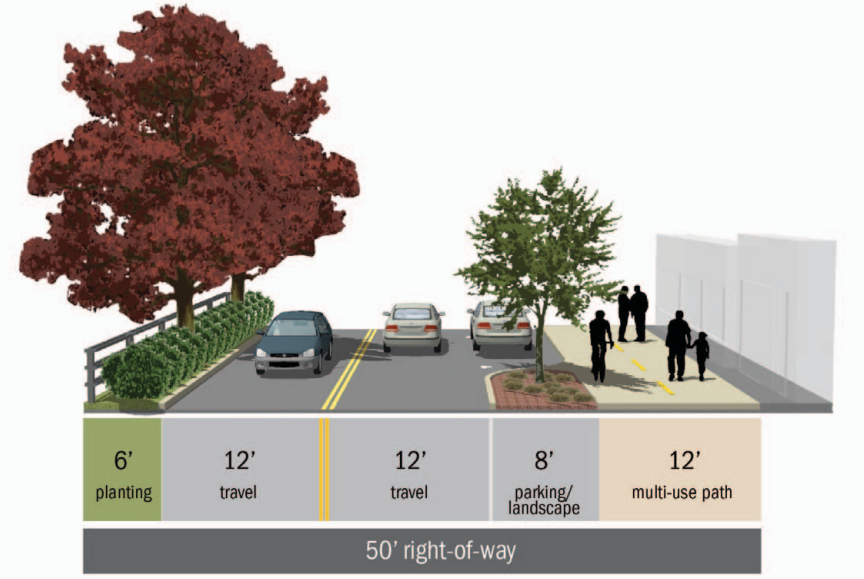
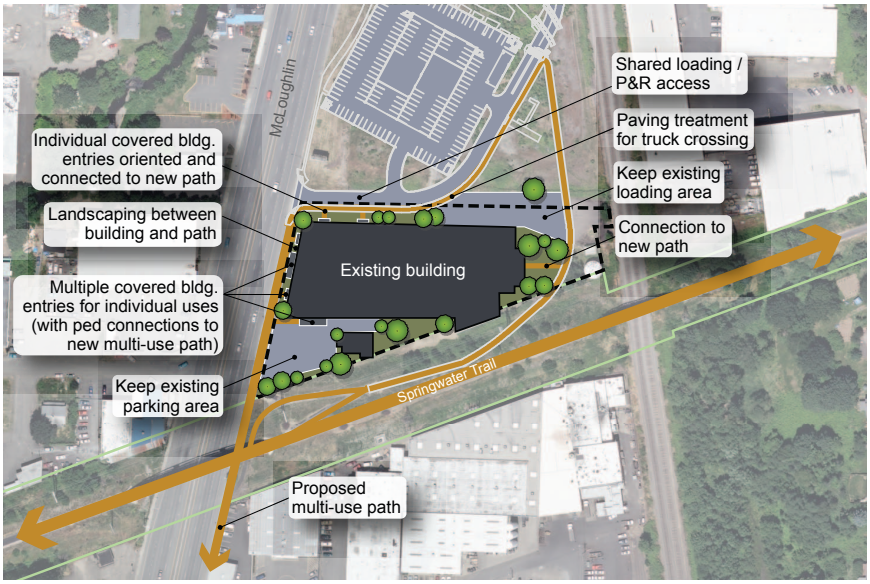
Tacoma Station Area Plan

Redevelopment Scenarios Evaluation Report





Task 4.3
November 2012

City of Milwaukie

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Executive Summary

Overview

This report builds on previous work conducted for the Tacoma Station Area Planning process. The process is being undertaken to develop a proposed land use plan, transportation facility improvements and implementation measures for the area generally bounded by the Milwaukie city limits to the north, the future Milwaukie to Portland light rail line to the east, McLoughlin Boulevard to the west and Highway 224 to the south. The bordering features, along with changes in topography make access into and out of the area challenging. At the same time, access to freight rail facilities, the future light rail station and regional roadways present opportunities. The area currently is zoned entirely for industrial/manufacturing use and most properties within the area are used for that purpose.

Primary goals identified during the early stages of the project include:

- Develop a proposed future land use scenario for the Project Study Area that promotes an active station area community, addresses barriers to redevelopment and establishes the area as a community destination.
- Develop a transportation plan for the Tacoma Station Area that provides multi-modal access to the Tacoma light rail station and the Project Study Area.
- Develop an achievable plan that is acceptable to stakeholders and policy-makers.

Other important objectives include increasing employment intensity and the number of high paying jobs in the area while supporting existing businesses, complementing development goals in the nearby downtown area, and creating a more transit-supportive mix of employment uses in the long term.

This document evaluates three "redevelopment scenarios" formulated during a previous phase of the process, using a set of evaluation criteria developed during the early stages of the planning process. The report also describes a preliminary preferred scenario based on the results of the evaluation and comments provided to date by the project advisory committees and other members of the community.

The scenarios described in this Report incorporate a number of refinements and additions, including proposed "place-making" strategies, street designs, parking supply and management tools, and architectural and design principles, as well as a preliminary summary of proposed implementation measures.

The next in this process will be to prepare a draft Station Area Plan. It will build on the Preferred Redevelopment Scenario identified in this document, incorporating feedback from advisory committee members. It also will address remaining questions and recommend specific options related to parking supply and management and future street and building design. And it will expand on implementation strategies described in this Report.

Redevelopment Scenarios

Three redevelopment scenarios have been developed as part of this process:

- **Scenario 1:** This scenario assumes redevelopment of a large site in the study area currently owned by the Oregon Department of Transportation (ODOT) into a large scale civic or entertainment use, with complementary retail and commercial uses located to the north and west. It also assumes a transition to a combination of office and light manufacturing uses in the far northwest corner of the study area. And like the other two scenarios, it assumes redevelopment of the property due north of the Springwater Corridor trail (owned by Pendleton Woolen Mills) into a mix of retail and commercial uses. This alternative also

assumes that Main Street would be realigned to the eastern edge of the study area between Stubb and Beta Streets.

- **Scenario 2:** This scenario assumes a fairly significant level of redevelopment with transition to a mix of office and other more intensive employment uses north of Mailwell Street, with the most intensive use taking place on the ODOT site described above. This scenario also assumes some future residential use on both sides of McLoughlin Boulevard north of Ochoco Street and south of the Springwater Corridor.
- **Scenario 3:** This scenario represents a continuation of current land uses, with the exception of a transition to retail uses both north of the Springwater Corridor (at the Pendleton site) and on the western portion of the ODOT site.

All three alternatives include a generally common set of transportation improvements. Most of these improvements represent new bicycle or pedestrian facilities to improve safety and access into, out of and within the study area for workers, residents and visitors who are traveling by foot, bicycle or transit. Some transportation improvements also would help improve access to the study area by vehicles, including trucks. These elements are described in "Local Circulation and Access Improvements Common to All Scenarios" on page 20 and illustrated on Map 2 on page 6 as well as on the Redevelopment Scenario maps shown on pages 25-33.

Scenarios Evaluation and Preferred Scenario

One of the primary focuses of this report is an evaluation of the Redevelopment Scenarios. The evaluation is related to criteria that generally assess consistency with project goals and objectives, including:

- Meeting general and specific land use goals for redevelopment, including a providing for a supportive mix of land uses while also supporting existing businesses and increasing the number of relatively high paying jobs in the area.
- Improving transportation access, safety and connectivity, particularly for bicycles and pedestrians but also for freight movement.
- Ensuring that the proportion of trips made by bicycling and walking meet targets for the area while also making sure that auto congestion along McLoughlin Boulevard does not significantly increase and there is not a need for capacity improvements to that roadway.
- Creating a plan that is economically viable and generally supported by local property and business owners.

These criteria and the evaluation of scenarios are described in more detail in Section 3 beginning on page 7. In general, the analysis indicates the following:

- All scenarios do a good job of meeting bicycle and pedestrian connectivity goals for the area by incorporating a wide range of improvements for those types of facilities. Scenario 2 is more effective than the other scenarios in promoting a mix of land uses that is likely to generate more bicycle and pedestrian travel.
- Scenario 1 generally does a moderate to good job of meeting land use goals, including the goal of creating a community destination. However, it has somewhat less support from area property owners than the other scenarios. It also scores lower on connectivity because it would potentially change the alignment of Main Street in a portion of the area. It also likely would not generate additional high-paying jobs in the study area. Overall, it ranks #2 out of the three scenarios.
- Scenario 2 does the best job of meeting most of the land use, economic and employment goals compared to the other alternatives. However, it is the most challenging from a market feasibility perspective. It scores in the middle in terms of property/business owner support. It scores relatively high in meeting

most of the transportation goals, including generating the most potential revenue in terms of increases in land value to pay for needed transportation improvements. At the same time, it also generates the most additional traffic. Overall, this scenario receives the top ranking of the three alternatives.

- Scenario 3 scores higher than the other alternatives in terms of property owner/business support, market feasibility and protection of existing businesses. However, it scores relatively low in terms of meeting most other land use and redevelopment goals associated with a transit supportive land use mix, amenities for residents and workers and the ability to accommodate large-scale redevelopment. It also is likely to generate the lowest amount of money in increased tax revenues and make funding proposed transportation improvements relatively challenging, compared to the other scenarios. It scores the lowest overall of the three scenarios.

Based on the results of this evaluation, as well as comments from two project advisory committees, other community members and participants on an "expert panel" of development and economic advisors, the project team has developed a preliminary "Preferred Scenario." This scenario attempts to balance both the high-performing aspects of the three scenarios as described above and the feedback received from advisory groups and community members. Key recommendations for the Preferred Scenario and the reasoning behind them include the following:

- More significant changes in land use are focused primarily north of Beta Street, similar to Scenario 1. This portion of the study area is closest to the future light rail station (approximately one-third mile or less) and is expected to see the greatest impact from the station in terms of land value. As such, this scenario will facilitate transit-supportive development and higher employment densities. It will also generate more bicycling or walking trips to the station, compared to properties located further away. Limiting the most significant redevelopment to this area also will reduce impacts on the surrounding transportation system and will help preserve the remainder of the area for continued manufacturing and other industrial uses, consistent with project goals and city policies. While redevelopment in this area occurs, a high degree of flexibility and support for existing businesses in this portion of the study area also will be important. A mix of employment uses is envisioned, with generally higher employment densities but a limited amount of office use to avoid pulling potential office uses away from the downtown.
- Over time, employment uses south of Beta Street could transition to other industrial or manufacturing uses with higher employment densities. However, such uses also should take advantage of the unique rail infrastructure assets in this portion of the study area.
- Opportunity Site A would be redeveloped for a combination of retail and commercial uses catering to light rail users (e.g., coffee shop/café, convenience market, bicycle shop, and/or potentially small scale 2nd floor office). Similarly, the historic building on the western half of Opportunity Site B would become an eating and drinking establishment, also as described for all redevelopment scenarios. These elements were strongly supported by all project participants, generally considered economically feasible and represent transit-supportive land uses. This is consistent with the goal of providing a mix of uses within the station area that will serve future workers, visitors and residents.
- The eastern portion of Opportunity Site B incorporates some type of large-scale civic, recreational or entertainment use, including plazas and/or other gathering spaces. This will facilitate transit-supportive development and potentially achieve higher employment densities. In addition, this element will encourage development of other uses and amenities that will benefit visitors and employees in the area, consistent with project goals, objectives and evaluation criteria. Advisory committee and other community members generally voiced support for this type of use at this site. In addition, this type of use is more likely to create a community destination in the study area than a general office or commercial use would. It is recommended that the city consider or pursue a use for this site that operates multiple days a week during a substantial portion of the year to help energize surrounding retail or commercial businesses which are also envisioned in the preferred scenario.

- The existing alignment of Main Street through Site B would be preserved. This would help maintain and enhance local connectivity and circulation in comparison to Scenario 1, which shifts the Main Street alignment to the eastern edge of the study area.
- The area east of Main Street and generally between Ochoco Street and the Springwater Corridor would be used for a broad mix of employment uses. This mix of uses would balance the desire to develop more transit-supportive land uses (i.e., those with higher employment densities) while continuing to support existing businesses in this area. Again, this supports the goal of increasing employment densities and providing a mix of land uses that will help maximize use of the new LRT station.
- Areas west of McLoughlin Boulevard and due north and south of the Springwater Corridor would include a mix of employment and residential uses, including live/work and possibly other types of residences. This would create a more transit-supportive mix of land uses in the area, particularly in the portion of the study area closest to the LRT station. This area is adjacent to other residential areas and not directly adjacent to rail lines in the area, making it relatively more appropriate for residential use than other portions of the study area. This proposed mix of land uses was deemed economically feasible by our development advisors.

The Preferred Scenario is described in more detail in Section 4 beginning on page 13 of this report.

Redevelopment Scenarios Refinements and Implementation

This report describes a number of changes to the Scenarios developed in previous stages of the project and includes more information about street and building design, parking supply and management and "place-making" strategies. The report also identifies other strategies needed to implement land use and transportation objectives for the area.

- **Modest changes:** A number of modest changes or additions were made to the three scenarios based on feedback from project team and advisory committee members. These include several additional potential bicycle and pedestrian improvements, revised schematic drawings for opportunity site redevelopment concepts and revisions to specific street design ideas.
- **Design of Streets, including "Key Streets":** This report includes a variety of options for enhancing the design of streets in the study area, with particular focus on Main and Ochoco Streets which serve as important gateways into the area and, in the case of Main Street, as the primary north/south transportation spine. The designs described in the report focus on making these streets more walkable and bikeable; improving their appearance with street trees, landscaping areas and other features; and establishing a stronger sense of place through the use of different paving types, street furniture and vegetated stormwater management facilities. Alternative options for street designs also reflect varying available rights-of-way and the relative function of streets in terms of providing freight vs. pedestrian and bicycle access. These examples are shown on pages 31-39.
- **Recommendations for future building and site design:** Strategies include designing new buildings or renovating exiting structures to add windows, avoiding large blank walls, emphasizing the design of corner buildings, orienting building entrances to the street and sidewalk, and using a variety of colors and materials. Site design techniques include constructing buildings closer to the street, enhancing landscaping and signage. Numerous visual examples of these techniques are provided in the report in Section 7 on pages 48-50.
- **Parking issues:** The issue of parking supply, demand and management has been a key issue for property and business owners in the study area. This Report includes an analysis of existing and future parking supply and demand based on existing conditions as well as future demand associated with the redevelopment

scenarios. The Report also describes strategies to manage parking demand, including shared parking, financial incentives, and shuttle services, among others, as well as the . potential for shared public parking south of Beta Street to serve existing and potential new uses in that part of the study area. (For more on parking issues and strategies, see Section 5 beginning on page 40.)

Next steps in the planning process will include:

- Review of the recommendations in this Report by members of the project Technical Advisory Committee and Stakeholders Advisory Group.
- Briefings with the City's Planning Commission and City Council.
- Resolution or refinement of issues and options related to parking management, street and building design.
- Preparation of a draft Tacoma Station Area Plan, including more detailed implementation strategies.
- Preparation of implementing Comprehensive Plan and Development Code amendments.
- Review by community members and adoption by the City's Planning Commission and Council.

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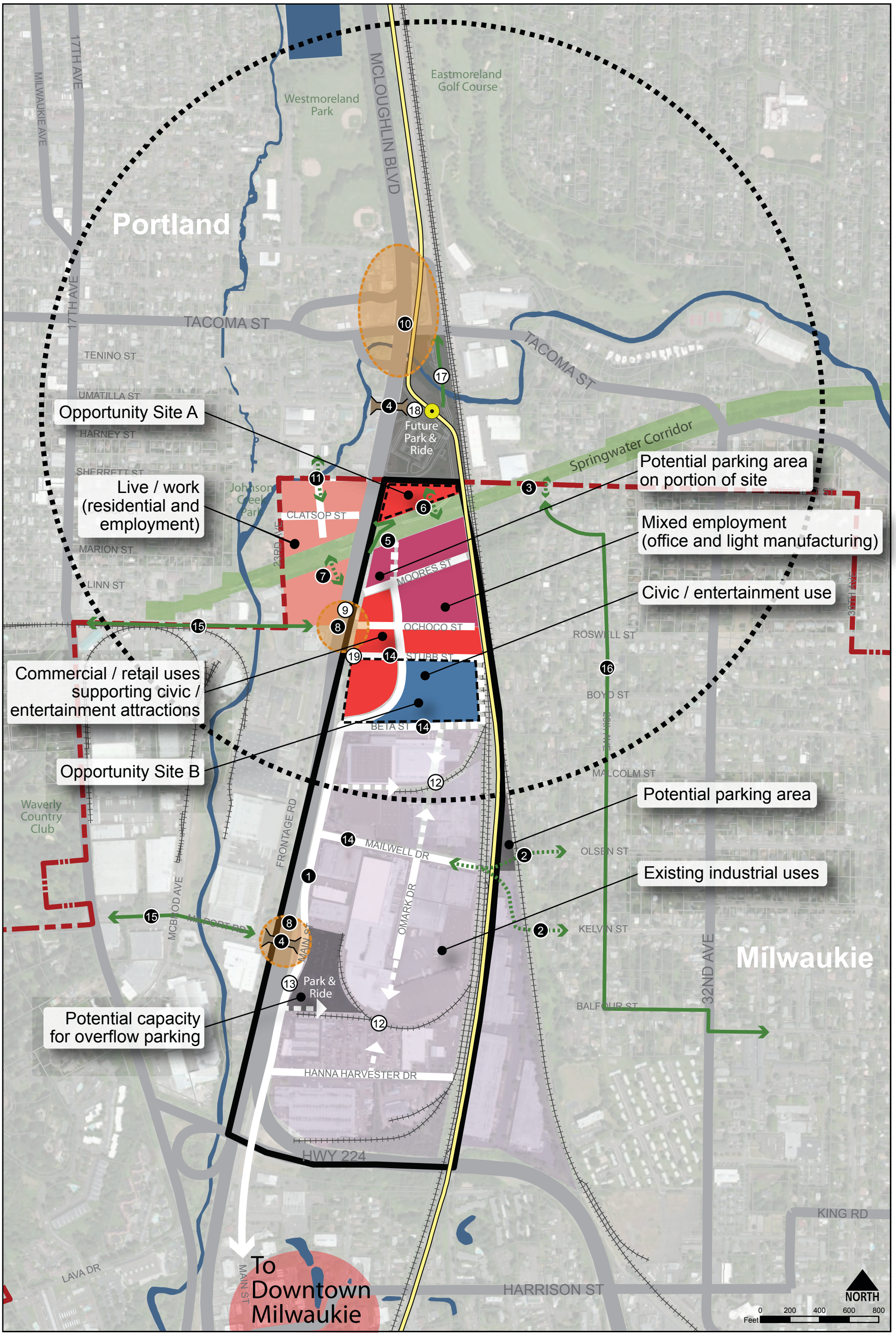

Preferred Concept Alternative

TACOMA STATION AREA PLAN

SERA 26 OCTOBER 2012

- Commercial
- Live Work (Mixed Residential / Employment)
- Civic / Entertainment
- Mixed Employment
- Existing Industrial Uses
- Study Area Streets
- New Street Connections
- Bike / Ped Improvements
- New Bike / Ped Connections
- Intersection Improvements
- Project Study Area
- Station Area (1/2 mile radius)
- City Boundary
- LRT Station
- LRT Alignment

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Section 1: Introduction

Project Overview and Project Study Area Boundary

The Portland to Milwaukie Light Rail line is expected to open for service in 2015 and will include a station near the McLoughlin Boulevard/Tacoma Street interchange, just north of the Milwaukie city limits. The Tacoma Station Area Plan (Plan) is being developed by the city of Milwaukie in coordination with others to examine opportunities for redevelopment and investment in the vicinity of the new light rail station.

The Project Study Area is bound by McLoughlin Boulevard (OR 99E) on the west, the railroad on the east, the Tacoma Station on the north and Highway 224 on the south. The Project Study Area includes areas within the city of Portland; however, most recommendations in the final Plan will be limited to those areas within the city of Milwaukie. Plan development will occur from summer 2012 to June 2013 and will include participation from area property owners, tenants, interested community members and affected public agencies.

Overall goals for the project and future use of the Project Study Area include:

- Develop a proposed future land use scenario for the Project Study Area that promotes an active station area community, addresses barriers to redevelopment and establishes the area as a community destination.
- Develop a transportation plan for the Tacoma Station Area that provides multi-modal access to the Tacoma light rail station and enhanced connections within the Project Study Area.
- Develop an achievable plan that is acceptable to stakeholders and policy-makers.

In addition to these overall goals, a number of specific issues and objectives are addressed in this report, including:

- Improving access into and out of the study area and to the light rail station, particularly by bicycling and walking, including overcoming existing barriers to access.
- Improving local circulation for all modes of travel within the project area.
- Designing local streets and intersections in a way that will better serve all users, including freight operators, drivers, bicyclists and pedestrians.
- Addressing current and future parking needs within the area, including providing an adequate supply of on and off-street parking and managing parking in a way that meets this objective while also encouraging use of alternative modes of travel
- Designing future buildings and public facilities to make the area attractive for businesses, residents and visitors.

This report evaluates three potential scenarios for future use and development or redevelopment of the opportunity sites and other portions of the Project Study Area. These scenarios were developed during a previous step in the process and are described in more detail in a Redevelopment Scenarios Report. Since preparation of that report, the scenarios have been refined based on comments from project advisory committees and other community members.

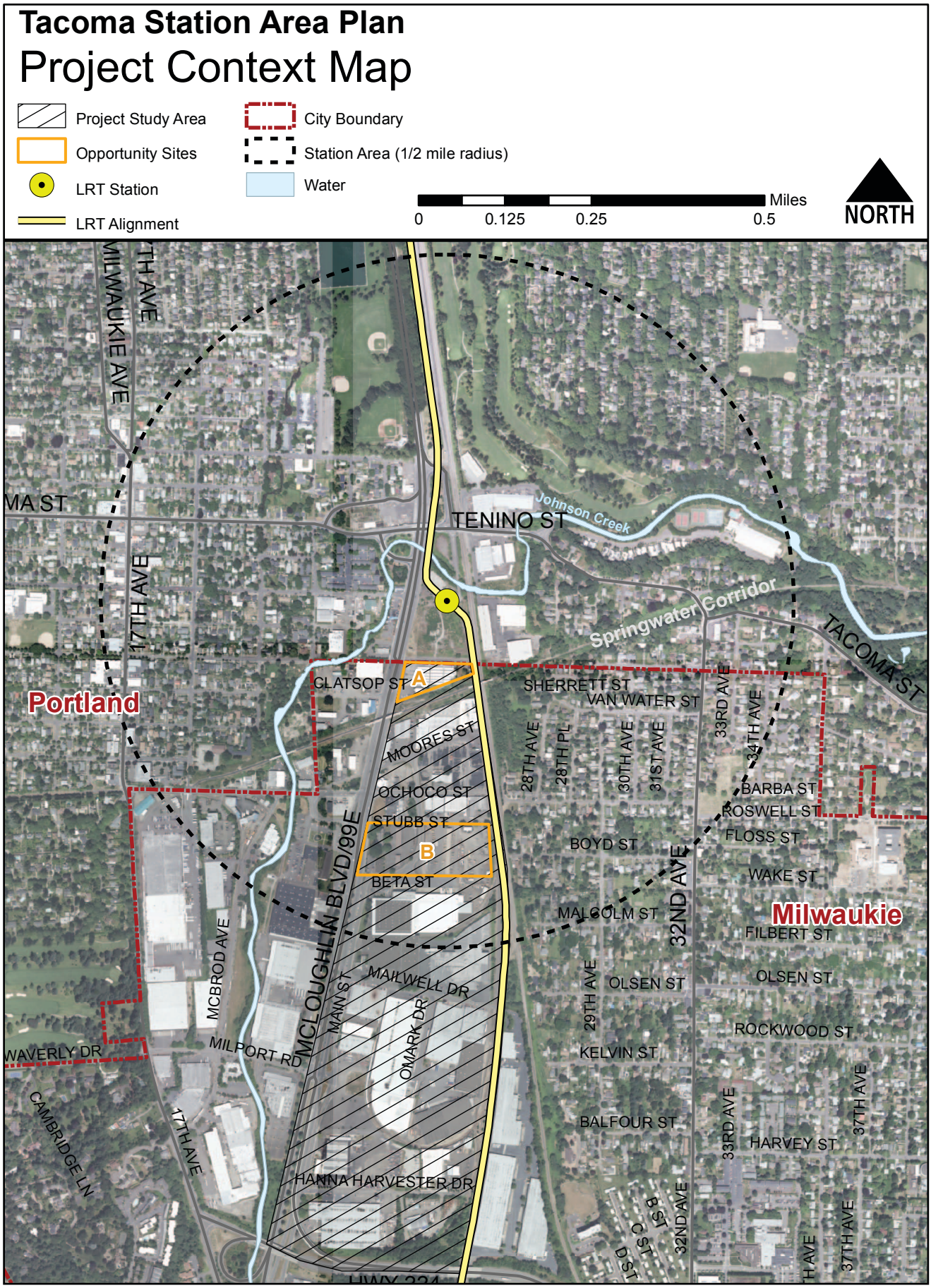
The evaluation summarized in this report is based on a set of measures developed at the outset of the planning process, which are tied to the project goals and objectives related to land use, transportation and implementation. This report also summarizes strategies that would be needed to implement the scenarios and recommends a preferred scenario. The results of the evaluation and the preferred scenario will be reviewed with project advisory committees and other community members and subsequently refined as part of the process of preparing a draft Tacoma Station Area Plan.

Study Area Existing Conditions

The entire Project Study Area is currently zoned Manufacturing (M) by the city. The M zone allows any combination of manufacturing, office and commercial uses as long as 25 percent of the total project involves an industrial use. Natural resource extraction and high-impact commercial uses (those uses which would result in significant amounts of traffic or noise) are allowed conditionally in the M zone. New residential construction, churches and schools are not permitted although other community and public facilities are allowed under certain conditions. All of the properties within the Project Study Area have been designated by the city as (Metro) *Title 4 Employment Lands*, but none of these properties are designated as *Title 4 Industrial Lands*. The *Employment Land* designation means that retail uses are limited to 5,000 square feet per building or 20,000 square feet for multiple retail uses. As part of this project, the city is considering amendments to the M zone that will help clarify existing requirements and improve enforceability of the chapter. Additional amendments may also be applied to the Project Study Area specifically to support and implement the Tacoma Station Area Plan.

Two properties within the Project Study Area have been identified as "Opportunity Sites" A and B due to their size location, ownership and other characteristics (see Map 1). They are the Pendleton Woolen Mills property located between the future LRT station and the Springwater Corridor trail and the property owned by the Oregon Department of Transportation located east of McLoughlin Boulevard, between Stubb and Beta Streets. They are described in more detail in the Redevelopment Scenarios Report and in subsequent sections of this report.

More information about conditions, opportunities and constraints in the area can be found in a related detailed report available on the city of Milwaukie's web site (http://www.ci.milwaukie.or.us/planning/tacoma-station-area-plan-0) and by request from city staff.



Map 1: Project Study Area

Section 2: Redevelopment Scenarios Overview

Three scenarios were developed and refined through a collaborative process with city staff, the consulting team assisting with the project, and members of the project technical and stakeholder advisory committees, Planning Commission and City Council. This section provides a brief overview of those scenarios; details are included for reference in Section 5 beginning on page 18.

		1	2	3
	SCENARIO	Large-scale civic/ entertainment use	Intensive employment use	Modest land use changes
VISION		The area is anchored by a large civic or entertainment use	The area becomes an employment-based TOD with higher-density redevelopment through new multi-story buildings	The area is mainly industrial and manufacturing, with an improved circulation network
OPPORTUNITY	SITE A	New commercial development including neighborhood retail uses, small brewery, flexible office/incubator space, small second floor offices		
	SITE B	Site accommodates both the new civic/entertainment facility as well as new eating/drinking establishments	Majority of site redevelops as new creative office/flexible employment usesw	Historic ODOT building used for dining/entertainment, with remainder of site for industrial use
TRANSPORTATION IMPROVEMENTS	NEW STREETS	• Additional new connections to street network providing access to civic/entertainment facility • Additional connections as redevelopment occurs	• New north-south connection on Omark Drive alignment • New east-west connection between Beta Street and Mailwell Drive • Additional connections as redevelopment occurs	• Additional connections as redevelopment occurs
	TRAFFIC	• Changes in design of multiple streets in study area • Truck signage and possible transportation improvements at Ochoco Street/McLoughlin Boulevard intersection • Tacoma Street Interchange improvements: Planned safety improvements to on/off ramp • Possible local street connection to Harrison Street in eastern portions of study area		
	BICYCLE/PEDESTRIAN	**Facility Improvements:** Beta Street, Hanna Harvester Drive, Mailwell Drive, Main Street, McLoughlin Boulevard, Milport Road, Ochoco Street, Stubb Street, Springwater Corridor to Park and Ride, Bike Share facility at Park and Ride		
		New/Improved Connections: McLoughlin Boulevard to Stubb Street, Olsen Street, Parallel to LRT (from Moores Street), Springwater Corridor trail to study area, connection to Harrison Street, 29th/Sherrett to Springwater Corridor		

Land Use Elements

All three scenarios assume adaptive reuse of the site owned by Pendleton Woolen Mills (Opportunity Site A) to accommodate commercial uses such as a small brewery, flexible office/incubator space, dining, coffee shop and café, convenience market, bicycle shop, and/or potentially second story small offices. (See details in "Land use and Development Elements Common to All Scenarios" beginning on page 18 and a graphic illustration in Figure 1 on page 19.) The key differences between the scenarios are summarized briefly below.

1. Large-scale civic/entertainment use.

This scenario assumes construction of a large civic or entertainment use on the site currently used by the Oregon Department of Transportation (Opportunity Site B). This scenario also assumes a certain amount of redevelopment around this site to capitalize on and support redevelopment of the ODOT site.

2. Intensive employment use.

This scenario represents relatively intensive redevelopment of portions of the study area (primarily north of Mailwell Drive). It assumes a mix of commercial, office and retail use on the ODOT site and the properties to the north with a mix of residential and retail uses just south of the Springwater Corridor trail. This scenario assumes that this type of development could be accommodated with no additional highway transportation improvements over what is already planned, with the exception of ODOT-identified operational improvements at the Ochoco Street/McLoughlin Boulevard and Milport Road/McLoughlin Boulevard intersections.

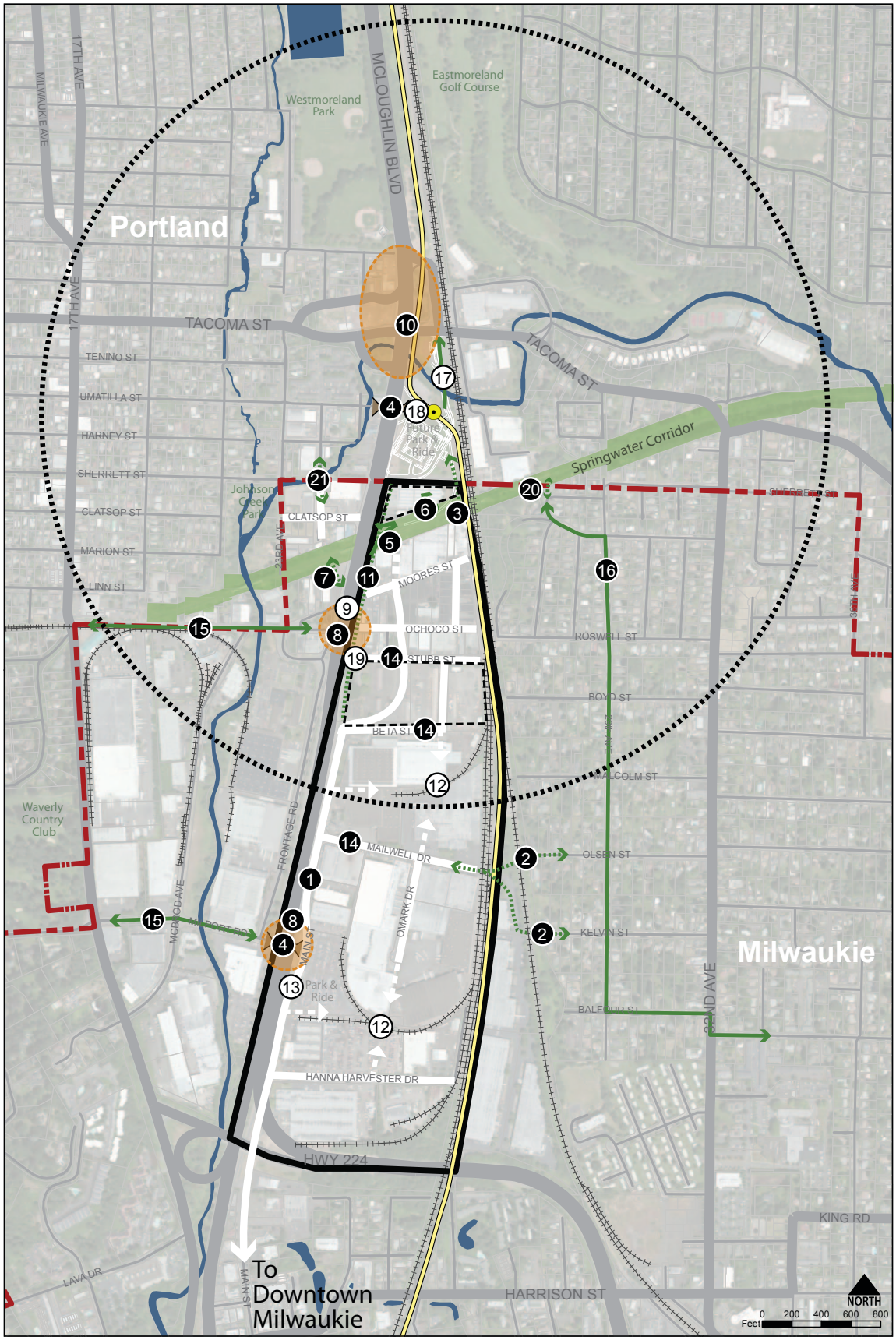
3. Modest land use changes.

This scenario assumes only modest changes in land use and relatively minimal redevelopment beyond that on Opportunity Site A, described above. It generally assumes that the area will continue to function as a manufacturing and industrial district.

Common Transportation Elements

There are a number of circulation and transportation improvements (shown on Map 2 on page 6 and described in detail in "Local Circulation and Access Improvements Common to All Scenarios" beginning on page 20) and streetscape recommendations (described in "Section 6: Streetscape Concepts" on page 35) that are common to all the redevelopment scenarios. Generally, transportation improvements include the following types of projects:

- Bicycle and pedestrian connections including new sidewalks, bicycle lanes, multi-use paths, railroad and highway overcrossings and improved access to /from Springwater Corridor (Projects 1-8, 11, 15, 16, 17, 19-21)
- Safety improvements, particularly at intersections and interchanges (Projects 10 & 14)
- Operational improvements focused on truck/freight movements (Project 9)
- Local street connections (Project 12)
- Possible bike and car sharing facilities at the LRT station (Project 18)



Station Area Transportation Improvements

SERA TACOMA STATION AREA PLAN
20 NOVEMBER 2012

- Study Area Streets
- New Street Connections
- Bike / Ped Improvements
- New Bike / Ped Connections
- Intersection Improvements
- Project Study Area
- Station Area (1/2 mile radius)
- City Boundary
- LRT Station
- LRT Alignment

Map 2: Local Access and Circulation Improvements

Section 3: Scenario Evaluation

Evaluation Criteria and Process

As a preliminary step in the Tacoma Station Area planning process, the consultant team developed measures to evaluate the proposed redevelopment scenarios. The evaluation measures are intended to be consistent with the project goals and objectives as well as the requirements of the Transportation and Growth Management (TGM) Program Grant for the Tacoma Station Area Plan. The evaluation measures will be used to compare and contrast the redevelopment scenarios and will ultimately provide the framework for recommending a preferred scenario for the Station Area Plan.

The evaluation measures include a combination of qualitative and quantitative indicators that provide a comprehensive assessment of the redevelopment scenarios. Qualitative indicators provide a relative ranking of the scenarios; for example, property owner support is higher for Scenario 1 and lower for Scenario 3. Quantitative measures provide a yes or no answer to a specific and sometimes numerical question such as, "Does the scenario meet the target employment density?" Generally speaking, the evaluation measures cover a broad range of factors pertaining to land use, transportation and consistency with applicable state and regional policies. The evaluation measures are presented in detail in the Evaluation Matrix below. Several of the measures also address sustainable planning goals, including addressing health and safety issues, promoting use of more active modes of transportation and fostering economic sustainability by creating the opportunity to generate additional jobs in the area.

Evaluation Analysis and Results

Each of the three redevelopment scenarios was assessed against each evaluation measure and a "score" was assigned using the appropriate qualitative or quantitative indicator. The results of this process are summarized in the Evaluation Matrix on the following pages. The matrix provides a succinct comparison of the three scenarios and describes how each scenario relates to the goals and objectives previously established for this project. A brief discussion of the benefits and challenges presented by each scenario is included in the matrix for each evaluation measure. Additional detail on the transportation performance measures is available in Appendix B.

Goal	Evaluation Measure	Scenario 1 Large civic/ entertainment use	Scenario 2 Intensive employment use	Scenario 3 Modest land use changes
Land Use	**LU-1:** The Plan allows existing industrial uses to continue with minimal disruption – e.g., preserves rail spurs and maintains or improves freight access, land use flexibility, and predictability in permitting. (Relative Ranking of Alternatives)	★ ★	★ ★	★ ★ ★
		• Major events could cause traffic disruptions affecting freight operations • Realignment of northern portion of Main Street would affect freight access from Ochoco Street	• Typical commute period traffic would have some impact on freight operations, but would be fairly predictable • Represents most significant traffic impacts of all scenarios	• Largely maintains current industrial uses
		• Most transportation improvements would enhance access for businesses, workers (all scenarios)		
	LU-2: The Plan facilitates transit-supportive development, including development intensity, land use mix, and building or site design, pedestrian-orientation and connectivity. (Relative Ranking of Alternatives)	★ ★	★ ★	★
		• People often take transit to major events; however usage would be low between events	• Land use mix would be supportive of transit use • Potential degree of redevelopment offers highest potential to fund bike, pedestrian improvements & building and site design proposals	• Represents least transit supportive land use mix • Limited redevelopment potential would reduce potential for funding transportation improvements
		• Proposed transportation improvements would enhance bicycle, pedestrian connectivity (all scenarios)		
	LU-3: The Plan allows new employment uses at densities of 45 persons per acre, consistent with Metro Functional Plan Title 6, Sections 3.07.610 – 3.07.640. (Yes/No)	✓	✓	✘
		• Limited areas would be zoned for employment uses at relatively high densities	• New zone would allow more intense employment uses	• Limited changes to zoning would not allow significantly higher employment density
	LU-4: The Plan results in a net increase in the number of employees at buildout, based on proposed zoning, including high-paying jobs. (Relative Ranking of Alternatives)	★	★ ★ ★	★ ★
		• Large scale civic use would introduce a moderate number of service jobs, which are typically not high-paying, while displacing some industrial jobs that typically are high-paying	• Focus is on office and flex uses, which are typically denser than industrial uses and include high-paying jobs	• Introduction of some amenities would add a limited number of new jobs, mostly in the service sector (typically not high-paying), while retaining existing industrial jobs

Goal	Evaluation Measure	Scenario 1 Large civic/ entertainment use	Scenario 2 Intensive employment use	Scenario 3 Modest land use changes
Land Use	**LU-5:** The Plan accommodates large-scale redevelopment, where applicable. (Relative Ranking of Alternatives)	★ ★ ★ • Large scale civic use would accommodate large-scale redevelopment, other supporting uses	★ ★ • Represents most significant level of redevelopment in terms of transition to higher intensity uses	★ • Assumes relatively minimal change in character or intensity of development
	LU-6: The Plan provides for land uses and/or other amenities that would benefit future workers and residents in the area. (Relative Ranking of Alternatives)	★ ★ ★ • Civic uses and associated commercial services and gathering would benefit workers, residents	★ ★ ★ • Commercial services, new residents, more intensive redevelopment would create market for beneficial services, amenities	★ • Continued pattern of development, employment would create fewer new services, amenities or attractions for workers, residents
	LU-7: The Plan provides for a mix of feasible uses, based on market analysis. (Relative Ranking of Alternatives)	★ ★ • Potentially feasible in long term per team market analysis • Local development experts say creating a destination in area would be challenging and could adversely impact downtown	★ ★ • Potentially feasible in long term per team market analysis • Local development experts indicate level of development very challenging and level of development may not generate funding for needed public improvements	★ ★ ★ • Most feasible based on previous and current market analyses
	LU-8: The Plan is generally supported by study area property owners. (Relative Ranking of Alternatives)	★ ★ • Mixture of support and concern expressed by property owners in advisory committee, public meetings	★ ★ • Mixture of support and concern expressed by property owners in advisory committee, public meetings	★ ★ ★ • Most property owners indicate area viable for continued industrial use with no plans for change in short to medium term (next 5-20 years)
	LU-9: Potential redevelopment costs are reasonable based on the professional opinion of a market analyst and feedback from property owners. (Relative Ranking of Alternatives)	★ ★ • Ratio of potential level of redevelopment to cost of improvements likely lower than for Scenario 2, but higher than for Scenario 3	★ ★ ★ • Ratio of potential level of redevelopment to cost of improvements likely to be highest of three scenarios	★ • Ratio of potential level of redevelopment to cost of improvements likely to be lowest of three scenarios
		• Unable to quantify further at this time; may further evaluate in subsequent tasks		

Goal	Evaluation Measure	Scenario 1 Large civic/ entertainment use	Scenario 2 Intensive employment use	Scenario 3 Modest land use changes
Transportation	**T-1:** The Plan improves connections to and between the station, the Springwater Trail, the Ardenwald & Sellwood Moreland neighborhoods, and downtown Milwaukie. (Relative Ranking of Alternatives)	★	★★★	★★
		• Large civic/ entertainment facility on Opportunity Site B will decrease connectivity through the site	• Redevelopment of Opportunity Site B will provide a new street connection and new bike/ped paths through the site	• Renovation of part of Opportunity Site B will provide new pedestrian connections on part of the site
		• All three scenarios include the same set of new and improved connections to adjacent areas outside of Opportunity Site B		
	T-2: At Plan buildout, projected pedestrian and bicycle mode share is significantly increased through transit-supportive development and design, safe and convenient access and supportive amenities.* (Relative Ranking of Alternatives)	★★	★★★	★
		• Increased density of office and commercial uses is expected to improve non-motor vehicle mode share somewhat	• Diverse mix of uses near Tacoma Station is expected to boost pedestrian and bicycle mode share the most among alternatives	• Minimal change in zoning does not promote an increase in the pedestrian/bicycle mode share
	T-3: At Plan buildout, the number of motor vehicle trips on OR 99E does not exceed the "worst case" vehicle trip projection under existing zoning and/ or mitigates those increases to ensure compliance with the Oregon Transportation Planning Rule. (Yes/No)	✘	✘	✘
		• All scenarios are estimated to increase vehicle trips compared to existing zoning • Zoning ordinance amendments and small operational improvements may be used to mitigate impacts and will be explored in preparing a draft Station Area Plan.		
	T-4: The duration of congestion on OR 99E, is lower than for other alternatives. (Relative Ranking of Alternatives)	★★★	★★★	★★★
		• Under all three scenarios, OR 99E north of Ochoco Street does not exceed roadway capacity at any hour of the day		
	T-5: The Plan is not predicated on ODOT making motor vehicle capacity improvements to OR 99E. (Yes/No)	✓	✓	✓
		• Traffic mitigations can be addressed either through down-zoning in the study area south of Mailwell Drive, or with smaller operational improvements on 99E (not mainline capacity improvements)		

Goal	Evaluation Measure	Scenario 1 Large civic/ entertainment use	Scenario 2 Intensive employment use	Scenario 3 Modest land use changes
Transportation	**T-6:** The total vehicle miles traveled generated within the study area is lower than for other alternatives.* (Relative Ranking of Alternatives)	★ ★ ★	★	★ ★
		• Scenario 1 generates the fewest VMT (23,151) in the PM peak hour due to the sporadic nature of traffic generated at Opportunity Site B	• Scenario 2 generates the most VMT (24,693) in the PM peak hour due to the most intensive set of land uses	• Scenario 3 generates the second most VMT (23,881) in the PM peak hour
	T-7: As applicable, the Plan (or portion of Plan) potentially complies with the definition of a Multimodal Mixed Use Area, under the Transportation Planning Rule. (Yes/No/NA)	N/A	✓	N/A
		• Would not meet residential use and density requirements; MMA would not be recommended	• Scenario incorporates residential use on west side of McLoughlin Boulevard which would meet MMA requirements in combination with other recommendations	• Would not meet residential use and density requirements; MMA would not be recommended
	T-8: The Plan includes transportation safety improvements which can reasonably be expected to mitigate the causes of accidents described in crash history data and to address Tacoma interchange queuing per TPR 0060(10). (Yes/No)	N/A	N/A	N/A
		• The Plan is not expected to result in new vehicle trips on the interchange sufficient to degrade safety at the Tacoma Street interchange.		
	T-9: The Plan provides for needed local street network improvements within the plan area, including improvements for parking and freight access. (Yes/No)	✓	✓	✓
		• All scenarios propose improvements to the local street network and street cross sections, including better-defined parking areas and appropriate turning radii for freight		
Overall	Best meets project criteria (Relative Ranking of Alternatives)	★ ★	★ ★ ★	★
		• Average relative ranking = 2.1 • 4 pass, 1 fail, 1 N/A	• Average relative ranking = 2.6 • 5 pass, 1 fail	• Average relative ranking = 1.9 • 3 pass, 2 fail, 1 N/A

** This evaluation measure is part of the Sustainable Transportation Analysis & Rating Systems (STARS). The STARS rating system informs the transportation planning process by establishing clear sustainability goals and providing quantitative measurements for comparing outcomes.*

Highlights from the matrix for each scenario are summarized here, with references to specific evaluation criteria shown in parentheses.

- **Scenario 1:** Scenario 1 would result in the lowest impact in terms of total vehicle miles traveled within the study area (T-6). This is due to the sporadic, non-peak hour traffic that would be generated by the large civic/entertainment use. This scenario would also be moderately supportive of transit-oriented development and a mix of uses that will benefit future workers and visitors to the area (LU-2, LU-6). However, challenges presented by Scenario 1 include a potential lack of high-paying jobs and minimal connectivity through Opportunity Site B (LU-4, T-9).
- **Scenario 2:** Scenario 2 provides the most benefit in terms of land use, including creation of higher paying jobs, increases in employment densities, and greater cost/market feasibility (LU-2, LU-3, LU-4, LU-6, LU-9). This scenario also has the potential to provide the most improvement to connectivity in the study area and bicycle/pedestrian mode share increases. However, because Scenario 2 represents the most intensive development, it also generates the most vehicle miles traveled at peak hours, which could result in negative impacts to manufacturing uses in the study area (T-6, LU-1). While not explicitly addressed in the evaluation criteria, it also could hamper development in the downtown by creating a competing area for office or commercial development.
- **Scenario 3:** The greatest benefit from Scenario 3 comes from its focus on maintaining existing industrial uses while enhancing access for those uses (LU-1). This scenario is the most feasible from a market perspective and has more support from property owners than the other two scenarios (LU-7, LU-8). Scenario 3 falls short of meeting project goals, however, because it likely would not support transit-oriented development or create new services or amenities for employees or nearby residents (LU-2, LU-6). This scenario does also not necessarily support increases employment density or bicycle/pedestrian mode share outside of implementing a variety of bicycle and pedestrian-oriented transportation improvements (LU-9).

Section 4: Proposed Preferred Scenario

Overview

Based on the results of the Scenarios evaluation, as well as feedback from project advisory committee members and other community members, the project team has identified a proposed preferred redevelopment scenario for the study area. It incorporates elements of Scenarios 1 and 2, including the proposed transportation improvements common to all three scenarios.

Generally speaking, the preferred scenario was chosen because it achieves the highest level of consistency with the project evaluation criteria, as described below, with references to specific evaluation criteria shown in parentheses:

- This scenario represents a relatively intensive level of redevelopment that would support an increase in transit, bicycle and pedestrian mode share while balancing redevelopment expectations with results of market analyses for the area and allowing the majority of industrial uses in the area to continue with minimal disruption (LU-1, LU-2, T-2).
- This scenario allows for transit-supportive development, including potential employment densities of 45 employees per acre within the primary redevelopment portion of the study area (LU-2, LU-3). It also allows for large-scale redevelopment of Opportunity Site B and of the surrounding area, pending market support for a transition to non-industrial uses north of Beta Street, which are identified as feasible from a market perspective in the long-term (LU-3, LU-5, LU-7).
- Proposed land uses in the preferred scenario would benefit future residents and workers in the area to the same (high) degree as Scenario 2 (LU-6).
- This alternative would have the highest or second highest level of consistency with all transportation-related evaluation measures compared to the redevelopment scenarios evaluated in this report (T-1, T-2, T-4, T-5, T-7 and T-9).

Key Land Use Elements

North of Beta Street

More significant changes in land use are focused primarily north of Beta Street, similar to Scenario 1. This portion of the study area is closest to the future light rail station (approximately one-third mile or less) and is expected to see the greatest impact from the station in terms of land value. As such, this scenario will facilitate transit-supportive development and higher employment densities. It will also generate more bicycling or walking trips to the station, compared to properties located further away. Limiting the most significant redevelopment to this area also will reduce impacts on the surrounding transportation system and will help preserve the remainder of the area for continued manufacturing and other industrial uses, consistent with project goals and city policies. While redevelopment in this area occurs, a high degree of flexibility and support for existing businesses in this portion of the study area also will be important. A mix of employment uses is envisioned, with generally higher employment densities but a limited amount of office use to avoid pulling potential office uses away from the downtown.

Opportunity Site A

Opportunity Site A would be redeveloped for a combination of retail and commercial use, such as a small brewery, flexible office/incubator space, dining, coffee shop and café, convenience market, bicycle shop, and/or potentially second story small offices, as described for all scenarios in this report (see more detailed description on page 18 and Figure 1 on page 19).

Opportunity Site B

The historic building on the western half of Opportunity Site B would become an eating and drinking establishment, as envisioned for all redevelopment scenarios. This is consistent with the goal of providing a mix of uses within the station area that will serve future workers, visitors and residents.

The eastern portion of Opportunity Site B incorporates some type of large-scale civic, recreational or entertainment use, which will facilitate transit-supportive development and potentially achieve higher employment densities. In addition, this element will encourage development of other uses and amenities that will benefit visitors and employees in the area Advisory committee and other community members generally voiced support for this type of use at this site during project meetings. In addition, this type of use is more likely to create a community destination in the study area than a general office or commercial use would. It is recommended that the city consider or pursue a use for this site that operates multiple days a week during a substantial portion of the year to help energize surrounding retail or commercial businesses.

Opportunity Site B would also incorporate community gathering spaces, including several small plaza areas. This would provide amenities for workers and nearby residents.

The existing alignment of Main Street through Opportunity Site B would be preserved. This would help maintain and enhance local connectivity and circulation in comparison to Scenario 1, which shifts the Main Street alignment to the eastern edge of the study area.

Main Street to Railroad Tracks, Ochoco Street to Springwater Trail

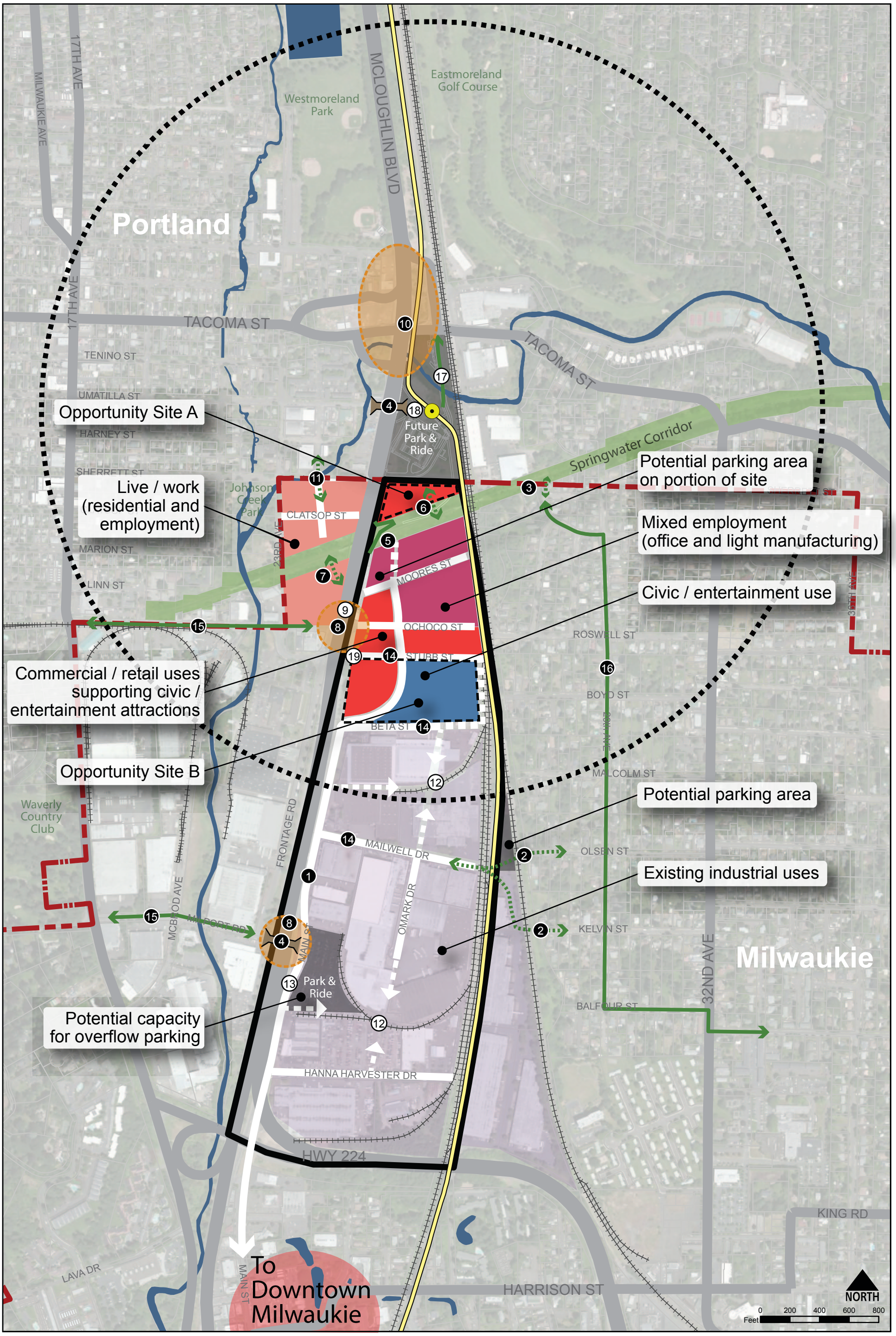
The area east of Main Street and between approximately Ochoco Street and the Springwater Corridor would be used for a broad mix of employment uses — including light manufacturing, commercial, and a limited amount of retail and office use — with higher employment densities than existing uses. Again, this supports the goal of increasing employment densities and providing a mix of land uses that will help maximize use of the new LRT station.

McLoughlin Boulevard to City Limits, Ochoco Street to City Limits

Areas west of McLoughlin Boulevard and due north and south of the Springwater Corridor would include a mix of employment and residential uses, including live/work and possibly other types of residences. This would create a more transit-supportive mix of land uses in the area, particularly in the portion of the study area closest to the LRT station. This area is adjacent to other residential areas and not directly adjacent to rail lines in the area, making it relatively more appropriate for residential use than other portions of the study area. It should be noted that this area is also in close proximity to Johnson Creek and portions of land may be within the city's Natural Resource Overlay zone intended to protect water quality resources. Development within the Natural Resource Overlay may be limited and/or subject to additional levels of review, necessitating careful siting and planning of future development in this area.

South of Beta Street

Over time, employment uses south of Beta Street could transition to other industrial or manufacturing uses with higher employment densities. However, such uses also should take advantage of the unique rail infrastructure assets in this portion of the study area.



Preferred Concept Alternative
TACOMA STATION AREA PLAN

SERA 26 OCTOBER 2012

- Commercial
- Live Work (Mixed Residential / Employment)
- Civic / Entertainment
- Mixed Employment
- Existing Industrial Uses
- Study Area Streets
- New Street Connections
- Bike / Ped Improvements
- New Bike / Ped Connections
- Intersection Improvements
- Project Study Area
- Station Area (1/2 mile radius)
- City Boundary
- LRT Station
- LRT Alignment

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Transportation Enhancements

Additional refinements to proposed transportation improvement projects are included in order to achieve a higher bicycle and pedestrian mode share and improve connectivity to and within the study area. Those refinements include the following:

- Improvements to local streets, consistent with proposed new street designs described in the appendix. These improvements would be phased in over time as the area redevelops and as the character of the surrounding land use supports them.
- Additional place-making elements would be incorporated in the design of future streets and supporting infrastructure as described in "Key Streets and Place-Making Elements" beginning on page 35.
- Safety and circulation improvements at the intersections of McLoughlin Boulevard with Ochoco Street and Milport Road are most likely to consist of at-grade improvements. While pedestrian over-crossings at these locations, as well as at Umatilla Street, are not being completely ruled out, they would be extremely expensive and are not considered a high priority given their potential cost and the importance of implementing a variety of other improvements in the area.
- The proposed cross-section for Main Street would generally include a multi-use bicycle pedestrian path on the east side of the street, with a landscaping buffer on the west side, possibly with pockets of parking in some locations (see Appendix A, page A-2). This design best balances community feedback with safety considerations and a desire to minimize the need to acquire additional right-of-way to reduce costs and limit impacts on adjacent property owners.
- A combined bicycle/pedestrian path extending from the existing northern end of Main Street to the section of McLoughlin Boulevard that travels under the Springwater Trail would provide a bicycle/pedestrian connection to the light rail station, rather than the multi-use path shown along McLoughlin Boulevard in previous scenarios.

Other connectivity and access improvements shown on Map 3 on page 15 are as listed (with corresponding numbers) in "Local Circulation and Access Improvements Common to All Scenarios" beginning on page 20.

Implementation

Strategies for implementing this scenario would be similar to those described in Section 9 beginning on page 49 for alternative redevelopment scenarios. Of particular importance will be city and community efforts to identify and market a specific large-scale civic or entertainment use for Opportunity Site B. Strategies to do this could include contacts with specific end users, use of a request for proposal process to identify potential target developments, use of urban renewal of other funding mechanism to help finance supportive infrastructure improvements and assistance with more detailed site planning efforts. Other key implementation strategies will include:

- Addressing current and future parking needs in the area through a comprehensive system of parking regulation and management strategies.
- Allowing for gradual transition to alternative uses in a way that supports existing businesses and provides existing and new businesses with flexibility related to land use and development, while achieving the long-term redevelopment vision over time.
- Funding proposed public improvements in the area though a combination of public and private sources.
- Working with property owners and prospective businesses to attract businesses with higher levels of employment throughout the study area.
- Providing incentives and flexibility in planning requirements that would support expansion of existing uses or conversion to new uses that would be more employment-intensive.

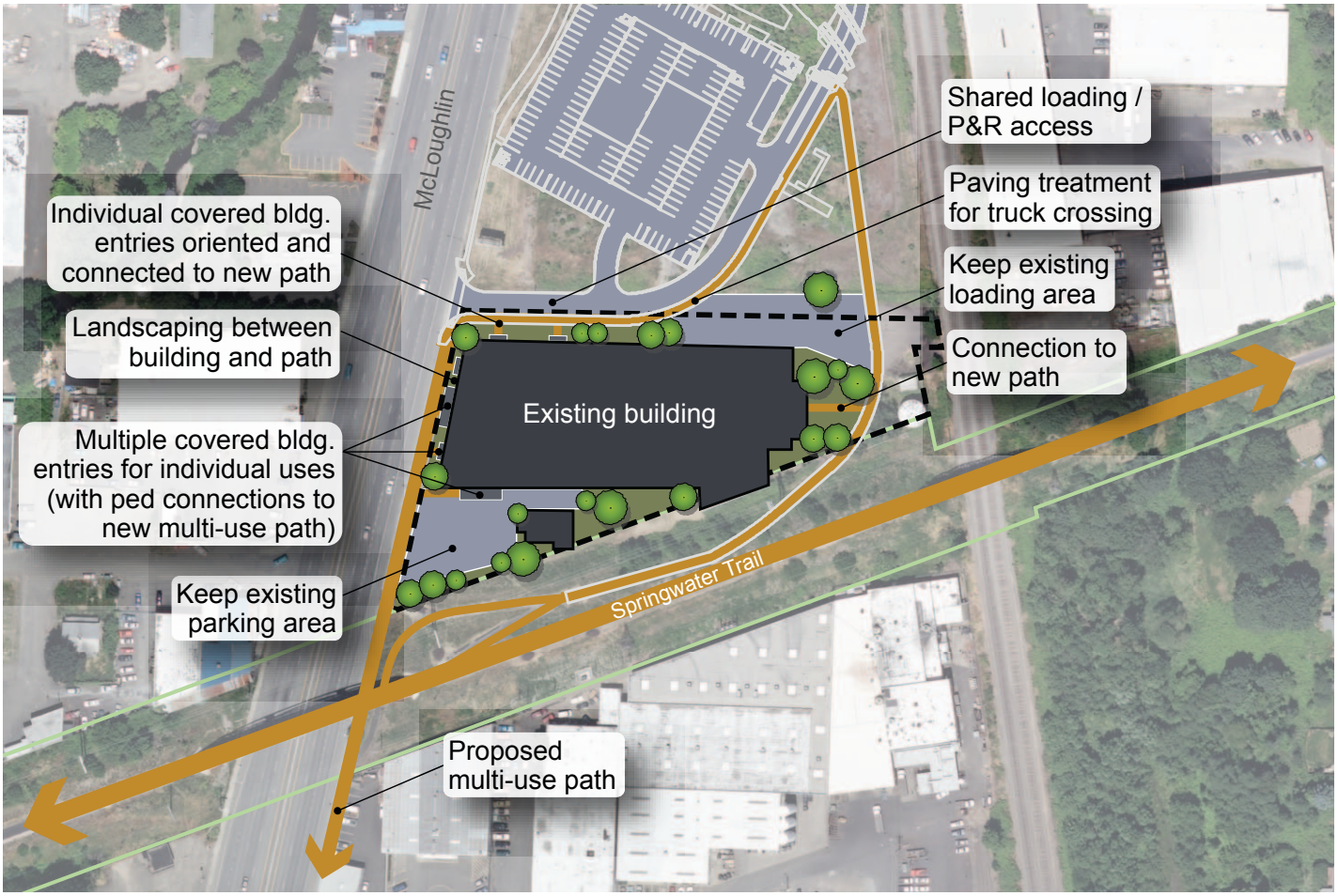
Section 5: Details of Refined Redevelopment Scenarios

Land use and Development Elements Common to All Scenarios

No changes in the basic land use pattern are recommended for the area south of Mailwell Drive in any of the scenarios. This recommendation is based on comments from property owners in this area who note that the area remains a viable industrial area where industrial uses are expected to continue operating through the planning horizon (20 years). In addition, given that this portion of the study area is more than a half-mile from the LRT station, impacts of the LRT station on redevelopment potential in this portion of the study area are expected to be limited.

Another common element is Opportunity Site A, which is identified as Commercial in all three scenarios. This is due to its close proximity to the Tacoma LRT station, park and ride lot and Springwater Corridor. The site was identified as the most viable location for commercial uses that will serve users of those nearby amenities. The redevelopment scenarios provided for Opportunity Site A (which are consistent across all three scenarios) imagine the existing structure on the site renovated to accommodate commercial uses such as a small brewery, flexible office/incubator space, dining, coffee shop and café, convenience market, bicycle shop, and/or potentially second story small offices (see "Section 8: Site and Building Design" on page 44 for more on how existing buildings can accommodate new uses). Redevelopment of this site also could incorporate improvements to the building façade (e.g., introduction of more windows) and to the parking area (e.g., inclusion of trees or other landscaping). Excellent pedestrian and bicycle connections from Opportunity Site A to and from Tacoma Station and the Springwater Corridor will help draw people into the redeveloped site.

All three scenarios also include a potential parking area at the location of the existing building just south of the Springwater Corridor on the east side of McLoughlin Boulevard (north of Moores Street). This could be accessed by a northern extension of Main Street, including a bicycle/pedestrian path, and could serve local businesses, employees, and visitors to the area.



Site A - All Scenarios: Pendleton "Marketplace" Concept

SERA TACOMA STATION AREA PLAN

Figure 1. Conceptual Site Plan for Redevelopment of Opportunity Site A under all three scenarios

Local Circulation and Access Improvements Common to All Scenarios

The following list describes circulation, access and other transportation improvements that are common to all three scenarios. The numbers below correspond to the numbers shown on the scenario maps on pages 25 to 41. Improvements have been categorized by those that meet broader access, circulation or mobility needs for the Project Study Area (numbers in black circles), and those that represent more targeted, minor improvements (numbers in white circles). Street cross-sections shown in "Appendix A: Design and Access Improvements by Street" further illustrate several of the proposed transportation improvement recommendations described below.

1. **Improvements to Main Street to fill gaps in bicycle/pedestrian facilities and enhance the connection to downtown Milwaukie.** Generally, Main Street south of Milport Road would have a sidewalk on the east side of the street, two travel lanes and a 10 foot wide cycle track for bicyclists traveling in both directions, with a jersey barrier continuing to separate Main Street from McLoughlin Boulevard. North of Milport Road, where more right-of-way is available, Main Street would have the same elements with slightly wider travel lanes and a landscaped strip separating Main Street from OR 99W. Figure A-1 through Figure A-7 in Appendix A illustrate these proposed designs.

2. **Bicycle/pedestrian connection from the eastern neighborhoods to the Project Study Area across the railroad tracks (underpass or overpass) at approximately Kevlin or Olsen Streets.** Coming from the east, users would go from the proposed new crossing to the existing private at-grade crossing over the western set of railroad tracks at Mailwell Drive. They could then access the light rail transit (LRT) station via existing and potential new local streets (Mailwell, Main, Moores and McLoughlin). This would also provide improved access to the downtown for residents via Main Street.

3. **Possible bicycle/pedestrian connection parallel to LRT track.** This would provide a more direct connection to the light rail station from the eastern portion of the Project Study Area, creating a pathway on the west side of the LRT track south to Moores Street. However, it is likely that there would be challenges to creating this connection. While it is beyond the scope of this project to determine the feasibility of this connection, locating a trail directly adjacent to the LRT line would likely require concurrence from TriMet and adequate space to provide a safe, separated facility. This, in turn, may require enlarging the existing tunnel/opening under the Springwater Corridor, which could be very costly, given the relatively limited benefit of creating this new access just one block away from the existing connection along McLoughlin Boulevard. Geotechnical and engineering analyses also would be needed to determine the feasibility of this project.

4. **Potential pedestrian overcrossings of McLoughlin Boulevard.** These are shown in two locations where existing at-grade pedestrian and bicycle crossings of the road are currently very challenging – at Milport Road and Umatilla Street. These potentially represent an alternative to at-grade crossing improvements. Overcrossings at these locations would significantly improve pedestrian access to the future LRT station and project area and reduce out-of-direction travel for people walking to these areas. However, they likely would be extremely expensive ($1 million or more per crossing based on similar crossings constructed elsewhere) and would be challenging to design and locate, given the amount of space needed to meet accessibility requirements.

5. **Improved existing connection from the Springwater Corridor to the Pendleton site/station area.** This is the improved ramp connection that was included in the proposed LRT station and park and ride design. New ramps are proposed on each side of the slope that contains the Springwater Trail, with a long eastbound ramp on the north side of the slope, and a long westbound ramp on the south side. These new ramps would provide higher quality bike connections into the station area, without the switchbacks of the existing ramp, which are more difficult for cyclists to navigate.

6 **Stairs/improved connection from the Springwater Corridor to the LRT station** (south side of Pendleton site as shown in Figure 2 below). The city of Portland continues to pursue potential funding for this project element through a Transportation Enhancement grant.

Figure 2. Planned Improvements from Springwater Corridor to Light Rail Station

7 **Possible stairway/improved connection from the Springwater Corridor to McLoughlin Boulevard from west.** This is a companion stairway to #6 noted above, and is shown in Figure 2.

8 **Pedestrian/bicycle safety/crossing improvements at Ochoco Street and Milport Road intersections with McLoughlin Boulevard**, with specific design options to be identified at a later date. An overcrossing structure could be considered at Milport Road.

9 **Truck signage improvements at the Ochoco Street intersection.** Additional signage and enhanced circulation and /or geometric improvements are recommended to improve truck operations in this location and improve queuing conditions along McLoughlin Boulevard that can result if southbound truck traffic does not access Ochoco Street properly.

10 **Planned safety improvements at the Tacoma Street interchange (on/off ramp improvements).** These are part of a planned ODOT re-striping project scheduled for summer of 2012 that will change lane configurations on southbound SE McLoughlin Boulevard near the Tacoma Street interchange. It will shift the start of the third southbound travel lane so it begins at the Tacoma Street on-ramp rather than at Nehalem Street, allowing a dedicated lane for drivers entering McLoughlin Boulevard from the Tacoma Street ramp. The project will also add a raised pedestrian refuge island at the southbound Tacoma Street ramp.

11 **Potential multi-use path along McLoughlin Boulevard (east side) from the future TriMet Park & Ride to Beta Street.** This connection would travel from the south end of the future park and ride at the LRT station along the east side of McLoughlin Boulevard, under the Springwater Corridor structure, and then join on-street facilities and/or a potential cycle track on Main Street at Beta Street.

12 **Additional local street connections to improve connectivity in the Project Study Area.** If larger blocks in the southern portion of the area are redeveloped in the future, additional local street connections would be recommended or required to break up large blocks and improve local access and connectivity. Future block lengths associated with residential, commercial or office use are recommended to be 250-530 feet, consistent with existing city standards. Block sizes for industrial uses may be larger (e.g., 600-1,200 feet), given the need to accommodate larger industrial users and associated infrastructure (e.g., rail lines and spurs).

13 **Eliminate parking on southbound shoulder on Main Street.** Improvements to Main Street shown in Appendix A, Figure A-1 – Figure A-7 would require removal of on-street parking in the shoulder on the west side of the street. Parking in this area currently represents a barrier and potential hazard to cyclists traveling southbound. This parking would be replaced by new on-street parking opportunities on local streets in the Project Study Area and possibly using all or a portion of the existing Park and Ride lot between Mailwell Drive and Hanna Harvester Drive for off-street parking for area workers and visitors in the future. Additional information on parking is in Section 7.

14 **Local street improvements to Stubb, Beta, and Ochoco Streets, and Hanna Harvester and Mailwell Drives to demarcate pedestrian, bicycle, truck and auto circulation and parking areas**, improving safety while maintaining freight operations. Cross-sections for these streets are in Appendix A.

15 **Improved bicycle/pedestrian connections from and within the neighborhood to the west along Ochoco Street and Milport Road**. This could include filling gaps in the sidewalk system on one or both sides of these streets and possibly adding dedicated bicycle lanes if right-of-way is available.

16 **Connection from the SE 29th Avenue bicycle route to Springwater Corridor.** Currently, 29th Avenue from Sherrett to Balfour is a designated "Shared Roadway Low Traffic" for bike travel.

17 **Northbound (uphill) bike lane on the LRT station access road to Tacoma Street.** This improvement would enhance bicycle operations in the area. However, it may not be feasible, given that both planned egress lanes are needed in this location. Including an uphill bike lane would require a wider cross-section and/or reductions in the width of other elements of the street.

18 **Potential future Portland Bicycle Share station and car share spaces at LRT station**. Development of a Bicycle Share station has been discussed for the LRT station. TriMet also could work with local car share companies (e.g., Zipcar or Car2Go) to provide car share spots to encourage use of bicycle and car sharing among LRT station users and surrounding residents.

19 **Bicycle/pedestrian connection between McLoughlin Boulevard and the west end of Stubb Street.** Currently, Stubb Street ends just east of McLoughlin Boulevard A short pathway could be provided across the vacant area between the west end of Stubb Street and the proposed multi-use path along this section of McLoughlin Boulevard. This would provide parallel routes on both Main Street and McLoughlin Boulevard to the north to access the LRT station, further enhancing bicycle and pedestrian connectivity in the area. No crossing of McLoughlin Boulevard is proposed at this location.

20 **Improvements to access at the Springwater Corridor are recommended to facilitate the connection from the west end of Sherrett Street to the trail**. This is related to item #16, and improvements include paving the existing gravel pathway that people currently use to access the trail, as well as possibly providing additional signage at Sherrett/29th to direct people to this connection and the trail.

21 **New bicycle/pedestrian connection**. This project represents a bicycle/pedestrian bridge over Johnson Creek to improve access into this relatively isolated portion of the study area. In combination with a new access from this area to the Springwater Corridor trail, this would significantly improve access to surrounding areas for people living and working in this area and also would provide another connection to the LRT station and study area from the neighborhood to the northwest.

Scenario 1 – Large-scale Civic/Entertainment Use

Local Circulation, Access and Other Transportation Improvements

In this scenario, the location of a large-scale civic/entertainment venue between Stubb Street and Beta Street requires some reconfiguration of the local street network. The existing Main Street connection between Stubb and Beta Streets is vacated under this scenario, and a new connection is created between the proposed parking structure and the railroad tracks.

Land Use and Development Elements

The land use pattern in Scenario 1 is centered around a large-scale civic/entertainment venue, which would be located on Opportunity Site B between Stubb and Beta Streets. Commercial and retail uses that support and complement the civic/entertainment use would be located west and north of Opportunity Site B between Moores, Ochoco and Stubb Streets, taking advantage of the high visibility from McLoughlin Boulevard and proximity to the LRT station. The portion of land west of McLoughlin Boulevard and north of the Springwater Corridor could be developed with a mix of light industrial and office employment uses, again maximizing the proximity to light rail and the commercial/retail uses identified at Opportunity Site A. Land south of Opportunity Site B would continue to consist primarily of industrial uses.

Scenario 1 assumes that some of the existing warehouse and manufacturing buildings in the Project Study Area could eventually be renovated to accommodate retail/commercial uses such as bars, restaurants, retail outlets, and other entertainment-supportive uses that would enliven the district both during and after major sporting events as well as on non-event days. In particular, the historic ODOT building on the west end of Opportunity Site B could be repurposed as retail and dining space, taking advantage of the immediate proximity of the entertainment complex to its east.

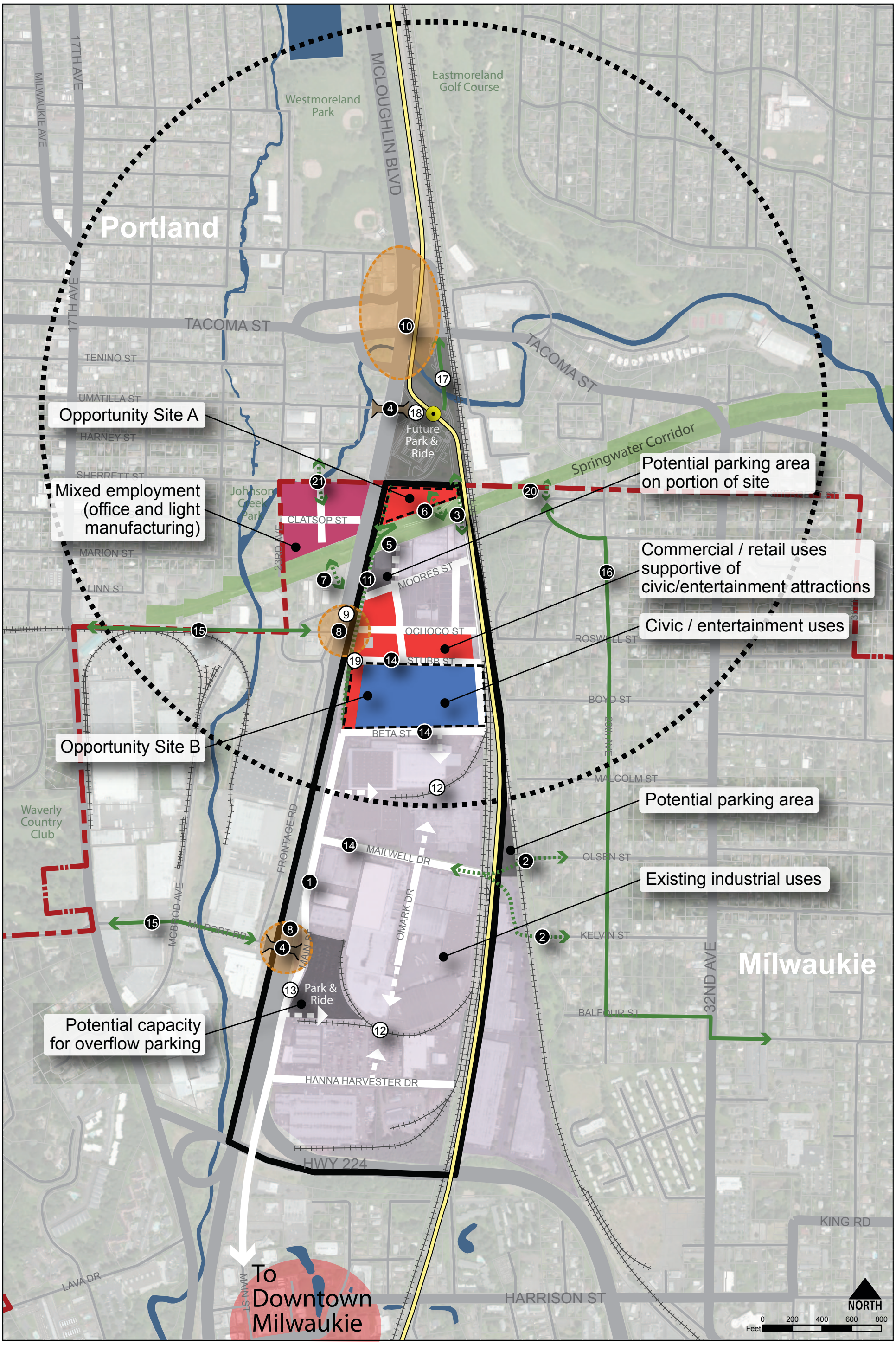
Redevelopment of Opportunity Site B

Scenario 1 assumes that the eastern portion of Opportunity Site B is redeveloped to accommodate a large-scale civic/entertainment venue. The conceptual site plan provided below therefore focuses on the westernmost portion of the ODOT site, and assumes that the existing historic ODOT building is renovated to house new eating/drinking establishment(s) that would cater to event attendees on event days, and would serve as a retail destination to nearby residents on non-event days. This scenario assumes that a redevelopment of the structure would leverage the building's historic architectural character to create a unique sense of place for the new commercial establishment. The ODOT building is a designated Significant Historic Resource per Milwaukie's Comprehensive Plan and therefore the city's Historic Preservation Overlay zoning has been applied to the site. The overlay zone requires that any exterior alteration of the building be reviewed either by the Planning Director or the Planning Commission, depending on the extent of the alterations.

Key to the redevelopment of the building and the site will be providing clear pedestrian linkages to the plazas surrounding the event venue, as well as to the proposed multi-use path along McLoughlin Blvd. The conceptual site plan assumes that the existing surface parking area will be used to help meet parking demand for the new commercial uses provided in the ODOT building. Like Opportunity Site A, however, it is important to note that any commercial redevelopment would likely require more parking stalls than can be provided for on the site. This scenario therefore assumes that the project would apply for a reduction in the minimum parking requirement, based on the site's proximity to transit. Parking may also be shared with the surface parking area provided for the event venue on non-event days.

Site B - Scenario 1: Civic / Entertainment

Figure 3. Conceptual Site Plan for Redevelopment of Opportunity Site B under Scenario 1



Scenario 1: Civic / Entertainment
TACOMA STATION AREA PLAN

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Scenario 2 – Intensive Employment Redevelopment

Local Circulation, Access and Other Transportation Improvements

This scenario provides the most connectivity within the Project Study Area. New north-south local street connections are recommended on the Omark Drive alignment and on the eastern edge of the Project Study Area, and a new east west connection is recommended between Beta Street and Mailwell Drive, serving the new mixed employment area. Additional street connectivity is recommended north of Moores Street as well, providing high quality multimodal access to new retail and residential areas.

Land Use and Development Elements

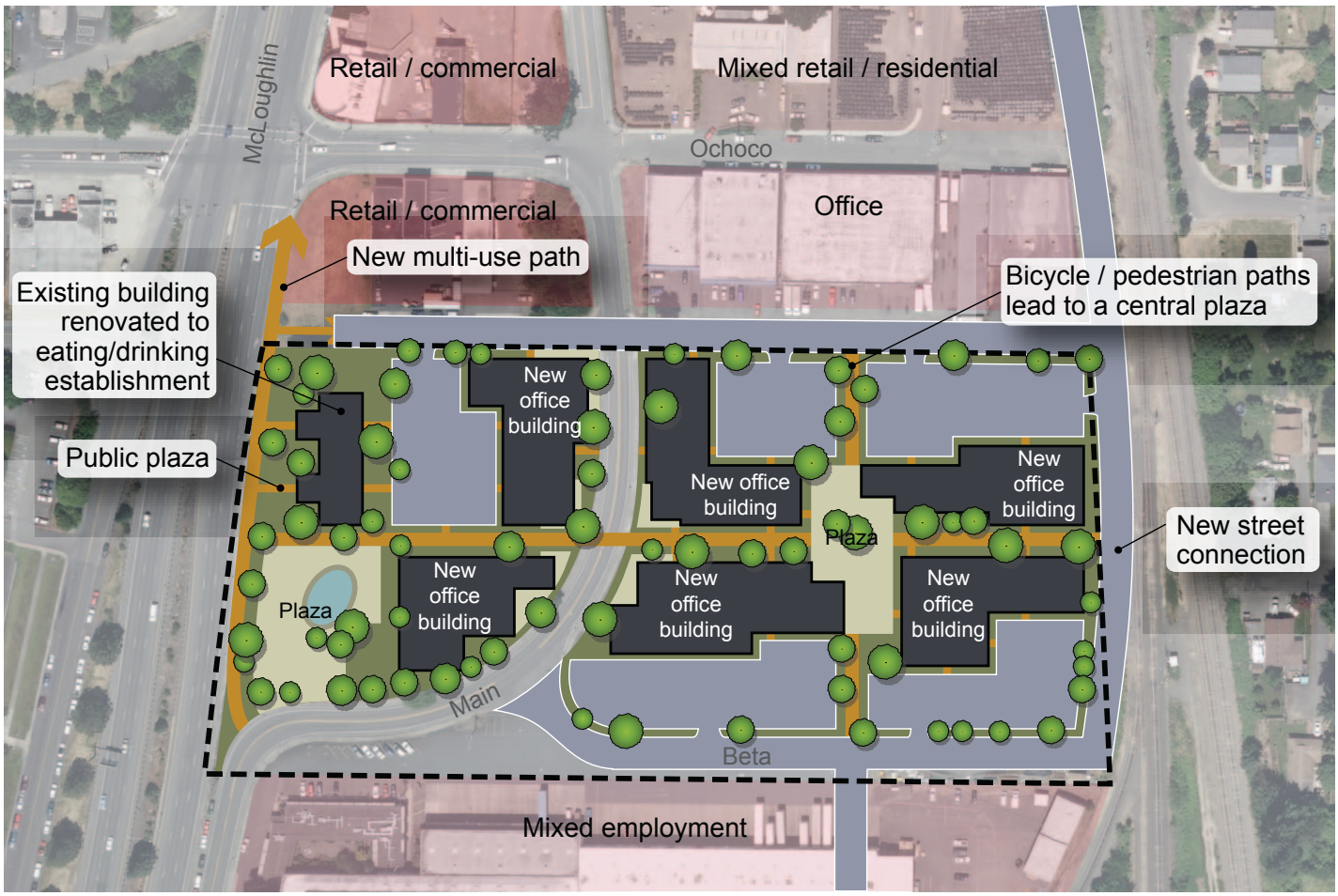
Scenario 2 represents the most intensive mix of land uses, maximizing employment densities within the Station Area. Generally speaking, the higher-impact uses are located south of Beta Street, adjacent to the existing industrial uses. The area between Mailwell Drive and Beta Street is identified as mixed employment, including both office and light industrial uses. North of Beta Street is primarily office, with some commercial/retail uses located along McLoughlin Boulevard. This area of office and commercial uses will serve as a transitional buffer between the employment uses to the south and the mix of residential and retail uses to the north. This area would offer opportunities for housing, most likely two to three-story townhouses, flats or apartments. They could be developed as "live/work" spaces for people with home occupations or small businesses, with small-scale retail uses located on the ground floor. These uses are located south of the Springwater Corridor to capitalize on the multi-use trail and LRT station. The portion of this area directly adjacent to McLoughlin Boulevard would likely be primarily retail in nature. As with Scenario 1, land west of McLoughlin Boulevard and north of the Springwater Corridor is identified as a mix of light industrial and office employment. The area west of McLoughlin Boulevard between Ochoco Street and the Springwater Corridor is proposed to be a mix of retail, commercial and residential use.

Scenario 2 envisions a district transition into a higher density mixed-employment district that leverages the proximity to transit. Like Scenario 1, Scenario 2 looks to local examples (Portland's Eastside Industrial Area and Mississippi/Albina Station) to serve as precedents for how light industrial/manufacturing areas can provide a high degree of multi-modal connectivity as well as services that cater to the needs of local employees and nearby residents. While the land uses in the area are currently (and almost singularly) industrial in nature, Scenario 2 proposes a broader array of higher-density employment uses to enliven the district, including live-work, light manufacturing and fabrication, office-based employment uses, small incubator spaces, and flexible office/artist spaces. These mixed employment developments could occur both in 1-2 story renovated warehouse-style buildings and in new multi-story structures (see "Section 8: Site and Building Design" on page 44 for examples of what this could look like). In addition to higher intensity employment, the district should ideally provide supporting commercial uses, similar in character to those proposed in Scenario 1.

Redevelopment of Opportunity Site B

Scenario 2 assumes that the majority of the site is redeveloped to accommodate new creative office / flexible employment uses, thereby leveraging the nearby transit stop to create an employment-based TOD. New multi-story office / employment buildings are shown on the two blocks east of Main Street, and along McLoughlin Boulevard at the southwestern-most portion of the site. As in Scenario 1, the conceptual site plan for Scenario 2 assumes that the existing historic ODOT building is repurposed to house an eating/drinking establishment(s) that serves the needs of local employees as well as nearby residents. Ideally, the redevelopment of the structure would leverage the building's historic architectural character to create a unique sense of place for the new commercial establishment. The site plan illustrates new pedestrian connections, linking the building to the proposed multi-use path along McLoughlin Boulevard and to the surface parking area behind it.

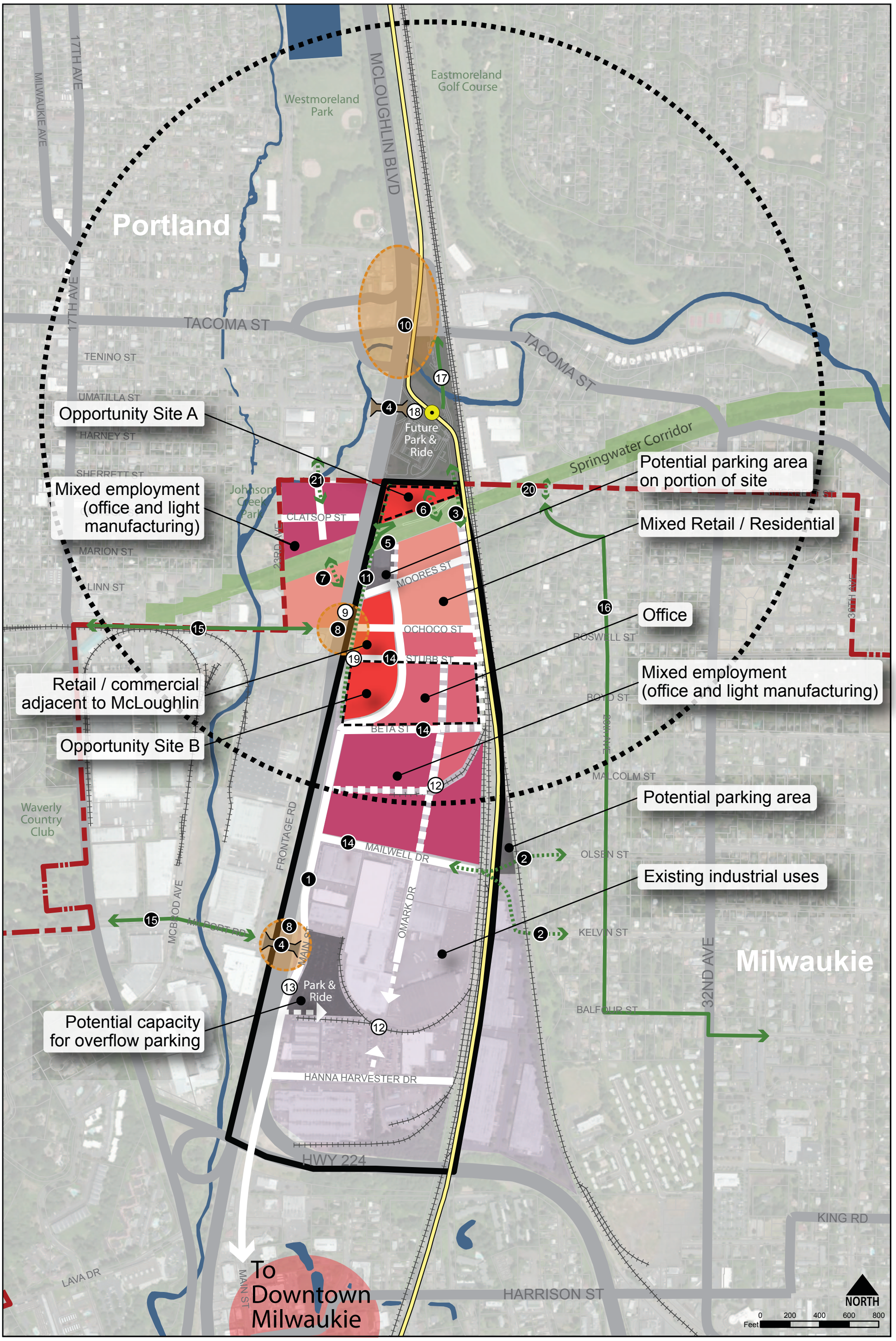
Buildings on the easternmost blocks (east of Main Street) are situated to face Main Street and the new north-south connection between Stubb and Beta Streets. The site plan provides on-site surface parking for these new employment buildings at the rear of the buildings (please note that these site plans are conceptual, and that exact parking needs were not calculated as part of this exercise). The site plan also provides a large, shared parking area on the western-most block, east of Main Street, a portion of the site currently occupied by a large parking lot and two small one-story structures. It is assumed that this surface parking area would provide parking for the new commercial uses in the historic ODOT building, as well as provide overflow parking for the adjacent office / employment uses. A pedestrian path is shown mid-block east of Main Street, connecting the shared parking area (as well as the new commercial uses in the historic ODOT building and the proposed office/employment building fronting McLoughlin Boulevard) with the new buildings to the east.



Site B - Scenario 2: Intensive Development

SERA TACOMA STATION AREA PLAN

Figure 4. Conceptual Site Plan for Redevelopment of Opportunity Site B under Scenario 2



Scenario 2: Intensive Employment

TACOMA STATION AREA PLAN

SERA 25 OCTOBER 2012

Commercial
Mixed Retail / Residential
Office
Mixed Employment
Existing Industrial Uses
Study Area Streets
New Street Connections
Bike / Ped Improvements
New Bike / Ped Connections
Intersection Improvements
Project Study Area
Station Area (1/2 mile radius)
City Boundary
LRT Station
LRT Alignment

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Scenario 3 – Circulation and Access Focus

Local Circulation, Access and Other Transportation Improvements

Although this scenario provides fewer connectivity improvements than Scenario 2, it still adds all the elements listed earlier in this report, providing improved connectivity and access into and through the Project Study Area.

Land use and Development Elements

Land use Scenario 3 represents the least intensive development pattern and focuses instead on access and circulation improvements. Generally, land uses in this scenario remain industrial, with the exception of some commercial uses identified at Opportunity Sites A and B. Appropriate commercial uses in Opportunity Site A would be those that support and complement the LRT station, park and ride, and Springwater Corridor. Commercial uses in Opportunity Site B would be those that provide amenities for employees in the industrial district and/or retail space associated with industrial activities. Another area of industrial employment is identified west of McLoughlin Boulevard and north of Springwater Corridor, inside the Milwaukie city limits.

The character of new commercial developments depicted in Scenario 3 would be similar in nature to those described in Scenarios 1 and 2. In addition to the commercial redevelopment shown in all three scenarios for Opportunity Site A (see “Section 3: Scenario Evaluation” on page 7), the historic ODOT building on Opportunity Site B could be repurposed as a destination eating and drinking establishment, which would not only cater to local employees in the district, but could serve as a draw for surrounding residents.

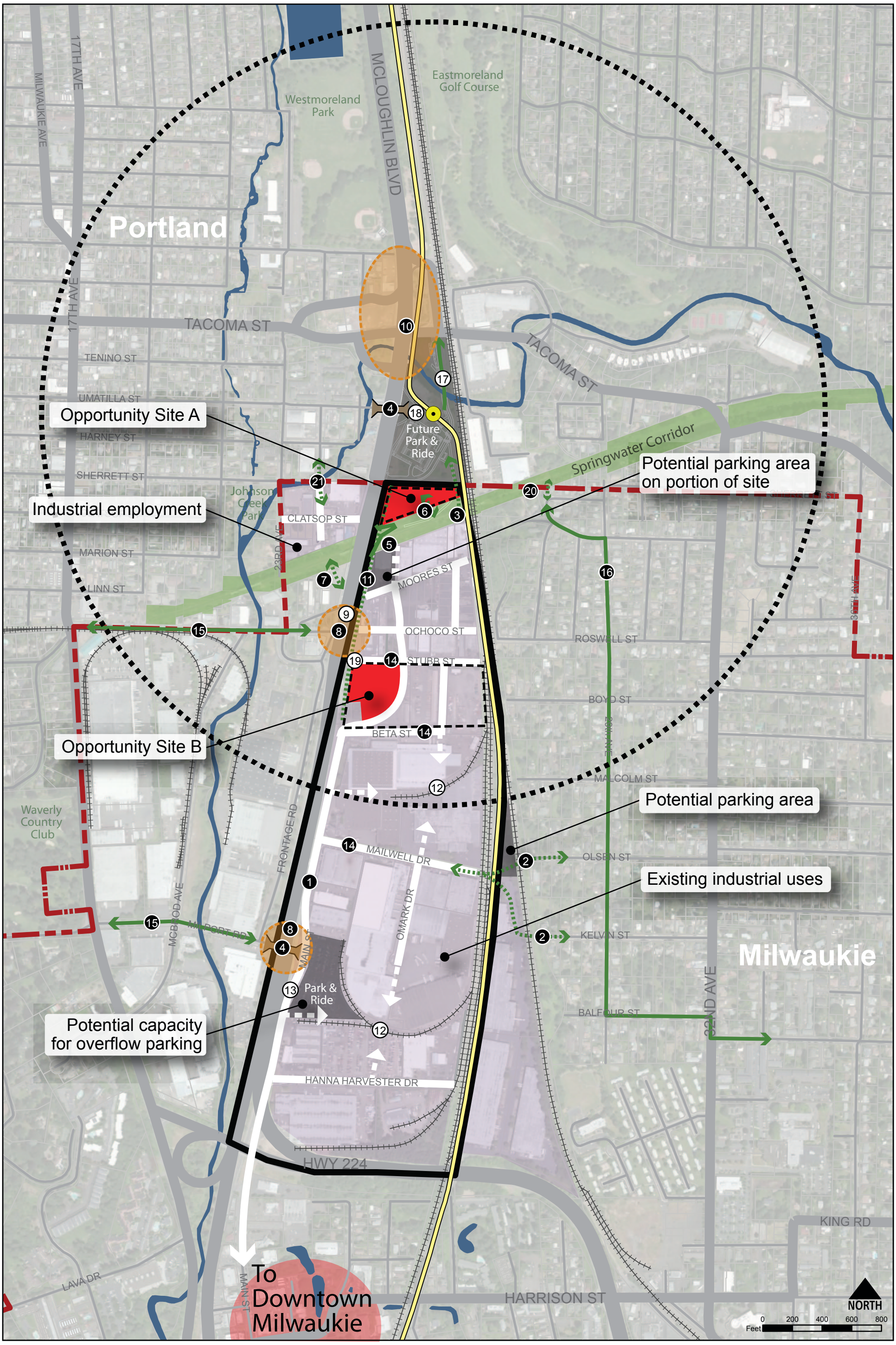
Redevelopment of Opportunity Site B

The site plan for Opportunity Site B, Scenario 3 assumes that the historic ODOT building will be renovated to accommodate a new destination eating/drinking establishment, as described in Scenarios 1 and 2. It assumes that this new commercial development would be served by a surface parking area behind the building (where a large parking lot and two small structures currently reside). As in other scenarios, the site plan for Scenario 3 illustrates new pedestrian connections, linking the building to the proposed multi-use path along McLoughlin Boulevard and to the surface parking area behind it. Given that Scenario 3 assumes that existing industrial uses in the Project Study Area largely remain “as-is,” the site plan for Opportunity Site B assumes that the existing structure and parking area at the southwestern corner of the site remain, and that only the historic building is redeveloped.

Site B - Scenario 3: Access / Circulation Improvements

SERA TACOMA STATION AREA PLAN

Figure 5. Conceptual Site Plan for Redevelopment of Opportunity Site B under Scenario 3



Scenario 3: Access / Circulation Improvements

TACOMA STATION AREA PLAN

25 OCTOBER 2012

- Commercial
- Existing Industrial Uses
- Study Area Streets
- New Street Connections
- Bike / Ped Improvements
- New Bike / Ped Connections
- Intersection Improvements
- Project Study Area
- Station Area (1/2 mile radius)
- City Boundary
- LRT Station
- LRT Alignment

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Section 6: Streetscape Concepts

Key Streets and Place-Making Elements

The redevelopment scenarios are organized around two "key streets." These key streets are intended to serve as an urban design organizing principle and create a stronger sense of "place" within the district.

Both Main and Ochoco Streets provide key gateways into the study area. Main Street connects the study area to Downtown Milwaukie to the south, and serves as the primary local access into the site. Ochoco Street is the primary entrance into the site for northbound and southbound vehicular traffic from McLoughlin Boulevard (for southbound traffic, it is the only entrance into the study area). Given that they both function as important gateways into the site, and given that Main Street is the primary north/south spine within the district, Main and Ochoco Streets are the primary streets where the majority of redevelopment will likely occur in the district. Accordingly, the conceptual street designs are intended to reflect the key role that these streets play within the district.

Note that the redevelopment scenarios propose that all streets within the study area be improved to provide easy access within and through the district (including linking pedestrians to the station and surrounding neighborhoods). However, the two "key streets" are given special design treatment in order to emphasize their role within the district. The following urban design "place-making" elements should be considered for Main and Ochoco Streets as street design transitions from the initial concepts to recommended designs:

- **Signature landscaping:** While street trees are proposed throughout the district, the conceptual cross sections for Main and Ochoco Streets suggest that a large, colorful, signature tree be used to emphasize the special nature of these two streets. Signature tree species to consider could include Scarlet Oaks or non-fruiting cherry trees. The notable color and larger size of these species can help create visual emphasis along the primary gateways into the district, thereby "announcing" one's entrance into the site. Additionally, planting these signature trees within a landscape buffer along the western edge of Main Street (where a jersey barrier currently exists) will help to enhance the visual experience as one enters the site from downtown Milwaukie, and will create a sense of interest and identity as seen from McLoughlin Boulevard.

- **Special paving:** The conceptual cross sections for Main and Ochoco Streets suggest that special paving might be used within the sidewalks and planting strips to highlight the key role of these two streets. While sidewalks for local streets within the District may be constructed of concrete, sidewalks along Main and Ochoco Streets could be comprised of special pavers or stamped concrete.

- **"Urban" landscaping treatments:** In order to sustainably manage stormwater, all of the conceptual cross sections provide stormwater planters within the landscape zone of the sidewalk. However, the nature of these stormwater planters varies between local streets and designated "key streets." Within local streets, stormwater planters may be more natural in character, as illustrated in the photographs in Figure 6. These planters are simple linear swales with slotted curbs that allow stormwater to flow into the swale and seep naturally into the ground. In order to create a more "urban" treatment along Main and Ochoco Streets, however, the conceptual cross sections suggest that "constructed" stormwater planters be provided. These types of planters are illustrated in the photographs in Figure 7, and are typically designed with concrete edges and separated by hardscape to allow for pedestrian egress.

  Where street trees are provided along the key streets independent of stormwater planters, tree grates are provided to establish a more "urban" feel.

Figure 6. Examples of linear stormwater swales, as proposed for Local Streets

Figure 7. Examples of constructed stormwater planters, as proposed for key streets

- **Sidewalk width:** Sidewalks along key streets should be wider than those located along local streets. Most of the conceptual cross sections for local streets provide sidewalks that are approximately 5 feet in width. Ideally, a minimum of 8-foot sidewalks would be provided along key streets; however, due to right-of-way constraints, this recommended 8 feet not feasible. In these instances, the conceptual cross sections illustrate options for potential right-of-way extensions which would allow for wider sidewalks along Main and Ochoco Streets.

- **Street furniture and lighting:** While it is not within the scope of this project to recommend specific street furnishings or lighting treatments, it is suggested that future work in this arena focus on Main and Ochoco Streets when considering the location and style of furnishings. Such furnishings could include benches, water fountains, pedestrian scale street lighting, newspaper boxes, wayfinding signage, and public art.

- **Gateway signage:** As stated above, both Main and Ochoco Streets serve as important gateways into the site. As such, there may be an opportunity to provide monument gateway signage and/or signature public art at the entrances into the site at Ochoco Street and McLoughlin Boulevard and along Main Street just north of the Highway 224 overpass, announcing one's entrance into the district.

- **Building orientation:** Development regulations (to be written during subsequent phases of this project) should minimize building setbacks along the key streets, in order to create a streetwall and a strong sense of enclosure along these key pedestrian streets. Forecourts and plazas should be encouraged along the sidewalk in order to increase the perceived width of the sidewalk, particularly where sidewalk widths are narrower than 8 feet. Furthermore, new development regulations should require new buildings to orient building entrances to Main and Ochoco Streets in order to help fortify the key role that these streets serve within the pedestrian network.

- **Plazas and gathering places:** Proposed plans for Opportunity Site B incorporate small plazas or gathering places. These would serve as places for possible outdoor events or activities associated with a civic use on this site and/or a place where local workers could congregate for lunch or other activities. They would be oriented both to civic, entertainment and eating/drinking uses on this opportunity site and to Main Street due to its role as a key street and transportation spine for the area.

While the street improvements described above are intended to serve as a strong organizing principle and create a sense of "place" within the study area, private development will also help achieve this goal. Details regarding the character of development envisioned for the District are discussed in Section 8 beginning on page 44.

Section 7: Parking Demand and Management

This section provides a brief summary of key issues and findings related to parking demand and management based on the detailed evaluation contained in "Appendix B: Redevelopment Scenarios Future Traffic Conditions Memorandum".

Projected Parking Demand and Supply

Parking demand was estimated for the three scenarios using the leasable square footage assumptions for each land use and typical parking demand profiles for each land use, with a 30% reduction in demand assumed for mixed use areas north of Beta Street (based on Transportation Demand Management measures described in Appendix B and higher transit use). Minimum required off-street parking supply was calculated based on the same leasable square footage assumptions by land use and the requirements specified in the city code. On-street parking is included in the supply as well. The project study area was broken into five subareas in order to help pinpoint problem areas. For convenience, these subareas are labeled A through E, as shown in Figure 8.

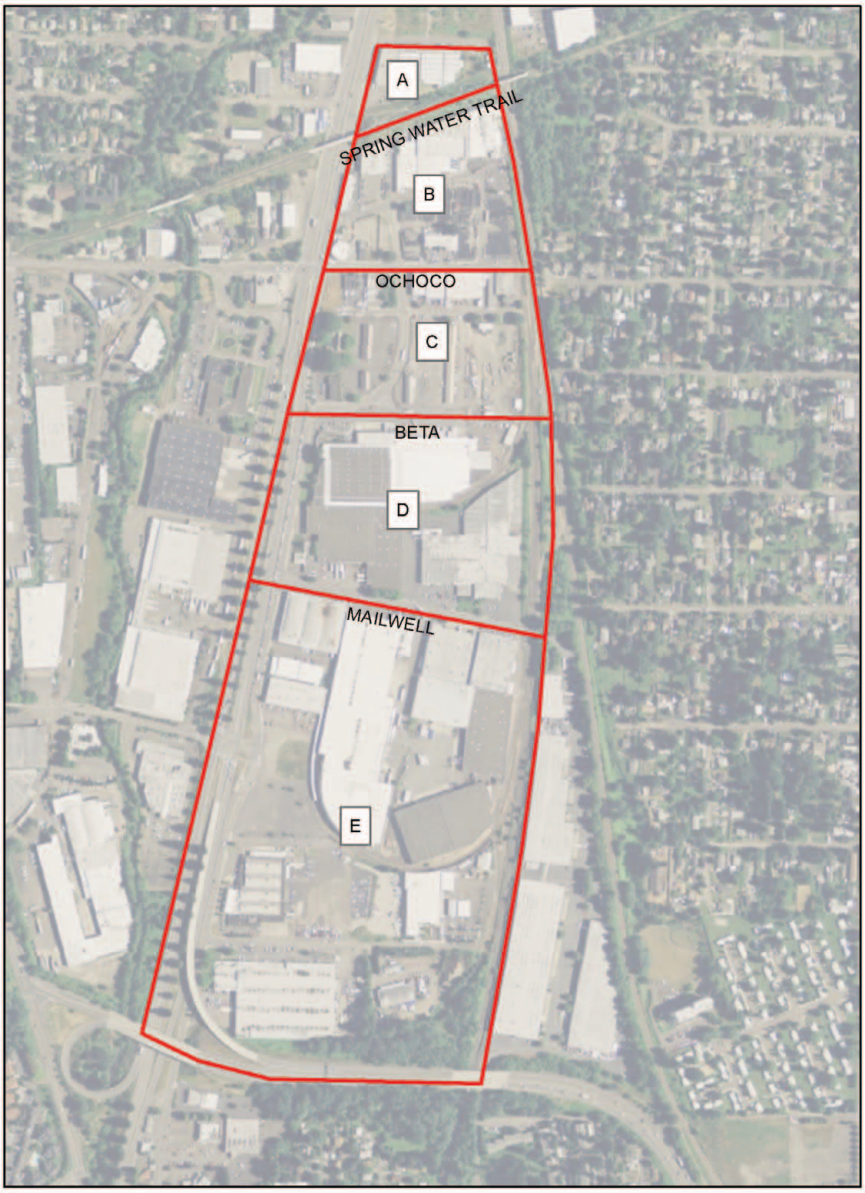


Figure 8. Parking subareas

Results of this analysis are shown in Table 1. These results show that demand is predicted to be higher than what is supplied under the city code's minimums, even after the assumed 30% reduction noted above. It should also be noted that the potential future supply based on compliance with the city's existing code requirements is significantly higher than the existing supply found in the study area based on an inventory conducted as part of this project. The difference is especially apparent when looking at office uses: city code allows for a minimum of two parking spaces per 1,000 leasable square feet of office, while national parking studies suggest a rate of 2.84 vehicles per 1,000 square feet. This discrepancy between the code and estimated demand is the highest in the area south of Mailwell Drive (subarea E), where all redevelopment scenarios propose leaving the current Manufacturing zone (which allows office uses) in place.

Table 1. Redevelopment Scenario Supply vs. Demand

	Existing	Scenario 1 (Civic/Entertainment)		Scenario 2 (Intensive Employment)		Scenario 3 (Circulation/Access)	
Subarea	Supply	Supply	Demand	Supply	Demand	Supply	Demand
A	38	60	57	60	57	60	57
B	89	233	326*	265	308*	237	317
C	152	836	791*	517	581*	203	148
D	187	430	567	538	733	566	748
E **	337	1,084	1,444	1,084	1,444	1,084	1,444
Total	803	2,643	3,184	2,464	3,122	2,150	2,713

** 30% reduction for mixed uses north of Beta Street assumed for Scenarios 1 and 2*

*** Note that the parking deficit in Subarea E depends heavily on the assumption made about the mix of uses that develop there. If only 50% of this area develops as office rather than 75% as was assumed for the purposes of the traffic analysis, then City minimums prescribe 865 spaces, and demand is 1,134..*

In order to meet a target of 85% on-street occupancy, assuming off-street parking is occupied at the same rate, additional capacity beyond the minimum would be needed in most subareas. Table 2 shows the additional parking that would be needed to satisfy demand in each subarea for the three redevelopment scenarios.

Table 2. Additional parking capacity needed beyond city minimums

Subarea	Scenario 1 (Stadium)	Scenario 2 (Intensive)	Scenario 3 (Circulation/Access)
A	7	7	7
B	151	97	136
C	95	167	0
D	237	324	314
E	615	615	615
Total	1,105	1,210	1,072

While demand in nearly all areas is estimated to exceed the city minimum standards, the areas to the south of Beta Street have particularly excessive demand. This analysis suggests that if city code continues to allow 75% office use in the Manufacturing zone, and if parking minimums remain in place, then it may be necessary to consider additional parking strategies, such as repurposing the existing TriMet park-and-ride lot to provide the needed parking. Assuming 800 parking spaces are needed, with each space using 300-400 square feet

(including access, aisles, and landscaping), this is about 6-7 acres that would be dedicated to vehicle storage. If demand south of Beta Street is reduced through a change in the code for the Manufacturing zone, then it becomes more attractive to redevelop the TriMet lot for an employment use.

Over-capacity issues north of Beta Street may be manageable through demand-oriented strategies, discussed below, and through shared parking, rather than adding capacity, depending on the level of redevelopment that occurs and how much land is devoted to parking associated with that redevelopment. Shared parking is viable where the mix of uses generates peak parking demand at different times, such as when office and retail/dining are sited together. Peak times for retail and dining, or an entertainment use that primarily attracts visitors on weekends or evenings, tend to occur when office parking capacity is unused. A shared parking approach could reduce supply needs north of Beta Street by 50-100 spaces in scenarios that feature mixed uses, and significantly more if a large weekend/evening-oriented use is proposed.

Modifications to On-Street Parking

Redevelopment scenarios assume that the local street system will be upgraded to an organized, urban network over time. This will change the amount of on-street parking available, as shown in Table 3 and Map 7. The extent of these changes will depend to some degree on the level of redevelopment that occurs, the degree of change in land uses and availability of public and private funding.

Table 3. Existing and Proposed On-Street Parking

Street	Existing	Proposed
Moores	9	0
Ochoco	18	0
Stubb	44	44
Main	52	28
Mailwell	2	10
Hanna Harvester	25	25

Note that some streets, such as Mailwell Drive and Hanna Harvester Drive, currently have head-in parking that is either partly or fully on private property. Some of this parking has been accounted for as on-street (if it appears to be partly within the right-of-way, as on Hanna Harvester), and some as off-street (as on Mailwell). While the street cross section proposed for Mailwell Drive accommodates existing head-in (off-street) parking, other cross sections assume that head-in parking is removed, such as on Hanna Harvester and Moores Street. Note that on Hanna Harvester, on-street parking capacity is maintained by providing significant new parallel parking within the new cross section.

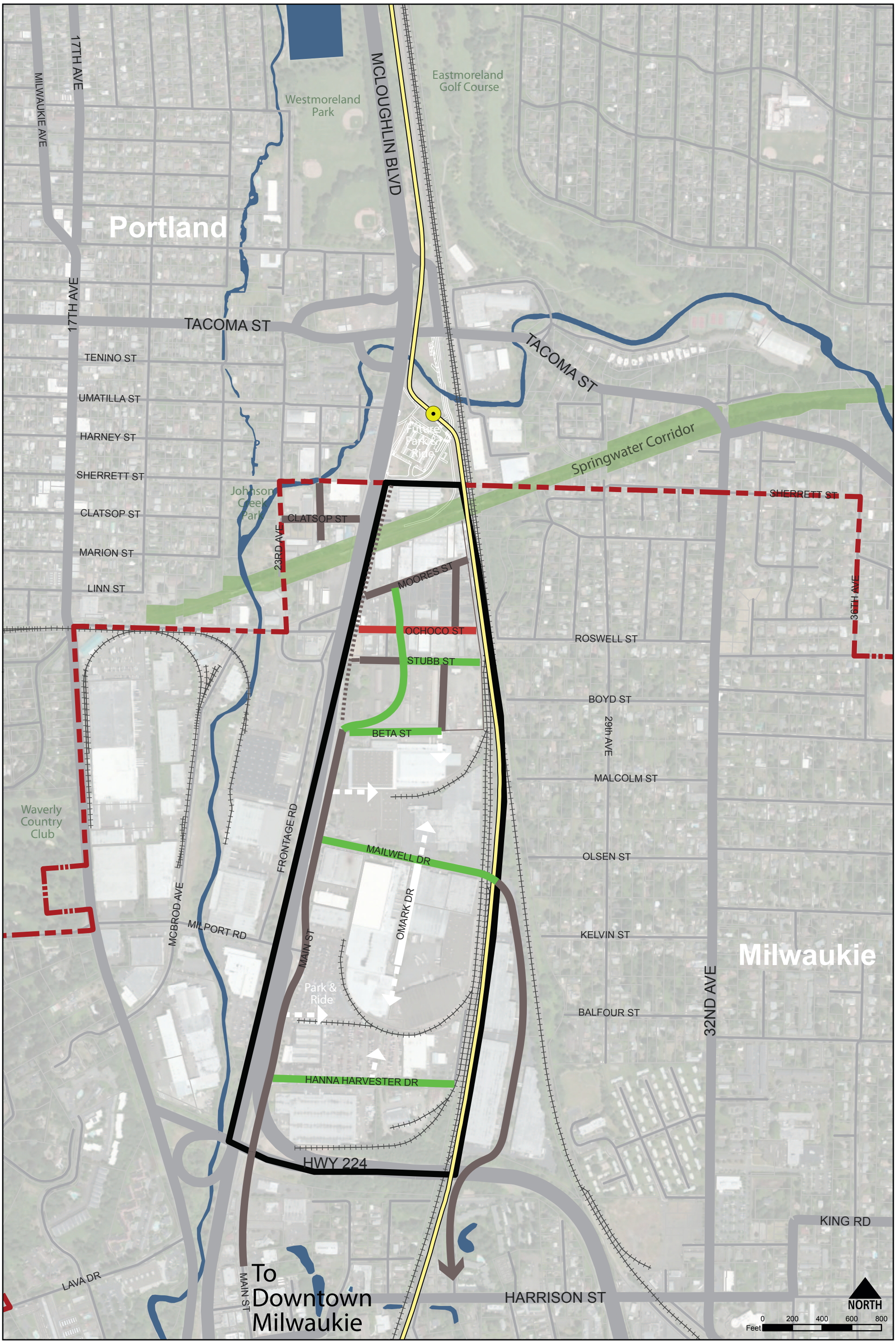
The addition of on-street parking on and south of Beta Street may slightly alleviate the parking supply issues described above; however, additional measures are likely to be necessary.

Parking Management Strategies

Redevelopment of the Tacoma Station Area provides the opportunity for a fresh look at potential strategies for addressing parking supply and demand. A changing mix of land uses, the opening of a new light rail line, and other multimodal and transportation demand management improvements in the station area are new variables that will affect parking needs.

Typically, parking codes and standards are geared to ensure that there is always enough parking available for every land use at its peak time. However, an oversupply can be as harmful as too little supply, as abundant

Map 7: Net Parking Gain/Loss Estimates



Tacoma Station Area Plan

NET PARKING GAIN/LOSS ESTIMATES

SERA

- Project Study Area
- Station Area (1/2 mile radius)
- City Boundary
- LRT Station
- LRT Alignment
- On-Street Parking Added
- On-Street Parking Removed
- On-Street Parking No Change

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parking often comes at the cost of other potentially valuable uses of available land: public space, landscaping, wider sidewalks, or revenue-generating development. Oversupply can also encourage unnecessary vehicle travel when other modes are available, with additional vehicle trips creating still higher parking demand.

Parking management elements relevant to the Tacoma Station Area are shown below.

- Consumer choice of multiple travel modes
- Shared parking to serve multiple users and destinations
- Flexible standards
- Parking regulations (time, limits, loading zones)
- Shuttle services (to and from the Tacoma LRT station, for example)
- Bike facilities and parking
- User information and marketing
- Financial incentives and unbundling of parking costs
- Parking pricing (viable when demand exceeds 85% of capacity)
- Preferred parking for carpools and vanpools
- Overflow parking plans

All elements listed above are viable management strategies that can mitigate the need to devote additional valuable land area to parking. In general, a parking management approach seeks to make access and parking for short-term visitors, customers, and deliveries more convenient while promoting and incentivizing alternatives to parking for everyday users such as employees.

Transportation Demand Management Strategies

All of the redevelopment scenarios will require a mix of Transportation Demand Management (TDM)[1] and parking strategies in order to minimize parking supply needs and traffic generation. They will be essential to achieving the 30% share of non-auto trips assumed in the traffic and parking analysis conducted for this report. Improving the multimodal infrastructure connecting the study area to adjacent areas and the Tacoma LRT station is likely to reduce the share of trips made by motor vehicle. However, infrastructure improvements are much more effective when leveraged by TDM policies and programs. Programs that depend on promoting use of transit will be most effective for employees and businesses in closer proximity to the future light rail station. A variety of management strategies, including individualized marketing programs, rideshare programs, employer transportation programs, and a Transportation Management Association are identified in Appendix B.

1 Transportation Demand Management refers to various strategies that increase overall system efficiency by encouraging a shift from single-occupant vehicle (SOV) trips to non-SOV modes, or shifting motor vehicle trips out of peak periods. Non-SOV modes may include walking, cycling, ridesharing (HOV/carpool), and public transit.

Section 8: Site and Building Design

In addition to the design of public streets and gathering places, private development also can help create a unique sense of place for the district. In particular, new development (and redevelopment) can play off of the industrial character of the existing building stock in order to create a unique "industrial" character for new retail, office, and live/work residential uses.

Throughout the Portland region there are examples of how existing industrial/employment areas can successfully accommodate new and expanding uses that cater to local residents and employees while preserving the industrial character of the district. In particular, Portland's Eastside Industrial District, the MAX Yellow Line's Mississippi/Albina Station, and the former industrial areas of the Pearl District illustrate how the existing industrial character of the local building stock can be leveraged to create a unique sense of place for a burgeoning retail and entertainment destination and in some cases also maintain the integrity of surrounding employment uses. The photographs on the following pages provide some examples of recent developments in these three areas which might serve as a precedent for the type and character of development envisioned for the Tacoma Station Area.

New development in these industrial districts may include both new buildings (as shown in Figure 10 and Figure 11) as well as retrofitted buildings (as shown in Figure 9 and Figure 13 through Figure 16). When retrofitting existing industrial buildings, increasing ground floor transparency is crucial in terms of improving the pedestrian experience along the sidewalk. In many instances this may require increasing the size and number of ground floor windows. Figure 12 illustrates the importance of avoiding blank walls along the sidewalk, and provides a contrast to the renovated buildings with expanded ground floor windows shown in Figure 13. Retrofitting existing industrial buildings to accommodate retail, office, or other commercial or employment uses may also create opportunities to incorporate other industrial, "place-making" elements such as loading docks and covered bays, as shown in Figure 16.

In addition to the general "place-making" elements discussed above, other building design and siting elements to consider (and to potentially incorporate into development regulations) in order to ensure that the district develops according to best design practices include:

- **Building setbacks:** Building setbacks should be minimized wherever possible, but particularly along key streets, in order to create a sense of enclosure along the sidewalk. Forecourts and other public spaces along the sidewalk should be allowed and potentially encouraged along key streets, including adjacent to Main Street on Opportunity Site B associated with proposed civic/gathering spaces there, and where sidewalks are narrower than ideally desired. On-site surface parking should be oriented to secondary streets rather than to key streets, wherever possible.
- **Building Orientation and Entrances:** Buildings should be oriented to and provide entrances that are directly connected to public sidewalks. Building entrances should provide lighting that is architecturally consistent with the overall building design.
- **Corners:** For corner parcels (particularly at important corners along key streets), buildings should ideally orient to the corner and/or provide architectural elements that address the corner. This may include projecting bays or articulated elements (as seen in Figure 11), chamfered corners, or changes in color/material.
- **Weather Protection:** At a minimum, building entrances should provide ample weather protection in the form of horizontal awnings; more continuous awnings that extend beyond the building entrance may also

be provided (both variations are shown in Figure 14). Awnings may be encouraged along key streets or where covered loading docks currently exist (Figure 16).

- **Fenestration:** As mentioned above, blank walls along sidewalks should be avoided, and a minimum requirement for ground floor transparency provided. This minimum transparency requirement along ground floors may be higher along key streets or other desired pedestrian routes than elsewhere in the district.
- **Building Height:** Minimum building heights within transitioning industrial areas should be avoided, as this often precludes the renovation of existing buildings. Due to building code requirements, buildings in the Tacoma Station area are unlikely to be taller than 5 stories.
- **Building Materials and Articulation:** A variety of materials and color and/or changes in building articulation should be provided to visually break up large building planes and to create visual interest. Figure 11 illustrates how change in color and material can be used to visually break up a building's mass. The new building shown in Figure 11 also illustrates how "industrial" materials (in this case, metal) can be used to relate to the district's surrounding industrial character. Figure 9 illustrates how articulated ground floor bays can create visual interest along the sidewalk by avoiding large, uninterrupted building planes.
- **Building Signage:** Pedestrian-oriented building signage in the form of blade signs, awning signs, building signs, or projecting signs should be provided where uses are transitioning to retail or commercial uses (see Figure 15 as well as other examples on the following page).
- **Landscaping:** Where on-site surface parking is located adjacent to a sidewalk, dense landscaping should be provided in order to create a visual buffer.

Figure 9. New commercial uses including restaurants, coffee roasters, and architectural salvage companies have opened near the Albina/ Mississippi MAX station. The district is a precedent for how industrial areas can accommodate an expanding array of uses while preserving the industrial character of the district.

Figure 10. The River East building in the Central Eastside Industrial District has been converted from a defunct warehouse into ground floor retail and office space for several major tenants, bringing over 300 employees to the area. The development illustrates how new project can successfully coexist with existing industrial development.

Figure 11. This new employment incubator project within the Central Eastside Industrial District provides affordable office and artist space. The building illustrates how new development can relate to the surrounding industrial character by using "industrial" building materials, and also demonstrates how buildings can provide architectural elements to address the corner.

Figure 12. Blank walls should be avoided along sidewalks.

Figure 13. These examples of retrofitted industrial buildings illustrate how existing buildings can be rehabilitated to accommodate commercial, employment, or other uses. This type of redevelopment often includes improving the pedestrian experience by increasing the size and/or number of windows along the ground floor. These redevelopments should be encouraged, as they help create a unique "industrial" character for new development within a district.

Figure 14. Retrofitted Industrial Buildings with Horizontal Awnings

Figure 15. Retrofitted Industrial Buildings with Pedestrian-Oriented Signs

Figure 16. Incorporating existing elements such as loading docks and covered bays can help to create a unique sense of place.

Section 9: Additional Implementation Strategies

Types of strategies needed to implement all scenarios

Regardless of which redevelopment scenario is chosen as the preferred scenario for the Station Area Plan, a range of implementation strategies and actions will be needed to ensure realization of the plan. Some approaches will be required to implement any of the three scenarios; those are summarized here.

- Code amendments to Milwaukie's Manufacturing (M) Zone. The entire Project Study Area is currently zoned Manufacturing (M) by the city. As part of this project, the city is considering amendments to the M zone that will help clarify existing requirements and improve enforceability of the chapter.
- Code amendments to establish a Station Area overlay zone. An overlay zone, or similar approach, may be used to help create an appropriate mix of uses for the station area and allow uses beyond what would be permitted by the M Zone. In addition, the overlay zone may contain development and design standards specifically suited to a transit-oriented area.
- Code amendments or other strategy to address the issue of non-conforming uses that may be created by changes to zoning associated with the plan. This strategy should emphasize protection and support of existing businesses in the project study area and provide a means for a gradual transition in the overall character of the area.
- A funding strategy will be needed to identify how the transportation improvements recommended in the Station Area Plan will be prioritized and funded. The funding strategy would likely include a combination of public and private investments and could establish a protocol for when property owners may be required to pay for some portion of selected transportation improvements identified in the plan.
- Proposed parking requirements and standards associated with future redevelopment, along with other parking management strategies will be needed for any chosen scenario to address current and future parking supply and demand in the station area. This will be especially important for scenarios that involve intensive redevelopment with commercial/office uses. Amendments to the M zone may be needed to reduce the percentage of office use allowed in all or a portion of the study area in order to address potential parking shortages south of Mailwell Drive.
- Potential establishment of a "Station Community Boundary" consistent with Metro rules which will enable the area to be eligible for regional investments to implement the preferred redevelopment scenario.
- A plan for on-going community involvement that will provide a path for property owners, businesses and other stakeholders to remain engaged in the redevelopment of the station area over time.
- Consider repurposing existing TriMet park-and-ride lot to provide additional parking capacity.

Strategies specific to individual scenarios

Scenario 1

In addition to the implementation strategies identified in the above section, Scenario 1 also would require a strategy for marketing, coordination and partnership to attract a large civic/entertainment use to Opportunity Site B. Included with that strategy could be a discussion of how to draw additional commercial/retail and office uses that would support and complement the large civic/entertainment use. The strategy also would need to include a plan for acquiring the site from ODOT, including a source of funding and a plan to transition from use by ODOT to a future use. Once a specific use or tenant for the site is identified, more detailed site design planning and analysis also would need to be undertaken.

Scenario 2

This scenario could include designation of a “Multi-modal Mixed Use Area” (MMA) for a portion of the station area as a way to help achieve proposed land use and development recommenda¬tions. The MMA is a Metro designation intended to encourage well-defined concentrations of activity to reinforce or create walkable places. Rather than evaluating plan amendments for their impact on motor vehicle trips and capacity, the MMA designation exempts plan amendments from mobility standards and applies a set of measures to help ensure diverse land uses with an urban character. Scenario 2 is only scenario that appears to meet the required mix of land uses for an MMA. This scenario also likely would require marketing efforts on the part of local property owners, in coordination with the city.

Scenario 3

Because it represents the least amount of change in terms of land use and redevelopment to more intensive uses, Scenario 3 would likely not require additional implementation strategies beyond those identified for all the scenarios (per Section A above). The implementation focus for this scenario would be on prioritizing and funding the access and connectivity improvements identified in the plan.

Appendix A: Design and Access Improvements by Street

Proposed Cross-Sections by Street

The following cross-sections show proposed improvements to the Project Study Area by street, as indicated in the map shown in Map A-1. Subsequent refinement of these concepts, including consideration of the urban design and place-making elements outlined above, should occur during future phases of work, as these designs move from initial concepts toward recommended designs.

In order to sustainably manage stormwater, filtration planters are proposed along all streets where sufficient right-of-way exists (a minimum of 5 feet is necessary in order to provide a stormwater planter where on-street parking is not provided, while a minimum of 7 feet is required where on-street parking is located adjacent to the sidewalk). As noted above, planters along local streets are proposed to be more natural in character, while stormwater planters along key streets are more urban.

Note that because industrial activities will continue within the study area into the future, most of the conceptual cross sections provide 12-foot travel and turn lanes (where provided) in order to facilitate freight movement within the district.

"Key" Streets

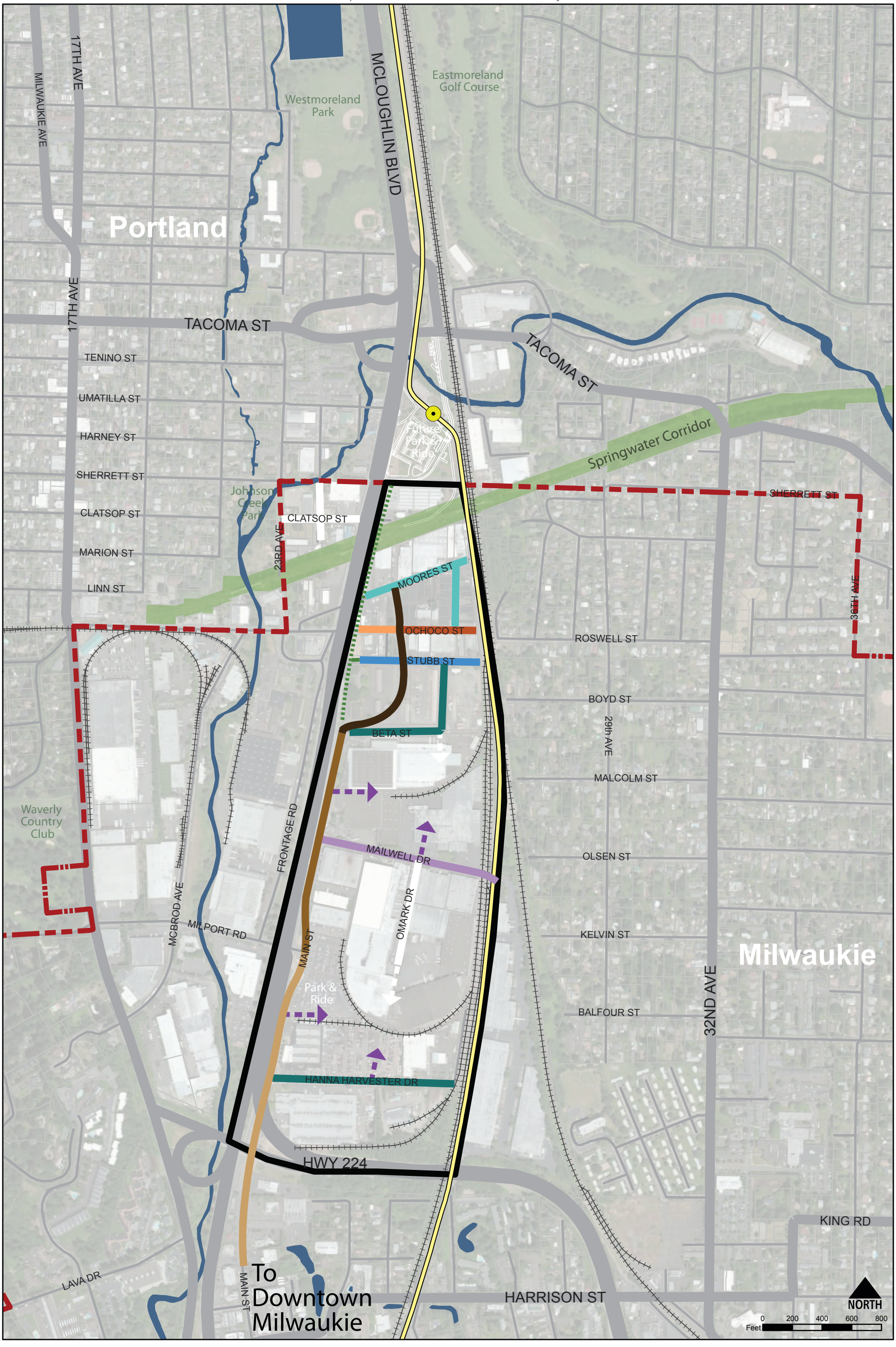
Main Street (all segments)

As discussed in Section 6 of the report, Main Street is one of the two key gateway connections into the study area, serving as the primary vehicular, pedestrian, and bicycle access into the district from Downtown Milwaukie. Furthermore, Main Street spans almost the entire north / south length of the study area, thereby functioning as an organizing element within the district. As such, the conceptual cross section is intended to beautify and celebrate Main Street as a "key street" and to create a sense of entry as one moves into the site from downtown. All of the conceptual cross sections for Main Street therefore provide signature landscaping, wider sidewalks, and more "urban" stormwater planters, as described above. A multi-use path is also proposed, which would allow for a high quality bicycle and pedestrian connection between Tacoma Station, downtown Milwaukie, and connections on Mailwell Drive. Note that in order to accommodate truck turning, mountable curbs may need to be provided at key intersections.

In addition to these treatments, the conceptual cross sections suggest that a six-foot (minimum) landscaped buffer with signature trees replace the current jersey barrier located along the eastern edge of Main Street adjacent to McLoughlin Boulevard. This signature landscaping would not only create a more pleasant sense of "entry" into the site as one crosses beneath the Highway 224 underpass, but would also create district identity and interest as seen from McLoughlin Boulevard.

The right-of way available on Main Street varies considerably, particularly north and south of Milport Road. The conceptual cross sections for each of these segments of Main Street (from south to north) are as follows:

- **Main Street South of Milport Road:** Right-of-way on Main Street is constrained south of Milport Road, with the typical cross section of 40-46 feet. The narrow right-of-way limits the design options available for this portion of the street. The landscaped barrier suggested to replace the existing jersey barrier requires a minimum of 6 feet, while the proposed multi-use trail requires a minimum of 12 feet. Providing these elements along with two 12-foot travel lanes (necessary to accommodate freight traffic) requires a minimum right-of-way of 42 feet, two feet shy of the narrowest portion of the street. Replacing the jersey barrier with landscaping and signature trees, and providing a multi-use path (and ideally stormwater planters as well) will therefore require a modest extension of the right-of-way.



Tacoma Station Area Plan

STREET CROSS-SECTION LOCATION KEY

SERA 25 OCTOBER 2012

- Project Study Area
- Station Area (1/2 mile radius)
- City Boundary
- LRT Station
- LRT Alignment
- Main Street (north of Beta)
- Main Street (Beta to Milport)
- Main Street (south of Milport)
- Local Streets (40-42' ROW)
- Local Streets (60' ROW)
- Ochoco (east of Main)
- Ochoco (west of Main)
- Mailwell
- Stubb
- General Industrial Streets

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Figure A-1 illustrates a conceptual cross section for Main Street south of Milport Road using the existing 40-46 feet of right-of-way. The cross section retains the jersey barrier, and provides a 12-14-foot multi-use path. Where the cross section occasionally widens, a narrow landscape strip may be provided to create a buffer between the multi-use path and vehicular traffic (a minimum of 5-6 feet is needed for a stormwater planter, which may be provided in wider areas of this segment if the multi-use path is narrowed to 12 feet).

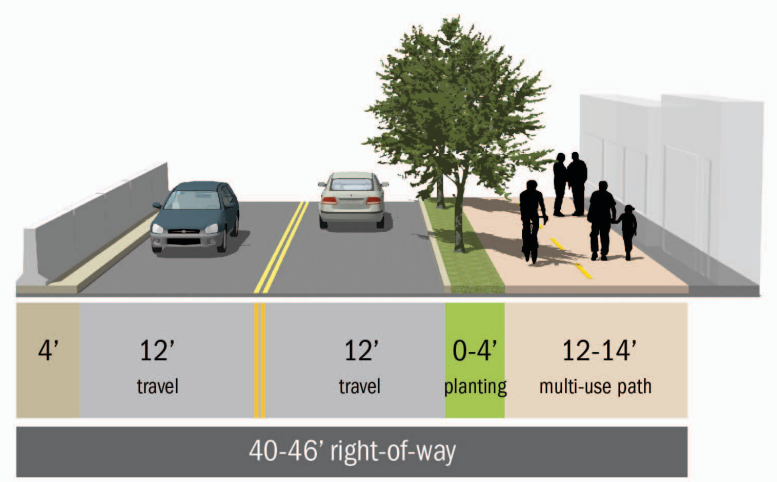

Figure A-1. Conceptual Cross-Section for Main Street – South of Milport Road within existing right-of-way

Figure A-2 illustrates how an optional 2-foot right-of-way extension could allow for the 6-foot landscaped buffer, a 12-foot multi-use path, and a 6-foot stormwater planter, which creates a buffer between the multi-use path and vehicular traffic.

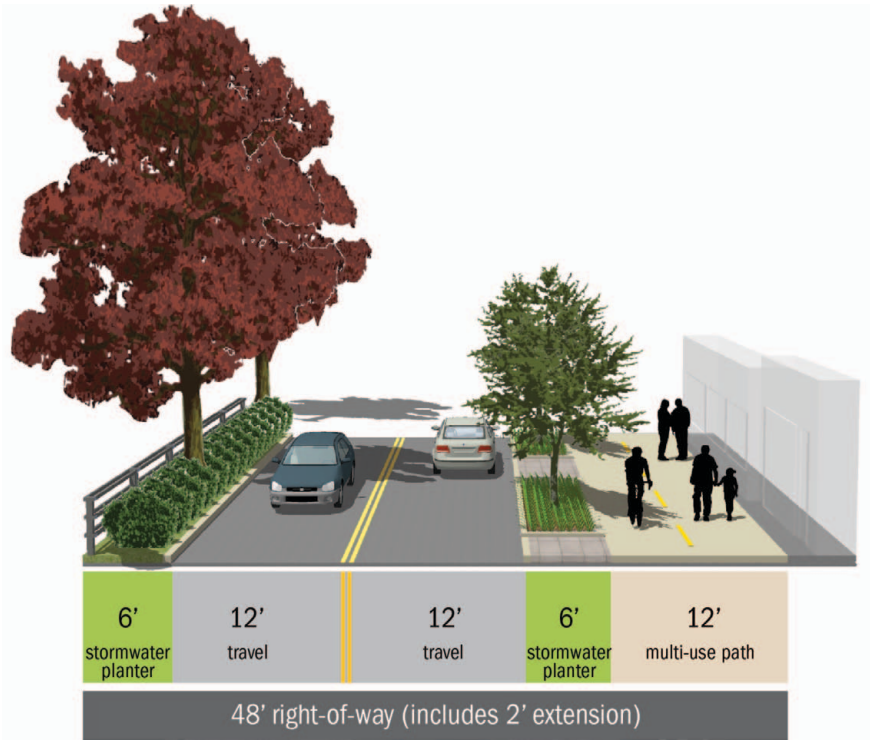

Figure A-2. Conceptual Cross-Section for Main Street – South of Milport Road with additional right-of-way and multi-use path

Figure A-3 illustrates an additional option for this portion of Main Street. The principal difference is that it proposes a cycle track on the west side of the street. The benefit of this approach is that it minimizes potential conflicts between bicycles and turning vehicles. However, additional right-of-way is needed to provide a separate sidewalk. In order to provide all of the elements described above, an additional 7-10 feet of right-of-way would be required.

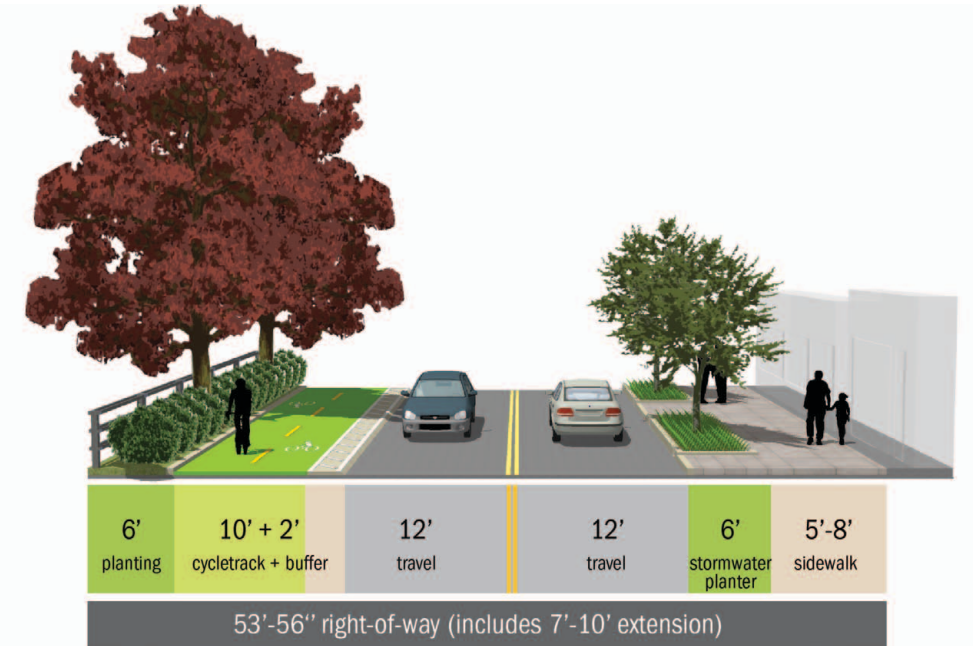

Figure A-3. Conceptual Cross-Section for Main Street – South of Milport Road with additional right-of-way and Cycletrack

- **Main Street Millport to Beta Street:** North of Milport Road, approximately 50 feet of right-of-way is available east of the existing shoulder of McLoughlin Boulevard, which is not proposed to be narrowed. For this section of Main Street, the conceptual cross section (shown in Figure A-4) provides a 6-foot landscaped buffer with signature trees, as described above. Furthermore, the right-of-way allows for intermittent on-street parking with landscaped bulbouts (ideally designed to capture stormwater).

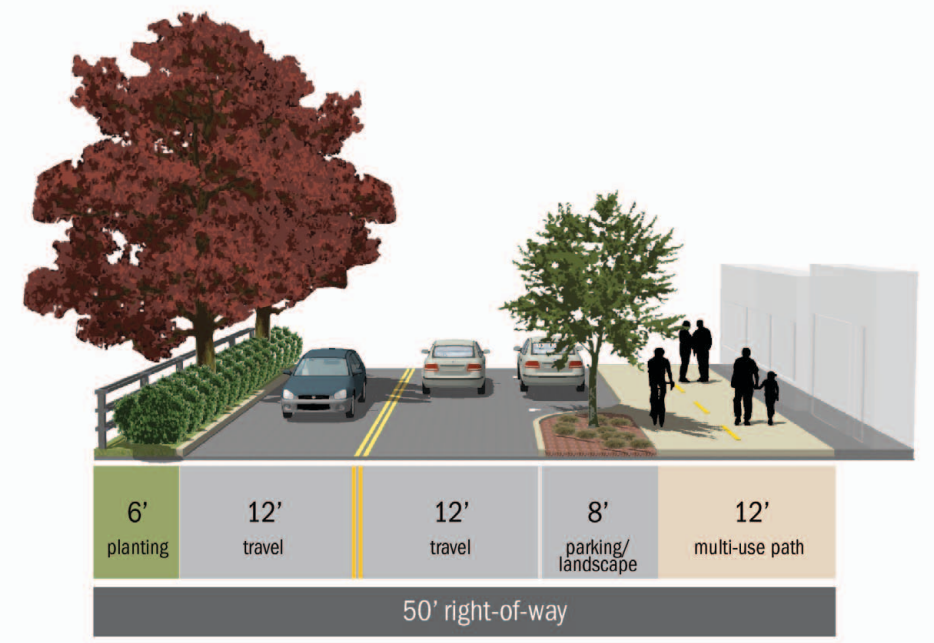

Figure A-4. Conceptual Cross-Section for Main Street – Milport Road to Beta Street with additional right-of-way and multi-use

path

Figure A-5 illustrates an additional option for this portion of Main Street that provides a cycle track on the west side of the street. As mentioned above, the benefit of this approach is that it minimizes potential conflicts between bicycles and turning vehicles. However, as noted for the segment of Main Street south of Milport Road, additional right-of-way is needed to provide a separate sidewalk. In order to provide all of the elements described above, an additional 8 feet of right-of-way would be required.

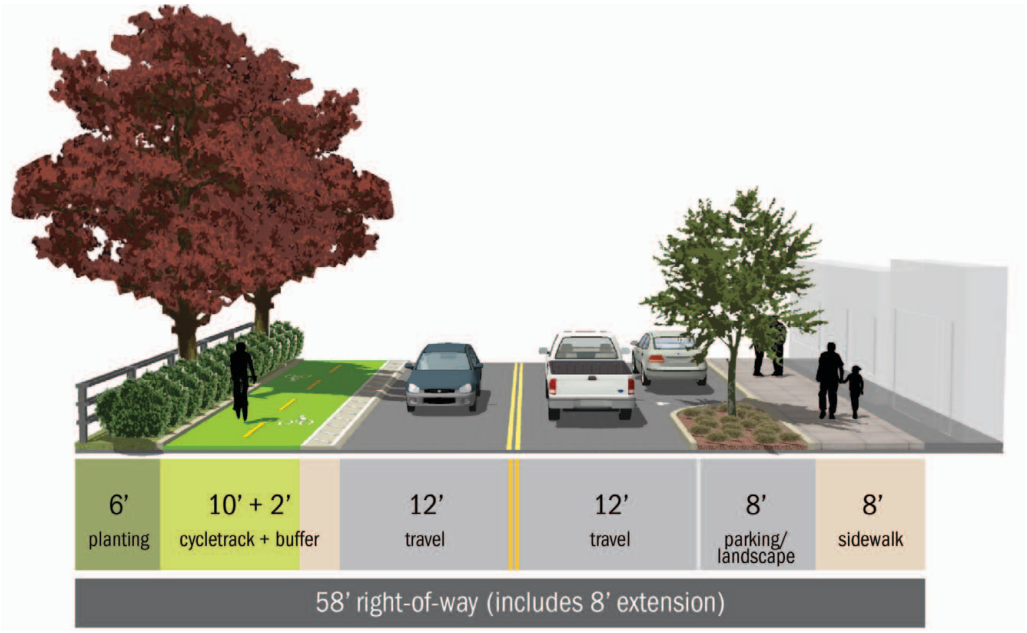

Figure A-5. Conceptual Cross-Section for Main Street – Milport Road to Beta Street with additional right-of-way and Cycletrack

- **Main Street North of Beta Street:** North of Beta Street, Main Street narrows to 46 feet of available right-of-way. Figure A-6 illustrates that this allows for 5-foot sidewalks with special paving, a 5-foot plant strip on the east side of the street (shown with tree grates and hardscape), and 7 feet of on-street parking on the west side of the street with landscaped bulbouts (ideally designed to capture stormwater).

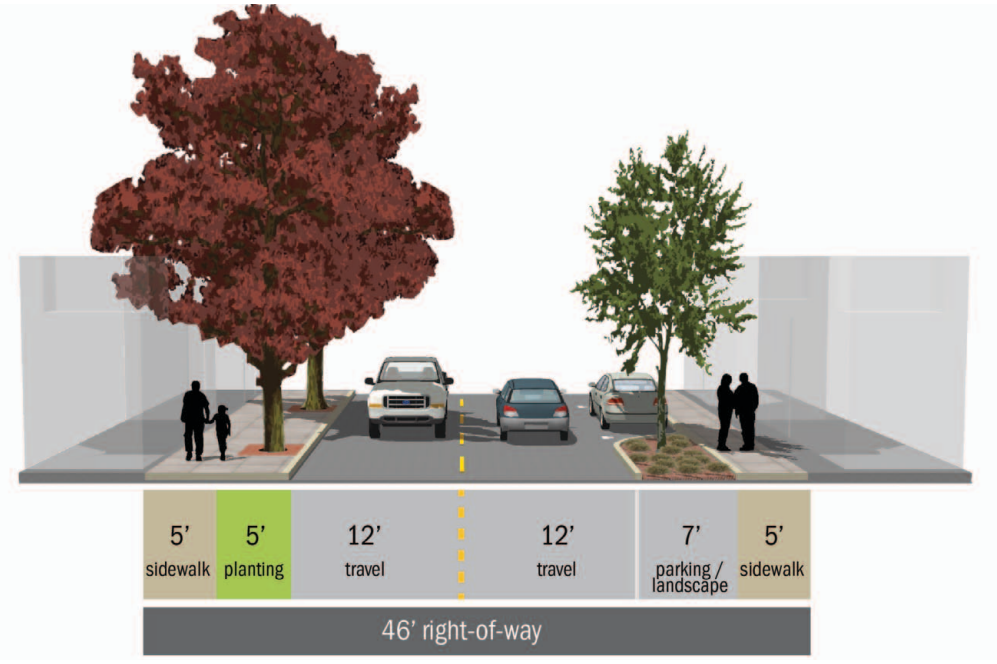

Figure A-6. Conceptual Cross-Section for Main Street – North of Beta Street within existing right-of-way

Figure A-7 illustrates an option for Main Street north of Beta Street with a 7-foot extension of the right-of-way. This extension allows for wider, 8-foot sidewalks, which are potentially more in keeping with Main Street's role as a key street, and a stormwater planter on the west side of the street.

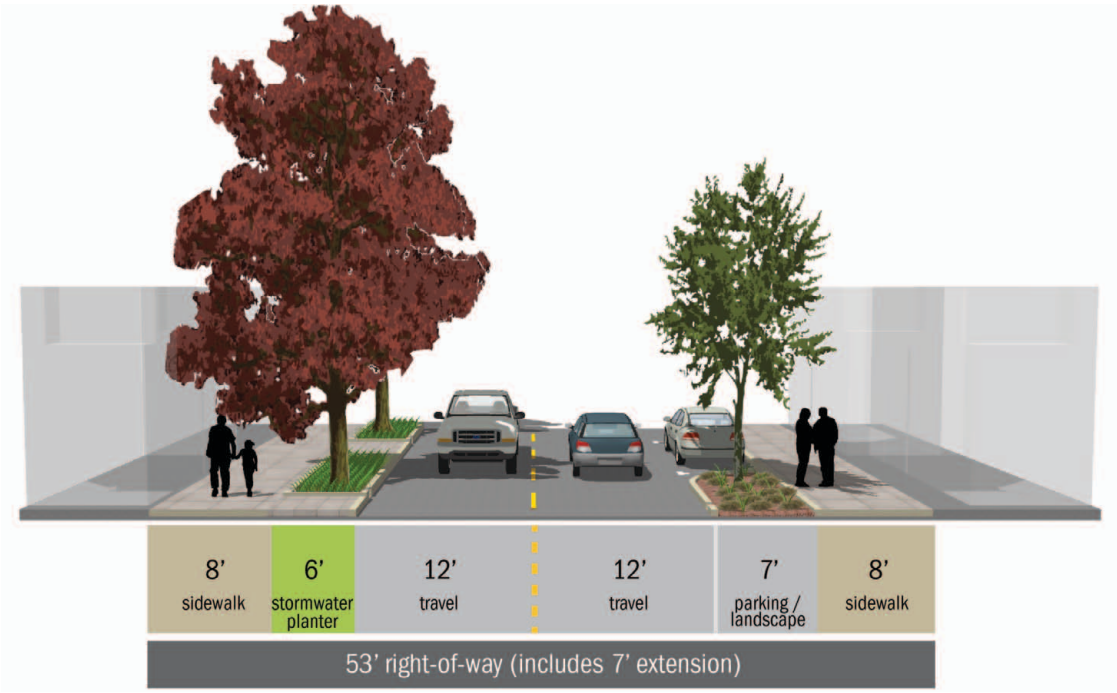

Figure A-7. Conceptual Cross-Section for Main Street – North of Beta Street with additional right-of-way

Ochoco Street

Like Main Street, Ochoco Street is a "key street" within the district. Accordingly, the conceptual cross sections for Ochoco Street reflect the urban design, "place-making" treatments described in the previous section. The signature trees, special sidewalk paving, and urban landscaping treatments provided along Main Street are repeated along Ochoco Street, helping to create a true "gateway" experience as one enters the site from McLoughlin Boulevard.

- **Ochoco Street West of Main Street:** West of Main Street, Ochoco Street retains its existing three vehicular travel lanes, as the westbound approach to the McLoughlin Boulevard/Ochoco Street intersection requires a separate right turn lane to maintain operations. This accounts for 36 feet of the existing 54 feet of right-of way. The remaining right of way allows for 5-foot sidewalks and a 4-foot landscaping zone, within which signature trees are provided within grated tree wells. Note that the existing 54 feet of right-of-way does not allow for wider sidewalks or stormwater planters (Figure A-8).

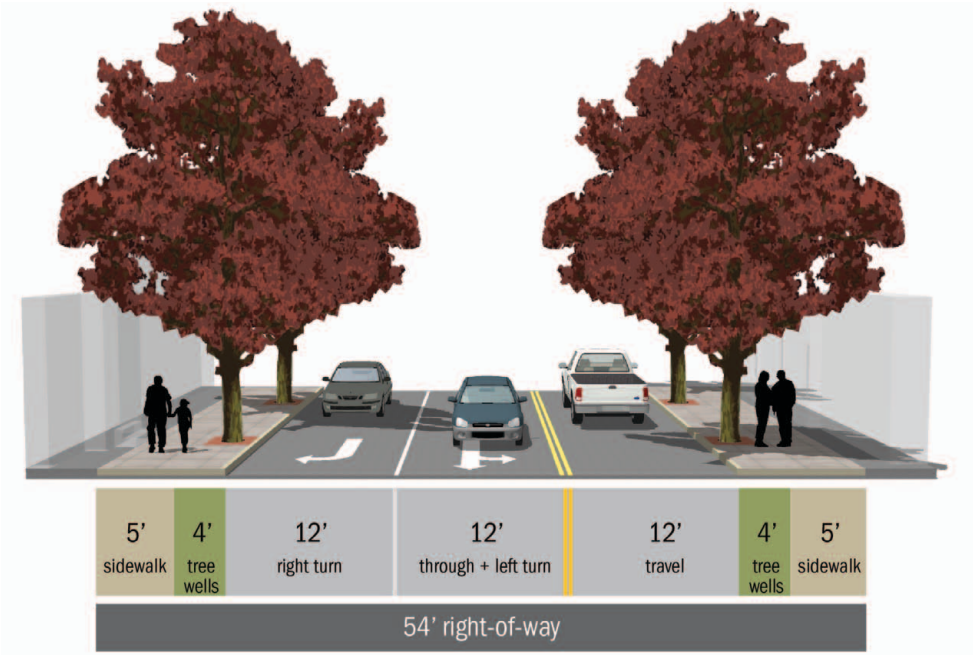

Figure A-8. Conceptual Cross-Section for Ochoco Street – West of Main Street within existing right-of-way

Figure A-9 illustrates an option for extending the right-of-way by 10 feet along this portion of Ochoco Street. This extension allows for more generous, 8-foot sidewalks and 6-foot stormwater planters, in keeping with the important gateway function that Ochoco Street, and particularly this segment of Ochoco Street serve.

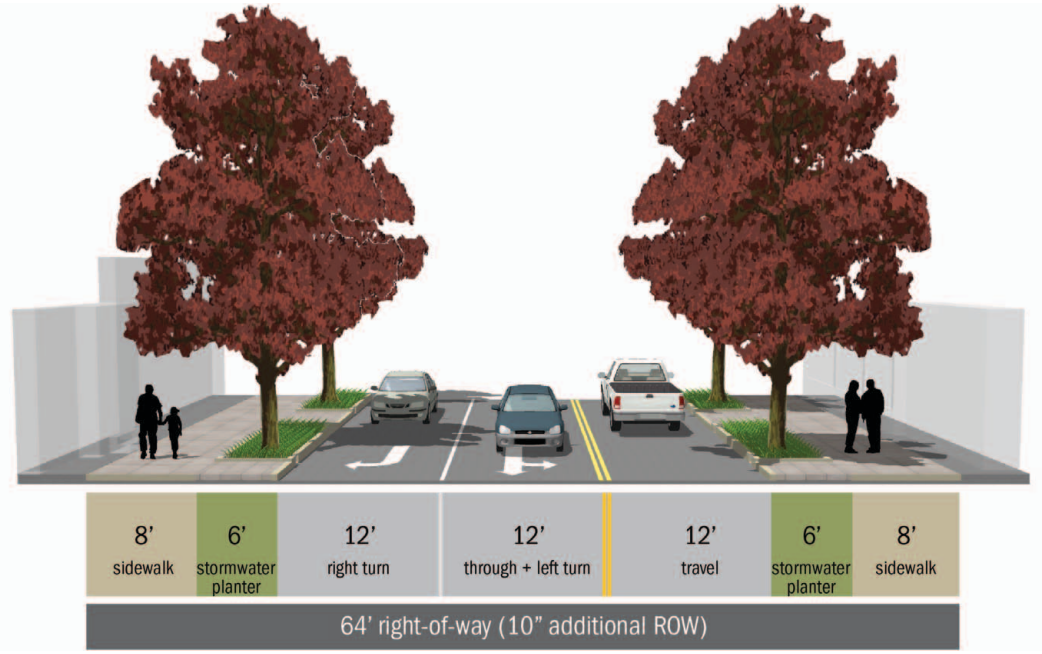

Figure A-9. Conceptual Cross-Section for Ochoco Street – West of Main Street with additional right-of-way

- **Ochoco Street East of Main Street:** East of Main Street, 45 feet of right-of-way is currently available. This allows for two 12-foot travel lanes, 5-foot sidewalks, and a 5.5 feet landscaping zone, within which constructed stormwater planters are provided (Figure A-10). As noted for the cross section west of Main Street, slightly extending the right-of-way along this portion of Ochoco Street would allow for wider sidewalks (a minimum sidewalk width of 8-feet is recommended along "key streets").

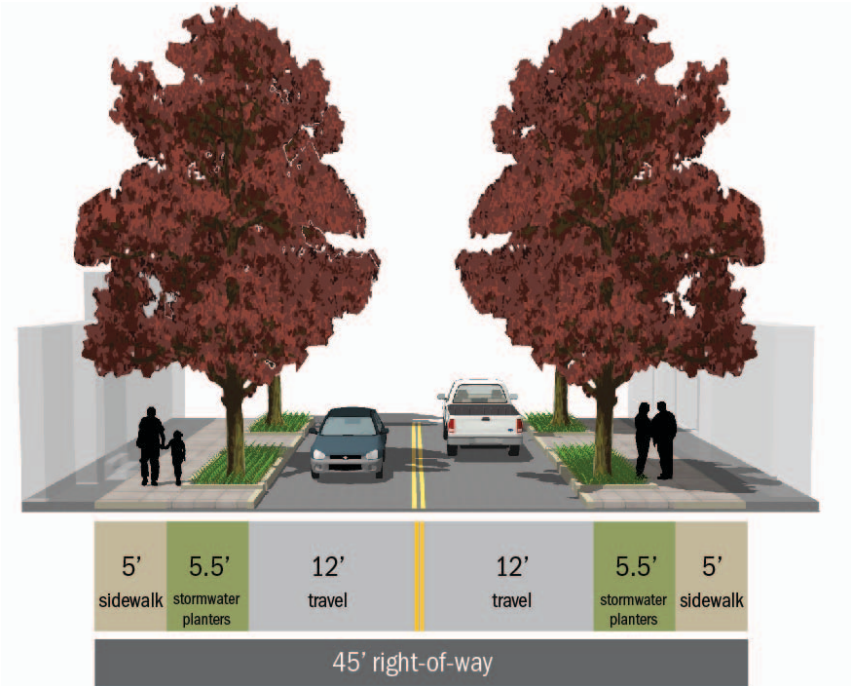

Figure A-10. Conceptual Cross-Section for Ochoco Street – East of Main Street within existing right-of-way

Local Streets

All local streets within the study area are proposed to be improved and/or formalized to provide sidewalks (or multi-modal paths), landscaping, and where right-of-way permits, on-street parking. These streets will provide comfortable, safe, and attractive pedestrian facilities throughout the study area. However, in order to create a sense of distinction, local streets will not receive the same high level of urban design emphasis as the "key streets." The conceptual cross sections suggest that street trees will be slightly smaller, and sidewalks slightly narrower (5 feet instead of 8 feet) and comprised of concrete rather than special pavers. Stormwater catchment planters are provided along local streets where right-of-way permits, however, in order to create a sense of distinction between local streets and more "urban" key streets, planters along local streets are proposed to be more natural in character (as described in Section 6 beginning on page 35).

Local Streets (60’ Right of Way)

Based on the right-of-way width currently available on Hanna Harvester Drive, Stubb Street, and Beta Street, a 60-foot cross section was developed to provide for movement of heavy trucks within a 40-foot roadway, as well as improve the pedestrian environment. The cross section is intended to match the existing frontage on the north side of the street at the eastern end, which features a sidewalk and landscaped buffer totaling ten feet. Note that a minimum of 7 feet is needed to provide stormwater swales adjacent to on-street parking (5 feet for the planter, plus a 2-foot disembarkment zone).

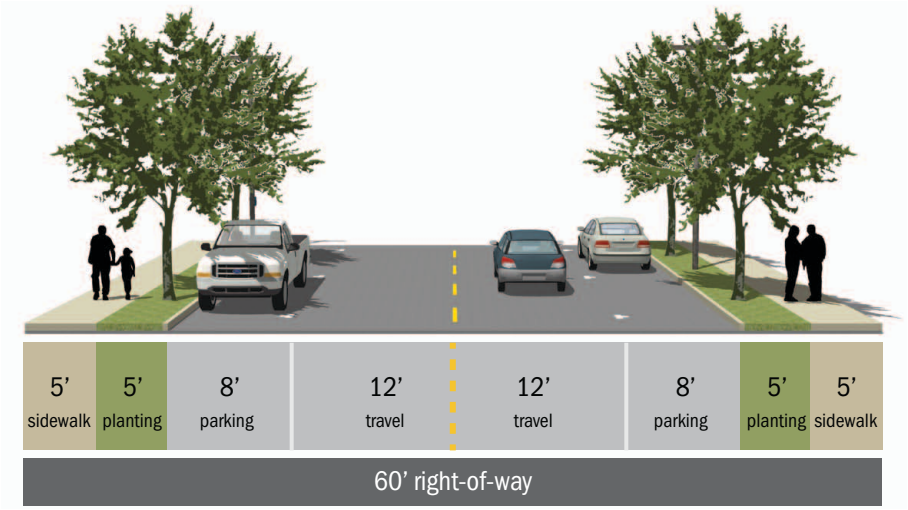

Figure A-11. Proposed Conceptual Cross-Section for Local Streets with a 60’ right of way

Local Streets (40’ Right of Way)

Portions of Moores Street and 25th Avenue in the study area have about 40 feet of right-of-way, providing enough space for two eleven-foot travel lanes with landscaped buffers and sidewalks on each side, with no parallel parking. Because these streets are expected to retain their Local classification, no separate bike facilities are provided. Because no on-street parking is provided along these streets, a stormwater swale is shown within the landscape zone. However, a minimum of 5 feet is typically necessary in order to provide a stormwater planter. Where the right-of-way narrows to 40 feet, a stormwater planter may not be feasible.

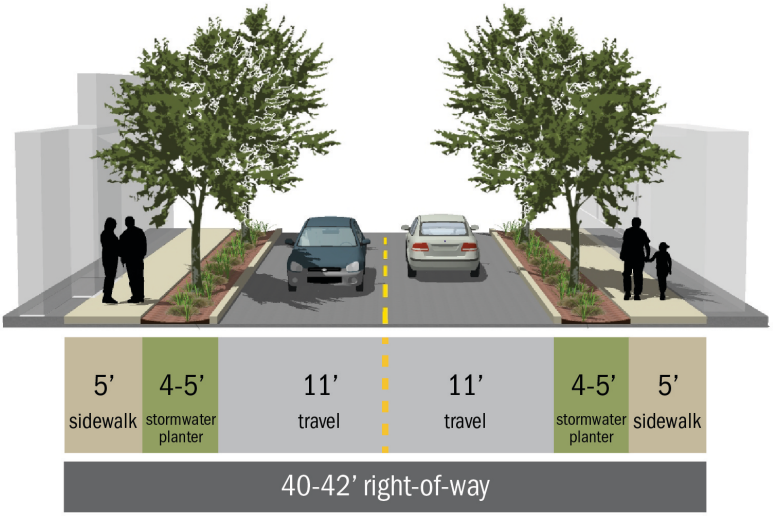

Figure A-12. Proposed Conceptual Cross-Section for Local Streets with a 40’ right of way

Mailwell Drive

Mailwell Drive provides an important connection between proposed multimodal facilities on Main Street and two proposed facilities to the east: a new grade-separated bicycle/pedestrian connection to Olsen Street or Kelvin Street, and a new multi-use path connection south to Harrison Street at 26th Avenue. To complete a high quality bicycle/pedestrian network, the Mailwell Drive cross section includes a 14-foot multi-use path on the north side of the street.

In order to allow for continuous vehicular parking between the building and the street (as requested by local property owners and as currently practiced in this area), the cross section does not provide on-street parking or a landscape buffer on the southern side of the street. An 8-foot furnishing zone is provided on the north side of the street, which allows for a 6-foot stormwater planter and a 2-foot disembarkment zone for the adjacent on-street parallel parking.

Where truck movements need to be accommodated, 40-feet of roadway would need to be provided. In these areas, the continuous access would be eliminated and the 8-foot stormwater planter reallocated to on-street parking in order to provide the necessary 40 feet.

Figure A-14 illustrates a second option for Mailwell Drive, eliminating the continuous access along the south side of the street and instead providing on-street parallel parking and landscaped bulbouts (ideally designed to capture stormwater).

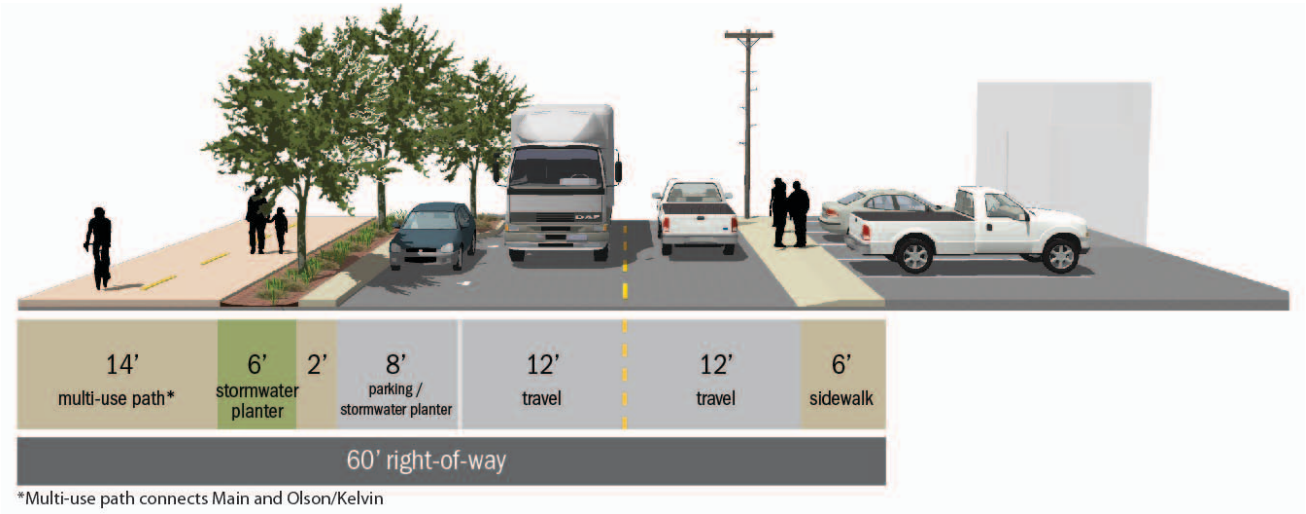

Figure A-13. Conceptual Cross-Section for Mailwell Drive with continuous access

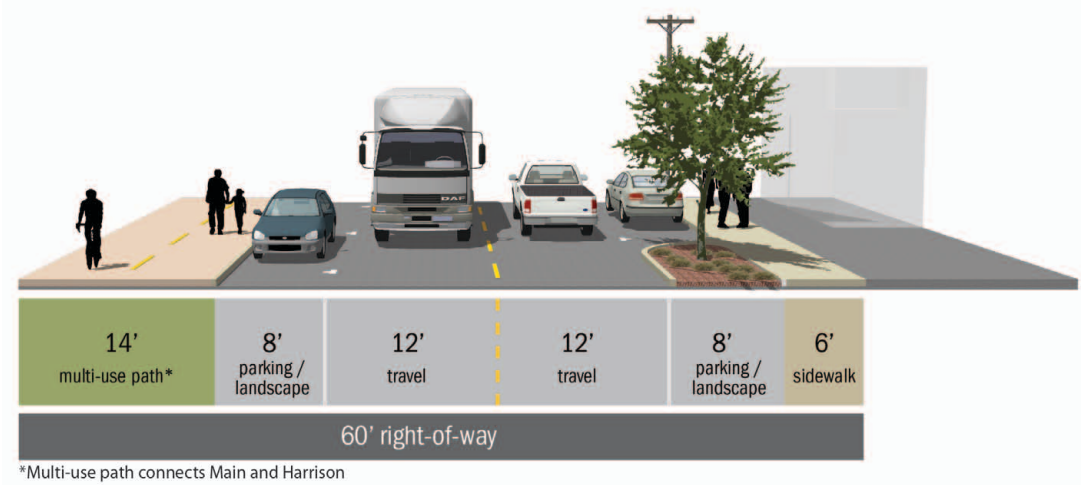

Figure A-14. Conceptual Cross-Section for Mailwell Drive with on-street parking

Stubb Street

Like Mailwell Drive, the north side of Stubb Street currently provides continuous access to on-site parking located between the building and the street. The cross section retains this continuous access (as requested by local property owners) by not providing on-street parking or landscaping along the northern side of the street (Figure A-15). On-street parking is provided along the southern side of the street, along with an 8-foot sidewalk and 10 foot landscape zone (comprised of an 8-foot stormwater swale and 2-foot disembarkment zone).

Where truck movements need to be accommodated, 40-feet of roadway would need to be provided. In these areas, the continuous access would be eliminated and 8 feet of the landscape zone reallocated to on-street parking on the north side of the street in order to provide the necessary 40 feet.

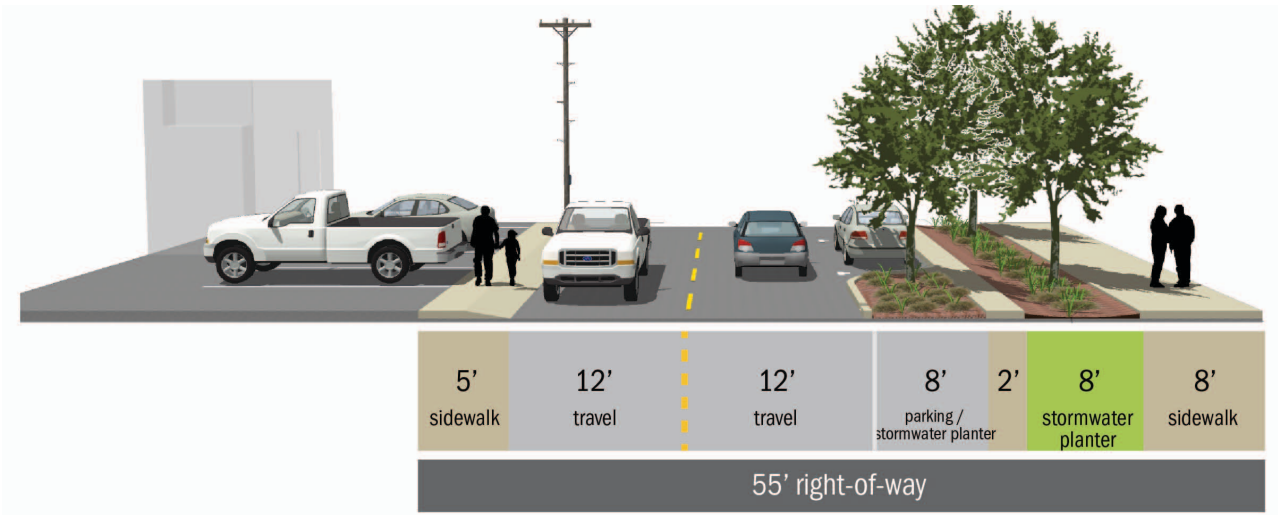

Figure A-15. Conceptual Cross-Section for Stubb Street with continuous access

General Industrial

This cross section is included to illustrate the minimum elements needed for an industrial access street (other than Mailwell Drive or Hanna Harvester Drive) in the area: 40 feet of roadway, and five-foot sidewalks with five feet of landscaping on each side. Note that a minimum of 7 feet is needed to provide stormwater swales adjacent to on-street parking (5 feet for the planter, plus a 2-foot disembarkment zone).

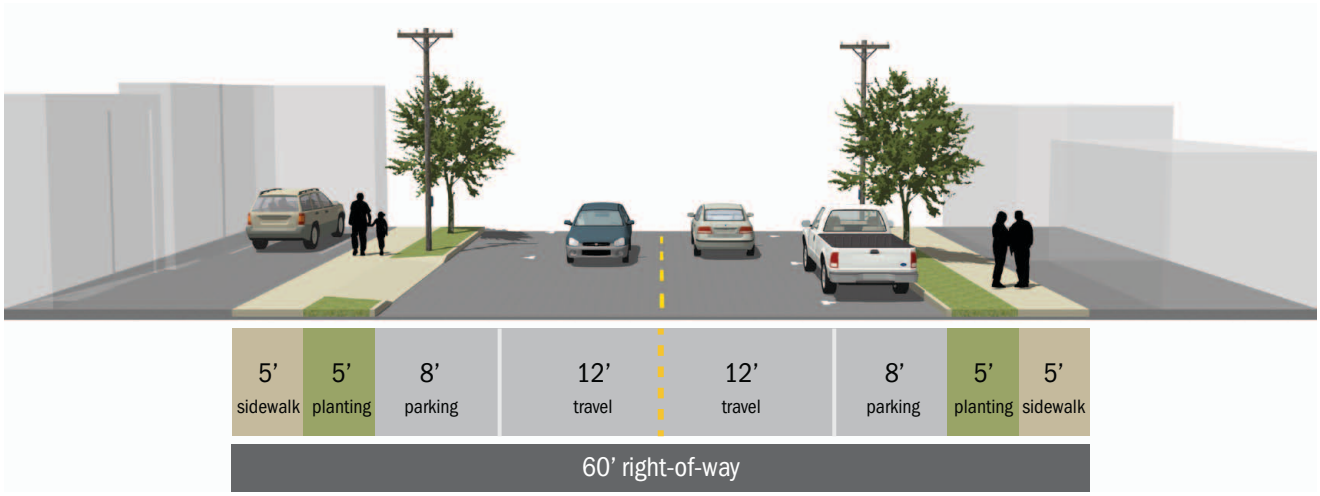

Figure A-16. Proposed Conceptual Cross-Section for General Industrial Streets South of Mailwell Drive

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Appendix B: Redevelopment Scenarios Future Traffic Conditions Memorandum

MEMORANDUM

DATE: November 20, 2012

TO: Tacoma Station Area Plan Project Management Team

FROM: Chris Maciejewski, P.E., PTOE, DKS Associates
Ray Delahanty, AICP, DKS Associates

SUBJECT: **Tacoma Station Area Plan**
4.4 Redevelopment Scenarios Future Traffic Conditions

P12071-000-004

The purpose of this memorandum is to assess multi-modal and vehicular traffic characteristics of three potential redevelopment scenarios for the Milwaukie Tacoma Station Area.[1] Existing land use and infrastructure in the Project Study Area currently support a motor vehicle-dominated local transportation system. Redevelopment around the station area creates opportunities to reduce vehicle trip generation in the following ways:

- Improving infrastructure for bicycling, walking, and connections to transit
- Developing new transportation demand management (TDM) strategies in the station area
- Developing strategies that balance parking supply needs with a transportation system that encourages walking, bicycling, and transit use

Proposed infrastructure changes and new strategies, including the potential for a Transportation Management Association (TMA), are described in this memo. These changes are expected to have a measurable impact on transportation-related measures, such as:

- Vehicle-miles traveled (VMT)
- Duration of congestion on McLoughlin Boulevard
- Vehicle trip generation

Evaluation results for these measures are provided at the conclusion of this memo.

Findings. Given City code minimum parking requirements and estimated parking demand under reasonable worst-case land use, parking demand exceeds capacity. The following strategies should be considered:

[1] See the *Refined Redevelopment Scenarios Report* for this project for more detail on the three scenarios.

- Amend City code for Manufacturing zone to reduce the percentage of office use allowed in all or a portion of the study area
- Parking capacity of existing TriMet park-and-ride lot may be needed to meet future demands, but may not be best use of the land
- Pursue parking management measures, including shared parking that takes advantage of mixed-use areas
- Parking, both on-street and off, should be clearly marked, well-lit, and attractive

Site Connectivity

All redevelopment scenarios include substantial improvements to multi-modal access and connectivity to the study area. Key improvements include:

- Wider, more comfortable bicycle and pedestrian facilities on Main Street, enhancing the connection between the Tacoma light rail (LRT) station, the Project Study Area, and downtown Milwaukie
- New bicycle/pedestrian connection from neighborhoods to the east to the Project Study Area across the railroad tracks (either under or over) at approximately Kelvin or Olsen Street
- Crossing improvements to promote bicycle and pedestrian safety at the Ochoco Street and Milport Street intersections with McLoughlin Boulevard

Redevelopment scenarios also include improved connections to the Springwater Trail and new cross-sections for local streets that increase safety and comfort for pedestrians and bicyclists. More detail on multi-modal connectivity improvements can be found in the *Refined Redevelopment Scenarios Report* for this project.

TDM Strategies

Improving the multimodal infrastructure connecting the Project Study Area to adjacent areas and the Tacoma LRT station is likely to reduce the share of trips made by motor vehicle. However, infrastructure improvements are much more effective when leveraged by TDM policies and programs.

What Is TDM?

Transportation Demand Management (TDM) refers to various strategies that increase overall system efficiency by encouraging a shift from single-occupant vehicle (SOV) trips to non-SOV modes, or shifting motor vehicle trips out of peak periods. Non-SOV modes may include walking, cycling, ridesharing (HOV/carpool), and public transit. In the case of the Tacoma Station area, which has been and will continue to be a major employment area, TDM solutions will be geared primarily towards employees.

Regional Guidance

Metro's Urban Growth Management Functional Plan (UGMFP)[2] sets out criteria by which a local jurisdiction might qualify for a 30% reduction from Institute of Transportation Engineers (ITE) trip rates in certain designated areas such as station communities. The Tacoma Station Area Plan aims for a land use mix, planned transportation improvements, and other strategies that will make this reduction possible. The UGMFP requirements for the 30% reduction include a TDM plan as specified in the Regional Transportation Functional Plan (RTFP)[3]. Elements of such a TDM plan include:

SmartTrips is the City of Portland's individualized transportation options marketing program.

- Individualized marketing programs
- Rideshare programs
- Employer transportation programs

These and other potential TDM strategies have the potential to limit motor vehicle traffic generation, positively affecting performance measures such as VMT and duration of congestion.

Individualized Marketing

An individualized marketing program promotes a variety of alternatives to motor vehicle travel rather than focusing on just a single option. It aims to raise awareness of potential travel options in a targeted geographic area through strategies such as consistently branded information, programmed walks and bike rides, and incentives for people to try different transportation modes. The opening of the new light rail service in particular provides a uniquely powerful opportunity to raise awareness of the alternatives to driving.

Research has shown that an individualized marketing program can reduce vehicle trips by 5-8%.[4] This represents about 75-150 peak hour study area trips, depending on future land uses.

Rideshare Programs

Ridesharing reduces motor vehicle demand by taking advantage of vehicle seats that would otherwise be unoccupied. **Carpooling**, which relies on participants' own vehicles, and **vanpooling**, which uses vans supplied

[2] http://www.oregonmetro.gov/index.cfm/go/by.web/id=274
[3] http://library.oregonmetro.gov/files//chap308.pdf
[4] Steven Spears, Marlon G. Boarnet and Susan Handy (2011), Draft Policy Brief on the Impacts of Voluntary Travel Behavior Change Programs Based on a Review of the Empirical Literature, for Research on Impacts of Transportation and Land Use-Related Policies, California Air Resources Board (http://arb.ca.gov/cc/sb375/policies/policies.htm).

by employers, non-profits, or government agencies, are typical forms of ridesharing. A rideshare program will typically be administered by an employer commute trip reduction plan or an organization coordinating multiple employers. The program may use incentives such as preferential parking, awards, or cash payments.

According to research, ridesharing can reduce vehicle trips to employment areas by 5-15%.[5] This represents about 75-250 peak hour study area trips, depending on future land uses.

Employer Transportation Programs

These programs, sometimes called commute trip reduction (CTR), focus on creating incentives to use alternatives to the motor vehicle as well as encouraging alternative work hours and telecommuting. A CTR program often includes strategies such as:

- Commuter financial incentives (such as a subsidized transit pass)
- Guaranteed ride home (for transit users occasionally needing to return home at a time when transit is not a viable option)
- Secure bicycle parking and/or end-of trip facilities (i.e., showers)
- Ridesharing (discussed above)

This type of program is typically administered by individual employers or building managers, but could also be administered effectively by a larger organization coordinating multiple employers.

The effectiveness of a CTR in reducing vehicle trips depends on which strategies are included. A 50% subsidized transit pass, guaranteed ride home, and end-of-trip facilities have been shown to reduce vehicle trips by approximately 10%, 2%, and 2% respectively.[6]

Parking Strategies

Redevelopment of the Tacoma Station Area provides the opportunity for a fresh look at potential strategies for addressing parking supply and demand. A changing mix of land uses, the opening of a new light rail line, and other multimodal and TDM improvements in the station area are new variables that will affect parking needs. This section addresses:

- Existing parking supply and utilization
- Current parking issues
- Existing parking-related code requirements
- Analysis of future parking demand
- Potential new parking management strategies

[5] Reid Ewing (1987), "TDM, Growth Management, and the Other Four Out of Five Trips," *Transportation Quarterly*, Vol. 47, No. 3, pp. 343-366

[6] Reid Ewing (1987), "TDM, Growth Management, and the Other Four Out of Five Trips," *Transportation Quarterly*, Vol. 47, No. 3, pp. 343-366

Existing Conditions

The project study area is currently zoned Manufacturing, with nearly all existing land uses being a combination of industrial and warehousing. Most activity for these land uses occurs during weekday mornings and afternoons, so an inventory of parking supply and utilization was undertaken during a typical weekday morning.[7]

The supply of on-street and off-street parking varies throughout the study area, with some locations near capacity and some relatively empty. Existing parking supply on parcels and on the street network throughout the study area is shown in Figure 1, and utilization levels are shown in Figure 2. Note that not all of the potential parking supply was available due to lots being used for purposes other than parking. For example, some parking areas are currently used for outdoor storage of equipment and expected to be used for this purpose for the foreseeable future.

Generally, conditions were near capacity north of Stubb Street, while parking facilities to the south were less than 85% full. A notable exception was the TriMet park and ride facility, where 316 out of 329 available spaces were occupied (over 95% occupancy).

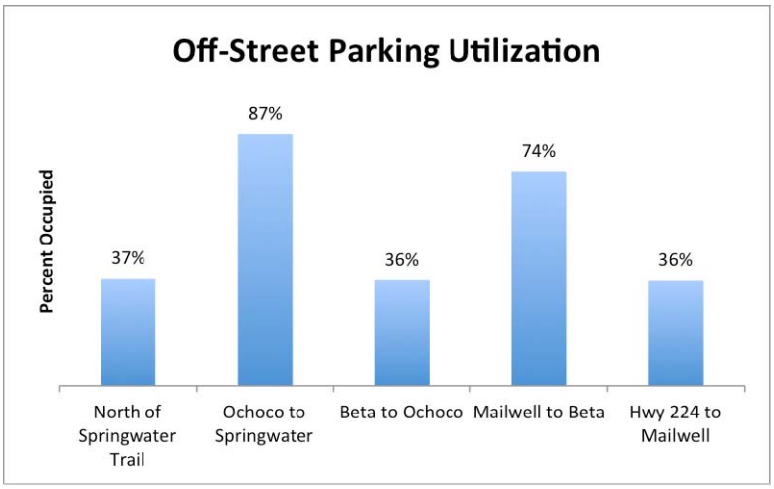

Chart 1: Existing Weekday Off-Street Parking Utilization

Chart 1, to the right, shows generally how well off-street parking is utilized throughout the area. For this analysis, the TriMet park-and-ride lot was not included, as its function will be replaced with a new park-and-ride at the Tacoma LRT station. Parking lots that were partially or fully occupied by non-parking uses were excluded as well. The issue of non-parking uses is covered later in this section. Head-in parking along streets was considered off-street parking for this analysis.

In much of the study area, over half of the available off-street parking was empty during a weekday morning, which is expected to be a peak parking time of day. Utilization of on-street parking shows similar patterns, with spaces in the northern half of the study area being occupied at a significantly higher rate than those in the southern half.

[7] Parking inventory completed October 11, 2012.

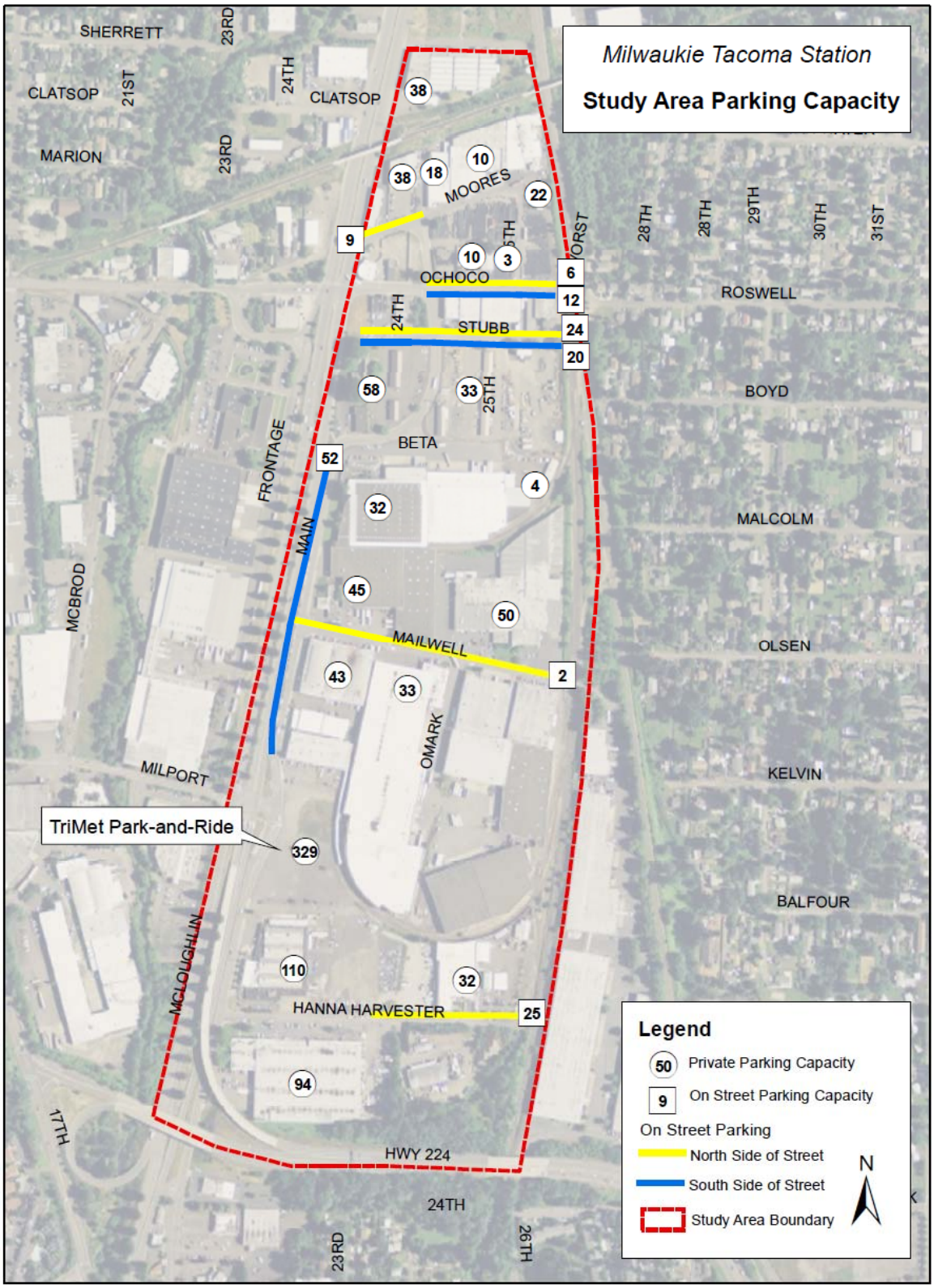

Figure 1: Study Area Parking Capacity

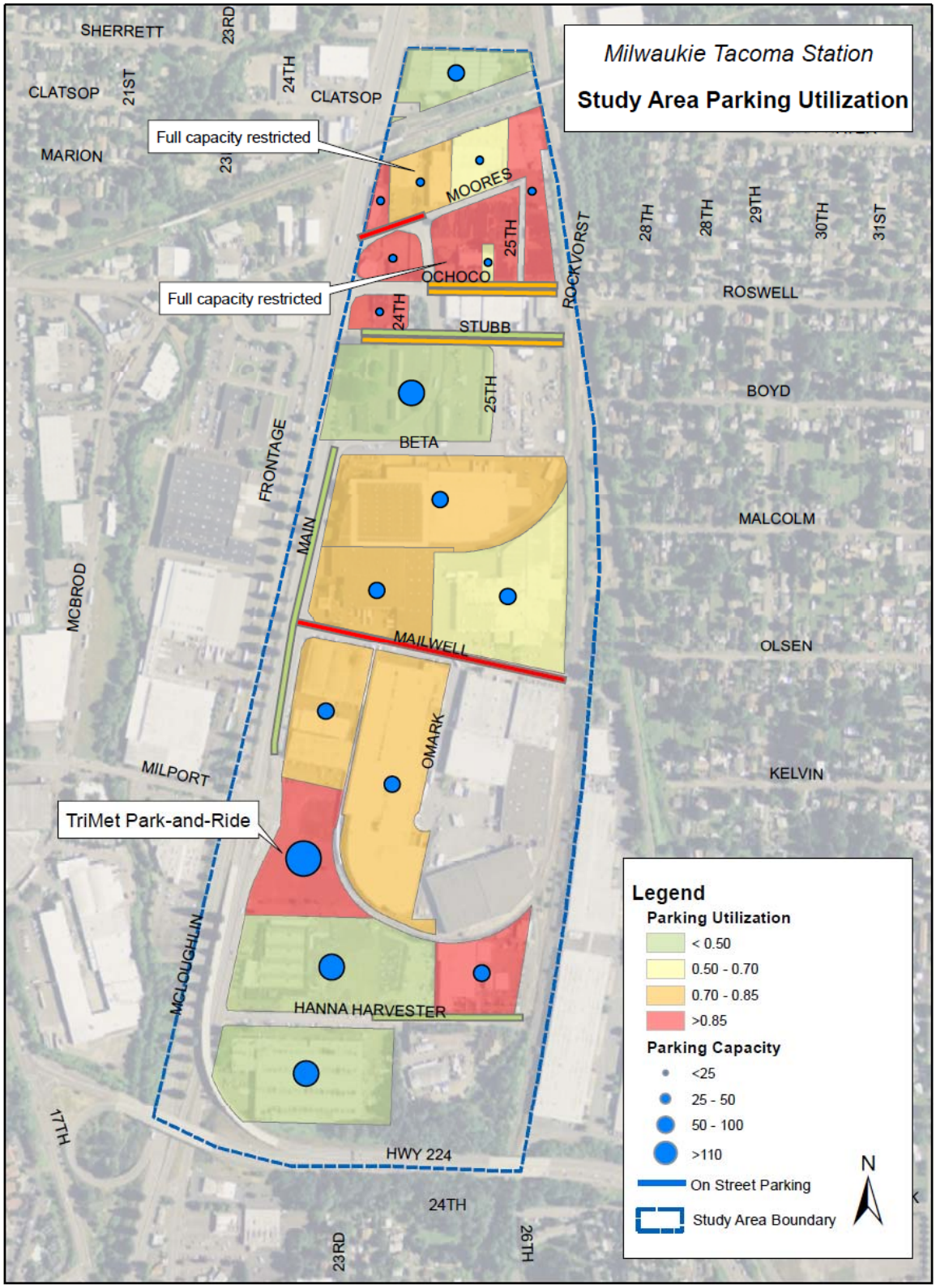

Figure 2: Study Area Parking Utilization

Chart 2 shows how well on-street parking is utilized within the study area. The highest utilization rate, 100% occupancy of on-street parking on Mailwell Drive, represents a total of two vehicles but does not include head-on parking that takes place primarily outside of the public right-of-way. The next highest utilization rates occurred on Moores Street and Ochoco Street -- streets that are adjacent to the parcels with the highest off-street utilization.

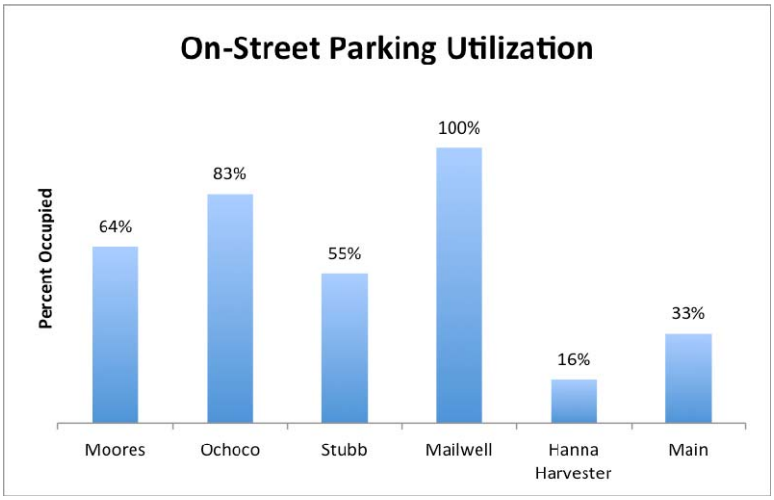

Chart 2: Existing On-Street Parking Utilization

Observed parking activity (combined on-street and off-street) was also compared against the level of parking generation that would be expected based on ITE[8] rates. Appropriate average parking rates for area uses include Manufacturing (1.02 vehicles per thousand square feet), General Light Industrial (0.75), and Warehousing (0.51). Building square footage was estimated using LIDAR (aerial) ground cover data.

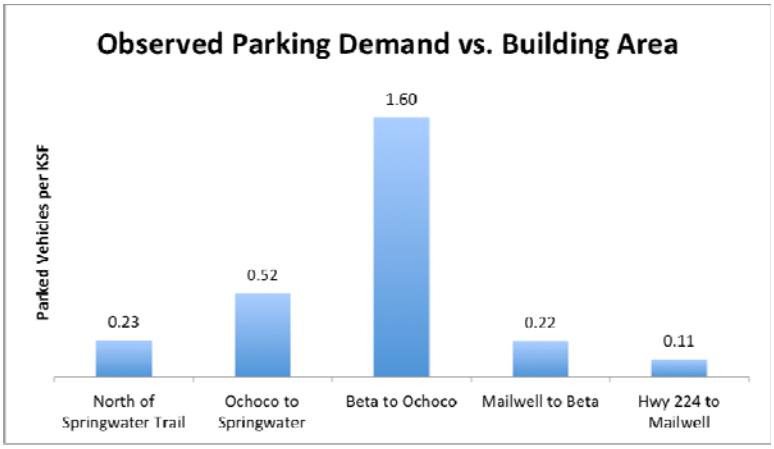

Chart 3: Parking Activity per 1,000 Square Feet

The subarea between Beta Street and Ochoco Street had the highest level of parking activity, with 1.60 vehicles per thousand square feet. However, the two adjacent areas had much lower parking rates, suggesting some spillover between areas. The overall parking rate for the entire study area was 0.21 vehicles per thousand square feet. This is significantly lower than what would be expected given the measured building areas and the least intense land use (Warehousing), but this analysis does not account for square footage in the area that may be currently unleased.

Note that this inventory was done on a single weekday, which may not necessary represent an average or worst-case scenario. Parking activity at certain existing businesses in the study area may fluctuate seasonally.

[8] Institute of Transportation Engineers, *Parking Generation*, 4th Edition, 2010

Current Parking Issues

On-street parking provides many benefits, but supplying it comes at the cost of other potential uses of the public right-of-way, such as wider sidewalks, bicycle facilities, landscaping and street trees, and environmentally friendly stormwater treatments.

On-street Parking vs. Off-Street Parking

The study area currently provides about 160 on-street parking spaces and 650 off-street spaces. On-street parking typically has higher demand than off-street, as it serves multiple destinations and is generally more convenient, accessible, and visible. This was not true in the study area, however: 46% of on-street parking was occupied, compared to 49% of off-street parking. In particular, Main Street (Figure 3), which features the most available on-street parking – space for about 50 vehicles – was only about 1/3 utilized, suggesting that there may be an oversupply of off-street parking capacity that could be reallocated to other uses.

Figure 3: Main Street north of Mailwell

On many streets in the study area, it is unclear where vehicles should be parked or whether parking is permitted at all. In general, on-street parking should be clearly marked, well-lit, and attractive.

Non-parking uses in available parking spaces

In some cases, paved areas that appear to be striped for off-street parking are being used for storage or other non-parking uses. (See example in Figure 4.) This puts more pressure on adjacent off-street lots and on-street parking. On-street parking in the public right-of-way is typically intended for visitors, deliveries, and other short-term uses, rather than daily users.

Figure 4: Off-street parking lot (in front of building) with no parked vehicles inside

Parking Strategies for Redevelopment Scenarios

The three redevelopment scenarios developed for the Tacoma Station Area include new, urban street cross sections with changes to the available on-street parking. The redevelopment scenarios also assume a new mix of uses in the study area, each with particular parking issues and needs. This section documents changes to on-street parking capacity, existing code requirements, analysis of future demand for the three scenarios, and potential parking management strategies.

On-Street Parking

Redevelopment scenarios assume that the local street system will be upgraded to an organized, urban network over time. This will change the amount of on-street parking available, as shown in Table 1. The extent of these changes will depend to some degree on the level of redevelopment that occurs, the degree of change in land uses and availability of public and private funding.

Table 1: Existing and Proposed On-Street Parking

Street	Existing	Proposed
Moores	9	0
Ochoco	18	0
Stubb	44	44
Main	52	28
Mailwell	2	10
Hanna Harvester	25	25

Note that some streets, such as Mailwell Drive and Hanna Harvester Drive, currently have head-in parking that is either partly or fully on private property. In the inventory shown in Figure 1, some of this parking has been accounted for as on-street (if it appears to be partly within the right-of-way, as on Hanna Harvester), and some as off-street (as on Mailwell). While the street cross section proposed for Mailwell Drive accommodates existing head-in (off-street) parking, other cross sections assume that head-in parking is removed, such as on Hanna Harvester and Moores Street. Note that on Hanna Harvester, on-street parking capacity is maintained by providing significant new parallel parking within the new cross section.

Existing Code Requirements

Typically, parking requirements for new development are often excessive, based on suburban single-uses and geared to the 10th or 20th highest annual hour. This type of minimum parking requirement is probably not appropriate for a station community, which typically features a higher non-motor vehicle mode split and a mix of uses that promote shared parking. Metro's RTFP, which sets out parking requirements for station communities, provides regional standards for station communities that allow lower parking minimums than typical ITE rates.[9] The City of Milwaukie's parking code allows for even lower minimums than the RTFP, so it is assumed that meeting the City's code will satisfy Metro's station community requirements although it may or may not completely address parking demands if parking is provided at or close to the minimum requirements, as noted below.

For the future needs analysis, it is assumed that the City code's minimum parking requirements are met for each land use, as shown in Table 2.

[9] See section 3.08.410 of the Regional Transportation Functional Plan

Table 2: City Code Parking Requirements

Land Use	Spaces per 1.000 sq. ft.
Industrial	1.0
Office	2.0
Office (Station Area)*	1.35
Retail	2.0
Eating and Drinking Establishments	4.0
Multifamily Residential (Station Area)*	0.84

*City of Milwaukie code provides for reduced requirements for areas meeting station community-related criteria. See City of Milwaukie code Section 19.605 for more information. (http://www.qcode.us/codes/milwaukie/)

Forecasting Demand

The City code specifies the minimum off-street parking that can be expected for each redevelopment scenario, but this minimum may not meet the parking demand even with mode split, TDM, and parking management strategies assumed. If demand is greater than or near supply, then on-street parking capacity becomes more important. This analysis assumes that off-street and on-street parking will be used at similar rates, so that when off-street parking reaches 85% capacity (typically the point at which vehicles begin to circle the area looking for parking), on-street parking is at 85% as well.

ITE parking rates are used as a starting point for this analysis, with a 30% reduction for areas north of Beta Street designated as commercial or mixed-use in Scenarios 1 and 2. The 30% reduction is based on TDM measures and higher transit mode share, similar to the assumptions for trip generation documented in the Redevelopment Scenarios Report for this project.

Future Analysis

Using the leasable square footage assumptions for each land use in the three scenarios, parking demand was calculated based on the modified ITE approach described above, and minimum off-street parking supply was calculated based on City code. On-street parking is included in the supply as well. Similar to existing conditions analysis, the project study area was broken into five subareas in order to help pinpoint problem areas. For convenience, these Subareas are labeled A through E, as shown in Figure 5.

Results of this analysis are shown below, in Table 3. These results show that ITE rates, even when modified by 30% reductions in the station area, predict higher demand than what is supplied under the City code's minimums. The difference is especially apparent when looking at office uses: City code allows for a minimum of two parking spaces per 1,000 leasable square feet of office, while ITE studies suggest a rate of 2.84 vehicles per 1,000 square feet.

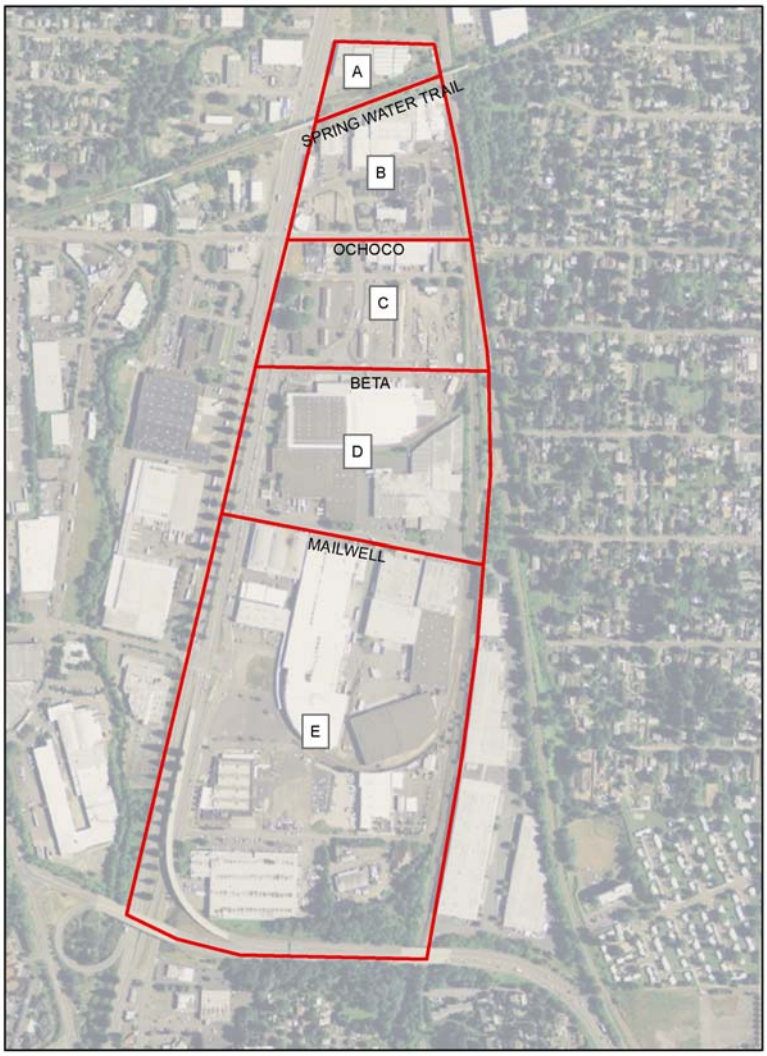

Figure 5: Parking subareas

This discrepancy between the code and estimated demand is the highest in the area south of Mailwell Drive (subarea 5), where all redevelopment scenarios propose leaving the current Manufacturing zoning in place. As outlined in previous trip generation analysis, the reasonable worst-case land use for this zoning includes 75% coverage by office uses. The result is that close to 400,000 square feet of office use is assumed south of Mailwell for all scenarios, with 0.84 more spaces demanded per 1,000 square feet than are provided by City minimums.

Table 3: Redevelopment Scenario Supply vs. Demand

Subarea	Existing	Scenario 1 (Stadium)		Scenario 2 (Intensive)		Scenario 3 (Circulation/Access)	
	Supply	Supply	Demand	Supply	Demand	Supply	Demand
A	38	60	57	60	57	60	57
B	89	233	326*	265	308*	237	317
C	152	836	791*	517	581*	203	148
D	187	430	567	538	733	566	748
E	337	1,084	1,444	1,084	1,444	1,084	1,444
Total	**803**	**2,643**	**3,184**	**2,464**	**3,122**	**2,150**	**2,713**

* 30% reduction for mixed uses north of Beta Street assumed for Scenarios 1 and 2

Note that when a less aggressive assumption is made about the mix of uses in Subarea E, the parking space deficit decreases. If only 50% coverage by office uses is assumed, then City minimums prescribe 865 spaces, and demand is 1,134.

In general, demand exceeds capacity when supply is determined by the City code's minimum parking requirement. In order to meet a target of 85% on-street occupancy, assuming off-street parking is occupied at the same rate, additional capacity beyond the minimum would be needed in most subareas. Table 4 shows the additional parking that would be needed to satisfy demand in each subarea for the three redevelopment scenarios. This analysis assumes a 30% reduction in demand for mixed-use areas north of Beta Street in Scenarios 1 and 2.

Table 4: Additional parking capacity needed beyond City minimums

Subarea	Scenario 1 (Stadium)	Scenario 2 (Intensive)	Scenario 3 (Circulation/Access)
A	7	7	7
B	151	97	136
C	95	167	0
D	237	324	314
E	615	615	615
Total	1,105	1,210	1,072

While demand in nearly all areas is estimated to exceed the City minimum standards, the areas to the south of Beta Street have particularly excessive demand. This analysis suggests that if City code continues to allow 75% office use in the Manufacturing zone, and if parking minimums remain in place, then it may be necessary to consider additional parking strategies, such as repurposing the existing TriMet park-and-ride lot to provide the needed parking. Assuming 800 parking spaces are needed, with each space using 300-400 square feet (including access, aisles, and landscaping), this is about 6-7 acres that would be dedicated to vehicle storage (a little less than an acre per 100 vehicles). If demand south of Beta Street is reduced through a change in the code for the Manufacturing zone, then it becomes more attractive to redevelop the TriMet lot for an employment use.

Over-capacity issues north of Beta Street may be manageable through demand-oriented strategies, discussed below, and through shared parking, rather than adding capacity, depending on the level of redevelopment that occurs and how much land is devoted to parking associated with that redevelopment. Shared parking is viable where the mix of uses generates peak parking demand at different times, such as when office and retail/dining are sited together. Peak times for retail and dining, or an entertainment use that primarily attracts visitors on weekends or evenings, when office parking capacity is unused. A shared parking approach could reduce supply needs north of Beta Street by 50-100 spaces in scenarios that feature mixed uses, and significantly more if a large weekend/evening-oriented use is proposed.

Findings. Given City code minimum parking requirements and estimated parking demand under reasonable worst-case land use, parking demand exceeds capacity. The following strategies should be considered:

- Amend City code for Manufacturing zone to reduce the percentage of office use allowed in all or a portion of the study area
- Parking capacity of existing TriMet park-and-ride lot may be needed to meet future demands, but may not be best use of the land from a land use, development or market perspective
- Pursue parking management measures, including shared parking that takes advantage of mixed-use areas

Parking Management

Typically, parking codes and standards are geared to ensure that there is always enough parking available for every land use at its peak time. However, an oversupply can be as harmful as too little supply, as abundant parking often comes at the cost of other potentially valuable uses of available land: public space, landscaping, wider sidewalks, or revenue-generating development. Oversupply can also encourage unnecessary vehicle travel when other modes are available, with additional vehicle trips creating still higher parking demand.

Parking management elements relevant to the Tacoma Station area are shown below. Note that several of these may overlap with TDM elements discussed earlier in this memo.

- Consumer choice of multiple travel modes
- Shared parking to serve multiple users and destinations
- Flexible standards
- Parking regulations (time, limits, loading zones)
- Shuttle services (to and from the Tacoma LRT station, for example)
- Bike facilities and parking
- User information and marketing
- Financial incentives and unbundling of parking costs
- Parking pricing (viable when demand exceeds 85% of capacity)
- Preferred parking for carpools and vanpools
- Overflow parking plans

All elements listed above are viable management strategies that can mitigate the need to devote additional valuable land area to parking. In general, a parking management approach seeks to make access and parking for short-term visitors, customers, and deliveries more convenient while promoting and incentivizing alternatives to parking for everyday users such as employees.

Most parking management strategies overlap with general TDM strategies. A general approach to administering strategies in the study area is discussed in the following section.

Summary of TDM and Parking Strategies Findings

All of the redevelopment scenarios will require a mix of TDM and parking strategies in order to minimize parking supply needs and potentially take advantage of ITE trip reductions. A variety of management strategies are proposed in this memo, many of which cannot be administered at the employer and/or building owner level. Therefore, coordination of businesses throughout the study area, and potentially beyond, may be needed.

Transportation Management Association (TMA)

A TMA is an association of businesses and other transportation system users in an area that promotes an efficient, balanced transportation system. Typically, a TMA focuses on demand management and marketing, and is able to administer programs than would be inefficient to run on a business-by-business basis. The following are TDM and parking management areas that would benefit from a Milwaukie area TMA.

- Coordination of rideshare/vanpool
- Management of travel incentives (transit/bike/rideshare)
- Coordination of guaranteed ride home program
- Development and administration of branded, individualized marketing
- Management of shuttle services
- Development of user information and maps for parking, walking, and transit access
- Overflow/event parking planning
- Ongoing parking data collection to determine potential pricing and other demand strategies as the area develops

Because a TMA tends to function better at a larger scale than the study area, downtown Milwaukie could be included as part of a larger TMA area.

Summary of Management Strategies

The strategies outlined in this section are estimated to result in a range of potential reductions in vehicle trips, with the total generally matching the reduction in ITE trip generation provided for in the UGMFP. The reductions, which apply to the area north of Beta Street, are outlined in Table 5 below. It should be noted that the combined effect of these strategies may not be additive, as the table implies. If they are not additive, the overall or total impact may be less than the table indicates.

Table 5: Vehicle Trip Reductions Due to TDM Strategies

Strategy	% Reduction
Individualized Marketing	5-8%
Rideshare	5-15%
Employer Transportation Programs	
• **50% Subsidized Transit Pass**	10%
• **Guaranteed Ride Home**	2%
• **End of Trip Facilities**	2%
TOTAL	24-37%

Evaluation

Each of the three redevelopment scenarios has different trip generation characteristics due to differences in proposed land uses. This section of the memo shows how these scenarios impact vehicle miles traveled (VMT), duration of congestion, and traffic impact analysis thresholds.

For the VMT and duration of congestion analysis, the project team coordinated with Metro to modify the current Beta travel demand model in order to reflect the different land uses proposed for the three scenarios.

Vehicle Miles Traveled

VMT was considered an important evaluation measure for this project, as it is hoped that increasing the mix of land uses in the station area results in fewer and shorter vehicle trips.

Table 6: Vehicle Miles Traveled: 2-hour PM Peak

	2010 Base	2035 RTP	Scenario 1	Scenario 2	Scenario 3
Total Vehicle Trips		551	3,054	3,201	3,106
Total VMT	5,622	4,671	23,151	24,693	23,881
VMT Per Vehicle Trip		8.47	7.58	7.72	7.69

The 2010 Base and 2035 financially constrained RTP Beta model outputs are shown for comparison. These models do not assume reasonable worst case land use for the project study area, and therefore generate significantly fewer trips and overall VMT than the redevelopment scenarios. Note that although land uses in the study area are similar between the 2010 Base and 2035 RTP models, the 2035 model generates fewer VMT because of the mode shift due to the new LRT service.

For Scenarios 1 and 2, total trips and VMT reflect 30% vehicle trip reductions, per UGMFP Station Community allowances, in some areas north of Beta Street. These reduced trips are assumed to be replaced by non-motor vehicle trips, either beginning and ending in the station area, or chaining together multiple destinations with just one vehicle trip.

The differences in VMT per vehicle trip are small between the redevelopment scenarios. Therefore, the differences in overall VMT are mostly a function of trip generation. Scenario 2, which proposes the most intense land use, results in the most trips and the most VMT to and from the study area despite the 30% trip reduction.

Note that VMT is considered an important evaluation measure because it can be seen as a rough proxy for several other measures, such as fuel use and greenhouse gas emissions. Therefore, it may be inappropriate to evaluate VMT for this type of project only for trips to and from the study area. Future VMT analysis might assume that more intense development in an area such as Tacoma Station should be balanced with proportionately less development in other areas in the region, and that VMT should be evaluated region-wide after accounting for this balancing.

Duration of Congestion on McLoughlin Boulevard

In 2035, many freeways and arterials in the Portland metro area are forecast to be congested not only in one or two peak commuting hours, but over several hours of a weekday. McLoughlin Boulevard through the study area, under currently adopted RTP land use, is not one of these arterials. It does not exceed a 1.0 demand/capacity threshold in the Metro 2035 RTP model at any hour.

ODOT's Hours of Congestion tool uses Metro model outputs from the a.m., mid-day, and p.m. to interpolate a 24-hour volume profile on roadway segments. For this project, it was used to measure whether the redevelopment scenarios add enough traffic to McLoughlin Boulevard to impact the duration of congestion.

The arterial link selected for analysis was the segment between Ochoco Street and Tacoma Street. This link was selected because most traffic to and from the study area is using this segment to travel to and from the north.

Results show that none of the scenarios cause congested conditions on this segment of the highway. Example Hours of Congestion results for redevelopment scenario 1, the large entertainment/civic use, are shown for the northbound direction in Figure 6.

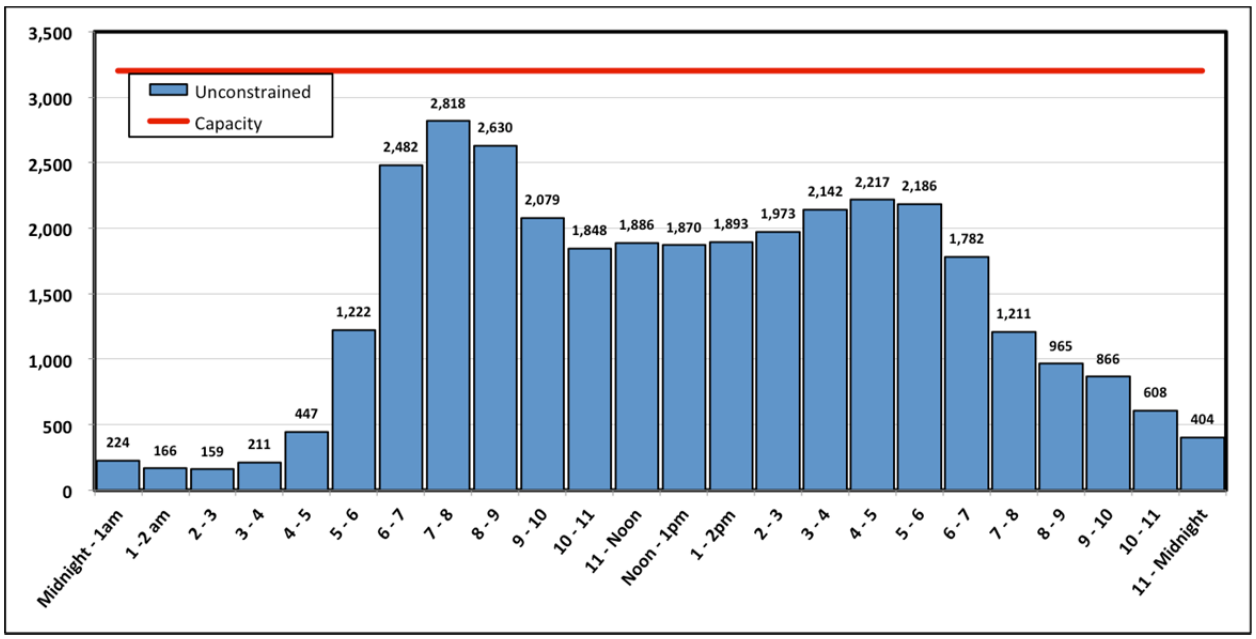

Figure 6: 24-hour weekday Duration of Congestion profile, McLoughlin Boulevard northbound north of Ochoco Street

The peak volume of about 2,800 vehicles per hour, in the 7 a.m. to 8 a.m. hour, is well below the modeled capacity of 3,200 vehicles per hour. Capacity of the roadway segment was verified by checking future intersection operations at Ochoco Street, which were analyzed for other studies.[10] Intersection analysis has shown that this segment of McLoughlin Boulevard should be able to accommodate up to about 3,800 vehicles per hour before intersections begin to exceed capacity. Therefore, the modeled capacity of 3,200 is conservative. Note, however, that the McLoughlin Boulevard/Ochoco Street intersection also experiences freight circulation issues. Southbound left turns are prohibited here, and southbound trucks seeking to enter the study area at Ochoco Street may have difficulty negotiating the existing jug-handle geometry that currently facilitates this movement.

Southbound results for redevelopment scenario 1 are shown in Figure 7.

[10] For this verification, 2008 Milwaukie TSP Synchro models were reviewed.

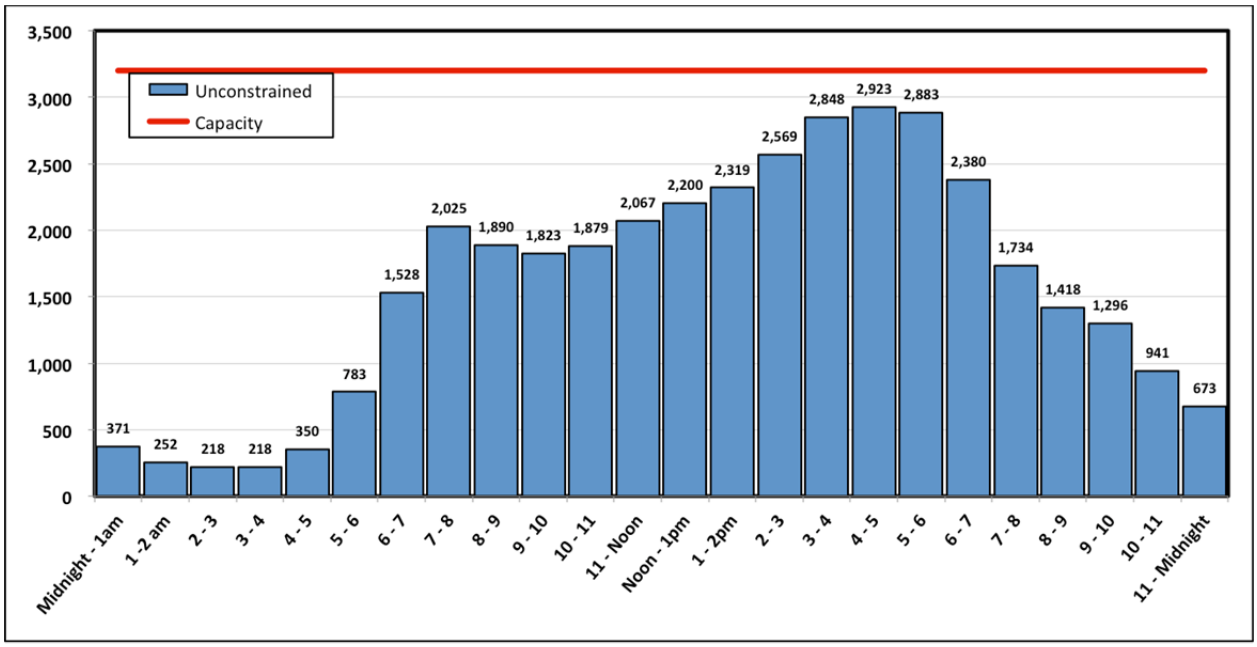

Figure 7: 24-hour weekday Duration of Congestion profile, McLoughlin Boulevard southbound north of Ochoco Street

The peak southbound volume of 2,923 falls nearly 300 vehicles short of the conservative 3,200 vehicle capacity line. All redevelopment scenarios are estimated to generate peak hour trips that are within a range of plus or minus 150 trips. Therefore, no scenarios are forecast to affect duration of congestion on this segment of McLoughlin Boulevard.

Note that more detailed future transportation impact analyses would need to consider operations at more intersections outside the study area that are forecast to exceed mobility standards in 2030, such as the Tacoma Street interchange and at McLoughlin Boulevard/Harrison Street, for example.

Vehicle Trip Generation Impacts

The Oregon Highway Plan specifies the level of traffic increase at which a comprehensive plan amendment would be required to undergo analysis under the state's Transportation Planning Rule (TPR).[11] An increase in average daily trips below a certain threshold is considered a "small increase," and not considered to cause the degradation in performance on an ODOT facility that triggers TPR analysis.

The threshold below which daily trip increases are considered small is generally 400, with some exceptions made for ODOT facilities that currently experience relatively low volumes compared to their capacity. Facilities exceeding 25,000 average daily traffic do not qualify for this exception. The average annual daily traffic for Highway 99E just north of Milport Road in 2010 was 51,100, so this

[11] *Oregon Highway Plan* Policy 1F Revisions, adopted December 21, 2011. http://www.oregon.gov/ODOT/TD/TP/docs/ohp11/policyadopted.pdf

exception does not apply. Therefore, for this study a "small increase" is defined as 400 or fewer daily trips.

Daily trip generation for the redevelopment scenarios can be estimated based on PM peak hour trip generation, which was documented in this project's Redevelopment Scenarios Report. All three scenarios exceed the reasonable worst case of existing land use by 42 PM peak hour trips or more. Using a conservative estimate that peak hour trips comprise 10% of daily trips, all three scenarios therefore generate an increase of at least 420 daily trips. This exceeds the "small increase" threshold of 400 daily trips.

Therefore, all three of the redevelopment scenarios would require TPR analysis and potential off-site improvements. Alternatively, a refined redevelopment scenario that reduces trip generation to below the 400 daily trip threshold would avoid TPR analysis. One approach to reducing trip generation would be to modify code to allow less office use in areas zoned Manufacturing.