Tacoma & Pierce County Construction Update

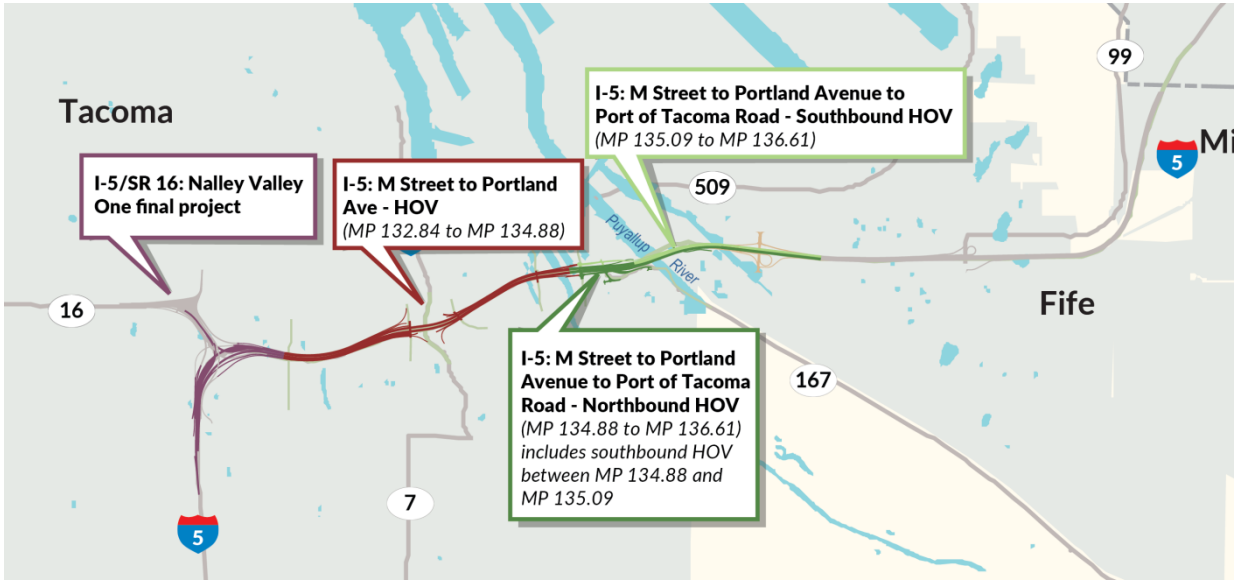
City of Tacoma
Transportation Commission

Steve Roark, WSDOT Assistant Region Administrator, Project Development
Tom Slimak, WSDOT Assistant P.E.

March 15, 2017

Tacoma/Pierce County HOV

- I-5: M Street to Portland Avenue HOV
- I-5: Portland Avenue to Port of Tacoma Road Northbound HOV
- I-5/SR 16: Realignment and Connections
- I-5: Portland Avenue to Port of Tacoma Road Southbound HOV



TPA

I-5 – M Street to Portland Avenue - HOV

I-5 – Portland Ave to Port of Tacoma Road – Northbound HOV

I-5 – Portland Ave to Port of Tacoma Road – Northbound HOV

I-5 / SR 16: Realignment and HOV Connections

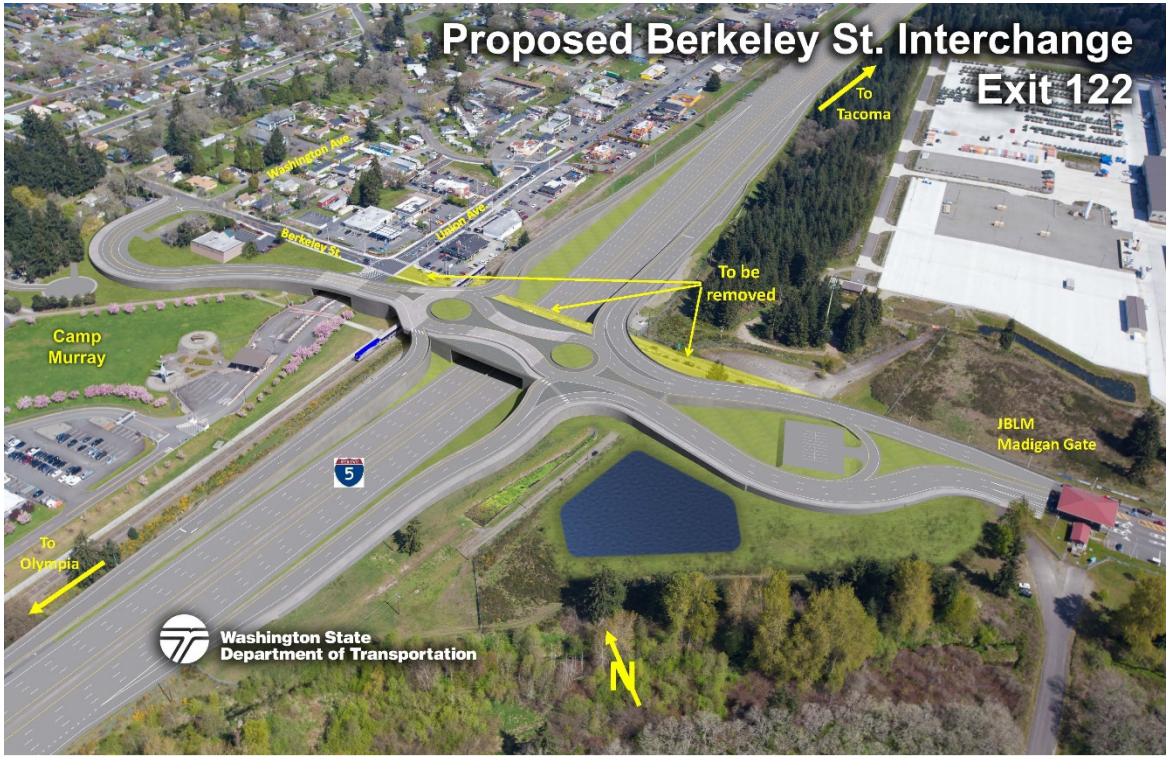
I-5 : Portland Ave to Port of Tacoma Road Southbound HOV

Original concept expected to change from practical solutions approach.

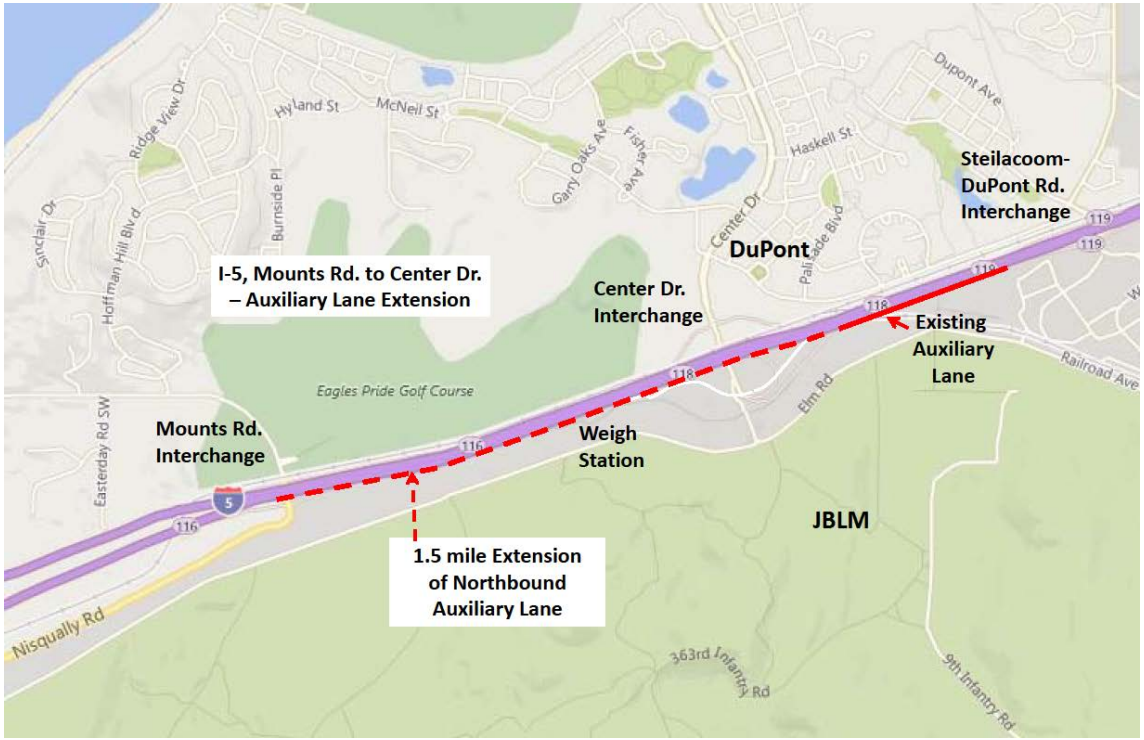
Design/build delivery
2018 - 2021

I-5 Joint Base Lewis-McChord - $494 M

I-5 Joint Base Lewis-McChord - $494 M



I-5 Mounts Road to Center Drive Auxiliary Lane



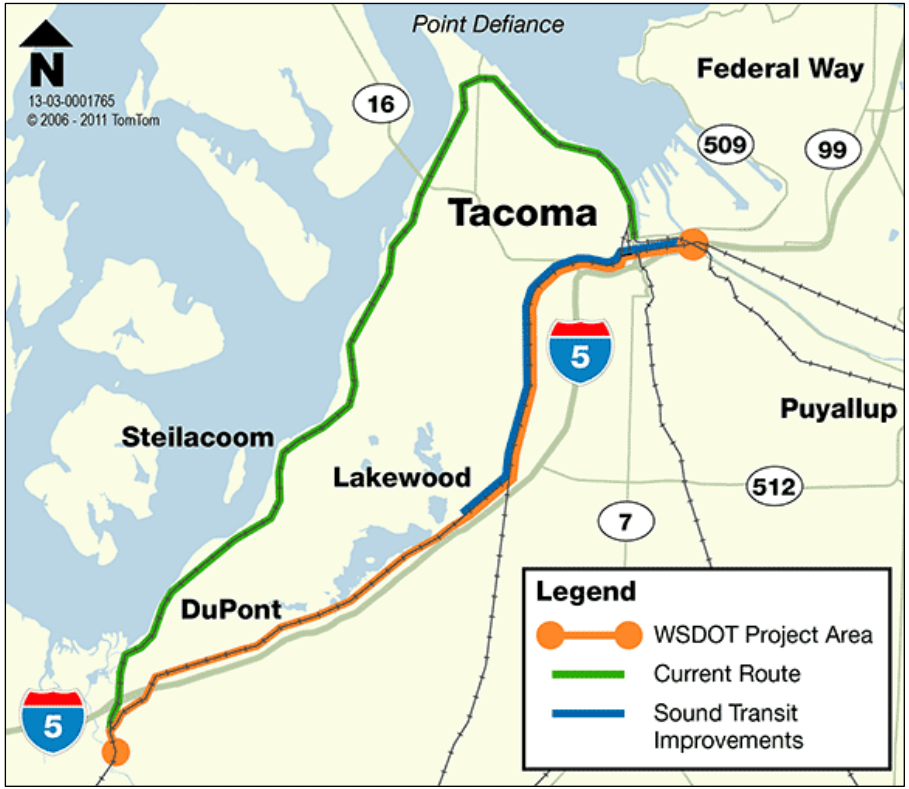
WSDOT HOV Feasibility Study
I-5: JBLM to S 38th Street

Results

Alternative	Opinion of Cost	Performance Rating Comparison
No-Action/ No-Build	$0	44%
Lane Conversion	$4-5 million	33%
Practical Design	$250-310 million	89%
Full Design Standards	$1,250-1,560 million	100%

Tacoma Point Defiance Bypass project

- New 19.5 mile inland bypass route for less congestion, quicker trips
- 14.5 miles of new and upgraded tracks
- 5 reconstructed crossings with advanced warning and signal systems
- New crossovers and turnouts to reduce passenger train congestion
- 3 railroad bridges rehabilitated; a fourth re-constructed
- New, 700-foot trestle platform extension (in conjunction with Sound Transit)
- New Tacoma station



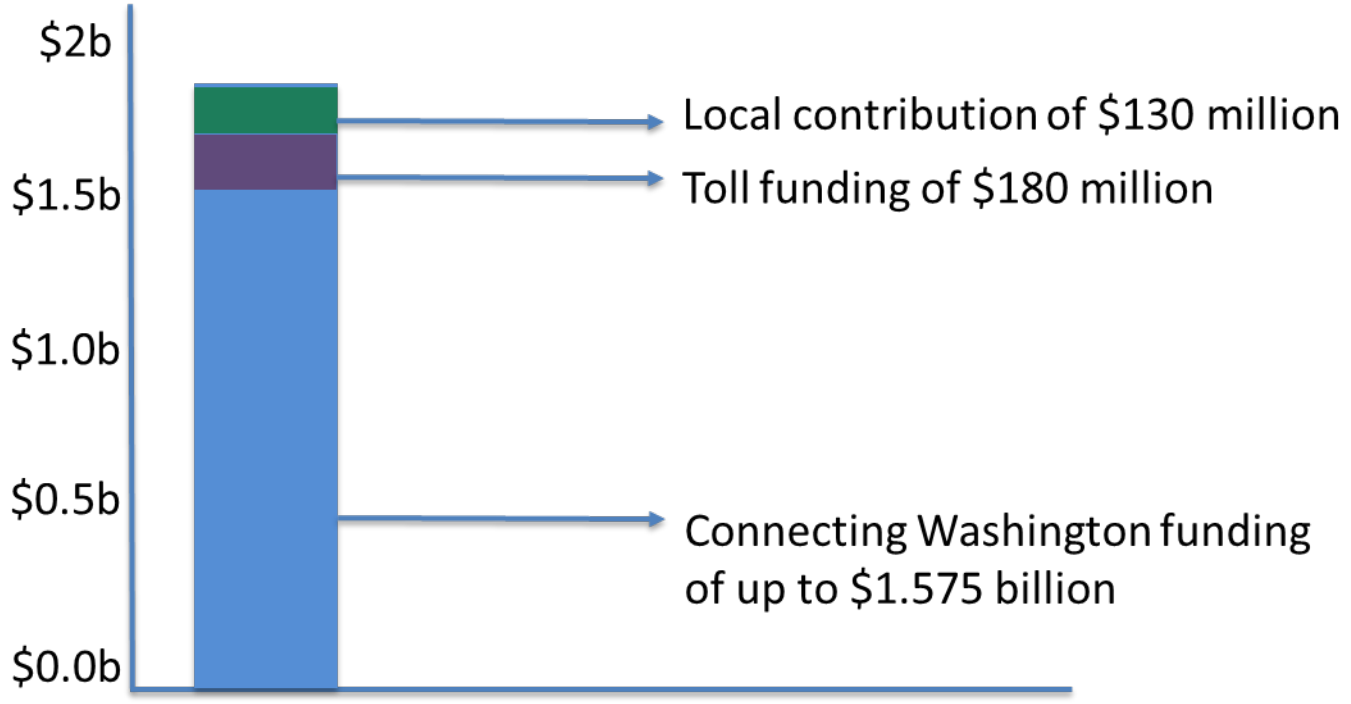
Current schedule

SR 509 & SR 167

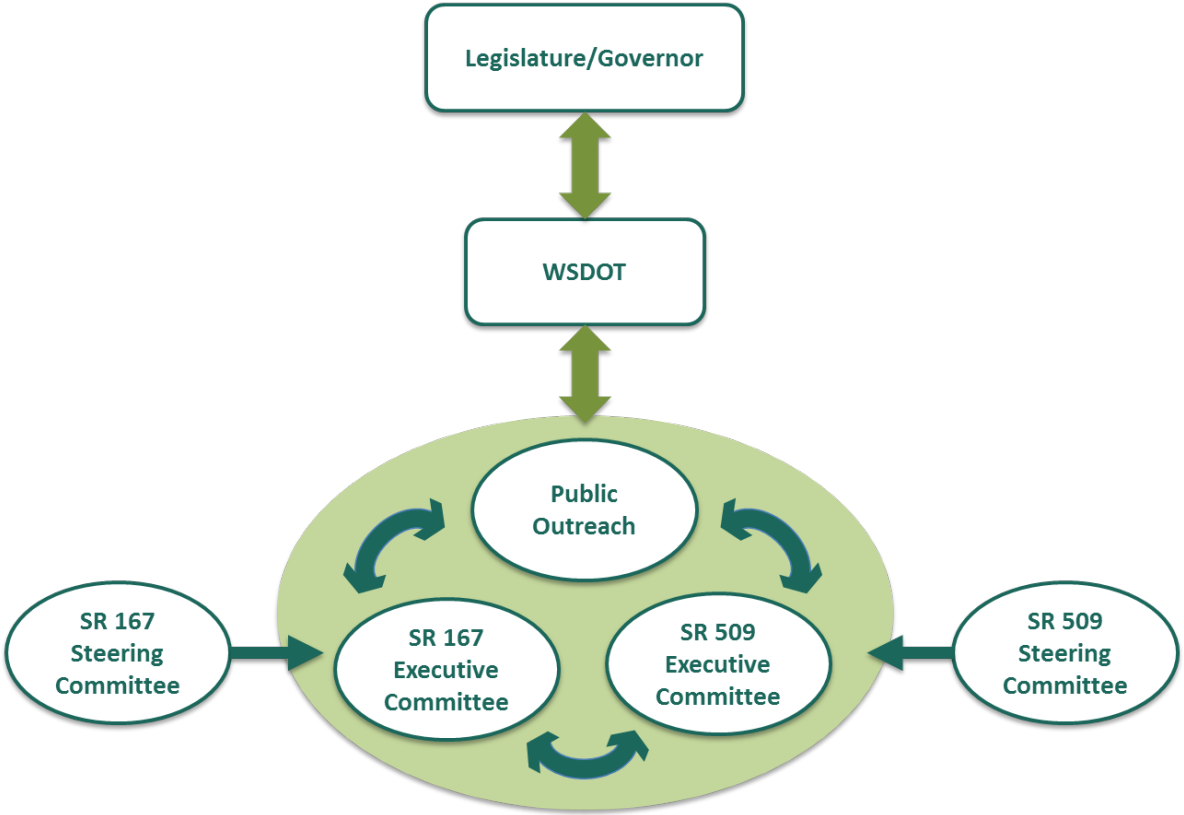
- Completing the Gateway Program provides more direct freight links from the state's largest ports to the distribution centers in the region and to Eastern Washington
- Provides direct access to Seattle-Tacoma International Airport from the south for both passenger and air cargo
- Supports community and economic development

Puget Sound Gateway Program

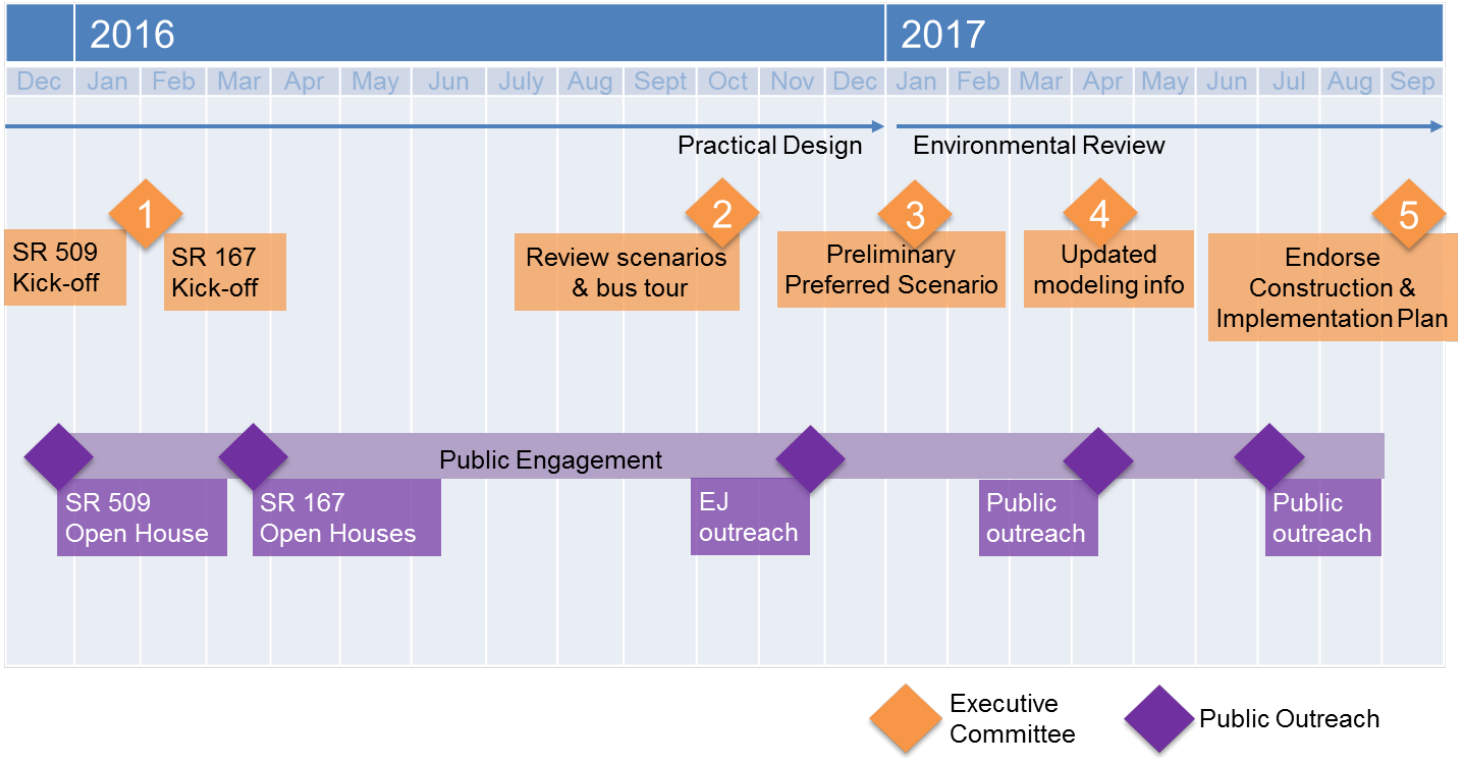
Total funding is $1.875 billion; this amount assumes $310 million local match and tolling funding.



Puget Sound Gateway Process



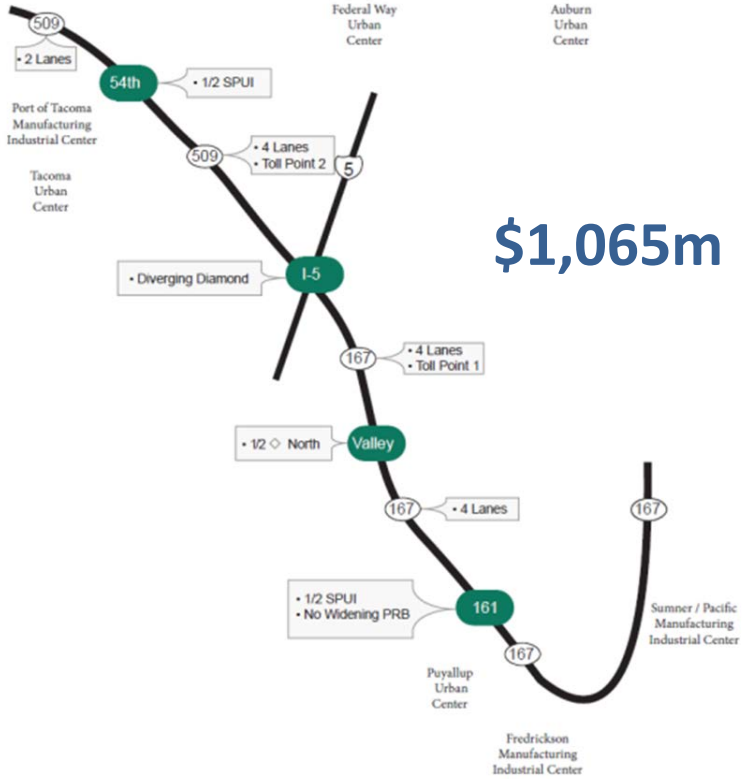
Program Schedule to Endorse Construction & Implementation Plan



SR 167: Scenario 2C

Highlighted features:

- ½ SPUI at 54th Ave interchange
- Service level Diverging Diamond interchange at I-5
- ½ Diamond interchange at Valley Avenue
- ½ SPUI interchange at Meridian Avenue

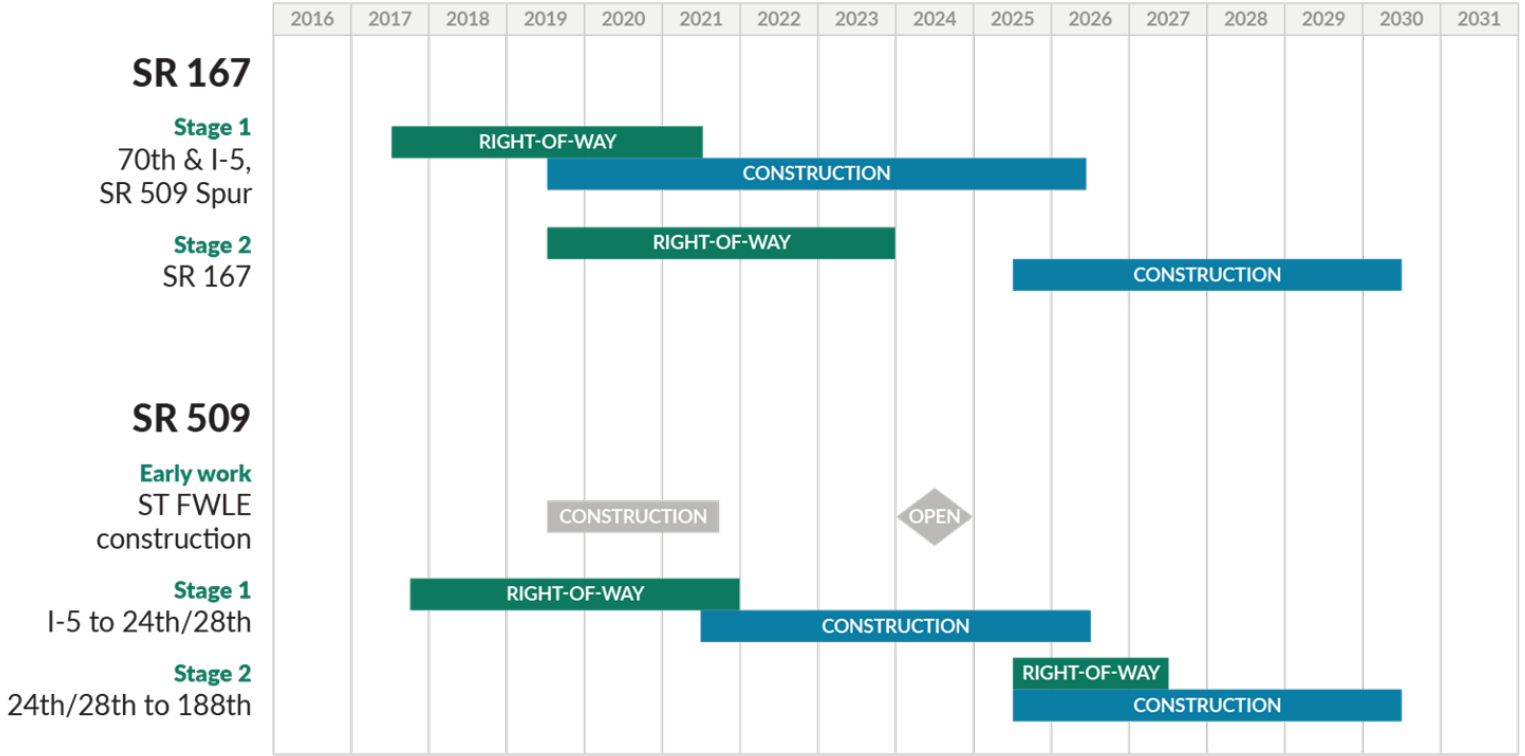


$1,065m

Other Items Total **$180m**

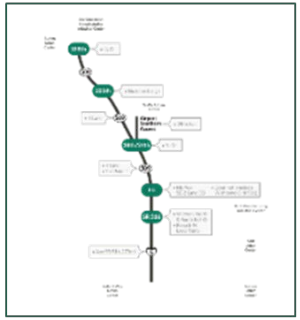
- Interurban Trail
- RRP & Wetland Mitigation

Preliminary Construction Staging within Phase 1

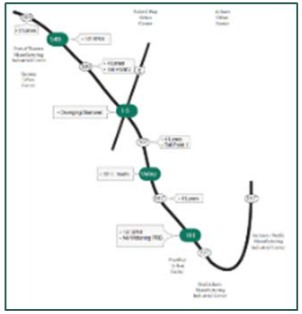


Gateway Phasing

PHASE 1 (to 2031)



SR 509: 3A
$923m



SR 167: 2C
$1,065m

Connect WA	Toll	Local	FASTLANE
$1,565m	$180m	$130m	$114m

PHASE 2 (future)

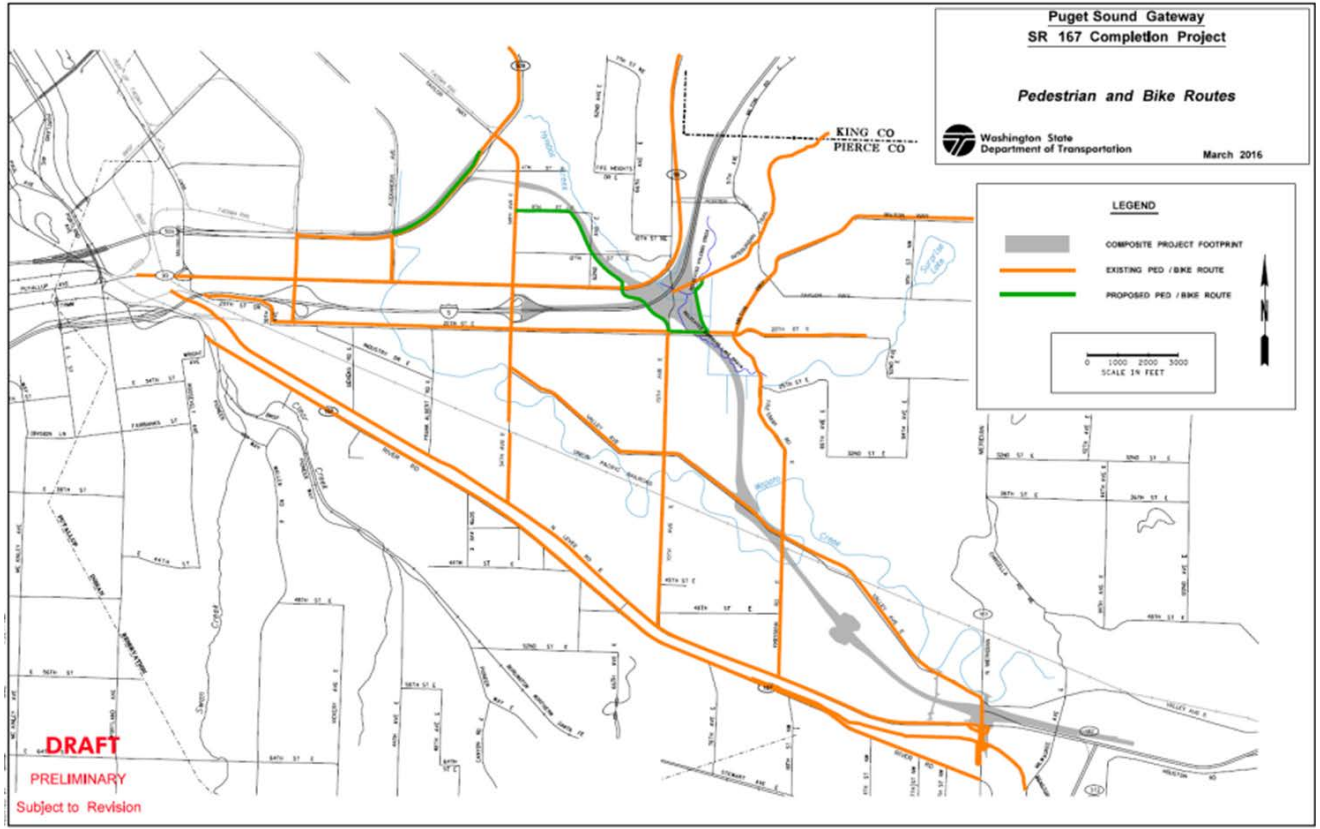
Local Access
- Meridian Interchange (west half)
- 188th Interchange (south half)
- 200th Interchange
- Valley Interchange (east half)

I-5
- SR 167 – SR 18 NB auxiliary lane
- 272nd – SR 516 NB auxiliary lane
- SR 516 – SR 509 NB collector/distributor lanes

HOV
- SR 509 HOV (fifth and sixth lanes)
- SR 509 HOV Direct Access Ramps
- SR 167 HOV (fifth and sixth lanes)
- SR 167 HOV Direct Access Ramps

Forward Compatibility (features that could be constructed in Phase 1 that are needed in Phase 2)
- SR 509
- Sea-Tac Airport South Access Expressway
- I-5
- SR 167

SR 167 Pedestrian & Bicycle Routes



Questions?

City of Tacoma projects on SR 163

Tacoma Metro Parks roundabout

- **Construction begins summer 2017 through Point Defiance Waterfront contract**
- **Builds a roundabout at the intersection of SR 163, Pearl Street and Point Defiance Park**

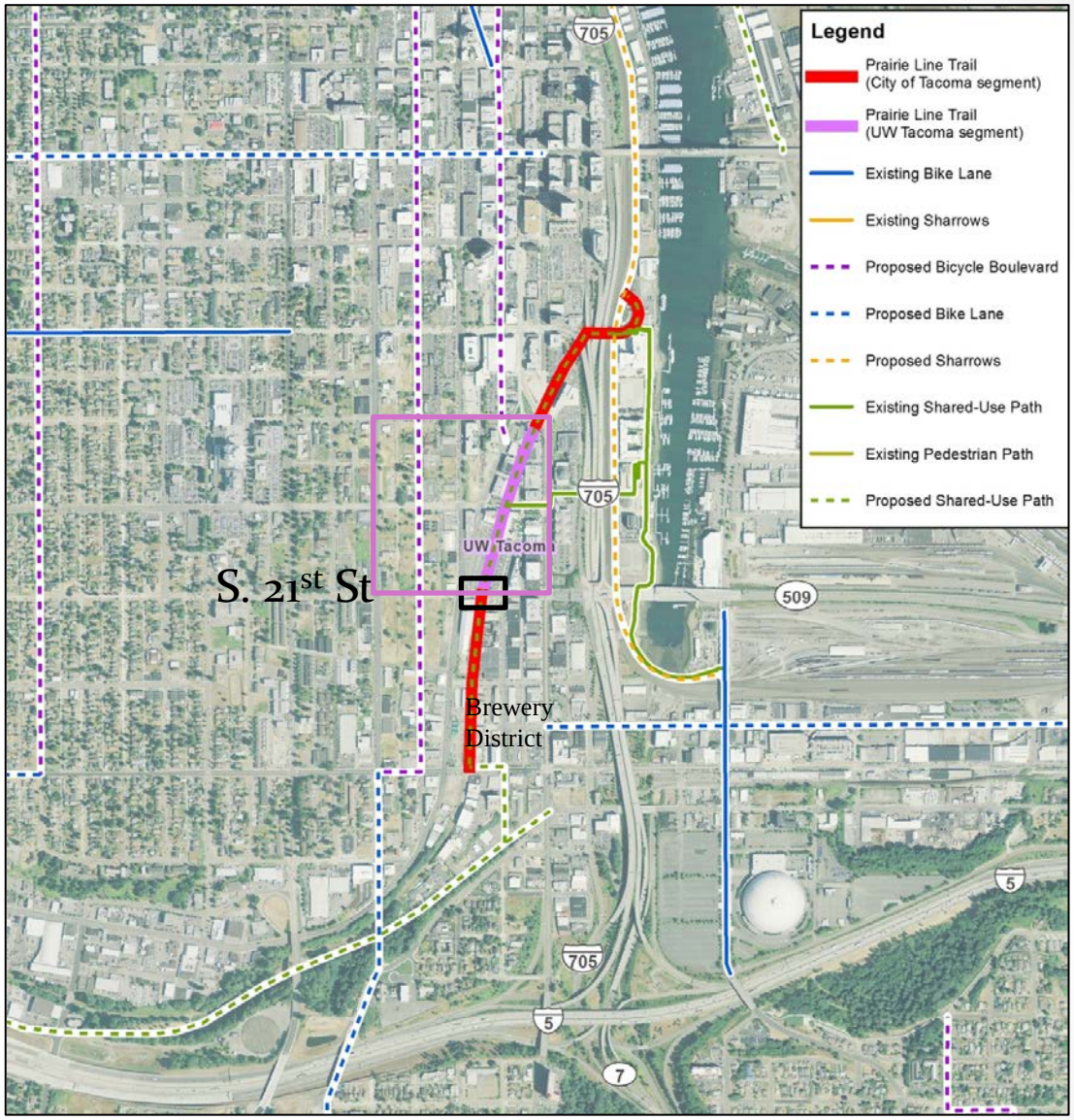
Three project on SR 163 – earliest construction date is in 2019

- **Paving**
- **Concrete rehab**
- **ADA compliance**

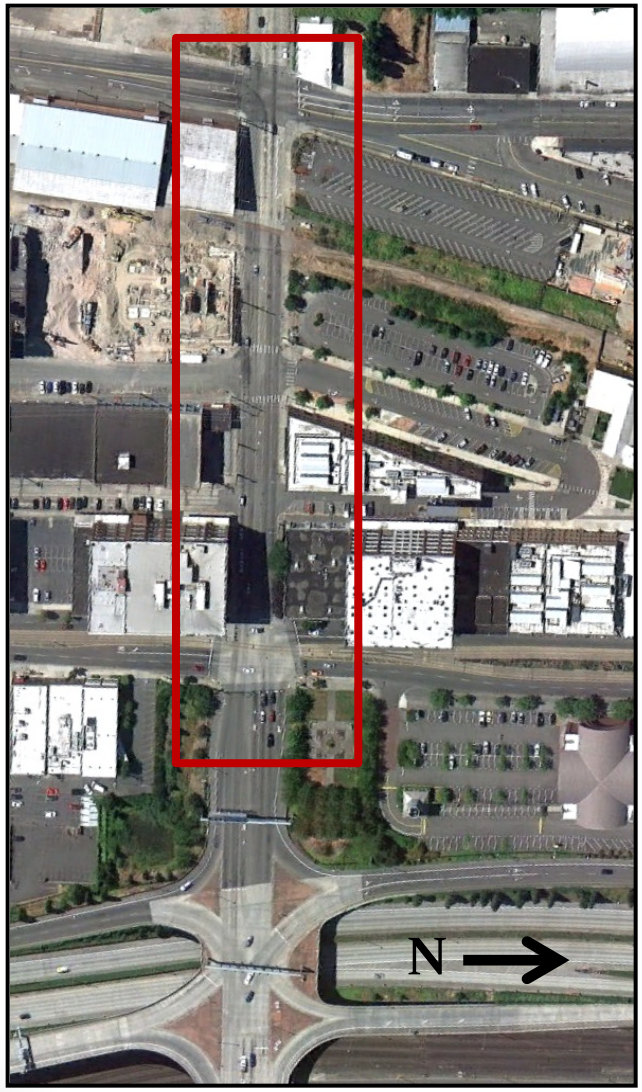
Prairie Line Trail & South 21st Street Crossing Alternatives

EPW Committee – December 12, 2012

Prairie Line Trail



Existing Conditions

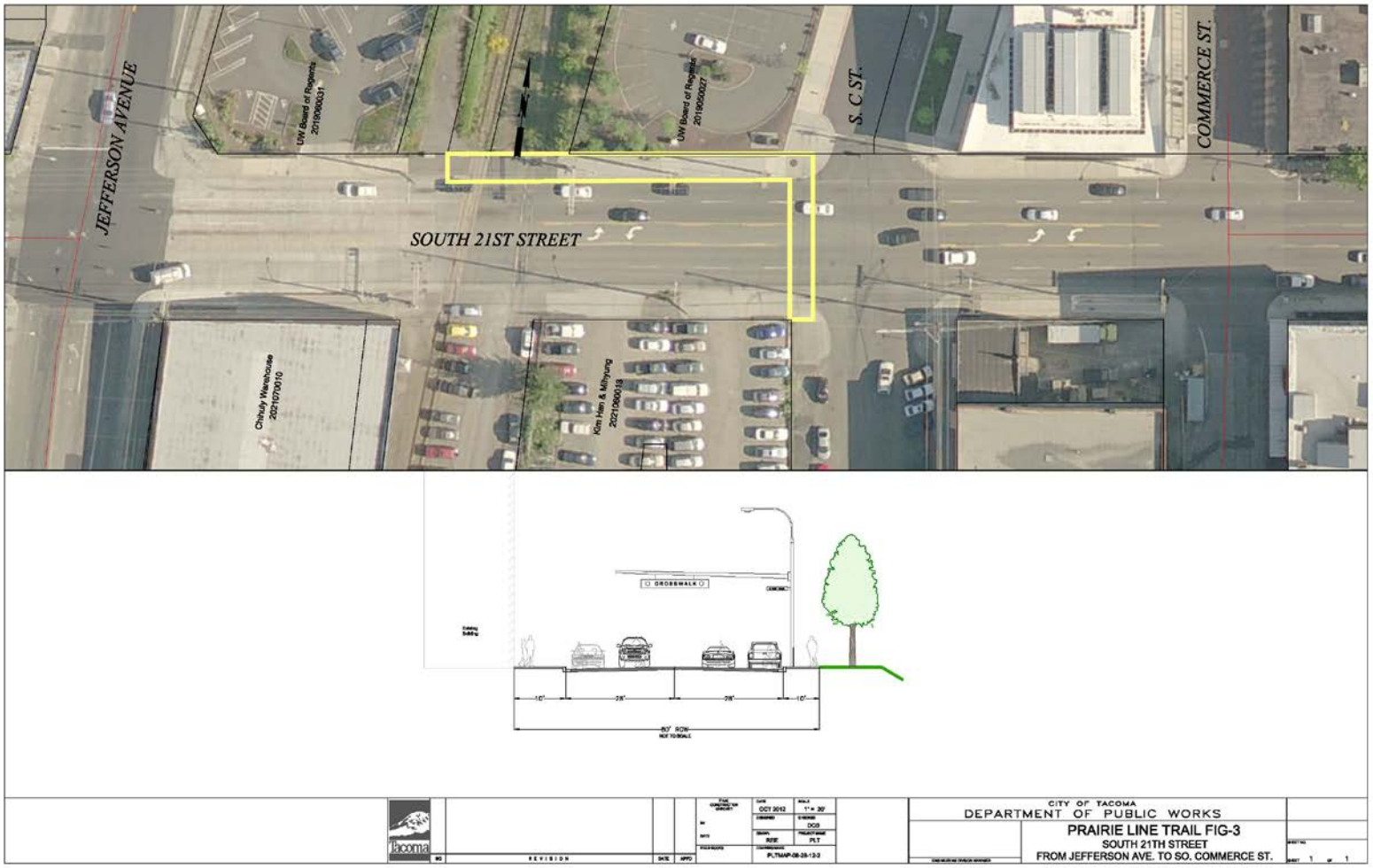


- S 21st Street and Jefferson Avenue Traffic Signal
- S 21st Street and Pacific Avenue Traffic Signal
- Side Street Stops along S 21st Street at C Street and Commerce Street
- Two travel lanes eastbound and two travel lanes westbound
- Left turn pockets and two-way turn lane along S 21st Street

Process

- **EPW 09/21, additional analysis requested**
- **2 new crossing alternatives**
  - Double median/direct crossing
  - Bridge/tunnel
- **Stakeholder outreach**
- **Phased approach**
- **Proposed project goals**

C Street Crossing



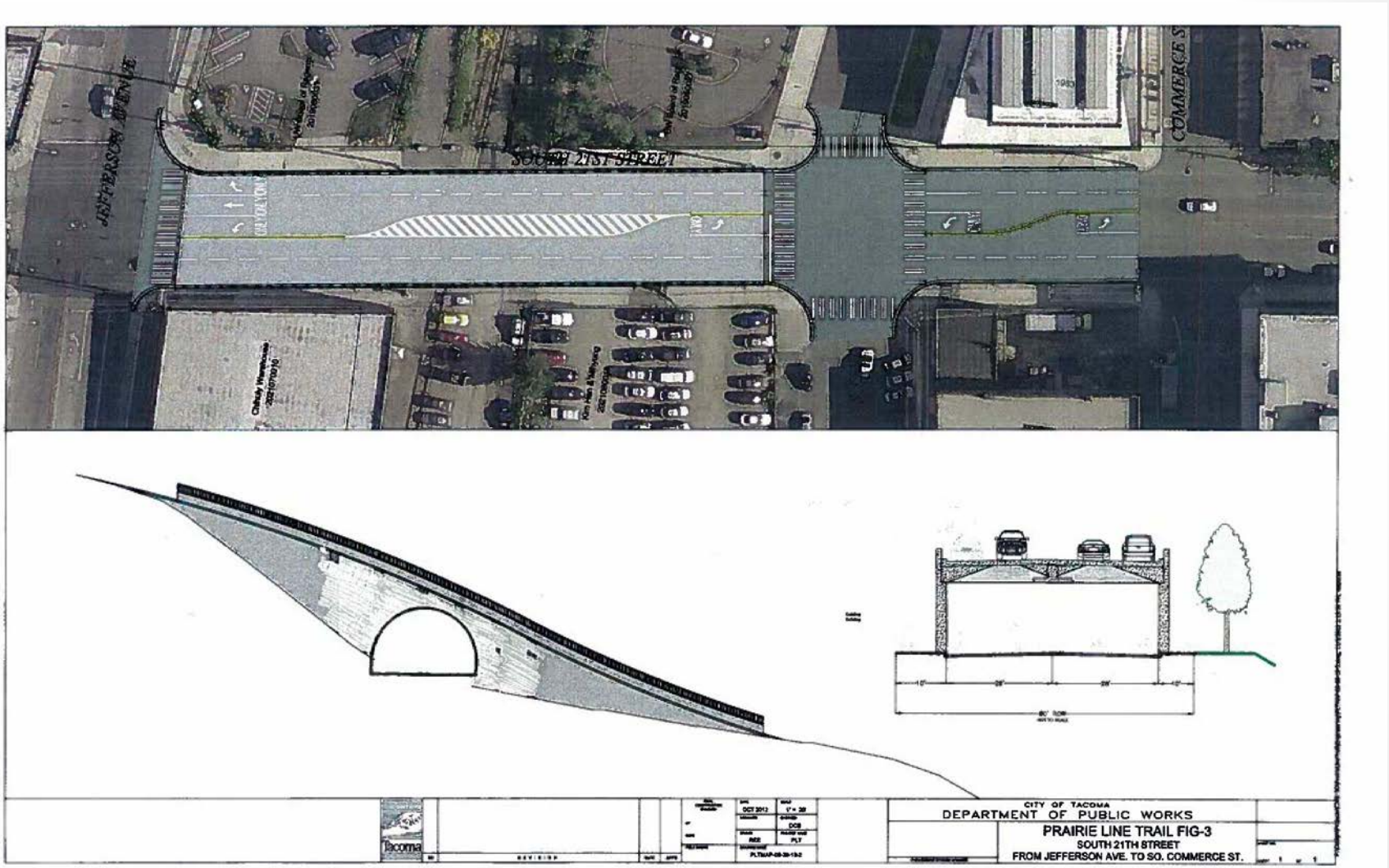
Double Median (Alternative #5)

Figure 3.

Prairie Line Trail -
Partial Road Diet / Double Median Alternative

FEHR PEERS

Bridge/Tunnel (Alternative #4)



Next Steps:

- **Improve C Street Crossing**
- **Design Double Median/Direct Crossing**
- **Analysis of Bridge/tunnel options**

Prairie Line Trail - project goals

PLT Steering Committee's recommendations

- CATALYST
- GATHERING
- MOVEMENT
- HISTORY
- CULTURE
- NATURE

Option 1: In-line Crossing / Road Diet Option

- **Pros**: Least delay for trail users/no trail realignment, median refuges for ease of crossing
- **Cons**: Most delay for vehicles, potential enforcement issues to ensure cyclists stop and vehicles yield

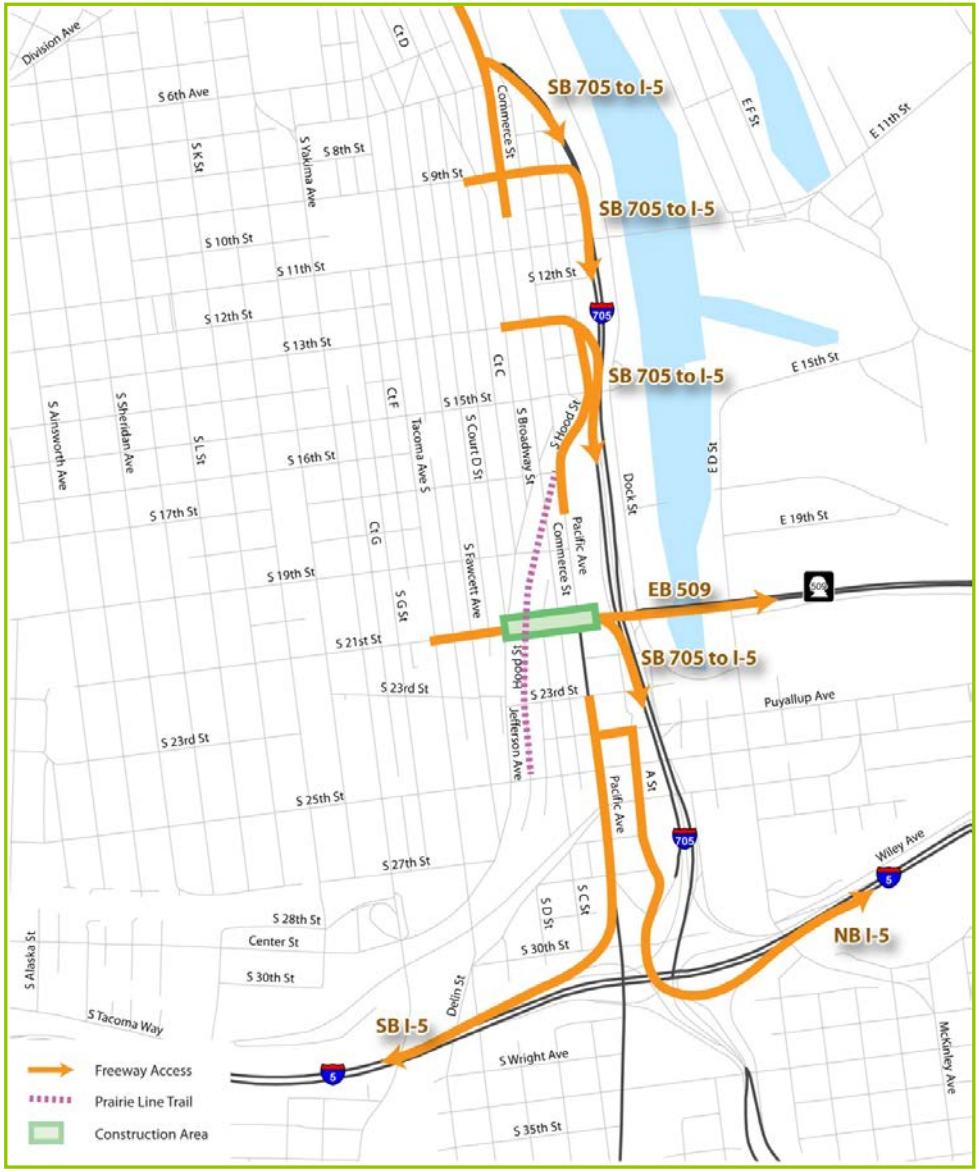
Option 2: Partial Road Diet / C St. Signal

- **Pros**: Maintains eastbound travel lanes, adds least amount of vehicle delay, adds signalized crossing
- **Cons:** Increases crossing distance for trail users, requires utility relocation, potential for conflict between bicyclists and pedestrians

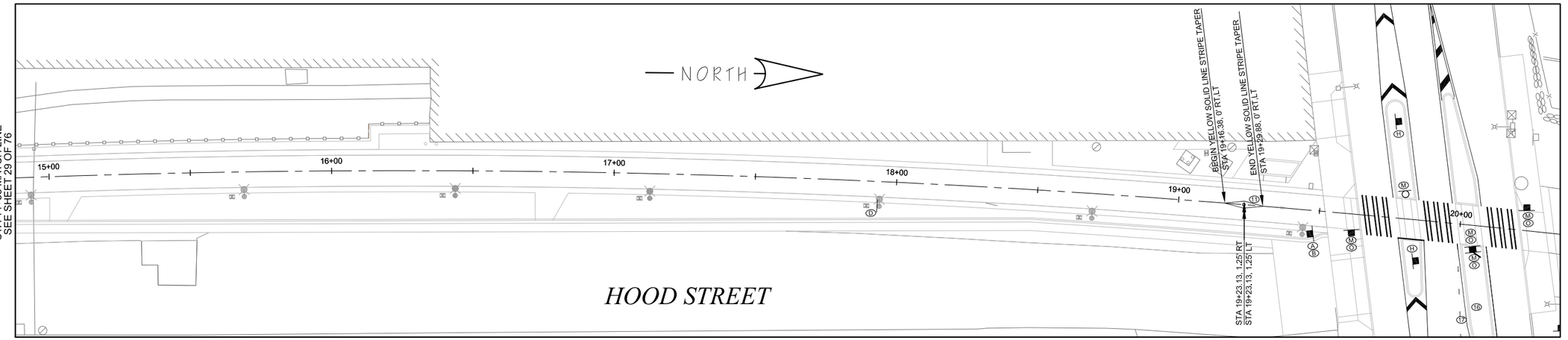
Option 3: C St. Signal

- **Pros:** Maintains all vehicle lanes, adds signalized crossing
- **Cons:** Increases crossing distance for trail users, requires utility relocation and additional ROW, potential for conflict between bicyclists and pedestrians

I-5 / I-705 Access



STA 14+88 MATCH LINE
SEE SHEET 29 OF 76



NOTES:

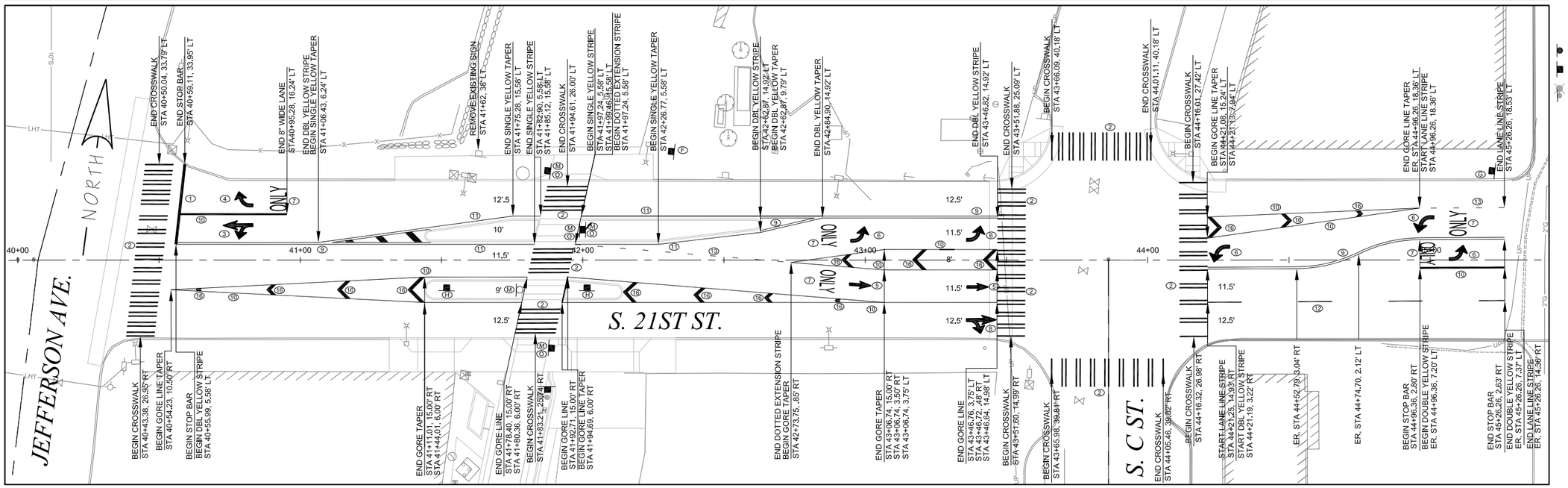
1. INSTALL 12" WHITE STOP BAR, THERMOPLASTIC
2. INSTALL WHITE CROSSWALK MARKINGS THERMOPLASTIC
3. INSTALL WHITE THROUGH-LEFT TURN ARROW, THERMOPLASTIC
4. INSTALL WHITE RIGHT TURN ARROW THERMOPLASTIC
5. INSTALL WHITE THROUGH ARROW, THERMOPLASTIC
6. INSTALL WHITE LEFT TURN ARROW, THERMOPLASTIC
7. INSTALL WHITE "ONLY" LANE MARKING, THERMOPLASTIC
8. INSTALL WHITE THROUGH-RIGHT TURN ARROW, THERMOPLASTIC
9. INSTALL DOUBLE YELLOW CENTER LINE STRIPING, THERMOPLASTIC
10. INSTALL 8" WHITE GORE STRIPE, THERMOPLASTIC
11. INSTALL 4" YELLOW SOLID LINE STRIPE, THERMOPLASTIC
12. INSTALL 4" WHITE BROKEN LANE LINE STRIPE, THERMOPLASTIC
13. INSTALL 8" WHITE DOTTED EXTENSION LINE STRIPE, THERMOPLASTIC
14. INSTALL 4" WHITE PARKING STALL STRIPING, THERMOPLASTIC
15. INSTALL ADA ACCESS PARKING SYMBOL, THERMOPLASTIC

INSTALL CROSSHATCHING, THERMOPLASTIC

INSTALL YIELD BAR WITH 18"x12" TRIANGLES AT 24" SPACING ON CENTER, THERMOPLASTIC

LEGENDS:

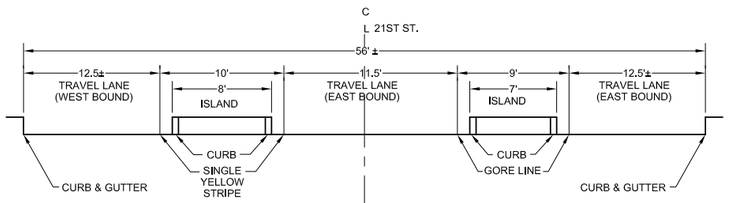
- NEW SIGN ON NEW POLE
- NEW SIGN ON EXIST. POLE
- NEW SIGN ON NEW POST
- NEW SIGN ON EXIST. POST
- NEW SIGN ON TRAIL LIGHT
- NEW SIGN ON MAST ARM POLE



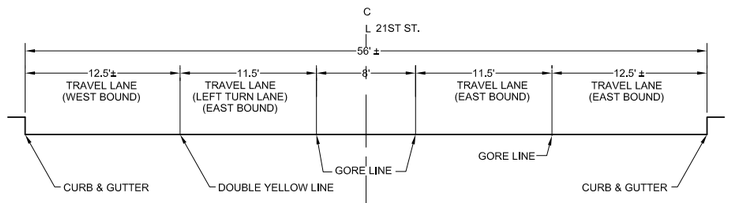
SIGN NOTES:

- (A) NO MOTOR VEHICLES (R5-3) - 24"x24"
- (B) DO NOT ENTER (R5-1) - 30"x30"
- (C) REVERSE CURVE WARNING (W1-4) - 18"x18"
- (D) 4-LEG INTERSECTION WARNING (W2-1) - 18"x18"
- (E) T-INTERSECTION WARNING (W2-4) - 18"x18" WITH "USE SIDEWALK" SUPPLEMENTAL PLAQUE
- (F) RIGHT LANE MUST TURN RIGHT (R3-7R) - 30"x30"
- (G) LEFT LANE MUST TURN LEFT (R3-7L) - 30"x30"
- (H) NO LEFT TURN (R3-2L) - 24"x24"
- (I) NO PEDESTRIAN CROSSING (R9-3A) - 18"x18" WITH USE CROSSWALK (R9-3BL) - 18"x12"
- (J) ADA PARKING SIGN ASSEMBLY (R7-801) - 12"x18"
- (K) NO PARKING ANY TIME (R7-1R) - 12"x18"
- (L) STOP (R1-1) - 30"x30"
- (M) BICYCLE/PEDESTRIAN (W11-15) - 30"x30"
- (O) DOWNWARD DIAGONAL ARROW PLAQUE (W16-7P) - 24"x12"

* FOR SIGN DETAILS SEE SHT. CH-03 OF CH-03



STA. ~41+76



STA. ~43+25

CITY OF TACOMA

HORIZ. DATUM: N.A.D. 83/91
VERT. DATUM: N.G.V.D. 29
BENCH MARK: SBM
INTERSECTION OF SOUTH 25TH ST. AND 'C' ST.
ELEV. 100.00

20 0 20 40 60
SCALE IN FEET

CALL BEFORE YOU DIG

EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY PER BEST AVAILABLE INFO, AND MAY BE INCOMPLETE. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, POTHOLING AND AVOIDING ALL EXISTING UTILITIES.

CALL TWO BUSINESS DAYS BEFORE YOU DIG
(1-800-424-5555) OR VISIT ONLINE: www.callbeforeyoudig.org

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED
BY
DATE
FIELD BOOKS

DATE	SCALE
NOV 2015	1" = 20'
DESIGNED JRB	CHECKED BDK
DRAWN REE	PROJECT NAME PrairieLineTrail
DRAWING NAME PLT2-Chann	

JUSTIN ROBERT BELAK — STATE OF WASHINGTON — 52021 — REGISTERED PROFESSIONAL ENGINEER

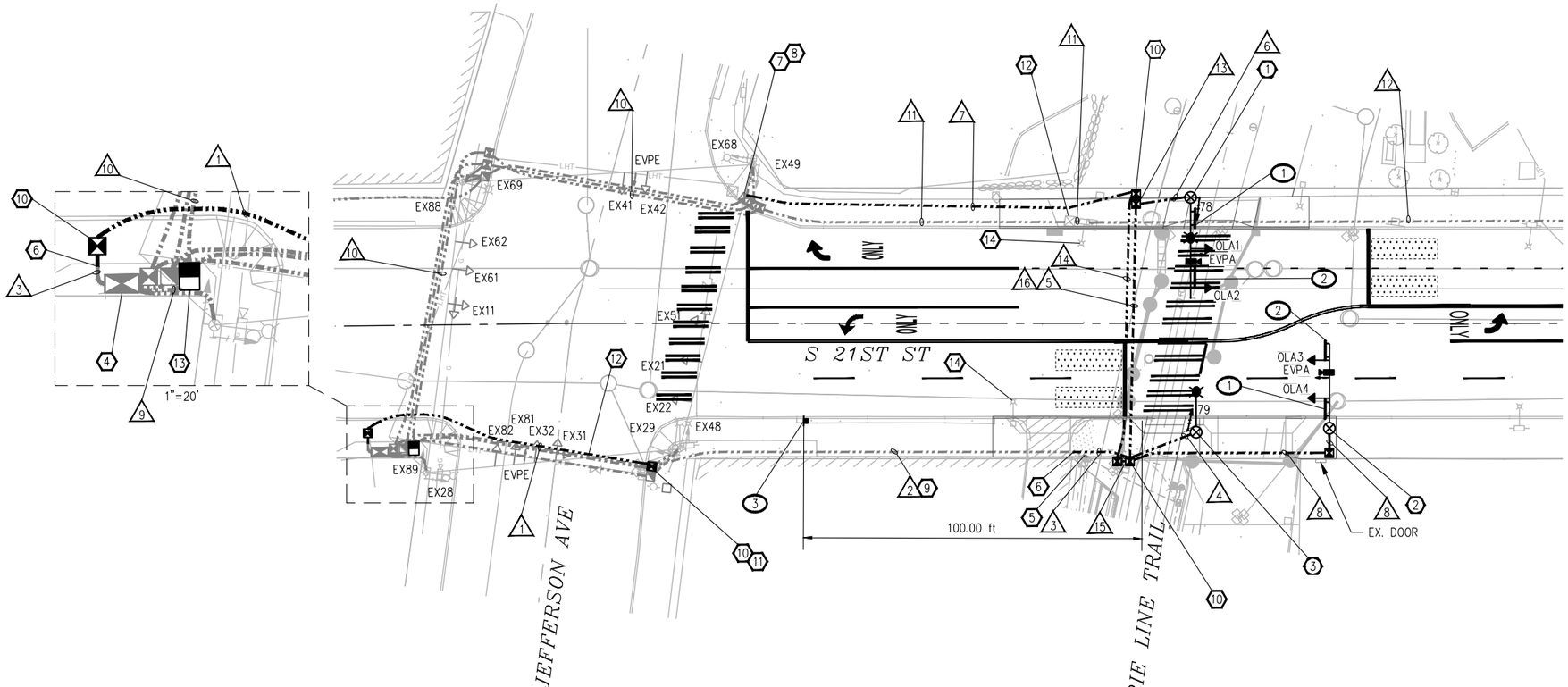
ENGINEERING DIVISION MANAGER

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

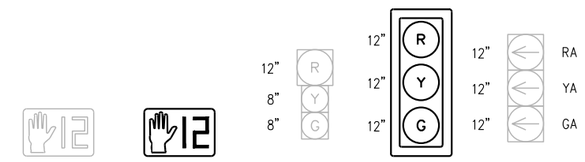
CHANNELIZATION PLAN
PRAIRIE LINE TRAIL PHASE 2
FROM S. 25TH ST. TO S. 21ST ST.

PWK-G0014
SHEET NO. CH-02
SHEET 30 OF 76

REGION NO.	STATE	FED. AID PROJECT NO.
10	WASH	XXXX-XXXX (XXX)



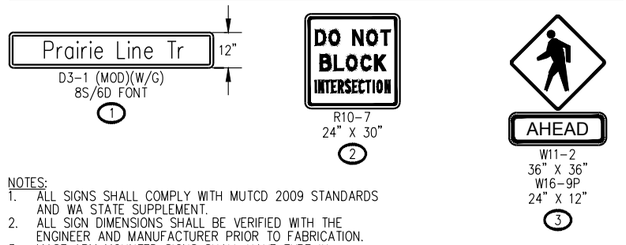
SIGNAL HEAD ASSIGNMENT



EX28, EX29, EX48, EX49, EX68, EX69, EX88, EX89 | 78/OLB, 79/OLB | EX21, EX22, EX41, EX42, EX61, EX62, EX81, EX82 | OLA1, OLA2, OLA3, OLA4 | EX11, EX31, EX32, EX51

NOTES:
1. ALL NEW VEHICLE AND PEDESTRIAN SIGNAL HEADS SHALL BE LED TYPE AND SHALL USE TUNNEL VISORS, SQUARE DOORS AND 5" BACKPLATES WITH 2" YELLOW RETROFLECTIVE TAPE. NEW VEHICLE SIGNAL HEADS SHALL USE MOUNTING TYPE "M" ON TENONS PER WSDOT STANDARD PLAN J-75.10-02 AND TYPE "K" MOUNTS ON POLES PER WSDOT STANDARD PLAN J-75.20-00. ALL NEW PEDESTRIAN SIGNAL HEADS SHALL USE MOUNT TYPE E PER WSDOT STANDARD PLAN J-75.10-02.

SIGN LEGEND



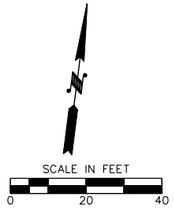
D3-1 (MOD)(W/G) 8S/6D FONT (1) | R10-7 24" X 30" (2) | W11-2 36" X 36" W16-9P 24" X 12" (3)

NOTES:
1. ALL SIGNS SHALL COMPLY WITH MUTCD 2009 STANDARDS AND WA STATE SUPPLEMENT.
2. ALL SIGN DIMENSIONS SHALL BE VERIFIED WITH THE ENGINEER AND MANUFACTURER PRIOR TO FABRICATION.
3. MAST ARM MOUNTED SIGNS SHALL HAVE TYPE IX SHEETING AND SHALL BE BRACED AND INSTALLED PER WSDOT STD PLAN G-30.10-04.

LEGEND

EXISTING	NEW	DESCRIPTION
		JUNCTION BOX TYPE 1, 2 & 8
		VIRTUAL LOOP DETECTION ZONE (SHOWN FOR REFERENCE ONLY)
		VIDEO DETECTION CAMERA
		CONDUIT
		PEDESTRIAN SIGNAL HEAD
		VEHICLE SIGNAL HEAD
		SIGNAL POLE, TYPE III
		POST MOUNTED SIGN
		MAST ARM MOUNTED SIGN
		PEDESTRIAN PUSH BUTTON
		SIGNAL POLE NOTE
		CONSTRUCTION NOTE
		SIGN NOTE
		WIRE NOTE
		EVPE DETECTOR

CALL 3 WORKING DAYS BEFORE YOU DIG 1-800-424-5555

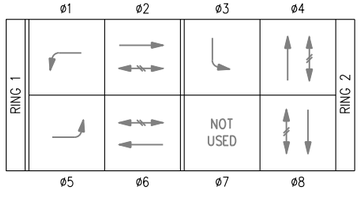


90% REVIEW SUBMITTAL

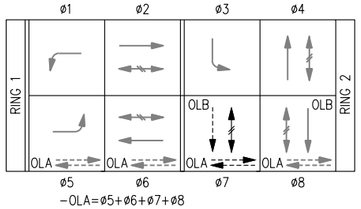
GENERAL NOTES

1. SEE SHEET SG.01A FOR CONSTRUCTION NOTES AND WIRE NOTES.
2. SEE SHEET SG.01D FOR VIDEO DETECTION CAMERA INSTALLATION DETAIL.
3. PAVEMENT MARKINGS AND REMOVALS BY OTHERS
4. PROTECT AND MAINTAIN ALL EXISTING TRAFFIC SIGNAL EQUIPMENT UNLESS NOTED OTHERWISE.
5. EXISTING SIGNAL SHALL REMAIN FULLY OPERATIONAL EXCEPT DURING MODIFICATION TURN ON, WHEN A UNIFORMED POLICE OFFICER WILL BE ON SITE DIRECTING TRAFFIC.

EXISTING SIGNAL PHASE DIAGRAM



PROPOSED SIGNAL PHASE DIAGRAM*



-OLA=ø5+ø6+ø7+ø8
-OLB=ø7+ø8
-OLA SHALL REMAIN GREEN UNLESS ø7 IS ACTIVATED
VEHICLE MOVEMENT
PEDESTRIAN MOVEMENT
OVERLAP MOVEMENT

DKS
719 Second Ave, Suite 1250
Seattle, WA 98104
(206) 382-9800
www.dksassociates.com

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED
BY
DATE
FIELD BOOKS

DATE 12/22/16 | SCALE AS NOTED
DESIGNED CLM | CHECKED RJH
DRAWN 1/26/17 | PROJECT NAME 15133-003
DRAWING NAME SIGNAL PLANS.DWG

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

PRAIRIE LINE TRAIL - PHASE 2
SOUTH 21ST STREET AND PRAIRIE LINE TRAIL
TRAFFIC SIGNAL PLAN

15133-003
SHEET NO. SG.01
SHEET X OF X

REGION NO.	STATE	FED. AID PROJECT NO.
10	WASH	XXXX-XXXX (XXX)

△WIRE NOTES

RUN NO	CONDUIT SIZE	EXISTING CONDUCTORS	VEHICLE HEAD (5C)	PED HEAD (3C)	PPB (1-2CS)	VIDEO DETECTION	1-EVPE	STREETLIGHT #6 (B)	GROUND #6(G)	288 SMFO CABLE	12 SMFO CABLE	REMARKS
△1	3" PVC		2	2	2	2	2					
△2	EX 2" PVC		2	2	2	2	2					
△3	2" PVC		2	2	2	2	2					
△4	2" PVC			1	1			2	1			
△5	3" PVC		1	1	1	1	1					
△6	2" PVC		1	1	1	1	1	2	1			
△7	2" PVC							2	1			
△8	2" PVC		1			1	1					
△9	EX. 2" PVC	3 - 6PR #19 INTERCONNECT									1	
△10	EX. 2" RMC	2 - 6PR #19 INTERCONNECT								1		
△11	EX. 2" PVC	1 - 6PR #19 INTERCONNECT								1		
△12	EX AERIAL	1 - 6PR #19 INTERCONNECT								1		
△13	2" PVC							2	1			
△14	2" PVC							2	1			
△15	2" PVC							2	1			
△16	3" PVC											SPARE

NOTE: ALL EMPTY CONDUIT SHALL HAVE TRACEABLE PULL WIRE.

CONSTRUCTION NOTES

1. FURNISH AND INSTALL TYPE III SIGNAL POLE AND FOUNDATION WITH LUMINAIRE. FURNISH AND INSTALL COUNTDOWN PEDESTRIAN HEAD, TERMINAL CABINET AND APS PEDESTRIAN PUSH BUTTON ON POLE. FURNISH AND INSTALL MAST ARM WITH TWO VEHICLE SIGNAL HEADS, STREET NAME SIGN, AND EMERGENCY VEHICLE DETECTION. SEE POLE SCHEDULE ON SHEET SG.01C. FURNISH AND INSTALL VIDEO DETECTION CAMERA PER MANUFACTURER'S RECOMMENDATION. SEE VIDEO DETECTION CAMERA MOUNTING DETAIL ON SHEET SG.01D. SEE SPECIAL PROVISIONS.
2. FURNISH AND INSTALL TYPE II SIGNAL POLE AND FOUNDATION. FURNISH AND INSTALL TERMINAL CABINET ON POLE. FURNISH AND INSTALL MAST ARM WITH TWO VEHICLE SIGNAL HEADS, STREET NAME SIGN, AND EMERGENCY VEHICLE DETECTION. SEE POLE SCHEDULE ON SHEET SG.01C. FURNISH AND INSTALL VIDEO DETECTION CAMERA PER MANUFACTURER'S RECOMMENDATION. SEE VIDEO DETECTION CAMERA MOUNTING DETAIL ON SHEET SG.01D. SEE SPECIAL PROVISIONS.
3. FURNISH AND INSTALL STEEL LUMINAIRE POLE AND FOUNDATION. FURNISH AND INSTALL COUNTDOWN PEDESTRIAN HEAD AND APS PEDESTRIAN PUSH BUTTON ON POLE. SEE POLE SCHEDULE ON SHEET SG.01C. SEE SPECIAL PROVISIONS.
4. EXISTING SIEMENS M50 TRAFFIC SIGNAL CONTROLLER IN EXISTING TYPE P CABINET. FURNISH AND INSTALL APS PEDESTRIAN PUSH BUTTON CONTROLLER AND ACCESSORIES NECESSARY TO ACHIEVE OPERATION AS INDICATED ON THE PLAN. REWIRE VEHICLE HEADS AS NECESSARY TO ACHIEVE PHASING AS INDICATED ON THE PLAN. FURNISH AND INSTALL FIBER OPTIC PATCH PANEL, ETHERNET SWITCH, AND FIBER OPTIC JUMPERS, FIBER OPTIC ASSIGNMENTS TO BE PROVIDED BY ENGINEER. LABEL ALL WIRING. SEE SPECIAL PROVISIONS.
5. ABANDON EXISTING CONDUIT.
6. INTERCEPT EXISTING CONDUIT AND JOIN TO PROPOSED CONDUIT.
7. RUN NEW CONDUIT TO EXISTING JUNCTION BOX.
8. SPLICE NEW 3#6 (LUM) CONDUCTORS TO EXISTING 3#6 (LUM) CONDUCTORS. SEE CITY OF TACOMA STANDARD PLANS SL-05 AND SPECIAL PROVISIONS.
9. REMOVE AND DISPOSE OF EXISTING CONDUCTORS FROM EXISTING TRAFFIC SIGNAL CABINET TO ABANDONED RAILROAD CABINET.
10. FURNISH AND INSTALL JUNCTION BOX AS SHOWN.
11. REMOVE AND DISPOSE OF EXISTING JUNCTION BOX.
12. INSTALL FIBER OPTIC CABLE IN EXISTING RISER TO EXISTING AERIAL LINE.
13. FURNISH AND INSTALL FIBER OPTIC SPLICE ENCLOSURE AND FUSION SPLICE 12 SMFO CABLE TO EXISTING 288 SMFO CABLE, ASSIGNMENTS TO BE PROVIDED BY CITY ENGINEER.
14. COORDINATE WITH TACOMA POWER TO REMOVE AND SALVAGE EXISTING STREET LIGHT.

90% REVIEW SUBMITTAL

DKS
719 Second Ave, Suite 1250
Seattle, WA 98104
(206) 382-9800
www.dksassociates.com

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED
BY
DATE
FIELD BOOKS

DATE 12/22/16 | SCALE AS NOTED
DESIGNED CLM | CHECKED RJH
DRAWN 1/26/17 | PROJECT NAME 15133-003
DRAWING NAME SIGNAL PLANS.DWG

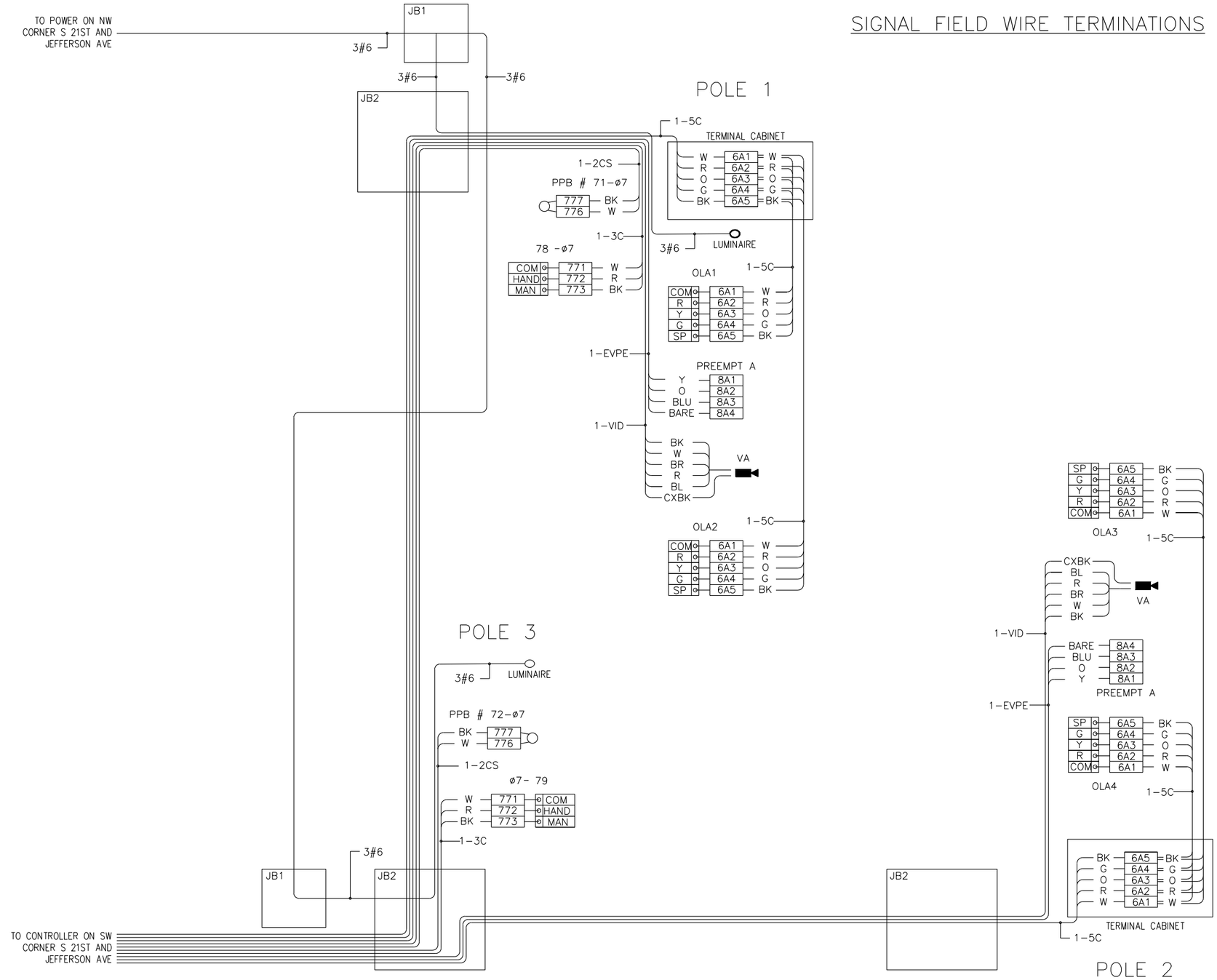
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

PRAIRIE LINE TRAIL - PHASE 2
SOUTH 21ST STREET AND PRAIRIE LINE TRAIL
WIRE & CONSTRUCTION NOTES

15133-003
SHEET NO. SC.01A
SHEET X OF X

REGION NO.	STATE	FED. AID PROJECT NO.
10	WASH	XXXX-XXXX (XXX)

SIGNAL FIELD WIRE TERMINATIONS



90% REVIEW SUBMITTAL

DKS
719 Second Ave, Suite 1250
Seattle, WA 98104
(206) 382-9800
www.dksassociates.com

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED
BY
DATE
FIELD BOOKS

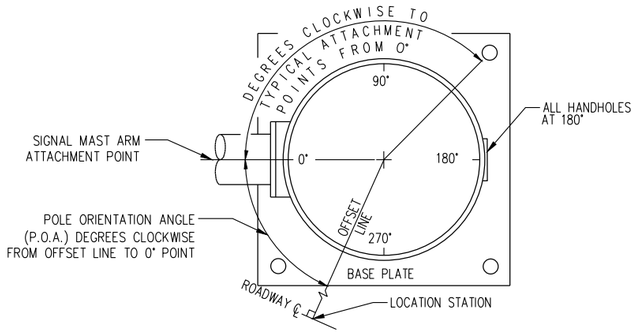
DATE 12/22/16 | SCALE AS NOTED
DESIGNED CLM | CHECKED RJH
DRAWN 1/26/17 | PROJECT NAME 15133-003
DRAWING NAME SIGNAL PLANS.DWG

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

PRAIRIE LINE TRAIL - PHASE 2
SOUTH 21ST STREET AND PRAIRIE LINE TRAIL
FIELD WIRE TERMINATIONS

15133-003
SHEET NO. SC.01B
SHEET X OF X

REGION NO.	STATE	FED. AID PROJECT NO.
10	WASH	XXXX-XXXX (XXX)

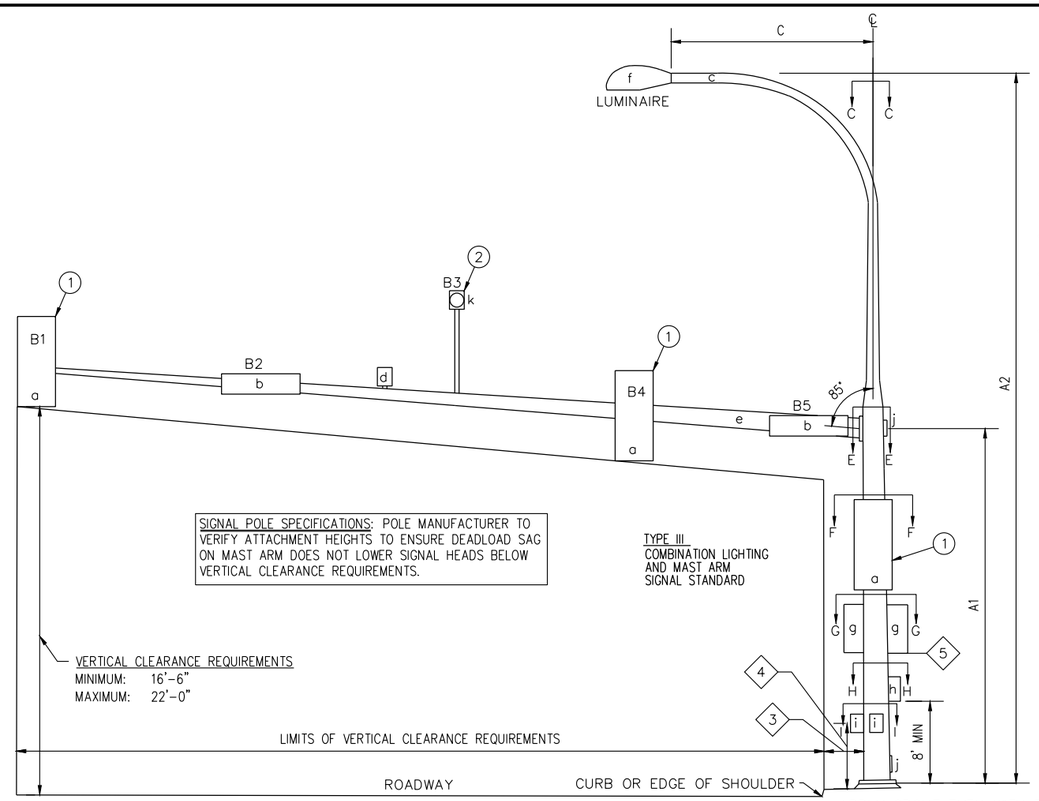


POLE ORIENTATION AND ATTACHMENT POINT DETAIL

		EXAMPLE
STD. NO. XX	SIGNAL STANDARD NO.	STD. NO. 02
MANUFACTURER	MANUFACTURER	MANUFACTURER
APPROVED DWG. ~~XXXXXX~~	APPROVED DRAWING NO.	APPROVED DWG. AB12345
FAB. XX/XX/XXXX	FABRICATION DATE	FAB. 6/14/2002

NOTE: CORROSION RESISTENT METAL TAG SECURED WITH (2) 0.125" RIVETS AS FOLLOWS: POLE SHAFT – LOCATED WITHIN 6" ABOVE HAND HOLE, SIGNAL AND LUMINAIRE MAST ARM – LOCATED WITHIN 6" OF THE POLE SHAFT CONNECTION POINT. TEXT SHALL BE A MINIMUM OF 3/16" HIGH, STAMPED OR EMBOSSED.

SIGNAL STANDARD IDENTIFICATION TAG DETAIL



SIGNAL POLE DETAIL

APPLY GROUT EVEN WITH THE ANCHOR PLATE AFTER PLUMBING THE STANDARD, PROVIDE 3/8" Ø DRAIN TUBE IN THE GROUT PAD

NOTES

1. MOUNTING COUPLING INSTALLED BY FABRICATOR AT OFFSET DISTANCES INDICATED IN CHART.
2. PROVIDE 1" WIRE HOLE WITH GROMMET ON BOTTOM OF MAST ARM.
3. PLACEMENT SHALL BE 2' - 0" MIN. FROM FACE OF CURB
4. 3' - 6" MEASURED FROM SIDEWALK SURFACE TO CENTER OF PEDESTRIAN PUSH BUTTON
5. TYPE E MOUNTS SHALL BE USED FOR PEDESTRIAN DISPLAYS ON TYPE II OR III SIGNAL STANDARDS, WITH THE FOLLOWING EXCEPTION: PEDESTRIAN DISPLAYS MOUNTED ON OCTAGONAL (8 SIDED) SIGNAL STANDARDS AT AN ANGLE OTHER THAN A 45 DEGREE INCREMENT SHALL USE A TYPE A MOUNT FOR TWO PEDESTRIAN DISPLAYS, OR A TYPE B MOUNT FOR A SINGLE PEDESTRIAN DISPLAY.

STD NO	STREET	FIELD LOCATION						POLE TYPE	MOUNTING		MAST ARM (FT)	OFFSET DISTANCE (FT)										WINDLOAD AREAS (FT^2)										LUMINAIRE (FT^3)	TOTAL** (Ft^3)	LUMINAIRE ARM (FT),C	POLE ATTACHMENT POINT ANGLES (DEG)									FOUNDATION DESIGN (FT^3)	FOUNDATION DEPTH (FT)					SOIL PSF	REMARKS
		STA	OFFSET	LT	RT	ELEV*	POA		A1	A2		B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10				D	E1	E2	F	G1	G2	H	I1	I2		ALTERNATE 1 3'RD	ALTERNATE 1 3'SQ	ALTERNATE 1 4'RD	ALTERNATE 2 3'RD	ALTERNATE 2 4'RD		
1	S 21ST STREET	41+90.0	37.1	X		92.8	0	III	20.0	30.0	30.0	26.7	23.4	23.1	18.9	6.2						8.0	5.0	0.3	8.0	6.0						39.6	566.0	16.0	-	0	-	-	270	-	90	270	-	700.0	6'-0"					3000	SEE NOTES 1, 2 AND 3
2	S 21ST STREET	41+91.6	31.0		X	92.2	0	II	20.0		25.0	20.1	23.0	16.5	8.9	5.7						5.0	8.0	0.3	8.0	6.0							395.0		-	0	-	-	-	-	90	-	-	700.0	6'-0"					3000	SEE NOTES 1, 2 AND 3
3	S 21ST STREET	42+31.0	32.5		X	93.9	0	V		30.0																						39.6	40.0	16.0	-	-	-	-	270	-	-	270	-	-	4'-6"					3000	SEE NOTES 1, 2, 3 AND 4

NOTE 1: FOUNDATION SIZE BASED ON GEOTECHNICAL DATA PREPARED BY E3RA INC. SEE SPECIAL PROVISIONS.
NOTE 2: INSTALL STREET NAME SIGN ON SIGNAL MAST ARM WITH CENTER AT OFFSET INDICATED IN SIGNAL STANDARD DETAIL CHART. SEE SIGN SCHEDULE, SIGN 1.
NOTE 3: SEE WSDOT STANDARD PLAN J-26.10-03 FOR FOUNDATION DETAILS.
NOTE 4: SEE WSDOT STANDARD PLAN J-28.30-03 FOR STEEL LIGHT STANDARD FOUNDATION DETAILS.
* ELEVATION IS TO TOP OF FOUNDATION. FIELD VERIFY ELEVATION PRIOR TO ORDERING SIGNAL STANDARDS.
** TOTAL (FT^3) IS THE SUM OF THE TOTAL (FT^3) FOR THE SIGNAL ARM AND THE (FT^3) FOR THE LUMINAIRE ARM (IF PRESENT).

FOUNDATION DEPTH "D" TABLE

ALTERNATE # 1 DRILLED SHAFT-TYPE CONSTRUCTION
FOR LATERAL BEARING PRESSURE = 2500 PSF & Ø = 34°, 1500 PSF & Ø = 28°, 1000 PSF & Ø = 26°

GROUND SLOPE = 3H : 1V OR FLATTER

ALLOWABLE LATERAL BEARING PRESSURE	FOUNDATION TYPE	XYZ (FT³) 700	900	1350	1500	1900	2300	2600	3000
1000 PSF	3' - 0" ROUND	10' - 0"	10' - 0"	11' - 0"	11' - 0"	15' - 0"	18' - 0"	20' - 0"	20' - 0"
	3' - 0" SQUARE	8' - 0"	8' - 0"	9' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	12' - 0"
	4' - 0" ROUND	8' - 0"	8' - 0"	9' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	12' - 0"
1500 PSF	3' - 0" ROUND	8' - 0"	8' - 0"	9' - 0"	11' - 0"	13' - 0"	15' - 0"	18' - 0"	18' - 0"
	3' - 0" SQUARE	7' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"	9' - 0"	10' - 0"	10' - 0"
	4' - 0" ROUND	7' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"	9' - 0"	10' - 0"	10' - 0"
2500 PSF OR GREATER	3' - 0" ROUND	6' - 0"	6' - 0"	7' - 0"	8' - 0"	9' - 0"	11' - 0"	15' - 0"	15' - 0"
	3' - 0" SQUARE	6' - 0"	6' - 0"	6' - 0"	6' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"
	4' - 0" ROUND	6' - 0"	6' - 0"	6' - 0"	6' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"

GROUND SLOPE = GREATER THAN 3H : 1V TO 2H : 1V

ALLOWABLE LATERAL BEARING PRESSURE	FOUNDATION TYPE	XYZ (FT³) 700	900	1350	1500	1900	2300	2600	3000
1000 PSF	3' - 0" ROUND	SPECIAL FOUNDATION TYPE							
	3' - 0" SQUARE	SPECIAL FOUNDATION TYPE							
	4' - 0" ROUND	SPECIAL FOUNDATION TYPE							
1500 PSF	3' - 0" ROUND	11' - 0"	11' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	21' - 0"	21' - 0"
	3' - 0" SQUARE	10' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"	12' - 0"	13' - 0"	13' - 0"
	4' - 0" ROUND	10' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"	12' - 0"	13' - 0"	13' - 0"
2500 PSF OR GREATER	3' - 0" ROUND	9' - 0"	9' - 0"	10' - 0"	12' - 0"	12' - 0"	14' - 0"	18' - 0"	18' - 0"
	3' - 0" SQUARE	9' - 0"	9' - 0"	9' - 0"	9' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"
	4' - 0" ROUND	9' - 0"	9' - 0"	9' - 0"	9' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"

LEGEND

a. VEHICLE DISPLAY
b. SIGN
c. LUMINAIRE ARM
d. OPTICOM DETECTOR
e. SIGNAL MAST ARM
f. LUMINAIRE
g. PEDESTRIAN SIGNAL DISPLAY
h. CABINET
i. PPB ASSEMBLY
j. HANDHOLE
k. VIDEO DETECTION

90% REVIEW SUBMITTAL

DKS
719 Second Ave, Suite 1250
Seattle, WA 98104
(206) 382-9800
www.dksassociates.com

Tacoma

NO	REVISION	DATE	APPD

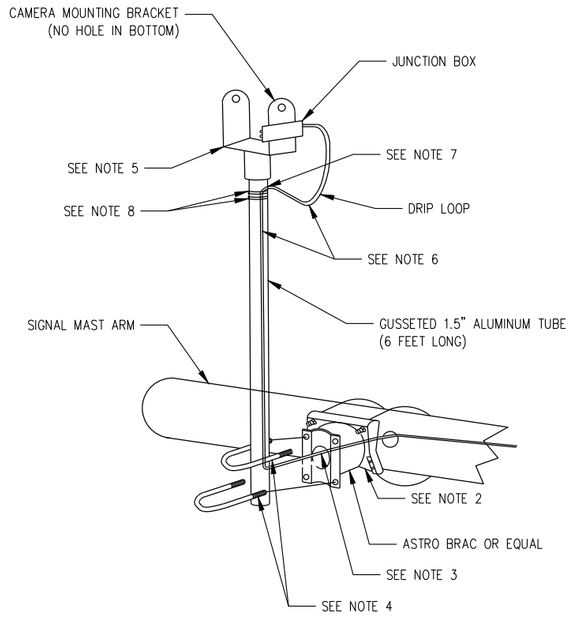
FINAL CONSTRUCTION CHECKED
BY
DATE
FIELD BOOKS
DATE 12/22/16 | SCALE AS NOTED
DESIGNED CLM | CHECKED RJH
DRAWN 1/26/17 | PROJECT NAME 15133-003
DRAWING NAME SIGNAL PLANS.DWG

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

PRAIRIE LINE TRAIL – PHASE 2
SOUTH 21ST STREET AND PRAIRIE LINE TRAIL
POLE SCHEDULE

15133-003
SHEET NO: SC.01C
SHEET X OF X

REGION NO.	STATE	FED. AID PROJECT NO.
10	WASH	XXXX–XXXX (XXX)



NOTES

1. THE CONTRACTOR SHALL DRILL A 1" HOLE IN THE BACK SIDE OF THE SIGNAL MAST ARM DEBURR, & PUT A RUBBER GROMMET IN HOLE. VERIFY MOUNTING LOCATION WITH ENGINEER PRIOR TO DRILLING.
2. THE BRACKET SHALL BE INSTALLED OVER THE 1" HOLE.
3. VIDEO CABLE SHALL BE PULLED THROUGH THE SIGNAL MAST ARM THROUGH THE 1" HOLE AND THROUGH THE BRACKET.
4. BOLT 1.5" GUSSETED TUBE TO THE BRACKET.
5. ATTACH VIDEO CAMERA MOUNTING BRACKET TO THE TOP OF THE GUSSETED TUBE.
6. ROUTE VIDEO CABLE IN GUSSET TO THE INSIDE OF TUBE. EXIT TUBE AT TOP OF GUSSET AND CONNECT TO VIDEO JUNCTION BOX LEAVING A DRIP LOOP IN CABLE.
7. INSTALL VINYL INSERT IN GUSSET, LEAVING NO MORE THAN A 1" GAP AT THE TOP FOR CABLE TO EXIT THE TUBE.
8. INSTALL 2 BLACK WEATHER RATED WIRE TIES AROUND TUBE WHERE CABLES EXIT AT THE TOP OF THE VINYL INSERT.

90% REVIEW SUBMITTAL

DKS
719 Second Ave, Suite 1250
Seattle, WA 98104
(206) 382-9800
www.dksassociates.com

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED
BY
DATE
FIELD BOOKS

DATE	SCALE
12/22/16	AS NOTED
DESIGNED	CHECKED
CLM	RJH
DRAWN	PROJECT NAME
1/26/17	15133–003
DRAWING NAME	
SIGNAL PLANS.DWG	

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

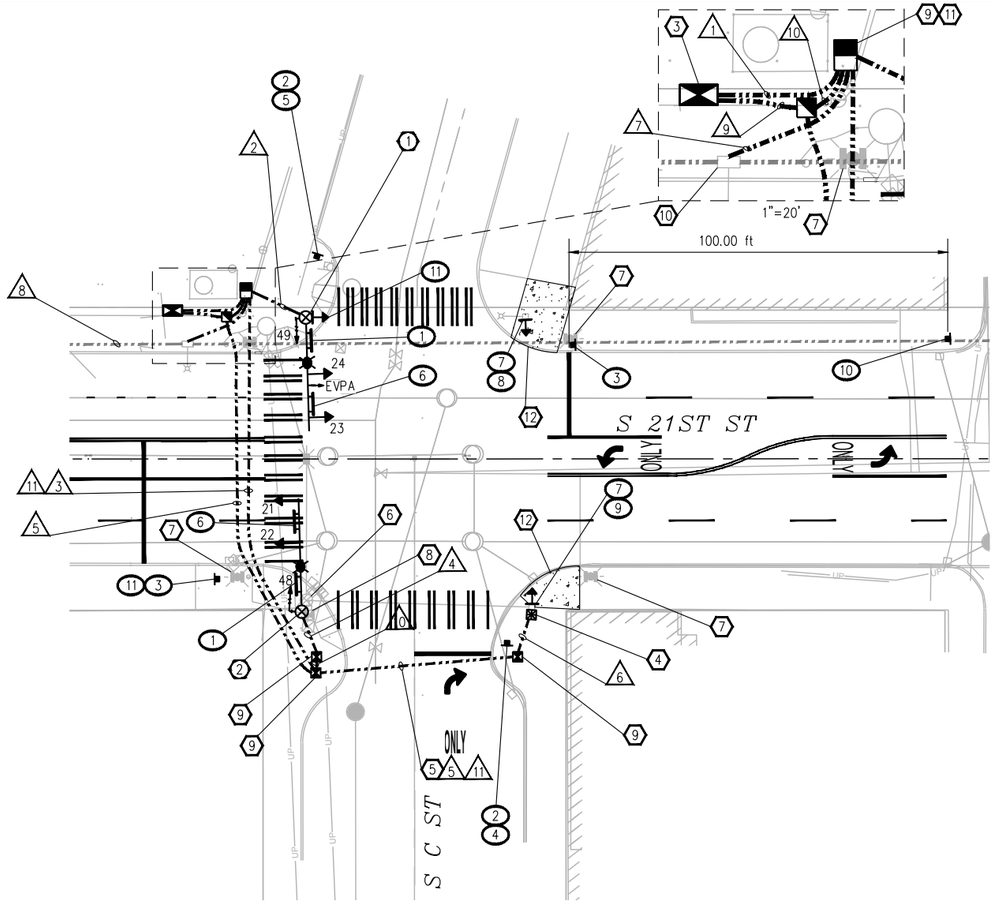
PRAIRIE LINE TRAIL – PHASE 2
SOUTH 21ST STREET AND PRAIRIE LINE TRAIL
TRAFFIC SIGNAL DETAILS

15133–003
SHEET NO. SC.01D
SHEET X OF X

REGION NO.	STATE	FED. AID PROJECT NO.
10	WASH	XXXX-XXXX (XXX)

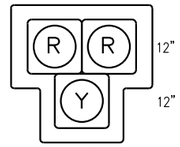
LEGEND

EXISTING	NEW	DESCRIPTION
		TYPE P TRAFFIC CONTROLLER CABINET
		SERVICE CABINET
		JUNCTION BOX TYPE 1, 2 & 8
		CONDUIT
		PEDESTRIAN SIGNAL HEAD
		VEHICLE SIGNAL HEAD
		SIGNAL POLE, TYPE III
		POST MOUNTED SIGN
		MAST ARM MOUNTED SIGN
		PEDESTRIAN PUSH BUTTON
		SIGNAL POLE NOTE
		CONSTRUCTION NOTE
		SIGN NOTE
		WIRE NOTE
		EVPE DETECTOR



SIGNAL HEAD ASSIGNMENT

48, 49



21, 22, 23, 24

NOTES:
1. ALL NEW VEHICLE SIGNAL HEADS SHALL BE LED TYPE AND SHALL USE TUNNEL VISORS, SQUARE DOORS AND 5" BACKPLATES WITH 2" YELLOW RETROFLECTIVE TAPE. NEW VEHICLE SIGNAL HEADS SHALL USE MOUNTING TYPE "M" ON TENONS AND TYPE "K" MOUNTS ON POLES.

SIGN LEGEND

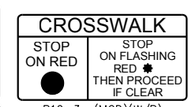
D3-1 (MOD)/(W/G)
8S/6D FONT
(1)

R1-1
30" X 30"
(2)

R10-6
24" X 36"
(3)

R10-15L (STOP)
30" X 30"
(4)

R10-15R (STOP)
30" X 30"
(5)



R10-3a (MOD)(W/B)
24" X 58"
(6)

R9-3
24" X 24"
(7)

R9-3bP(L)
18" X 12"
(8)

R9-3bP(R)
18" X 12"
(9)

W11-2
36" X 36"
W16-9P
24" X 12"
(10)

R10-7
24" X 30"
(11)

NOTES:
1. ALL SIGNS SHALL COMPLY WITH MUTCD 2009 STANDARDS AND WASHINGTON MODIFICATIONS.
2. ALL SIGN DIMENSIONS SHALL BE VERIFIED WITH THE ENGINEER AND MANUFACTURER PRIOR TO FABRICATION.
3. MASTARM MOUNTED SIGNS SHALL HAVE TYPE IX SHEETING AND SHALL BE BRACED AND INSTALLED PER WSDOT STD PLAN G-30.10-04.
4. (W/B) = WHITE LETTERING ON BLACK BACKGROUND

CALL 3 WORKING DAYS BEFORE YOU DIG 1-800-424-5555

SCALE IN FEET
0 20 40

90% REVIEW SUBMITTAL

GENERAL NOTES

1. SEE SHEET SG.02A FOR CONSTRUCTION AND WIRE NOTES.
2. PAVEMENT MARKING AND REMOVALS BY OTHERS.

PROPOSED SIGNAL PHASE DIAGRAM

	ø1	ø2	ø3	ø4
RING 1	NOT USED	← →	NOT USED	↕
RING 2	NOT USED	NOT USED	NOT USED	NOT USED
	ø5	ø6	ø7	ø8

→ VEHICLE MOVEMENT
↔ PEDESTRIAN MOVEMENT

DKS
719 Second Ave, Suite 1250
Seattle, WA 98104
(206) 382-9800
www.dksassociates.com

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY DATE
FIELD BOOKS
DATE 12/22/16 | SCALE AS NOTED
DESIGNED CLM | CHECKED RJH
DRAWN 1/26/17 | PROJECT NAME 15133-003
DRAWING NAME SIGNAL PLANS.DWG

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

PRAIRIE LINE TRAIL - PHASE 2
SOUTH 21ST STREET AND SOUTH C STREET
HAWK SIGNAL PLAN

15133-003
SHEET NO. SC.02
SHEET X OF X

REGION NO.	STATE	FED. AID PROJECT NO.
10	WASH	XXXX-XXXX (XXX)

△WIRE NOTES

RUN NO	CONDUIT SIZE	EXISTING CONDUCTORS	VEHICLE HEAD (5C)	PED HEAD (3C)	PPB (1-2CS)	1-EVPE	SERVICE #6	STREETLIGHT #6	GROUND #6	288 SMFO CABLE	12 SMFO CABLE	REMARKS
△1	3" PVC		4	2	2	1					1	
△2	EX 2" PVC		2	1	1	1		2	1			
△3	2" PVC		2	1	1							
△4	2" PVC		2	1	1			2	1			
△5	3" PVC						3	2	1			
△6	2" PVC						3	2	1			
△7	2" PVC									1		
△8	EX AERIAL	6PR #19 INTERCONNECT								1		
△9	2" PVC						3					
△10	2" PVC							2	1			
△11	3" PVC											SPARE

NOTE: ALL EMPTY CONDUIT SHALL HAVE TRACEABLE PULL WIRE.

CONSTRUCTION NOTES

1. FURNISH AND INSTALL TYPE III SIGNAL POLE AND FOUNDATION WITH LUMINAIRE. FURNISH AND INSTALL COUNTDOWN PEDESTRIAN HEAD, TERMINAL CABINET AND APS PEDESTRIAN PUSH BUTTON ON POLE. FURNISH AND INSTALL MAST ARM WITH TWO VEHICLE SIGNAL HEADS, CROSSWALK SIGN AND STREET NAME SIGN. SEE POLE SCHEDULE ON SHEET SG.02C.
2. FURNISH AND INSTALL TYPE III SIGNAL POLE AND FOUNDATION WITH LUMINAIRE. FURNISH AND INSTALL COUNTDOWN PEDESTRIAN HEAD, TERMINAL CABINET AND APS PEDESTRIAN PUSH BUTTON ON POLE. FURNISH AND INSTALL MAST ARM WITH TWO VEHICLE SIGNAL HEADS, CROSSWALK SIGN AND STREET NAME SIGN. SEE POLE SCHEDULE ON SHEET SG.02C.
3. CONSTRUCT TRAFFIC CONTROLLER FOUNDATION. FURNISH AND INSTALL NEW FULLY-EQUIPPED TYPE P CONTROLLER CABINET, ALL ASSOCIATED EQUIPMENT AND CONNECT ALL FIELD WIRING. FURNISH AND INSTALL FIBER OPTIC PATCH PANEL, ETHERNET SWITCH, AND FIBER OPTIC JUMPERS. FIBER OPTIC ASSIGNMENTS TO BE PROVIDED BY ENGINEER. COORDINATE DELIVERY, TESTING AND INSTALLATION WITH THE CITY OF TACOMA TRAFFIC SIGNAL SHOP. SEE CITY OF TACOMA STANDARD PLAN TS-10. LABEL ALL WIRING. SEE SPECIAL PROVISIONS.
4. INSTALL SERVICE CABINET ON POWER POLE PER TACOMA POWER REQUIREMENTS. RUN CONDUIT AND FEEDER WIRES UP POWER POLE TO SERVICE CABINET USING GALVANIZED RISER BRACKETS PER TACOMA STANDARD PLAN TS-05. COORDINATE WITH TACOMA POWER FOR SERVICE AND CONNECTION.
5. DIRECTIONAL BORE ROAD CROSSING ACROSS C ST.
6. REMOVE AND SALVAGE EXISTING POLE AND ALL ATTACHED EQUIPMENT. REMOVE AND DISPOSE OF EXISTING FOUNDATION PER STANDARD SPECIFICATIONS. RESTORE SURFACE TO MATCH EXISTING.
7. REMOVE AND SALVAGE EXISTING PEDESTRIAN BEACON POLE. REMOVE AND DISPOSE OF EXISTING FOUNDATION PER STANDARD SPECIFICATIONS. RESTORE SURFACE TO MATCH EXISTING.
8. REMOVE AND DISPOSE OF EXISTING JUNCTION BOX. RESTORE SURFACE TO MATCH EXISTING.
9. FURNISH AND INSTALL JUNCTION BOX AS SHOWN.
10. INSTALL CONDUIT RISER AND INSTALL FIBER OPTIC CABLE IN RISER TO EXISTING AERIAL LINE.
11. FURNISH AND INSTALL FIBER OPTIC SPLICE ENCLOSURE AND FUSION SPLICE 12 SMFO CABLE TO 288 SMFO TRUNK CABLE, ASSIGNMENTS TO BE PROVIDED BY CITY ENGINEER.
12. SAWCUT AND REMOVE EXISTING PEDESTRIAN ACCESS RAMP TO NEAREST JOINT. CONSTRUCT CURB AND GUTTER TO MATCH EXISTING. CONSTRUCT SIDEWALK TO MATCH EXISTING. PROTECT IN PLACE ADJACENT PEDESTRIAN ACCESS RAMP. IF ADJACENT RAMP IS DAMAGED, CONTRACTOR SHALL REPLACE WITH ADA COMPLIANT RAMP AT THEIR EXPENSE. PROTECT IN PLACE EXISTING UTILITY POLE.

90% REVIEW SUBMITTAL

DKS
719 Second Ave, Suite 1250
Seattle, WA 98104
(206) 382-9800
www.dksassociates.com

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED
BY
DATE
FIELD BOOKS

DATE 12/22/16 | SCALE AS NOTED
DESIGNED CLM | CHECKED RJH
DRAWN 1/26/17 | PROJECT NAME 15133-003
DRAWING NAME SIGNAL PLANS.DWG

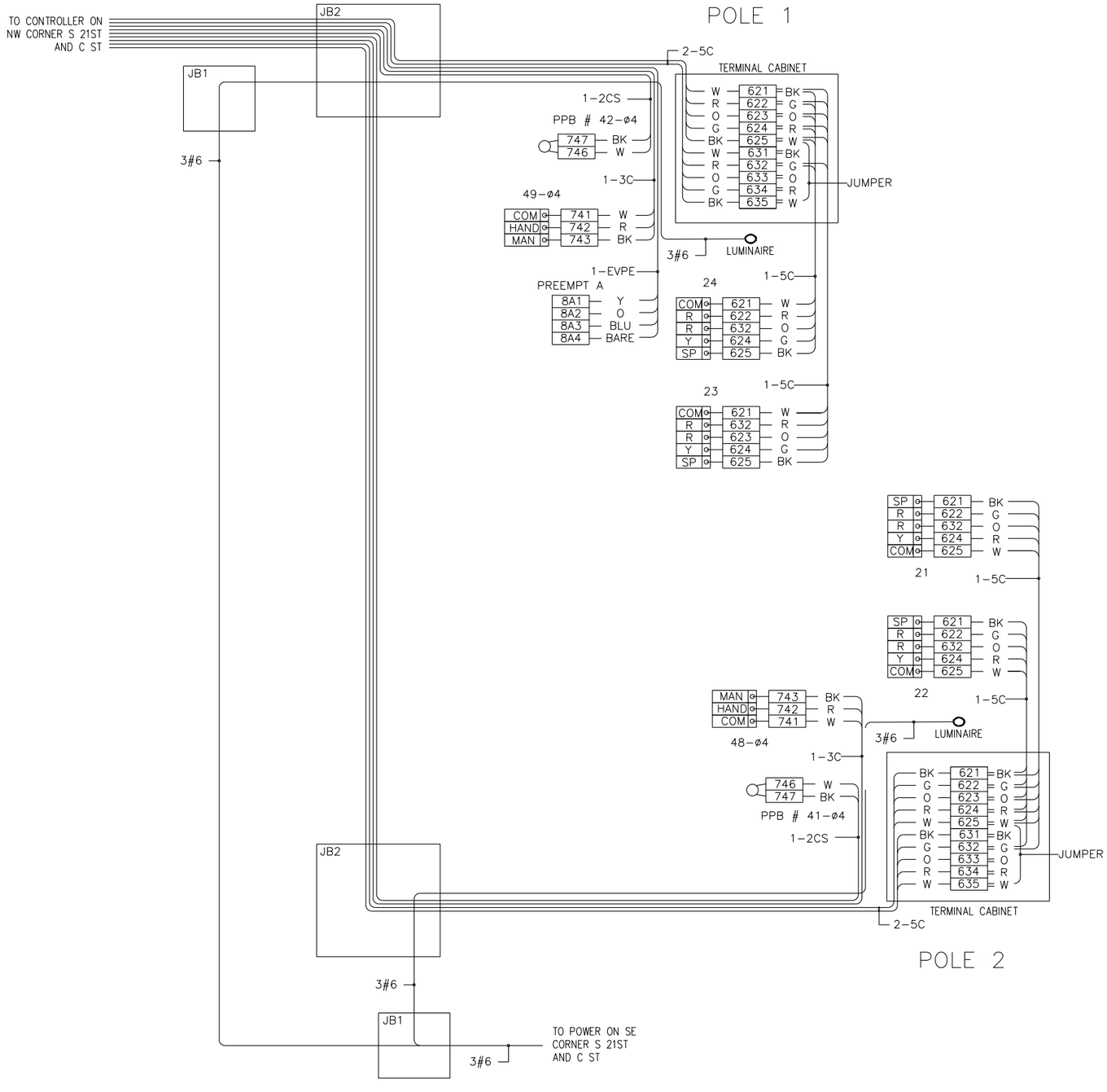
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

PRAIRIE LINE TRAIL - PHASE 2
SOUTH 21ST STREET AND SOUTH C STREET
WIRE & CONSTRUCTION NOTES

15133-003
SHEET NO. SG.02A
SHEET X OF X

SIGNAL FIELD WIRE TERMINATIONS

REGION NO.	STATE	FED. AID PROJECT NO.
10	WASH	XXXX-XXXX (XXX)



90% REVIEW SUBMITTAL

DKS
719 Second Ave, Suite 1250
Seattle, WA 98104
(206) 382-9800
www.dksassociates.com

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED
BY
DATE
FIELD BOOKS

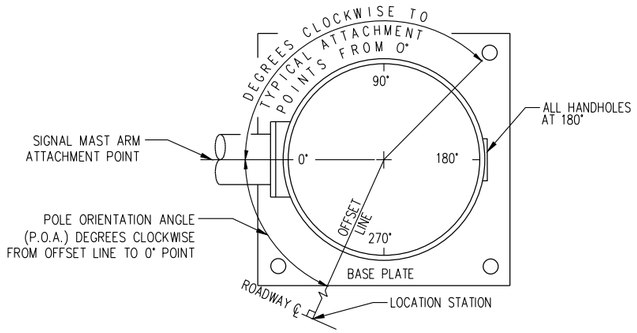
DATE 12/22/16 | SCALE AS NOTED
DESIGNED CLM | CHECKED RJH
DRAWN 1/26/17 | PROJECT NAME 15133-003
DRAWING NAME SIGNAL PLANS.DWG

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

PRAIRIE LINE TRAIL - PHASE 2
SOUTH 21ST STREET AND SOUTH C STREET
FIELD WIRE TERMINATIONS

15133-003
SHEET NO. SC.02B
SHEET X OF X

REGION NO.	STATE	FED. AID PROJECT NO.
10	WASH	XXXX-XXXX (XXX)

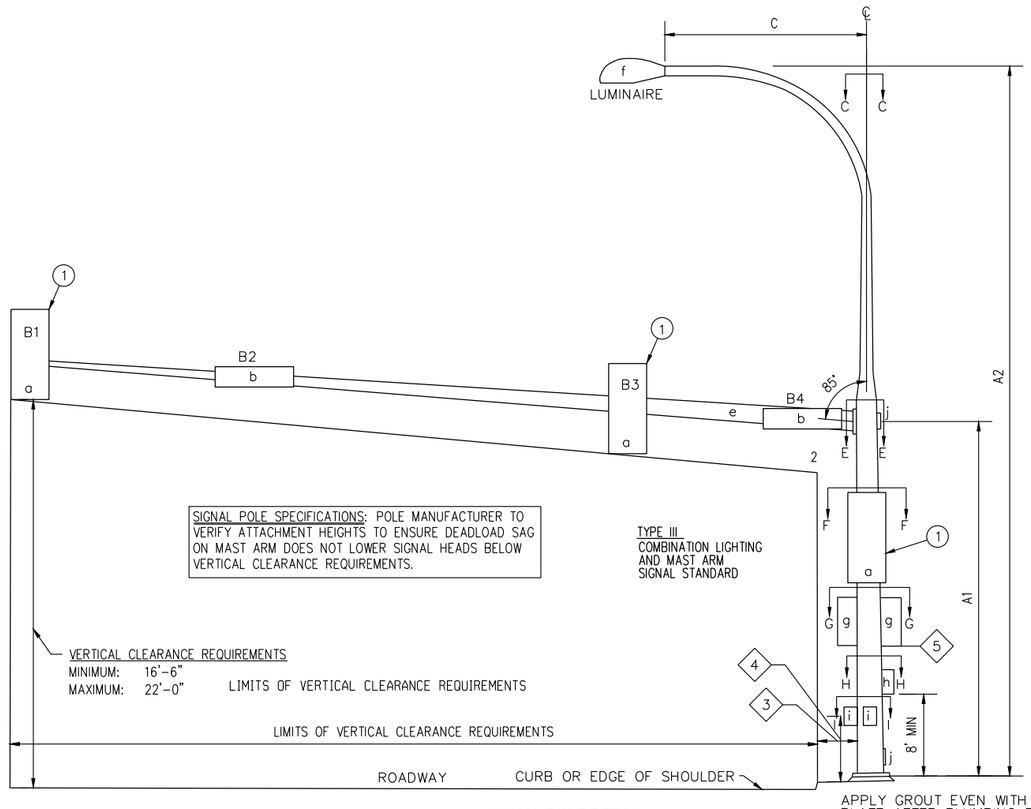


POLE ORIENTATION AND ATTACHMENT POINT DETAIL

		EXAMPLE
STD. NO. XX	SIGNAL STANDARD NO.	STD. NO. 02
MANUFACTURER	MANUFACTURER	MANUFACTURER
APPROVED DWG. XXXXXX	APPROVED DRAWING NO.	APPROVED DWG. AB12345
FAB. XX/XX/XXXX	FABRICATION DATE	FAB. 6/14/2002

NOTE: CORROSION RESISTENT METAL TAG SECURED WITH (2) 0.125" RIVETS AS FOLLOWS: POLE SHAFT – LOCATED WITHIN 6" ABOVE HAND HOLE, SIGNAL AND LUMINAIRE MAST ARM – LOCATED WITHIN 6" OF THE POLE SHAFT CONNECTION POINT. TEXT SHALL BE A MINIMUM OF 3⁄16" HIGH, STAMPED OR EMBOSSED.

SIGNAL STANDARD IDENTIFICATION TAG DETAIL



SIGNAL POLE SPECIFICATIONS: POLE MANUFACTURER TO VERIFY ATTACHMENT HEIGHTS TO ENSURE DEADLOAD SAG ON MAST ARM DOES NOT LOWER SIGNAL HEADS BELOW VERTICAL CLEARANCE REQUIREMENTS.

TYPE III
COMBINATION LIGHTING AND MAST ARM SIGNAL STANDARD

VERTICAL CLEARANCE REQUIREMENTS
MINIMUM: 16'-6"
MAXIMUM: 22'-0"

APPLY GROUT EVEN WITH THE ANCHOR PLATE AFTER PLUMBING THE STANDARD, PROVIDE 3/8" Ø DRAIN TUBE IN THE GROUT PAD

SIGNAL POLE DETAIL

NOTES

1. MOUNTING COUPLING INSTALLED BY FABRICATOR AT OFFSET DISTANCES INDICATED IN CHART.
3. PLACEMENT SHALL BE 2' - 0" MIN. FROM FACE OF CURB
4. 3' - 6" MEASURED FROM SIDEWALK SURFACE TO CENTER OF PEDESTRIAN PUSH BUTTON
5. TYPE E MOUNTS SHALL BE USED FOR PEDESTRIAN DISPLAYS ON TYPE II OR III SIGNAL STANDARDS, WITH THE FOLLOWING EXCEPTION: PEDESTRIAN DISPLAYS MOUNTED ON OCTAGONAL (8 SIDED) SIGNAL STANDARDS AT AN ANGLE OTHER THAN A 45 DEGREE INCREMENT SHALL USE A TYPE A MOUNT FOR TWO PEDESTRIAN DISPLAYS, OR A TYPE B MOUNT FOR A SINGLE PEDESTRIAN DISPLAY.

STD NO	STREET	FIELD LOCATION						POLE TYPE	MOUNTING		MAST ARM (FT)	OFFSET DISTANCE (FT)										WINDLOAD AREAS (FT^2)										LUMINAIRE (FT^3)	TOTAL** (Ft^3)	LUMINAIRE ARM (FT),C	POLE ATTACHMENT POINT ANGLES (DEG)									FOUNDATION DESIGN (FT^3)	FOUNDATION DEPTH (FT)					SOIL PSF	REMARKS
																																										ALTERNATE 1			ALTERNATE 2			
		STA	OFFSET	LT	RT	ELEV*	POA		A1	A2		B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10				D	E1	E2	F	G1	G2	H	I1	I2		3'RD	3'SQ	4'RD	3'RD	4'RD		
1	S 21ST STREET	43+57.4	37.3	X		-	0	III	20.0	35.0	30.0	26.4	22.8	15.0	6.1							9.0	5.0	9.0	3.0							39.6	545.0	8.0	-	0	-	-	90	-	135	90	-	420.0	6'-0"					3000	SEE NOTES 1, 2 AND 3
2	S 21ST STREET	43+56.3	40.3		X	-	0	III	20.0	25.0	30.0	29.6	23.9	18.2	7.3							9.0	5.0	9.0	3.0							39.6	612.0	16.0	-	0	-	-	270	-	225	270	-	585.0	6'-0"					3000	SEE NOTES 1, 2 AND 3

NOTE 1: FOUNDATION SIZE BASED ON GEOTECHNICAL DATA PREPARED BY E3RA INC. SEE SPECIAL PROVISIONS.
NOTE 2: INSTALL STREET NAME SIGN ON SIGNAL MAST ARM WITH CENTER AT OFFSET INDICATED IN SIGNAL STANDARD DETAIL CHART. SEE SIGN SCHEDULE, SIGN 1.
NOTE 3: SEE WSDOT STANDARD PLAN J-26.10-03 FOR FOUNDATION DETAILS.
* ELEVATION IS TO TOP OF FOUNDATION. FIELD VERIFY ELEVATION PRIOR TO ORDERING SIGNAL STANDARDS.
** TOTAL (FT^3) IS THE SUM OF THE TOTAL (FT^3) FOR THE SIGNAL ARM AND THE (FT^3) FOR THE LUMINAIRE ARM (IF PRESENT).

FOUNDATION DEPTH "D" TABLE

ALTERNATE # 1 DRILLED SHAFT-TYPE CONSTRUCTION
FOR LATERAL BEARING PRESSURE = 2500 PSF & Ø = 34°, 1500 PSF & Ø = 28°, 1000 PSF & Ø = 26°

GROUND SLOPE = 3H : 1V OR FLATTER										GROUND SLOPE = GREATER THAN 3H : 1V TO 2H : 1V									
ALLOWABLE LATERAL BEARING PRESSURE	FOUNDATION TYPE	XYZ (FT³)								ALLOWABLE LATERAL BEARING PRESSURE	FOUNDATION TYPE	XYZ (FT³)							
		700	900	1350	1500	1900	2300	2600	3000			700	900	1350	1500	1900	2300	2600	3000
1000 PSF	3' - 0" ROUND	10' - 0"	10' - 0"	11' - 0"	11' - 0"	15' - 0"	18' - 0"	20' - 0"	20' - 0"	1000 PSF	3' - 0" ROUND	SPECIAL FOUNDATION TYPE							
	3' - 0" SQUARE	8' - 0"	8' - 0"	9' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	12' - 0"		3' - 0" SQUARE	SPECIAL FOUNDATION TYPE							
	4' - 0" ROUND	8' - 0"	8' - 0"	9' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	12' - 0"		4' - 0" ROUND	SPECIAL FOUNDATION TYPE							
1500 PSF	3' - 0" ROUND	8' - 0"	8' - 0"	9' - 0"	11' - 0"	13' - 0"	15' - 0"	18' - 0"	18' - 0"	1500 PSF	3' - 0" ROUND	11' - 0"	11' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	21' - 0"	21' - 0"
	3' - 0" SQUARE	7' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"	9' - 0"	10' - 0"	10' - 0"		3' - 0" SQUARE	10' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"	12' - 0"	13' - 0"	13' - 0"
	4' - 0" ROUND	7' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"	9' - 0"	10' - 0"	10' - 0"		4' - 0" ROUND	10' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"	12' - 0"	13' - 0"	13' - 0"
2500 PSF OR GREATER	3' - 0" ROUND	6' - 0"	6' - 0"	7' - 0"	8' - 0"	9' - 0"	11' - 0"	15' - 0"	15' - 0"	2500 PSF OR GREATER	3' - 0" ROUND	9' - 0"	9' - 0"	10' - 0"	12' - 0"	12' - 0"	14' - 0"	18' - 0"	18' - 0"
	3' - 0" SQUARE	6' - 0"	6' - 0"	6' - 0"	6' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"		3' - 0" SQUARE	9' - 0"	9' - 0"	9' - 0"	9' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"
	4' - 0" ROUND	6' - 0"	6' - 0"	6' - 0"	6' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"		4' - 0" ROUND	9' - 0"	9' - 0"	9' - 0"	9' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"

LEGEND

a. VEHICLE DISPLAY
b. SIGN
c. LUMINAIRE ARM
d. OPTICOM DETECTOR
e. SIGNAL MAST ARM
f. LUMINAIRE
g. PEDESTRIAN SIGNAL DISPLAY
h. CABINET
i. PPB ASSEMBLY
j. HANDHOLE
k. VIDEO DETECTION

90% REVIEW SUBMITTAL

DKS
719 Second Ave, Suite 1250
Seattle, WA 98104
(206) 382-9800
www.dksassociates.com

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY DATE
FIELD BOOKS
DATE 12/22/16 | SCALE AS NOTED
DESIGNED CLM | CHECKED RJH
DRAWN 1/26/17 | PROJECT NAME 15133-003
DRAWING NAME SIGNAL PLANS.DWG

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

PRAIRIE LINE TRAIL – PHASE 2
SOUTH 21ST STREET AND SOUTH C STREET
POLE SCHEDULE

15133-003
SHEET NO. SC.02C
SHEET X OF X

Draft Complete Streets Ordinance – City of Tacoma

AN ORDINANCE relating to Tacoma's Complete Streets Design Guidelines, identifying guiding principles and practices so that transportation improvements are planned, designed, and constructed to encourage walking, bicycling, and transit use while promoting safe operations for all users of the City's transportation network.

WHEREAS, the City Council adopted Resolution Number 37916: ""A Resolution relating to the City's street design; endorsing the creation and ongoing development of Tacoma's Complete Streets Design Guidelines; and directing the City Manager to implement the Mixed-use Centers Complete Streets Design Guidelines and the Residential Complete Streets Design Guidelines;" and

WHEREAS, the Tacoma's *Transportation Master Plan* identifies a vision for a multimodal transportation system, offering travel options that provide safe access for all users, encouraging healthy living; and

WHEREAS, Tacomans identified increased transportation options as a community priority in *Tacoma 2025*; and

WHEREAS, Tacoma is expected to grow by 127,000 residents and 97,000 jobs by 2040; and

WHEREAS, Complete Streets will create a comprehensive, integrated, connected transportation system to serve the growing population; and

WHEREAS, other jurisdictions and agencies nationwide have adopted Complete Streets legislation, including the US Department of Transportation, Washington State Department of Transportation, and Pierce County; and

WHEREAS, transportation improvements will include facilities and amenities recognized as contributing to Complete Streets, including: street and pedestrian lighting, pedestrian and bicycle safety improvements; traffic calming; access improvements for freight; access improvements, including compliance with the Americans with Disabilities Act; public transit facilities accommodation including but not limited to pedestrian access improvement to transit stops and stations; street trees and landscaping; green infrastructure; drainage; and street amenities; and

WHEREAS, the Public Works Department will design, operate, and maintain the transportation network to improve travel conditions for bicyclists, pedestrians, transit, and freight consistent with, and supportive of, the surrounding communities' needs; and

WHEREAS, Complete Streets will balance access, mobility, health and safety needs of all users, which include pedestrians, bicyclists, and transit riders of all ages and abilities, as well as buses, streetcars, and commercial and private motorized vehicles; and

WHEREAS, Tacoma's Transportation Master Plan calls for tracking of performance standards that will continuously evaluate the Complete Streets ordinance for success and opportunities for improvement; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY OF TACOMA AS FOLLOWS:

DRAFT

Chapter 10.29
COMPLETE STREETS

Sections:

10.29.010 Purpose – Objectives.

The purpose of this chapter is to provide guiding principles and practices so that transportation improvements are planned, designed, and constructed to encourage walking, bicycling, and transit use while promoting safe operations for all users of the City's transportation network. The City of Tacoma Public Works Department shall develop a safe, reliable, efficient, integrated, and connected multimodal transportation system that promotes access, mobility, and health for all users. The Public Works Department shall ensure that the safety and convenience of all users of the transportation system are accommodated, including pedestrians, bicyclists, transit riders, people of all ages and abilities, motorists, emergency responders, freight providers , and adjacent land users.

10.29.020 Definitions.

For the purpose of this chapter the following words shall have the following meanings:

A. "City Engineer" means the City Engineer or his or her authorized representative.

B. "Complete Street", which is reflected in City Resolution No. 37916, relates to the City's street design; endorsing the creation and ongoing development of Tacoma's Complete Streets Design Guidelines; and directing the City Manager to implement the Mixed-use Centers Complete Streets Design Guidelines and the Residential Complete Streets Design Guidelines;"

10.29.030 Applicability.

The Public Works Department shall approach every transportation improvement and project phase as an opportunity to create safer, more accessible streets for all users. These phases include, but are not limited to: scoping, planning, programming, design, right-of-way acquisition, construction, construction engineering, reconstruction, resurfacing, operation, and maintenance. Other changes to transportation facilities on streets and rights-of-way, including capital improvements, re-channelization projects, major utility work, and major maintenance, must also be included.

A. Jurisdiction. All city-owned transportation facilities in the public right-of-way, including but not limited to streets, bridges, and all other connecting pathways shall be designed, constructed, operated, and maintained so that users of all ages and abilities can travel safely and independently.

B. Network and Connectivity. The Public Works Department shall continue to foster partnerships with Washington State Department of Transportation, Pierce County, neighboring counties and communities, business and school districts, and utility companies to develop facilities and accommodations that further the City's Complete Streets policy and continue such infrastructure beyond the City's borders. The City recognizes the need to create a comprehensive, integrated, and connected network for all modes and encourages street connectivity.

DRAFT

C. Complete Streets may be achieved through single projects or incrementally through a series of smaller improvements or maintenance activities over time. It is the City of Tacoma's intent that all sources of transportation funding be drawn upon to implement Complete Streets.

D. Design**.** The Public Works Department shall follow accepted or adopted design standards and use the best and latest design standards available, including, but not limited to, existing design guidance from the American Association of State Highway Officials, Washington State Department of Transportation, the Institute of Transportation Engineers, the National Association of City Transportation Officials, the Americans with Disabilities Act, and the Public Rights-of-Way Accessibility Guidelines.

E. Context Sensitivity. The Public Works Department shall implement Complete Streets solutions in a manner that is sensitive to the local context and character, aligns transportation and land use goals, and recognizes that the needs of users may vary by case, community, or corridor.

F. Implementation. Implementation of Complete Streets shall begin through the consideration of the following potential starting points:

1. Incorporate policy into the *One Tacoma: Comprehensive Plan*.
2. Modify Rights-of-Way Manual and other guiding documents in accordance with this policy.
3. Participate in US DOT's Mayor's Challenge for Safer People, Safer Streets.
4. Pursue highest certification level of Walk Friendly Community and Bicycle Friendly Community.
5. Continue engagement in Safe Routes to School program.
6. Identify gaps in the non-motorized transportation network, and work to fill these gaps.

10.22.260 Exceptions.

A. Exceptions. An exception to this section, including for private projects, must be approved by the City Engineer and be documented with supporting data that indicates the basis for the decision. Such documentation shall be publicly available. Exceptions may be considered for approval when:

1. An affected roadway prohibits, by law, use by specified users (e.g., interstate highways or pedestrian malls);
2. The costs of providing the accommodation are excessively disproportionate to the need or probable use;
3. Routine maintenance of the transportation network does not change the roadway geometry or operations, such as mowing, sweeping and spot repair (in which case existing bicycle and pedestrian traffic must be safely accommodated during maintenance); or
4. Other available means or factors indicate an absence of need, including future need.

DRAFT