



TECHNICAL MEMORANDUM

TO: Michael Weston, City Manager
King City, Oregon

FROM: Anne Sylvester, PTE and Dan Ireland, PE

DATE: April 1, 2018

PROJECT #: 780.01

SUBJECT: Summary of Transportation Cost Estimated for King City URA 6D Concept Plan

1. BACKGROUND AND PURPOSE OF THIS MEMO

The purpose of this memorandum is to summarize and present cost estimates for the recommended off-site transportation improvements to support development of the *King City Urban Reserve Area 6D Concept Plan*. The *Concept Plan* identifies the location and type of various land uses, as well as a transportation network for the project area. This area is bounded on the east by the existing city limits, on the north by Beef Bend Road, on the west by Roy Rogers Road, and generally on the south by the Tualatin River. Land uses in the URA are proposed to be largely residential, consisting of a nearly equal mix of single-family and multi-family units. Some employment-based development is also anticipated including retail, office and institutional uses.

To determine the potential impact of Concept Plan development on the surrounding state and county transportation system, a traffic operations analysis was conducted. This analysis focused on twelve intersections in the vicinity of the URA and was documented in a separate report dated March 2018. This analysis identified future long-term (2035) PM peak hour traffic deficiencies in several locations and recommended a series of improvement measures.

2. RECOMMENDED OFF-SITE TRANSPORTATION IMPROVEMENTS

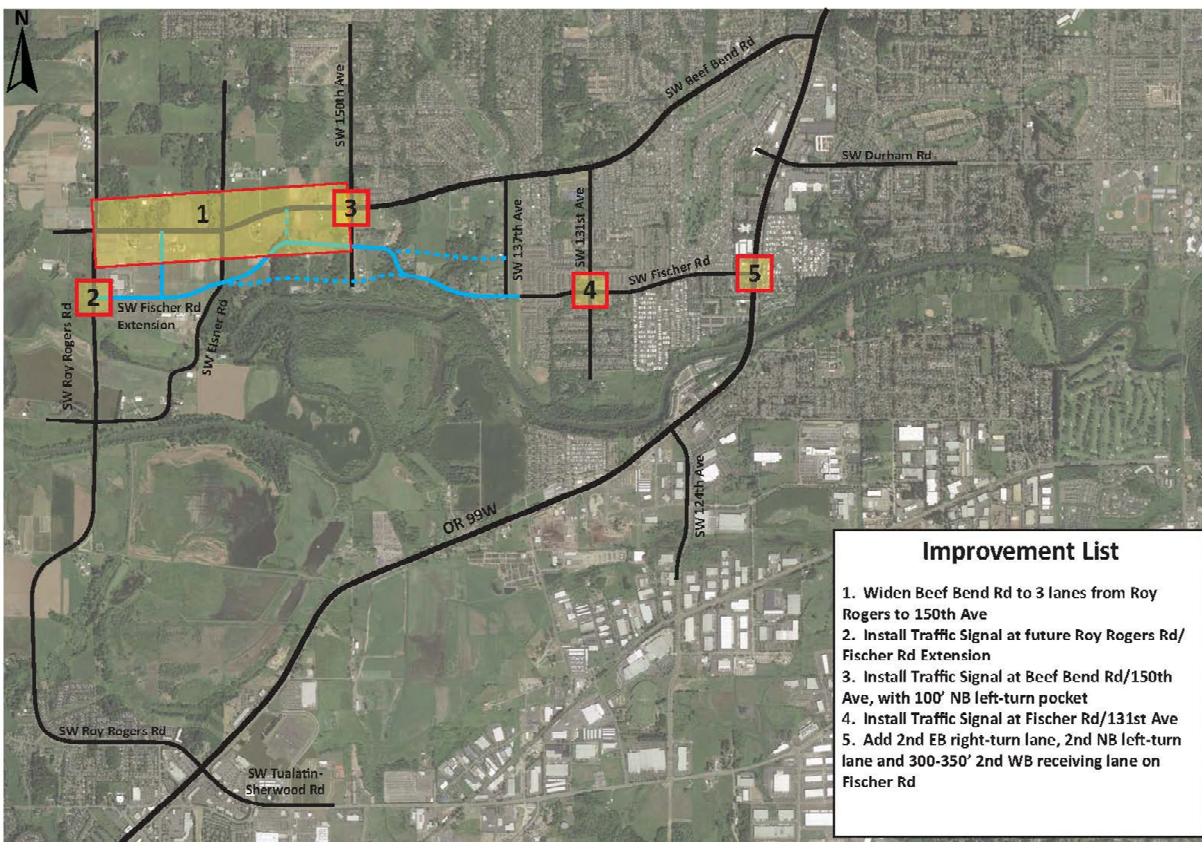
Based on analysis results for 2035 PM peak hour URA traffic projections at study area intersections, a variety of street and intersection improvements would be needed. These improvements are summarized in **Table 1** and illustrated in **Figure 1**.



Table 2. Improvements Needed with 2035 Development with URA 6D

No.	Location	Limits	Improvement
1	Beef Bend Road	Roy Rogers Road to 150 th Avenue	Widen to 3-lane urban minor arterial cross-section with sidewalks and bike lanes
2	Roy Rogers Road	At Fischer Road Extension	Install traffic signal and southbound left turn lane
3	Beef Bend Road	At 150 th Avenue	Install traffic signal and separate northbound left and through/right lanes
4	Fischer Road	At 131 st Avenue	Install traffic signal
5	Highway 99W	At Fischer Road	Add second eastbound right turn lane and second northbound left turn lane with an additional receiving lane on Fischer Road for approx. 300-350 feet.

Figure 2. Off-Site Transportation Improvement Needs with URA 6D Development



3. COST ESTIMATE SUMMARY

Table 2 summarizes the planning level cost estimates for the five recommended off-site transportation system improvements associated with King City URA 6D development. These improvements would all be required by 2035, with projects #2 and #3 and portions of project #1 likely needed by 2030. 100 percent



of the costs attributable to projects #2 through #5 would be associated with the URA. Based on select link analysis of 2035 PM peak hour traffic volumes attributable to land development and traffic growth in the URA (TAZs 1001 and 1051) it was determined that the URA would represent just over an average of 16 percent of the projected traffic volumes along Beef Bend Road between Roy Rogers Road and Highway 99W. This percentage was applied to the cost estimate for project #1 (widening of Beef Bend Road) to determine the proportionate share of improvements that should be allocated to URA 6D development. As illustrated in **Table 2**, the total off-site transportation cost attributable to URA 6D is \$7,865,000. Details of each cost estimate are attached to this memorandum.

Table 2. Summary of Off-Site Transportation Improvement Costs

No.	Location	Improvement	Planning Level Cost Estimate (2018\$)	URA 6D Percent Share of Cost	URA 6D Share of Cost
1	Beef Bend Road, Roy Rogers Road to 150 th Road	Widen to 3-lane urban cross-section including some ROW acquisition and permitting	\$11,150,000	16.1%	\$1,795,000
2	Roy Rogers Road @ Fischer Road Extension	Install traffic signal and intersection channelization	\$1,460,000	100%	\$1,460,000
3	Beef Bend Road @ 150 th Avenue	Install traffic signal and intersection channelization	\$1,560,000	100%	\$1,560,000
4	Fischer Road @ 131 st Avenue	Install traffic signal	\$1,070,000	100%	\$1,070,000
5	Fischer Road @ Highway 99W	Add intersection channelization and signal modification	\$1,980,000	100%	\$1,980,000
Totals			\$17,220,000		\$7,865,000



Planning Level Estimate

SW Beef Bend Road (from Roy Rogers Rd to SW 150th St)

Element	Unit	2017 Unit Cost	Quantity	Cost
Roadway	LF	\$277	5500	\$1,525,402
Sidewalk	LF	\$58	11000	\$637,481
Curb & Gutter	LF	\$45	11000	\$495,000
Driveway/Curb Ramps	EA	\$6,260	20	\$125,208
Storm Water Conveyance	LF	\$249	5500	\$1,371,742
Landscaping	LF	\$20	5500	\$110,859
Signing	LF	\$4	5500	\$22,000
Illumination	LF	\$73	5500	\$403,333
Item Subtotal				\$4,691,025
Mobilization		8%		\$375,282
Construction Staging & Traffic Control		8%		\$375,282
Temporary Erosion & Sediment Control		3%		\$140,731
Utility Impacts (Risk Level)	Low	2%		\$93,820
Environmental Impacts (Risk Level)	Medium	5%		\$234,551
Subtotal + Percentages				\$5,910,691
Construction Contingency		30%		\$1,773,207
Subtotal + Percentages + Contingency				\$7,683,899
Construction Engineering		12%		\$922,068
CN - Construction Total				\$8,605,966
Design Engineering		25%		\$2,151,492
Permitting		3%		\$258,179
PE - Engineering Total				\$2,409,671
ROW Purchase	Acre	\$40,000	2.78	\$111,341
Acquisitions/Appraisals/Etc		20%		\$22,268
RW - Right of Way Total				\$133,609

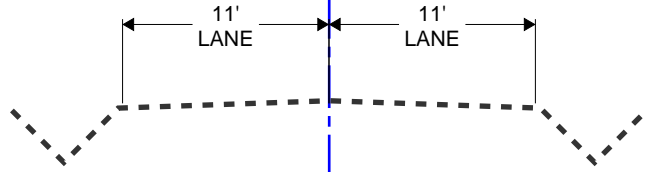
Planning Level Estimated Cost	\$11,150,000
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Assumptions

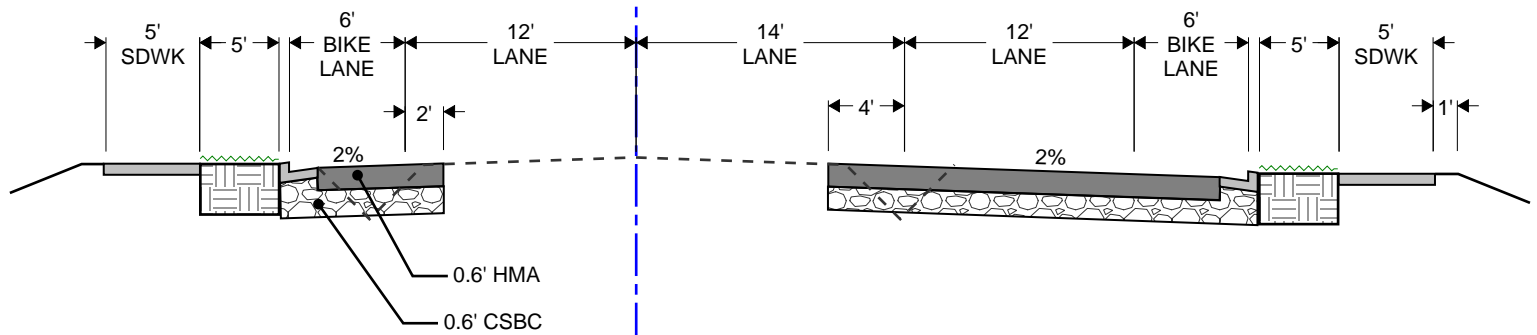
1. Taxes and escalation costs not included in estimate.
2. Overhead utility relocations will be by utility owner and not part of project costs.
3. Existing pavement and crown retained (no replacement or overlay).
4. Side road improvements not included for roads connecting to Beef Bend Rd.

Beef Bend Rd

EXISTING



PROPOSED







Planning Level Estimate

Roy Rogers Rd/Fischer Rd Extension

Install traffic signals and extend SB left turn to intersection.

Element	Unit	2017 Unit Cost	Quantity	Cost
Traffic Signal	EA	\$273,000	2	\$546,000
Roadway	LF	\$60	600	\$35,741
Roadside Restoration	LF	\$7	600	\$3,942
Signing	LF	\$4	1200	\$4,800
Illumination	LF	\$73	600	\$44,000
Item Subtotal				\$634,483
Mobilization		10%		\$63,448
Construction Staging & Traffic Control		8%		\$50,759
Temporary Erosion & Sediment Control		3%		\$19,034
Utility Impacts (Risk Level)	Low	1%		\$6,345
Environmental Impacts (Risk Level)	Low	1%		\$6,345
Subtotal + Percentages				\$780,414
Construction Contingency		30%		\$234,124
Subtotal + Percentages + Contingency				\$1,014,539
Construction Engineering		12%		\$121,745
CN - Construction Total				\$1,136,283
Design Engineering		25%		\$284,071
Permitting		3%		\$34,088
PE - Engineering Total				\$318,159
ROW Purchase				
Acquisitions/Appraisals/Etc				
RW - Right of Way Total				\$0

Planning Level Estimated Cost	\$1,460,000
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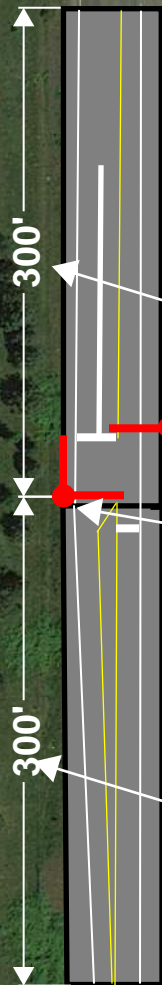
Assumptions

1. Taxes and escalation costs not included in estimate.
2. Overhead utility relocations will be by utility owner and not part of project costs.
3. Extend existing SB Roy Rogers left turn lane south to intersection location.
4. Minimal widening, no stormwater treatment costs assumed.
5. Existing pavement and crown retained (no replacement or overlay).
6. Improvements along future Fischer Road extension not part of this estimate
7. Curb ramps or pedestrian improvements not included with this estimate, no existing sidewalks on Roy Rogers Road.
8. No ROW needed for widening.

Untitled Map

Write a description for your map.

Legend



Widen existing roadway to extend left turn lane down to new intersection. Assume widening to west side (Average = 6 ft)

New traffic Signals

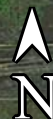
Move turn lane taper south of new intersection. Assume widening to west side (Average = 6 ft)

Future Fischer Rd Extension

Roy Rogers Rd

Google Earth

400 ft





Planning Level Estimate

Beef Bend Rd/SW 150th St

Install traffic signals and 100' left turn pocket to NB SW 150th St.

Element	Unit	2017 Unit Cost	Quantity	Cost
Traffic Signal	EA	\$273,000	2	\$546,000
Roadway	LF	\$317	300	\$95,205
Curb Ramps	EA	\$1,500	8	\$12,000
Roadside Restoration	LF	\$13	300	\$3,942
Signing	LF	\$1	300	\$300
Illumination	LF	\$73	300	\$22,000
Item Subtotal				\$679,447
Mobilization		10%		\$67,945
Construction Staging & Traffic Control		8%		\$54,356
Temporary Erosion & Sediment Control		3%		\$20,383
Utility Impacts (Risk Level)	Low	1%		\$6,794
Environmental Impacts (Risk Level)	Low	1%		\$6,794
Subtotal + Percentages				\$835,720
Construction Contingency		30%		\$250,716
Subtotal + Percentages + Contingency				\$1,086,436
Construction Engineering		12%		\$130,372
CN - Construction Total				\$1,216,809
Design Engineering		25%		\$304,202
Permitting		3%		\$36,504
PE - Engineering Total				\$340,706
ROW				
Acquisitions/Appraisals/Etc				
RW - Right of Way Total				\$0

Planning Level Estimated Cost	\$1,560,000
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Beef Bend Rd - SW 150th ST

Intersection Improvements

Legend

Traffic Signals

6' Gravel shoulders, 12' lanes
All reconstructed

-Average paved width = 30'
-Average Aggregate Shld width = 4.5'

100' Turn Pocket

50' Opening

150' Taper
(25:1 taper,
symmetric
widening)

20.00 ft

200.00 ft
200 ft





Planning Level Estimate

SW Fischer/SW 131st Ave

Install traffic signal at intersection for all directions.

Element	Unit	2017 Unit Cost	Quantity	Cost
Traffic Signal	EA	\$273,000	2	\$546,000
Roadside Restoration	LS	\$1,000	1	\$1,000
Item Subtotal				\$547,000
Mobilization		10%		\$54,700
Construction Staging & Traffic Control		3%		\$16,410
Temporary Erosion & Sediment Control		1%		\$5,470
Utility Impacts (Risk Level)	Low	1%		\$5,470
Subtotal + Percentages				\$629,050
Construction Contingency		30%		\$188,715
Subtotal + Percentages + Contingency				\$817,765
Construction Engineering		10%		\$81,777
CN - Construction Total				\$899,542
Design Engineering		15%		\$134,931
Permitting		3%		\$26,986
PE - Engineering Total				\$161,917
ROW				
Acquisitions/Appraisals/Etc				
RW - Right of Way Total				\$0

Planning Level Estimated Cost	\$1,070,000
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Assumptions

1. Taxes and escalation costs not included in estimate.
2. Overhead utility relocations will be by utility owner and not part of project costs.
3. No roadway reconstruction or rechannelization costs included.
4. No ROW needed for signals.

SW Fischer Rd - SW 131st Ave

Traffic Signal

Legend

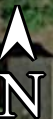
SW Carmel St

Traffic Signal

SW Fischer Rd

Google Earth

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100 ft





Planning Level Estimate

SW Fischer Rd/OR 99W

Add 2nd NB left turn lane, 2nd WB receiving lane, 2nd EB right turn lane

Element	Unit	2017 Unit Cost	Quantity	Cost
Traffic Signal	EA	\$273,000	1	\$273,000
Traffic Signal Modification	EA	\$100,000	1	\$100,000
Roadway (NB Left Turn Lane)	LF	\$156	300	\$46,816
Roadway (WB Receiving Lane)	LF	\$112	450	\$50,450
Roadway (EB Turn Lane)	LF	\$44	450	\$19,601
Sidewalk	LF	\$133	1200	\$159,543
Storm Water Conveyance	LF	\$110	1200	\$132,000
Curb Ramps	EA	\$1,500	2	\$3,000
Roadside Restoration	LF	\$3	1500	\$4,928
Signing	LF	\$2	1500	\$3,000
Item Subtotal				\$792,339
Mobilization		10%		\$79,234
Construction Staging & Traffic Control		11%		\$87,157
Temporary Erosion & Sediment Control		3%		\$23,770
Utility Impacts (Risk Level)	Medium	4%		\$31,694
Environmental Impacts (Risk Level)	Low	1%		\$7,923
Subtotal + Percentages				\$1,022,117
Construction Contingency		30%		\$306,635
Subtotal + Percentages + Contingency				\$1,328,752
Construction Engineering		12%		\$159,450
CN - Construction Total				\$1,488,202
Design Engineering		25%		\$372,051
Permitting		3%		\$44,646
PE - Engineering Total				\$416,697
ROW Purchase	Acre	\$500,000	0.12	\$61,983
Acquisitions/Appraisals/Etc		20%		\$12,397
RW - Right of Way Total				\$74,380

Planning Level Estimated Cost	\$1,980,000
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Assumptions

1. Taxes and escalation costs not included in estimate.
2. Overhead utility and lighting relocations will be by utility owner and not part of project costs.
3. Assume sufficient ROW width on south side of Fischer, 12' of ROW needed along north side of Fischer.
4. No stormwater treatment costs included only conveyance relocation.
5. Assume NB OR 99W signal can be modified for additional left turn. EB signal is assumed to be new for reconfig and relocation.

SW Fischer Rd - OR 99W

Intersection Improvements

Legend

