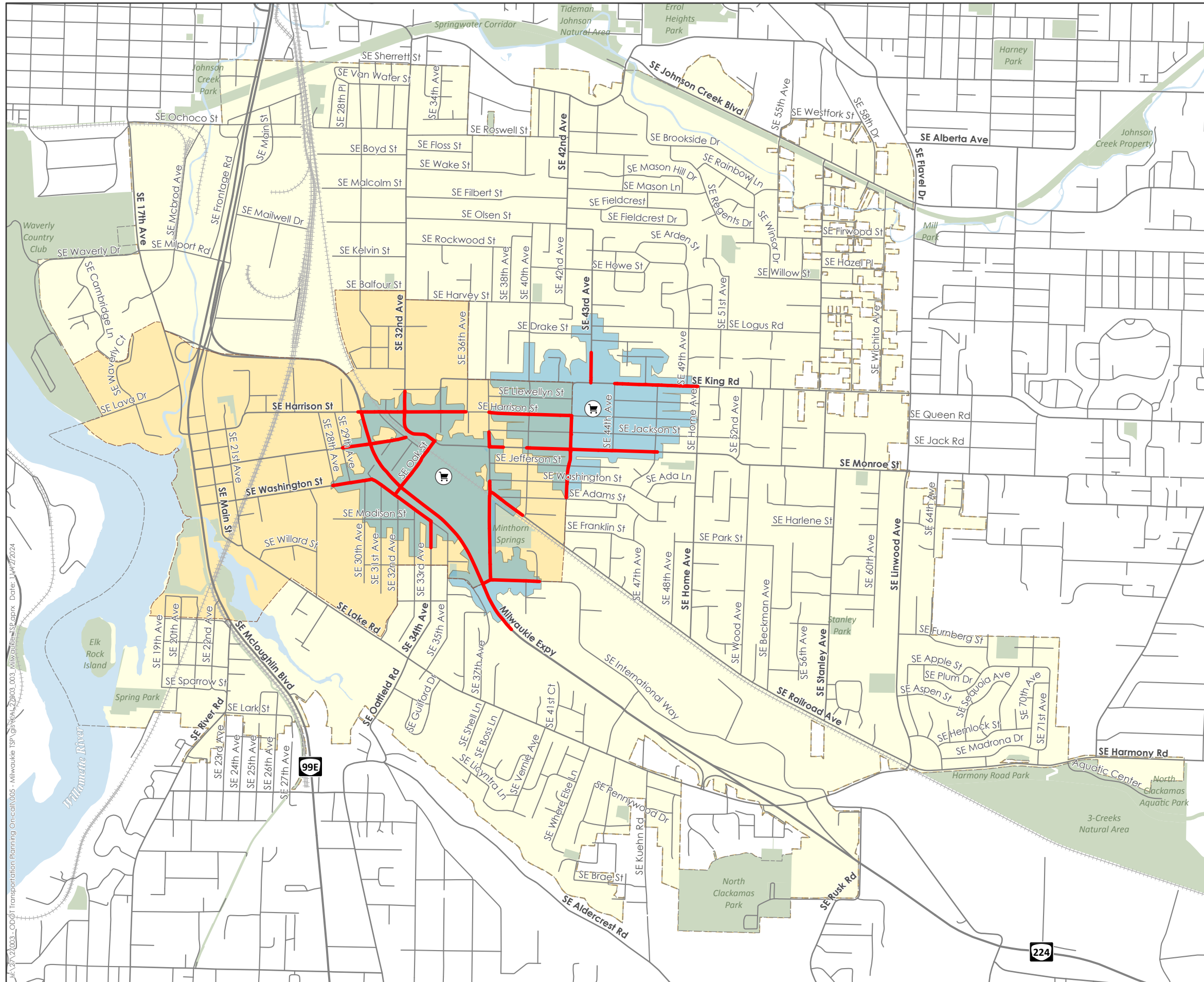
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FIGURE 16E
Bicycle Gaps and Deficiencies
Grocery Stores

Legend

- Grocery Store
- Bicycle Facility Does Not Meet the BLTS 1 Target
- Quarter-Mile Bikedshed Area
- Milwaukie City Limits
- Milwaukie Town Center
- Parks



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0 0.25 0.5 0.75 Miles

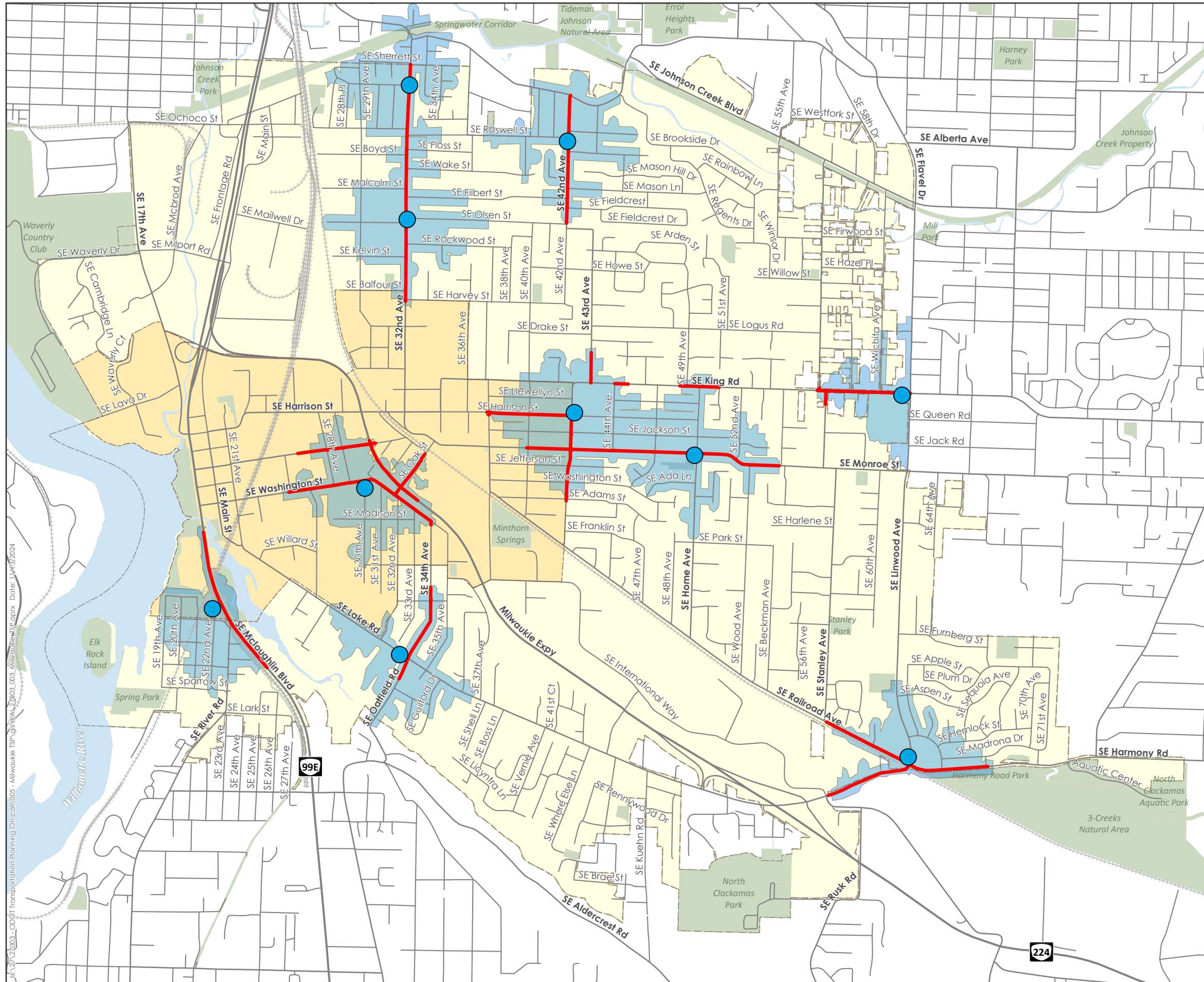




FIGURE 16F
Bicycle Gaps and Deficiencies
Neighborhood Hubs

Legend

-  Neighborhood Hub
-  Bicycle Facility Does Not Meet the BLTS 1 Target
-  Quarter-Mile Bikedshed Area
-  Milwaukie City Limits
-  Milwaukie Town Center
-  Parks



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0 0.25 0.5 0.75 Miles



MILWAUKIE TSP PROJECT EVALUATION MATRIX

A broad set of evaluation criteria were developed based on the Milwaukie TSP Goals and Objectives and the new prioritization factors included in Oregon's Transportation Planning Rule (TPR). Each criterion listed will be used to assess how each identified transportation improvement project will support the overall goals/objectives statements and prioritization criteria.

DRAFT Evaluation Table

Goal Statement	Evaluation Criteria ¹	Scoring Key	Score	Evaluation Comments
Safety - Improve the safety and comfort of the multimodal transportation network	Improve public safety on Milwaukie's roadway network	+2	The project is expected to have a positive vehicular safety impact and is at a location with a history of serious vehicle-related injury crashes and fatalities.	
		+1	The project is expected to have a positive vehicular safety impact.	
		0	The project is expected to have no impact or measurable safety benefit.	
	Improve public safety for Milwaukie's vulnerable system users, including pedestrians, bicyclists, transit users, and rollers	+2	The project is expected to have a positive multimodal safety impact and is at a location with a history of serious injury crashes and fatalities.	
		+1	The project is expected to have a positive multimodal safety impact.	
		0	The project is expected to have no impact or measurable safety benefit.	
Mobility, Accessibility, and Connectivity – Provide an efficient and well-connected multimodal transportation system that works to connect the community to key destinations	Address existing gaps in Milwaukie's multimodal network	+2	The project will fill/partially fill an existing multimodal network gap; is located in the Milwaukie Town Center, and/or serves a priority focus area with limited or no multimodal infrastructure.	
		+1	The project will fill/partially fill an existing multimodal network gap.	
		0	The project does not address an existing multimodal network gap.	
	Improve connections to/from Milwaukie's neighborhoods, schools, parks, transit stops, employment centers, Neighborhood Hubs, and other key destinations	+2	The project will improve multimodal connections and is located in the Milwaukie Town Center	
		+1	The project will improve multimodal connections and will serve one or more priority focus areas/key destinations.	
		0	The project does not involve or improve multimodal connections.	

¹ Rewritten in the tone of the Milwaukie TSP Goals and Objectives Statements

Goal Statement	Evaluation Criteria ¹	Scoring Key		Score	Evaluation Comments
Active, Healthy, Transportation Choices - Establish and/or complete a network of multimodal facilities that make walking, biking, and rolling an attractive, comfortable, healthy, and convenient choice for people of all ages and abilities.	Improve conditions for walking, biking, and rolling on Milwaukie's transportation system	+2	The project improves travel for all levels of pedestrians, bicyclists, or rollers and is located in the Milwaukie Town Center.		
		+1	The project improves travel for most levels of pedestrians, bicyclists, or rollers and/or serves a priority focus area/key destination.		
		0	The project does not involve or improve travel conditions for pedestrians, bicyclists, or rollers.		
Equity - New investments in Milwaukie's transportation system are distributed fairly to reduce or eliminate transportation-related barriers and disparities, especially those experienced by marginalized or underserved populations.	Improve multimodal access and connections to/from Milwaukie's underserved population groups, lower-income neighborhoods, and/or transportation disadvantaged groups.	+2	The project improves multimodal access and connections to/from underserved population groups; and is located in the Milwaukie Town Center.		
		+1	The project improves multimodal access and connections to/from underserved population groups; and serves a priority focus area/key destination.		
		0	The project does not involve or positively impact underserved population groups.		
Transit Forward - Improve public transit service to, from, and within Milwaukie.	Improve Milwaukie's access to transit service	+2	The project measurably improves access to transit service; and is located in the Milwaukie Town Center or an area with limited or no multimodal infrastructure.		
		+1	The project measurably improves access to transit service; and serves a priority focus area/key destination.		
		0	The project does not involve or improve access to transit service.		
	Improve Milwaukie's transit service	+2	The project increases or improves the quality of transit service to/from and within Milwaukie; and is located in the Milwaukie Town Center.		
		+1	The project increases or improves the quality of transit service to/from and within Milwaukie; and serves a priority focus area/key destination.		
		0	The project does not involve transit service.		
Climate Friendly – Provide a transportation system that can help reduce pollution and positively impacts the environment.	Preserve the natural environment through reduced vehicle miles traveled (VMT) and greenhouse gas emissions	+2	The project can be expected to lead to a reduction in VMT and greenhouse gas emissions; and is located within the Milwaukie Town Center		
		+1	The project can be expected to lead to a reduction in VMT and greenhouse gas emissions; and serves a priority focus area/key destination.		
		0	The project can be expected to have no measurable positive or negative impact on VMT and greenhouse gas emissions		
		-1	The project can be expected to result in an increase in VMT and greenhouse gas emissions		

Goal Statement	Evaluation Criteria ¹	Scoring Key		Score	Evaluation Comments
	Preserve Milwaukie's natural resources such as trees, streams, wetlands, wildlife corridors, and endangered species	+2	The project can be expected to have a positive impact on natural resources; and is located near environmentally sensitive areas		
		+1	The project can be expected to have a positive impact on natural resources		
		0	The project has no measurable positive or negative impact on natural resources		
		-1	The project can be expected to a negative impact on natural resources		
Resiliency - Develop a multimodal transportation system that provides travel options during normal conditions, natural disasters, or emergencies.	Improve the redundancy and resiliency of Milwaukie's multimodal travel network	+2	The project increases or improves multimodal travel choices during normal or atypical conditions; serves key destinations and/or is located along a key regional travel route		
		+1	The project increases or improves multimodal travel choices during normal or atypical conditions		
		0	The project has no positive or negative impact on system resiliency and redundancy		
Economic Vitality - Develop a transportation system that supports and facilitates economic activity through the efficient movement of people, goods, and services and encourages people to spend time in key destinations throughout Milwaukie.	Improve the transportation network to ensure the safe and efficient movement of freight to/from and within Milwaukie	+2	The project can be expected to measurably improve the safe and efficient movement of freight; is located in an industrial area or along routes accessing key freight terminals		
		+1	The project can be expected to measurably improve the safe and efficient movement of freight		
		0	The project has no positive or negative impact on the movement of freight		
Fiscal Stewardship and System Management - Make the most of transportation resources by leveraging available funding opportunities, preserve existing infrastructure, and reduce system maintenance costs.	Preserve the transportation network and system maintenance costs	+1	Project is expected to compliment the existing transportation network and/or reduce system maintenance costs.		
		0	Project has no positive or negative impact on system preservation and maintenance costs		
		-1	Project can be expected to negatively impact the existing transportation network by increasing system maintenance costs		
Coordination with Local, Regional, and State Partners - Foster and maintain relationships with public and private partners in the common interest of enhancing the city's transportation network.	Coordinate transportation improvements with partnering agencies	+1	Project is consistent with existing or planned transportation projects, or is consistent with regional mobility policies		
		-1	Project is not consistent with existing or planned transportation projects, or is inconsistent with regional mobility policies		