Appendix L. Roadway Design Criteria Sheets

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		ROADWAY TECI	HNICAL MEMORANDUM - D	ESIGN CRITERIA	
		1_6	5: Rose Quarter Improvement	nte	
MP of Project		MP 301 5 (L-84 Intega) to MP 303 1 (L-405	Intcha)	111.5	
Design Standard (4R/New 3R AASHTO "Green Book" - 2	2011)	4P/New	Interio)		
County	.011)	Multhomab			
		1			
Common Route No		Interstate 5			
ODOT Highway No		001			
ODOT Highway Name		Pacific Highway			
Eunctional Classification (by ODOT county city or other A	dency)	Lirban Principal Arterial - Interstate			
Freight Route (Y/N)	901103)	Y (NHS FR TR RRR from OHP High Ro	ute)		
Terrain (Level Rolling Mountainous)		l evel			
			PERMANENT FACILITY		
		CONSTRUCTIO	N PROJECT	Design	
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)	
Speed					
Posted Speed	50 mph	50 mph	50 mph		
Design Speed (Mainline I-5)		70 mph	70 mph	N	Assumes full freeway design vs
Design Speed (Ramps)		50 to 85% of mainline (35-60mph)	35-60	N	See ramp geometric details
Horizontal Alignment - Controlling Criteria					
Degree of Curve (Mainline)	2°	3°15' Max	2°02'00"	Ν	HDM Table 5-2, 70mph, 3°15' o submittal
Radius (Mainline)	2,865'	1762.94'	2817.82'	N	HDM Table 5-2
Stopping Sight Distance (Standard)	505'	730'	625'	Y	Sight Distance obstructed by sh
Vertical Curve (Sag)				· ·	Maximum mainline criteria Ado
Sag K Value (Mainline)	130	181 min	130	Y	Matching Existing structure at L
Vertical Curve (Crest)	100		100		Maximum mainline criteria Ado
Crest K Value (Mainline)	205	247 min	205	V	Matching Existing structure at L
	200	2.11.1111	200	-	
				-	* 17' 6" will be accommodated
		17' 4"	*17' 6"		clearance for NB lanes and sho
Bridge Vertical Clearance	>16.5'		16' 6" Ramps	Y	Broadway Exit ramp, NB exit ra
RR Vertical Clearance	>23'	23'	>23'	Ň	
	-	-			25' min w/o crash wall or 18' m
					development and will be provid
RR Horizontal Clearance	< 25'	25'	TBD		track not currently being modified
Typical Section (Mainline)					
Lane Width North End to Sta 380+50	12'	12'	12'	N	HDM, Table 5-2
Lane Width Sta 380+50 to South End	12'	12'	11' and 12'		In Zone 7 the A lane in both NE
14 (lateries) Oblig (shee) Middle Needle Fred to Obs 2004 50			12' typ.	Ň	HDM Sec. 5.2.3. Shoulder is 12
Lt (Interior) Shidr / shy Width North End to Sta 380+50	Var. 3' to 6'	$10^{\circ} + 2^{\circ} \sin y$	6' min	Y	south ends of the project (within
Lt (Interior) Shldr / shy Width Sta 380+50 to South End	Var. 3' to 6'	10' + 2' shy	3' typ.	Y	In Zone 7 the median shoulder
			· · · · · · · · · · · · · · · · · · ·		HDM Table 5-2. Min 8' shoulde
Rt (Exterior) Shldr Width North End to Sta 380+50	8'	10' + 2' shy	12' typ.	Y	day. Shoulder is 12' typical. Sh
	C C		5' min		of the project (within areas bein
Rt (Exterior) Shldr Width Sta 380+50 to South End	8'	10' + 2' shy	NB 9'	Y	In Zone 7 the outside shoulder
Rt (Exterior) Shy Distance	י2	2'	2004 21	N	2' shy required when right show
	۷.	4	<u> </u>		HDM Table 5-2 minimum for a
					condition that the project ties in
	15'	26'	26'*		highway covers the median wid
	10	20	10' min		transitions to match the existing
Median Width				N	transitions.

November 25, 2020

REMARKS

. optional lower urban freeway design speed

legree curve (max), Additional Mainline Curve Tables with future

houlder barrier and median bridge columns. 60 mph SSD = 570'

ditional Curve tables pending

-84 Interchange

litional Curve tables pending -405 Interchange

where constraints allow. Investigating design exceptions for vertical oulder of freeway covers, I-5 NB Broadway Entrance ramp, I-5 SB amp to Weidler, and SB mainline shoulder.

in w/ crash wall. Column placement and RR clearance are under led with 20% design. Existing unprotected constraints within 25' of ed.

3 and SB is 11' wide. All other lanes are 12' 2' typical. Shoulder is substandard at the tie in points at the north and n areas being modified) with a minimum width of 6'.

reduces to 3' in both directions

er for Aux Lanes, Fig 5-2 calls for 12' min when trucks exceed 250 per noulder is substandard at the tie in points at the north and south ends ng modified) with a minimum width of 8'.

reduces to 9' NB and 4' SB

Ilder is less than 12 feet

6 lane section is 26' and 18' for a 4 lane section which is the existing nto. Typical median width is 26' within the widened areas. Within the oth increases around median obstructions. The median width g median width of approximately 10' on the north and 18' on the south

		ROADWAY TEC	CHNICAL MEMORANDUM - D	ESIGN CRITER	IA					
I-5: Rose Quarter Improvements										
Tapers					Ramp tapers will be added with					
Taper Rate - Recovery Taper		70:1	50:1							
					There is a mainline striping tape					
Taper Rate - Striping Taper	N/A	70:1	50:1		is no widening to add the extra w					
Barrier Type										
Median Barrier					Barriers must meet MASH criter					
Lt (Interior) Roadside Barrier					Barriers must meet MASH criter					
Rt (Exterior) Roadside Barrier					Barriers must meet MASH criter					
Bridge Rail					See Bridge Plans					
Other										
Clear Zona	NA	var. 30'-38' (Foreslope)								
Clear zone	INA	22-24' (Backslope)			HDM Table 4-3, Can limit to 30'					
		1:6 to SGSh								
Fill Slopes	NA	1:4 to Catch			Fill slopes out to ditch line will m					
		Protect >1:3								
Cut Slopes	1:2	1:2 over 15'			Rock cut slope to be developed					
Interchange Spacing										
					OHP, Appendix C, Table 12 (inte					
	< 1 mile	3 miles	< 1 mile	*N	9.1.2 apply. The HDM Ch 9.1.2 s					
		0 111100			not require a DE but are subject					
Interchange Spacing	4.0001			X	Division 51). Ramp spacing appr					
Ramp Spacing - NB I-84 Entrance to Weidler Exit	1,360'	2,000' Min	1,145'	Y	HDM Figure 9-8, Full Freeway 3					
Ramp Spacing - NB Weidler Exit to Broadway Entrance	2 595'	500' Min	2 500'	N	HDM Figure 9-8 Full Freeway 7					
Ramp Spacing - NB Broadway Entrance to I-405 Exit	1.080'	2.000' Min	1.340'	Y	HDM Figure 9-8. Full Freeway 3					
Ramp Spacing - NB I-405 Exit to Greelev Exit	805'	1.000' Min	810'	Y	HDM Figure 9-8. Full Freeway 1					
Ramp Spacing - SB I-405 Entrance to Broadway Exit	2,060'	2,000' Min	2,165'	N	HDM Figure 9-8, Full Freeway 3					
Ramp Spacing - SB Exit to Broadway to Weidler	ć	,								
Entrance	2,485'	500' Min	2,420'	N	HDM Figure 9-8, Full Freeway 7					
Ramp Spacing - SB Weidler Entrance to I-84 Exit	1,300'	2,000' Min	1,265'	Y	HDM Figure 9-8, Full Freeway 3					
Ramp Spacing - SB I-84 Exit to Exit to City Center	1,280'	1,000' Min	1,215'	N	HDM Figure 9-8, Full Freeway 1					
		-								

November 25, 2020

DAP submittal

er to open up an aux lane at the south end of the project since there width

ria for Test Level IV

ria

ria. Concrete (east of Sunset) or Guardrail (west of Sunset).

for practicality/consistency.

natch existing

based on final Geotechnical rock stability findings.

terchange spacing) and Table 18 (ramp spacing), and HDM Chapter states that existing interchanges that do not meet this spacing do et to access spacing deviation requirements (see OAR Ch 734, proval will be sought through a project memorandum issued to the R1 3000' desirable, 2500' adequate

750' desirable, 600' adequate 3000' desirable, 2500' adequate 1500' desirable, 1200' adequate

3000' desirable, 2500' adequate

750' desirable, 600' adequate

3000' desirable, 2500' adequate 1500' desirable, 1200' adequate

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA

24 Crest

120'

30 mph

54 Sag

375'

35 mph

		ŀ	-5: Rose Quarter Improvem	ents					
	Ramp Geometric Design Criteria								
				Design					
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)					
Weidler NB exit ramp - "pD4" LINE									
Right Shoulder Width	2'	10' + 2' shy	8'	Y	Assumes 2 Lane exit with 2' E ac				
Left Shoulder Width	2'	6'	4'	Y	2' Left shoulder shy not required				
Lane width	12'	12'	12'	N					
Vertical Curve Data - Vertical Curve 1									
K Value (indicate crest or sag)		19	34 (crest)	N	HDM Figure 3-9: 35 mph				
Vertical Curve Length		115'	100'	-					
Design Speed Achieved		30 mph	35 mph	-					
Vertical Curve Data - Vertical Curve 2									
K Value (indicate crest or sag)		96	67 (sag)	Y	HDM Figure 3-8: 35 mph				
Vertical Curve Length		492'	350'	-					
					Sag occurs before adequate sep				
Design Speed Achieved		50 mph	40 mph	-	mph				
				Design					
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)					
Weidler SB entrance ramp - "pWSB" LINE									
Right Shoulder Width	0'	6' + 2' shy	Var. 8' to 13'	N	3rd lane is a shoulder ramp mete				
Left Shoulder Width	0'	4'	4'	Ν					
Lane width	12'	12'	12'	N					

19

115'

30 mph

49

340'

35 mph

Vertical Curve Data - Vertical Curve 1

Vertical Curve Data - Vertical Curve 2 K Value (indicate crest or sag)

K Value (indicate crest or sag)

Vertical Curve Length

Design Speed Achieved

Vertical Curve Length Design Speed Achieved November 25, 2020

REMARKS

dded when next to barrier on ramps (per HDM section 9.6)

paration from freeway takeoff point allows for vehicle to decel to 40

REMARKS

er lane

HDM Figure 3-8: 35 mph

HDM Figure 3-9: 35 mph

Ν

-

-

Ν

-

-

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA

I-5: Rose Quarter Improvements

				Design	
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)	
Broadway SB exit ramp - "pEC" LINE					
Right Shoulder Width	2.5'	10' + 2' shy	6' + 2' shy where barrier present	Y	Assumes 2 Lane exit with 2' E
Left Shoulder Width	2'	6'	4'	Y	2' Left shoulder shy not require
Lane width	12'	12'	12'	N	2 lane exit ramp
Vertical Curve Data - Vertical Curve 1					
K Value (indicate crest or sag)		96	47 sag	Y	
Vertical Curve Length		715'	350'	-	
					Sag occurs before adequate se
Design Speed Achieved		50 mph	30 mph	-	mph
Vertical Curve Data - Vertical Curve 2					
K Value (indicate crest or sag)		19	25 crest	N	
Vertical Curve Length		105'	150'	-	
Design Speed Achieved		30 mph	30 mph	-	

DESIGN FEATURE	Existing	Standard	Proposed	Design Exception (Y/N)	
Broadway NB entrance ramp - "pF2" LINE					
Right Shoulder Width	2.5'	6' + 2' shy	8'	N	2 Lane entrance ramp
Left Shoulder Width	2'	4'	4'	Ν	
Lane width	12'	12'	12'	N	
Vertical Curve Data - Vertical Curve 1					
K Value (indicate crest or sag)		49	53 sag	N	HDM Figure 3-8: 30 mph
Vertical Curve Length		416'	450'	-	
Design Speed Achieved		35 mph	35 mph	-	Crest VC is at tail end of loop rar
Vertical Curve Data - Vertical Curve 2					
K Value (indicate crest or sag)		19	19 crest	N	
Vertical Curve Length		162'	170'	-	
Design Speed Achieved		30 mph	30 mph	-	

DESIGN FEATURE	Existing	Standard	Proposed	Design Exception (Y/N)	
NB Exit Ramp to I-405 SB - "pSW1" Line					
Right Shoulder Width	10'	10' + 2' shy	Var. 6' to 12'	Y	2 lane exit.
Left Shoulder Width	4.5'	6'	Var. 6' to 12'	Ν	
Lane width	12'	12'	12'	Ν	
Vertical Curve Data - Vertical Curve 1					
K Value (indicate crest or sag)		136	53 sag	Y	
Vertical Curve Length		795'	310'	-	
					Sag occurs before adequate sep
Design Speed Achieved		60 mph	35 mph	-	mph
Vertical Curve Data - Vertical Curve 2					
K Value (indicate crest or sag)		247	91 crest	Y	
Vertical Curve Length		1375'	250'	-	
					Crest occurs before adequate se
Design Speed Achieved		70 mph	50 mph	-	mph

•

REMARKS

added when next to barrier ed on ramps (per HDM section 9.6)

separation from freeway takeoff point allows for vehicle to decel to 30

REMARKS

mp in a speed transition area. K value provides 35 mph line of sight.

REMARKS

paration from freeway takeoff point allows for vehicle to decel to 35

separation from freeway takeoff point allows for vehicle to decel to 50

		ROADWAY TECHN	IICAL MEMORANDUM -	DESIGN CRITERIA						
	I-5: Rose Quarter Improvements									
DESIGN FEATURE	Existing	Standard	Proposed	Design Exception (Y/N)						
NB Exit Ramp to Greely Ave - "pGN1" Line			- -							
Right Shoulder Width	6'	6' + 2' shy	6'	Y	No 2' E proposed. Transitioning					
Left Shoulder Width	4'	4'	4'	N						
Lane width	16'	16'	16'	N						
Vertical Curve Data - Vertical Curve 1										
K Value (indicate crest or sag)		136	115 crest	Y						
Vertical Curve Length		497'	420'	-						
					Crest occurs before adequate se					
Design Speed Achieved		60 mph	55 mph	-	mph					
				Design						
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)						
I-5 NB Entrance Ramp from I-84 WB -										
"pEN1_Opt3_Preferred" Line										
Right Shoulder Width	4'	10' + 2' shy	Var. 8' to 12'	Y	2 Lane entrance ramp					
Left Shoulder Width	5'	6'	5'	Y						
Lane width	12'	12'	2 @ 12'	N						
Vertical Curve Data - Vertical Curve 1										
K Value (indicate crest or sag)	47 - Sag	49 - Sag	50 Sag	N						
Vertical Curve Length	230'	192'	196'	-						
Design Speed Achieved	30 mph	35 mph	35 mph	-						
Vertical Curve Data - Vertical Curve 2										
K Value (indicate crest or sag)	66 Crest	61 - Crest	86 Crest	N						

				Design	
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)	
I-84 WB (Ramp EN) to Holladay St Split - "H3" /					
"pH4" Lines split from "EN+" / "pEN1" Lines					
Right Shoulder Width	5'	6' + 2' shy	5.3' to 5.5'	Y	There is barrier on both sides so
Left Shoulder Width	4'	4'	3.2'	N	Matching existing beyond the ne
Lane width	12'	16'	12'	Y	Matching existing beyond the ne
Vertical Curve Data - Vertical Curve 1					
K Value (indicate crest or sag)	36 Crest	29	37 Crest	N	
Vertical Curve Length	350	274'	350'	-	
Design Speed Achieved	35 mph	35 mph	35 mph	-	
Vertical Curve Data - Vertical Curve 2					
K Value (indicate crest or sag)	43 Sag	37	45 Sag	N	
Vertical Curve Length	160'	143'	175'	-	
Design Speed Achieved	30 mph	30 mph	40 mph	-	
Vertical Curve Data - Vertical Curve 3					
K Value (indicate crest or sag)	65 Crest	44	48 Crest	N	
Vertical Curve Length	400'	120'	110'	Y	Curve length doesn't meet 3V
Design Speed Achieved	45 mph	40 mph	40 mph	-	-

303'

45 mph

550'

45 mph

Vertical Curve Length

Design Speed Achieved

428

50 mph

-

-

November 25, 2020

REMARKS

to match existing.

separation from freeway takeoff point allows for vehicle to decel to 55

REMARKS

REMARKS

o an 8' right shoulder is needed. Matching existing. ew gore. ew gore.

	ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA										
		I-5: Rose Quarter Improvements									
	Existing	Standard	Proposed	Design Exception (Y/N)							
I-5 SB Exit to I-84 EB - "pNE1" Line		Clandard									
Right Shoulder Width	2'	6' + 2' shv	5'	N							
Left Shoulder Width	3'	4'	4'	N							
Lane width	16'	16'	12'	N							
Vertical Curve Data - Vertical Curve 1											
K Value (indicate crest or sag)	35 Crest	151	47 Crest	Y							
Vertical Curve Length	230'	191	43'	-							
Ŭ					Crest occurs before adequate s						
Design Speed Achieved	35 mph	60 mph	40 mph	-	mph						
Vertical Curve Data - Vertical Curve 2		•									
K Value (indicate crest or sag)	43 Sag	96	38 Sag	Y							
Vertical Curve Length	200'	579'	190'	-							
Ŭ					Sag occurs before adequate se						
Design Speed Achieved	30 mph	50 mph	30 mph	-	mph						
				·							
				Design							
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)							
I-5 SB Exit to Morrison - "pC1" Line											
Right Shoulder Width	2'	6' + 2' shy	2'	Y	Design exception at tie-in to exist						
Left Shoulder Width	4'	4'	4'	N							
Lane width	15'	16'	15'	Y							
Vertical Curve Data - Vertical Curve 1											
K Value (indicate crest or sag)	61 Sag	79	61 Sag	N	Matches extg.						
Vertical Curve Length	242	273	242	-							
Design Speed Achieved	35 mph	45 mph	35 mph	-							
Vertical Curve Data - Vertical Curve 2											
K Value (indicate crest or sag)	444 Sag	79	444 Sag	N	Matches extg.						
Vertical Curve Length	233	135'	233	-							
Design Speed Achieved	> 80 mph	45 mph	> 80 mph	-							

November 25, 2020

REMARKS

eparation from freeway takeoff point allows for vehicle to decel to 45

eparation from freeway takeoff point allows for vehicle to decel to 40

REMARKS

isting structure.



Typical Sections Criteria as provided by PBOT to the Rose Quarter Design Team

					Bike		Ped				a 1/a:i	
	ISP Ped	ISP Bike			Buffer	Bike Thru	Buffer	Ped Thru	Frontage	Ped Only	Ped/Bike	_
Street	Class	Class	Bike Facility	Travel Lane(s)	Zone	Zone	Zone	Zone	Zone	Corridor	Corridor	Remarks
Broadway	CCT/PS/PD	MCB/BD										Buffer widths for pe
Weidler	CCT/PS/PD	MCB/BD										during design, but t
Vancouver	CW/PD	MCB/BD	Directional	11 (12 curbtight)	4.5*	7	2	8	2.5	15	24	width needed. Wid
Wheeler btn Ramsay and Weidler	CW/PD	MCB/BD										trees, driveway app
Ramsay	CW/PD	CB/BD										accommodate pole
Williams n/o Broadway	CW/PD	MCB/BD										Buffer widths for pe
Williams s/o Weidler	CW/PD	MCB/BD			4 =+				2.5	45	31	during design, but t
Wheeler s/o Ramsay	CW/PD	MCB/BD	Bidirectional	11 (12 curbtight)	4.5^	14	2	8		15		width needed. Wid
Williams btn Bway and Weidler	CW/PD	MCB/BD							4.5*		33	trees, driveway app
Clacamas Br	CW/OSP	CB/BD	Bidirectional	N/A	0	12	0	12	0	N/A	24	Two 6ft ped zones
Hancock/Dixon	LSW	СВ	Directional	10	2	6	4.5*	6	1.5	N/A	20	Bike facility at stree
Hancock porth of Hancock/Dixon	LSW	I SB										
Wheeler north of Broadway	LSW	LSB	None	See Remarks	N/A	N/A	4 5*	6	0.5	11	N/A	32ft curb to curb wi
Flint north of Broadway	LSW	LSB (future						Ū.	0.0			
			Directional	(40) overheight)	2	6	4 5*	0	4.5	N1/A	20	Diles fosility of stress
	CW/PD	LSB/BD	Directional	TT (TZ curbtight)	2	0	4.5	8	1.5	N/A	20	Bike facility at stree
Russell	CW	СВ	Directional		4.5*	7	2	6	1.5	N/A	19	
Lloyd	CW/PD	MCB/BD	Bidirectional		4 5*	14	2	8	2.5	15	31	
			Dianectional		ч.0	14	2	0	2.0	10	51	
Esplanade	OSP/PD	MCB/BD	Bidirectional				match e	existing cros	s section			

* includes 0.5ft curb

ed/bike corridors may be allocated differently these will help establish the correct overall corridor der buffers are needed to accommodate street oproaches, etc. Narrower buffers are OK if they only es, posts, etc.

ed/bike corridors may be allocated differently these will help establish the correct overall corridor der buffers are needed to accommodate street proaches, etc. Narrower buffers are OK if they only

on outside and two 6ft bike zones on inside

et level OK

vith parking both sides

et level OK

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N/NE WEIDLER STREET

		I-5: Rose Quarter Improvements						
MP of Bridge (Segment)		I-5: MP 301.5 to 303.1						
Design Standard (4R/New, 3R, AASHTO "Green Bool	<" - 2011)				A Policy on Geometric Design of Highwa Design Guide for Public Street Improven Pedestrian Design Guide, PBOT 1998 Designing for Truck Movements and Oth 2035 Transportation System Plan (TSP) Bicycle Plan for 2030, 2010 PBOT Ped PDX PBOT Traffic Design Manual Vol. 1 Draft PBOT Protected Bike Lane Design			
		4R/New			COP Broadway-Weidler Corridor Plan			
ODOT Region		1			COP Lloyd District Transportation Project			
ODOT Highway Na					COP Lloyd District Transportation Capita			
ODOT Highway No.		IN/A			COP Special Design Guidelines for the D			
ODOT Highway Name/City Street Name					PBOT/ODOT/BPS Central City 2035 N/f PCC 17.28.110 Driveways-Permits and Development of Bicycle Facilities, AASH			
		NE Weidler St						
Functional Classification (by ODOT, county, city or other Agency)		Principal Arterial <u>PBOT TSP Classifications</u> Street Classification: Civic Corridor Traffic Classification: Major City Traffic Str Transit Classification: Major Transit Priority Freight Route: Major Truck Street Emergency Response Class: Major Emerg Bicycle Classification: Major City Bikeway	eet [,] Street gency Response		Portland 2035 Transportation System Pla			
State Classification System Designation (SCS)		NHS Route: Yes						
Freight Route (Y/N)		See TSP Classifications		-				
Roadway Crossed (Over, Under, None; plus Name)		Over	I-5					
Other Designations from OHP		N/A						
Terrain (Level, Rolling, Mountainous)		Rolling						
Trucks (%)		N/A			To be Provided with future submittal			
			One-Way ADT					
Projected ADT (Const Yr + 20 Yr) (Year 20)					To be Provided with future submittal			
		CONSTRUCTION PRO						
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)				
Design Vehicle								
Vehicle Designation		WB-40	Portland T-1 Fire/WB- 67	N	PBOT, Section 5 Design for Trucks - Ne only?) - See IDVAR for more informatior			
Turning Radius								
Speed								
Posted Speed	30 mph		25 mph	N				
Design Speed		30 mph	30 mph	N	Confirm Design Speed with PBOT			
Stopping Sight Distance								
SSD		200'		N	AASHTO Table 3-1, 30mph - Proposed			
Horizontal Alignment - Controlling Criteria								

ys and Streets ("AASHTO"), AASHTO 2011 ents ("PBOT"), PBOT 1993
er Large Vehicles in Portland, 2008 2018
Quide
ts Special Design District I Improvements District-wide Design Criteria Jesign Zone of the Lloyd District of the Central City Plan IE Quadrant Plan Conditions TO 2012
an, PBOT 2018
REMARKS
d to confirm comparts to compare data M/D CZ //E compare
ed to confirm segments to accommodate WB-67 (IS access
SSD to be provided with future submittal

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N/NE WEIDLER STREET

	I-5: Rose Quarter Improvements				
			· · · · · ·		AASHTO Table 3-13, minimum Radius
Radius	200'	333	242.5	Y	at horizontal curve (Confirm design spee
Horizontal Alignment - Curve 1					
					AASHTO Table 3-13, minimum Radius
Radius (R1)	200'	333'	243'	Y	existing roadway geometry at horizontal
Superelevation (e) for D1	-2.0%	-2.0%	-2.0%	Ν	
Superelevation Runoff for D1	N/A	N/A	N/A	Ν	
Vertical Curve (Sag)					
Sag K Value	N/A	37	26	Ν	AASHTO Table 3-37, 30 mph
Vertical Curve (Crest)					
Crest K Value	N/A	19	21	N	AASHTO Table 3-35, 30 mph - Matching
Vertical Grade					
Maximum Grade	5	12	5	N	PBOT, Section 5 Street Grades, neighbo
Vertical Alignment - Curve 1*					Station 'pWE' 40+00.00
Grade In	N/A		+0.6%		
Grade Out	N/A		+3.65%		
Minimum Grade	N/A		+0.6%		
K Value	N/A	37 - Sag	28 - Sag	Y	K not met but meets design for comfort a
Vertical Curve Length	N/A	90	85	Y	Lmin not met but meets design for comfo
Vertical Alignment - Curve 2*					Station 'pWE' 41+00.30
Grade In	N/A		+3.65%		
Grade Out	N/A		-1.2%		
Minimum Grade	N/A		-1.2%		
K Value	N/A	19 - Crest	22 - Crest	N	
Vertical Curve Length	N/A	90	105	N	
Vertical Alignment - Curve 3*					Station 'pWE' 42+13.11
Grade In	N/A		-1.2%		
Grade Out	N/A		+1.6%		
Minimum Grade	N/A		-1.2%		
K Value	N/A	37 - Sag	27 - Sag	Y	K not met but meets design for comfort a
Vertical Curve Length	N/A	90	75	Y	Lmin not met but meets design for comfo
Clearance					5
Bridge Vertical Clearance	N/A	N/A	N/A	N	17' 4" vertical clearance to be provided o
Typical Section					See Typical Section Criteria Table
Travel Lane(s)	11' to 12'	11' (12' curbtight)	11' to 14'	N	
	a l		0.5' to 4.5'		
Bike Buffer Zone	0'	4.5° (including curb)	(including curb)	Ŷ	To avoid impact to adjacent properties
Bike Thru Zone	6'	7'	7'	Ν	
Ped Buffer Zone	5'	2'	0' to 2'	Y	To avoid impact to adjacent properties
Ped Thru Zone	7'	8'	5' to 8'	Y	To avoid impact to adjacent properties
Frontage Zone	N/A	2.5'	0' to 2.5'	Y	To avoid impact to adjacent properties
Tapers					
Transition from narrower street to wider street					
Transition from wider street to narrower street					
Barrier Taper	N/A	N/A	N/A		
Barrier Type					
Rt (Exterior) Roadside Barrier					
Bridge Rail					

November 25, 2020

@ 30 mph and -2% e - Matching existing roadway geometry ed at corner)

@ 30 mph and -2% e - DE may not be needed, matching curve (Confirm design speed at corner)

existing curve at Williams

orhood collector streets, asphalt pavement

and sight distance (EQ 3-43 and 3-52) ort and sight distance (EQ 3-43 and 3-52)

and sight distance (EQ 3-43 and 3-52) ort and sight distance (EQ 3-43 and 3-52)

over I-5 facilities and within interchange area

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N/NE WEIDLER STREET

Note:

I-5: Rose Quarter Improvements

* Only vertical curves within the Full Depth Pavement Reconstruction range are listed. Vertical curves within the Grind/Inlay ranges will match existing and are not listed. See brackets at bottom of profiles windows in App C for Grind/Inlay and Full Depth Pavement Reconstruction ranges

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N/NE BROADWAY

		I-5:	Rose Quarter Imp	rovements	
MP of Bridge (Segment)		I-5: MP 301.5 to 303.1			
Design Standard (4R/New, 3R, AASHTO "Green Bool				A Policy on Geometric Design of Highways Design Guide for Public Street Improvemer Pedestrian Design Guide, PBOT 1998 Designing for Truck Movements and Other 2035 Transportation System Plan (TSP), 20 Bicycle Plan for 2030, 2010 PBOT Ped PDX PBOT Traffic Design Manual Vol. 1 Draft PBOT Protected Bike Lape Design G	
		4R/New			COP Broadway-Weidler Corridor Plan
ODOT Region		1			COP Lloyd District Transportation Projects
Common Route No.		N/A			COP Lloyd District Transportation Capital Ir
ODOT Highway No.		N/A			COP Special Design Guidelines for the Des
ODOT Highway Name		NF Broadway			PBOT/ODOT/BPS Central City 2035 N/NE PCC 17.28.110 Driveways-Permits and Co Development of Bicycle Facilities, AASHTC
Functional Classification (by ODOT, county, city or other Agency) State Classification System Designation (SCS) Freight Route (Y/N) Roadway Crossed (Over, Under, None; plus Name)		Principal Arterial PBOT TSP Classifications Street Classification: Civic Main Street Traffic Classification: Major City Traffic Street Transit Classification: Major Transit Priority Street Freight Route: Major Truck Street Emergency Reponse Class: Major Emergency Response Bicycle Classification: Major City Bikeway NHS Route: Yes See TSP Classifications Over			Portland 2035 Transportation System Plan,
Other Designations from OHP		N/A			
Terrain (Level, Rolling, Mountainous)		Rolling			To be Drovided with future submitted
Projected ADT (Const $Vr + 20 Vr$) (Vear 20)			One-Way ADT		To be Provided with future submittal
	1			Docign	
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)	
Design Vehicle	Existing	Standard			
Vehicle Designation		WB-40	Portland T-1 Fire/WB-67		PBOT, Section 5 Design for Trucks - Need only?) - See IDVAR for more information
Turning Radius					
Speed					
Posted Speed	30 mph		25 mph	Ν	
Design Speed		30 mph	30 mph	Ν	Confirm Design Speed with PBOT
Stopping Sight Distance					
SSD		200'		N	AASHTO Table 3-1, 30mph - Proposed SS
Horizontal Alignment - Controlling Criteria					

and Streets ("AASHTO"), AASHTO 2011 ts ("PBOT"), PBOT 1993
arge Vehicles in Portland, 2008 18
lide
Special Design District provements District-wide Design Criteria ign Zone of the Lloyd District of the Central City Plan Quadrant Plan nditions 2012
PROT 2018
REMARKS
to confirm segments to accommodate WB-67 (I5 access
D to be provided with future submittal

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N/NE BROADWAY

	I-5: Rose Quarter Improvements				
	130'		· · · · ·	V	AASHTO Table 3-13, minimum Radius @ 3
Radius	130	333	136.42	I	at horizontal curve (Confirm design speed at
Horizontal Alignment - Curve 1					
Degree of Curve (D1)					
					AASHTO Table 3-13, minimum Radius @ 3
Radius (R1)	130'	333'	136'	Y	existing roadway geometry at horizontal curv
Superelevation (e) for D1	-2.0%	-2.0%	-2.0%	Ν	
Superelevation Runoff for D1	N/A	N/A	N/A	Ν	
Vertical Curve (Sag)					
Sag K Value	N/A	37	51	Ν	AASHTO Table 3-37, 30 mph
Vertical Curve (Crest)					
Crest K Value	N/A	19	32	Ν	AASHTO Table 3-35, 30 mph
Vertical Grade					
Maximum Grade	5	12	5	Ν	PBOT, Section 5 Street Grades, neighborho
Vertical Alignment - Curve 1*					Station 'pBR' 15+13.74
Grade In	N/A		2.85%		
Grade Out	N/A		4.90%		
Minimum Grade	N/A		+2.85%		
K Value	N/A	37 - Sag	51- Sag	Ν	
Vertical Curve Length	N/A	90	105	Ν	Meets heasecomfort per AASHTO Equation
Vertical Alignment - Curve 2*					Station 'pBR' 16+31.37
Grade In	N/A		4.90%		
Grade Out	N/A		1.72%		
Minimum Grade	N/A		+1.72%		
K Value	N/A	19 - Crest	33 - Crest	Ν	
Vertical Curve Length	N/A	90	105	Ν	AASHTO Equation 3-45
Vertical Alignment - Curve 3*					Station 'pBR' 18+59.27
Grade In	N/A		1.72%		
Grade Out	N/A		1.87%		
Minimum Grade	N/A		+1.72%		
K Value	N/A	37 - Sag	678 - Sag	Ν	
Vertical Curve Length	N/A	90	105	Ν	Assuming Lmin=3V. Since Algebraic Different
Clearance					
Bridge Vertical Clearance	N/A	N/A	N/A	Ν	17' 4" vertical clearance to be provided over
Typical Section					See Typical Section Criteria Table
Travel Lane(s)	11' to 12'	11' (12' curbtight)	11' to 14'	Ν	
	0' 1 5'	4.5' (including ourb)	0.5' to 4.5'	V	
Bike Buffer Zone	0-1.5		(including curb)	I	To avoid impact to adjacent properties
Bike Thru Zone	5'	7'	7'	Ν	
Ped Buffer Zone	0' to 5'	2'	0' to 2'	Y	To avoid impact to adjacent properties
Ped Thru Zone	7' to 8'	8'	8'	N	
Frontage Zone	N/A	2.5'	0' to 2.5'	Y	To avoid impact to adjacent properties
Tapers					
Transition from narrower street to wider street					
Transition from wider street to narrower street					
Barrier Taper	N/A	N/A	N/A		
Barrier Type					
Rt (Exterior) Roadside Barrier					
Bridge Rail					

November 25, 2020

30 mph and -2% e - Matching existing roadway geometry at corner)

30 mph and -2% e - DE may not be needed, matching rve (Confirm design speed at corner)

ood collector streets, asphalt pavement

n 3-52

ence is < 2.5%, use grade break instead.

r I-5 facilities and within interchange area

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N/NE BROADWAY

Note:

I-5: Rose Quarter Improvements

* Only vertical curves within the Full Depth Pavement Reconstruction range are listed. Vertical curves within the Grind/Inlay ranges will match existing and are not listed. See brackets at bottom of profiles windows in App C for Grind/Inlay and Full Depth Pavement Reconstruction ranges

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N WILLIAMS AVENUE (NORTH OF WEIDLER)

MP of Bridge (Segment) I-5: MP 301.5 to 303.1 A Policy on Geometric Design Guide for Public Stree Pedestrian Design Guide, PB Designing for Truck Movemer 2035 Transportation System f Bicycle Plan for 2030, 2010 Design Standard (4R/New, 3R, AASHTO "Green Book" - 2011) A R/New Common Route No. ODOT Region Common Route No. N/A COP Lloyd District Transportation Transportation Cop Lloyd District Transportation N/A ODOT Highway Name N/A COP Lloyd District Transportation Cop Lloyd District Transportation PBOT Peder Central Cit MP of Highway Name N Williams Ave (North of Weidler) PBC TPacel	of Highways Improvemen T 1998 s and Other I an (TSP), 20 ol. 1 ne Design Gu or Plan on Projects 5
Design Standard (4R/New, 3R, AASHTO "Green Book" - 2011) A Policy on Geometric Design Guide for Public Stree Pedestrian Design Guide, PB Designing for Truck Movemer 2035 Transportation System f Bicycle Plan for 2030, 2010 PBOT Pred PDX 70203, 2010 PBOT Traffic Design Manual Draft PBOT Protected Bike L. ODOT Region 1 Common Route No. COP Broadway-Weidler Col: N/A ODOT Highway No. N/A ODOT Highway Name N/A ODOT Highway Name N Williams Ave (North of Weidler) Minor Arterial Minor Arterial	of Highways Improvemen T 1998 s and Other I an (TSP), 20 ol. 1 ne Design Gu or Plan on Projects 5
4R/New COP Broadway-Weidler Corr Common Route No. 1 COP Lloyd District Transporta ODOT Highway No. N/A COP Special Design Guideline ODOT Highway Name N Williams Ave (North of Weidler) PBOT/ODOT/BPS Central Cir N Williams Ave (North of Weidler) Ninor Arterial Percentaria	or Plan
ODOT Region 1 COP Lloyd District Transporta Common Route No. N/A COP Lloyd District Transporta ODOT Highway No. N/A COP Special Design Guidelina ODOT Highway Name N Williams Ave (North of Weidler) PBOT/ODOT/BPS Central Cir N Williams Ave (North of Weidler) N Williams Ave (North of Weidler) Development of Bicycle Facilit	on Projects
Common Route No. N/A COP Lloyd District Transporta ODOT Highway No. N/A COP Special Design Guideline ODOT Highway Name PBOT/ODOT/BPS Central Ci PCC 17.28.110 Driveways-Pe N Williams Ave (North of Weidler) Ninor Arterial Development of Bicycle Facility	0.1110/0013 0
ODOT Highway No. N/A COP Special Design Guidelin ODOT Highway Name PBOT/ODOT/BPS Central Ci PCC 17.28.110 Driveways-Pe N Williams Ave (North of Weidler) Development of Bicycle Facilitie Minor Arterial Minor Arterial	on Capital In
ODOT Highway Name PBOT/ODOT/BPS Central Ci N Williams Ave (North of Weidler) PCC 17.28.110 Driveways-Pe Minor Arterial Percent of Development of De	s for the Des
ODOT Highway Name N Williams Ave (North of Weidler) PCC 17.28.110 Driveways-Pe N Williams Ave (North of Weidler) Development of Bicycle Facili	2035 N/NE
N Williams Ave (North of Weidler) Development of Bicycle Facili Minor Arterial Minor Arterial	mits and Cor
Minor Arterial	es, AASHTO
PROT TSP Classifications	
Street Classification: Community Corridor/Neighborbood Main Street	
Functional Classification (by ODOT, county, city or other Agone)	
Transit Classification (by ODOT, county, city of other Agency)	
Freight Route: Local Service Truck Street	
Emergency Reponse Class: Minor/Major Emergency Response	
Bicycle Classification: Major City Bikeway	
Portland 2035 Transportation	ystem Plan,
State Classification System Designation (SCS)	
Freight Route (Y/N) See TSP Classifications	
Roadway Crossed (Over, Under, None, plus Name) Over I-5 Other Designations from OHD N/A	
Other Designations from OHP	
Teinain (Level, Rolling, Mountainous)	mittal
	millar
Projected ADT (Const Yr + 20 Yr) (Year 20)	mittal
DESIGN FEATURE Existing Standard Proposed Exception (V/N)	
Design Vehicle	
Portland T-1 PROT Section 5 Design for T	ucks - Need
Vehicle Designation B-40 Fire/WB-67 I only?) - See IDVAR for more	
	formation
Speed	formation
Posted Speed 25 mph 20 mph N	nformation
Design Speed 25 mph 25 mph N Confirm Design Speed	nformation
Stopping Sight Distance	nformation
SSD 155' N AASHTO Table 3-1, 25 mph	nformation
Horizontal Alignment - Controlling Criteria	Proposed SS
Degree of Curve N/A N/A N/A N	Proposed SS
Radius N/A N/A N/A	Proposed SS

and Streets ("AASHTO"), AASHTO 2011 ts ("PBOT"), PBOT 1993
arge Vehicles in Portland, 2008 18
lide
Special Design District aprovements District-wide Design Criteria ign Zone of the Lloyd District of the Central City Plan Quadrant Plan aditions 2012
PBOT 2018
REMARKS
to confirm segments to accommodate WB-67 (I5 access
D to be provided with future submittal

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N WILLIAMS AVENUE (NORTH OF WEIDLER)

	I-5: Rose Quarter Improvements				
Vertical Curve (Sag)			•		
Sag K Value	N/A	26	8	Y	AASHTO Table 3-37, 25 mph
Vertical Curve (Crest)					
Crest K Value	N/A	12	11	Y	AASHTO Table 3-35, 25 mph
Vertical Grade					
Maximum Grade	10	12	4	N	PBOT, Section 5 Street Grades, neighborho
Vertical Alignment - Curve 1*					Station 'pWI' 35+45.00
Grade In			-2.00%		
Grade Out			4.16%		
Minimum Grade			-2.0%		
K Value		26 - Sag	10 - Sag	Y	At Weidler Intersection - will revist intersection
Vertical Curve Length		75	60	Y	Meets 20mph comfort. Illuminate
Vertical Alignment - Curve 2*					Station 'pWI' 35+90.00
Grade In			4.16%		
Grade Out			1.51%		
Minimum Grade			+1.51%		
K Value		12 - Crest	11 - Crest	Y	Between Weidler and cover - will revisit grad
Vertical Curve Length		75	30	Y	Meets Sight Distance but not Lmin = 3V
Vertical Alignment - Curve 3*					Station 'pWI' 37+00
Grade In			+1.51%		
Grade Out			+0.35%		
Minimum Grade			+0.35%		
K Value		12 - Crest	26 - Crest	N	
					Meets Sight Distance but not Lmin = 3V.
Vertical Curve Length		75	30	Y	Between Weidler and cover - will revisit grad
Vertical Alignment - Curve 4*					Station 'pWI' 37+30.00
Grade In			+0.35%		
Grade Out			+2.0%		
Minimum Grade			+0.35%		
K Value		26 - Sag	12 - Sag	Y	At Broadway Intersection - will revist interse
Vertical Curve Length		75	20	Y	Meets 20mph comfort. Meets Headlight Sig
Vertical Alignment - Curve 5*					Station 'pWI' 37+80.00
Grade In			-2.10%		
Grade Out			2.85%		
Minimum Grade			-2.10%		
K Value		26 - Sag	8 - Sag	Y	At Broadway Intersection - will revist interse
Vertical Curve Length		75	40	Y	Meets 20mph comfort. Illuminate
Vertical Alignment - Curve 6*					Station 'pWI' 38+30
Grade In			2.85%		
Grade Out			2.21%		
Minimum Grade			+2.21%		
K Value		12 - Crest	63 - Crest	N	
Vertical Curve Length		75	40	N	6' betwenn Broadway and Vancouver where
Vertical Alignment - Curve 7*					Station 'pWI' 40+00
Grade In			2.21%		· ·
Grade Out			0.66%		
Minimum Grade			+0.66%		
K Value		12 - Crest	48 - Crest	N	
Vertical Curve Length		75	75	N	
Clearance					

od collector streets, asphalt pavement
n grading at 30% to try and eliminate DE
ing at 30% to try and eliminate DE
•
ing at 30% to try and eliminate DE
tion grading at 30% to try and eliminate DE
ht Distance.
tion grading at 30% to try and eliminate DE
not reconstructing existing sidewalk

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N WILLIAMS AVENUE (NORTH OF WEIDLER)

Bridge Vertical Clearance					
	N/A	N/A	N/A	Ν	17' 4" vertical clearance to be provided ove
Typical Section					See Typical Section Criteria Table
Travel Lane(s)	11' to 12'	11' (12' curbtight)	11' - 14'	Ν	
Bike Buffer Zone	0' to 2'	4.5' (including curb)	Varies 0.5' to 4.5' (including curb)	Y	To avoid impact to adjacent properties
Bike Thru Zone	6'	7' to 14'	7' to 12'	Ν	In Williams median betwenn Broadway and
Ped Buffer Zone	0' to 5'	2'	Varies 0' to 4'	Y	To avoid impact to adjacent properties. Po Weidler, will decrease from 4' to 2'.
Ped Thru Zone	6' to 8'	8'	8'	Ν	
Frontage Zone	N/A	2.5'	Varies 0' to 2.5'	Y	To avoid impact to adjacent properties
Tapers					
Transition from narrower street to wider street					
Transition from wider street to narrower street					
Barrier Taper					
Barrier Type					
Rt (Exterior) Roadside Barrier					
Bridge Rail					

Note:

* Only vertical curves within the Full Depth Pavement Reconstruction range are listed. Vertical curves within the Grind/Inlay ranges will match existing and are not listed. See brackets at bottom of profiles windows in App C for Grind/Inlay and Full Depth Pavement Reconstruction ranges

I-5 facilities and within interchange area
Weidler, will increase from 12' to 14'
st 20%, in Williams median betwenn Broadway and

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N VANCOUVER AVENUE

		I-5: F	Rose Quarter Impro	vements		
MP of Bridge (Segment)		I-5: MP 301.5 to 303.1				
Design Standard (4R/New, 3R, AASHTO "Green Boo				A Policy on Geometric Design of Hi Design Guide for Public Street Impl Pedestrian Design Guide, PBOT 19 Designing for Truck Movements an 2035 Transportation System Plan (Bicycle Plan for 2030, 2010 PBOT Ped PDX PBOT Traffic Design Manual Vol. 1 Draft PBOT Protected Bike Lane Di		
ODOT Region Common Route No. ODOT Highway No. ODOT Highway Name/ City Street Name		4R/New 1 N/A N/A			COP Lloyd District Transportation COP Special Design Guidelines for	
		N Vancouver Ave			Plan PBOT/ODOT/BPS Central City 203 PCC 17.28.110 Driveways-Permits	
		Minor Arterial <u>PBOT TSP Classifications</u> Street Classification: Community Corri Traffic Classification: Neighborhood C Transit Classification: Major Transit Pr Freight Route: Local Service Truck Str Emergency Reponse Class: Major Em Bicycle Classification: Major City Biker	Portland 2035 Transportation Syste			
State Classification System Designation (SCS)	NHS Route: No					
Freight Route (Y/N)	See TSP Classifications					
Roadway Crossed (Over, Under, None; plus Name)		Over	I-5			
Other Designations from OHP						
Terrain (Level, Rolling, Mountainous)		Rolling			Table Devided with Colored as hereits	
Trucks (%)					To be Provided with future submitte	
Decidented ADT (Const Vr. 1, 20 Vr.) (Veer 20)			One-way ADT		To be Drovided with future submitte	
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)		
Design Vehicle						
Vehicle Designation		B-40	Portland T-1 Fire/WB-67		PBOT, Section 5 Design for Trucks access only?) - See IDVAR for more	
Turning Radius						
Speed						
Posted Speed	25 mph		20 mph	N		
Design Speed		25 mph	25 mph	N	Confirm Design Speed	
Stopping Sight Distance						
SSD		155'		N	AASHTO Table 3-2, 25 mph - Prop	
Horizontal Alignment - Controlling Criteria						

Highways and Streets ("AASHTO"), AASHTO 2011 provements ("PBOT"), PBOT 1993 1998
and Other Large Vehicles in Portland, 2008 (TSP), 2018
1 Desian Guide
Plan Projects Special Design District
Capital Improvements District-wide Design Criteria or the Design Zone of the Lloyd District of the Central City
035 N/NE Quadrant Plan ts and Conditions - AASHTO 2012
tem Plan, PBOT 2018
ttal
ttal
REMARKS
ks - Need to confirm segments to accommodate WB-67 (I5 ore information
pposed SSD to be provided with future submittal

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N VANCOUVER AVENUE

	I-5: Rose Quarter Improvements					
Radius	83	198'	350'	N	AASHTO Table 3-13, minimum Ra	
Horizontal Alignment - Curve 1						
Radius (R1)		198'	350'			
Superelevation (e) for D1	N/A	-2.0%	-2.0%	N		
Superelevation Runoff for D1	N/A	N/A	N/A	N		
Horizontal Alignment - Curve 2						
Degree of Curve (D)			· · ·			
Radius (R)		198'	350'	N		
Superelevation (e) for D1	N/A	-2.0%	-2.0%	N		
Stopping Sight Distance for D1	N/A	N/A	N/A	N		
Vertical Curve (Sag)						
					AASHTO Table 3-37, 25 mph - No	
Sag K Value	N/A	26	13	Y	connection	
Vertical Curve (Crest)						
Crest K Value	N/A	12	46	N	AASHTO Table 3-35, 25 mph	
Vertical Grade						
Maximum Grade	10	12	4	Ν	PBOT, Section 5 Street Grades, n	
Vertical Alignment - Curve 1*					Station 'pVA' 12+13.93	
Grade In			1.76%			
Grade Out			2.64%			
Minimum Grade			1.76%			
K Value		26 - Sag	45 - Sag	N		
					PBOT Section 6 Vertical Curves/G	
Vertical Curve Length		75	40	Ν	Grade Difference less than 2.5%.	
Vertical Alignment - Curve 2*					Station 'pVA' 13+12.81	
Grade In			-0.50%			
Grade Out			5.00%			
Minimum Grade			-0.5%			
K Value		26 - Sag	14 - Sag	Y	Meets comfort per AASHTO Equa	
Vertical Curve Length		75	75	Y	Meets comfort per AASHTO Equa	
Vertical Alignment - Curve 3*					Station 'pVA' 14+53.73	
Grade In			5.00%			
Grade Out			3.30%			
Minimum Grade			+3.3%			
K Value		12 - Crest	44 - Crest	N		
Vertical Curve Length		75	75	N		
Vertical Alignment - Curve 4*					Station 'pVA' 17+06.93	
Grade In			3.30%			
Grade Out			-0.74%			
Minimum Grade			-0.74%			
K Value		12 - Crest	19 - Crest	N		
Vertical Curve Length		75	75	N		
Vertical Alignment - Curve 5*					Station 'pVA' 19+82.37	
Grade In			-0.74%			
Grade Out			1.18%			
Minimum Grade			-0.74%			
K Value		26 - Sag	39 - Sag	N		
Vertical Curve Length		75	75	N		

dius @ 25 mph and -2% e; Matching Existing
a standard logation under appaideration at Proodway
I-Standard location under consideration at broadway
eighborhood collector streets, asphalt pavement
rade Breaks: PBOT prefers grade breaks for Algebraic
Remove Vertical Curve
ion 2 5 2
ion 3-52
ion 3-52 ion 3-52.

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N VANCOUVER AVENUE

I-5: Rose Quarter Improvements				
N/A	N/A	N/A	Ν	17' 4" vertical clearance to be prov
				See Typical Section Criteria Table
11' to 12'	11' (12' curbtight)	11' - 14'	Ν	
2' to 3'	4.5' (including curb)	Varies 0.5' to 4.5' (including curb)	Y	To avoid impact to adjacent prope
6'	7'	7'	N	
0' to 5'	2'	Varies 0' to 2'	Y	To avoid impact to adjacent prope
7' to 8'	8'	6' to 8'	Y	6' betwenn Broadway and Vancouv
N/A	2.5'	0' to 2.5'	Y	To avoid impact to adjacent prope
	N/A 11' to 12' 2' to 3' 6' 0' to 5' 7' to 8' N/A	I-5: F	I-5: Rose Quarter Improve N/A N/A N/A 11' to 12' 11' (12' curbtight) 11' - 14' 2' to 3' 4.5' (including curb) Varies 0.5' to 4.5' (including curb) 6' 7' 7' 0' to 5' 2' Varies 0' to 2' 7' to 8' 8' 6' to 8' N/A 2.5' 0' to 2.5'	I-5: Rose Quarter Improvements N/A N/A N/A N N/A N/A N/A N 11' to 12' 11' (12' curbtight) 11' - 14' N 2' to 3' 4.5' (including curb) Varies 0.5' to 4.5' (including curb) Y 6' 7' 7' N 0' to 5' 2' Varies 0' to 2' Y 7' to 8' 8' 6' to 8' Y N/A 2.5' 0' to 2.5' Y N/A 2.5' 0' to 2.5' Y Image: Provide the stress of t

Note:

* Only vertical curves within the Full Depth Pavement Reconstruction range are listed. Vertical curves within the Grind/Inlay ranges will match existing and are not listed. See brackets at bottom of profiles windows in App C for Grind/Inlay and Full Depth Pavement Reconstruction ranges

November 25, 2020

vided over I-5 facilities and within interchange area
erties
erties
ver where not reconstructing existing sidewalk
erties

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N VICTORIA AVENUE

		I-5	: Rose Quarter Imp	provements	
MP of Bridge (Segment)		I-5: MP 301.5 to 303.1			
Design Standard (4R/New, 3R, AASHTO "Green Bool				A Policy on Geometric Design of Highways Design Guide for Public Street Improvemer Pedestrian Design Guide, PBOT 1998 Designing for Truck Movements and Other 2035 Transportation System Plan (TSP), 20 Bicycle Plan for 2030, 2010 PBOT Ped PDX PBOT Traffic Design Manual Vol. 1 Draft PBOT Protected Bike Lane Design G	
		4R/New			COP Broadway-Weidler Corridor Plan
ODOT Region		1			COP Lloyd District Transportation Projects
Common Route No.		N/A			COP Lloyd District Transportation Capital Ir
ODOT Highway No.		N/A			COP Special Design Guidelines for the Des
					PBOT/ODOT/BPS Central City 2035 N/NE
ODOT Highway Name					PCC 17.28.110 Driveways-Permits and Co
					Development of Bicycle Facilities, AASHTC
Functional Classification (by ODOT, county, city or other Agency)		Local Road <u>PBOT TSP Classifications</u> Street Classification: Local Street Traffic Classification: Local Service Tra Transit Classification: Local Service Truck Freight Route: Local Service Truck Str Emergency Reponse Class: Minor Em Bicycle Classification: Local Service Bi	Portland 2025 Transportation System Plan		
State Classification System Designation (SCS)		NHS Route: No			
Freight Route (Y/N)		See TSP Classifications			
Roadway Crossed (Over Under None: plus Name)		None			
Other Designations from OHP		N/A			
Terrain (Level Rolling Mountainous)		Rolling			
Trucks (%)			To be Provided with future submittal		
			One-Way ADT		
Projected ADT (Const Yr + 20 Yr) (Year 20)					To be Provided with future submittal
			PERMANENT FA	CILITY	
		CONSTRUCTION P	ROJECT	Design	
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)	
Design Vehicle					
			Portland T-1		PBOT, Section 5 Design for Trucks - Need
Vehicle Designation		B-40	Fire/WB-67		only?) - See IDVAR for more information
Turning Radius					
Speed					
Posted Speed	25 mph		20 mph	N	
Design Speed	·	25 mph	25 mph	N	
Stopping Sight Distance					
SSD		155'		Ν	AASHTO Table 3-1, 25 mph - Proposed SS
Horizontal Alignment - Controlling Criteria					
Degree of Curve	N/A	N/A	N/A	Ν	
Radius	N/A	N/A	N/A	N	

and Streets ("AASHTO") AASHTO 2011
ts ("PBOT"), PBOT 1993
arge Vehicles in Portland, 2008 18
ide
Special Design District provements District-wide Design Criteria ign Zone of the Lloyd District of the Central City Plan Quadrant Plan ditions 2012
PBOT 2018
REMARKS
to confirm compare to cocommodate W/D CZ (IE cococo
to confirm segments to accommodate WB-67 (IS access
D to be provided with future submittal

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N VICTORIA AVENUE

	I-5: Rose Quarter Improvements				
Vertical Curve (Sag)					
Sag K Value	N/A	26	7	Y	AASHTO Table 3-37, 25 mph
Vertical Curve (Crest)					
Crest K Value	N/A	12	85	Ν	AASHTO Table 3-35, 25 mph
Vertical Grade					
Maximum Grade	10	18	2	N	PBOT, Section 5 Street Grades, local service
Vertical Alignment - Curve 1*					Station 'pVI' 50+36.68
Grade In			-2.00%		
Grade Out			2.23%		
Minimum Grade			-2.0%		
K Value		26 - Sag	7 - Sag	Y	At Weidler Intersection - will revist intersection
Vertical Curve Length		75	30	Y	
Vertical Alignment - Curve 2*					Station 'pVI' 51+31.16
Grade In			2.47%		
Grade Out			2.00%		
Minimum Grade			+2.0%		
K Value		12 - Crest	86	N	
Vertical Curve Length		75	40	Y	Meets sight distance. Algebraic Grade Diffe break - will revist at 30%
Vertical Alignment - Curve 3*					
Grade In					
Grade Out					
Minimum Grade					
K Value					
Vertical Curve Length					
Clearance					
Bridge Vertical Clearance		N/A		N	17' 4" vertical clearance to be provided with
Typical Section					See Typical Section Criteria Table
Travel Lane(s)	11' to 12'	11' (12' curbtight)	11' to 12'	N	
Bike Buffer Zone	None	2	None	Y	Post 20%, need to confiirm with City if stree
Bike Thru Zone	None	6 (Street Level OK)	None	Y	Post 20%, need to confiirm with City if stree
Ped Buffer Zone	4'	4.5' (including curb)	4.5'	Ν	
Ped Thru Zone	8'	8'	8'	Ν	
Frontage Zone	N/A	1.5'	0' to 1.5'	Y	Can provide betwenn Broadway and Weidle line
Tapers					
Transition from narrower street to wider street					
Transition from wider street to narrower street					
Barrier Taper	N/A	N/A	N/A		
Barrier Type					
Rt (Exterior) Roadside Barrier					
Bridge Rail					

Note:

* Only vertical curves within the Full Depth Pavement Reconstruction range are listed. Vertical curves within the Grind/Inlay ranges will match existing and are not listed. See brackets at bottom of profiles windows in App C for Grind/Inlay and Full Depth Pavement Reconstruction ranges

a streets, asphalt pavement
ישטיים אוניטיט, מסטרומו אינירויטיוניטיט איניטיט איניטיט איניט איניט איניט איניט איניט איניט איניט איניט איניט א גער גער גער גער גער גער גער גער גער גער
n grading at 30% to try and eliminate DE
rence less than 2.5%. Remove curve to make grade
ninterchange area
level bike lane is apppropriate here.
level bike lane is apppropriate here.
. North of Broadway, existing back of sidewalk on ROW

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N DIXON ST/NE HANCOCK ST

		I-5:	Rose Quarter Imp	rovements	
MP of Bridge (Segment)		I-5: MP 301.5 to 303.1			
Design Standard (4R/New, 3R, AASHTO "Green Book" - 2011)					A Policy on Geometric Design of Highways a Design Guide for Public Street Improvement Pedestrian Design Guide, PBOT 1998 Designing for Truck Movements and Other L 2035 Transportation System Plan (TSP), 20 Bicycle Plan for 2030, 2010 PBOT Ped PDX PBOT Traffic Design Manual Vol. 1 Draft PBOT Protected Bike Lane Design Gu
		4R/New			COP Broadway-Weidler Corridor Plan
ODOT Region		1			COP Lloyd District Transportation Projects S
Common Route No.		N/A			COP Lloyd District Transportation Capital Im
ODOT Highway No.		N/A			COP Special Design Guidelines for the Design
ODOT Highway Name	ODOT Highway Name				PBOT/ODOT/BPS Central City 2035 N/NE C PCC 17.28.110 Driveways-Permits and Con Development of Bicycle Facilities, AASHTO
Functional Classification (by ODOT, county, city or other Agency) State Classification System Designation (SCS) Freight Route (Y/N) Roadway Crossed (Over, Under, None; plus Name) Other Designations from OHP		Local Road PBOT TSP Classifications Street Classification: Local Street Traffic Classification: Local Service Traffic Street Transit Classification: Local Service Transit Street Freight Route: Local Service Truck Street Emergency Reponse Class: Minor Emergency Response Bicycle Classification: Local Service Bikeway/City Bikeway NHS Route: No See TSP Classifications Over I-5 N/A			Portland 2035 Transportation System Plan, F
Terrain (Level, Rolling, Mountainous)		Rolling			To be Dresided with fature askerited
Trucks (%)				-	To be Provided with future submittal
Projected ADT (Const Vr + 20 Vr) (Vear 20)			Two-way ADT		To be Provided with future submitted
				Design	
DESIGN FEATURE	Fxisting	Standard	Proposed	Exception (Y/N)	
Design Vehicle	Exioting				
			Portland T-1		
Vehicle Designation		B-40	Fire/WB-67		PBOT, Section 5 Design for Trucks - See ID
Turning Radius					
Speed					
Posted Speed	20 mph		20 mph	N	
Design Speed		20 mph	20 mph	N	Confirm Design Speed with PBOT
Stopping Sight Distance					
SSD		122'		N	AASHTO Equation 3-3, 20 mph design spee provided with future submittal
Horizontal Alignment - Controlling Criteria					
Radius	N/A	198	409	N	AASHTO Table 3-13, minimum Radius @ 28

and Streets ("AASHTO"), AASHTO 2011 nts ("PBOT"), PBOT 1993
Large Vehicles in Portland, 2008 018
uide
Special Design District nprovements District-wide Design Criteria sign Zone of the Lloyd District of the Central City Plan Quadrant Plan nditions 2012
PBOT 2018
REMARKS
DVAR for more information
eed adjusted for 7% downgrade - Proposed SSD to be
25 mph and -2% e

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N DIXON ST/NE HANCOCK ST

	I-5: Rose Quarter Improvements				
Horizontal Alignment - Curve 1					
Radius (R1)	N/A	198'	409'	Ν	AASHTO Table 3-13, minimum Radius @ 2
Superelevation (e) for D1	N/A	-2.0%	-2.0%	Ν	Normal crown section
Superelevation Runoff for D1	N/A	N/A	N/A	Ν	
Vertical Curve (Sag)					
					AASHTO Table 3-37, 20 mph - Non standa
Sag K Value	N/A	17	9	Y	Intersection
Vertical Curve (Crest)					
Crest K Value	N/A	7	9	N	AASHTO Table 3-35, 20 mph
Vertical Grade					
Maximum Grade	N/A	18	7	N	PBOT, Section 5 Street Grades, local service
Vertical Alignment - Curve 1*					Station 'pHD' 51+67.39
Grade In	N/A		-0.50%		
Grade Out	N/A		-5.00%		
Minimum Grade	N/A		-0.50%		
K Value	N/A	7 - Crest	13 - Crest	N	
Vertical Curve Length	N/A	60	60	Ν	Assuming Lmin=3V
Vertical Alignment - Curve 2*					Station 'pHD' 52+88.01
Grade In	N/A		-5.00%		
Grade Out	N/A		7.00%		
Minimum Grade	N/A		-5.0%		
K Value	N/A	17 - Sag	9 - Sag	Y	Sag is ok with Illumination
Vertical Curve Length	N/A	204	110	Y	Meets Comfort. Meets L=3V. Illuminate
Vertical Alignment - Curve 3*					Station 'pHD' 58+50.00
Grade In	N/A		7.00%		
Grade Out	N/A		0.92%		
Minimum Grade	N/A		0.92%		
K Value	N/A	7 - Crest	12 - Crest	Ν	
Vertical Curve Length	N/A	60	75	Ν	AASHTO Equation 3-45
Vertical Alignment - Curve 4*					Station 'pHD' 60+07.89
					PBOT Section 6 Vertical Curves/Grade Brea
Grade In	N/A		-0.92%		Difference less than 2.5%. Removed Vertica
Grade Out	N/A		2.03%		
Minimum Grade	N/A		-0.92%		
K Value	N/A	17 - Sag	N/A	Ν	
Vertical Curve Length	N/A	75	N/A	Ν	Assuming Lmin=3V
Clearance					
					No proposed overhead obstructions. 17' 4" t
Bridge Vertical Clearance	N/A	N/A	N/A	Ν	would apply to any overhead obstructions.
Typical Section					See Typical Section Criteria Table
Travel Lane(s)	10' + 8' Parking	10'	11'	N	
Bike Buffer Zone	None	2'	2'	Ν	
Bike Thru Zone	None	6' (Street Level OK)	6'	Ν	
Ped Buffer Zone	0' to 4'	4.5' (including curb)	0' to 4.5'	Y	0' buffer where matching existing
Ped Thru Zone	6' to 10'	6'	7.5' to 9'	N	
Frontage Zone	N/A	1.5'	1.5'	N	
Tapers					
Transition from narrower street to wider street	2' to 3'				
Transition from wider street to narrower street	6'				
Barrier Taper	N/A	N/A	N/A		

November 25, 2020

25 mph and -2% e

rd location under consideration at Dixon/Wheeler

ce streets, asphalt pavement

eaks: PBOT prefers grade breaks for Algebraic Grade call Curve.

to be provided over I-5 facilities. Assume AASHTO 16.5'

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N Wheeler Ave (South of Weidler)

		I-5: Ro	se Quarter Impr	ovements	1
MP of Bridge (Segment)		MP 301.5 (I-84 Intchg) to MP 303.1 (I-405 Ir	ntchg)		
MP of Bridge (Segment) Scope (Replace, Repair, Repair & Widen) Design Standard (4R/New, 3R, AASHTO "Green Book" - 2011)		MP 301.5 (I-84 Inteng) to MP 303.1 (I-405 In	ntchg)		A Policy on Geometric Design of Highway Design Guide for Public Street Improvem Pedestrian Design Guide, PBOT 1998 Blueprint for Urban Design, ODOT 2020 Designing for Truck Movements and Othe 2035 Transportation System Plan (TSP), Bicycle Plan for 2030, 2010 PBOT Ped PDX PBOT Traffic Design Manual, Vol. 1 and V PBOT Protected Bicycle Lane Planning a COP Broadway-Weidler Corridor Plan
ODOT Region Common Route No. ODOT Highway No.		4R/New 1 N/A N/A			COP Lloyd District Transportation Project COP Lloyd District Transportation Capital COP Special Design Guidelines for the D PBOT/ODOT/BPS Central City 2035 N/N PCC 17.28.110 Driveways-Permits and C Development of Bicycle Facilities, AASHT
ODOT Highway Name		N Wheeler Ave			Portland street name
Functional Classification (by ODOT, county, city or oth	Minor Arterial (Traffic Access Street) PBOT TSP Classifications: Street Classification: Local Street Traffic Classification: Traffic Access Street Transit Classification: Major Transit Priority Emergency Response Classification: Major Bicycle Classification: Major City Bikeway Freight Classification: Local Service Truck S Pedestrian Classification: Major City Walkw	Emergency Respons Street ay	se	Portland 2035 Transportation System Pla New facility Designation to be determined	
State Classification System Designation (SCS)		NHS Route: No	ay		
Freight Route (Y/N)		See TSP Classifications			
Roadway Crossed (Over, Under, None; plus Name)		None			
Other Designations from OHP		N/A			
Terrain (Level, Rolling, Mountainous)		Level			
					I O DE Provided with future submittal
Projected ADT (Const Vr + 20 Vr) (Vear 20)			Two-way ADT		To be Provided with future submitted
		D			
				Design	
DESIGN FEATURE	Fristing	Standard	Proposed	Exception (V/N)	
Design Vehicle					
Vehicle Designation		B-40	Portland T-1 Fire		PBOT. Section 5 Desian for Trucks - See
Turning Radius					
Speed					
Posted Speed	25 mph	20-25 mph	20 mph	N	PBOT Design Guide, 5-7, Local Service S

ys and Streets ("AASHTO"), AASHTO 2011
ents ("PBOT"), PBOT 1993

er Large Vehicles in Portland, 2008 2018

Vol. 2 nd Design Guide

ts Special Design District I Improvements District-wide Design Criteria Design Zone of the Lloyd District of the Central City Plan IE Quadrant Plan Conditions TO 2012

n, PBOT 2018 - Local Service Traffic street;

REMARKS

IDVAR for more information

Streets

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N Wheeler Ave (South of Weidler) I-5: Rose Quarter Improvements Design Speed 25 mph 25 mph Ν Confirm Design speed with PBOT Stopping Sight Distance 155' 155' AASHTO Table 3-1, 25 mph SSD Ν Horizontal Alignment Controlling Criteria Degree of Curve N/A 28.°56'14" 69.°01'52" AASHTO Table 3-13, minimum Radius @ Radius 83 198 83 Υ Horizontal Alignment Curve Degree of Curve (D1) N/A 28.°56'14" 69.°01'52" AASHTO Table 3-13, minimum Radius @ Radius (R1) 83' 198 83' Υ Superelevation (e) for D1 -2.0% -2.0% -2.0% Ν Superelevation Runoff for D1 Vertical Curve (Sag) 26 AASHTO Table 3-37, 25 mph Sag K Value N/A N/A Ν Vertical Curve (Crest) AASHTO Table 3-35, 25 mph Crest K Value N/A 12 278 Ν Vertical Grade PBOT Design Guide, 5-10 Maximum - Asp Maximum Grade 1 18 Ν 1 Vertical Alignment Curve 1.12% Grade In 0.69% Grade Out Minimum Grade +1.12% 278 K Value Vertical Curve Length 120 Clearance No objects anticipated. Assume 18.0' city p Bridge Vertical Clearance N/A N/A N/A N/A See Typical Section Criteria Table Typical Section Travel Lane(s) 12 11 (12 curbtight) 12 Ν **Bike Buffer Zone** 1.5 4.5 5 Ν Bike Thru Zone 5.5 7 8 Ν Ped Buffer Zone 5 2 0,4 Buffer is lost only when constrained by city Υ Ped Thru Zone 7 8 8 Ν Frontage Zone N/A N/A 2.5 Ν

November 25, 2020
25 mph and -2% e; Matching Existing
25 mph and -2% e. Matching Existing
halt Pavement
reference applies
· · · · · · · · · · · · · · · · · · ·
parking structure. Restored otherwise

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N Williams Ave (South of Weidler)

		I-5: Ro	ose Quarter Impr	ovements	
MP of Bridge (Segment)		MP 301.5 (I-84 Intchg) to MP 303.1 (I-405 In	ntchg)		
Scope (Replace, Repair, Repair & Widen)					
Design Standard (4R/New, 3R, AASHTO "Green Booł	k" - 2011)				A Policy on Geometric Design of Highways Design Guide for Public Street Improveme Pedestrian Design Guide, PBOT 1998 Blueprint for Urban Design, ODOT 2020 Designing for Truck Movements and Other 2035 Transportation System Plan (TSP), 2 Bicycle Plan for 2030, 2010 PBOT Ped PDX PBOT Protected Bicycle Lane Planning and COP Broadway-Weidler Corridor Plan COP Lloyd District Transportation Projects COP Lloyd District Transportation Capital I COP Special Design Guidelines for the De PBOT/ODOT/BPS Central City 2035 N/NE PCC 17.28.110 Driveways-Permits and COP
		4R/New			Development of Bicycle Facilities, AASHT
ODUT Region					
Common Route No.		N/A			
ODOT Highway Name		N Williams Ave (south of Weidler)			Portiand street name
Functional Classification (by ODOT, county, city or oth	Minor Arterial PBOT TSP Classifications: Street Classification: Local Street Traffic Classification: Traffic Access Street Transit Classification: Major Transit Priority Emergency Response Classification: Major Bicycle Classification: Major City Bikeway Freight Classification: Local Service Truck S Pedestrian Classification: Major City Walkw	Emergency Respons Street ray	se	Portland 2035 Transportation System Plan New facility Designation to be determined	
State Classification System Designation (SCS)		NHS Route: No			
Freight Route (Y/N)		See TSP Classifications	1		
Roadway Crossed (Over, Under, None; plus Name)		None			
Utner Designations from OHP		N/A			
Trucka (%)		Levei			To be Drovided with future automitted
TTUCKS (%)					i o de Provided with future submittal
Projected ADT (Const Vr + 20 Vr) (Veer 20)			One-way AD I		To be Drovided with fisture cubretted
	- :	CONSTRUCTION PROJ	ECI	Design	
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)	
Design Venicle		D 40			
		B-40	Portiand 1-1 Fire		PBOT, Section 5 Design for Trucks - See I
Posted Speed	25 mph	20.25 mph	20 mph	NI	PROT Design Guide, 5.7 Local Service St
	20 11011			IN	TI DOT DESIGN GUIDE. J-1. LUCAI DEIVICE OL

s and Streets ("AASHTO"), AASHTO 2011	
ents ("PBOT"), PBOT 1993	

er Large Vehicles	in	Portland,	2008
2018			

Vol. 2 nd Design Guide

ts Special Design District I Improvements District-wide Design Criteria Design Zone of the Lloyd District of the Central City Plan IE Quadrant Plan Conditions TO 2012

n, PBOT 2018 - Local Service Traffic street;

REMARKS

IDVAR for more information

Streets

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N Williams Ave (South of Weidler)

	I-5: Rose Quarter Improvements				
Design Speed		25 mph	25 mph	Ν	Confirm Design speed with PBOT
Stopping Sight Distance		·			
SSD		165'	178'	Ν	AASHTO Table 3-2, 25 mph 6% downgrad
Horizontal Alignment Controlling Criteria					
Degree of Curve	N/A	28.°56'14"	18.°25'23"	Ν	
Radius	N/A	198	311	Ν	AASHTO Table 3-13, minimum Radius @
Horizontal Alignment Curve					
Degree of Curve (D1)			6.°13'40"	Ν	
Radius (R1)			920'	N	AASHTO Table 3-13, minimum Radius @
Superelevation (e) for D1	-2.0%	-2.0%	-2.0%	Ν	
Superelevation Runoff for D1					
Horizontal Alignment Curve					
Degree of Curve (D2)			11.°02'23"	Ν	
Radius (R2)			519'	Ν	AASHTO Table 3-13, minimum Radius @
Superelevation (e) for D2	-2.0%	-2.0%	-2.0%	Ν	
Superelevation Runoff for D2					
Horizontal Alignment Curve					
Degree of Curve (D3)			18.°25'23"	N	
Radius (R3)			311'	N	AASHTO Table 3-13, minimum Radius @
Superelevation (e) for D3	-2.0%	-2.0%	-2.0%	N	
Superelevation Runoff for D3					
Vertical Curve (Sag)					
Sag K Value	N/A	26	48	Ν	AASHTO Table 3-37, 25 mph
Vertical Curve (Crest)					
Crest K Value	N/A	12	40	Ν	AASHTO Table 3-35, 25 mph
Vertical Grade					
Maximum Grade	5	18	5	Ν	PBOT Design Guide, 5-10 Maximum - As
Vertical Alignment Curve					
Grade In			1.04%		
Grade Out			4.71%		
Minimum Grade			+1.04%		
K Value			55		
Vertical Curve Length			200		
Vertical Alignment Curve					
Grade In			4.71%		
Grade Out			0.86%		
Minimum Grade			+0.86%		
K Value			75		
Vertical Curve Length			290		
Vertical Alignment Curve					
Grade In 5			0.86%		
Grade Out			3.77%		
Minimum Grade			+0.86%		
K Value			48		
Vertical Curve Length			140		
Vertical Alignment Curve					
Grade In			3.77%		
Grade Out			1.27%		
Minimum Grade			+1.27%		
K Value			40		

	November 25, 2020
e	
25 mph and -2% e	
25 mph and -2% e	
25 mph and -2% e	
25 mph and -2% e	
halt Pavement	

		ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N Williams Ave (South of Weidler)					
		I-5:	Rose Quarter Impro	vements			
Vertical Curve Length			100				
Clearance							
Bridge Vertical Clearance	N/A	N/A	N/A	N/A	No objects anticipated. Assume 18.0' city		
Typical Section					See Typical Section Criteria Table		
Travel Lane(s)	11	11 (12 curbtight)	11	Ν			
					Constrianed Environment between MODA		
Bike Buffer Zone	N/A	4.5	1.5	Y	space while providing safety		
					Constrianed Environment between MODA		
Bike Thru Zone	7	14	13	Y	space while providing safety		
					Constrianed Environment between MODA		
Ped Buffer Zone	4	2	1.3 to 4.0	Y	space while providing safety		
Ped Thru Zone	8	8	8	Ν			
Frontage Zone	0	2.5	0	Y	Matching existing		

November 25, 2020

preference applies

A center and the freeway. Provided maximum amount of

A center and the freeway. Provided maximum amount of

A center and the freeway. Provided maximum amount of

ROADWAY TECHNICAL MEMORANDUM - DESIGN CRITERIA N Ramsay Way

		I-5· F	Rose Quarter Imp	ovements	
MP of Bridge (Segment)		MP 301.5 (I-84 Intcha) to MP 303.1 (I-405	intcha)	overnents	
Scope (Replace, Repair, Repair & Widen)		····· •••••• (· •••••••••			
Design Standard (4R/New, 3R, AASHTO "Green Book	<" - 2011)				A Policy on Geometric Design of Highways Design Guide for Public Street Improvement Pedestrian Design Guide, PBOT 1998 Blueprint for Urban Design, ODOT 2020 Designing for Truck Movements and Other 2035 Transportation System Plan (TSP), 20 Bicycle Plan for 2030, 2010 PBOT Ped PDX PBOT Traffic Design Manual, Vol. 1 and Vol PBOT Protected Bicycle Lane Planning and COP Broadway-Weidler Corridor Plan COP Lloyd District Transportation Projects COP Lloyd District Transportation Capital II COP Special Design Guidelines for the Design PBOT/ODOT/BPS Central City 2035 N/NE PCC 17.28.110 Driveways-Permits and Co
		4R/New			Development of Bicycle Facilities, AASHTC
Common Route No					
ODOT Highway No		N/A			
ODOT Highway Name		N Ramsay Way			Portland street name (recently updated from
Functional Classification (by ODOT, county, city or oth State Classification System Designation (SCS)	er Agency)	Major Collector PBOT TSP Classifications: Street Classification: Local Street Traffic Classification: Local Service Traffic Street Transit Classification: Transit Access Street Emergency Response Classification: Minor Emergency Response Bicycle Classification: City Bikeway Freight Classification: Local Service Truck Street Pedestrian Classification: Major City Walkway NHS Route:			Portland 2035 Transportation System Plan New facility Designation to be determined
Freight Route (Y/N)		See TSP Classifications			
Roadway Crossed (Over, Under, None; plus Name)		None			
Other Designations from OHP		N/A			
Terrain (Level, Rolling, Mountainous)		Level			
Trucks (%)				T	To be Provided with future submittal
			Two-Way ADT		
Projected ADT (Const Yr + 20 Yr) (Year 20)					To be Provided with future submittal
			PERMANENT FAC		
		CONSTRUCTION PRO	JECT	Design	
DESIGN FEATURE	Existing	Standard	Proposed	Exception (Y/N)	
Vehicle Designation			Deutlen d T 4 51		DPOT Soction 5 Design for Trucks
		B-40	Portiand I-1 Fire	1	PBOT, Section 5 Design for Trucks - See II
Sneed					
Posted Speed	None	20-25 mph	20 mph	N	PBOT Design Guide, 5-7. Local Service St

November	25,	2020
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ys and	d Streets	("AASH	TO"),	AASHTO	2011
ients (("PBOT")	, PBOT	1993		

her Large Vehicles in Portland, 2008 , 2018

Vol. 2 and Design Guide

ets Special Design District al Improvements District-wide Design Criteria Design Zone of the Lloyd District of the Central City Plan NE Quadrant Plan Conditions TO 2012

rom N Winning Way_{to} N Ramsay Way)

an, PBOT 2018 - Local Service Traffic street;

REMARKS

IDVAR for more information

Streets

N/A N/A	I-5: 25 mph 155' 28.°56'14"	Rose Quarter Improv 25 mph 155'	N N	Confirm Design speed with PBOT
N/A N/A	1-5: 25 mph 155' 28.°56'14"	25 mph 155'	N N	Confirm Design speed with PBOT
N/A N/A	25 mph 155' 28.°56'14"	25 mph 155'	N	Confirm Design speed with PBO1
N/A N/A	155' 28.°56'14"	155'	N	
N/A N/A	155' 28.°56'14"	155'	N	
N/A N/A	28.°56'14"			AASHTO Table 3-1, 25 mph
N/A N/A	28.°56'14"			
N/A	400	28.°56'14"	N	
	198	198	N	AASHTO Table 3-13, minimum Radius @
		28.°56'14"		
		198'		AASHTO Table 3-13, minimum Radius @
		-2.0%		
N/A	26	53	Ν	AASHTO Table 3-37, 25 mph
N/A	12	N/A	N/A	AASHTO Table 3-35, 25 mph
4	18	5	Ν	PBOT Design Guide, 5-10 Maximum - Asp
		3.84%		
		5.29%		
		+5.29%		
		53		
		75		
N/A	N/A	N/A	N/A	No objects anticipated. Assume 18.0' city p
				See Typical Section Criteria Table
11 (12 curbtight)	11 (12 curbtight)	12	N	51
··· (· = · •				Buffer is 0 when separating Cyclists and P
N/A	4.5	0.3	Y	vehicle traffic except during event egress
N/A	7	7	N	
4	2	3.5.6	N	
8	8	8	N	
10	25	10	N	
	N/A N/A A N/A A N/A N/A N/A N/A	N/A 26 N/A 12 4 18 4 18 11 (12 curbtight) 11 (12 curbtight) N/A 4.5 N/A 7 4 2 8 8 10 2.5	N/A 28.°56'14" 198' -2.0% -2.0% -2.0% N/A 26 53 N/A 4 18 5 - 3.84% 5.29% +5.29% 53 - 11 (12 curbtight) 11 (12 curbtight) 11 (12 curbtight) 12 N/A 4 2 3.84 3.84 5.29% -11 (12 curbtight) 11 (12 curbtight) 12 N/A 4 2 3.5,6 8 8 8 10 2.5	N/A N/B N/B N/A 28.°56'14" 198' 198' -2.0% N/A 26 53 N/A 26 53 N/A 26 53 N/A 12 N/A N/A 12 N/A A 18 5 N 5.29% 1 5.29% 1 53 75 75 N/A N/A N/A N/A N/A 11 (12 curbtight) 11 (12 curbtight) 12 N/A 7 N/A 7

	November 25, 20	20
25 mph and 20/2		
25 mph and -2% e		
•		
halt Pavement		
preference applies		
edestrains on MUP only. 3' when	in-street with limited	

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