MEMORANDUM

DATE: October 26, 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.

Site Connectivity

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

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

- 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
- Pedestrian/bicycle safety/crossing improvements at the Ochoco Street and Milport Street intersections with McLoughlin Boulevard with the potential for a long-term grade-separated crossing

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.

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:

- Individualized marketing programs
- Rideshare programs
- Employer transportation programs

[2] http://www.oregonmetro.gov/index.cfm/go/by.web/id=274
[3] http://library.oregonmetro.gov/files//chap308.pdf

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.

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

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]

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 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]

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)

[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).

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

- 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

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 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 use 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.

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

[7] Parking inventory completed October 11, 2012.

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).

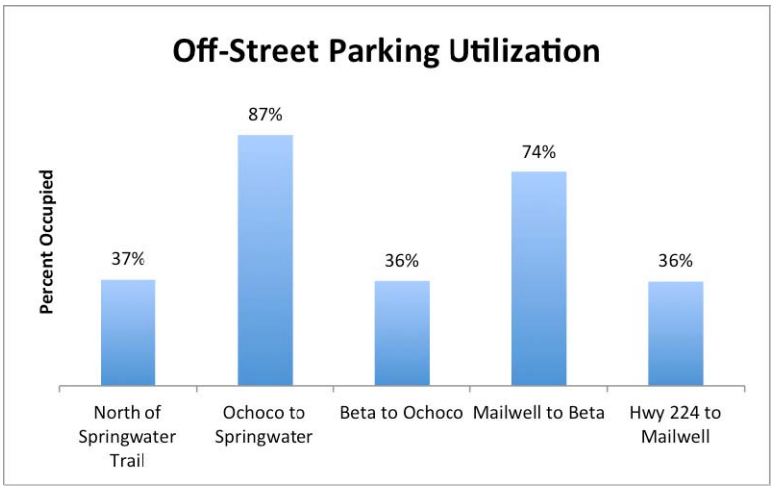

Chart 1: Existing Weekday Off-Street Parking Utilization

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.

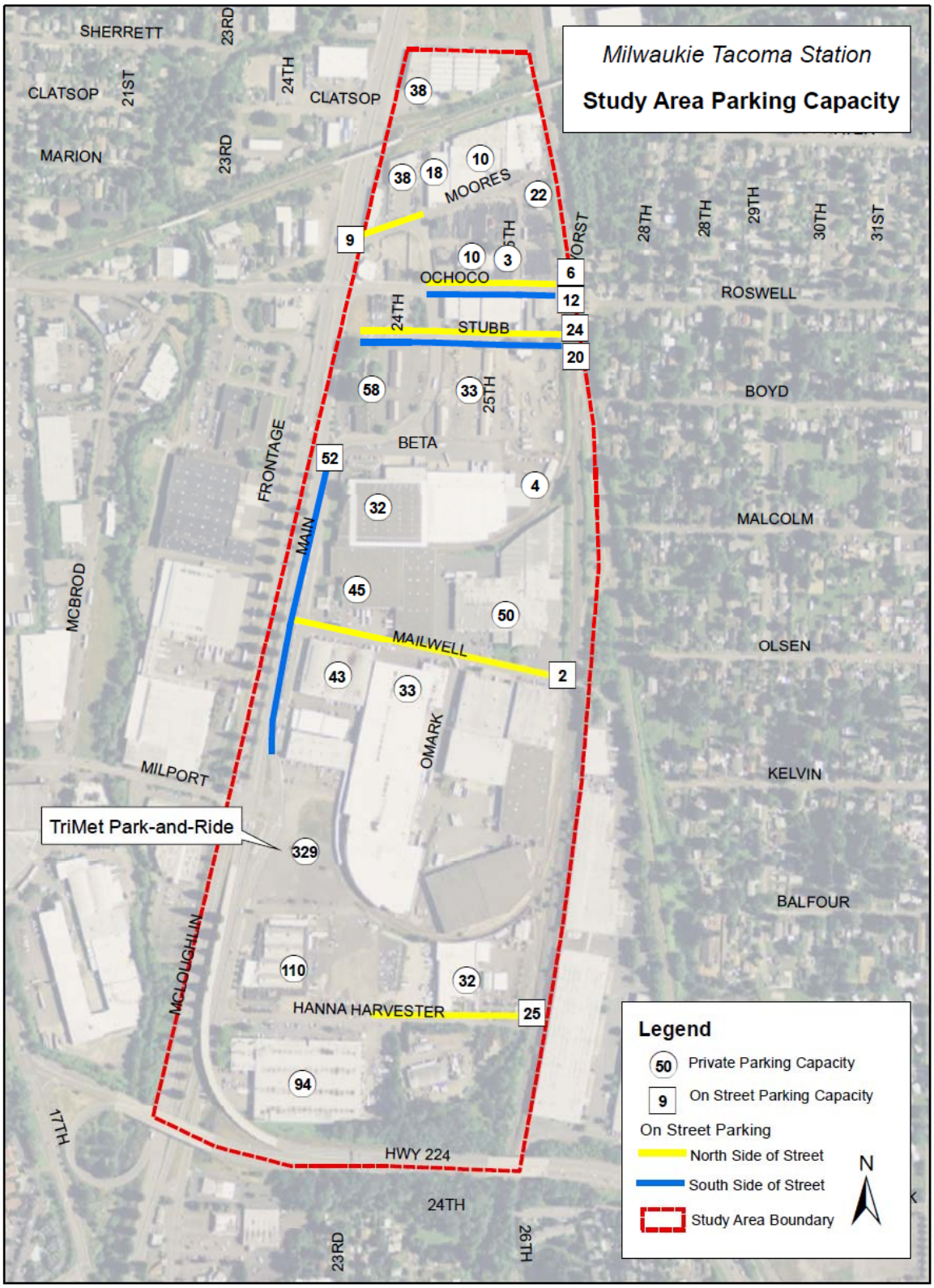

Figure 1: Study Area Parking Capacity

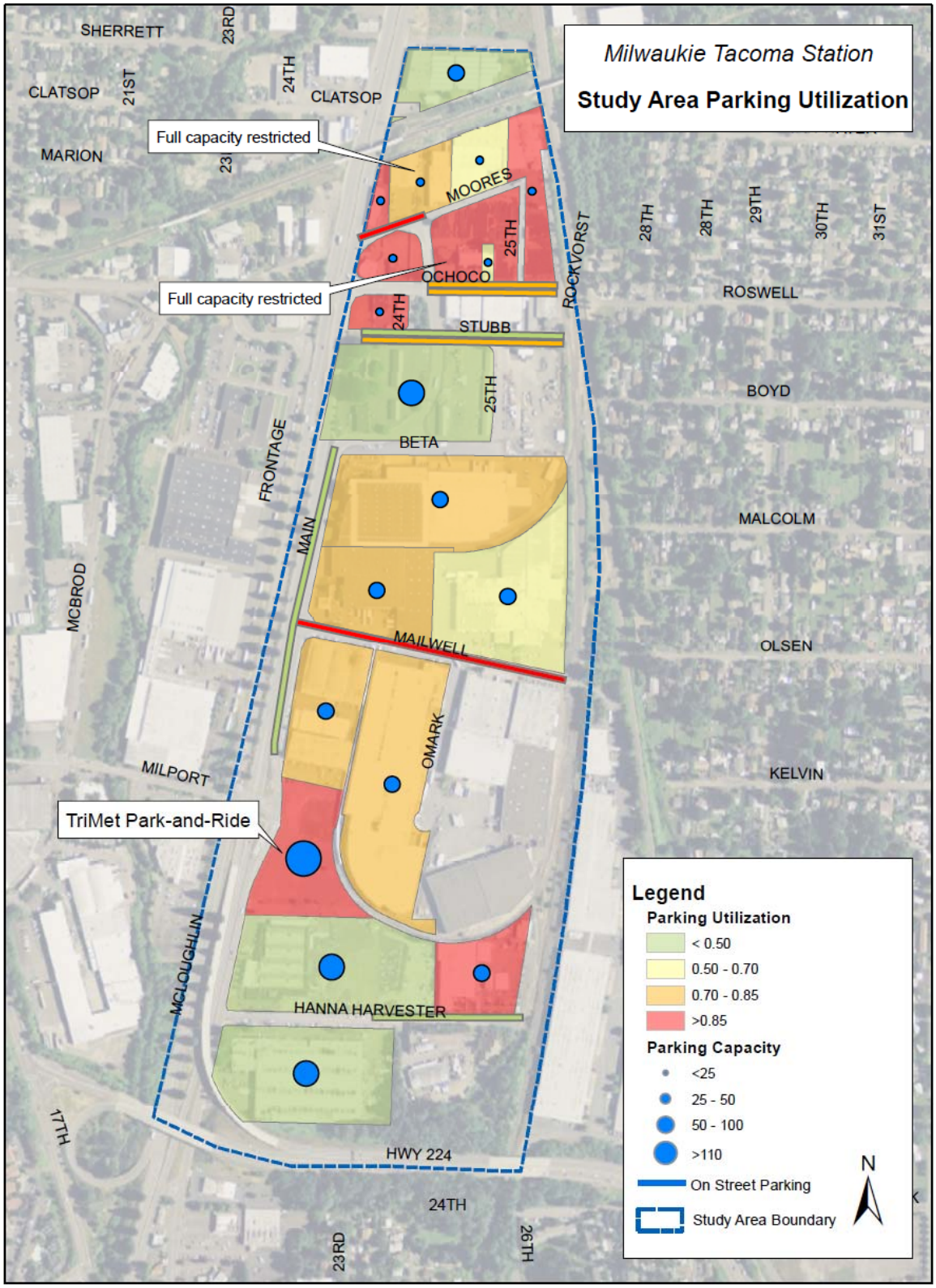

Figure 2: Study Area Parking Utilization

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.

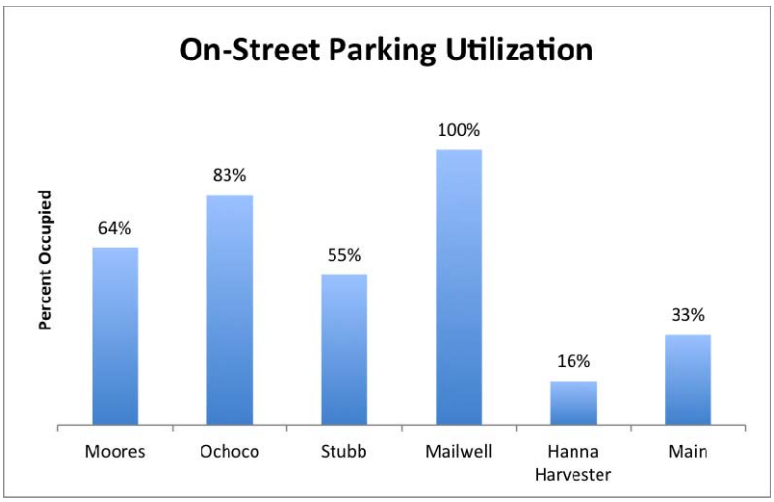

Chart 2: Existing On-Street Parking Utilization

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 50th percentile 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.

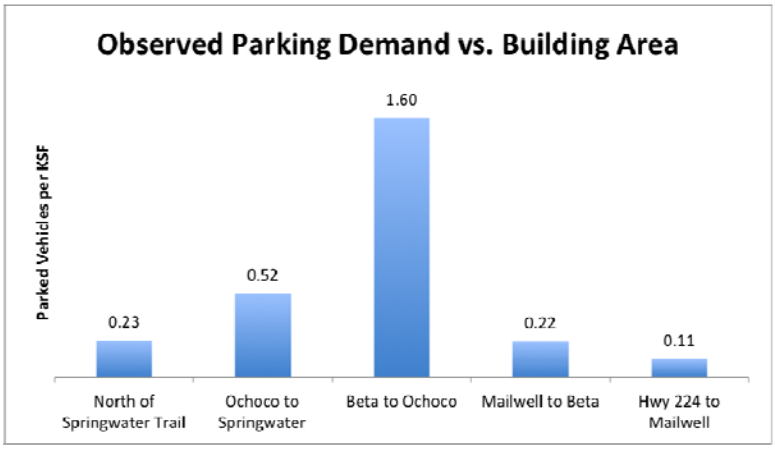

Chart 3: Parking Activity per 1,000 Square Feet

The subarea between Beta Street and Ochoco Street had the highest level of parking activity, with 1.60 vehicles per KSF. 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 KSF. 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.

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.

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

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 assume a new mix of uses in the study area, each with particular parking issues and needs. This section documents existing code requirements, analysis of future demand for the three scenarios, and potential parking management strategies.

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.

Table 1: City Code Parking Requirements

Land Use	Spaces per KSF
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 mixed use areas north of Beta Street, based on TDM measures and higher transit mode share, similar to the assumptions for trip generation as part of 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.

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

Results of this analysis are shown below, in Table 2. 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.

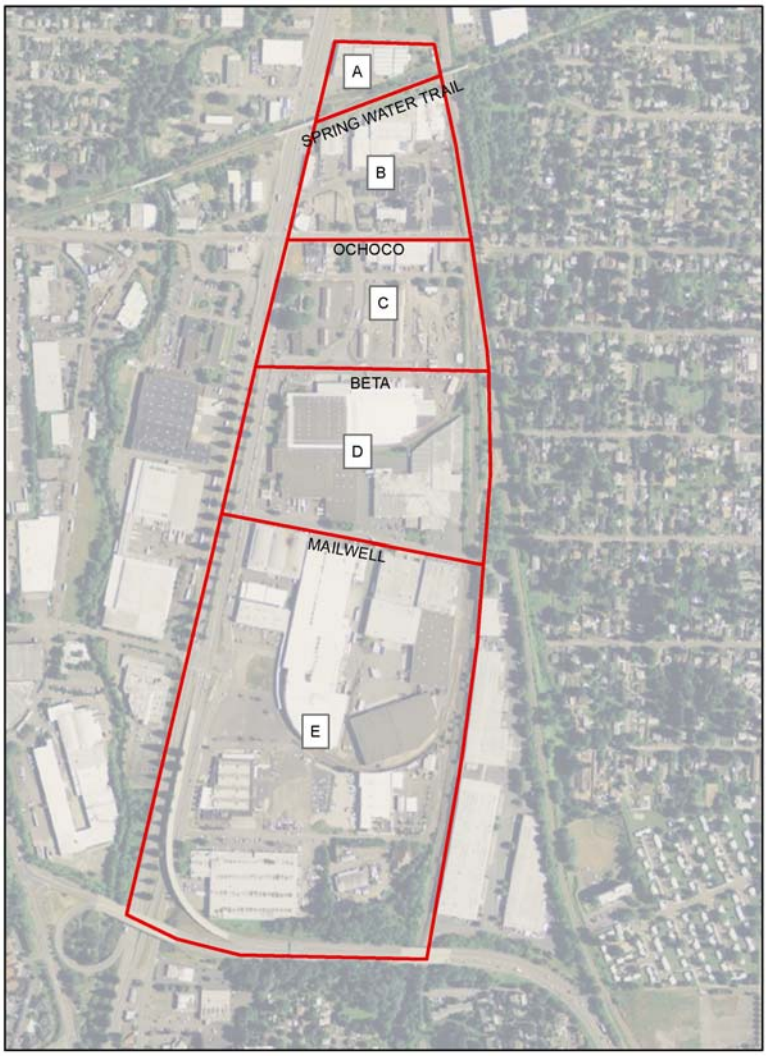

Figure 5: Parking subareas

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, with 0.84 more spaces demanded per 1,000 square feet than are provided by City minimums.

Table 2: 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**

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 3 shows the additional parking that would be needed to satisfy demand in each subarea for the three redevelopment scenarios.

Table 3: 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

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 the existing TriMet park-and-ride lot may need to be repurposed 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.

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
- Consider repurposing existing TriMet park-and-ride lot to provide additional parking capacity

- 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 4 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 4: 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 5: Vehicle Miles Traveled: 2-hour PM Peak

	2010 Base	2035 RTP	Scenario 1	Scenario 2	Scenario 3
Total Trips		551	3,054	3,201	3,106
Total VMT	5,622	4,671	23,151	24,693	23,881
VMT Per 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 the redevelopment scenarios 2 and 3, total trips and VMT reflect 30% trip reductions, per UGMFP Station Community allowances, in some areas north of Beta Street. The differences in VMT per 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 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.

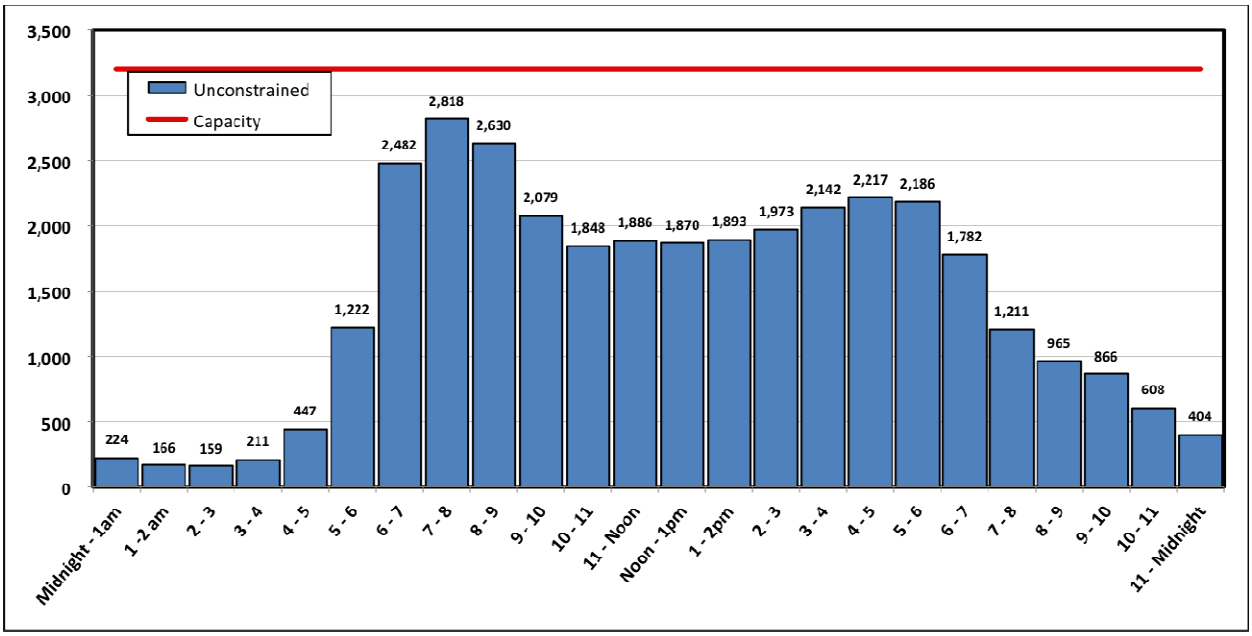

Figure 6: 24-hour weekday Duration of Congestion profile, McLoughlin Boulevard northbound north of Ochoco Street

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.

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

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

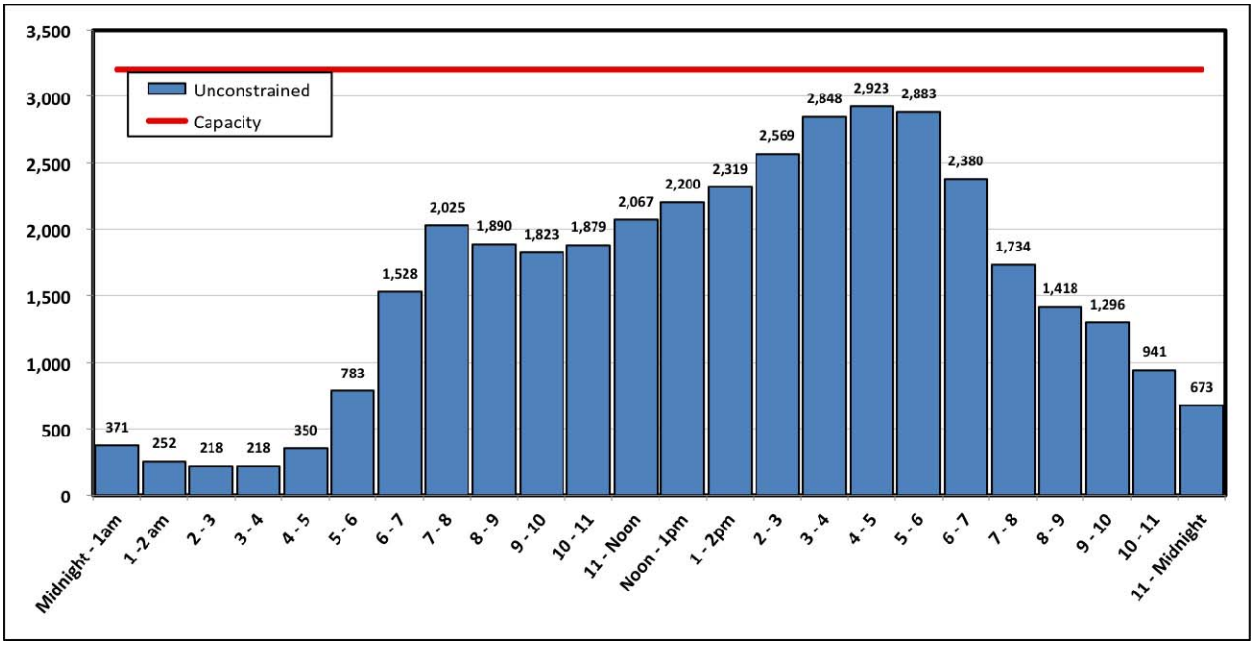

Figure 7: 24-hour weekday Duration of Congestion profile, McLoughlin Boulevard southbound north of Ochoco Street

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.

Vehicle Trip Generation Impacts

The Oregon Highway Plan specifies traffic thresholds at which a comprehensive plan amendment would be required to undergo analysis under the state's Transportation Planning Rule (TPR).[11] Average daily trips below a certain threshold are 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 exception does not apply, and the "small increase" threshold is 400.

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

Trip generation analysis for the redevelopment scenarios shows that p.m. peak hour trips for all three scenarios exceed the reasonable worst case of existing land use by 42 trips or more.[12] Using a conservative estimate that peak hour trips comprise 10% of daily trips, all three scenarios exceed 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.

[12] See *Redevelopment Scenarios Report* for more information