

**Appendix A: Future Traffic Conditions Analysis
Memorandum**

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DRAFT MEMORANDUM

DATE: January 16, 2013

TO: Matt Hastie, AICP, Angelo Planning Group

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

**SUBJECT: Tacoma Station Area Plan
Preferred Redevelopment Scenario Trip Generation Analysis (for Task 5)**

P12071-000-005

Potential Impacts to Transportation Facilities and Capacity

In order to determine whether the preferred redevelopment scenario is likely to create more demands on the transportation system than the existing zoning, a trip generation analysis was conducted. Table 1 shows the estimated leasable square feet assumed, by land use, for the existing zoning and the preferred scenario. Note that both scenarios are broken out into subareas, and the analysis now includes an additional area to the west of McLoughlin Boulevard (Subarea 1). Subarea 3 is divided into two parts (3a and 3b) to account for the fact that the area north of Stubb Street (3a) is closer to the LRT station and can be considered a Station Area under Metro’s Urban Growth Management Functional Plan, while the part south of Stubb Street (3b) is too far from the LRT station to be considered a Station Area in that context. This distinction affects the assumptions for trip generation, as described below.

Table 1: Estimated Leasable Square Feet by Land Use and Subarea (1,000 SF)

Existing Land Use	Subarea 1	Subarea 2	Subarea 3a	Subarea 3b	Subarea 4	TOTAL
Industrial	24.8	6.0	24.0	33.5	199.3	287.6
Office	66.7	16.0	64.8	90.3	536.7	774.5
Retail	7.4	1.8	7.2	10.0	59.5	85.9
TOTAL	98.9	23.8	96.0	133.8	795.5	1148.0
Preferred Scenario						
Industrial	25.3	0	35.8	42.0	199.3	301.9
Office	25.3	11.3	40.9	48.0	536.7	662.3
Retail	10.1	21.0	20.4	24.0	59.5	135.2
TOTAL	60.7	32.3	97.1	114.0	795.5	1099.4
Residential (dwelling units)	63	0	8	11	0	82

The following ITE codes were used for estimating reasonable worst-case trip generation for each of the land uses. Trip rates reflect the p.m. peak hour of adjacent street traffic, including General Office, for which the peak hour of the trip generator coincides with the peak hour of adjacent street traffic.

- Industrial. ITE Code 110, Light Industrial, 0.97 p.m. peak hour trips per 1,000 square feet (KSF)
- Office (including Station Area). ITE Code 710, General Office, 1.49 p.m. peak hour trips per KSF
- Retail. Split between two uses. ITE Code 932, Sit-Down Restaurant, 11.15 p.m. peak hour trips per KSF; ITE Code 492, Health/Fitness Club, 3.53 p.m. peak hour trips per KSF
- Residential. ITE Code 221, Low-Rise Apartment, 0.58 p.m. peak hour trips per dwelling unit
- Subarea 2 (Pendleton Site) Retail. ITE Code 820, Shopping Center, 3.71 p.m. peak hour trips per KSF

The General Office (710) use meets the ITE guidelines for using the given fitted curve equation rather than specific trip generation rates. The equation for Code 710 was applied to the total leasable office space in the study area, and then the trips derived from the equation were allocated proportionately back to the subareas. All other land uses relied on rates per 1,000 square feet or dwelling unit. For the Sit-Down Restaurant (932) Shopping Center (820) uses, it is appropriate to apply a reduction for “pass-by” trips (trips attracting motorists who are already on the street). The pass-by reduction applied for code 932 is 43%, and for code 820 it is 34%.

Additionally, a 30% reduction from ITE rates for trips generated north of Stubb Street was included for the Preferred Scenario, given certain conditions in Metro’s Urban Growth Management Functional Plan being met for Station Areas. This resulted in an a reduction of 44 trips from Subarea 1, 19 trips from Subarea 2, and 56 trips from Subarea 3A, for total reduction of 119 trips. Final trip generation totals are shown in Table 2, below.

Table 2: Trip Generation Estimates (PM Peak Hour)

Existing Land Use	Subarea 1	Subarea 2	Subarea 3a	Subarea 3b	Subarea 4	TOTAL
Light Industrial (110)	24	6	23	33	193	279
General Office (710)	99	20	80	112	665	976
Sit-Down Restaurant (932)	24	6	23	32	189	273
Health/Fitness Club (492)	13	3	13	18	105	152
TOTAL	160	34	139	194	1152	1680
Preferred Scenario	Subarea 1	Subarea 2	Subarea 3a	Subarea 3b	Subarea 4	TOTAL
Light Industrial (110)	18	0	25	41	193	277
General Office (710)	27	10	36	60	667	800
Sit-Down Restaurant (932)	22	0	46	76	190	334
Health/Fitness Club (492)	13	0	25	42	105	185
Shopping Center (820)	0	36	0	0	0	36
Low-Rise Apartment (221)	26	0	4	6	0	36
TOTAL	106	46	136	225	1155	1668

The reasonable worst case of land uses for the Preferred Scenario generates 12 fewer trips than the existing Manufacturing zoning. The Preferred Scenario includes more retail, which typically yields high trip generation, but this is offset by new residential uses and less office than in the existing zoning, along with the 30% trip reduction.

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Appendix B: Redevelopment Scenario Evaluation Matrix

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Following is a table summarizing the results of an evaluation of three redevelopment scenarios that were prepared and evaluated during a previous phase of the Tacoma Station Area planning project. Evaluation Criteria also were developed during an earlier phase of the effort. This evaluation was used to inform and help develop a preferred plan for the Tacoma Station Area which is described in the body of the Plan.

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)	★ ★	★ ★	★ ★ ★
		<ul style="list-style-type: none"> Major events could cause traffic disruptions affecting freight operations Realignment of northern portion of Main Street would affect freight access from Ochoco Street 	<ul style="list-style-type: none"> Typical commute period traffic would have some impact on freight operations, but would be fairly predictable Represents most significant traffic impacts of all scenarios 	<ul style="list-style-type: none"> Largely maintains current industrial uses
		<ul style="list-style-type: none"> 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)	★ ★	★ ★	★
		<ul style="list-style-type: none"> People often take transit to major events; however usage would be low between events 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Represents least transit supportive land use mix Limited redevelopment potential would reduce potential for funding transportation improvements
		<ul style="list-style-type: none"> 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)	✓	✓	✗
	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)	★	★ ★ ★	★ ★
		<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Focus is on office and flex uses, which are typically denser than industrial uses and include high-paying jobs 	<ul style="list-style-type: none"> 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 Station 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 • Unable to quantify further at this time; may further evaluate in subsequent tasks	★ ★ ★ • 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

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)	★	★★★	★★
		<ul style="list-style-type: none"> Large civic/entertainment facility on Opportunity Site B will decrease connectivity through the site 	<ul style="list-style-type: none"> Redevelopment of Opportunity Site B will provide a new street connection and new bike/ped paths through the site 	<ul style="list-style-type: none"> Renovation of part of Opportunity Site B will provide new pedestrian connections on part of the site
		<ul style="list-style-type: none"> 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)	★★★	★★★	★
		<ul style="list-style-type: none"> Increased density of office and commercial uses is expected to improve non-motor vehicle mode share somewhat 	<ul style="list-style-type: none"> Diverse mix of uses near Tacoma Station is expected to boost pedestrian and bicycle mode share the most among alternatives 	<ul style="list-style-type: none"> 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)	✘	✘	✘	
	<ul style="list-style-type: none"> 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)	★★★	★★★	★★★	
	<ul style="list-style-type: none"> 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)	✓	✓	✓	
	<ul style="list-style-type: none"> Traffic mitigations can be addressed either through down-zoning in the Station Area south of Mailwell Drive, or with smaller operational improvements on 99E (not mainline capacity improvements) 			

Goal	Evaluation Measure	Scenario 1	Scenario 2	Scenario 3
		Large civic/ entertainment use	Intensive employment use	Modest land use changes
Transportation	T-6: The total vehicle miles traveled generated within the Station 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 • 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	N/A • 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 • The Plan is not expected to result in new vehicle trips on the interchange sufficient to degrade safety at the Tacoma Street interchange.	N/A	N/A
	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.

Appendix C: Transportation Project Cost Estimate Details

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Milwaukie Tacoma Station Area Plan

Cost Estimate Summary

1) Changes to cross section on Main Street -- assumes 64' north of Beta, 45' south of Milport.

Distance = 4110 ft
 Width= 45 (avg) ft

Project Description:

	UNITS	UNIT COSTS	ESTIMATED COST
Remove Pavement	184950 SF	\$ 0.33	\$ 61,034
Clear & Grub	0 SF	\$ 0.05	\$ -
Remove Curb	5270 LF	\$ 10.00	\$ 52,700
Remove Sidewalk	31620 SF	\$ 1.50	\$ 47,430
Grading	0 SF	\$ 1.25	\$ -
Pavement	114980 SF	\$ 8.00	\$ 919,840
Pavement Elevated/Subgrade	0 SF	\$ 150.00	\$ -
Sidewalk	66120 SF	\$ 4.00	\$ 264,480
Right of Way	5200 SF	\$ 20.00	\$ 104,000
Curb and gutter	5270 LF	\$ 14.00	\$ 73,780
Landscaping	4110 LF	\$ 12.00	\$ 49,320
Wall	0 LF	\$ 120.00	\$ -
Lighting	5270 LF	\$ 60.00	\$ 316,200
Full Drainage	0 LF	\$ 100.00	\$ -
Drainage Modifications	5270 LF	\$ 25.00	\$ 131,750
Driveway Adjustments	4 Driveways	\$ 2,000.00	\$ 8,000
Roundabouts	0 EA	\$ 500,000	\$ -
Traffic Signals	0 Unit	\$ 300,000.00	\$ -
Signing and Striping	0 EA	\$ 500.00	\$ -
Signing and Striping	4110 LF	\$ 3.00	\$ 12,330
SUBTOTAL			\$ 2,040,864
Traffic Control		5%	\$ 102,043
Mobilization		10%	\$ 204,086
Design/Administration/Management		15%	\$ 306,130
Contingency		25%	\$ 510,216
Project Development		5%	\$ 102,043
Sales Tax		0.0%	\$ -

PROJECT COST:	\$ 3,265,382
	\$ 3,265,000

Notes: High contingencies are due to uncertainty regarding storm drainage/utility needs.
 Storm drain base cost = \$75.00/LF, assumes storm drain connections only at \$28.00/LF.
 These issues should be further resolved in project development. Assumes no ROW costs.
 Note: Costs are for constant 2005 dollars; annual adjustments are necessary to address inflation to get to year of construction project estimates (presently 3 to 4 % per year is adequate)

DKS Associates

4/4/13 10:49

**Milwaukie Tacoma Station Area Plan
Cost Estimate Summary**

Project Name:		"Bike/Ped Connection from Eastern Neighborhoods"			
Project Number*:		2			
Date		12/28/2012			
Prepared by:		Alta Planning + Design			
Item	Comments	Quantity	Units	Unit Cost	Total
Bike/ped undercrossing		600	LF	\$4,000.00	\$2,400,000
Grading		150	SY	\$10.00	\$1,500
Excavation		150	SY	\$16.00	\$2,400
Clearing and grubbing		400	SF	\$0.50	\$200
Erosion controls	Both sides, length of project	800	LF	\$1.50	\$1,200
Catch basin		10	EA	\$1,500.00	\$15,000
Path lighting	Ped height lighting	600	LF	\$125.00	\$75,000
		Total Estimated Construction Cost			\$ 2,495,300
Multipliers (expressed as a proportion of the construction cost)**					
Design/Administration (15%)					\$ 374,295
Contingency (25%)					\$ 623,825
Mobilization (10%)					\$ 249,530
Traffic Control (5%)					\$ 124,765
Project Development (5%)					\$ 124,765
		Multipliers Total			\$ 1,497,180
					GRAND TOTAL *** \$ 3,992,480

* Project numbers gleaned from the TSAP Redevelopment Scenarios Evaluation Report, pages 20-22.

** Note: "Zero" values indicate non-applicable multipliers.

*** Construction cost plus multipliers.

Milwaukie Tacoma Station Area Plan Cost Estimate Summary

Project Name:		"Improved Connection between Springwater Trail and Sherrett Street"			
Project Number*:		3			
Date		12/28/2012			
Prepared by:		Alta Planning + Design			
Item					
Comments		Quantity	Units	Unit Cost	Total
Shared use path		125	LF	\$108.00	\$13,500
Erosion controls		250	LF	\$1.50	\$375
Topsoil shoulders		500	CF	\$1.85	\$925
Total Estimated Construction Cost					\$ 14,800
Multipliers (expressed as a proportion of the construction cost)**					
Design/Administration (15%)					\$ 2,220
Contingency (25%)					\$ 3,700
Mobilization (10%)					\$ 1,480
Traffic Control (5%)					\$ 740
Project Development (5%)					\$ 740
Multipliers Total					\$ 8,880
GRAND TOTAL***					\$ 23,680

* Project numbers gleaned from the TSAP Redevelopment Scenarios Evaluation Report, pages 20-22.

** Note: "Zero" values indicate non-applicable multipliers.

*** Construction cost plus multipliers.

**Milwaukie Tacoma Station Area Plan
Cost Estimate Summary**

4) Pedestrian bridge over 99E at Umatilla Street

Project Description:

LOW

	UNITS	UNIT COSTS	ESTIMATED COST
Pedestrian bridge	1 EA	\$ 1,200,000.00	\$ 1,200,000
SUBTOTAL			\$ 1,200,000
Traffic Control			5% \$ 60,000
Mobilization			10% \$ 120,000
Design/Administration/Management			15% \$ 180,000
Contingency			25% \$ 300,000
Project Development			5% \$ 60,000
Sales Tax			0.0% \$ -

PROJECT COST:	\$ 1,920,000
	\$ 1,920,000

DKS Associates
4/4/2013 14:40

Milwaukie Tacoma Station Area Plan Cost Estimate Summary

Project Name:		"Improve Existing Connection from Springwater to Pendleton Site"			
Project Number*:		5A			
Date		12/28/2012			
Prepared by:		Alta Planning + Design			
Item	Comments	Quantity	Units	Unit Cost	Total
Shared use path (ramp, north side)	10' wide asphalt	550	LF	\$90.00	\$49,500
Shared use path (ramp, south side)	10' wide asphalt	550	LF	\$90.00	\$49,500
Retaining Wall		1,100	LF	\$120.00	\$132,000
Grading		1,100	SY	\$10.00	\$11,000
Erosion controls	Both sides, length of project	1,100	LF	\$1.50	\$1,650
Sedimentation controls	Hay bales	1,100	LF	\$7.15	\$7,865
Topsoil shoulders	2' wide, each side of path	2,200	CF	\$1.85	\$4,070
Path lighting	Ped height lighting	1,100	LF	\$125.00	\$137,500
		Total Estimated Construction Cost			\$ 393,085
Multipliers (expressed as a proportion of the construction cost)**					
Design/Administration (15%)					\$ 58,963
Contingency (25%)					\$ 98,271
Mobilization (10%)					\$ 39,309
Traffic Control (5%)					\$ 19,654
Project Development (5%)					\$ 19,654
				Multipliers Total	\$ 235,851
GRAND TOTAL***					\$ 628,936

* Project numbers gleaned from the TSAP Redevelopment Scenarios Evaluation Report, pages 20-22.

** Note: "Zero" values indicate non-applicable multipliers.

*** Construction cost plus multipliers.

Milwaukie Tacoma Station Area Plan Cost Estimate Summary

5B) Bike/ped connection along 99E under Springwater
Distance = ft

Project Description:

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	UNITS	UNIT COSTS	ESTIMATED COST
Remove Pavement	0 SF	\$ 0.33	\$ -
Clear & Grub	5000 SF	\$ 0.05	\$ 250
Remove Curb	0 LF	\$ 10.00	\$ -
Remove Sidewalk	2400 SF	\$ 1.50	\$ 3,600
Grading	5000 SF	\$ 1.25	\$ 6,250
Pavement	0 SF	\$ 8.00	\$ -
Pavement Elevated/Subgrade	0 SF	\$ 150.00	\$ -
Sidewalk	2400 SF	\$ 4.00	\$ 9,600
Curb and gutter	0 LF	\$ 14.00	\$ -
Landscaping	200 LF	\$ 12.00	\$ 2,400
Wall	200 LF	\$ 120.00	\$ 24,000
Lighting	50 LF	\$ 60.00	\$ 3,000
Full Drainage	0 LF	\$ 100.00	\$ -
Drainage Modifications	200 LF	\$ 25.00	\$ 5,000
Driveway Adjustments	0 Driveways	\$ 2,000.00	\$ -
Roundabouts	0 EA	\$500,000	\$ -
Traffic Signals	0 Unit	\$ 300,000.00	\$ -
Signing and Striping	2 EA	\$ 500.00	\$ 1,000
Signing and Striping	0 LF	\$ 3.00	\$ -
SUBTOTAL			\$ 55,100
Traffic Control		5%	\$ 2,755
Mobilization		10%	\$ 5,510
Design/Administration/Management		15%	\$ 8,265
Contingency		50%	\$ 27,550
Project Development		5%	\$ 2,755
Sales Tax		0.0%	\$ -
Right Of Way	0 SF	\$ 20.00	\$ -

PROJECT COST:	\$ 101,935
rounded	\$ 100,000

Notes: High contingencies are due to uncertainty regarding storm drainage/utility needs.
Storm drain base cost = \$75.00/LF, assumes storm drain connections only at \$28.00/LF.
These issues should be further resolved in project development. Assumes no ROW costs.
Note: Costs are for constant 2005 dollars; annual adjustments are necessary to address inflation to get to year of construction project estimates (presently 3 to 4 % per year is adequate)

DKS Associates
1/18/2013 11:09

**Milwaukie Tacoma Station Area Plan
Cost Estimate Summary**

Project Name:		"Bike/Ped Connection under Springwater Trail"			
Project Number*:		5C			
Date		12/28/2012			
Prepared by:		Alta Planning + Design			
Item					
Comments		Quantity	Units	Unit Cost	Total
Bike/ped undercrossing		175	LF	\$4,000.00	\$700,000
Grading		300	SY	\$10.00	\$3,000
Excavation		300	SY	\$16.00	\$4,800
Clearing and grubbing		400	SF	\$0.50	\$200
Erosion controls		800	LF	\$1.50	\$1,200
Catch basin		10	EA	\$1,500.00	\$15,000
Path lighting		200	LF	\$125.00	\$25,000
		Total Estimated Construction Cost			\$ 749,200
Multipliers (expressed as a proportion of the construction cost)**					
Design/Administration (15%)					\$ 112,380
Contingency (25%)					\$ 187,300
Mobilization (10%)					\$ 74,920
Traffic Control (5%)					\$ 37,460
Project Development (5%)					\$ 37,460
		Multipliers Total			\$ 449,520
					GRAND TOTAL*** \$ 1,198,720

* Project numbers gleaned from the TSAP Redevelopment Scenarios Evaluation Report, pages 20-22.

** Note: "Zero" values indicate non-applicable multipliers.

*** Construction cost plus multipliers.

Cost Estimate Summary

6) Stairway to Station
Distance = ft

Project Description:

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	UNITS	UNIT COSTS	ESTIMATED COST
Remove Pavement	0 SF	\$ 0.33	\$ -
Clear & Grub	1000 SF	\$ 0.05	\$ 50
Remove Curb	0 LF	\$ 10.00	\$ -
Remove Sidewalk	500 SF	\$ 1.50	\$ 750
Grading	1000 SF	\$ 1.25	\$ 1,250
Pavement	0 SF	\$ 8.00	\$ -
Pavement Elevated/Subgrade	0 SF	\$ 150.00	\$ -
Sidewalk	2000 SF	\$ 4.00	\$ 8,000
Curb and gutter	100 LF	\$ 14.00	\$ 1,400
Landscaping	100 LF	\$ 12.00	\$ 1,200
Wall	100 LF	\$ 120.00	\$ 12,000
Lighting	100 LF	\$ 60.00	\$ 6,000
Full Drainage	100 LF	\$ 100.00	\$ 10,000
Drainage Modifications	0 LF	\$ 25.00	\$ -
Driveway Adjustments	0 Driveways	\$ 2,000.00	\$ -
Roundabouts	0 EA	\$ 500,000	\$ -
Traffic Signals	0 Unit	\$ 300,000.00	\$ -
Signing and Striping	2 EA	\$ 500.00	\$ 1,000
Signing and Striping	0 LF	\$ 3.00	\$ -
SUBTOTAL			\$ 41,650
			5% \$ 2,083
			10% \$ 4,165
			15% \$ 6,248
			50% \$ 20,825
			5% \$ 2,083
			0.0% \$ -
Right Of Way	0 SF	\$ 20.00	\$ -
PROJECT COST:			\$ 77,053
rounded			\$ 75,000

Notes: High contingencies are due to uncertainty regarding storm drainage/utility needs.
 Storm drain base cost = \$75.00/LF, assumes storm drain connections only at \$28.00/LF.
 These issues should be further resolved in project development. Assumes no ROW costs.
 Note: Costs are for constant 2012 dollars; annual adjustments are necessary to address inflation to get to year of construction project estimates (presently 3 to 4 % per year is adequate)

DKS Associates
2/7/2013 10:29

**Milwaukie Tacoma Station Area Plan
Cost Estimate Summary**

7) Stairway
Distance = ft

Project Description:

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	UNITS	UNIT COSTS		ESTIMATED COST
Remove Pavement	0 SF	\$ 0.33	\$	-
Clear & Grub	0 SF	\$ 0.05	\$	-
Remove Curb	0 LF	\$ 10.00	\$	-
Remove Sidewalk	0 SF	\$ 1.50	\$	-
Grading	0 SF	\$ 1.25	\$	-
Pavement	0 SF	\$ 8.00	\$	-
Pavement Elevated/Subgrade	0 SF	\$ 150.00	\$	-
Sidewalk	0 SF	\$ 4.00	\$	-
Curb and gutter	0 LF	\$ 14.00	\$	-
Landscaping	0 LF	\$ 12.00	\$	-
Wall	0 LF	\$ 120.00	\$	-
Lighting	0 LF	\$ 60.00	\$	-
Full Drainage	0 LF	\$ 100.00	\$	-
Drainage Modifications	0 LF	\$ 25.00	\$	-
Driveway Adjustments	0 Driveways	\$ 2,000.00	\$	-
Roundabouts	0 EA	\$ 500,000	\$	-
Traffic Signals	0 Unit	\$ 300,000.00	\$	-
Signing and Striping	0 EA	\$ 500.00	\$	-
Signing and Striping	0 LF	\$ 3.00	\$	-
SUBTOTAL			\$	-
Traffic Control			5%	\$ -
Mobilization			10%	\$ -
Design/Administration/Management			15%	\$ -
Contingency			25%	\$ -
Project Development			5%	\$ -
Sales Tax			0.0%	\$ -
Right Of Way	0 SF	\$ 20.00	\$	-

PROJECT COST:			\$ 500,000
	rounded		\$ 500,000

Notes: High contingencies are due to uncertainty regarding storm drainage/utility needs.
Storm drain base cost = \$75.00/LF, assumes storm drain connections only at \$28.00/LF.
These issues should be further resolved in project development. Assumes no ROW costs.
Note: Costs are for constant 2012 dollars; annual adjustments are necessary to address inflation to get to year of construction project estimates (presently 3 to 4 % per year is adequate)

DKS Associates
2/7/2013 10:29

**Milwaukie Tacoma Station Area Plan
Cost Estimate Summary**

8) Intersection improvements @ Ochoco/McLoughlin & Milport/McLoughlin

Project Description:

LOW				HIGH			
	UNITS	UNIT COSTS	ESTIMATED COST		UNIT COSTS	ESTIMATED COST	
Add SBLT @ Ochoco	1 EA	\$ 2,400,000.00	\$ 2,400,000		\$ 4,200,000.00	\$ 4,200,000	
Flatten NW corner @ Ochoco	1 EA	\$ 1,600,000.00	\$ 1,600,000		\$ 1,700,000.00	\$ 1,700,000	
Both modifications @ Ochoco	1 EA	\$ 3,400,000.00	\$ 3,400,000		\$ 5,200,000.00	\$ 5,200,000	
Remove Pavement	0 SF	\$ 0.33	\$ -		\$ 0.33	\$ -	
Clear & Grub	0 SF	\$ 0.05	\$ -		\$ 0.05	\$ -	
Remove Curb	0 LF	\$ 10.00	\$ -		\$ 10.00	\$ -	
Remove Sidewalk	0 SF	\$ 1.50	\$ -		\$ 1.50	\$ -	
Grading	0 SF	\$ 1.25	\$ -		\$ 1.25	\$ -	
Pavement	0 SF	\$ 8.00	\$ -		\$ 8.00	\$ -	
Pavement Elevated/Subgrade	0 SF	\$ 150.00	\$ -		\$ 150.00	\$ -	
Sidewalk	0 SF	\$ 4.00	\$ -		\$ 4.00	\$ -	
Curb and gutter	0 LF	\$ 14.00	\$ -		\$ 14.00	\$ -	
Landscaping	0 LF	\$ 12.00	\$ -		\$ 12.00	\$ -	
Wall	0 LF	\$ 120.00	\$ -		\$ 120.00	\$ -	
Lighting	0 LF	\$ 60.00	\$ -		\$ 60.00	\$ -	
Full Drainage	0 LF	\$ 100.00	\$ -		\$ 100.00	\$ -	
Drainage Modifications	0 LF	\$ 25.00	\$ -		\$ 25.00	\$ -	
Driveway Adjustments	0 Driveways	\$ 2,000.00	\$ -		\$ 2,000.00	\$ -	
Roundabouts	0 EA	\$ 500,000	\$ -		\$ 500,000	\$ -	
Traffic Signals	0 Unit	\$ 300,000.00	\$ -		\$ 300,000.00	\$ -	
Signing and Striping	0 EA	\$ 500.00	\$ -		\$ 500.00	\$ -	
Signing and Striping	0 LF	\$ 3.00	\$ -		\$ 3.00	\$ -	
SUBTOTAL			\$ 3,400,000			\$ 5,200,000	
Traffic Control		5%	\$ 170,000		5%	\$ 260,000	
Mobilization		10%	\$ 340,000		10%	\$ 520,000	
Design/Administration/Management		15%	\$ 510,000		15%	\$ 780,000	
Contingency		25%	\$ 850,000		25%	\$ 1,300,000	
Project Development		5%	\$ 170,000		5%	\$ 260,000	
Sales Tax		0.0%	\$ -		0.0%	\$ -	
Right Of Way	0 SF	\$ 20.00	\$ -		\$ 20.00	\$ -	
PROJECT COST:			\$ 5,440,000				\$ 8,320,000
			\$ 5,440,000 rounded				\$ 8,320,000

Notes: High contingencies are due to uncertainty regarding storm drainage/utility needs.
Storm drain base cost = \$75.00/LF, assumes storm drain connections only at \$28.00/LF.
These issues should be further resolved in project development. Assumes no ROW costs.
Note: Costs are for constant 2012 dollars; annual adjustments are necessary to address inflation to get to year of construction project estimates (presently 3 to 4 % per year is adequate)

DKS Associates
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Milwaukie Tacoma Station Area Plan Cost Estimate Summary

9) Truck signage and intersection improvements @ Ochoco/McLoughlin

Project Description:

	ESTIMATED COST (Low)	ESTIMATED COST (High)
Cantilever Sign North of Springwater Bridge	\$ 295,000	\$ 325,000
Cantilever Sign North of Springwater Bridge and Improvements	\$ 390,000	\$ 430,000
Cantilever Sign North of Springwater Bridge and Improvements	\$ 1,450,000	\$ 1,600,000
PROJECT COST:	\$ 2,135,000	\$ 2,355,000

Source: Oregon Department of Transportation Region 1

**Milwaukie Tacoma Station Area Plan
Cost Estimate Summary**

Project Name:		"New Bike/Ped Connection over Johnson Creek"			
Project Number*:		11			
Date		12/28/2012			
Prepared by:		Alta Planning + Design			
Item	Comments	Quantity	Units	Unit Cost	Total
Bike/ped overcrossing	Bridge over Johnson Creek	75	LF	\$3,500.00	\$262,500
Shared use path	12' wide asphalt (south of creek)	100	LF	\$108.00	\$10,800
Clearing and grubbing		100	SF	\$0.50	\$50
Topsoil shoulders	2' wide, each side of path	200	CF	\$1.85	\$370
		Total Estimated Construction Cost			\$ 273,720
Multipliers (expressed as a proportion of the construction cost)**					
Design/Administration (15%)					\$ 41,058
Contingency (25%)					\$ 68,430
Mobilization (10%)					\$ 27,372
Traffic Control (5%)					\$ 13,686
Project Development (5%)					\$ 13,686
			Multipliers Total		\$ 164,232
GRAND TOTAL***					\$ 437,952

* Project numbers gleaned from the TSAP Redevelopment Scenarios Evaluation Report, pages 20-22.

** Note: "Zero" values indicate non-applicable multipliers.

*** Construction cost plus multipliers.

Milwaukie Tacoma Station Area Plan Cost Estimate Summary

12) Local street connections
Distance = ft

Project Description:

--

	UNITS	UNIT COSTS	ESTIMATED COST
Remove Pavement	180000 SF	\$ 0.33	\$ 59,400
Clear & Grub	0 SF	\$ 0.05	\$ -
Remove Curb	0 LF	\$ 10.00	\$ -
Remove Sidewalk	0 SF	\$ 1.50	\$ -
Grading	180000 SF	\$ 1.25	\$ 225,000
Pavement	126000 SF	\$ 8.00	\$ 1,008,000
Pavement Elevated/Subgrade	0 SF	\$ 150.00	\$ -
Sidewalk	43200 SF	\$ 4.00	\$ 172,800
Curb and gutter	7200 LF	\$ 14.00	\$ 100,800
Landscaping	7200 LF	\$ 12.00	\$ 86,400
Wall	0 LF	\$ 120.00	\$ -
Lighting	7200 LF	\$ 60.00	\$ 432,000
Full Drainage	7200 LF	\$ 100.00	\$ 720,000
Drainage Modifications	0 LF	\$ 25.00	\$ -
Driveway Adjustments	4 Driveways	\$ 2,000.00	\$ 8,000
Roundabouts	0 EA	\$500,000	\$ -
Traffic Signals	0 Unit	\$ 300,000.00	\$ -
Signing and Striping	5 EA	\$ 500.00	\$ 2,500
Signing and Striping	3600 LF	\$ 3.00	\$ 10,800
SUBTOTAL			\$ 2,825,700
Traffic Control			5% \$ 141,285
Mobilization			10% \$ 282,570
Design/Administration/Management			15% \$ 423,855
Contingency			25% \$ 706,425
Project Development			5% \$ 141,285
Sales Tax			0.0% \$ -
Right Of Way	180000 SF	\$ 20.00	\$ 3,600,000

PROJECT COST:		\$ 8,121,120
	rounded	\$ 8,120,000

Notes: High contingencies are due to uncertainty regarding storm drainage/utility needs.
Storm drain base cost = \$75.00/LF, assumes storm drain connections only at \$28.00/LF.
These issues should be further resolved in project development. Assumes no ROW costs.
Note: Costs are for constant 2012 dollars; annual adjustments are necessary to address inflation to get to year of construction project estimates (presently 3 to 4 % per year is adequate)

DKS Associates
2/7/2013 10:29

Milwaukie Tacoma Station Area Plan Cost Estimate Summary

Project Name:		"Future Bike Share Station and Car Share Spaces"			
Project Number*:		13			
Date		12/28/2012			
Prepared by:		Alta Planning + Design			
Item					
Comments		Quantity	Units	Unit Cost	Total
Bike share station	6 bikes, 11 docks	1	EA	\$45,000.00	\$45,000
Car share parking stalls signage	Assumes 4 car share parking spaces	4	EA	\$300.00	\$1,200
				Total Estimated Construction Cost	\$ 46,200
Multipliers (expressed as a proportion of the construction cost)**					
Design/Administration (15%)					\$ 6,930
Contingency (25%)					\$ 11,550
Mobilization (10%)					\$ 4,620
Traffic Control (5%)					\$ -
Project Development (5%)					\$ 2,310
				Multipliers Total	\$ 25,410
					GRAND TOTAL*** \$ 71,610

* Project numbers gleaned from the TSAP Redevelopment Scenarios Evaluation Report, pages 20-22.

** Note: "Zero" values indicate non-applicable multipliers.

*** Construction cost plus multipliers.

Milwaukie Tacoma Station Area Plan

Cost Estimate Summary

14) Changes in cross-section for local streets
 Distance = ft

Project Description:

	UNITS	UNIT COSTS	ESTIMATED COST
Remove Pavement	255250 SF	\$ 0.33	\$ 84,233
Clear & Grub	255250 SF	\$ 0.05	\$ 12,763
Remove Curb	8900 LF	\$ 10.00	\$ 89,000
Remove Sidewalk	255250 SF	\$ 1.50	\$ 382,875
Grading	0 SF	\$ 1.25	\$ -
Pavement	178675 SF	\$ 8.00	\$ 1,429,400
Pavement Elevated/Subgrade	0 SF	\$ 150.00	\$ -
Sidewalk	51050 SF	\$ 4.00	\$ 204,200
Curb and gutter	8900 LF	\$ 14.00	\$ 124,600
Landscaping	8900 LF	\$ 12.00	\$ 106,800
Wall	0 LF	\$ 120.00	\$ -
Lighting	8900 LF	\$ 60.00	\$ 534,000
Full Drainage	0 LF	\$ 100.00	\$ -
Drainage Modifications	8900 LF	\$ 25.00	\$ 222,500
Driveway Adjustments	40 Driveways	\$ 2,000.00	\$ 80,000
Roundabouts	0 EA	\$500,000	\$ -
Traffic Signals	0 Unit	\$ 300,000.00	\$ -
Signing and Striping	0 EA	\$ 500.00	\$ -
Signing and Striping	8900 LF	\$ 3.00	\$ 26,700
SUBTOTAL			\$ 3,297,070
Traffic Control		5%	\$ 164,854
Mobilization		10%	\$ 329,707
Design/Administration/Management		15%	\$ 494,561
Contingency		25%	\$ 824,268
Project Development		5%	\$ 164,854
Sales Tax		0.0%	\$ -
Right Of Way	0 SF	\$ 20.00	\$ -

PROJECT COST:	\$ 5,275,312
rounded	\$ 5,275,000

Notes: High contingencies are due to uncertainty regarding storm drainage/utility needs.
 Storm drain base cost = \$75.00/LF, assumes storm drain connections only at \$28.00/LF.
 These issues should be further resolved in project development. Assumes no ROW costs.
 Note: Costs are for constant 2012 dollars; annual adjustments are necessary to address inflation to get to year of construction project estimates (presently 3 to 4 % per year is adequate)

DKS Associates
 2/7/2013 10:29

Milwaukie Tacoma Station Area Plan Cost Estimate Summary

Project Name:	"Improve Bike/Ped Connections along Ochoco Street and Milport Road"				
Project Number*:	15				
Date	12/28/2012				
Prepared by:	Alta Planning + Design				
Item	Comments	Quantity	Units	Unit Cost	Total
Concrete curb and gutter	North side of Ochoco	800	LF	\$30.00	\$24,000
Sidewalk	North side of Ochoco (6' wide)	800	LF	\$48.00	\$38,400
Storm sewer pipe	North side of Ochoco	800	LF	\$50.00	\$40,000
Storm manhole	North side of Ochoco	2	EA	\$2,500.00	\$5,000
Catch basin	North side of Ochoco	2	EA	\$1,500.00	\$3,000
Concrete curb and gutter	South side of Milport	1,200	LF	\$30.00	\$36,000
Sidewalk	South side of Milport	1,200	LF	\$48.00	\$57,600
Storm sewer pipe	South side of Milport (6' wide)	1,200	LF	\$50.00	\$60,000
Storm manhole	South side of Milport	4	EA	\$2,500.00	\$10,000
Catch basin	South side of Milport	4	EA	\$1,500.00	\$6,000
Curb ramp	South side of Milport	4	EA	\$2,500.00	\$10,000
Prefabricated bridge	South side of Milport (over Johnson Cr.)	1	EA	\$35,000.00	\$35,000
		Total Estimated Construction Cost			\$ 325,000
Multipliers (expressed as a proportion of the construction cost)**					
Design/Administration (15%)					\$ 48,750
Contingency (25%)					\$ 81,250
Mobilization (10%)					\$ 32,500
Traffic Control (5%)					\$ 16,250
Project Development (5%)					\$ 16,250
				Multipliers Total	\$ 195,000
					GRAND TOTAL*** \$ 520,000

* Project numbers gleaned from the TSAP Redevelopment Scenarios Evaluation Report, pages 20-22.

** Note: "Zero" values indicate non-applicable multipliers.

*** Construction cost plus multipliers.

Milwaukie Tacoma Station Area Plan Cost Estimate Summary

Project Name:		"Connection from SE 29th Ave. to Springwater Corridor"			
Project Number*:		16			
Date		12/28/2012			
Prepared by:		Alta Planning + Design			
Item					
Comments		Quantity	Units	Unit Cost	Total
Regulatory signs	Every 400', each direction	22	EA	\$300.00	\$6,600
Pavement markings	Every 200', each direction, thermo.	45	EA	\$200.00	\$9,000
Turn stop signs	8 signs per mile (4 intersections)	8	EA	\$150.00	\$1,200
Speed humps	Every 800'	6	EA	\$2,000.00	\$12,000
					\$0
<i>Note: Improvements apply to segments of Van Water, 29th, and Balfour between Sherrett and 32nd</i>					\$0
<i>Note: corridor is 4,500' long</i>					\$0
Total Estimated Construction Cost					\$ 28,800
Multipliers (expressed as a proportion of the construction cost)**					
Design/Administration (15%)					\$ 4,320
Contingency (25%)					\$ 7,200
Mobilization (10%)					\$ 2,880
Traffic Control (5%)					\$ 1,440
Project Development (5%)					\$ 1,440
Multipliers Total					\$ 17,280
GRAND TOTAL ***					\$ 46,080

* Project numbers gleaned from the TSAP Redevelopment Scenarios Evaluation Report, pages 20-22.

** Note: "Zero" values indicate non-applicable multipliers.

*** Construction cost plus multipliers.

Milwaukie Tacoma Station Area Plan Cost Estimate Summary

Project Name:		"Bike/Ped Connection between McLoughlin Boulevard and Stubb Street"			
Project Number*:		17			
Date		12/28/2012			
Prepared by:		Alta Planning + Design			
Item	Comments	Quantity	Units	Unit Cost	Total
Shared use path	12' wide asphalt	80	LF	\$108.00	\$8,640
Curb ramp	Connection to Stubb Street	1	EA	\$2,500.00	\$2,500
Total Estimated Construction Cost					\$ 11,140
Multipliers (expressed as a proportion of the construction cost)**					
Design/Administration (15%)					\$ 1,671
Contingency (50%)					\$ 5,570
Mobilization (10%)					\$ 1,114
Traffic Control (5%)					\$ -
Project Development (5%)					\$ 557
Multipliers Total					\$ 8,912
GRAND TOTAL***					\$ 20,052

* Project numbers gleaned from the TSAP Redevelopment Scenarios Evaluation Report, pages 20-22.

** Note: "Zero" values indicate non-applicable multipliers.

*** Construction cost plus multipliers.

Appendix D: Draft Amendments to Manufacturing (M) Zone

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MEMORANDUM

DATE: April 3, 2013

TO: Milwaukie Tacoma Station Area Plan Project Management Team

FROM: Matt Hastie, Angelo Planning Group
Serah Breakstone, Angelo Planning Group

**SUBJECT: Tacoma Station Area Plan
DRAFT Manufacturing Zone Revisions**

The purpose of this memorandum is to recommend revisions to Milwaukie’s Manufacturing (M) zone in order to address existing deficiencies and support implementation of the Tacoma Station Area Plan (Plan). Land within the Plan study area is currently zoned for manufacturing uses under Section 19.309 of the city’s zoning code. Land use analyses¹ conducted for the study area in 2002 and 2011 concluded that manufacturing uses, including flexible industrial space and office uses, remain the most appropriate uses for the study area. However, the city has identified several issues with its existing manufacturing zone that make it difficult to implement and present barriers to efficiently regulating and developing the area. Those issues are described in a 2009 code audit² and are briefly summarized below:

- The M zone lists uses that are permitted, permitted conditionally, or prohibited. Clear definitions or descriptions of those uses are not provided which makes it difficult for staff to determine if a use is allowed or to make a “similar use” determination for those uses that are not listed.
- The M zone lacks clear and objective development standards intended to preserve the zone primarily for industrial uses.
- The zone requires that combined uses provide at least ten employees per net acre on every site, but the code lacks guidance for calculating employment density and monitoring or enforcing the standard.

¹ *Land Use Analysis for Milwaukie’s North Industrial Area*, Hobson Ferrarini Associates, November 2002 and *SE McLoughlin Best Use Study*, Kidder Mathews, July 2011.

² *Milwaukie Code Evaluation Report*, Angelo Planning Group, July 2009.

- Size limitations for retail space currently only apply to areas within the Title 4 “Employment Area” boundary, which is limited in its scope.

Recommended amendments to the Manufacturing zone are presented in Attachment A of this memorandum and are intended to address the issues described above. Those recommended amendments are summarized below:

- The amendments define general categories of land uses that are allowed outright or conditionally. Examples of uses for each category are also provided. Some of the recommended categories include uses that are not allowed under the current code; city staff will need to carefully review the list to ensure it is suitable.
- Retail, professional service and office uses are allowed only where they are accessory to the primary uses permitted in the Manufacturing zone. The recommended amendments would limit the size of individual retail and office spaces.
- Recommended amendments include new development standards to regulate outdoor storage uses, location of parking and loading areas, external effects, and mechanical equipment. In addition, a reference to the supplemental development standards in Chapter 19.500 is included.
- The transition area review requirement is deleted and will be replaced by more clear and objective standards.

The Tacoma Station Area Plan project will evaluate additional code amendments needed to promote an active station area community and encourage redevelopment, consistent with the goals and objectives of the Plan. The draft M zone code presented with this memo is intended to be a reasonable baseline that could apply to the entire M zone area, and from which the city may develop additional policies to implement the Plan redevelopment scenarios.

The recommended code amendments in Attachment A are shown in underline for new text and ~~strike through~~ for deleted text.

Attachment A
Recommended Code Amendments

Municipal Code Title 19 Zoning

CHAPTER 19.300 BASE ZONES

19.309 MANUFACTURING ZONE M

Statement of Purpose. The purpose of this manufacturing zone is to promote clean, employee-intensive industries which may also include related accessory uses, such as commercial and office uses, which serve the industrial area.

19.309.1 Permitted Uses Use Categories

The categories of land uses that are permitted in the Manufacturing Zone are listed in Table 19.309.1. Permitted uses are designated with a “P”. A “C” in this table indicates a use that may be authorized as a conditional use in conformance with Chapter 19.905. An “L” indicates a use that is permitted outright with certain limitations as described in Section 19.309.X. Uses not listed in the table are prohibited.

All uses must comply with the land use district standards of this section and all other applicable requirements of the Zoning Code. If it is unclear whether a proposed use is allowed under the use categories, the applicant may submit a Director Determination application per 19.903 to resolve the issue.

NEW TABLE

Use Category	Status
<p>A. Construction: Contractors and Related Businesses. This category comprises businesses whose primary activity is performing specific building or other construction related work, on or off site.</p> <p>Examples of contractors are residential and nonresidential building construction, utility/civil engineering construction, specialty trade contractors, and moving companies. Any associated office use on site must be accessory to the primary construction business consistent with Subsection (G) in this section.</p>	<p>P</p>
<p>B. Manufacturing. Manufacturing comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products, including the assembly of components parts.</p> <p>Examples of manufacturing include alternative energy development, biosciences, food and beverage processing, software and electronics production, printing, fabrication of metal products, products made from manufactured glass, products made from rubber, plastic or resin, converted paper and cardboard products, and microchip fabrication. Manufacturing may also include high tech and research and development companies.</p>	<p>P</p>
<p>C. Wholesale Trade. Wholesale Trade comprises establishments engaged in selling / and or distributing merchandise to retailers; to industrial, commercial, or professional business users; or to other wholesalers, generally without transformation, and rendering services incidental to the sale of merchandise. Wholesalers sell or distribute merchandise</p>	<p>P</p>

<p><u>exclusively to other businesses, not the general public, and normally operate from a warehouse or office and are not intended for walk-in traffic. Associated retail is only allowed as an accessory use in conformance with subsection (G) in this table and other applicable standards in this chapter.</u></p>	
<p>D. <u>Warehousing and Storage.</u> These industries are primarily engaged in operating warehousing and storage facilities for general merchandise, refrigerated goods, and other products and materials that have been manufactured and are generally being stored in anticipation for delivery to final customer. This category can include transportation and distribution uses with loading docks, temporary outdoor storage and fleet parking. Mini-storage facilities (generally used by many individual customers to store personal property) are not considered industrial warehousing and storage and are not permitted in the Manufacturing district.</p>	<p>P</p>
<p>E. <u>Trade schools.</u> Establishments whose primarily purpose are to provide training to meet industrial needs and often lead to job-specific certification.</p> <p><u>Examples of this use category are electronic equipment repair training, truck driving school, welding school, training for repair of industrial machinery and other industrial skills.</u></p>	<p>P</p>
<p>F. <u>Accessory Uses and Structures.</u> Accessory uses and structures are defined as those that are incidental and subordinate to the main use of property and located on the same lot as the main use, including accessory parking.</p>	<p>P</p>
<p>G. <u>Limited Uses.</u> This category includes uses that are primarily intended to support and serve other allowed uses in the Manufacturing Zone. Limited uses are divided into two sub-categories. See Section 19.309.5 for applicable limitations on these uses</p> <p>(1) <u>Administration and support in office buildings.</u> This category includes uses in office-type buildings that are accessory to an industrial use; establishments which administer, oversee, and manage companies; which manage financial assets and securities; research and design; laboratories and testing facilities; provide document preparation and other industrial support services; including corporate offices, company business offices, call centers, and other office type uses that primarily serve other industries and do not generate a significant number of daily customer visits.</p> <p>(2) <u>Retail commercial and professional services.</u> The sales of goods and materials and of professional services.</p> <p><u>Examples of retail commercial uses include restaurants, mini-marts, factory outlet stores and office supplies.</u></p> <p><u>Examples of professional services that cater to employees and</u></p>	<p>L</p>

<p><u>customers include bank branches, day cares, dry cleaning and health clubs.</u></p>	
<p>H. <u>Exclusive Heavy Industrial Uses. Uses exclusive to the HI category include sites which are primarily rock crushing facilities; natural resource extraction; aggregate storage and distribution facilities; and concrete and/or asphalt batch plants. See Section 19.309.4.A.</u></p>	<p><u>C</u></p>
<p>I. <u>Waste Management. Businesses that provide garbage and recycling hauling, including fleet parking and maintenance.</u></p>	<p><u>P</u></p>
<p>J. <u>Repair and Service. Firms involved in repair and servicing of industrial, business or consumer electronic equipment, machinery and related equipment, products, or by-products.</u></p> <p><u>Examples include welding shops; machine shops; tool, electric motor, industrial instruments repair; sales, repair or storage of heavy machinery, metal and building materials; heavy truck servicing and repair; tire retreading or recapping; exterminators including chemical mixing or storage and fleet storage and maintenance; janitorial and building maintenance services that include storage of materials and fleet storage and maintenance; fuel oil distributors; solid fuel yards; and large scale laundry, dry-cleaning and carpet cleaning plants. Few customers, particularly not general public daily customers, come to the site. Auto service and repair shops for personal vehicles are not included in this category and are not allowed in the M zone.</u></p>	<p><u>P</u></p>
<p>K. <u>High-Impact Commercial Use. A high impact commercial use is a use that generates substantial traffic, noise, light, irregular hours, or other potential impact on the community.</u></p> <p><u>Examples include, but are not limited to: drinking establishments, commercial recreation, adult entertainment businesses, theaters, hotels, and motels. See Section 19.309.4.B.</u></p>	<p><u>C</u></p>

~~Permitted uses are limited to industrial uses meeting the following criteria:~~

- ~~A. Any combination of manufacturing, office, and/or commercial uses are allowed when at least 25% of the total project involves an industrial use as described under Subsection 19.309.1.B. The combined uses shall provide at least 10 employees per net acre.~~
- ~~B. A use which involves the collection and assembly of durable goods, warehousing of goods, transshipment of goods from other sources, and/or the assembly of goods from products which have been processed elsewhere, general manufacturing, and production.~~
- ~~C. Commercial and office uses which are accessory to the industrial use(s). Such uses may include gymnasium, health club, secretarial services, sandwich deli, small restaurant, and retail/wholesale commercial use and showroom.~~

- ~~D. May produce small amounts of noise, dust, vibration, or glare, but may not produce off-site impacts that create a nuisance, as defined by DEQ or the City Noise Ordinance.~~
- ~~E. Has access to a collector or arterial street.~~
- ~~F. A permitted use may require outside storage areas. These storage areas shall be screened with a sight-obscuring fence or dense plantings from any adjoining residential uses or public streets.~~
- ~~G. Warehouse use which is accessory to an industrial use.~~

19.309.2 Preexisting Uses and Developments

Notwithstanding the provisions of Chapter 19.800 Nonconforming Uses and Development, prohibited uses and structures located in any mapped “employment” or “industrial” area, as shown on the Milwaukie Comprehensive Plan Title 4 Lands Map, that were lawfully in existence prior to May 6, 1999, and would be impacted by ~~amendments prohibiting retail uses in excess of 60,000 sq ft, the size limitations on retail uses in Section 19.309.5,~~ are considered to be approved uses and structures for the purposes of this section. If such a preexisting use or development is damaged or destroyed by fire, earthquake, or other natural force, then the use will retain its preexisting status under this provision, so long as it is substantially reestablished within 3 years of the date of the loss.

Notwithstanding the provisions of Chapter 19.800 Nonconforming Uses and Development, prohibited uses and structures located in any mapped “industrial” area, as shown on the Milwaukie Comprehensive Plan Title 4 Lands Map, that were lawfully in existence prior to March 17, 2009, may continue and expand to add up to 20% more floor area and 10% more land area than exists on the above-stated date. This expansion requires a conditional use review.

19.309.3 Specific Prohibited Uses

- A. Any use which has a primary function of storing, utilizing, or manufacturing explosive materials or other hazardous material as defined by the Uniform Fire Code, Article 80;
- B. New residential ~~construction~~, churches, public schools~~s~~
- ~~C. Retail uses greater than 60,000 sq ft gross floor area per building or business are prohibited on all lots included in mapped “Employment” or “Industrial” areas as shown on Milwaukie Comprehensive Plan Title 4 Lands Map, April 6, 1999.~~
- ~~D. All lots included in mapped “Industrial” areas, as shown on Milwaukie Comprehensive Plan Title 4 Lands Map, April 6, 1999, carry the following additional restrictions:~~
 - ~~1. Individual retail trade uses greater than 5,000 sq ft gross floor area per building or business are prohibited.~~
 - ~~2. Multiple retail trade uses that occupy more than 20,000 sq ft gross floor area are prohibited, whether in a single building or in multiple buildings within the same project.~~
 - ~~3. Facilities whose primary purpose is to provide training to meet industrial needs are exempted from this prohibition.~~

19.309.4 Standards for Conditional Uses

The following standards apply to those uses listed as conditional (C) in Table 19.309.1.

A. ~~Natural Resource Extraction~~ Exclusive Heavy Industrial Uses

1. Open pit and gravel excavating or processing shall not be permitted nearer than 50 ft to the boundary of an adjoining property line, unless written consent of the owner of such property is first obtained. Excavating or processing shall not be permitted closer than 30 ft to the right-of-way line of an existing platted street or an existing public utility right-of-way.
2. An open pit or sand and gravel operation shall be enclosed by a fence suitable to prevent unauthorized access.
3. A rock crusher, washer, or sorter shall not be located nearer than 500 ft to a residential or commercial zone. Surface mining equipment and necessary access roads shall be constructed, maintained, and operated in such a manner as to eliminate, as far as is practicable, noise, vibration, or dust which is injurious or substantially annoying to persons living in the vicinity.

B. High-Impact Commercial Uses

When considering a high-impact commercial use, the Commission shall consider the following:

1. Nearness to dwellings, churches, hospitals, or other uses which require a quiet environment;
2. Building entrances, lighting, exterior signs, and other features which could generate or be conducive to noise or other disturbance for adjoining uses;
3. Parking vehicles and pedestrian access and circulation could contribute to noise or attract habitual assembly or unruly persons;
4. Hours of operation;
5. In addition to consideration of the above with respect to building and site design, the Planning Commission may attach conditions or standards of performance and impact, and methods for monitoring and evaluating these, to ensure that such establishments do not become unduly or unnecessarily disruptive.
6. In addition, when considering an adult entertainment business, the following criteria shall be used:
 - a. The proposed location of an adult entertainment business shall not be within 500 ft of an existing or previously approved adult entertainment business or within 500 ft of ~~either~~ a public park, a church, a day-care center, a primary, elementary, junior high, or high school, or any residentially zoned property.
 - ~~both of which distances~~ Distances shall be measured in a straight line, without regard to intervening structures, between the closest structural wall of the adult entertainment business and either the closest property line of the ~~impacted~~ applicable property or the closest structural wall of any pre-existing or previously approved adult entertainment business.

19.309.5 Standards for Limited Uses

The following standards apply to those uses listed as limited (L) in Table 19.309.1.

- A. Administration and support in office buildings. Only administrative and support offices which are related to the operation of a manufacturing use on the property are permitted in the Manufacturing zone. No greater than 20% of the floor area of a building may be used for administrative office space.
- B. Retail commercial and professional services. In order to ensure that these uses are limited in size and scale and do not dominate land intended for manufacturing uses, the following standards apply. See Figure 19.309-1 for an illustration of the size limitations.
 - 1. The total gross leasable square footage of an individual retail or professional service use shall not exceed 5,000 square feet or 40% of the floor area of an individual building, whichever is less.
 - 2. Multiple retail or professional service uses shall not exceed 20,000 cumulative gross leasable square feet within the same development project. For the purposes of this section, a development project is defined as:
 - a. A single building with 50,000 square feet or more of gross floor area.
 - b. Multiple buildings, each with less than 50,000 square feet of gross floor area, that share common development features (such as access, parking, or utilities), whether or not the buildings are located on the same or a different parcel or lot.
 - 3. Retail and professional services uses shall not be permitted in a stand-alone building. They must be included within a building whose primary purpose is for an allowed manufacturing use. The retail commercial or professional service use is not required to be related to the primary manufacturing use. Food carts are permitted as a stand-alone use.

Figure 19.309-1 Size Limitations for Retail and Professional Service Uses



19.309.5 Site Development Requirements

19.309.6 Development Standards for All Uses

The following development standards apply to all uses in the Manufacturing district.

A. Setbacks

Front: 20 ft

Side: None*

Corner side yard: 10 ft

Rear: None*

* Except when abutting a residential district, in which case the setback shall match the abutting property.

B. Height. 45 ft

C. Parking and loading. See Chapter 19.600.

D. Landscaping

15% landscaping of the site is required. The required landscape area shall comply with the following:

1. Permitted landscape materials include trees, shrubs, ground cover plants, non-plant ground covers, and outdoor hardscape features. A variety of trees, shrubbery, and ground cover is encouraged. Street trees are required along

~~street frontages and within parking lots to help delineate entrances, provide shade, and permeable areas for storm water runoff. A bond or a financial guarantee of performance will be required.~~

- ~~2. No more than 20% of the required landscape area shall be covered in mulch or bark dust. Mulch or bark dust under the canopy of trees or shrubs is excluded from this limit.~~
- ~~3. Hardscape features (i.e., patios, decks, plazas, and similar) may cover up to 10% of the required landscape area.~~
- ~~4. Trees shall have a minimum diameter or caliper 4 feet above grade of two inches or greater at time of planting.~~
- ~~5. Shrubs shall be planted from 5 gallon containers or larger.~~
- ~~6. All landscaped area that is not planted with trees and shrubs, or covered with non-plant material (bark dust or mulch), shall have ground cover plants that are sized and spaced as follows: a minimum of one plant per 12 inches on center in triangular spacing, or other planting pattern that is designed to achieve 75% coverage of the area not covered by shrubs and tree canopy.~~

~~E. Site access. 1 curb cut (45 ft maximum) per 150 ft of street frontage.~~

~~F. Transition Area~~

~~Industrial development adjacent to and within 120 ft of areas zoned for residential uses is subject to Type I or II review per Section 19.906 Development Review. The following characteristics will be considered:~~

- ~~1. Noise~~
- ~~2. Lighting~~
- ~~3. Hours of operation~~
- ~~4. Delivery and shipping~~
- ~~5. Height of structure~~
- ~~6. Distance to residential zone boundary~~

~~The review authority may attach conditions to reduce any potentially adverse impacts to residential properties.~~

~~GE. Transportation requirements and standards. As specified in Chapter 19.700.~~

~~F. Outdoor uses shall be screened as follows:~~

- ~~1. All outdoor storage areas shall be screened from adjacent properties by a six-foot high sight-obscuring fence or wall or by the use of vegetation. Vegetation used to screen outdoor storage areas shall be of such species, number, and spacing to provide the required screening within one (1) year after planting.~~
- ~~2. All screened or walled outdoor use and storage areas which abut a public street shall be set back a minimum of 25 feet from the property line(s). Within that setback area trees and evergreen shrubs shall be planted. The plants shall be of such a variety and arranged to allow only minimum gaps between foliage of mature trees and plants within four years of planting.~~

~~G. Parking, loading and unloading areas shall be located as follows:~~

1. Parking, loading and unloading areas shall not be located within a required setback.
2. No loading or unloading facilities shall be located adjacent to lands designated for residential uses or a residential community service if there is an alternative location of adequate size on the subject site.

H. External effects. The potential external effects of manufacturing uses shall be minimized as follows:

1. Except for exterior lighting, operations producing heat or glare shall be conducted entirely within an enclosed building.
2. Potential nuisances such as noise, odor, electrical disturbances and other public health nuisances are subject to Title 8 of Milwaukie's Municipal Code.
3. Roof mounted mechanical equipment such as ventilators and ducts for buildings located adjacent to residential districts, arterial streets or transit streets shall be contained within a completely enclosed structure that may include louvers, latticework, or other similar features.

J. Chapter 19.500, Supplementary Development Regulations contains additional standards that may apply.

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Appendix E: Draft Tacoma Station Area Overlay Zone

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[NOTE: THE LANGUAGE IN THE OVERLAY ASSUMES THAT THE RECOMMENDED AMENDMENTS TO THE M ZONE, AS DESCRIBED IN APPENDIX F, ARE ADOPTED.]

CHAPTER 19.400 OVERLAY ZONES AND SPECIAL AREAS

19.406 TACOMA STATION AREA OVERLAY ZONE

19.406.1 Purpose. This overlay zone implements the Tacoma Station Area Plan and will help ensure that future development in the Station Area is consistent with the vision established in the Plan. The overlay zone is intended to facilitate the following:

- *A mix of employment and other appropriate uses with employment densities that support light rail transit, particularly in close proximity to the Tacoma light rail station*
- *Support for existing businesses*
- *An appropriate amount of parking for employees and visitors*
- *Attractive building designs and public facilities*
- *A simple and timely review process for new development*

19.406.2 Applicability. The standards and requirements in this section apply to all properties within the Tacoma Station Area Overlay Zone boundary as shown on Figure X.

19.406.3 General Provisions. The following provisions apply to all development within the Tacoma Station Area Overlay:

A. *Consistency with base zone.* The Manufacturing zone is the base zone for the overlay and all requirements of the base zone apply in the overlay unless otherwise noted in this section. Where conflicts occur between this section and other sections of the code, the standards and requirements of this section shall supersede.

B. *Off-site impacts.* In order to ensure greater compatibility between manufacturing and non-manufacturing uses in the Tacoma Station Area, the following off-site impact standards apply in Subareas 1-3.

1. *Applicability.* The off-site impact standards in this section apply to all new machinery, equipment and facilities associated with manufacturing uses. Machinery, equipment or facilities that were at the site and in compliance with existing regulations at the effective date of these regulations are not subject to these off-site impact standards.

2. *Noise.* The City's noise control standards and requirements in Chapter 8.08 apply.

3. *Vibration.* Continuous, frequent or repetitive vibrations that exceed 0.002g peak are prohibited. Generally, this means that a person of normal sensitivities should not be able to feel any vibrations.

(a) Temporary vibrations from construction activities or vehicles leaving the site are exempt.

(b) Vibrations lasting less than 5 minutes per day are exempt.

(c) Seismic or electronic measuring equipment may be used when there are doubts about the level of vibrations.

4. Odor. Continuous, frequent or repetitive odors are prohibited. The odor threshold is the point at which an odor may just be detected. An odor detected for less than 15 minutes per day is exempt.

5. Illumination. Machinery, equipment and facilities may not directly or indirectly cause illumination on other properties in excess of 0.5 foot candles of light.

6. Measurements for compliance with these standards may be made from the property line or within the property of the affected site. Measurements may be made at ground level or at habitable levels of buildings.

7. An applicant must provide documentation certified by a registered engineer or architect, as appropriate, to ensure the proposed activity can achieve compliance with these standards.

C. *Additional standards.* In addition to the standards of the base zone and the overlay zone, the following chapters of code contain requirements and standards that may apply:

1. Chapter 19.500 Supplementary Development Regulations
2. Chapter 19.600 Off-Street Parking and Loading
3. Chapter 19.700 Public Facility Improvements
4. Chapter 19.800 Nonconforming Uses and Development

D. *Street design.* New or improved streets within the Station Area shall be constructed consistent with the street design cross-sections established in the Tacoma Station Area Plan, which can be found in Chapter X of the Transportation System Plan (TSP). Transition area standards to ensure compatibility with such a broad mix of allowed uses. The existing transition area standards in Section 19.504.6 may be sufficient to address transitions in the overlay zone. If not, some clear and objective standards could be added here to strengthen or expand on the existing standards.

E. *Review process.* All new or expanded/modified development within the overlay shall be processed through a Type I or Type II Development Review, consistent with Chapter 19.906. Review process. All new or expanded/modified development in the overlay will be processed through Type I or Type II Development Review consistent with Chapter 19.906.

19.406.4 Overlay Subareas. The Tacoma Station Area Overlay has been divided into four subareas to further refine the design and appropriate mix of uses for the different districts within the Station Area. Subarea boundaries are shown on Figure X. The intent of the subareas is to recognize that the Station Area is not anticipated to develop uniformly in the future. Lands closest to the future Tacoma light rail station are expected to support a different mix of uses and design standards than lands further from the station. The transportation network, existing and planned, also establishes a distinction between the varying transportation demands associated with anticipated land uses within the overlay subareas. As such, street design cross sections for the Tacoma Station Area, found in Chapter X of the TSP, may vary by subarea. The following sections define the four subareas and provide specific requirements and standards for each.

19.406.5 Subarea 1: North of Springwater

A. *Subarea boundary.* Subarea 1 is located north of Springwater Corridor and south of the Tacoma light rail station, as shown in Figure X.

B. *Subarea characteristics.* Due to its proximity to the Tacoma light rail station, Subarea 1 is intended to develop a mix of land uses, including retail commercial and limited residential uses that cater to light rail users. Subarea 1 is anticipated to develop as an active “Station Area community” supported by convenient access to light rail.

C. *Permitted uses.* Permitted uses in Subarea 1 are the same as those permitted in the base M zone, with the following exceptions:

1. Professional service and office uses are permitted in a stand-alone building with no size limitations (they do not need to be accessory to a manufacturing use).
2. Multifamily residential in a stand-alone building and second-story residential (above a ground floor commercial or office use) is permitted outright.

D. *Limited and prohibited uses.* The following uses are not allowed or are allowed with limitations:

1. Retail uses are permitted in a stand-alone building (do not need to be accessory to a manufacturing use). Retail uses shall not exceed 60,000 square feet per building or development project.
2. Warehousing and storage uses, as defined in 19.309.1.D, are allowed only as accessory or secondary uses to a permitted use. Stand-alone warehouse and storage uses are prohibited.
3. Only those manufacturing uses that comply with the off-site impact standards in Section 19.406.3B are allowed.

E. *Development standards for non-manufacturing uses.* In addition to the standards in the base M zone, non-manufacturing uses shall comply with the standards below.

1. Density. The density standards below apply to residential developments only:
2. Floor-area-ratio: Minimum of 0.5:1 and maximum of 3:1
3. Building height: Minimum of 25 feet and maximum of 65 feet
4. Minimum setbacks:
 - (a) (Front: 0 feet [City is evaluating this standard and may revise.]
 - (b) Side and rear: 0 feet or 10 feet if abutting a residential zone
5. Parking location. No surface parking shall be located within a front setback.
6. Signage. At least one pedestrian-oriented sign shall be provided along the building façade that faces the street. Pedestrian-oriented signs may be attached to the building, an awning, a kiosk, hanging, or otherwise so long as it is displayed at a height no greater than 10 feet above the sidewalk and faces the street. All signs must comply with Title 14 Signs of the Milwaukie Municipal Code.

7. Stand-alone multifamily residential development shall comply with section 19.505.3 Design Standards for Multifamily Housing. In addition, the ground floor of stand-alone multifamily buildings shall be constructed to meet building code standards for a retail use. This will facilitate efficient conversion of the ground floor space from residential to retail in the future.

F. *Design standards for all new construction and major exterior alterations.* In addition to the standards in the base M zone, both manufacturing and non-manufacturing uses shall comply with the standards below. Exterior maintenance and repair and minor exterior alterations are not subject to these standards. Stand-alone multifamily buildings are not subject to these standards. Subsection (G) below defines exterior maintenance and repair and major/minor exterior alterations.

1. Ground floor windows and doors. Long expanses of blank walls facing the street or other public area have negative impacts on the streetscape and the pedestrian environment. To minimize these effects, the standards of this section are intended to enhance street safety and provide a comfortable walking environment by providing ground-level features of interest to pedestrians. All exterior walls facing the street or sidewalk must meet the following standards:

(a) 50% of the ground-floor street wall area must consist of openings; i.e., windows or glazed doors. The ground-floor street wall area is defined as the area up to the finished ceiling height of the space fronting the street or 15 ft above finished grade, whichever is less. See Figure 19.406-1. Percent window coverage is defined as the total ground floor window area divided by the total ground floor street wall area.

(b) Ground floor windows shall be distributed along the wall area such that there are no lengths of window-less wall greater than 20 feet.

(c) Clear glazing is required for ground-floor windows. Nontransparent, reflective, or opaque glazing are not permitted.

(d) Ground-floor windows shall allow views into storefronts, working areas, or lobbies. No more than 50% of the window area may be covered by interior furnishings including but not limited to curtains, shades, signs, or shelves. Signs are limited to a maximum coverage of 20% of the window area.

2. Design Standards for Windows. The following standards are applicable to building windows facing streets, courtyards, and/or public squares.

(a) Windows shall be “punched” openings recessed a minimum of 2 in from the wall surface.

(b) Window height shall be equal to or greater than window width.

(c) The following windows are prohibited:

(i) Reflective, tinted, or opaque glazing;

(ii) Simulated divisions (internal or applied synthetic materials);

(iii) Exposed, unpainted metal frame windows.

(iv)

3. Building orientation. All buildings shall have at least one primary building entrance (i.e., dwelling entrance, customer entrance, a tenant entrance, lobby entrance, or breezeway/courtyard entrance) facing an adjoining street (i.e., within 45 degrees of the street property line). If the building entrance is turned more than 45 degrees from the street (i.e., front door is on a side elevation), the primary entrance shall not be more than 40 feet from a street sidewalk, except to provide pedestrian amenities. In all cases, a walkway shall connect the primary entrance to the sidewalk. See Figure 19.406-2 for illustration.

4. Weather protection. All building entrances shall include an awning, canopy, recess or some other form of shelter to provide weather protection and shade for users.

5. Design Standards for Walls. The following standards are applicable to the exterior walls of buildings facing streets, courtyards, and/or public squares.

(a) Exterior wall-mounted mechanical equipment is prohibited.

(b) The following wall materials are prohibited at the street level of the building:

(i) EIFS or other synthetic stucco panels;

(ii) Splitface or other masonry block.

(iii) Plywood paneling;

(iv) Brick with dimensions larger than 4 by 8 by 2 in;

(v) Vinyl or metal cladding;

(vi) Composite wood fiberboard or composite cement-based siding;

6. Design Standards for Roofs. The following standards are applicable to building roofs.

(a) Flat roofs shall include a cornice with no less than 6 in depth (relief) and a height of no less than 12 in.

(b) Mansard or decorative roofs on buildings less than 3 stories are prohibited.

G. Definitions for design standards applicability.

1. Exterior maintenance and repair includes refurbishing, painting, and weatherproofing of deteriorated materials, and in-kind restoration or replacement of damaged materials. Exterior maintenance and repair does not include replacement of materials due to obsolescence or when associated with minor or major exterior renovation, as defined below. Exterior maintenance and repair does not include the placement of signs.

2. Minor exterior alterations include the exterior alterations of any portion of a structure that do not fall within the definitions of “exterior maintenance and repair” or “major exterior alterations.” Minor exterior alterations include, but are not limited to, the application or installation of finish building treatments, including windows and other glazing, doors, lintels, copings, vertical and horizontal projections including awnings, and exterior sheathing and wall materials. Minor exterior alteration does not include the placement of signs.

3. Additions not exceeding 250 sq ft may be considered a minor exterior alteration only when the additional floor area is designed and used for utility, HVAC, other mechanical equipment, ADA upgrades, or egress required by applicable fire safety or building codes.

4. Major exterior alterations include any of the following:

(a) Alterations that do not fall within the definitions of “exterior maintenance and repair” or “minor exterior alterations”;

(b) Demolition or replacement of more than 25% of the surface area of any exterior wall or roof;

(c) Floor area additions that exceed 250 sq ft or do not meet the limited purposes as defined under the minor exterior alteration (ADA upgrades, etc.).

5. The design standards in subsection (F) above are applicable to major exterior alterations as follows: Major exterior alterations involving a wall(s) shall comply with the design standards for walls and the design standards for windows for that wall(s). Major exterior alterations involving a roof shall comply with the design standards for roofs.

Figure 19.406-1 Ground Floor Windows and Doors



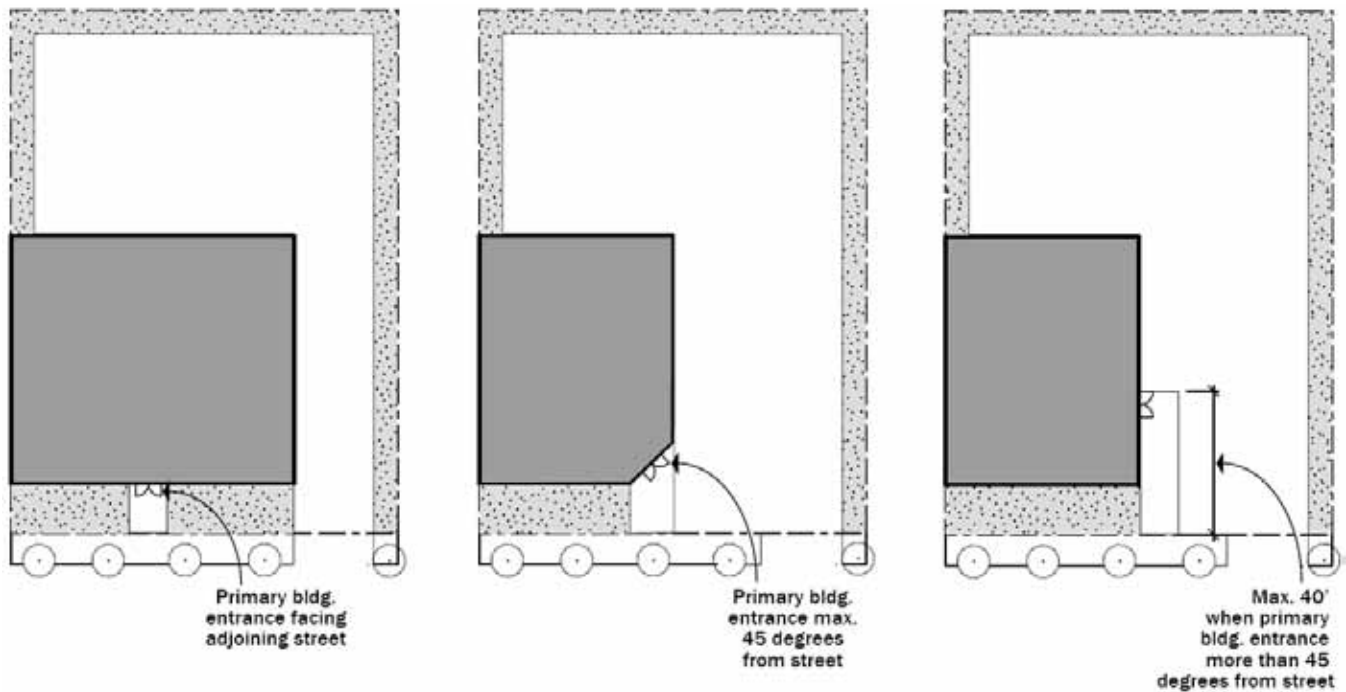
Ground Floor Windows and Doors Area Calculation:

*Single window area = L*M*

*Total window area (TWA) = (L*M) * (number of window bays, including transparent doors)*

*Total ground floor street wall area = X*Y*

Figure 19.406-2 Building Entrances



19.406.6 Subarea 2: West of McLoughlin.

A. *Subarea boundary.* Subarea 2 is the area of land north of Ochoco Street, surrounding the Springwater Corridor west of McLoughlin Blvd, as shown in Figure X.

B. *Subarea characteristics.* This subarea is intended to develop with a mix of employment and residential uses, including live/work units that can be compatible with surrounding manufacturing uses.

C. *Permitted uses in Subarea 2 are the same as those permitted in the base M zone, with the following exceptions:*

1. Professional service and office uses are permitted in a stand-alone building with no size limitations (they do not need to be accessory to a manufacturing use).
2. Multifamily residential in a stand-alone building and second-story residential (above a ground floor commercial or office use) is permitted outright.
3. Rowhouse development is permitted and can include live/work style units with ground-floor work space or commercial space.

D. *Limited and prohibited uses.* The following uses are not allowed or are allowed with limitations:

1. Retail uses are permitted in a stand-alone building (do not need to be accessory to a manufacturing use). Retail uses shall not exceed 30,000 square feet per building or development project.
2. Warehousing and storage uses, as defined in 19.309.1.D, are allowed only as accessory or secondary uses to a permitted use. Stand-alone warehouse and storage uses are prohibited.

3. Only those manufacturing uses that comply with the off-site impact standards in Section 19.406.3B are allowed.

E. *Development and design standards.* The development and design standards for Subarea I in Sections 19.406.5(E-G) also apply to Subarea 2, with the following addition:

1. Rowhouse development in Subarea II shall comply with Section 19.505.5 Standards for Rowhouses.

19.406.7 Subarea 3: Mixed Employment.

A. *Subarea boundary.* Subarea 3 is the area between Beta Street and Springwater Corridor, east of McLoughlin Blvd., as shown in Figure X.

B. *Subarea characteristics.* Subarea 3 is intended to develop as a relatively intense mixed employment district including office, light manufacturing, research and development, and other general employment uses, along with supporting retail/commercial uses. Subarea 3 is also appropriate for larger scale civic or institutional uses.

C. *Permitted uses.* Permitted uses in Subarea 3 are the same as those permitted in the base M zone, with the following exceptions:

1. Professional service uses are permitted in a stand-alone building with no size limitations (they do not need to be accessory to a manufacturing use).
2. Multifamily residential in a stand-alone building and second-story residential (above a ground floor commercial or office use) is permitted outright. Deed restrictions will apply to multifamily development in order to reduce potential conflicts between residential uses and surrounding manufacturing uses.

D. *Limited and prohibited uses.* The following uses are not allowed or are allowed with limitations:

1. Retail uses are permitted in a stand-alone building (do not need to be accessory to a manufacturing use). Retail uses shall not exceed 30,000 square feet per building or development project. Development standards for manufacturing uses will be the standards of the base zone plus additional standards similar to those in the Business Industrial zone (Section 19.310.6).
2. Warehousing and storage uses, as defined in 19.309.1.D, are allowed only as accessory or secondary uses to a permitted use. Stand-alone warehouse and storage uses are prohibited.
3. Only those manufacturing uses that comply with the off-site impact standards in Section 19.406.3B are allowed.

E. *Development and design standards.* The development and design standards for Subarea 1 in Sections 19.406.5(E-G) apply to Subarea 3, with the following additions:

1. All development with frontage along Main Street shall have a front setback of 10 feet.

19.406.8 Subarea 4: Manufacturing.

A. *Subarea boundary.* Subarea 4 is comprised of the area south of Beta Street and north of Highway 224, as shown on Figure X.

B. *Subarea characteristics.* This subarea is intended to continue to develop as a manufacturing district with some flexibility for non-manufacturing uses to occur at higher levels than would be allowed in the base M zone.

C. *Permitted uses.* Permitted uses in Subarea 4 are the same as those permitted in the base M zone, with the following exceptions:

1. Retail commercial and professional service uses may be permitted in a stand-alone building (they do not need to be included with a manufacturing use). The size limitations of the base M zone, Section 19.309.5(B1-2) still apply.

D. *Limited and prohibited uses.* The following uses are not allowed or are allowed with limitations:

1. Warehousing and storage uses, as defined in 19.309.1.D, are allowed only as accessory or secondary uses to a permitted use. Stand-alone warehouse and storage uses are prohibited.

E. *Parking requirements.* In Subarea 4, the following parking requirements apply and supersede any conflicting requirements found in Table 19.605.1 or other sections of the code.

1. For general office uses:

- (a) Minimum number of parking spaces: 2 per 1,000 square feet of gross floor area
- (b) Maximum number of parking spaces: 4.1 per 1,000 square feet of gross floor area

2. For retail commercial uses:

- (a) Minimum number of parking spaces: 2 per 1,000 square feet of gross floor area
- (b) Maximum number of parking spaces: 6.2 per 1,000 square feet of gross floor area

3. For manufacturing uses:

- (a) (a) Minimum number of parking spaces: 1 per 1,000 square feet of gross floor area
- (b) (b) Maximum number of parking spaces: none

4. The minimum and maximum parking requirements in this section may be modified consistent with Section 19.605.2 Quantity Modifications and Required Parking Determinations.

- (a)

F. *Development and design standards.* In addition to the development standards in the base M zone, the design standards in Sections 19.406.5(F-G) apply to developments that have frontage on Main Street in Subarea 4, with the following changes:

1. All development with frontage along Main Street shall have a front setback of 10 feet.
2. The ground floor window coverage requirement in Section 19.406.5.F(1a) is reduced to 30% in this subarea.

Appendix F: Conceptual Designs for Main Street and Springwater Corridor Undercrossing

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This appendix includes information about preliminary conceptual design for two of the transportation improvement projects identified in the Draft Tacoma Station Area Plan:

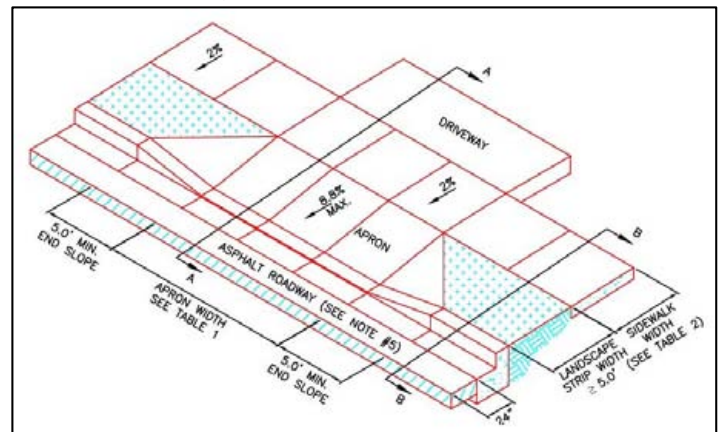
- Project 1: Main Street cross-section/streetscape and intersection design (shown as Project #1 in the Station Area Plan)
- Project 2: Pedestrian connection under the Springwater Trail, connecting the Main Street multi-use path with the Tacoma light rail station (shown as Project #5C in the Station Area Plan)

These designs are preliminary and conceptual in nature. More detailed design and outreach to business and property owners and other members of the community would need to be undertaken before implementing these projects.

Conceptual Design Project 1. Main Street Plan

The maps and diagrams on sheets 1 through 6 show proposed designs for SE Main Street. The designs shown generally correspond to the cross-sections for different segments of the street as shown in the Section 3 of the Station Area Plan. However, the illustrations on these sheets show more detail in transition areas and at intersections, and they show how on-street parking and landscaping might be located along the street. The dimension of all elements in these illustrations is to scale. In addition to the content shown on the following figures, there are several design details or guiding parameters that are intended for the corridor, including:

- **Multi-Use Path:** The multi-use pathway is shown on the following figures with a stripe down the center to indicate two-way flow for bicycles. However, the actual delineation of this facility should be refined through the design process to determine where and how delineation would occur. Because there are portions of the corridor where the multi-use path is adjacent to on-street parking, striping down the center of the path may not be appropriate. However, delineation approaching intersections (and possibly higher volume driveways) should be considered to channelize bicyclists prior to entering a crossing.
- **ADA Ramps:** The City of Milwaukie and ODOT require ADA accessible ramps to be installed at all locations where a sidewalk or pathway intersects another facility and there is a vertical differential (e.g., a curb). These requirements would apply to all facilities in the plan area.
- **Pathway Crossings at Intersections:** Driveway crossings of the multi-use path should be designed to keep the cross-slope of the pathway level. The City of Milwaukie has several design standards to accomplish this, such as the sample graphic to the right.



- **Bulb Outs (Curb Extensions):** The recommended design for Main Street (as shown on the following figures) includes bulb outs at local street intersections where feasible to narrow pedestrian crossings, appropriately align the multi-use pathway crossings, and to support traffic calming and landscape design objectives. When bulb-outs are used in industrial areas, design considerations need to balance the benefit to pedestrian and bicycle traffic with mobility of freight. When applied, the design of the bulb-outs should consider truck turning paths and modifications (such as rolled-curb ends to the bulb out that are mountable by trucks) may be necessary.
- **Street Lighting:** Street lighting design along Main Street should be considered a streetscape design feature to help create the desired urban environment. Through the final design process, a street light design (e.g., pole type, fixture type, and color) should be determined for the corridor. An example of a decorative style which may be appropriate for the corridor is shown to the right.
- **Parking / Landscaping Areas:** Along the length of Main Street, there are options for landscape areas or on-street parking between the travel lanes and the multi-use path or sidewalks. The locations of these amenities shown on the following figures illustrate an option that attempts to provide on-street parking throughout the corridor where feasible, with a balance of landscaping areas to provide street-trees with somewhat regular spacing. Final design of the corridor and coordination with fronting land-use development, particularly north of Stubb Street, may consider reducing the amount of on-street parking to increase the amount of landscaping and street trees. Consideration in this northern extent of Main Street should be given to the mixed-use/transit-oriented development in this area that includes parking management strategies to reduce the overall need for motor vehicle parking.

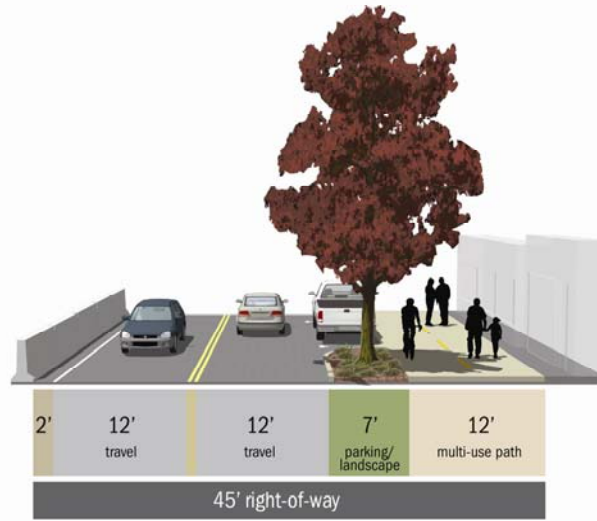


Sheets 1 to 4: From Highway 224 to Beta Street

These sheets illustrate the preferred cross-section (Cross-Section A) for Main Street south of Beta Street (south of the curves). This segment of Main Street includes a 12-foot multi-use path with a 7-foot buffer that includes either landscaping or on-street parking. The illustration also shows a new enhanced crosswalk (see Sample Photo 1 on Figure 5) where a walkway connects Main Street to the sidewalk on McLoughlin Boulevard.

The proposed Main Street cross-section impacts off-street parking in a few areas. At the properties adjacent to Mailwell Drive, head-in parking directly from Main Street (both north and south of Mailwell Drive) would no longer be possible with the new cross-section in place, as long curb cuts are not part of the design. Also, off-street parking at the lot south and east of Main Street where it bends toward Beta would need to be reconfigured. The multi-use path would travel along space currently dedicated to angled parking along the north side of the lot, and space for vehicles to maneuver into angled parking against the existing building would be lost on the west side of the lot.

Main Street - Milport to Beta



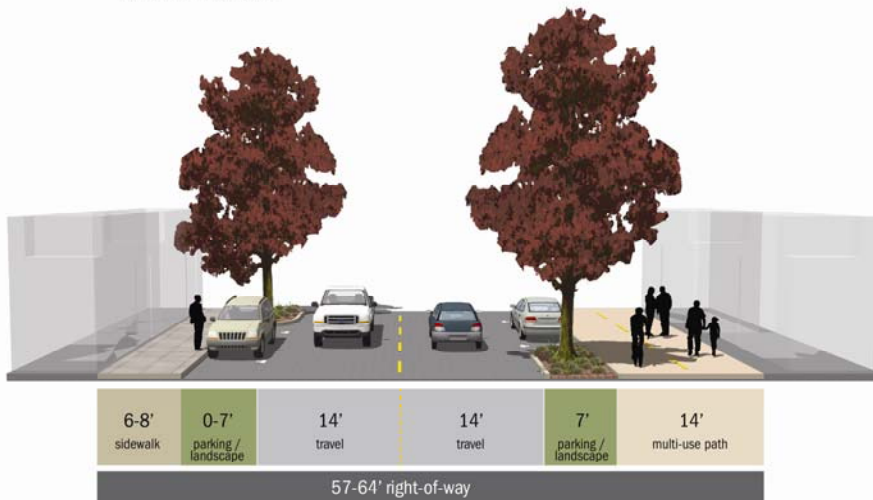
Cross-Section A

Finally, this sheet illustrates how cross-section A could transition at the bend in the road to meet the next proposed cross-section (B) north of Beta Street, which includes 14-foot travel lanes as well as sidewalks and buffers on the west side of the street.

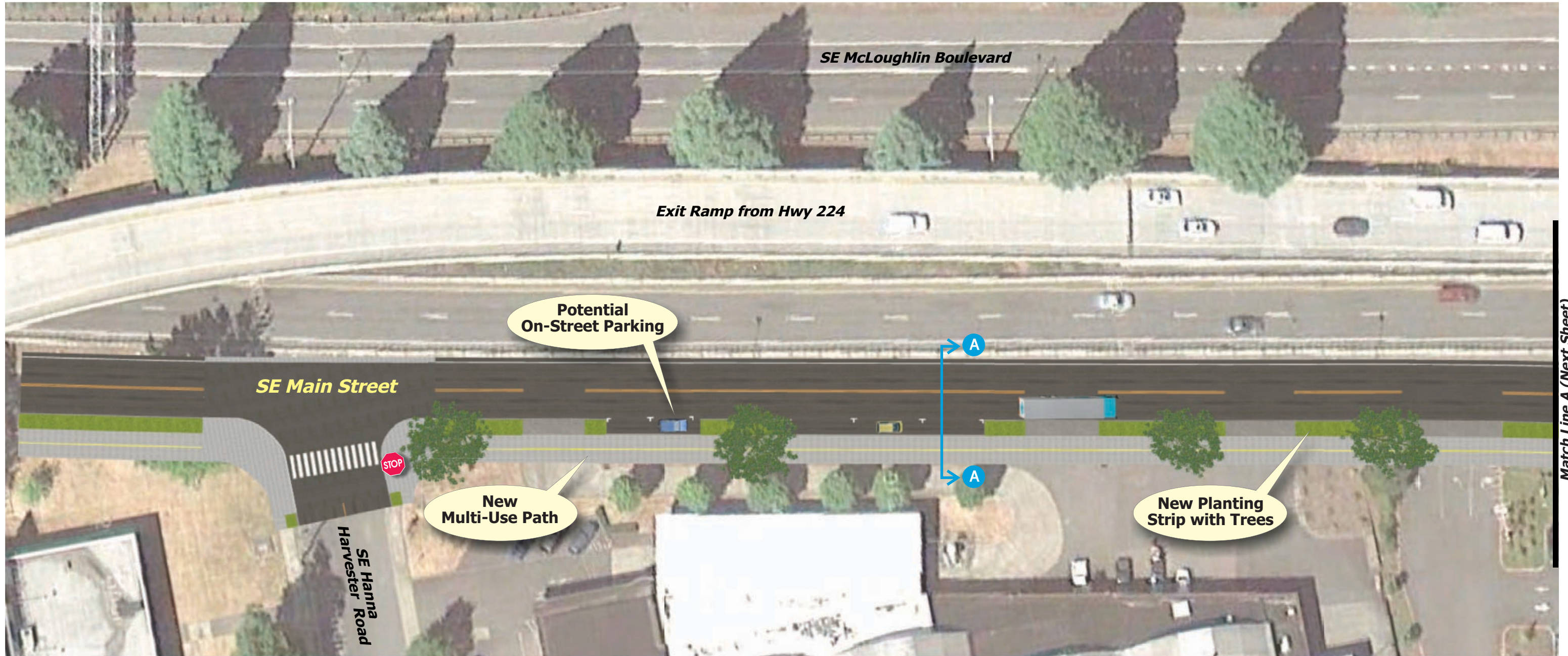
Sheets 5 and 6: From Beta Street to Moores Street

These sheets shows a conceptual design for the cross-section just south of Beta Street (Cross-Section B), assuming a total of 64 feet of right-of-way. This wider right-of-way allows 14-foot travel lanes to accommodate truck movements through Main Street’s curves, as well as sidewalks on the west side of the street. The conceptual design layout shows an example of how the landscaping and parking might be allocated along this segment of Main Street. The design includes marked pedestrian crossings at all legs for all intersections.

Main Street - North of Beta



Cross-Section B



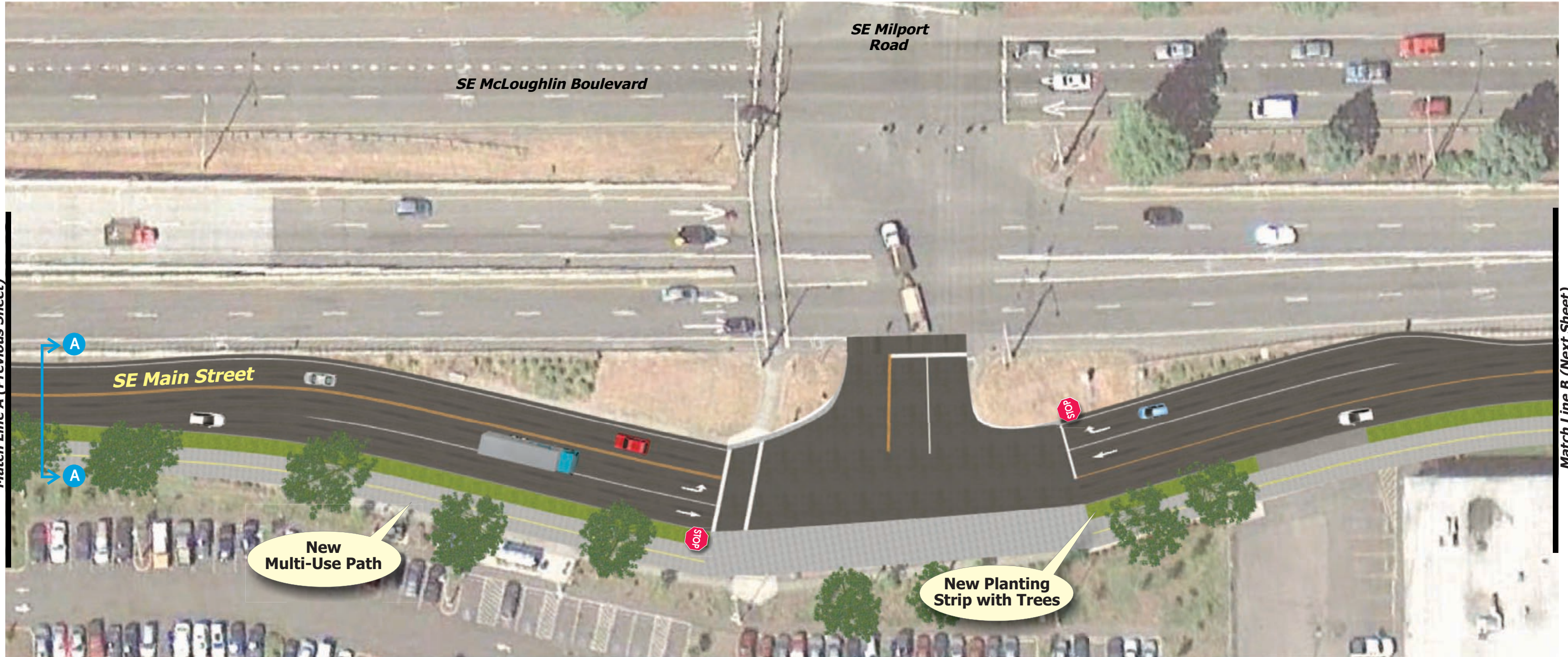
Match Line A (Next Sheet)



 Stop Sign

Sheet **1** of **6**

MAIN STREET PROPOSED ALIGNMENT
Main Street from Hwy 224 to South of Milport Road



 Stop Sign

Sheet **2 of 6**

MAIN STREET PROPOSED ALIGNMENT
Main Street at Milport Road

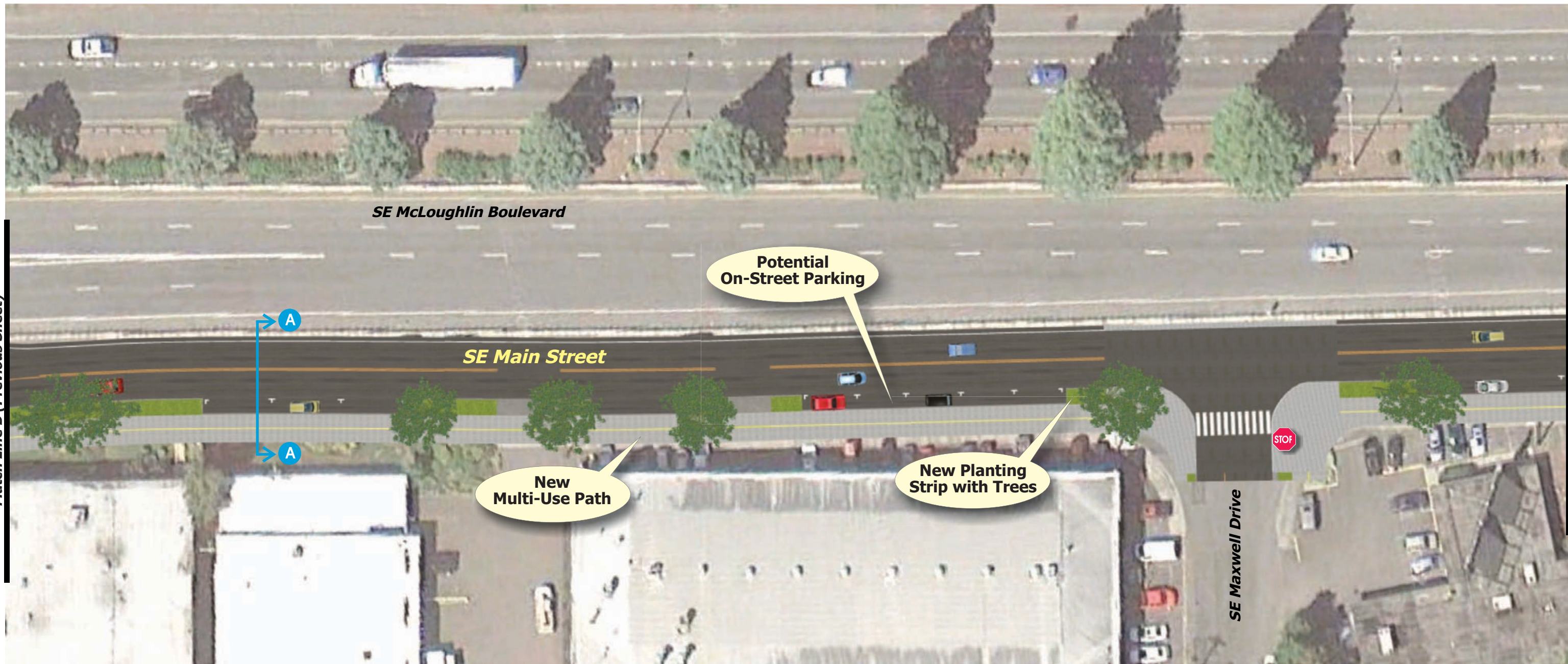
0 25' 50' 100'

Scale 

F-5

Match Line B (Previous Sheet)

Match Line C (Next Sheet)

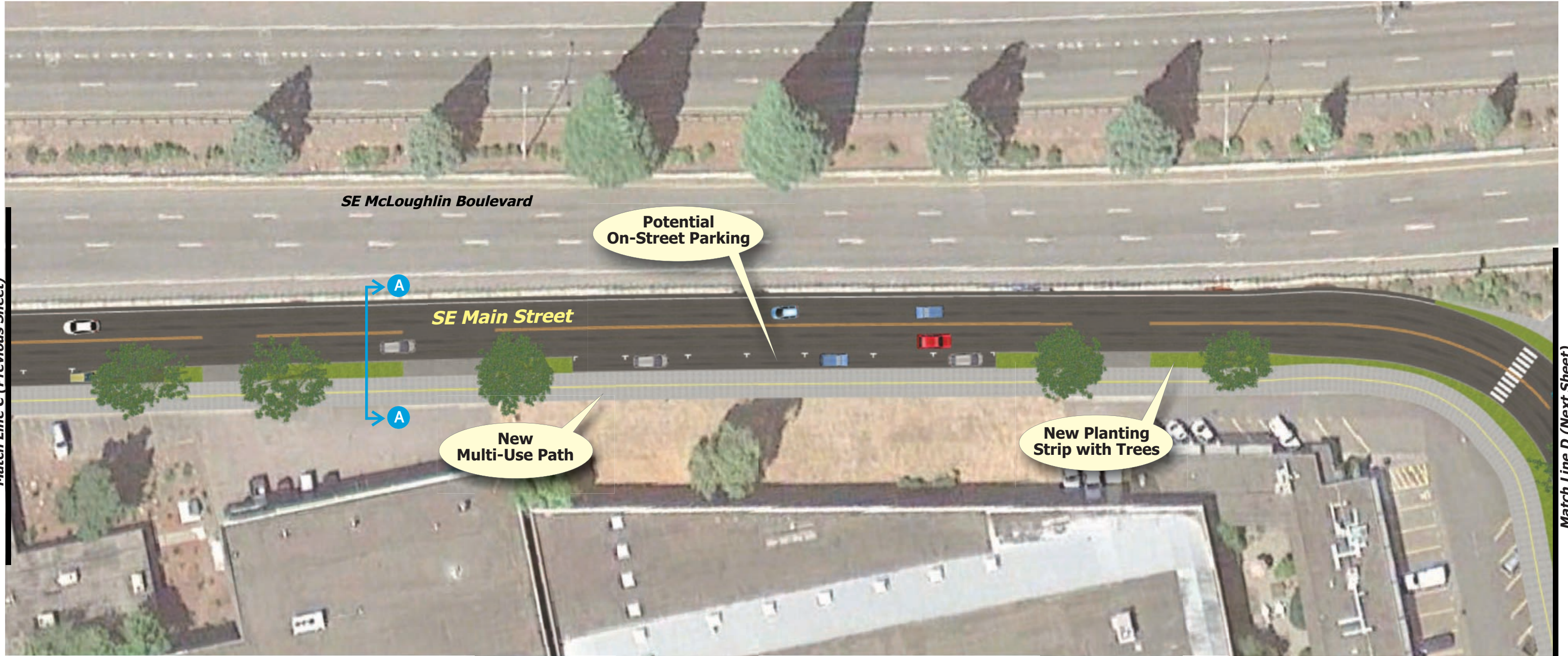


Sheet **3 of 6**

MAIN STREET PROPOSED ALIGNMENT
Main Street North of Milport Road to Maxwell Drive



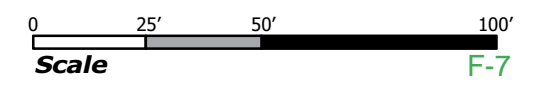
Match Line C (Previous Sheet)



Match Line D (Next Sheet)

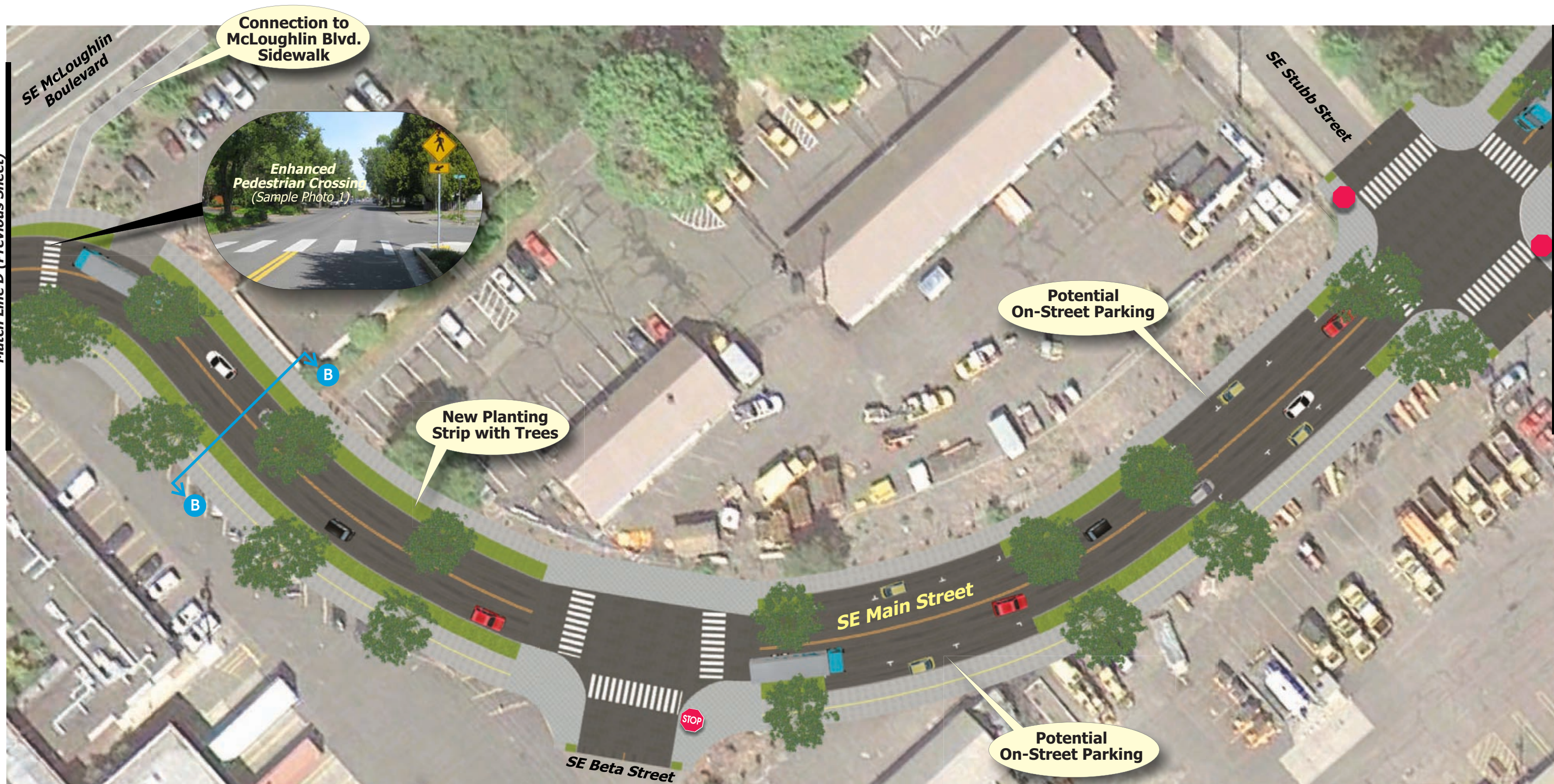


Sheet **4 of 6**
MAIN STREET PROPOSED ALIGNMENT
 Main Street North of Maxwell Drive



Match Line D (Previous Sheet)

Match Line E (Next Sheet)



Connection to McLoughlin Blvd. Sidewalk



New Planting Strip with Trees

Potential On-Street Parking

Potential On-Street Parking



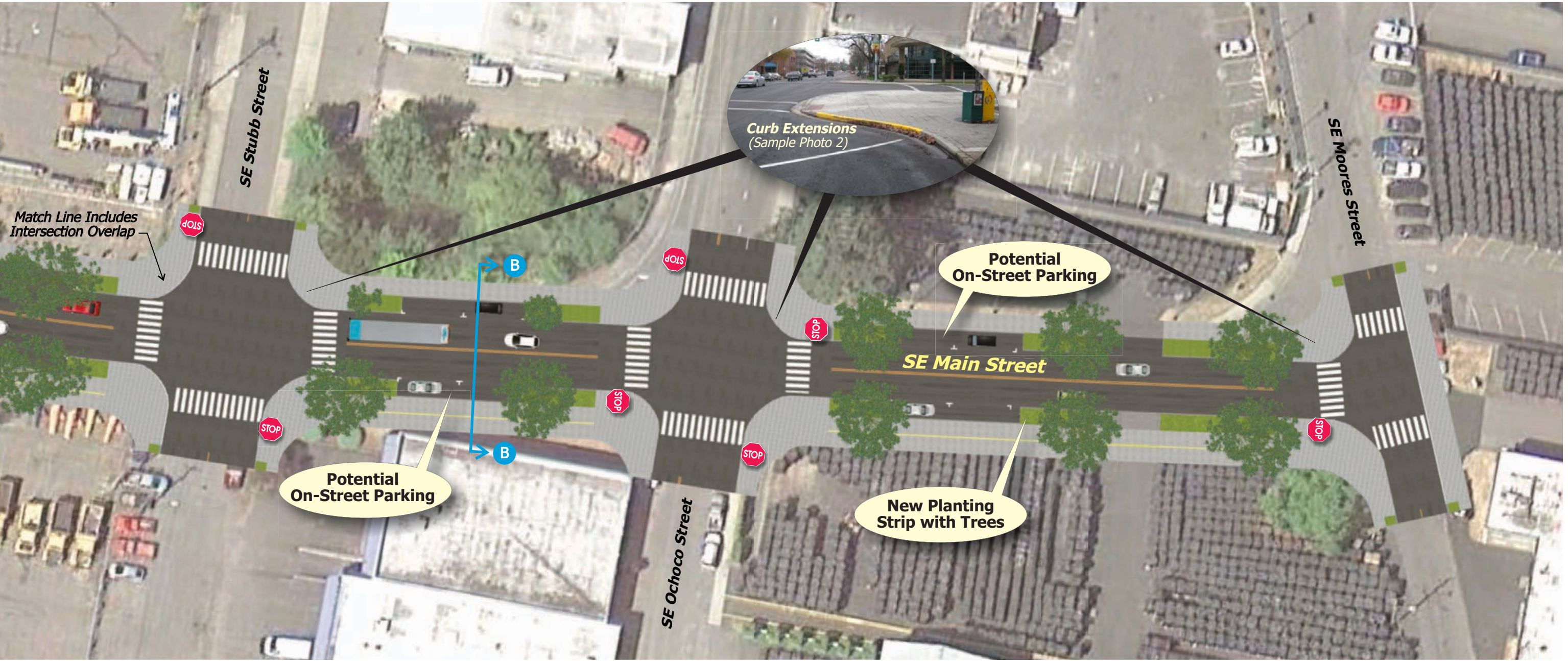
 Stop Sign

Sheet **5 of 6**

MAIN STREET PROPOSED ALIGNMENT
Main Street South of Beta Street to Stubb Street



Match Line E (Previous Sheet)



 Stop Sign

Sheet **6 of 6**

MAIN STREET PROPOSED ALIGNMENT
Main Street from Stubb Street to Moores Street

0 25' 50' 100'

Scale 

F-9

Conceptual Design Project 2. Pedestrian and Bicycle Undercrossing – Main Street to Opportunity Site A

This new pedestrian and bicycle connection acts as an extension of the Main Street multi-use path, extending the path north under the Springwater Trail. Where it emerges on the north side of the Springwater Trail, it joins a modified pathway network that connects the Springwater Trail and the Tacoma Station. Two options for the layout are shown, one with a path connection only between Moores Street and the Springwater Trail, and one with a new off-street parking area that may be feasible in a redevelopment scenario.

South of the Undercrossing

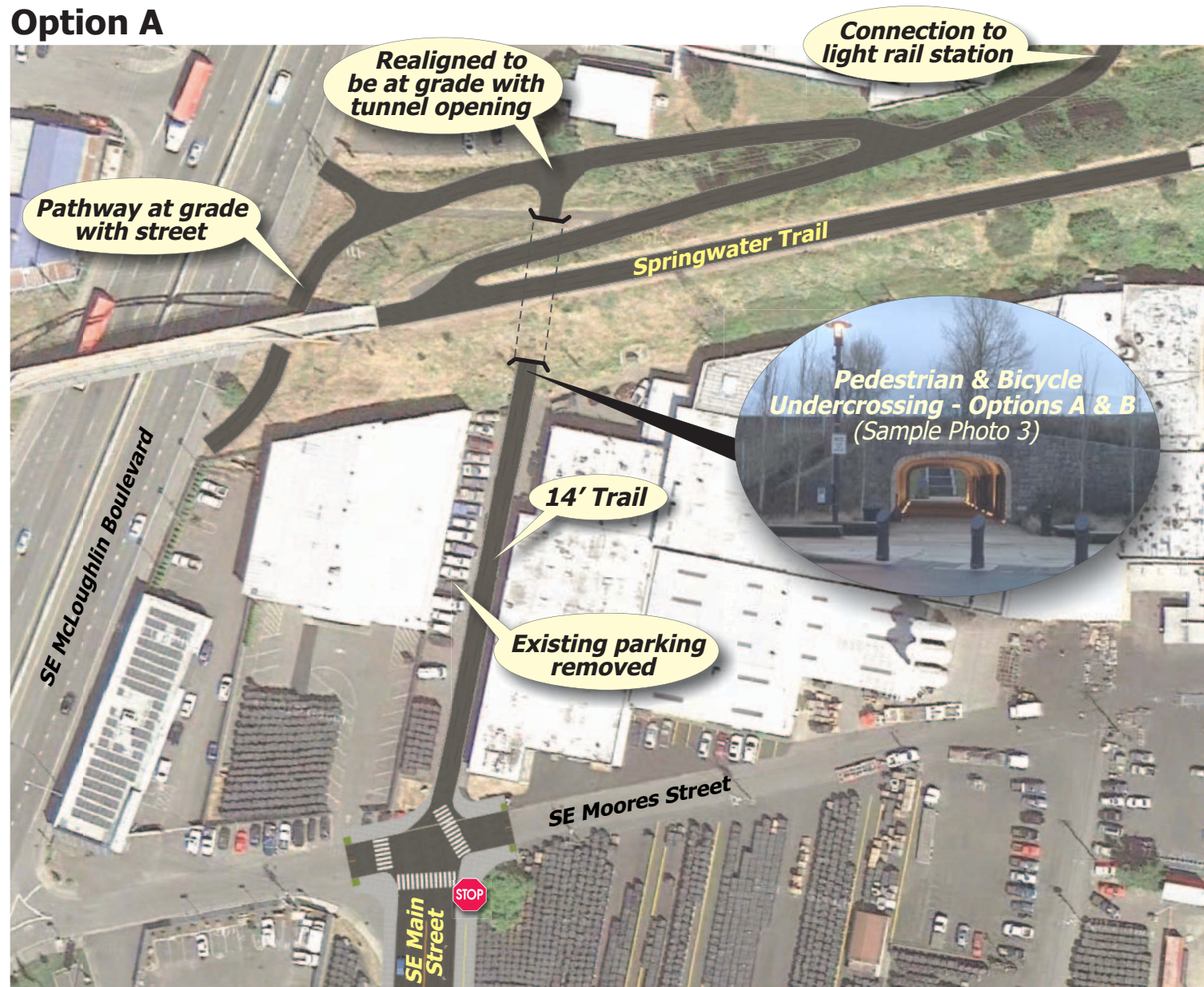
The new pedestrian and bicycle connection begins at Moores Street. Here, a marked crossing connects the multi-use path on the south side of Moores Street to a 14-foot wide path on the north side that leads to the new Springwater Trail undercrossing.

North of the Undercrossing

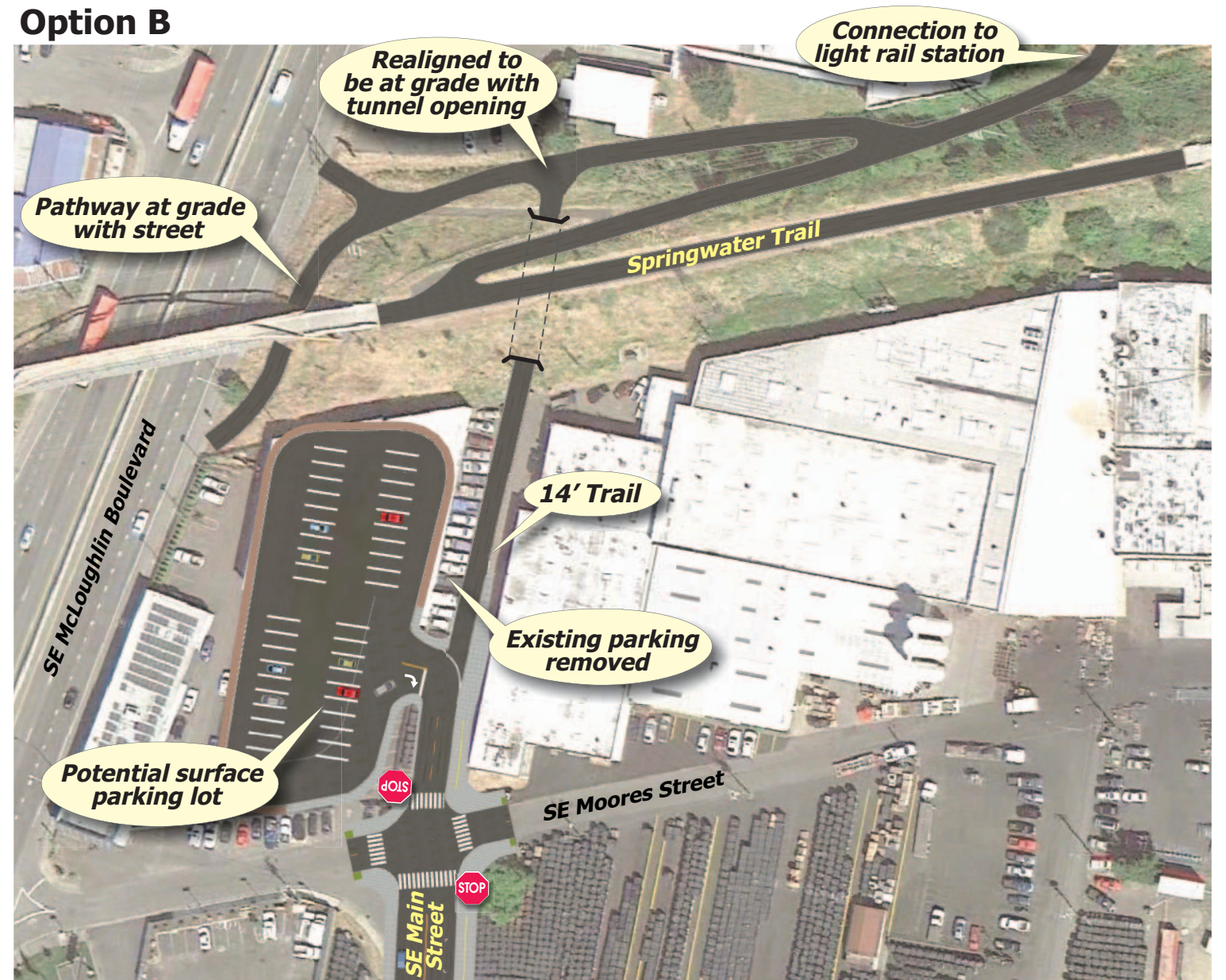
Where the undercrossing emerges on the north side of the Springwater Trail berm, some realignment of existing and planned trails is needed in order to create new connections. The existing path that connects from the McLoughlin Boulevard sidewalk is realigned north so that it can intersect with the undercrossing at grade.

If the existing property north of the Springwater Trail redevelops, there may be an opportunity to create a more direct connection from this undercrossing to the Tacoma Station. This could be done through an easement, potentially with a covered pathway through the property (e.g., between buildings or through an "open air" space in a building).

Option A



Option B



Stop Sign



Appendix G: Conceptual Design for Ochoco/OR 99E Intersection Improvements

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Conceptual Design Project 3. SE McLoughlin Boulevard / SE Ochoco Street intersection

ODOT Region 1 developed several different concepts to improve the SE McLoughlin Boulevard / SE Ochoco Street intersection with the following goals:

- Improve access for all modes to the area; and in particular the area south of the Tacoma Station.
- Enhance the delineation of the 'indirect left' from SE McLoughlin Boulevard to SE Ochoco Street eastbound.

Existing Conditions: Vehicles traveling southbound on SE McLoughlin Boulevard with the destination to go eastbound on SE Ochoco Street uses the right-turn lane at the signalized intersection that directs vehicles to travel through the intersection onto a 'jug-handle' connection with SE Ochoco Street. Vehicles then travel on SE Ochoco Street through the SE McLoughlin Boulevard signal to access the eastside of the roadway. This type of design is referred as an 'indirect left.'

Preferred Solution: ODOT Region 1 considered various different concepts of modifying the SE McLoughlin Boulevard / SE Ochoco Street intersection including flattening the turning radius on the northeast corner of the intersection. Figures A and B show the preferred solution to address the mixed transportation mode needs in this area. The preferred solution is broken into two projects for phasing purposes.

Indirect Left and Left-Turn Lane Comparison: The 'indirect left' have the following operational and safety benefits in comparison with a left-turn lane from SE McLoughlin Boulevard southbound to eastbound SE Ochoco Street:

- Reduction in the number of signal phases to an intersection reducing delay for all vehicles, bicycles, and pedestrians using the signal;
- The distance across SE McLoughlin Boulevard is shorter for pedestrians;
- The shorter distance for pedestrians to cross SE McLoughlin Boulevard allows the signal timing to have less delay on SE McLoughlin Boulevard through movement;
- Reduction in the risk of turning crashes on SE McLoughlin Boulevard;
- Reduction in the risk of rear-end crashes on SE McLoughlin Boulevard from the signal allowing more green time to the through movement on SE McLoughlin Boulevard; and
- Prevention of a scenario of a vehicle queue overflowing the left-turn lane causing the risk of a speed differential rear-end or sideswipe crashes.

Figure A adds sidewalk on the north side of the 'jug-handle' connector road. It also reduces the crossing distance for pedestrians at the connector road intersection with SE Ochoco Street. The southwest corner of the intersection in this Figure is designed for trucks with 33-foot trailers, but can accommodate trucks with 53-foot trailers. The southwest corner of the intersection is designed for trucks with 53-foot trailers.

Figure A: Indirect Left Pedestrian Enhancements Conceptual Designs

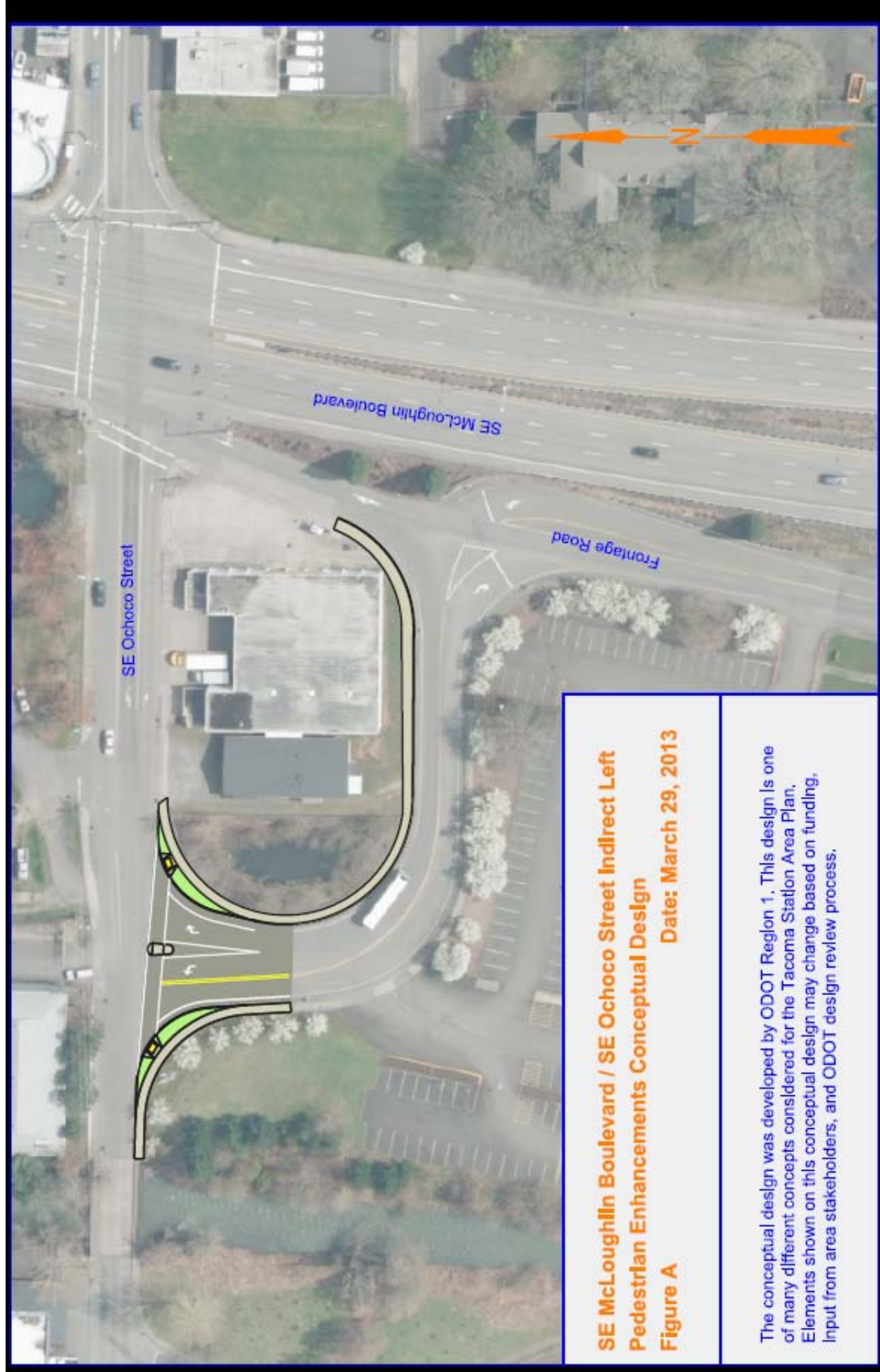


Figure B. Indirect Left Pedestrian and Delineation Enhancements Conceptual Design

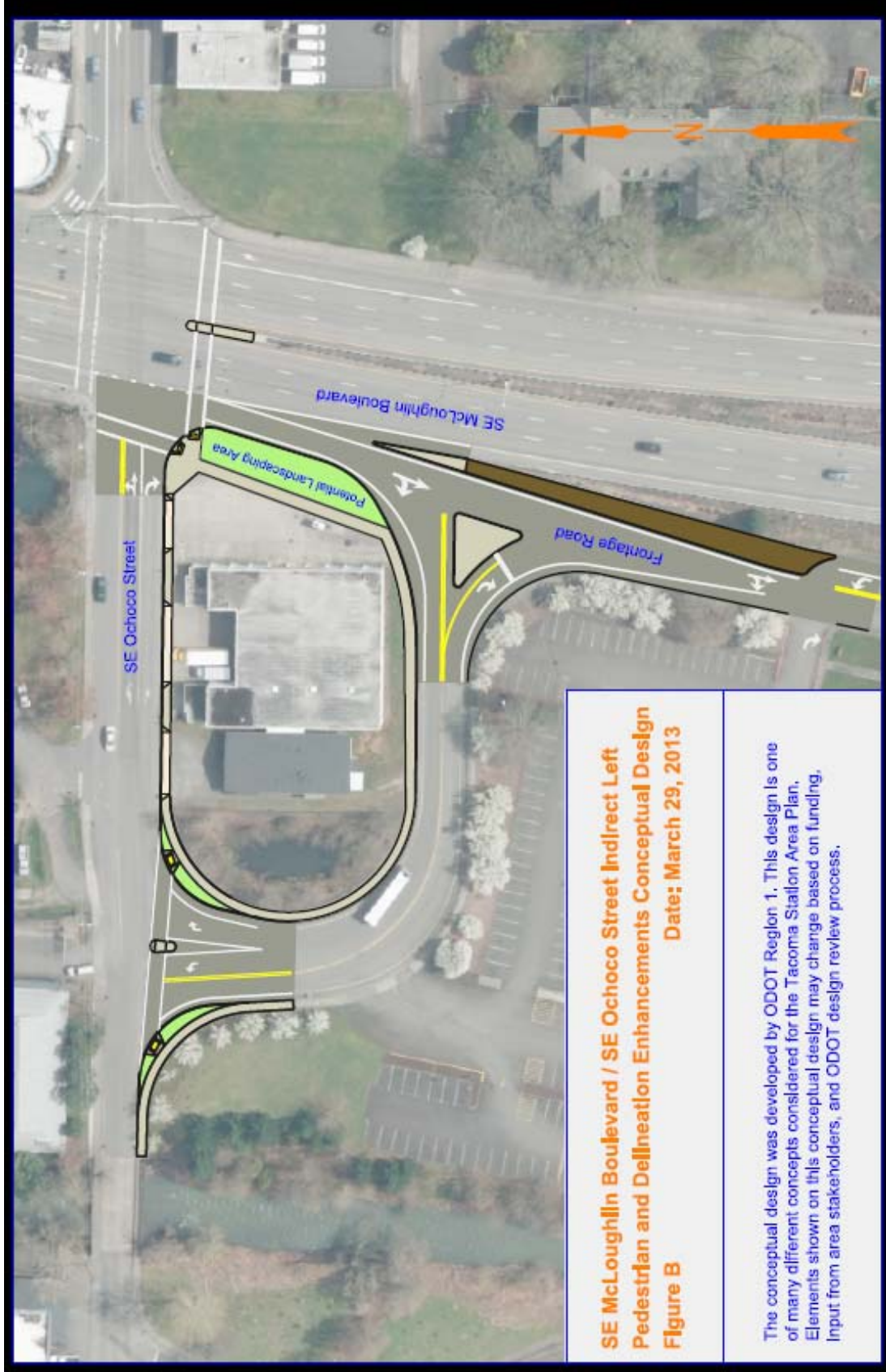


Figure B uses the same concept as Figure A, but also enhances the delineation of the ‘indirect left.’ This concept places access to the ‘indirect left’ after the intersection instead as a fifth-leg to the intersection. It allows the opportunity to place a marked crosswalk across the south leg of the SE McLoughlin Boulevard intersection. This concept requires a new traffic signal to be installed at the SE McLoughlin Boulevard intersection and working with TriMet to relocate the bus stop to a different location in the ‘indirect left’ path. Signs will be placed throughout the ‘indirect left’ to guide vehicles to their destinations.

Figure B removes the left-turn movement from northbound direction of the frontage road to the westerly-north direction of the ‘jug-handle’ connector since the proposed concept creates design challenges of keeping this movement. Traffic volumes for this left-turn movement have very low number of vehicles in an hour. Vehicles with the destination to SE McLoughlin Boulevard or SE Ochoco Street from the frontage road can reach these destinations via the frontage road connection with SE Milport Road. If this concept develops into a project, the project team should collect input from businesses on the frontage road to determine if the removal of the left-turn movement is a viable option.

Other Recommended Improvements

Other recommended improvements to improve area operations include:

- A cantilever sign north of the Springwater Bridge structure informing vehicles of the ‘indirect left’ at the SE McLoughlin Boulevard intersection;
- Additional sidewalk ramps on the north side of SE Ochoco Street from the ‘jug-handle’ connection; and
- Improvements and modifications to the sidewalk ramps to/from the frontage road sidewalk in the area of ‘jug-handle’ connector road.

Preferred Solution Project Cost Estimates: Table 1 shows planning level cost estimates in 2013 dollars. These cost estimates will need more refinement as a project develops. Installation of a new traffic signal is the highest cost item in these estimates followed by the cantilever sign.

Improvement Concept	Order of Magnitude Costs
Cantilever Sign North of Springwater Bridge	\$295,000 to \$325,000
Cantilever Sign North of Springwater Bridge and Improvements Shown in Figure A	\$390,000 to \$430,000
Cantilever Sign North of Springwater Bridge and Improvements Shown in Figure B	\$1.45 to \$1.60 million





Preferred Solution Implementation: No funding is identified for the identified for the SE McLoughlin Boulevard / SE Ochoco Street intersection improvements. It is possible that the improvements can be carried out incrementally as described above or that portions or all of the phased improvements will be a condition of area redevelopment. The improvements in Figures A and B reduce impervious surface removing the need for new stormwater facilities.

Alternative Analysis

Left-Turn Alternative: A panel of developers organized by the plan project team requested ODOT to examine adding a protected signal phase left-turn lane from SE McLoughlin Boulevard southbound to eastbound SE Ochoco Street to replace the 'jug-handle' configuration that exists today. Interest from the panel in adding a signalized left-turn lane includes having more direct access to the area; and specifically, the area south of the Tacoma Station transit station and to help change the character of McLoughlin from an expressway to a more traditional downtown treatment. ODOT concluded that the current 'jug-handle' configuration operates safer and reduces delay for all transportation than an addition of a left-turn lane to the signal. The cost estimate to reconfigure the intersection with left-turn lane is \$2.4 to 4.8 million and has been provided in the plan project list as background only. The reconfiguration to a left-turn lane is not supported by ODOT in the short to mid-term. Should area redevelopment occur beyond the forecast conditions, ODOT is willing to re-examine and discuss the trade-offs. The "Indirect Left and Left-Turn Lane Comparison" below provides more information on the findings.

Appendix H: Main Street Jurisdictional Transfer Order Map

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-  ROADWAY MAINTAINED BY STATE
-  PROPOSED STATE R/W
-  ROADWAY MAINTAINED BY CITY
-  PROPOSED CITY R/W

Unit 1



Tacoma - 17th Ave.

Unit 2

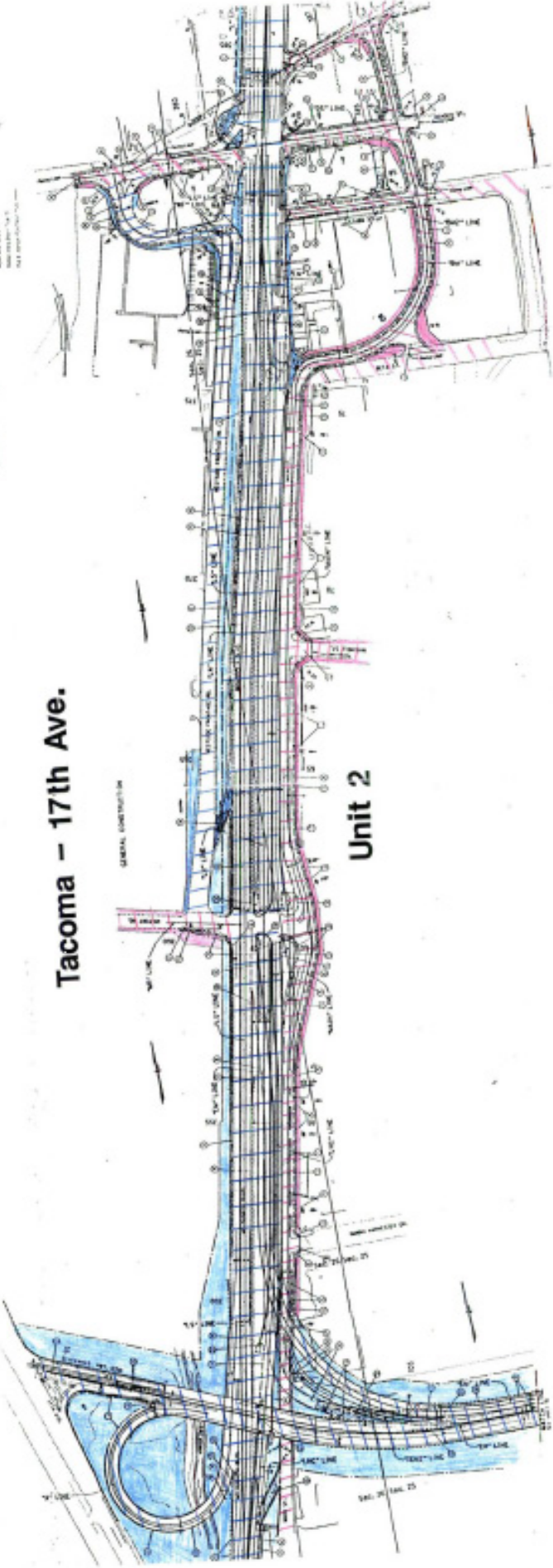


Exhibit 'B'

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Appendix I: Station Area Parking Supply & Demand Analysis

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Parking Demand and Management

This section provides a brief summary of key issues and findings regarding parking demand and management for the Preferred Redevelopment Scenario.

Projected Parking Demand and Supply

Parking demand was estimated for the Preferred Redevelopment Scenario 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 areas north of Beta Street. 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.

Analysis shows that parking demand under the Preferred Redevelopment Scenario is forecast to significantly exceed the supply provided under the city code, particularly south of Beta Street. 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 is needed in these areas. Table 1, below, shows the results of this supply and demand analysis.

Table 1: Preferred Redevelopment Scenario Supply vs. Demand

	Supply provided on street and in code	Demand	Additional supply needed to meet 85% occupancy target
Subarea 1	179	140	0
Subarea 2	86	61	0
Subarea 3A	186	152	0
Subarea 3B	263	306	97
Subarea 4	1,515	1,997	834
TOTAL	2,229	2,656	931

The imbalance between parking capacity and parking demand highlights the importance of demand-oriented strategies (discussed in the Redevelopment Scenarios Evaluation Report) and shared parking among different land uses. This is true particularly north of Beta Street, where the proposed mix of uses includes residential and significant retail. South of Beta Street (Subarea 4), however, the imbalance between supply and demand means additional strategies need to be considered:

- Repurposing the existing TriMet park-and-ride lot to provide more parking capacity
- Changing the code for the Manufacturing zone to increase the proportion of industrial use required
- Changing the code to increase the parking minimums for office and retail uses

To illustrate how these strategies might work, two alternative parking scenarios were developed: one that relies on additional capacity from the TriMet lot, and one that makes more substantial code changes that eliminate the need for the TriMet lot.

Alternative Parking Scenario 1

This scenario combines all three strategies in order to balance supply with demand. It assumes the following changes from the baseline scenario analyzed above:

- The TriMet lot (329 spaces) is repurposed as general parking for the surrounding land uses.
- The Manufacturing zone code is modified (or an overlay zone created) that requires **50%** industrial use rather than the current 25%.
- The parking code is modified to require a minimum of **2.5** spaces per 1,000 square feet for office uses (rather than the current 2) and **3.5** spaces per 1,000 square feet for retail uses (rather than the current 2.5).

Industrial uses tend to generate the least parking demand out of all of the allowed Manufacturing zone uses. Also, the city code's parking minimums for industrial uses are generally in line with likely demand. Therefore, increasing the proportion of industrial use and increasing parking minimums for other uses helps balance supply with demand.

Alternative Parking Scenario 2

This scenario avoids using the TriMet property for parking, making it a candidate redevelopment site instead. It assumes the following changes from the baseline scenario analyzed above:

- The Manufacturing zone code is modified (or an overlay zone created) that requires **75%** industrial use rather than the current 25%.
- The parking code is modified to require a minimum of **3** spaces per 1,000 square feet for office uses (rather than the current 2) and **4** spaces per 1,000 square feet for retail uses (rather than the current 2.5).

To avoid the need for the TriMet lot's additional capacity, more substantial changes to the code are needed. The proportion of industrial use south of Beta Street must be increased further, and the parking minimums for other uses are increased as well.

Table 2 shows how the supply and demand for parking south of Beta Street (Subarea 4) differ between the two alternatives.

Table 2: Alternative Parking Scenario Supply vs. Demand

	Demand	Supply provided on street, in TriMet lot, and in code	Supply needed to meet 85% occupancy target
Baseline	1,997	1,515	2,349
Alternative Scenario 1	1,509	1,816	1,775
Alternative Scenario 2	1,053	1,273	1,239

While both alternatives address both supply (parking minimums and potential TriMet lot use) and demand (reduced parking intensity from land use), they arrive at significantly different supply and demand totals. A more aggressive change to the land uses allowed south of Beta Street, as in Alternative 2, reduces both supply and demand significantly below baseline conditions. A less aggressive change to the land use mix reduces demand more modestly, and still requires more capacity (1,816 spaces vs. 1,515) than is provided under baseline conditions.

Other combinations of zone change, parking minimum change, and TriMet lot use are possible. Deciding which combination of strategies is most desirable will require further assessment of market conditions for the TriMet lot, as well as the desirability of the code changes described above.

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