

Appendix E
Wetland and Stream Impacts

Wetland and Stream Impacts

TABLE E-1

Summary of Temporary Construction Impacts on Wetlands by FWLE Alternative and Option

Alternative	Wetland Name	Wetland Category	Wetland Area Affected (acres) ^a
Preferred Alternative			
	Wetland 5-1	III	0.03
	Wetland 12-1	II	0.22
	Wetland 25-2	III	0.03
	Wetland 25-5	IV	0.25
	Wetland 27-3	IV	0.21
	Wetland 28-2	IV	0.03
Total			0.78
Kent/Des Moines Station Options			
Kent/Des Moines At-Grade Station Option	No change in impacts		
Kent/Des Moines I-5 Station Option	No change in impacts		
Landfill Median Alignment Option			
	No change in impacts		
S 272nd Star Lake Elevated Station Option	No change in impacts		
S 317th Elevated Alignment Option	No change in impacts		
Federal Way City Center Station Options			
Federal Way I-5 Station Option	No change in impacts		
Federal Way S 320th Park-and-Ride Station Option	No change in impacts		
SR 99 Alternative			
	Wetland 6-2	IV	0
	Wetland 6-3	IV	0
	Wetland 6-4	IV	0
	Wetland 11-1	III	0
	Wetland 12-1	II	0.04
	Wetland 12-2	III	<0.01
	Wetland 16-1	III	0
	Wetland 17-1	III/NA	0.01
Total			0.05
S 216th Station Options			
S 216th West Station Option	No change in impacts		
S 216th East Station Option	No change in impacts		

TABLE E-1

Summary of Temporary Construction Impacts on Wetlands by FWLE Alternative and Option

Alternative	Wetland Name	Wetland Category	Wetland Area Affected (acres) ^a
Kent/Des Moines Station Options			
Kent/Des Moines HC Campus Station Option	Wetland 6-2	IV	+0.01
	Wetland 6-3	IV	+<0.01
	Wetland 6-4	IV	+<0.01
Kent/Des Moines HC from S 216th West Station Option	Wetland 6-2	IV	+0.05
	Wetland 6-4	IV	+0.01
Kent/Des Moines SR 99 Median Station Option	No change in impacts		
Kent/Des Moines SR 99 East Station Option	No change in impacts		
S 260th Station Options			
S 260th West Station Option	Wetland 11-1	III	+0.05
	Wetland 12-1	II	+0.08
S 260th Station East Option	Wetland 12-1	II	+0.28
	Wetland 12-2	III	-0.01
S 272nd Redondo Trench Station Option			
	Wetland 12-1	II	+0.23
	Wetland 12-2	III	-0.01
	Wetland 16-1	III	+0.01
	Wetland 17-1	III	-0.01
Federal Way SR 99 Station Option			
	No change in impacts		
SR 99 to I-5 Alternative			
	Wetland 12-1	II	0.02
	Wetland 24-2	IV	0.01
	Wetland 25-2	III	0.02
	Wetland 25-5	IV	0.02
	Wetland 27-3	IV	0.19
	Wetland 28-2	IV	0.04
	Wetland 28-3	III	0.26
Total			0.56
S 216th Station Options			
S 216th West Station Option	No change in impacts		
S 216th East Station Option	No change in impacts		
Landfill Median Alignment Option			
	No change in impacts		

TABLE E-1

Summary of Temporary Construction Impacts on Wetlands by FWLE Alternative and Option

Alternative	Wetland Name	Wetland Category	Wetland Area Affected (acres) ^a
Federal Way City Center Station Options			
Federal Way I-5 Station Option	No change in impacts		
Federal Way S 320th Park-and-Ride Station Option	Wetland 28-3	III	-0.08
I-5 to SR 99 Alternative			
	Wetland 11-1	III	0
	Wetland 12-1	II	0.04
	Wetland 12-2	III	<0.01
	Wetland 16-1	III	0
	Wetland 17-1	III	0.01
Total			0.04
S 260th Station Options			
S 260th West Station Option	Wetland 11-1	III	+0.05
	Wetland 12-1	II	+0.08
S 260th Station East Option	Wetland 12-1	II	+0.28
	Wetland 12-2	III	-0.01
S 272nd Redondo Trench Station Option			
	Wetland 12-1	II	+0.23
	Wetland 12-2	III	-0.01
	Wetland 16-1	III	+0.01
	Wetland 17-1	III	-0.01
Federal Way SR 99 Station Option			
	No change in impacts		

TABLE E-2

Summary of Temporary Construction Impacts on Wetland Buffers by FWLE Alternative and Option

Alternative	Wetland Name	Ecology Wetland Category ^a	Wetland Buffer Area Affected (acres) ^b
Preferred Alternative			
	Wetland 5-1	III	0.34
	Wetland 12-1	II	0.64
	Wetland 20-2	III	0
	Wetland 20-3	III	0.21
	Wetland 24-2	IV	0.16
	Wetland 25-2	III	0.14
	Wetland 25-2a	IV	0.13
	Wetland 25-5	IV	0.70
	Wetland 26-1	III	0.23
	Wetland 27-1	III	0.24
	Wetland 27-2	III	0.13
	Wetland 27-3	IV	0.52
	Wetland 28-2	IV	0.10
	Wetland 28-3	III	0.47
Total			4.00
Kent/Des Moines Station Options			
Kent/Des Moines At-Grade Station Option	Wetland 20-2	III	+0.17
Kent/Des Moines I-5 Station Option	Wetland 20-2	III	+0.30
Landfill Median Alignment Option			
	Wetland 20-2	III	+<0.01
	Wetland 20-3	III	-0.03
S 272nd Star Lake Elevated Station Option	No change in impacts		
S 317th Elevated Alignment Option	No change in impacts		
Federal Way City Center Station Options			
Federal Way I-5 Station Option	No change in impacts		
Federal Way S 320th Park-and-Ride Station Option	No change in impacts		
SR 99 Alternative			
	Wetland 6-2	IV	0
	Wetland 6-3	IV	0
	Wetland 6-4	IV	0
	Wetland 11-1	III	0.06
	Wetland 12-1	II	0.05
	Wetland 12-2	III	0.06
	Wetland 12-3	IV	0.04

TABLE E-2

Summary of Temporary Construction Impacts on Wetland Buffers by FWLE Alternative and Option

Alternative	Wetland Name	Ecology Wetland Category ^a	Wetland Buffer Area Affected (acres) ^b
	Wetland 13-1	IV	<0.01
	Wetland 15-1	II	0
	Wetland 16-1	IV	0
Total			0.22
S 216th Station Options			
S 216th West Station Option	No change in impacts		
S 216th East Station Option	No change in impacts		
Kent/Des Moines Station Options			
Kent/Des Moines HC Campus Station Option	Wetland 6-2	IV	+0.03
	Wetland 6-3	IV	+0.01
	Wetland 6-4	IV	+0.04
Kent/Des Moines HC from S 216th West Station Option	Wetland 6-2	IV	+0.07
	Wetland 6-3	IV	+0.01
	Wetland 6-4	IV	+0.04
Kent/Des Moines SR 99 Median Station Option	No change in impacts		
Kent/Des Moines SR 99 East Station Option	No change in impacts		
S 260th Station Options			
S 260th West Station Option	No change in impacts		
S 260th Station East Option	Wetland 12-1	II	+0.35
	Wetland 12-2	III	-0.06
	Wetland 12-3	IV	-0.04
	Wetland 13-1	IV	-<0.01
S 272nd Redondo Trench Station Option			
	Wetland 12-1	II	+0.13
	Wetland 12-2	III	-0.05
	Wetland 12-3	IV	-0.04
	Wetland 13-1	IV	-<0.01
	Wetland 15-1	II	+0.01
	Wetland 16-1	IV	+0.02
Federal Way SR 99 Station Option			
	No change in impacts		
SR 99 to I-5 Alternative			
	Wetland 12-1	II	0.71
	Wetland 20-3	III	0.21
	Wetland 24-2	IV	0.11

TABLE E-2

Summary of Temporary Construction Impacts on Wetland Buffers by FWLE Alternative and Option

Alternative	Wetland Name	Ecology Wetland Category ^a	Wetland Buffer Area Affected (acres) ^b
	Wetland 25-2	III	0.14
	Wetland 25-2a	IV	0.12
	Wetland 25-5	IV	1.09
	Wetland 26-1	III	0.42
	Wetland 27-1	III	0.29
	Wetland 27-2	III	0.11
	Wetland 27-3	IV	0.75
	Wetland 28-2	IV	0.18
	Wetland 28-3	III	1.16
Total			5.29
S 216th Station Options			
S 216th West Station Option	No change in impacts		
S 216th East Station Option	No change in impacts		
Landfill Median Alignment Option			
	No change in impacts		
Federal Way City Center Station Options			
Federal Way I-5 Station Option	No change in impacts		
Federal Way S 320th Park-and-Ride Station Option	No change in impacts		
I-5 to SR 99 Alternative			
	Wetland 5-1	III	0.04
	Wetland 11-1	III	0.06
	Wetland 12-1	II	0.05
	Wetland 12-2	III	0.06
	Wetland 12-3	IV	0.04
	Wetland 13-1	IV	<0.01
	Wetland 15-1	II	0
	Wetland 16-1	IV	0
Total			0.26
S 260th Station Options			
S 260th West Station Option	Wetland 11-1	III	+0.05
	Wetland 12-1	II	+0.08
S 260th Station East Option	Wetland 12-1	II	+0.28
	Wetland 12-2	III	-0.01
S 272nd Redondo Trench Station Option			
	Wetland 12-1	II	+0.23

TABLE E-2

Summary of Temporary Construction Impacts on Wetland Buffers by FWLE Alternative and Option

Alternative	Wetland Name	Ecology Wetland Category ^a	Wetland Buffer Area Affected (acres) ^b
	Wetland 12-2	III	-0.01
	Wetland 16-1	IV	+0.01
	Wetland 17-1	III	-0.01
Federal Way SR 99 Station Option			
	No change in impacts		

^a All wetland ratings are Ecology ratings. One wetland – Wetland 5-1 – occurs in SeaTac but is rated as Category III under both Ecology and SeaTac rating systems.

TABLE E-3

Summary of Long-Term Direct Impacts on Wetlands by FWLE Alternative and Option

Alternative	Wetland Name	Wetland Ecology Category ^a	Wetland Area Affected (acres) ^{b,c}
Preferred Alternative			
	Wetland 12-1	II	0.01
	Wetland 20-2	III	0
	Wetland 20-3	III	0.01
	Wetland 24-2	IV	0.04
	Wetland 25-2	III	0.01
	Wetland 25-2a	IV	0.05
	Wetland 25-5	IV	0.01
	Wetland 26-1	III	0.26
	Wetland 27-1	III	0.27
	Wetland 27-2	III	0.04
	Wetland 28-2	IV	0.01
	Wetland 28-3	III	0.54
	Wetland 30-3	III	0
Total			1.25
Kent/Des Moines Station Options			
Kent/Des Moines I-5 At-Grade Station Option	Wetland 20-2	III	+0.59
Kent/Des Moines I-5 Station Option	Wetland 20-2	III	+0.59
Landfill Median Alignment Option			
	Wetland 20-3	III	-0.01
S 272nd Star Lake Elevated Station Option	No change in impacts		
S 317th Elevated Alignment Option	No change in impacts		
Federal Way City Center Station Options			
Federal Way I-5 Station Option	No change in impacts		
Federal Way S 320th Park-and-Ride Station Option	Wetland 30-3	III	+0.08
SR 99 Alternative			
	Wetland 6-2	IV	0
	Wetland 6-3	IV	0
	Wetland 6-4	IV	0
	Wetland 11-1	III	0
	Wetland 12-1	II	0.03
	Wetland 16-1	IV	0
	Wetland 17-1	III/NA	0.01

TABLE E-3

Summary of Long-Term Direct Impacts on Wetlands by FWLE Alternative and Option

Alternative	Wetland Name	Wetland Ecology Category ^a	Wetland Area Affected (acres) ^{b,c}
TOTAL			0.04
S 216th Station Options			
S 216th West Station Option	No change in impacts		
S 216th East Station Option	No change in impacts		
Kent/Des Moines Station Options			
Kent/Des Moines HC Campus Station Option	Wetland 6-2	IV	+0.14
	Wetland 6-4	IV	+<0.01
Kent/Des Moines HC from S 216th West Station Option	Wetland 6-2	IV	+0.10
	Wetland 6-3	IV	+0.01
	Wetland 6-4	IV	+<0.01
Kent/Des Moines SR 99 Median Station Option	No change in impacts		
Kent/Des Moines SR 99 East Station Option	No change in impacts		
S 260th Station Options			
S 260th West Station Option	Wetland 11-1	III	+0.12
S 260th Station East Option	Wetland 12-1	II	+0.41
S 272nd Redondo Trench Station Option			
	Wetland 12-1	II	+0.38
	Wetland 16-1	IV	+0.01
	Wetland 17-1	III/NA	-0.01
Federal Way SR 99 Station Option			
	No change in impacts		
SR 99 to I-5 Alternative			
	Wetland 12-1	II	0.01
	Wetland 20-3	III	0.01
	Wetland 24-2	III	0.05
	Wetland 25-2	III	0.02
	Wetland 25-2a	IV	0.05
	Wetland 26-1	III	0.26
	Wetland 27-1	III	0.30
	Wetland 27-2	III	0.04
	Wetland 30-3	III	0
Total			0.73
S 216th Station Options			
S 216th West Station Option	No change in impacts		
S 216th East Station Option	No change in impacts		

TABLE E-3

Summary of Long-Term Direct Impacts on Wetlands by FWLE Alternative and Option

Alternative	Wetland Name	Wetland Ecology Category ^a	Wetland Area Affected (acres) ^{b,c}
Landfill Median Alignment Option			
	No change in impacts		
Federal Way City Center Station Options			
Federal Way I-5 Station Option	No change in impacts		
Federal Way S 320th Park-and-Ride Station Option	Wetland 30-3	III	+0.08
I-5 to SR 99 Alternative			
	Wetland 11-1	III	0
	Wetland 12-1	II	0.03
	Wetland 16-1	IV	0
	Wetland 17-1	III	0.01
Total			0.04
S 260th Station Options			
S 260th West Station Option	Wetland 11-1	III	+0.12
S 260th Station East Option	Wetland 12-1	II	+0.41
S 272nd Redondo Trench Station Option			
	Wetland 12-1	II	+0.38
	Wetland 16-1	IV	+0.01
	Wetland 17-1	III/NA	-0.01
Federal Way SR 99 Station Option			
	No change in impacts		

^a All wetland ratings are Ecology ratings. One wetland – Wetland 5-1 – occurs in SeaTac but is rated as Category III under both Ecology and SeaTac rating systems.

^b Long-term footprints would bisect Wetlands 16-1, 20-2, 20-3, 24-2, 25-2a, 26-1, 27-1, 27-2, and 28-3. Because of the small size of these wetlands (under one acre) and likely substantial degradation of wetland functions, the entirety of these wetlands were included in impact calculations.

TABLE E-4

Summary of Long-Term Direct Impacts on Wetland Buffers by FWLE Alternative and Option

Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) ^{a,b}
Preferred Alternative			
	Wetland 5-1	III	0.22
	Wetland 12-1	II	0.63
	Wetland 20-2	III	0
	Wetland 20-3	III	0.20
	Wetland 25-2	III	0.15
	Wetland 25-2a	IV	0.10
	Wetland 25-5	IV	0.81
	Wetland 26-1	Iii	0.40
	Wetland 27-1	III	0.52
	Wetland 27-2	III	0.15
	Wetland 27-3	III	0.73
	Wetland 28-2	IV	0.24
	Wetland 28-3	III	2.38
	Wetland 30-3	III	0
Total			6.62
Kent/Des Moines Station Options			
Kent/Des Moines I-5 At-Grade Station Option	Wetland 20-2	III	+1.24
Kent/Des Moines I-5 Station Option	Wetland 20-2	III	+0.19
Landfill Median Alignment Option			
	Wetland 20-3	III	-0.20
S 272nd Star Lake Elevated Station Option	No change in impacts		
S 317th Elevated Alignment Option	No change in impacts		
Federal Way City Center Station Options			
Federal Way I-5 Station Option	Wetland 28-3	III	-0.03
Federal Way S 320th Park-and-Ride Station Option	Wetland 30-3	III	+0.30
SR 99 Alternative			
	Wetland 6-2	IV	0
	Wetland 6-3	IV	0
	Wetland 6-4	IV	0
	Wetland 11-1	III	0.05
	Wetland 12-1	II	0.18
	Wetland 12-2	III	0.01
	Wetland 12-3	IV	<0.01

TABLE E-4

Summary of Long-Term Direct Impacts on Wetland Buffers by FWLE Alternative and Option

Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) ^{a,b}
	Wetland 15-1	II	0
	Wetland 16-1	IV	0
Total			0.24
S 216th Station Options			
S 216th West Station Option	No change in impacts		
S 216th East Station Option	No change in impacts		
Kent/Des Moines Station Options			
Kent/Des Moines HC Campus Station Option	Wetland 6-2	IV	+0.09
	Wetland 6-3	IV	+0.02
	Wetland 6-4	IV	+0.10
Kent/Des Moines HC from S 216th West Station Option	Wetland 6-2	IV	+0.06
	Wetland 6-3	IV	+0.01
	Wetland 6-4	IV	+0.11
Kent/Des Moines SR 99 Median Station Option	No change in impacts		
Kent/Des Moines SR 99 East Station Option	No change in impacts		
S 260th Station Options			
S 260th West Station Option	Wetland 11-1	III	+0.23
S 260th Station East Option	Wetland 12-1	II	+0.19
	Wetland 12-2	III	-0.01
	Wetland 12-3	IV	-<0.01
S 272nd Redondo Trench Station Option			
	Wetland 12-1	II	+0.29
	Wetland 12-2	III	-0.01
	Wetland 12-3	IV	-<0.01
	Wetland 15-1	II	+0.01
	Wetland 16-1	IV	+0.07
Federal Way SR 99 Station Option			
	No change in impacts		
SR 99 to I-5 Alternative			
	Wetland 12-1	II	0.47
	Wetland 20-3	III	0.14
	Wetland 24-2	IV	0.27
	Wetland 25-2	III	0.11
	Wetland 25-2a	IV	0.06
	Wetland 25-5	IV	0.81

TABLE E-4

Summary of Long-Term Direct Impacts on Wetland Buffers by FWLE Alternative and Option

Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) ^{a,b}
	Wetland 26-1	III	0.40
	Wetland 27-1	III/III	0.52
	Wetland 27-2	III	0.15
	Wetland 27-3	IV	0.73
	Wetland 28-2	IV	0.24
	Wetland 28-3	III	2.38
	Wetland 30-3	III	0
Total			6.62
S 216th Station Options			
S 216th West Station Option	No change in impacts		
S 216th East Station Option	No change in impacts		
Landfill Median Alignment Option			
	No change in impacts		
Federal Way City Center Station Options			
Federal Way I-5 Station Option	Wetland 28-3	III	-0.03
Federal Way S 320th Park-and-Ride Station Option	Wetland 30-3	III	+0.30
I-5 to SR 99 Alternative			
	Wetland 5-1	III	0.18
	Wetland 11-1	III	0.05
	Wetland 12-1	II	0.18
	Wetland 12-2	III	0.01
	Wetland 12-3	IV	<0.01
	Wetland 15-1	II	0
	Wetland 16-1	IV	0
Total			0.41
S 260th Station Options			
S 260th West Station Option	Wetland 11-1	III	+0.23
S 260th Station East Option	Wetland 12-1	II	+0.19
	Wetland 12-2	III	-0.01
	Wetland 12-3	IV	-<0.01
S 272nd Redondo Trench Station Option			
	Wetland 12-1	II	+0.29
	Wetland 12-2	III	-0.01
	Wetland 12-3	IV	-<0.01

TABLE E-4

Summary of Long-Term Direct Impacts on Wetland Buffers by FWLE Alternative and Option

Alternative	Wetland Name	Wetland Category	Wetland Buffer Area Affected (acres) ^{a,b}
	Wetland 15-1	II	+0.01
	Wetland 16-1	IV	+0.07
Federal Way SR 99 Station Option			
	No change in impacts		

^a Totals for each alternative rounded to the nearest 0.1 acre.^b Full take of buffer assumed for Wetlands 20-2, 25-2a, 27-1 because remnant buffer is negligible.

TABLE E-5

Summary of Temporary Construction Impacts on Streams by FWLE Alternative and Option

Alternative	Stream Name	Stream Type in Study Area ^a	Stream Channel Impact Length (linear feet) ^b	Stream Impact Area (acres) ^b	Stream Buffer Impact (acres) ^b
Preferred Alternative	Bingaman Creek	F	--	--	0.8
Kent/Des Moines Station Options					
Kent/Des Moines At-Grade Station Option	No change in impacts				
Kent/Des Moines I-5 Station Option	No change in impacts				
Landfill Median Alignment Option	No change in impacts				
S 272nd Star Lake Elevated Station Option	No change in impacts				
S 317th Elevated Alignment Option	No change in impacts				
Federal Way City Center Station Options	No change in impacts				
Federal Way I-5 Station Option	No change in impacts				
Federal Way S 320th Park-and-Ride Station Option	No change in impacts				
SR 99 Alternative	McSorley Creek	F	--	--	<0.1
	Redondo Creek	F	--	--	<0.1
S 216th Station Options					
S 216th West Station Option	No change in impacts				
S 216th East Station Option	No change in impacts				
Kent/Des Moines Station Options					
Kent/Des Moines HC Campus Station Option	Massey Creek	3	+60	+<0.1	+<0.1
Kent/Des Moines SR 99 Median Station Option	No change in impacts				
Kent/Des Moines SR 99 East Station Option	No change in impacts				
S 260th Station Options					
S 260th West Station Option	McSorley Creek	F	+250	+ <0.1	+0.1
S 260th Station East Option	McSorley Creek	F	+152	+ <0.1	+0.1
S 272nd Redondo Trench Station Option	McSorley Creek	F	+148	+ <0.1	+<0.1
	Redondo Creek	F	+180	+<0.1	+0.1
Federal Way SR 99 Station Option	No change in impacts				
SR 99 to I-5 Alternative	Bingaman Creek	F	--	--	1.0
S 216th Station Options					
S 216th West Station Option	No change in impacts				
S 216th East Station Option	No change in impacts				
Landfill Median Alignment Option	No change in impacts				
Federal Way City Center Station Options	No change in impacts				
Federal Way I-5 Station Option	No change in impacts				
Federal Way S 320th Park-and-Ride Station	No change in Impacts				

TABLE E-5

Summary of Temporary Construction Impacts on Streams by FWLE Alternative and Option

Alternative	Stream Name	Stream Type in Study Area ^a	Stream Channel Impact Length (linear feet) ^b	Stream Impact Area (acres) ^b	Stream Buffer Impact (acres) ^b
Option					
I-5 to SR 99 Alternative	McSorley Creek	F	--	--	<0.1
	Redondo Creek	F	--	--	<0.1
S 260th Station Options					
S 260th West Station Option	McSorley Creek	F	+250	+ <0.1	+0.1
S 260th Station East Option	McSorley Creek	F	+152	+ <0.1	+0.1
S 272nd Redondo Trench Station Option	McSorley Creek	F	+148	+ <0.1	+<0.1
	Redondo Creek	F	+180	+ <0.1	+0.1
Federal Way SR 99 Station Option	No change in Impacts				

^a Stream type terminology varies between jurisdictions, but all are based on the size of the stream and its ability to support fish. In Kent, Type 3 streams are segments of natural waters within bankfull width of defined channels that are perennial or intermittent streams within the portion of the channel where there is no documented salmonid use. Type F streams are those that are salmonid bearing or (as is the case here) have the potential to support salmonids, or streams that contain fish habitat.

^b Work over Redondo Creek and McSorley Creek would require temporary piping of open stream segments to protect stream from temporary construction impacts.

TABLE E-6

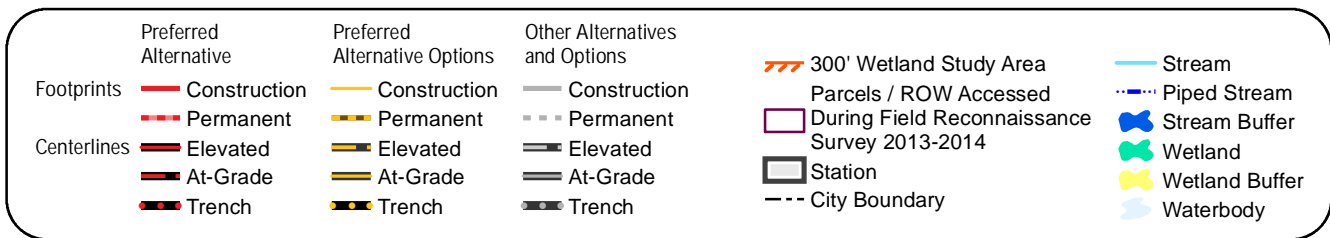
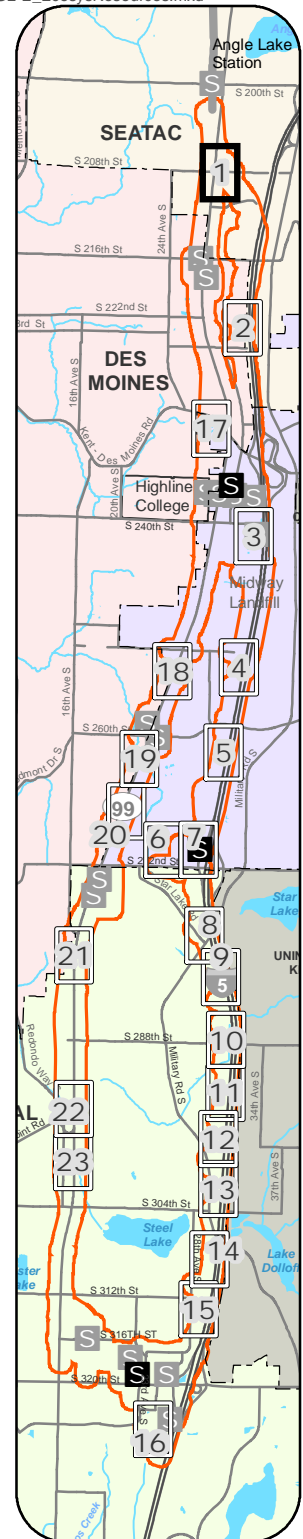
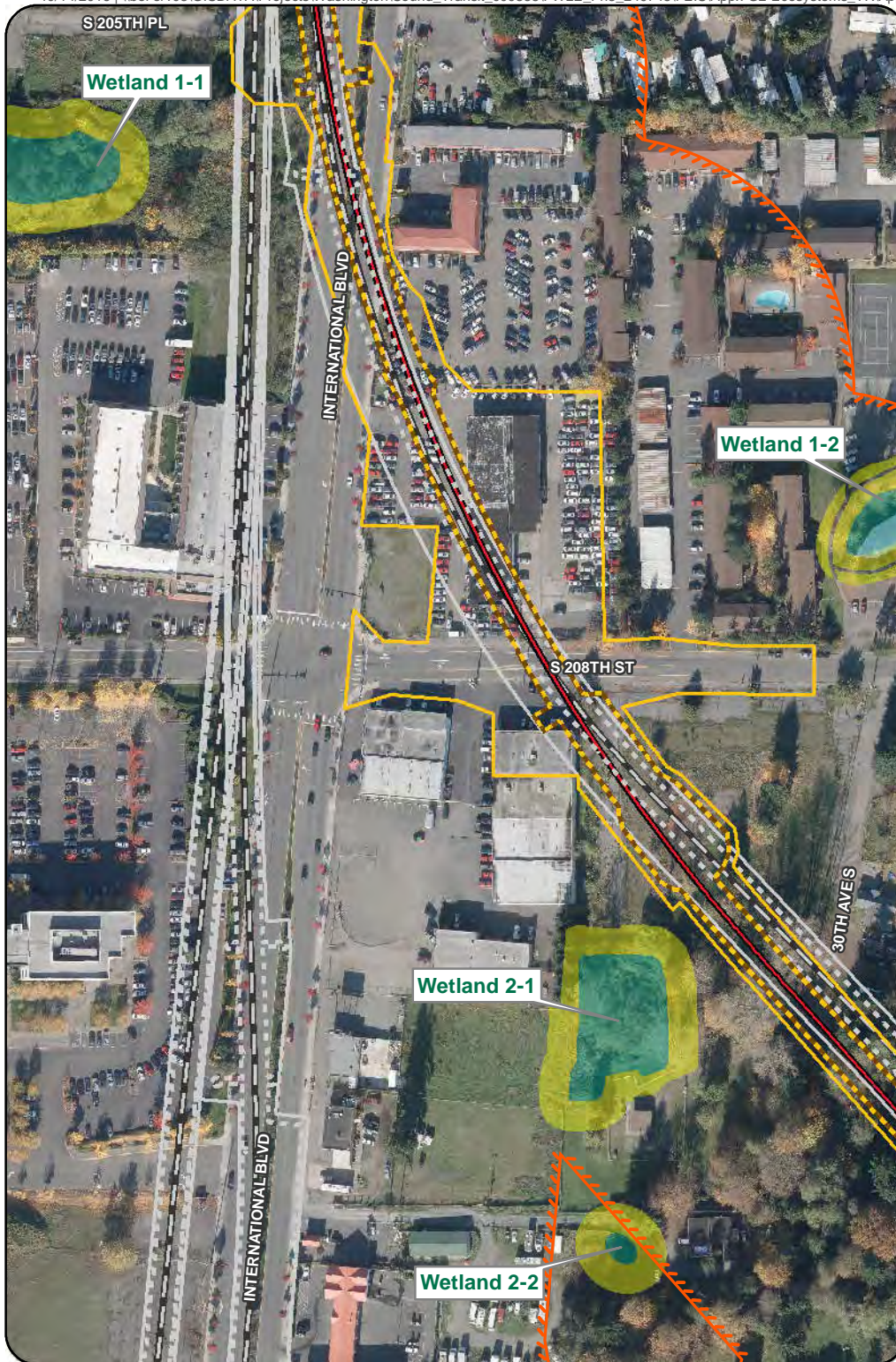
Summary of Potential Long-Term Impacts on Streams and Stream Buffers by FWLE Alternative and Option

Alternative	Stream Name	Stream Type in Study Area ^a	Stream Channel Impact Length (linear feet)	Stream Impact Area (acres)	Stream Buffer Impact (acres)
Preferred Alternative	Bingaman Creek	F	1,015	0.2	2.5
Kent/Des Moines Station Options					
Kent/Des Moines At-Grade Station Option	No change in impacts				
Kent/Des Moines I-5 Station Option	No change in impacts				
Landfill Median Alignment Option	No change in impacts				
S 272nd Star Lake Elevated Station Option	No change in impacts				
S 317th Elevated Alignment Option	No change in impacts				
Federal Way City Center Station Options					
Federal Way I-5 Station Option	No change in impacts				
Federal Way S 320th Park-and-Ride Station Option	No change in impacts				
SR 99 Alternative	McSorley Creek	F	--	--	<0.1
	Redondo Creek	F	--	--	<0.1
S 216th Station Options					
S 216th West Station Option	No change in impacts				
S 216th East Station Option	No change in impacts				
Kent/Des Moines Station Options					
Kent/Des Moines HC Campus Station Option	Massey Creek	3	--	--	+<0.1
Kent/Des Moines SR 99 Median Station Option	No change in impacts				
Kent/Des Moines SR 99 East Station Option	No change in impacts				
S 260th Station Options					
S 260th West Station Option	McSorley Creek	F	--	--	+0.3
S 260th East Station Option	McSorley Creek	F	--	--	+0.1
S 272nd Redondo Trench Station Option	McSorley Creek	F	--	--	+0.1
	Redondo Creek	F			+0.4
Federal Way SR 99 Station Option					
SR 99 to I-5 Alternative	Bingaman Creek	F	1,015	0.2	1.4
S 216th Station Options					
S 216th West Station Option	No change in impacts				
S 216th East Station Option	No change in impacts				
Landfill Median Alignment Option	No change in impacts				
Federal Way City Center Station Options					

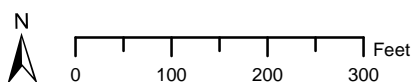
TABLE E-6

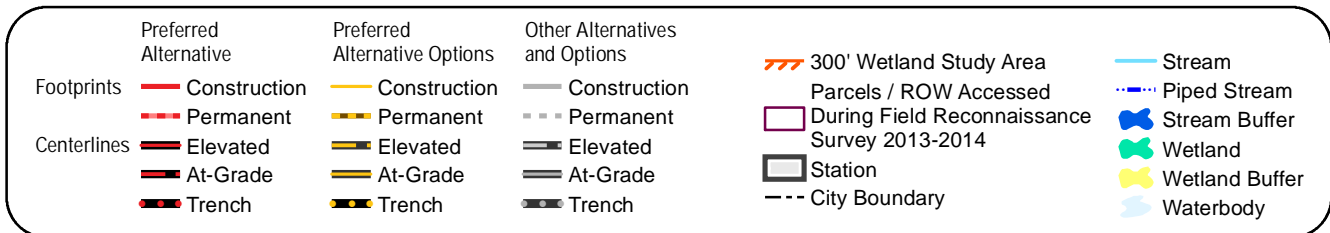
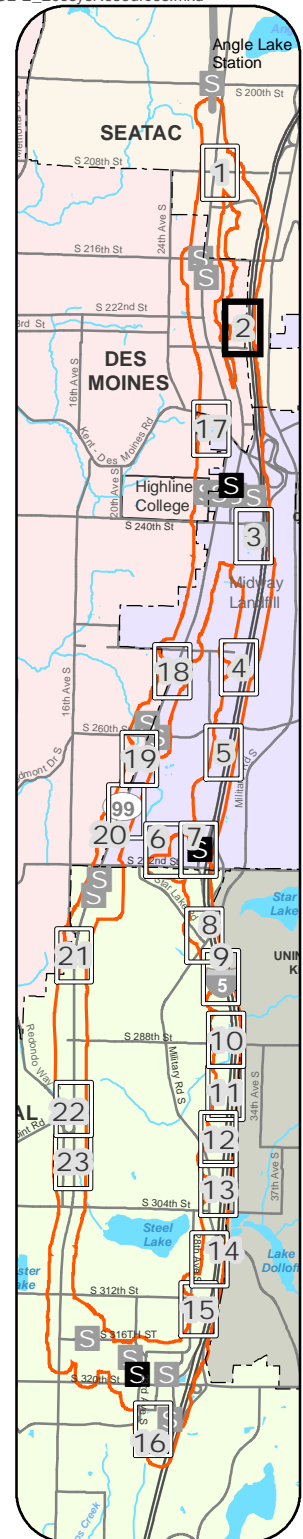
Summary of Potential Long-Term Impacts on Streams and Stream Buffers by FWLE Alternative and Option

Alternative	Stream Name	Stream Type in Study Area ^a	Stream Channel Impact Length (linear feet)	Stream Impact Area (acres)	Stream Buffer Impact (acres)
Federal Way I-5 Station Option	No change in impacts				
Federal Way S 320th Park-and-Ride Station Option	No change in impacts				
I-5 to SR 99 Alternative	McSorley Creek	F			<0.1
	Redondo Creek	F			<0.1
S 260th Station Options					
S 260th West Station Option	McSorley Creek	F	--	--	+0.3
S 260th East Station Option	McSorley Creek	F	--	--	+0.1
S 272nd Redondo Trench Station Option	McSorley Creek	F	--	--	+0.1
	Redondo Creek	F	--	--	+0.4
Federal Way SR 99 Station Option	No change in impacts				

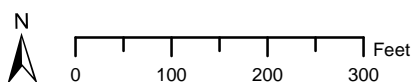


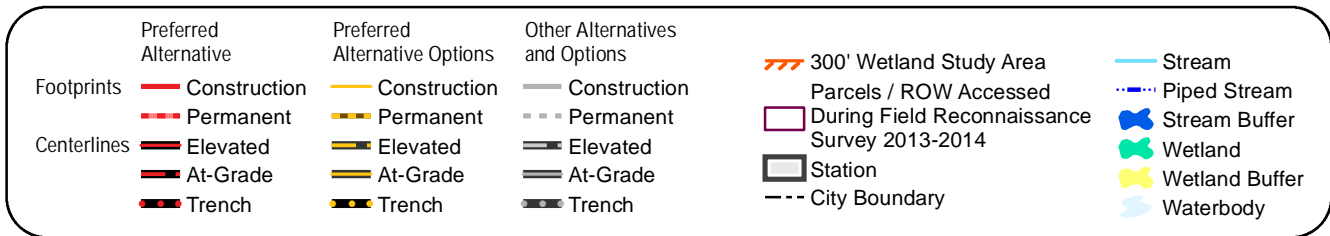
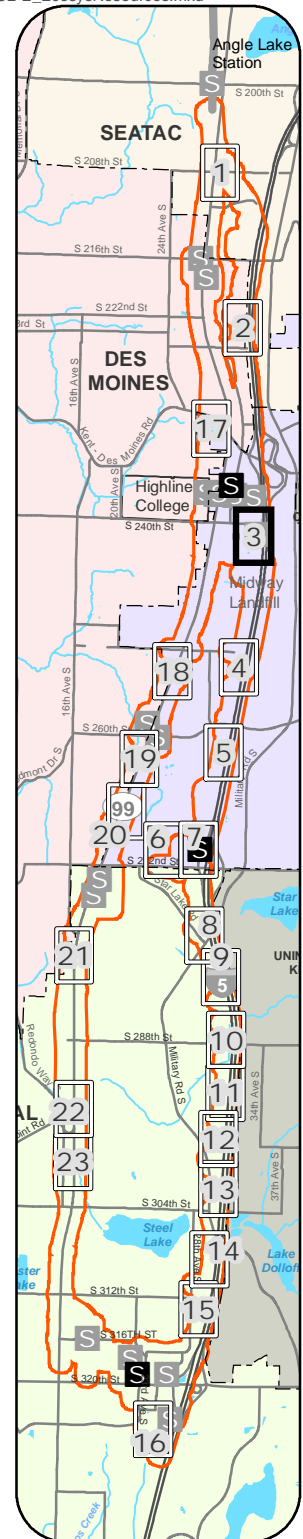
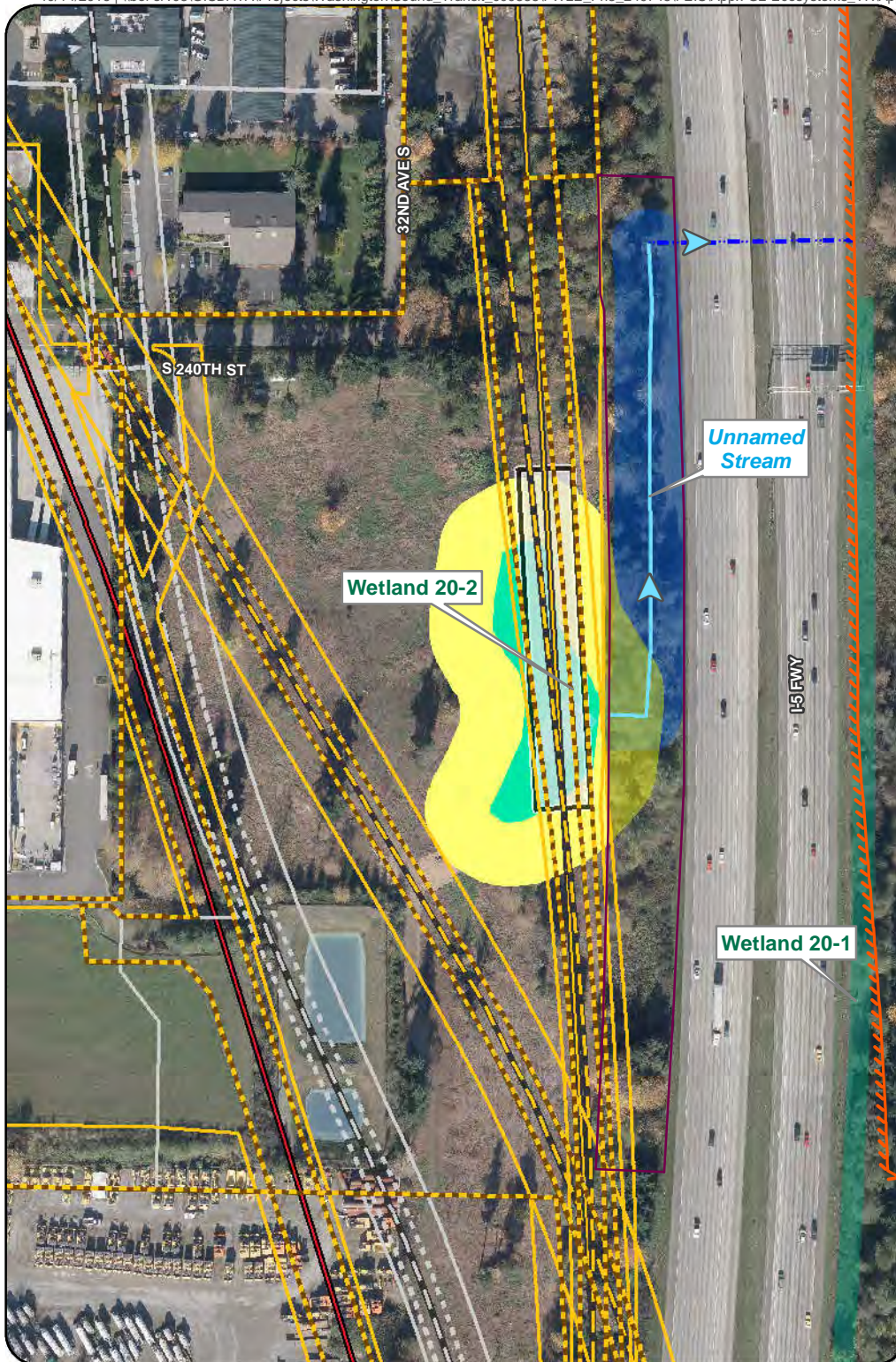
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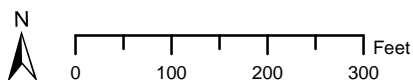


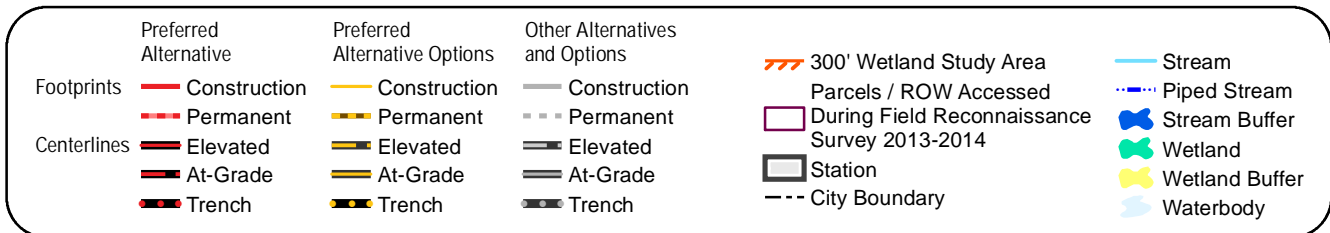
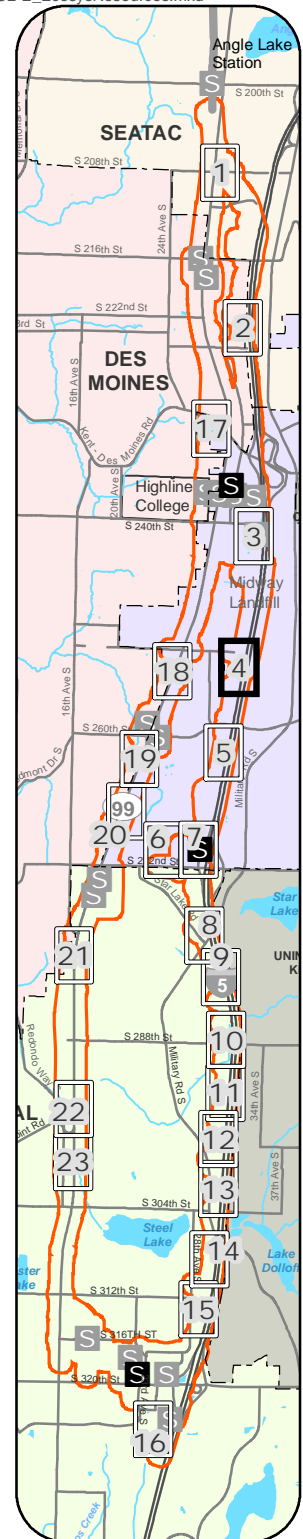
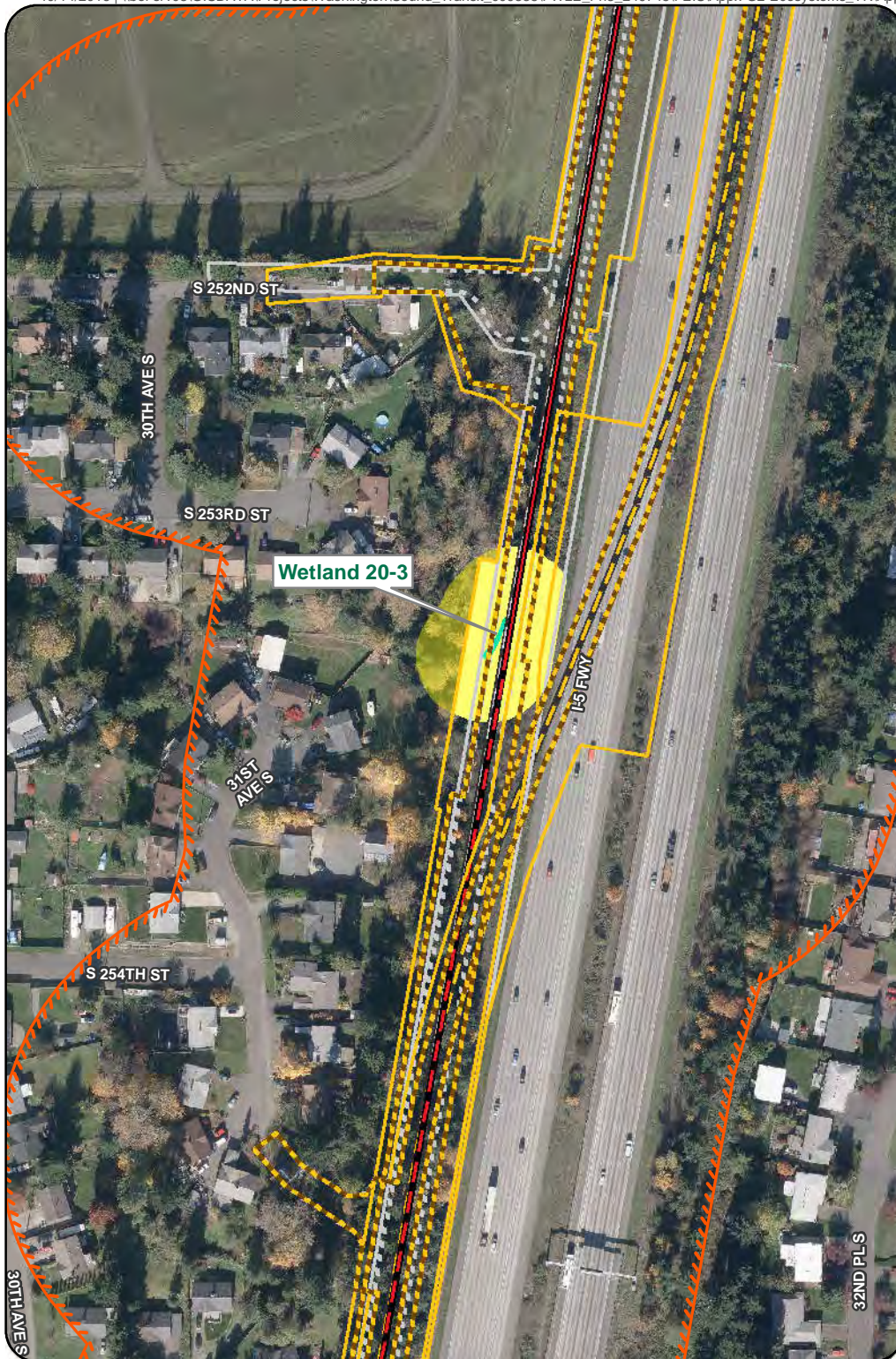
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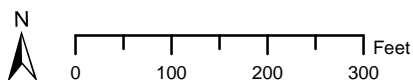


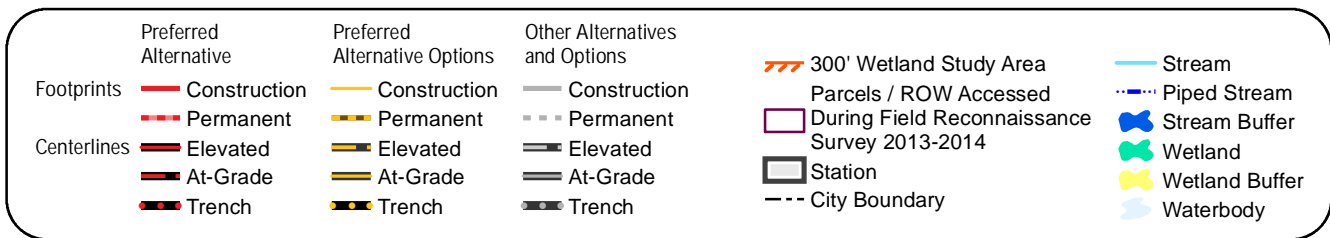
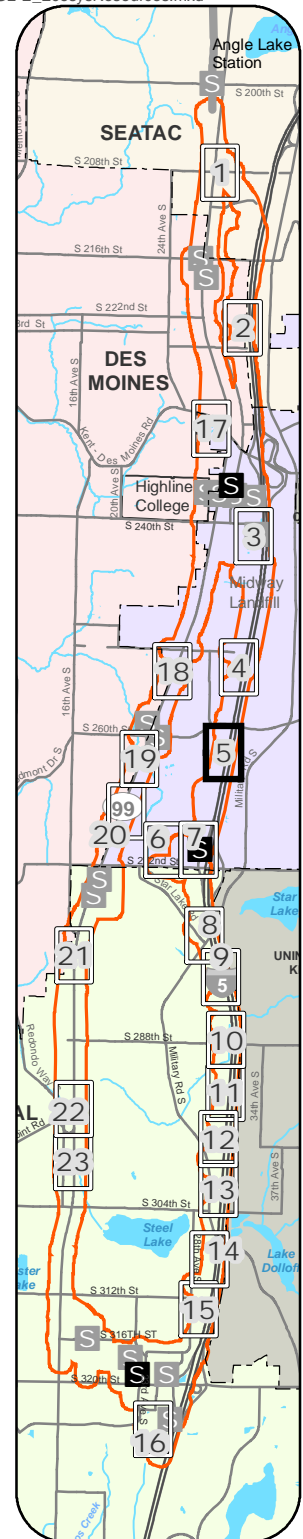
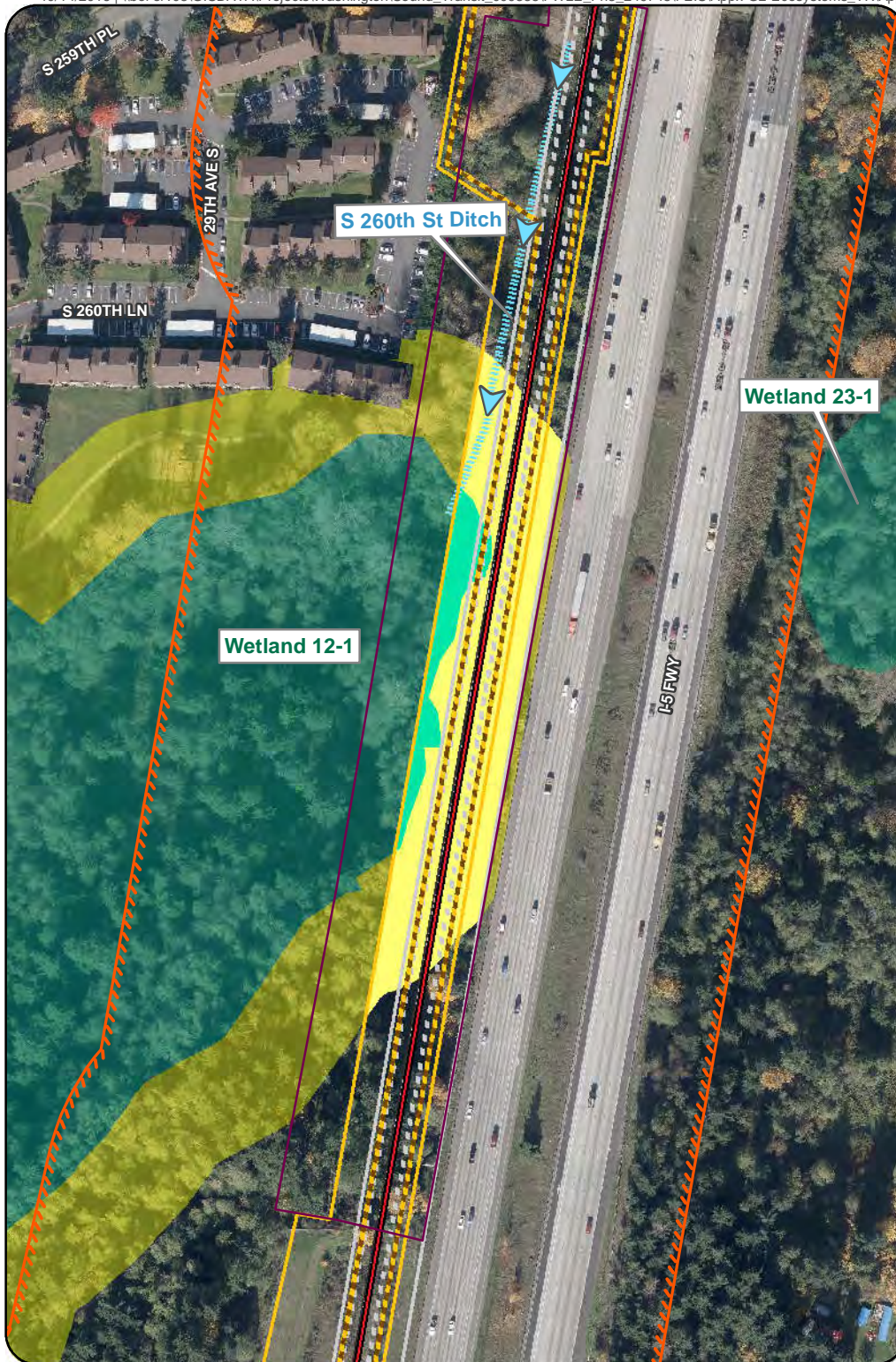
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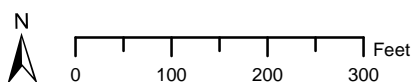


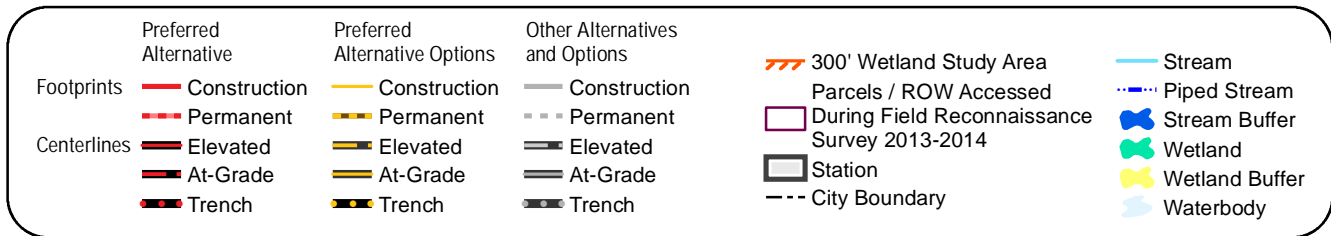
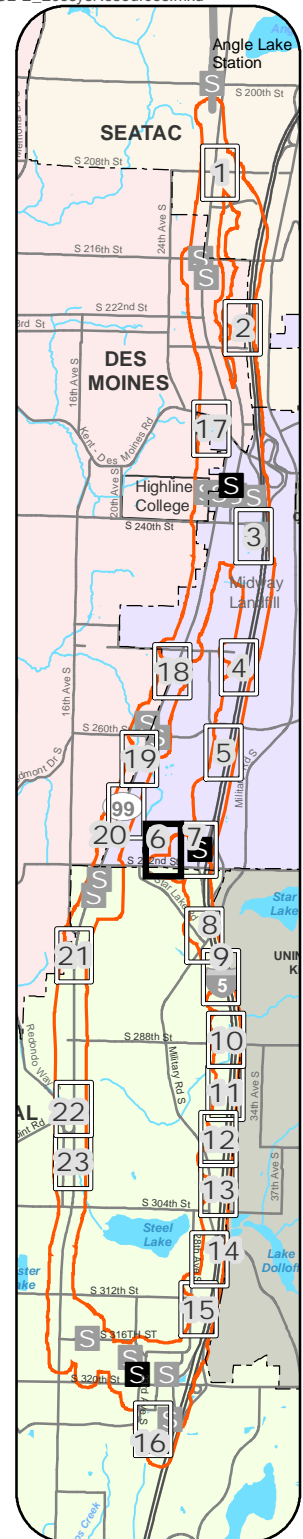
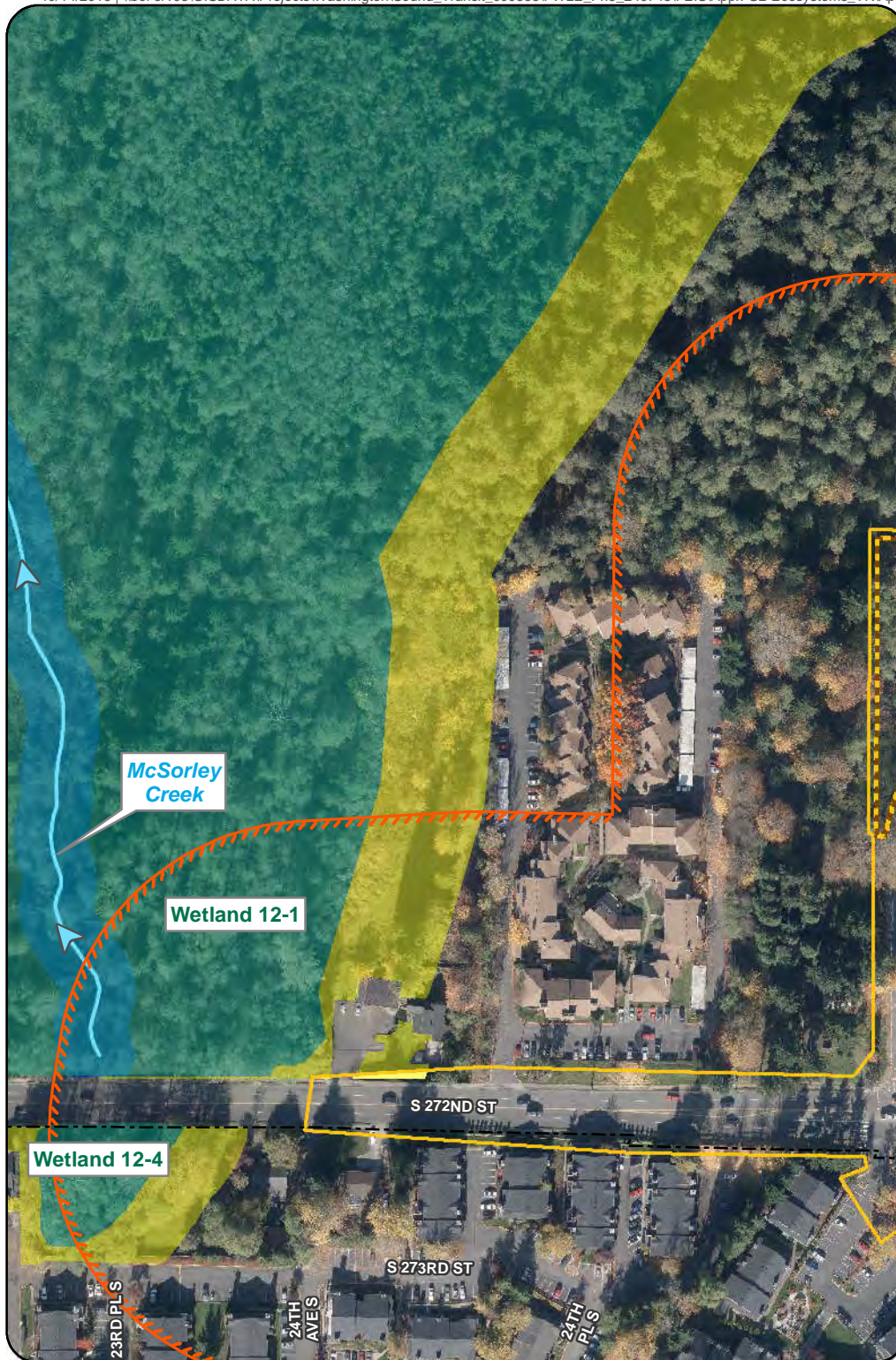
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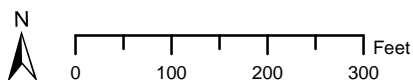


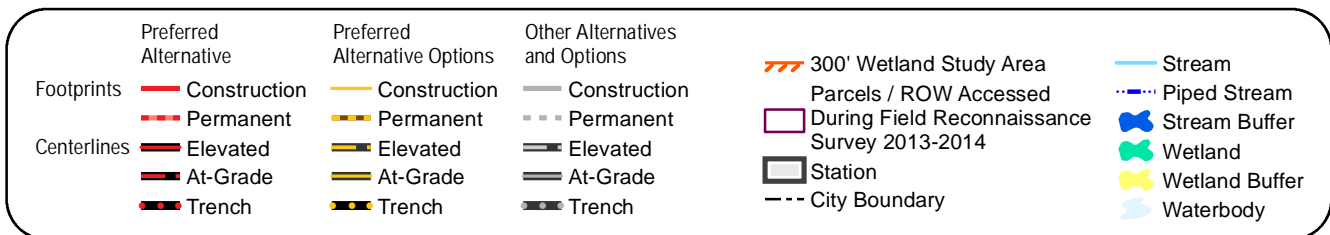
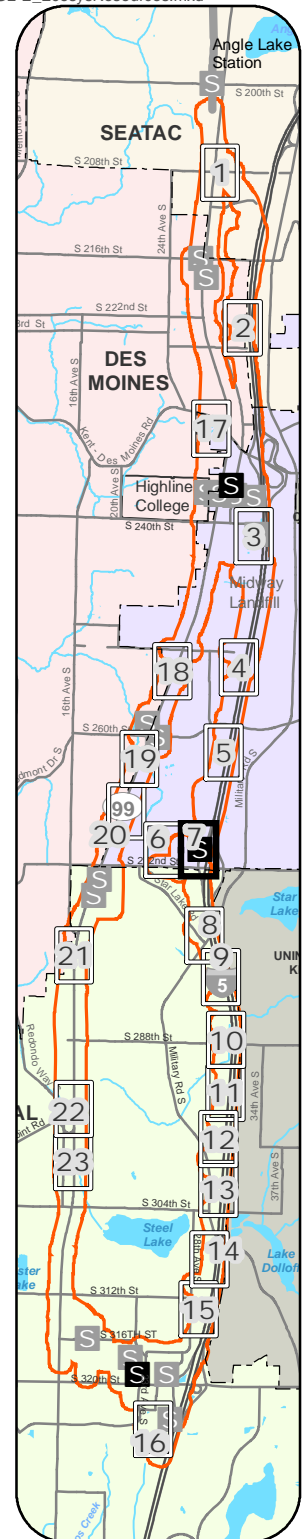
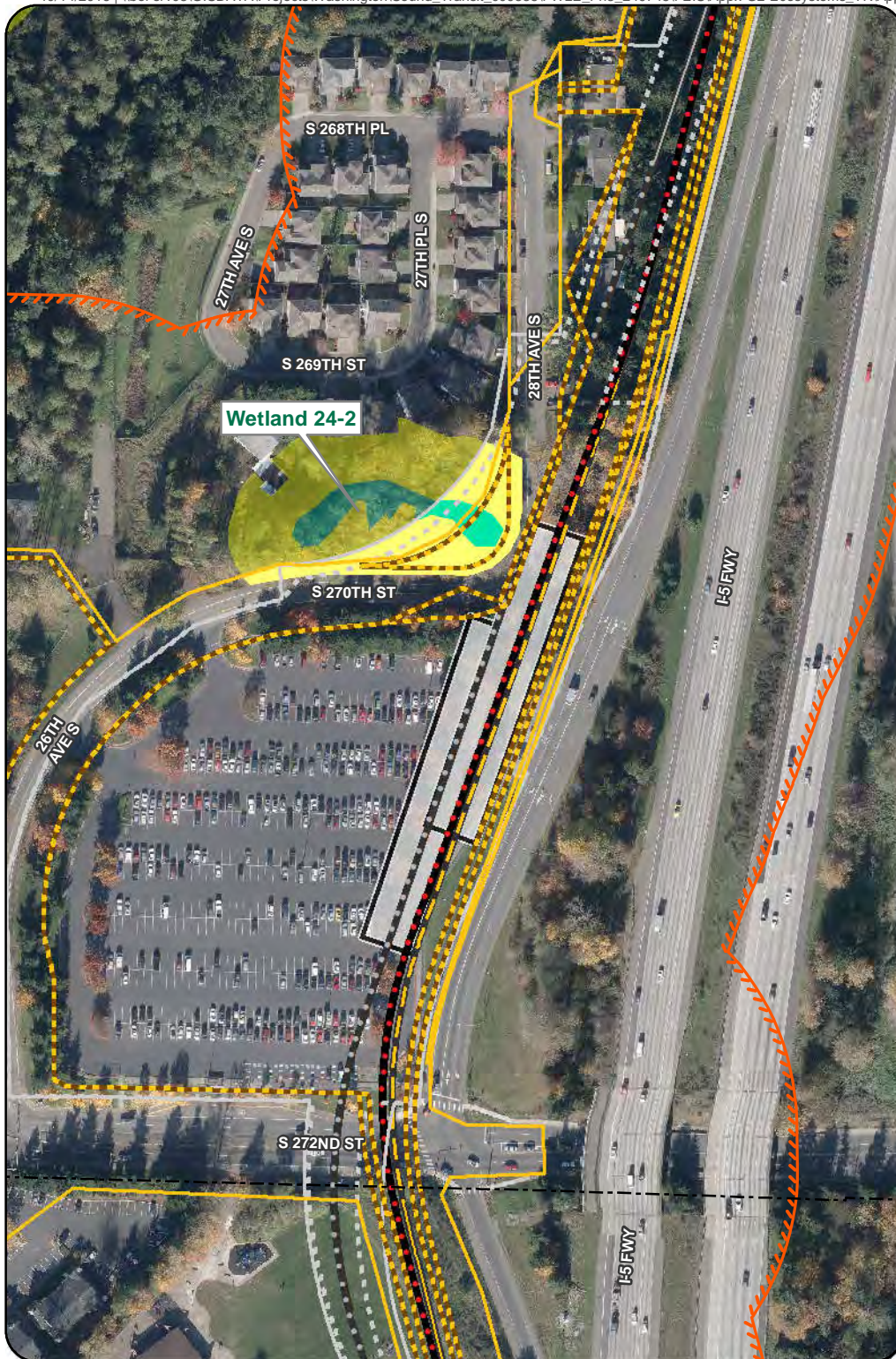
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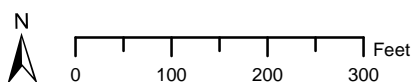


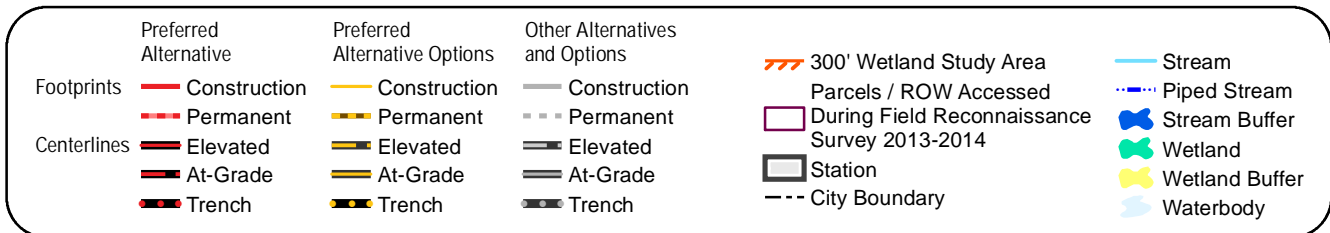
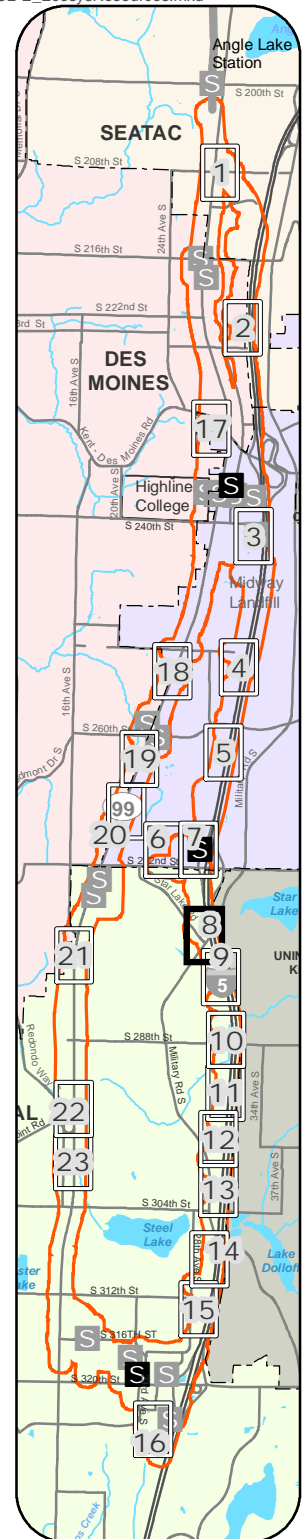
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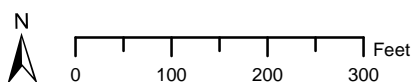


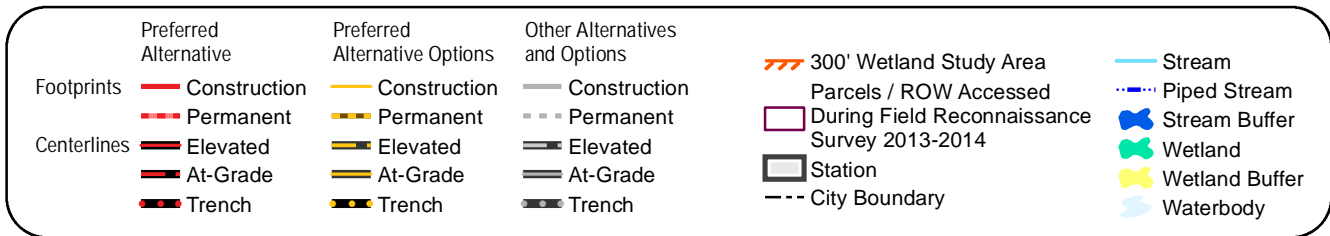
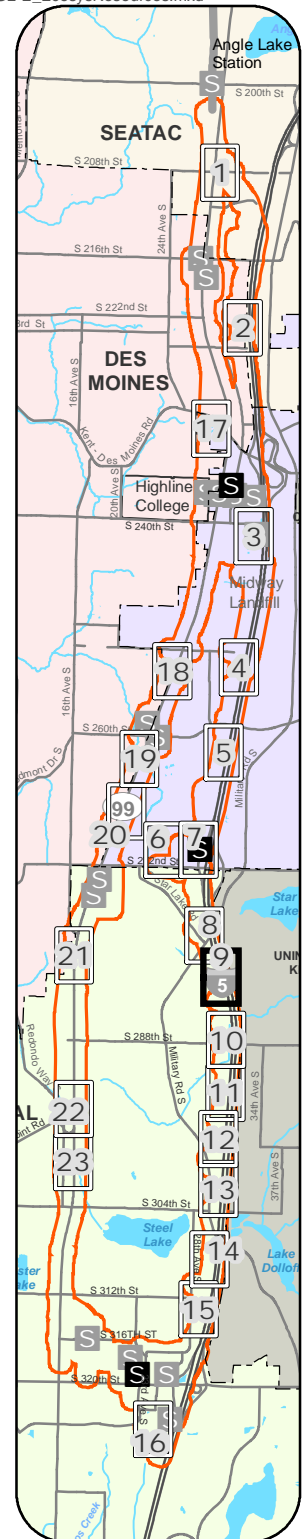
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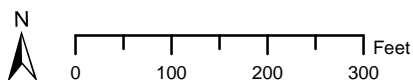


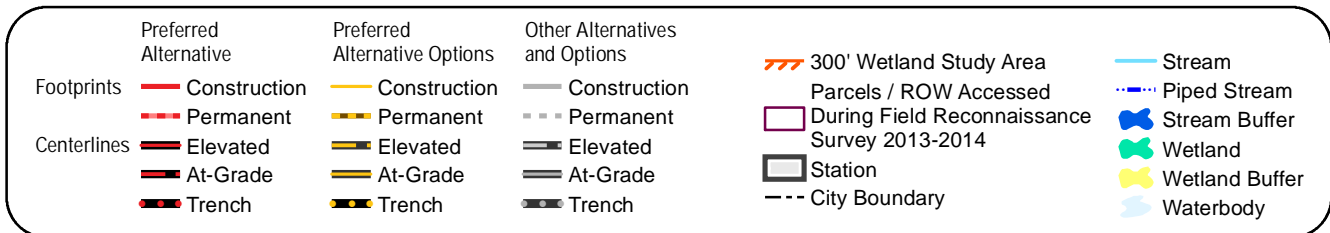
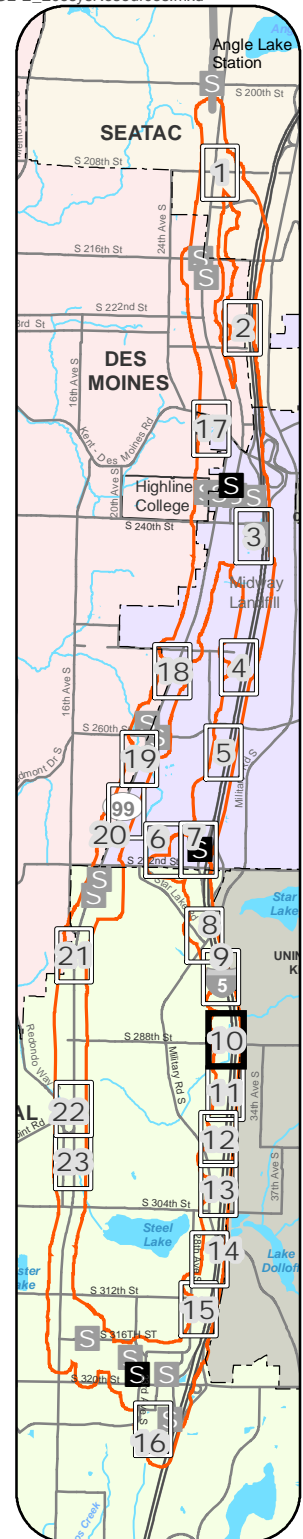
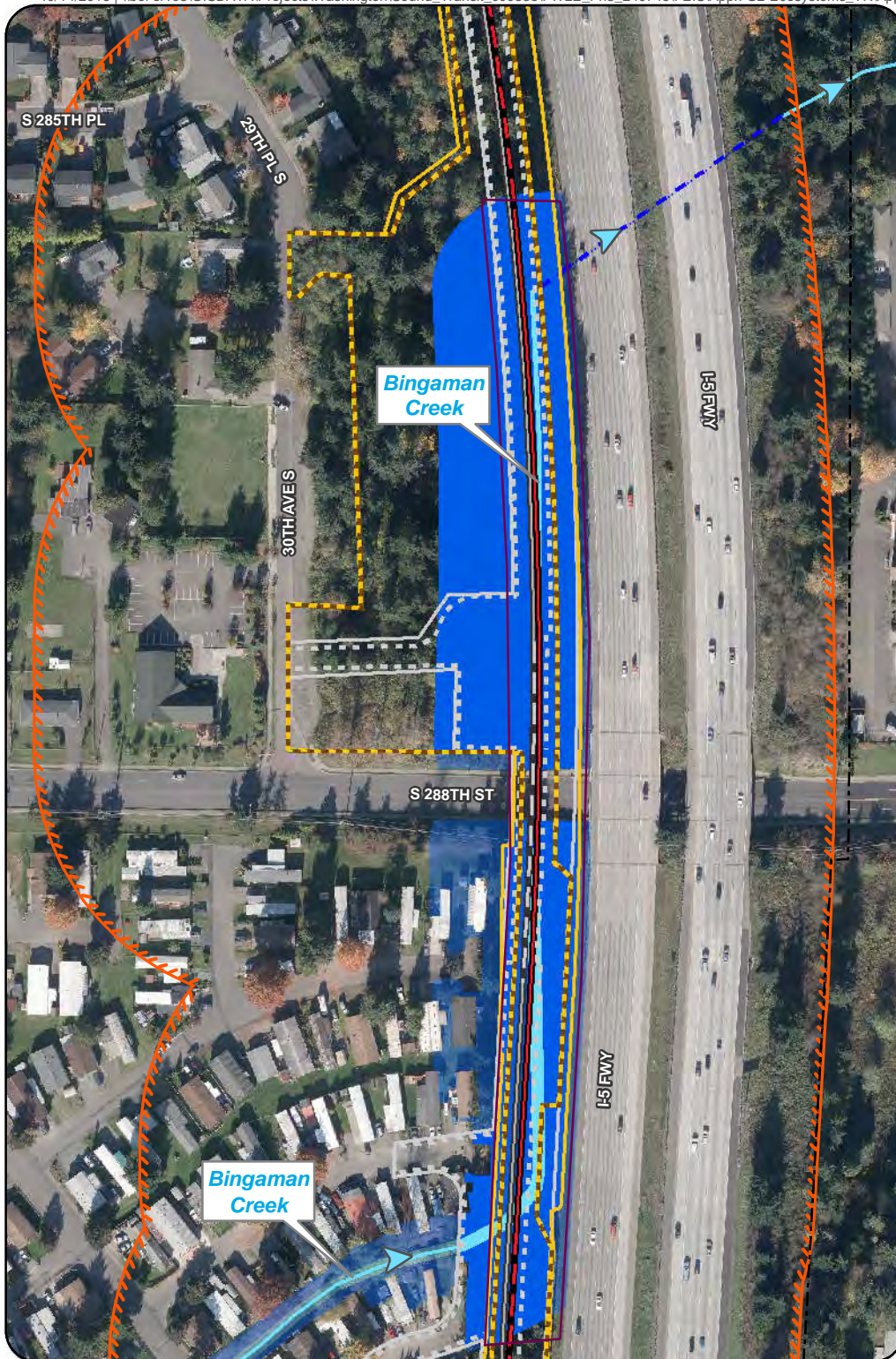
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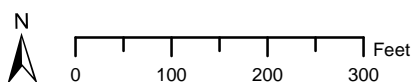


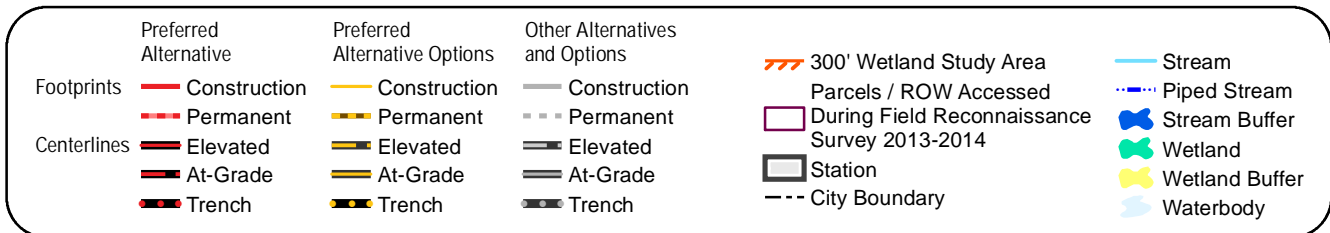
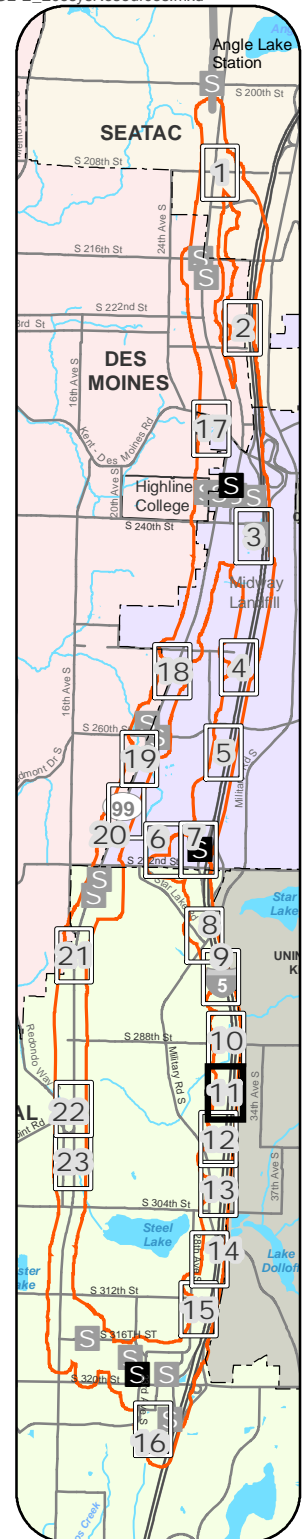
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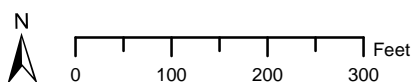


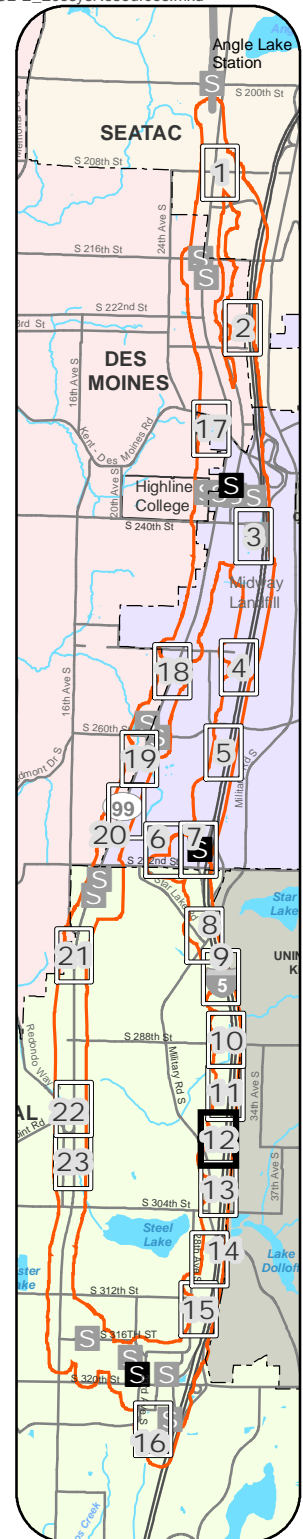
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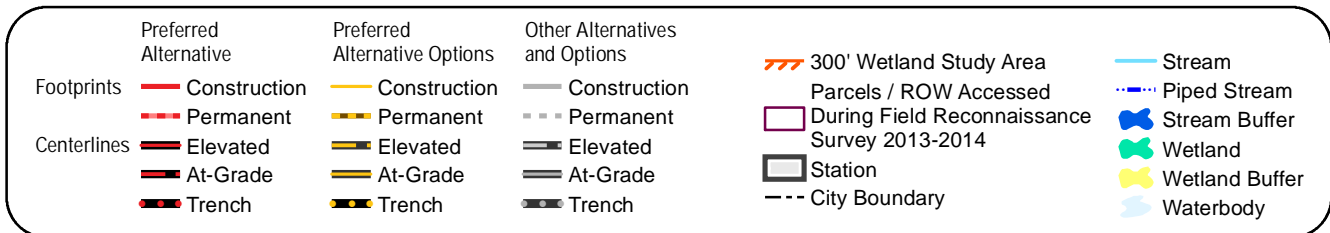
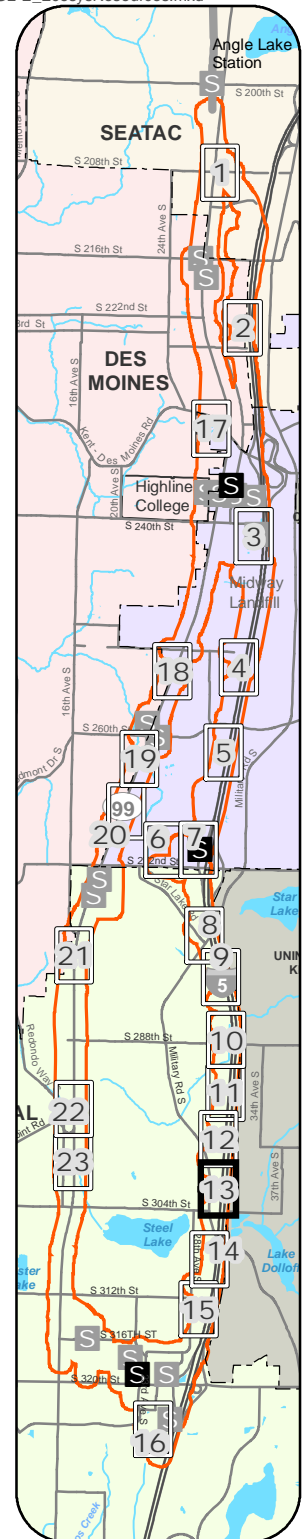
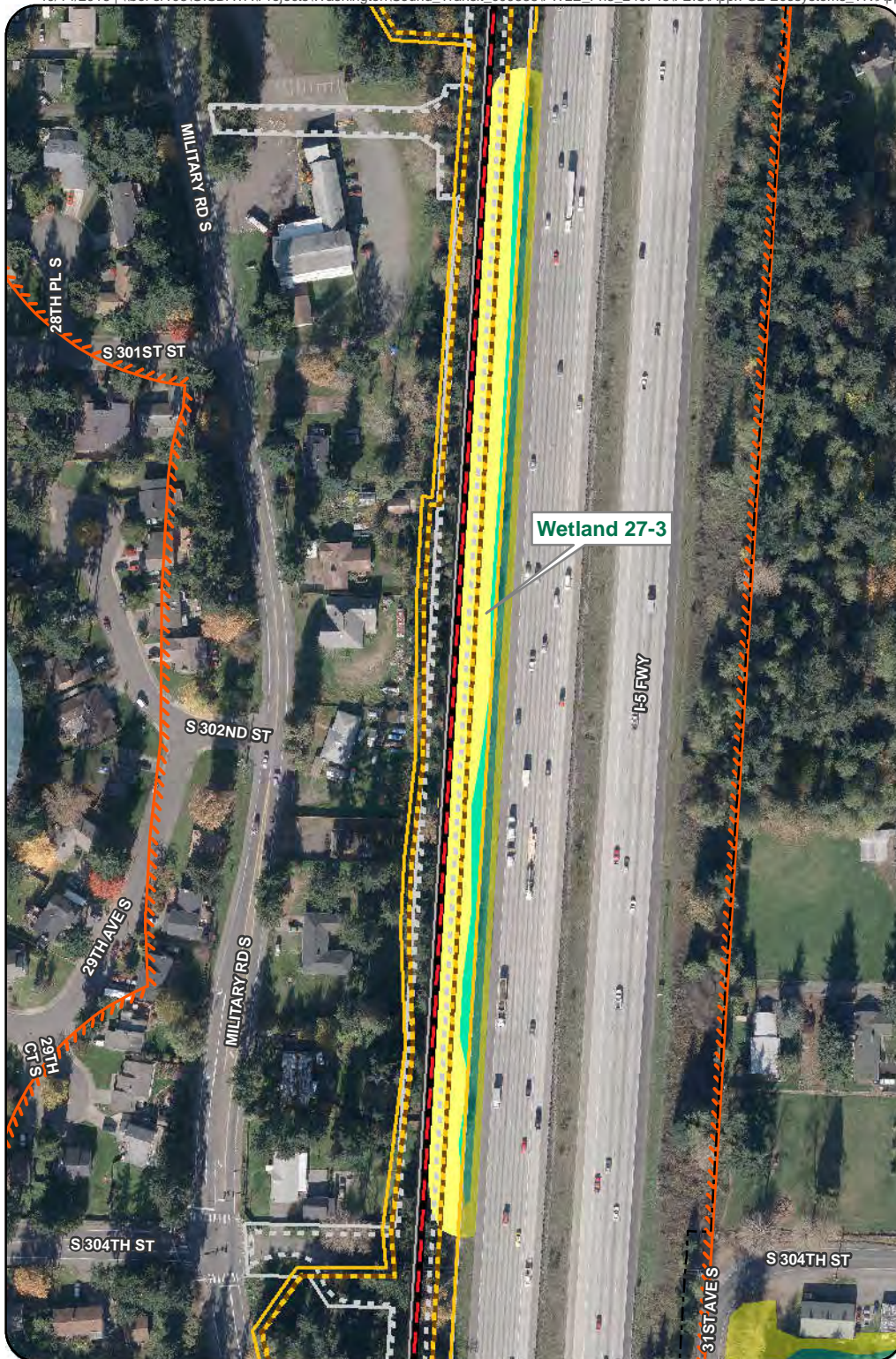


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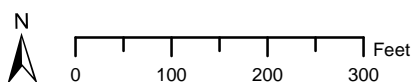


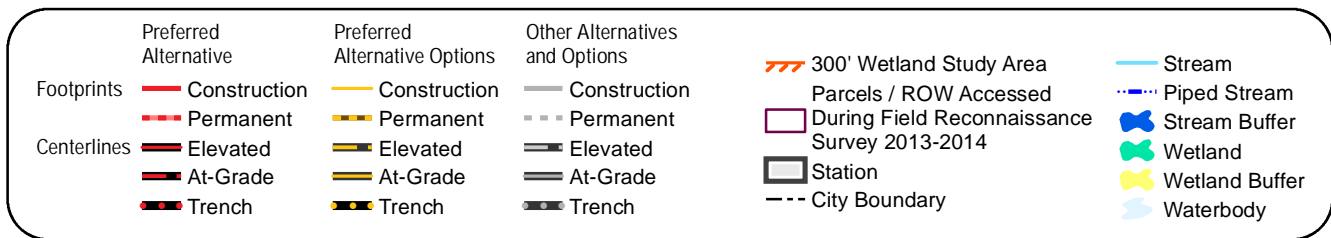
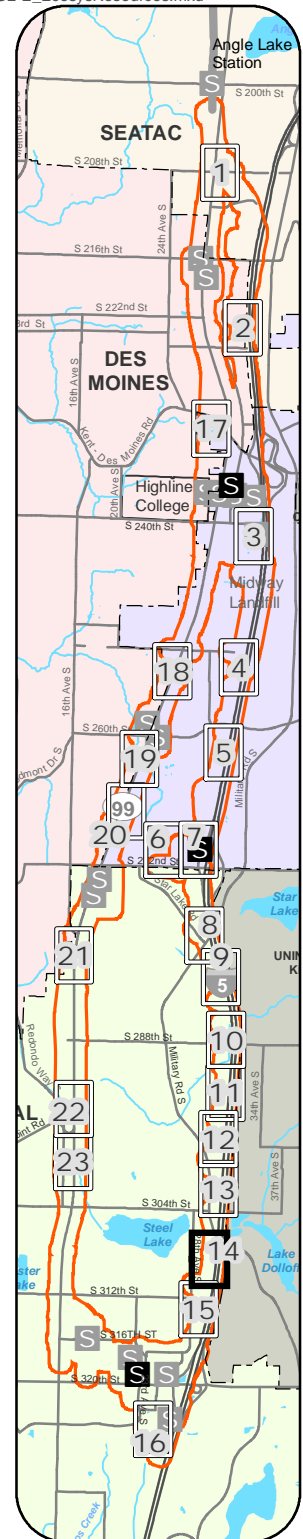
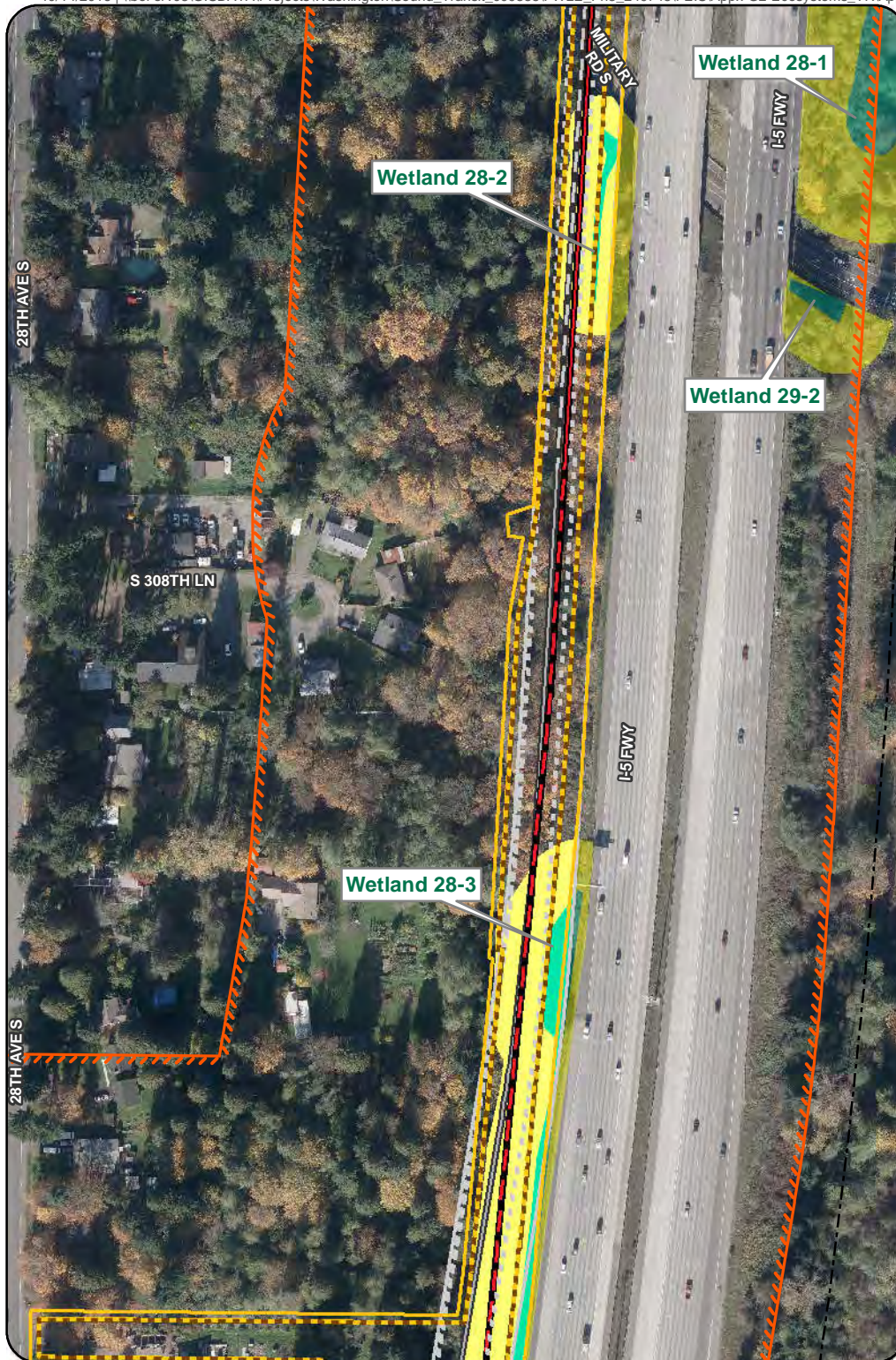


	Preferred Alternative	Preferred Alternative Options	Other Alternatives and Options	300' Wetland Study Area	Stream
Footprints	Construction	Construction	Construction	Parcels / ROW Accessed During Field Reconnaissance Survey 2013-2014	Piped Stream
	Permanent	Permanent	Permanent		Stream Buffer
Centerlines	Elevated	Elevated	Elevated	Station	Wetland
	At-Grade	At-Grade	At-Grade		Wetland Buffer
	Trench	Trench	Trench		Waterbody
					City Boundary

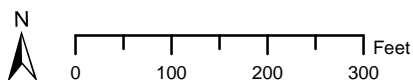


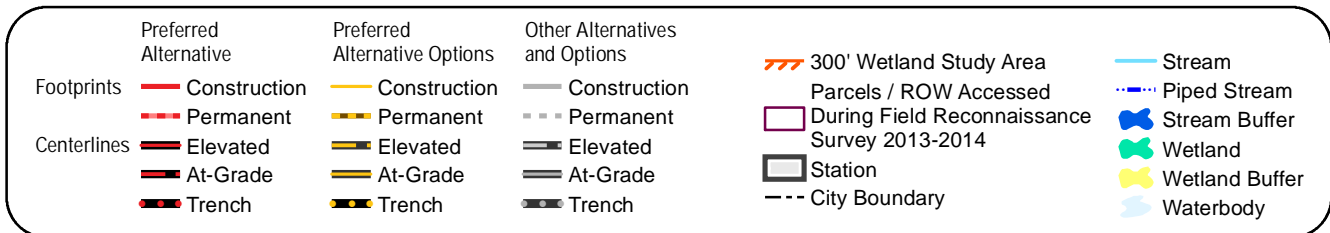
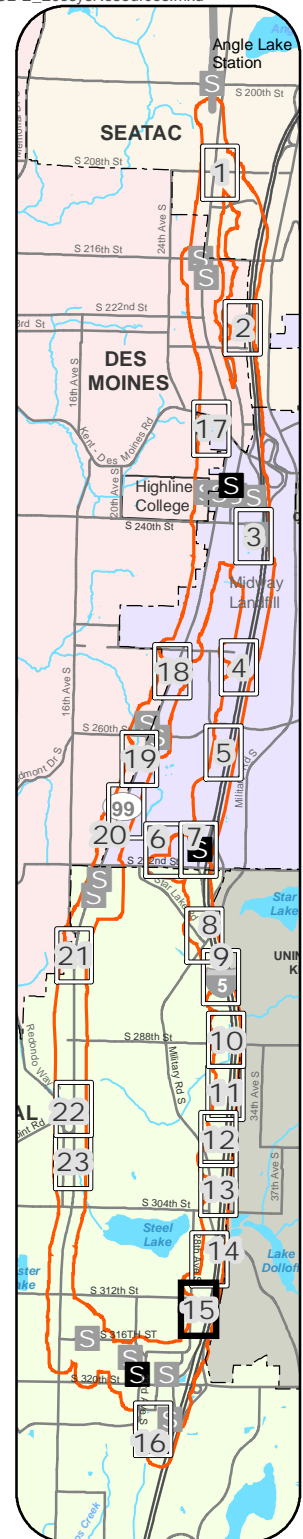
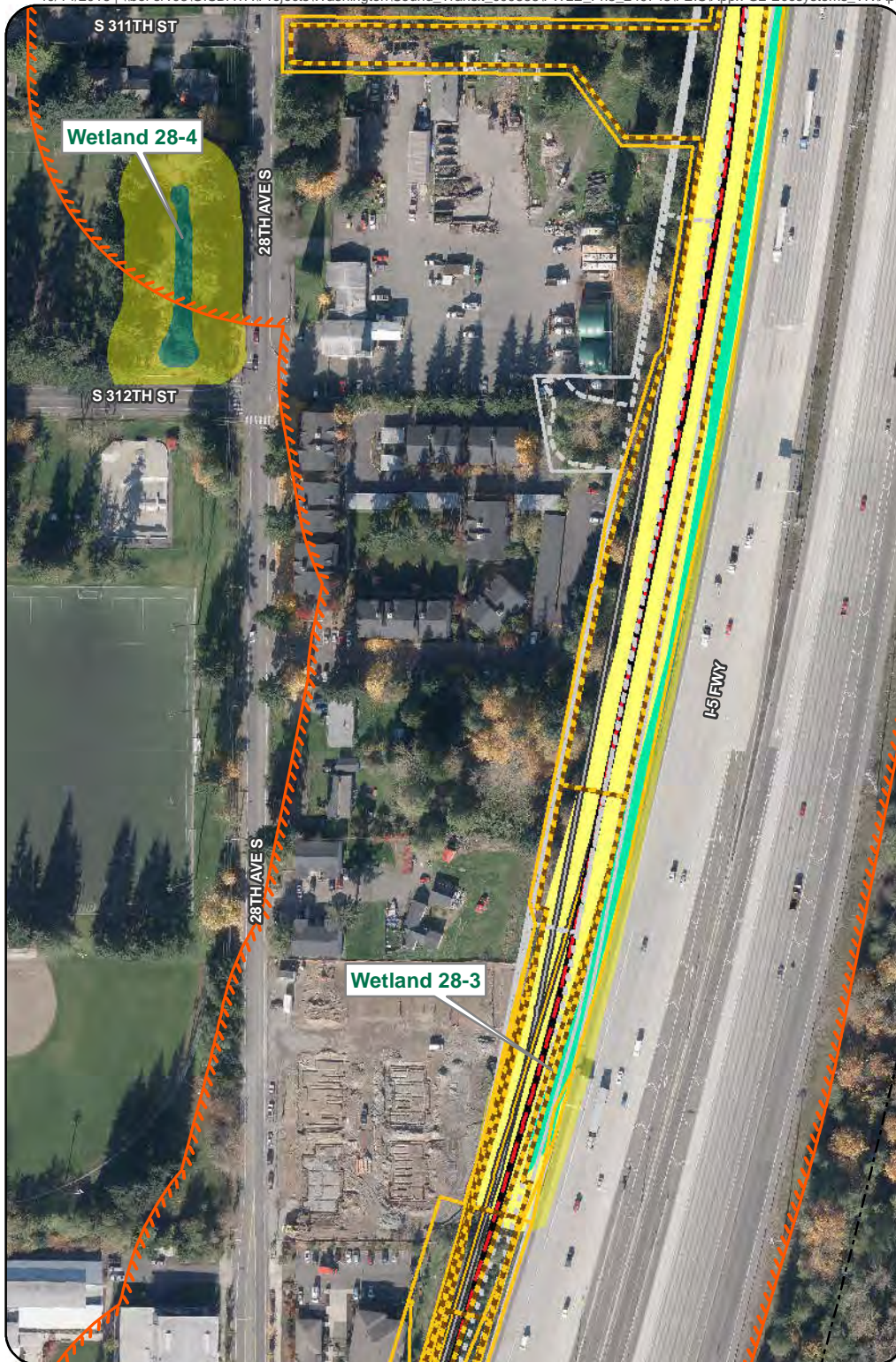
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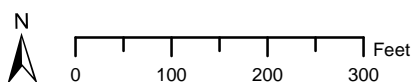


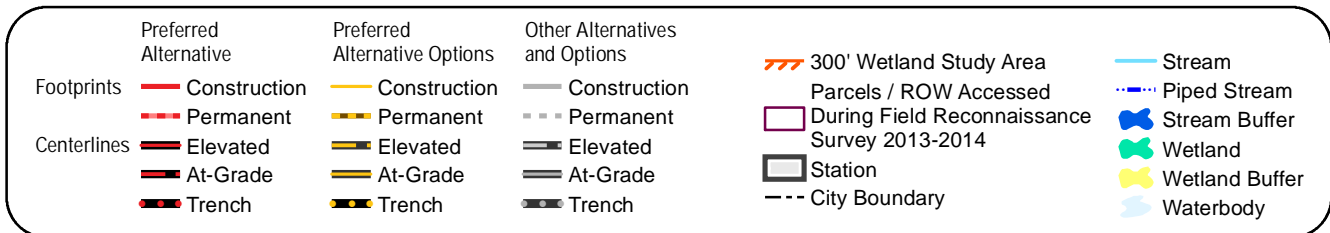
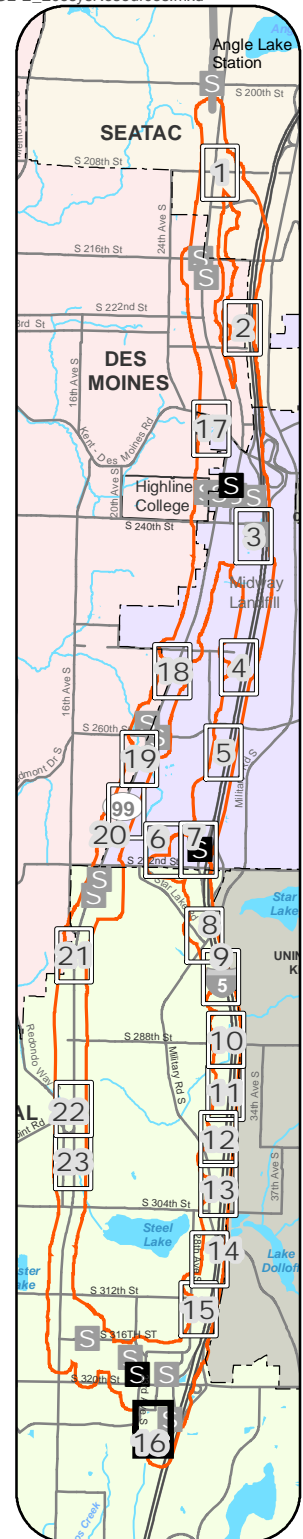
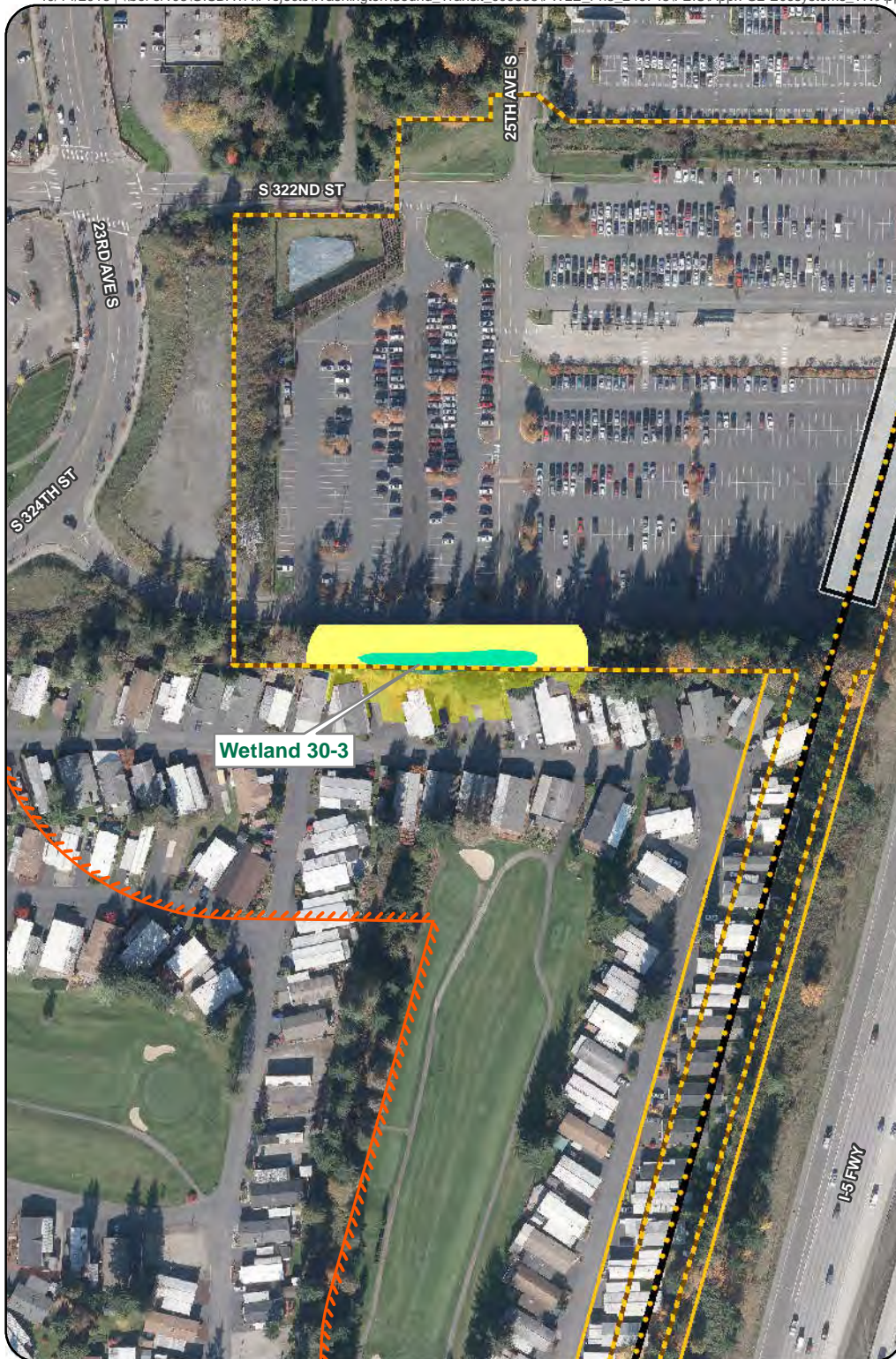
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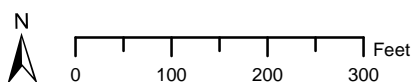


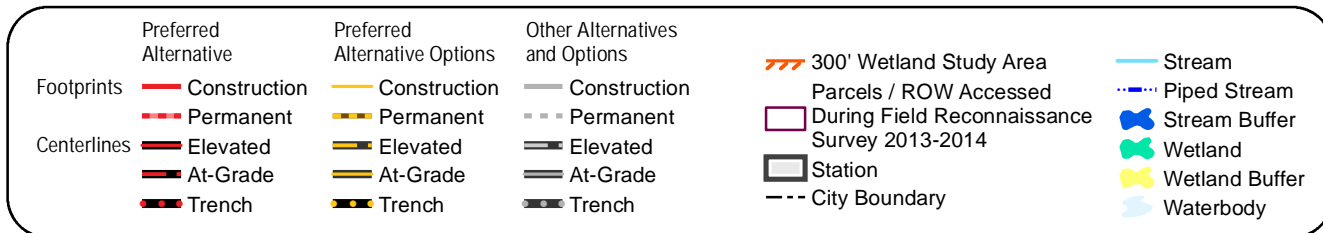
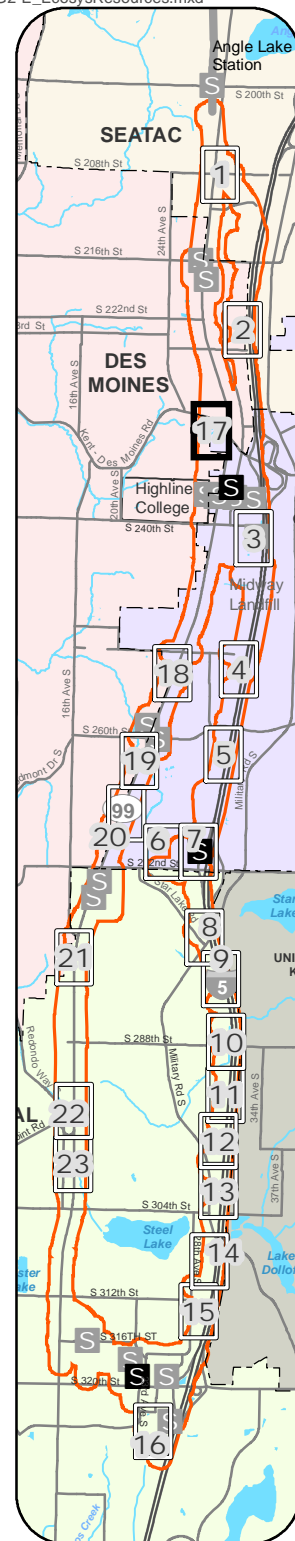
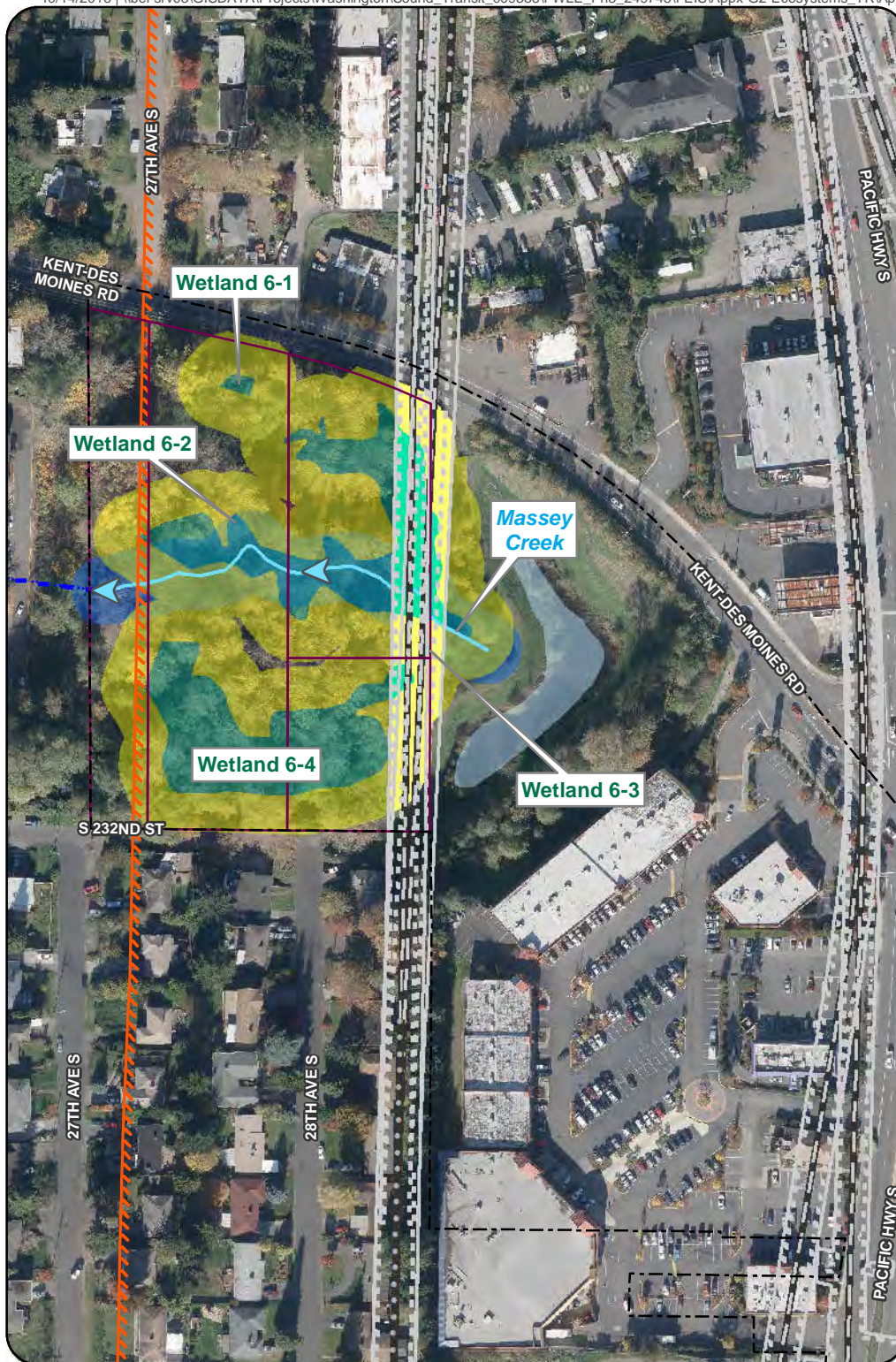
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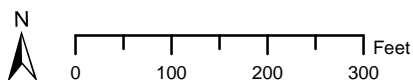


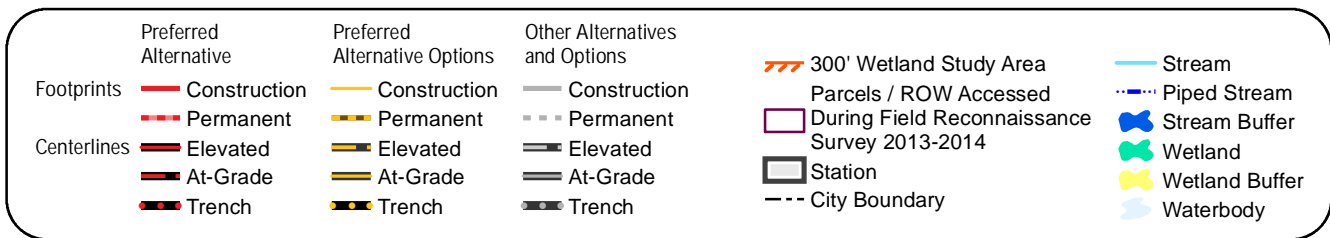
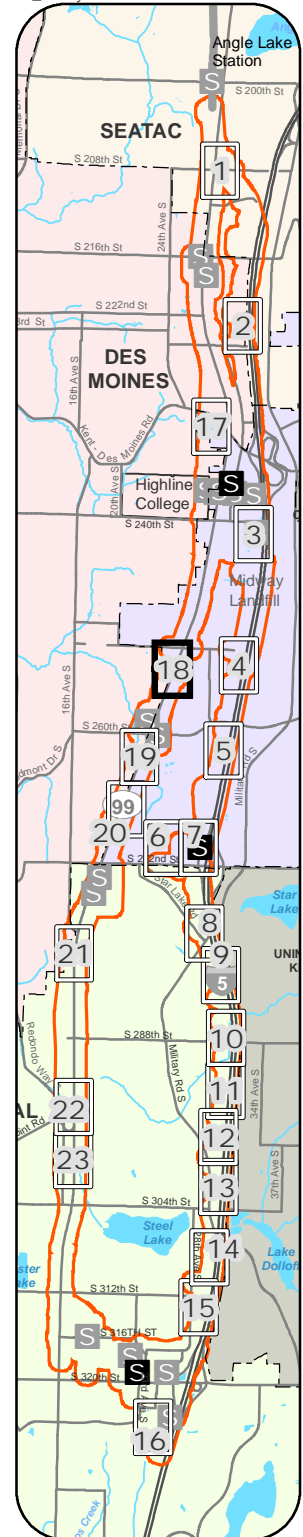
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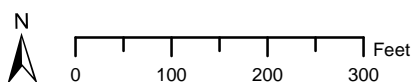


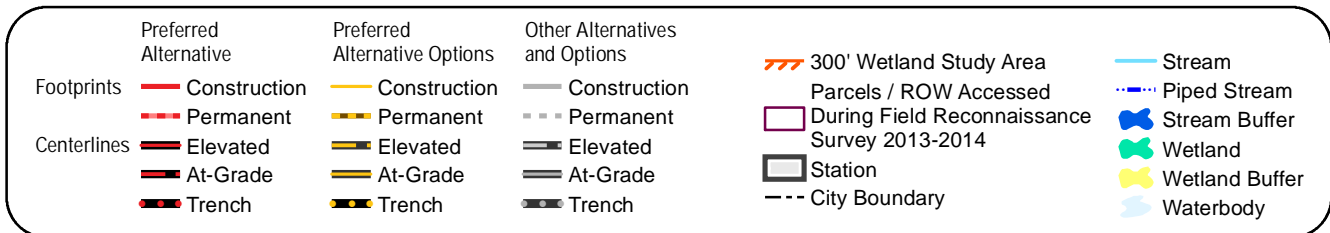
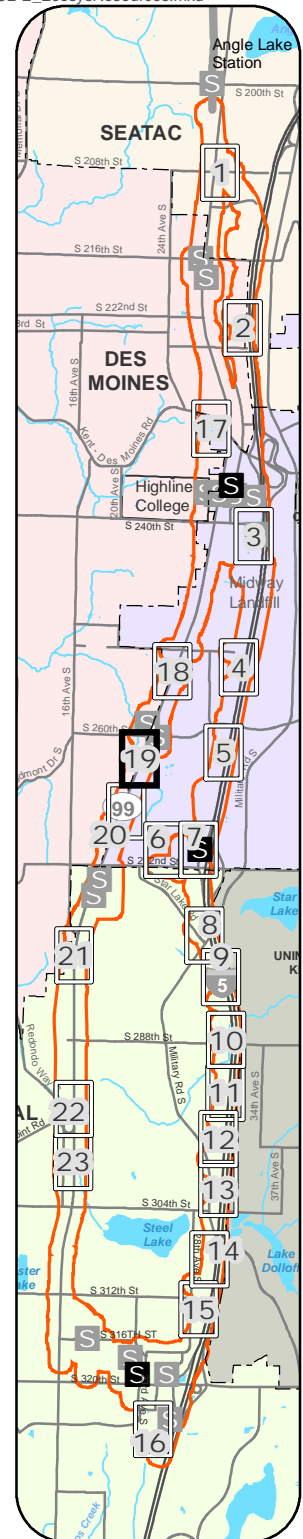
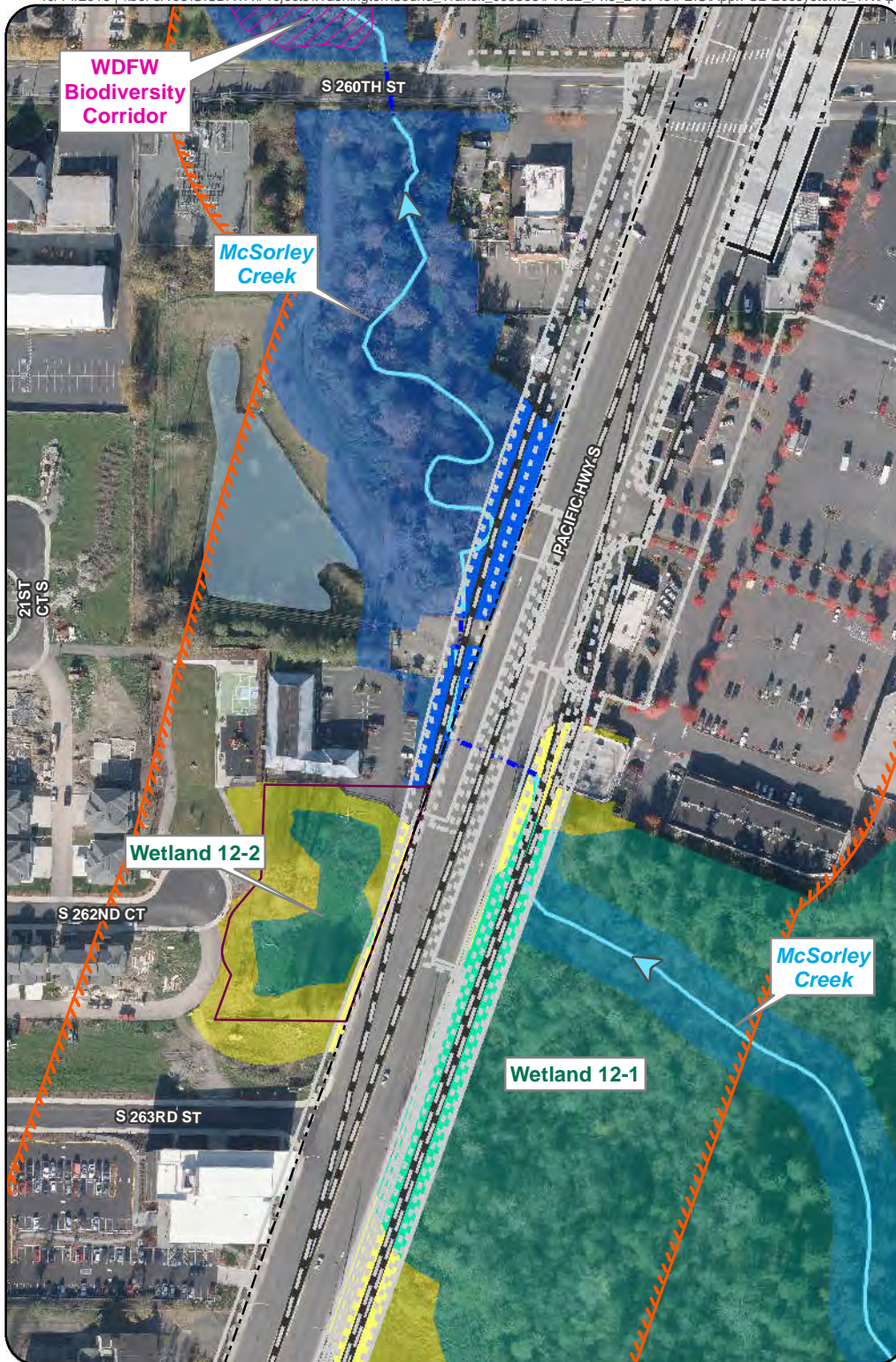
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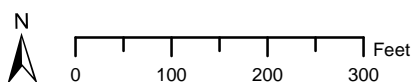


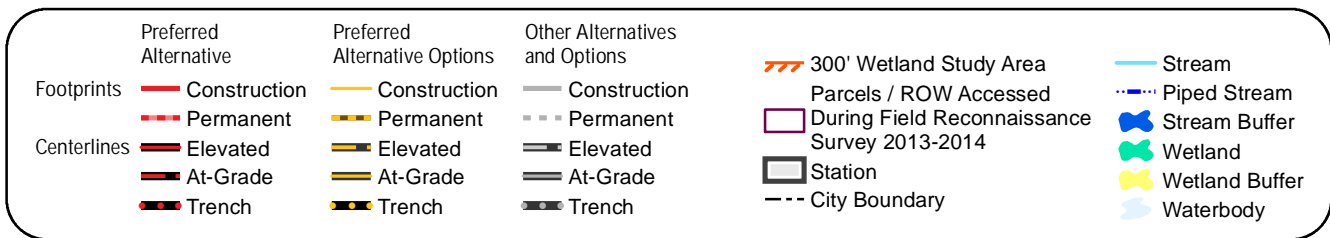
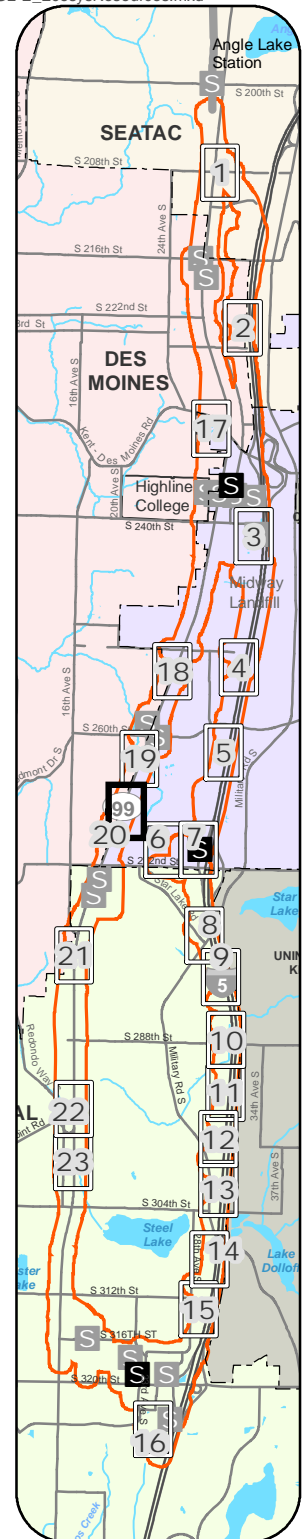
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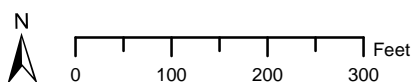


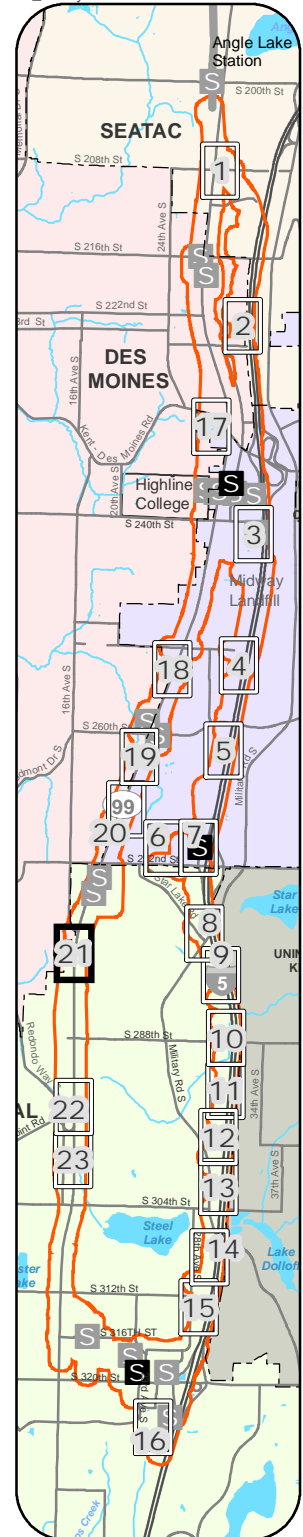
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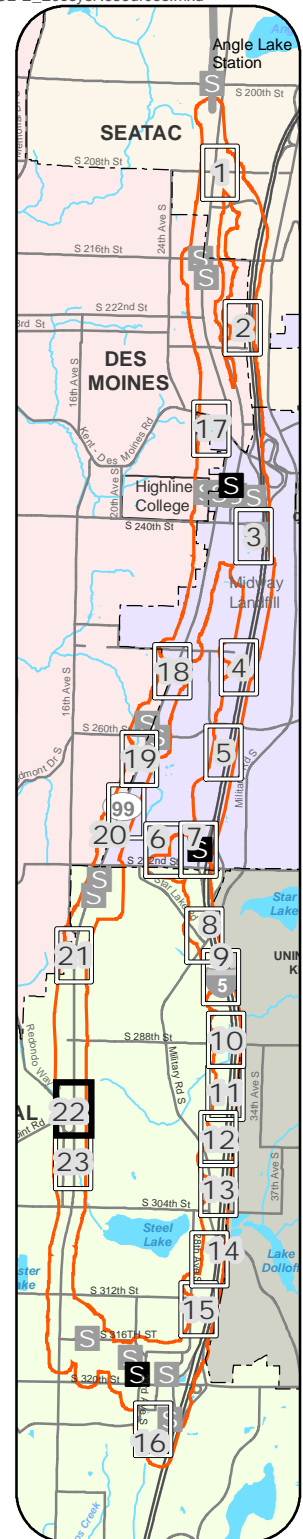


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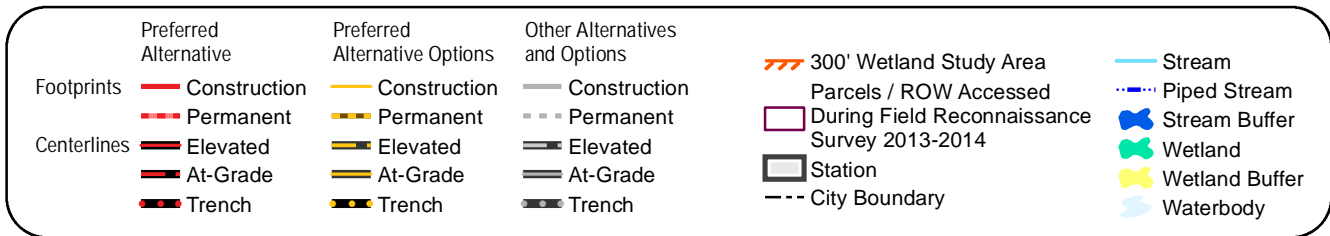
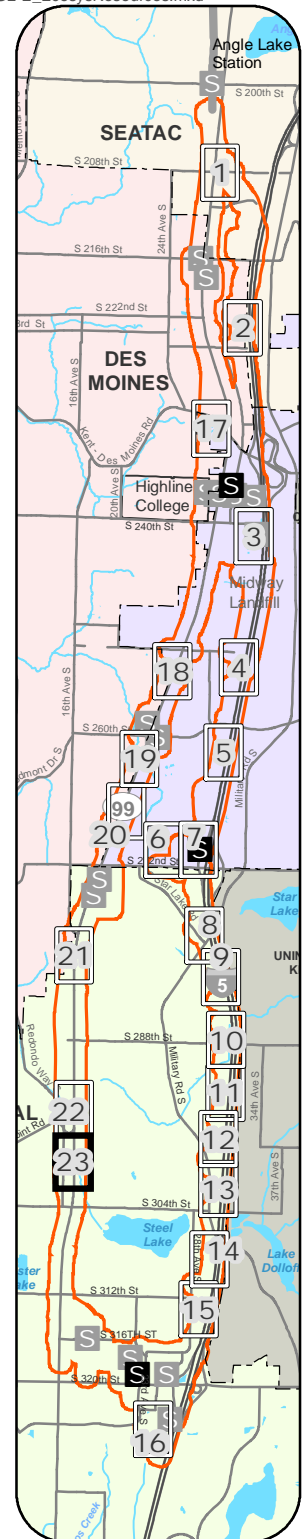
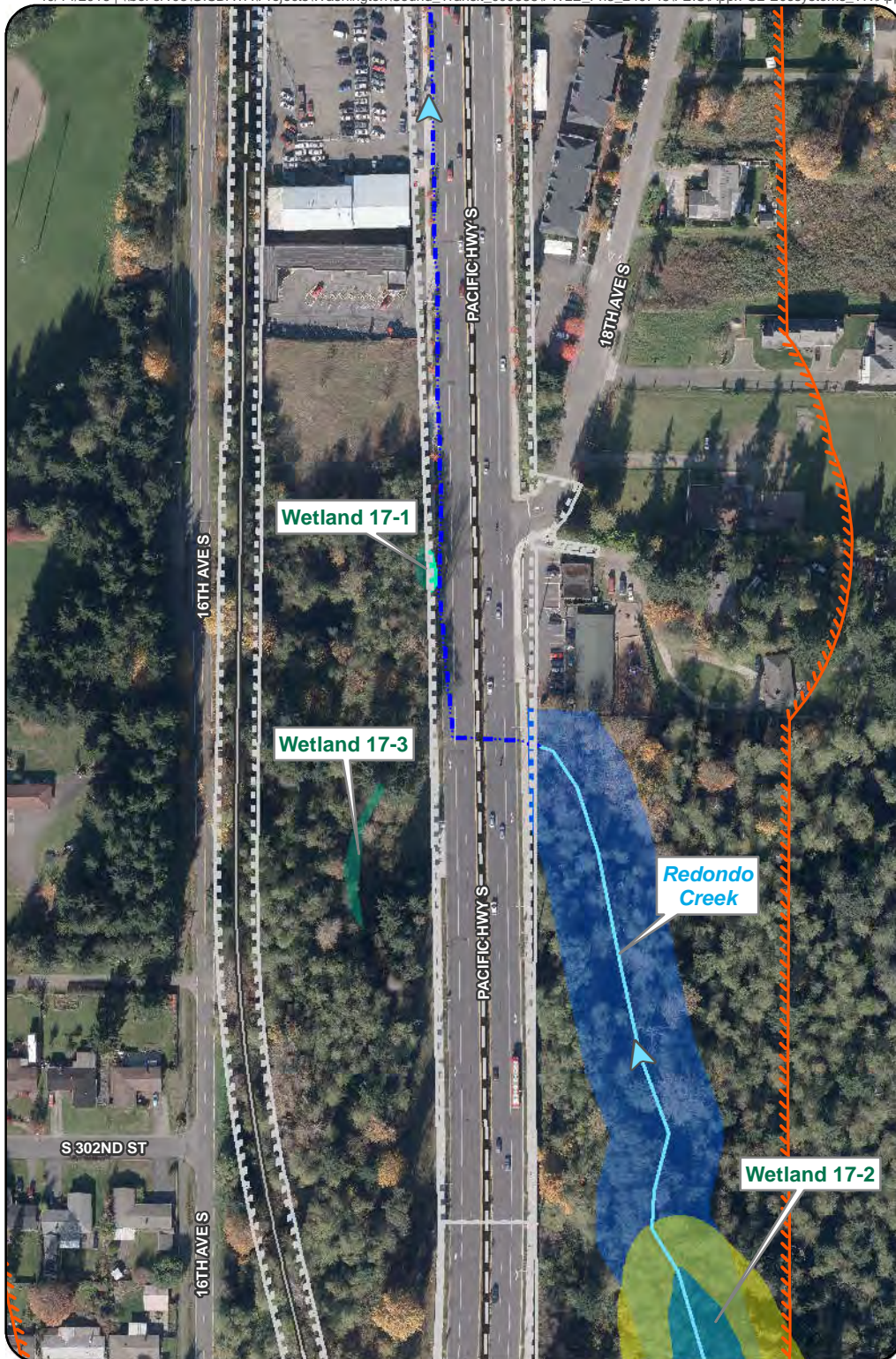




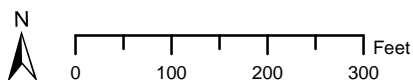
	Preferred Alternative	Preferred Alternative Options	Other Alternatives and Options	 300' Wetland Study Area	 Stream
Footprints	 Construction	 Construction	 Construction	 Parcels / ROW Accessed During Field Reconnaissance Survey 2013-2014	 Piped Stream
	 Permanent	 Permanent	 Permanent		 Stream Buffer
Centerlines	 Elevated	 Elevated	 Elevated	 Station	 Wetland
	 At-Grade	 At-Grade	 At-Grade		 Wetland Buffer
	 Trench	 Trench	 Trench		 Waterbody
				 City Boundary	



	Preferred Alternative	Preferred Alternative Options	Other Alternatives and Options	300' Wetland Study Area	Stream
Footprints	Construction	Construction	Construction	Parcels / ROW Accessed During Field Reconnaissance Survey 2013-2014	Piped Stream
	Permanent	Permanent	Permanent		Stream Buffer
Centerlines	Elevated	Elevated	Elevated	Station	Wetland
	At-Grade	At-Grade	At-Grade		Wetland Buffer
	Trench	Trench	Trench		Waterbody
					City Boundary



Data Sources: AeroMetric (2013), WDFW (2014), King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2015).



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Appendix F

Best Management Practices for Ecosystems Resources

Best Management Practices for Ecosystems Resources

According to National Environmental Policy Act (40 Code of Federal Regulations 1508.20), mitigation for ecosystems impacts is based on a hierarchy of first avoiding the impact, then minimizing the impact by limiting the degree or magnitude of the action, rectifying the impact by restoring, repairing, or rehabilitating the affected environment, reducing or eliminating the impact over time, and finally compensating for any remaining unavoidable adverse impacts by providing substitute resources or environments. The following list of measures is a compilation of best management practices (BMPs) that can be used to avoid or minimize short- and long-term impacts on ecosystem resources during design, construction, and post-construction activities for the Federal Way Link Extension (FWLE). These BMPs are either required by federal, state, or local agencies as permit conditions, or are prudent actions for assuring compliance. They are based on Sound Transit's knowledge of likely permit requirements and experience with conducting environmental compliance and permitting for numerous other projects in the Puget Sound Region.

F.1 Design BMPs to Mitigate Operational Effects

F.1.1 Wetlands and Streams

Sound Transit would avoid or minimize adverse long-term effects of the FWLE on wetlands and streams through design, to the greatest extent practicable. Design aspects that would be incorporated into the project include elevated guideways, siting support columns, and other elevated guideway features to span and avoid direct impacts on wetlands and streams, and using retaining walls to reduce the footprint of at-grade guideway sections, thus reducing the extent of fill in wetlands.

Sound Transit would mitigate unavoidable impacts on streams and stream buffers that are protected under federal, state, and local regulations. With the exception of Bingaman Creek, the project design would avoid direct impacts on existing streams. Some unavoidable impacts on stream riparian areas would be mitigated by improving stream habitat and riparian function by replanting affected areas with native vegetation. In addition, the following measures and best management practices would be implemented:

- Sound Transit would design permanent stormwater treatment facilities and flow-control measures to minimize impacts on stream water quality and flow to meet the requirements of the 2016 King County *Surface Water Design Manual*.
- The proposed stormwater management for the FWLE follows Sound Transit's *Link Design Criteria Manual*, Revision 3 (Sound Transit, 2013), which requires stormwater design for Sound Transit projects to conform to the requirements of the local jurisdictions.

- Runoff treatment BMPs that are best suited to the site conditions and best capable of achieving the required levels of treatment would be selected, designed, and installed. These may include natural or engineered dispersion BMPs; biofiltration BMPs such as vegetated filter strips, rain gardens, biofiltration swales, or media filters; wet-pool BMPs; and infiltration BMPs.
- Water discharged from dewatering activities would be settled to reduce sediments before release. Discharge of dewatering water to a sanitary sewer may also be an option, if permission can be secured from the local sewer utility. Dewatering of trenched sections could temporarily depress groundwater levels during the trench construction, but they would be expected to recover to pre-project levels following construction.

F.1.2 Upland Vegetation and Wildlife Resources

Project effects on vegetation, wildlife, and wildlife habitat would be minimized to the greatest extent practicable by minimizing the footprint of light rail alignments through large blocks of forests and connected riparian corridors. To address the Migratory Bird Treaty Act, Sound Transit would consult with the U.S. Fish and Wildlife Service on measures to conserve migratory birds and their nests. Also, Sound Transit would implement a weed-control plan to minimize the risk of introducing and spreading noxious and invasive species, including restoring temporarily disturbed areas immediately following construction.

F.2 Construction-Related BMPs

F.2.1 Water Quality BMPs During Construction

BMPs for construction to avoid and/or minimize potential water quality impacts include:

- Conducting all work below the ordinary high water mark (OHWM) of any water in accordance with the Hydraulic Project Approval (HPA) issued by Washington Department of Fish and Wildlife (WDFW) and by the Clean Water Act Section 404 permit issued by the Corps of Engineers. Such permits typically include seasonal restrictions and/or other measures intended to minimize the risk of adverse effects on fish.
- Operating heavy equipment above the OHWM wherever possible.
- Covering temporarily stored materials with plastic or other impervious material during rain events to prevent sediments from being washed from the storage area to surface waters.
- Inspecting all temporary and permanent erosion and sedimentation control measures on a regular basis, and maintaining and repairing them as needed to ensure continued performance of their intended function.
- Preventing the discharge of turbid water to streams and wetlands. Turbid wastewater may be routed to temporary or permanent detention facilities, or to upland areas that provide adequate infiltration.
- Cleaning and inspecting all equipment to be used for construction activities prior to arriving at the project site to ensure no potentially hazardous materials are exposed, no leaks are present, and the

equipment is functioning properly. Should a leak be detected on heavy equipment used for the project, the equipment would be repaired before use. Construction equipment and vehicles would be maintained to prevent them from leaking fuel or lubricants.

- Preventing contact of uncured concrete and/or concrete byproducts with streams or water conveyed directly to streams during construction in accordance with Washington Administrative Code 220-110-270(3). A concrete truck chute cleanout area or equally effective BMP would be established to properly contain wet concrete.
- Requiring the contractor to adhere to water quality standards as stated in the 401 Water Quality Certificate and National Pollutant Discharge Elimination System permit issued for the project.
- Complying with seasonal work restrictions (i.e., work windows) that apply to work conducted below the OHWM of fish-bearing streams and for certain clearing activities during the migratory bird nesting season.
- Designing the FWLE to avoid impacts on any culverts on fish-bearing or potentially fish-bearing streams, and to accommodate future modifications or replacement of any culverts to improve fish passage. Any stream beds and stream banks affected by construction would be restored after in-water work.

Sound Transit would implement a Stormwater Pollution Prevention Plan (SWPPP) to assure that turbidity plumes and pollutants from equipment and runoff would not enter streams and wetlands. If discharge of treated construction or process water to a sanitary sewer were proposed, approval would be obtained from the King County Industrial Waste Division and the local jurisdiction. For construction in and over streams or other water bodies, an HPA would be obtained from WDFW before work begins. Through compliance with these requirements, an approved construction SWPPP would be developed and implemented for the project. The SWPPP would describe overall procedural and structural pollution-prevention and flow-control BMPs, including location, size, maintenance requirements, and monitoring. In addition, the SWPPP would include each of the following plans:

- Temporary Erosion and Sediment Control Plan – This plan would outline the design and construction specifications for BMPs to be used to identify, reduce, eliminate, or prevent sediment and erosion problems.
- Spill Prevention, Control, and Countermeasures Plan – This plan would outline requirements for and implementation of spill prevention, inspection protocols, equipment and material containment measures, and spill response procedures.
- Concrete Containment and Disposal Plan – This plan would outline the management, containment, and disposal of concrete debris, slurry, and dust, and would discuss BMPs that would be used to contain, collect, and dispose of residue and slurry.
- Dewatering Plan – This plan would outline procedures for pumping groundwater away from the construction area and for storing (as necessary), testing, treating (as necessary), and discharging or disposing of the dewatering water.

- Fugitive Dust Plan – This plan would outline measures to prevent the generation of fugitive dust from exposed soil, construction traffic, and material stockpiles.

F.2.2 General BMPs for Construction Near All Sensitive Areas

General BMPs for construction to avoid and/or minimize potential impacts on sensitive areas include:

- Complying with all local, state, and federal permits received for the project.
- Minimizing the amount of cleared area at a construction site.
- Delineating the construction limits for vegetated and habitat areas to prevent unintended effects to riparian vegetation, wetlands, woodlands, and other sensitive sites outside construction limits.
- Installing temporary ditches to route runoff around or through construction sites, with periodic straw bales or rock check dams to slow and settle runoff.
- Using straw wattles to reduce the length of unbroken slopes and minimize runoff concentration.
- Using temporary erosion-control blankets or mulch on exposed steep slopes to minimize erosion before vegetation is established.
- Preventing erosion by high water or storm runoff of soil or rock stockpiles, excavated materials, and excess soil materials into sensitive habitats, including water channels, wetlands, and riparian areas outside of the construction limits.
- Constructing temporary sedimentation ponds to remove solids from concentrated runoff.
- Conducting vehicle fueling and maintenance activities no closer than 100 feet from a water body or ditch.
- Revegetating construction easements and other areas either during construction or immediately after the project is completed. All disturbed riparian vegetation would be replanted using native species. Trees would be planted when consistent with light rail safety standards.
- Implementing a weed-control plan to minimize the risk of introducing and spreading noxious and invasive species, including restoring temporarily disturbed areas immediately following construction.

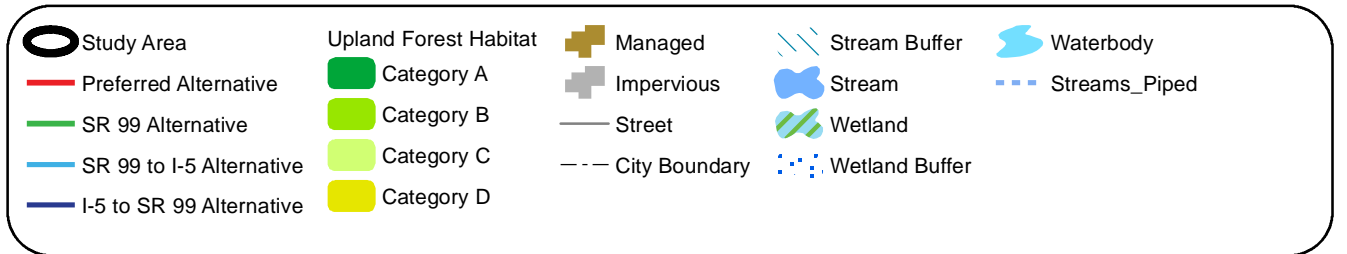
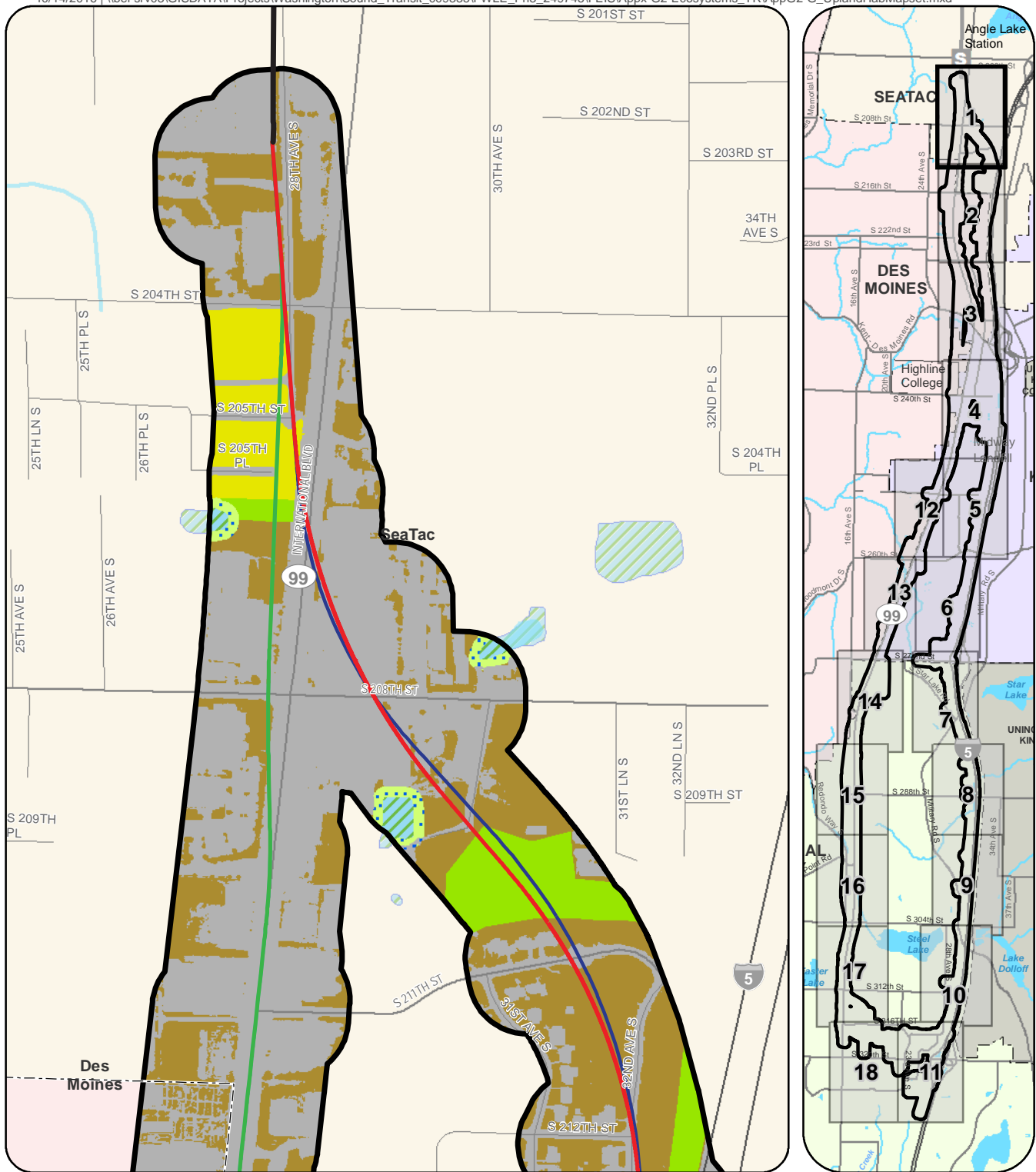
F.3 References

King County. 2016. *Surface Water Design Manual*. <http://www.kingcounty.gov/environment/water-and-land/stormwater/documents/surface-water-design-manual.aspx>.

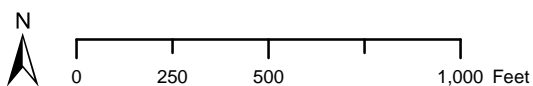
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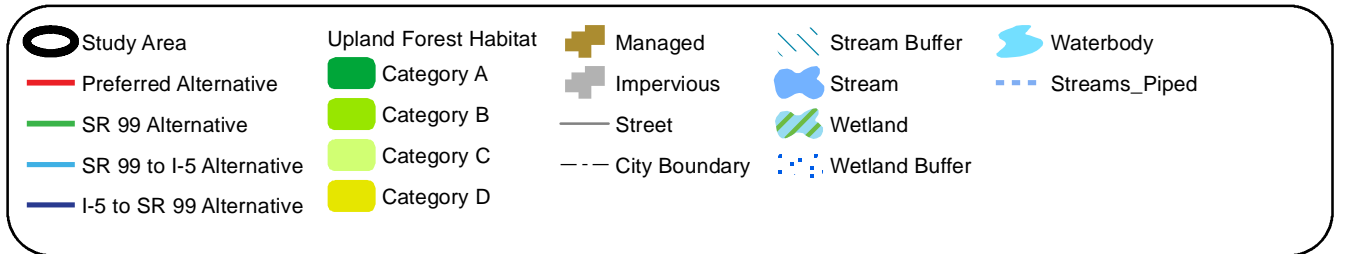
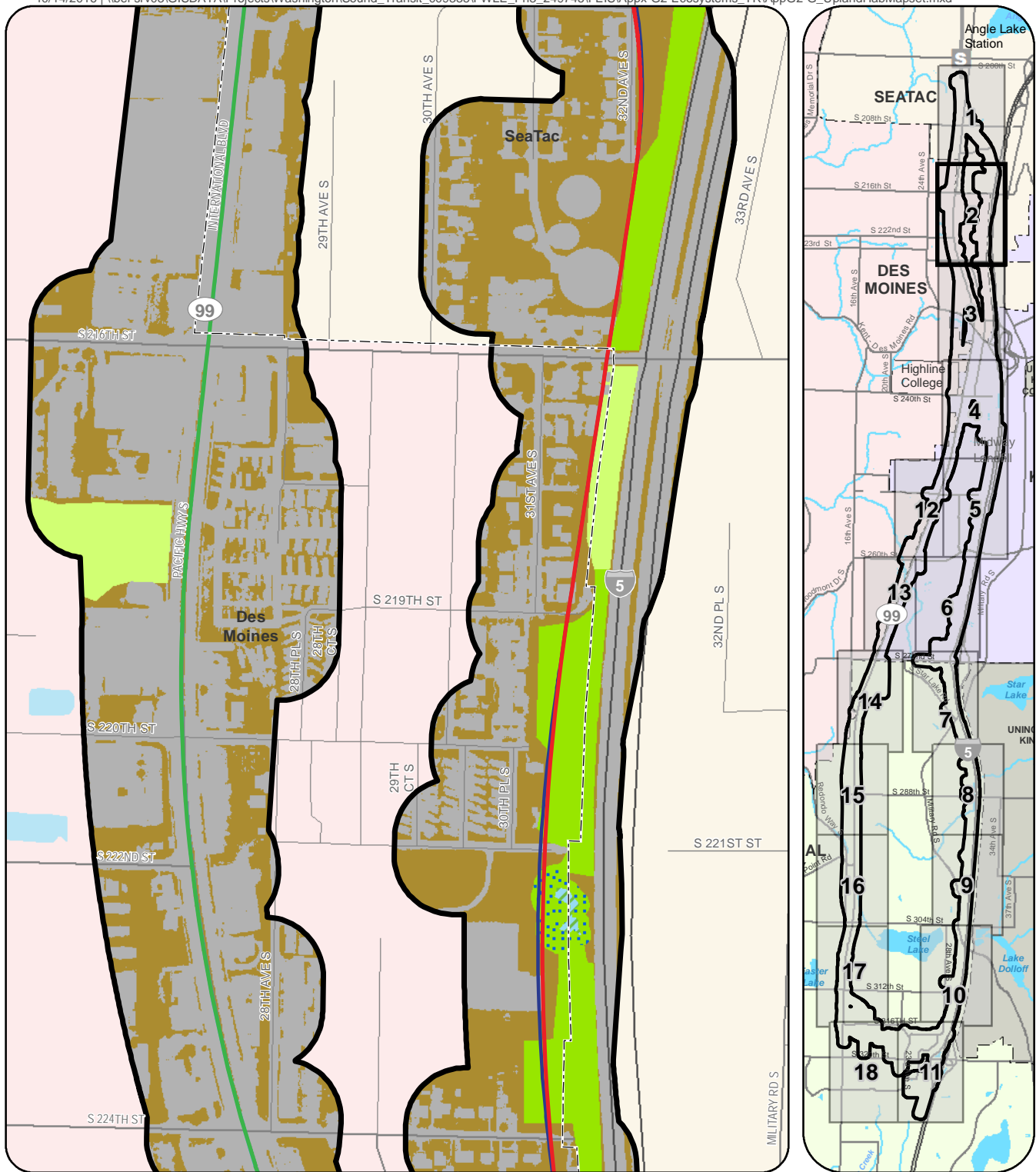
Appendix G

Upland Habitat within the Study Area

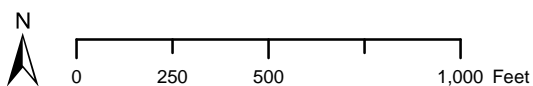


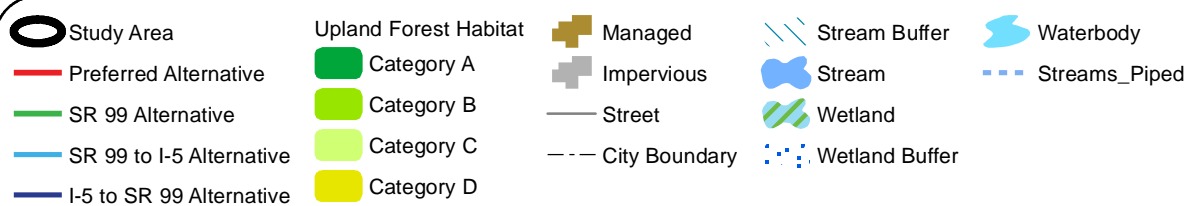
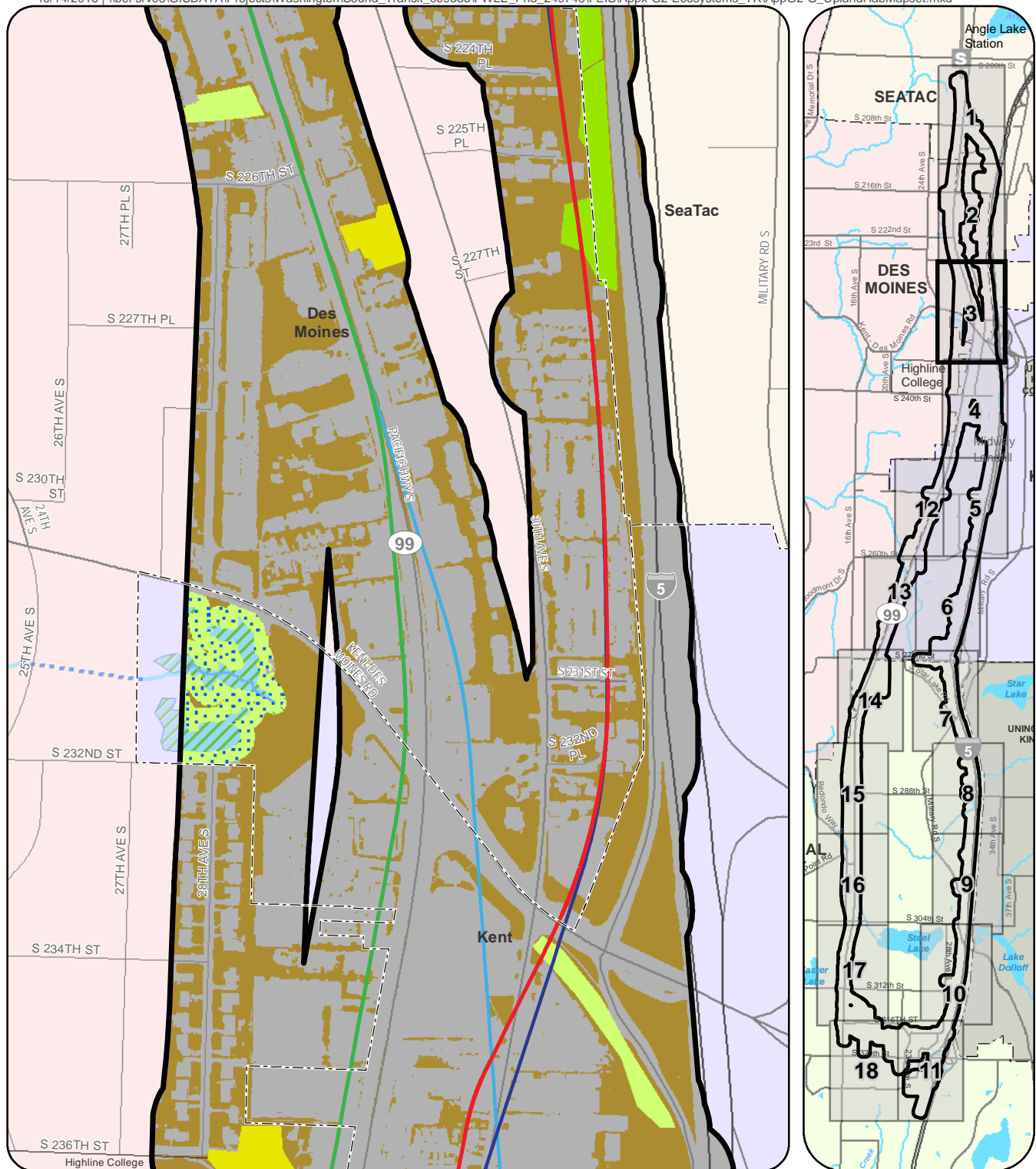
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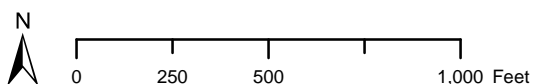


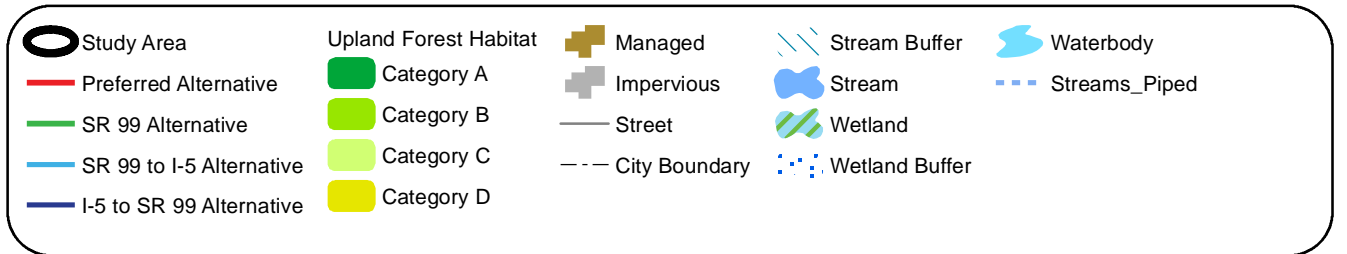
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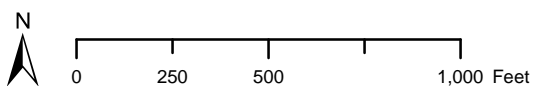


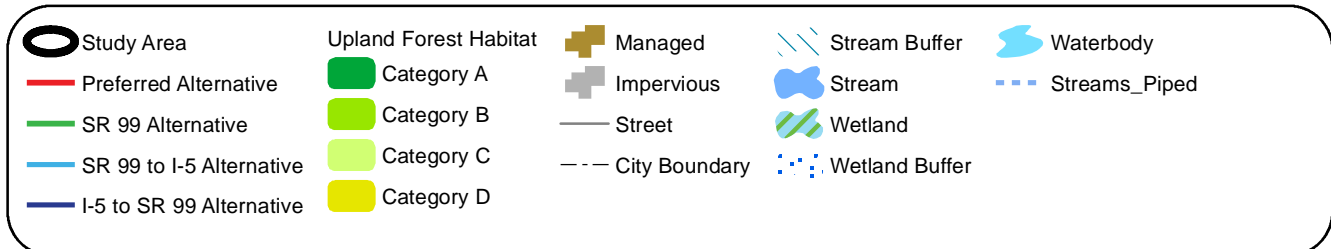
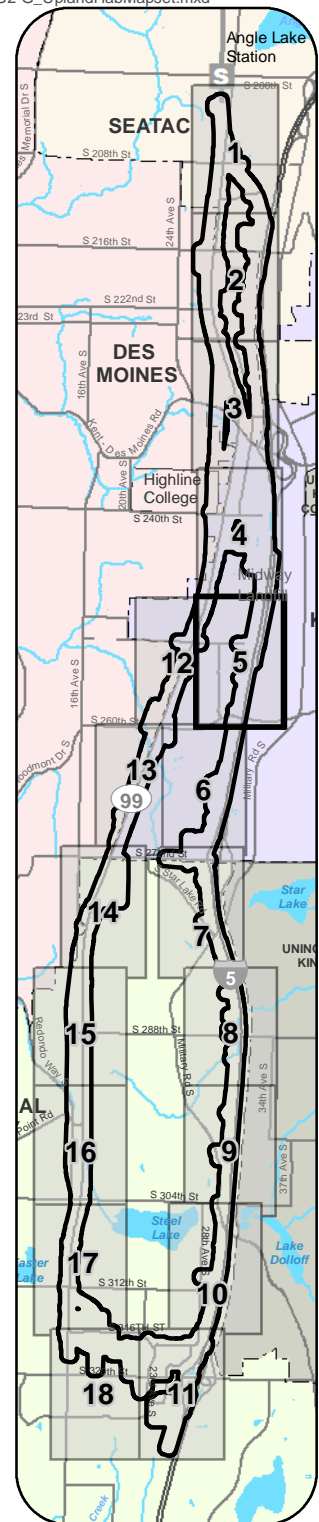
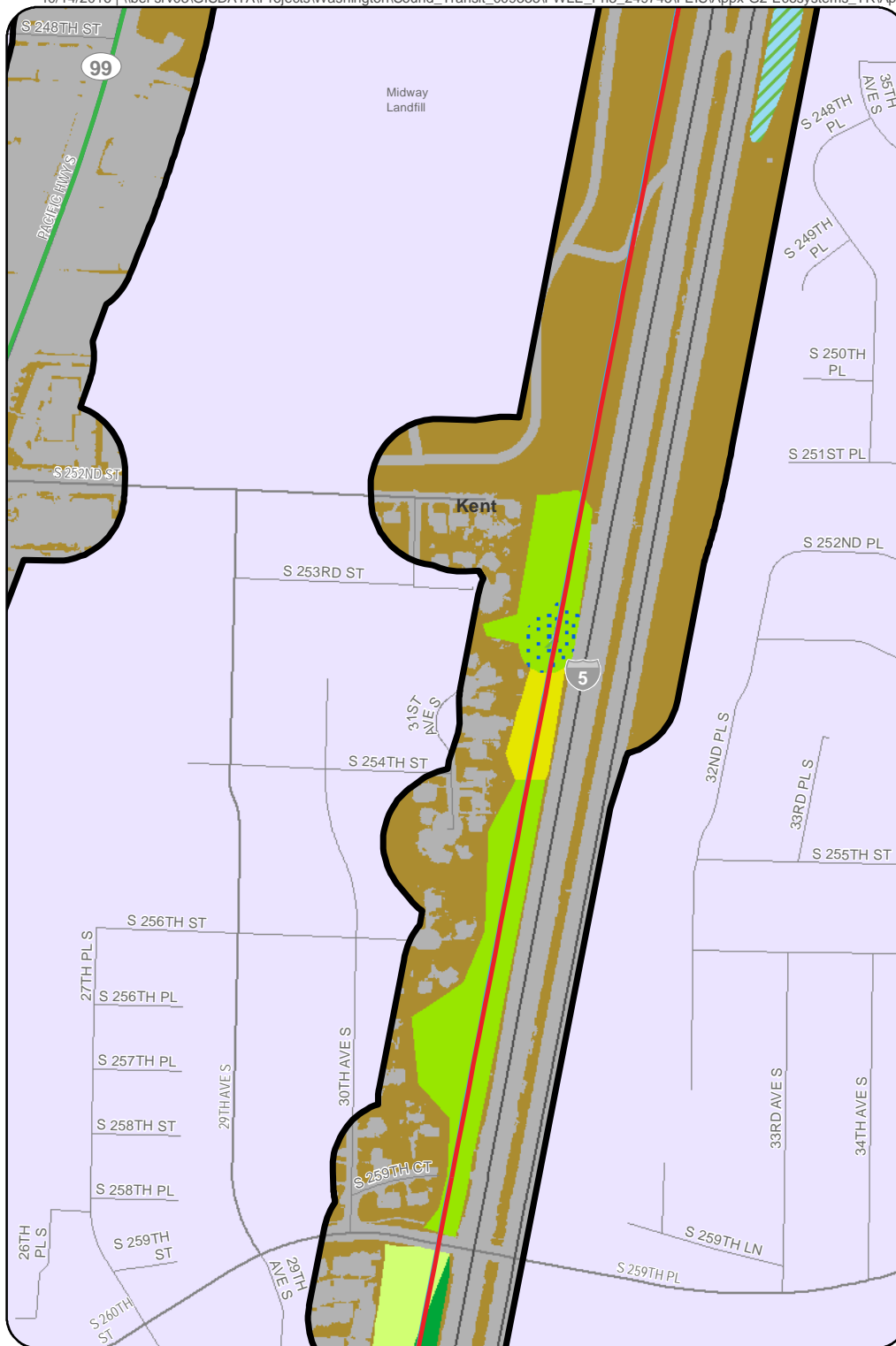
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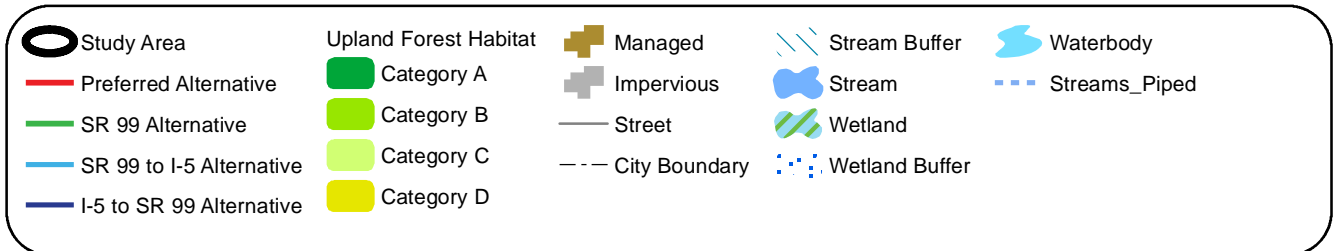
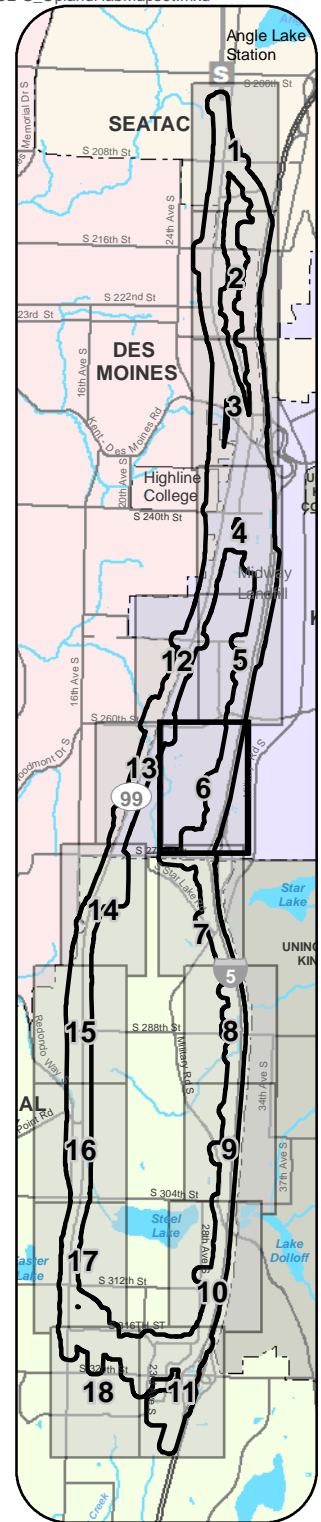
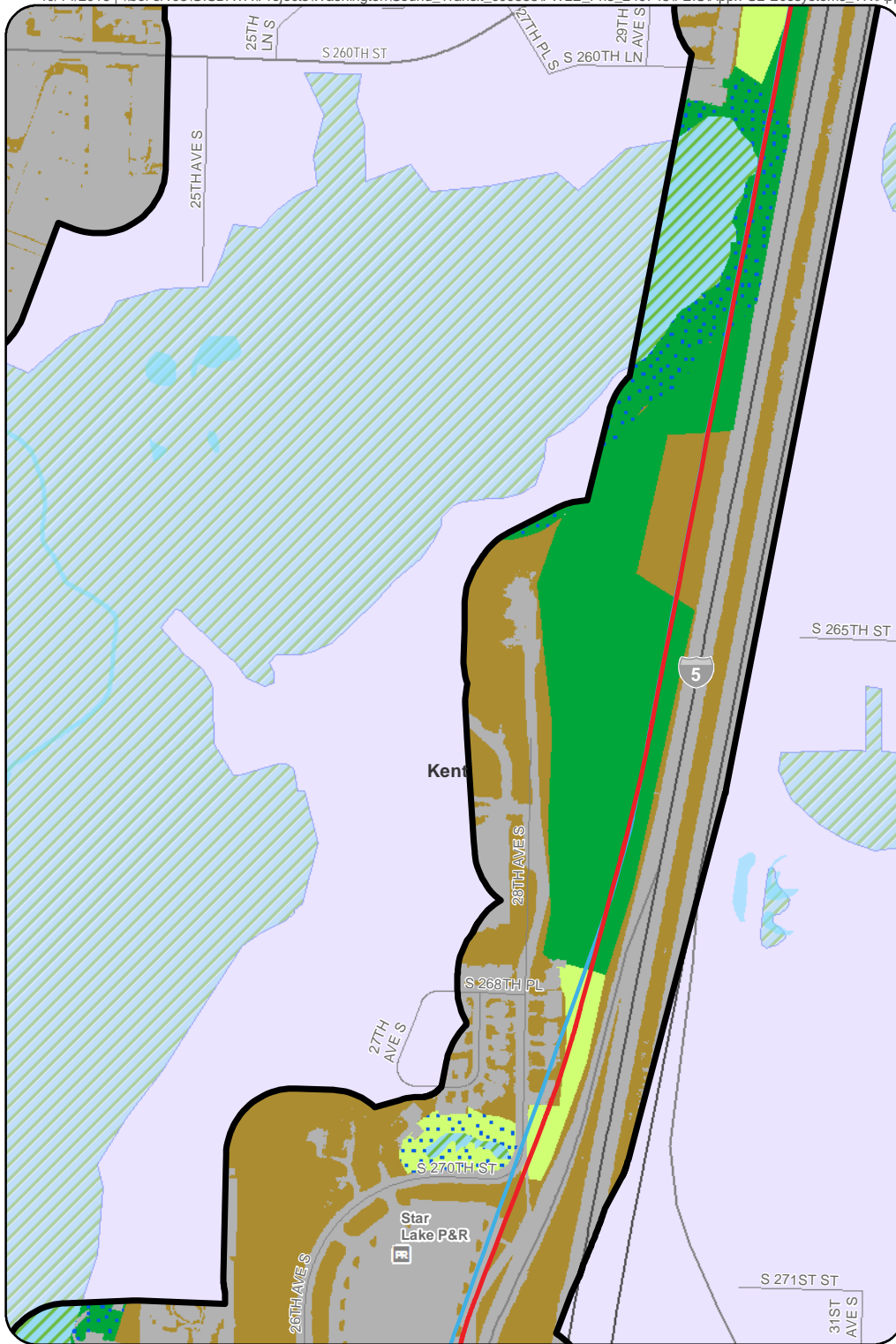
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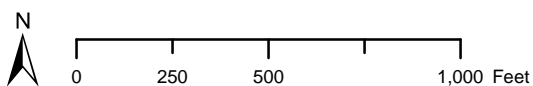


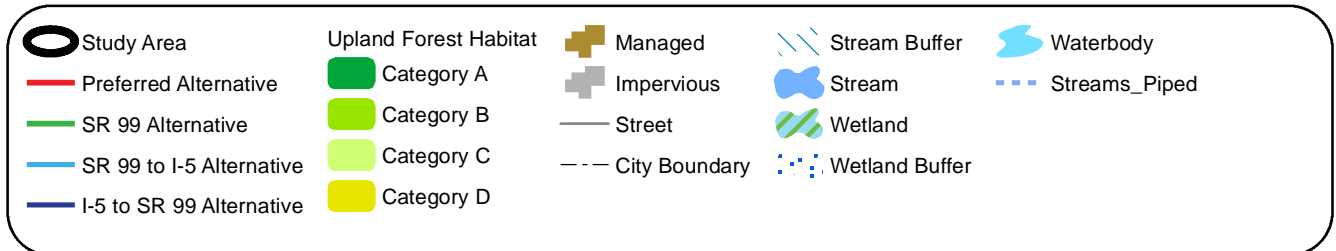
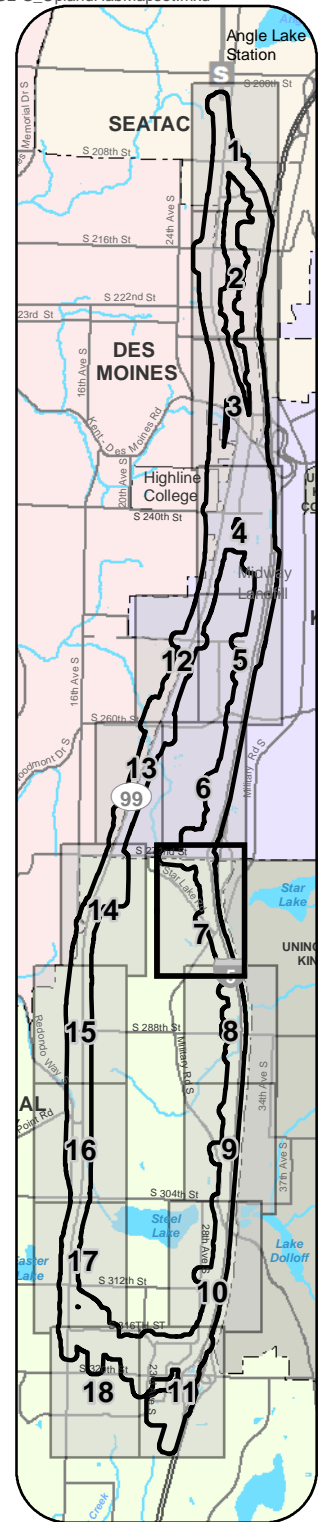
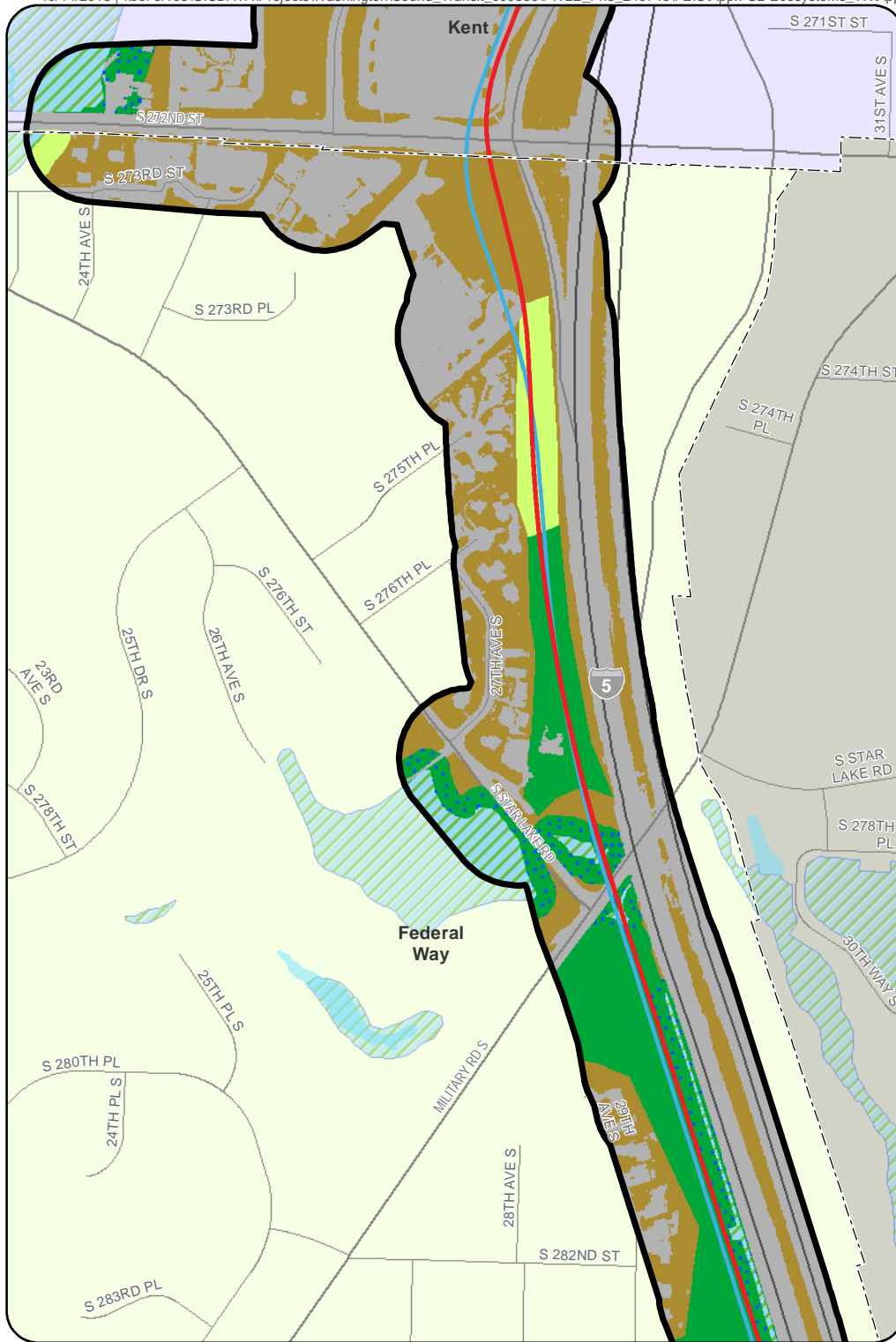
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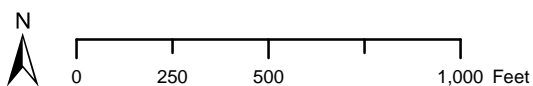


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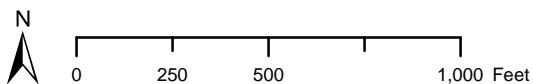


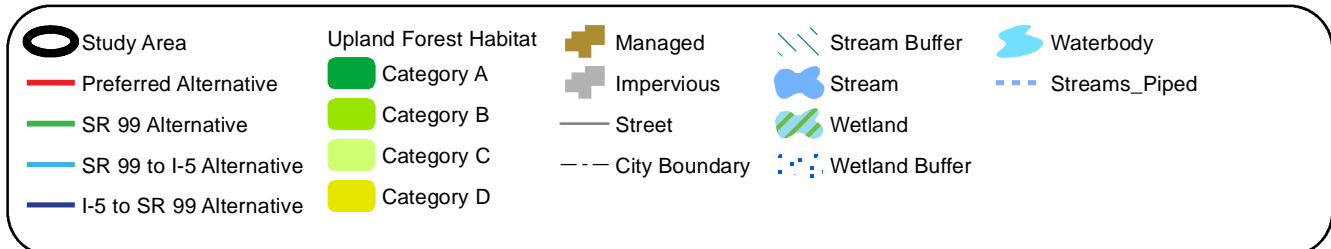
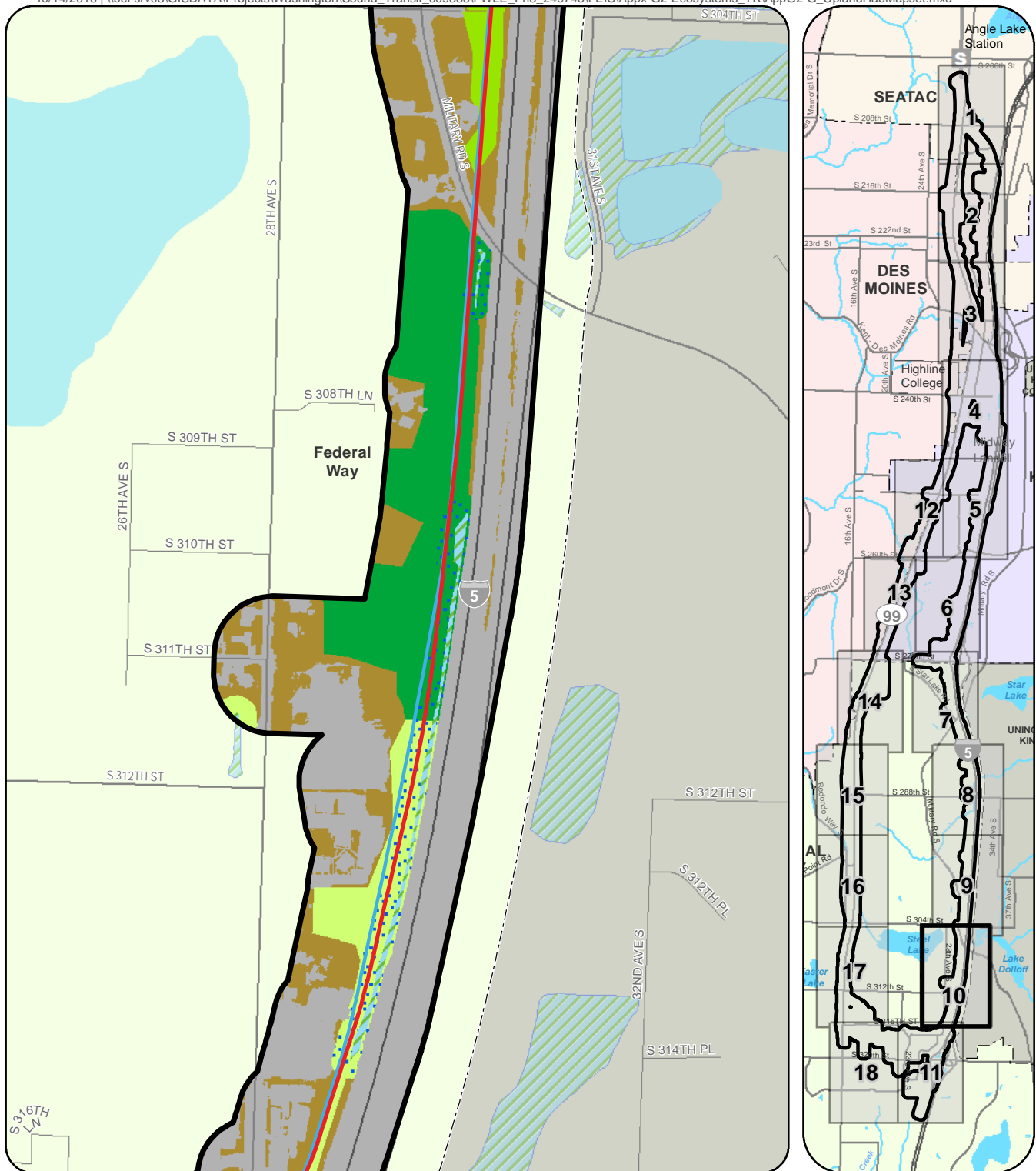


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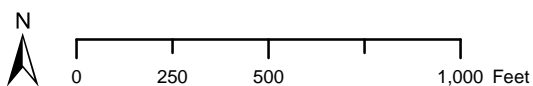


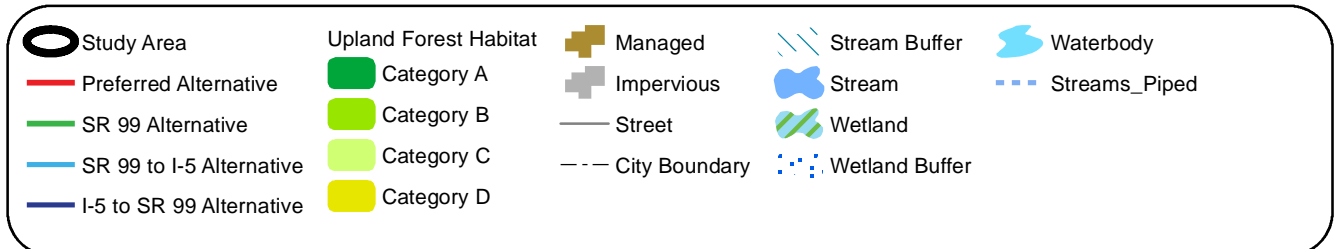
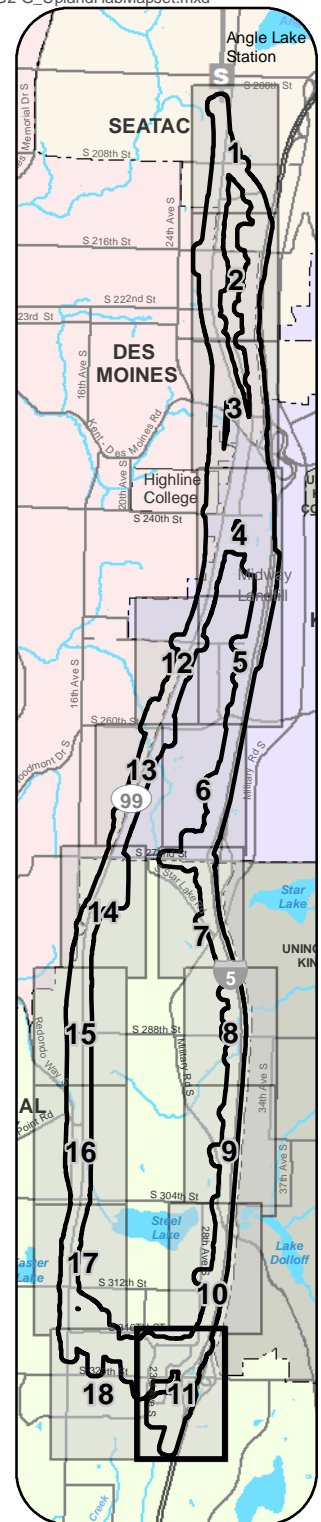
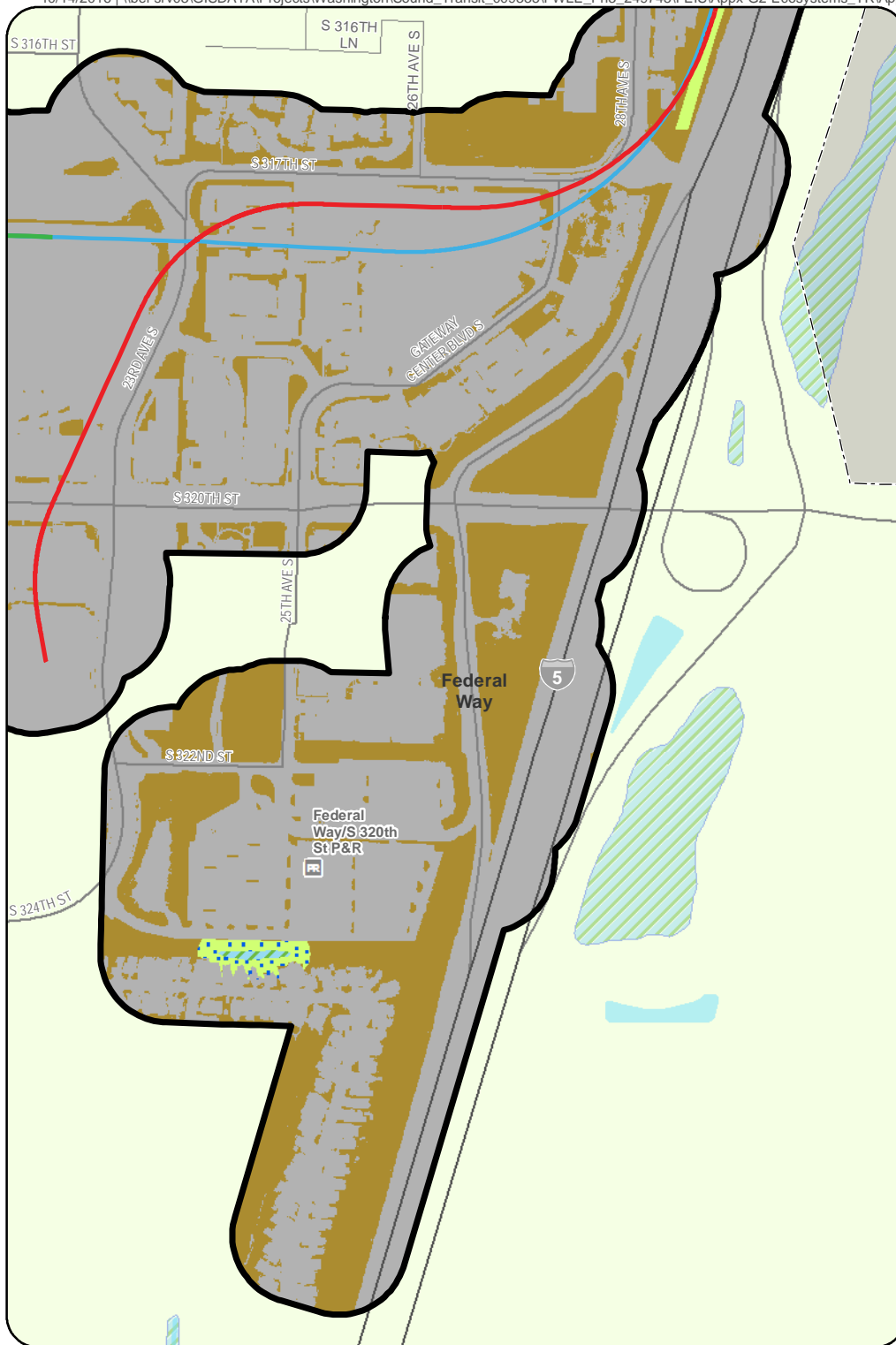




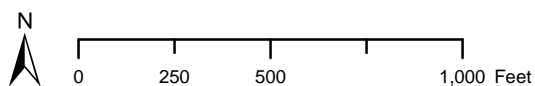


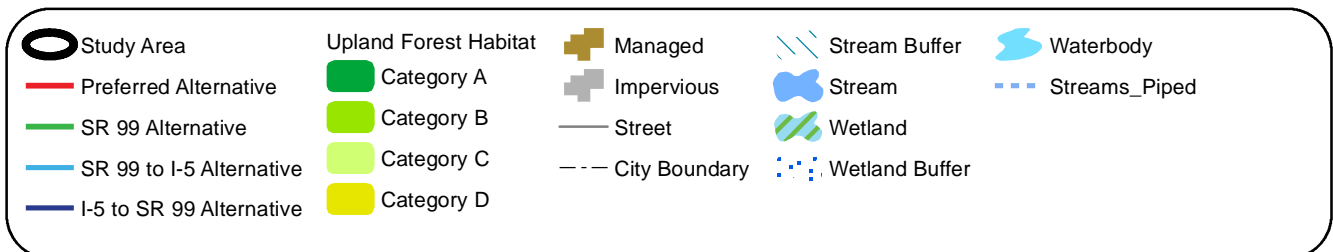
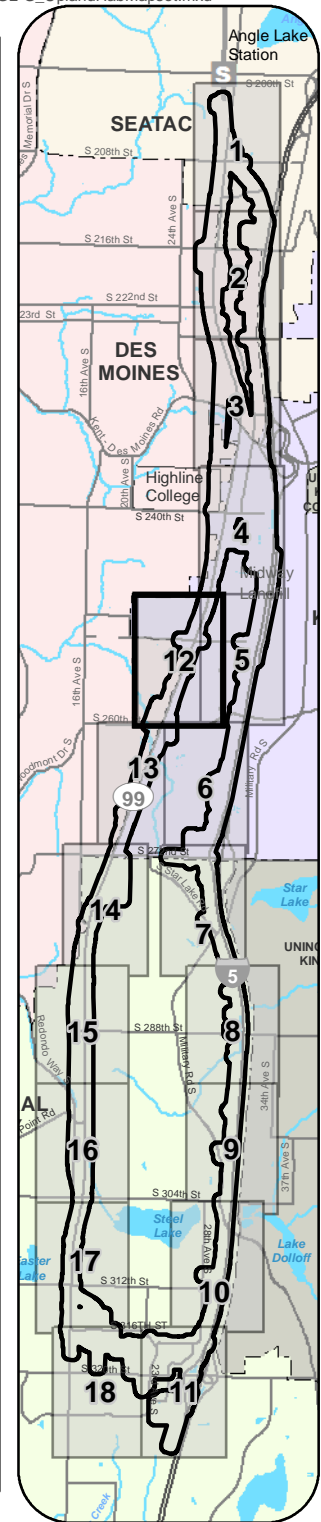
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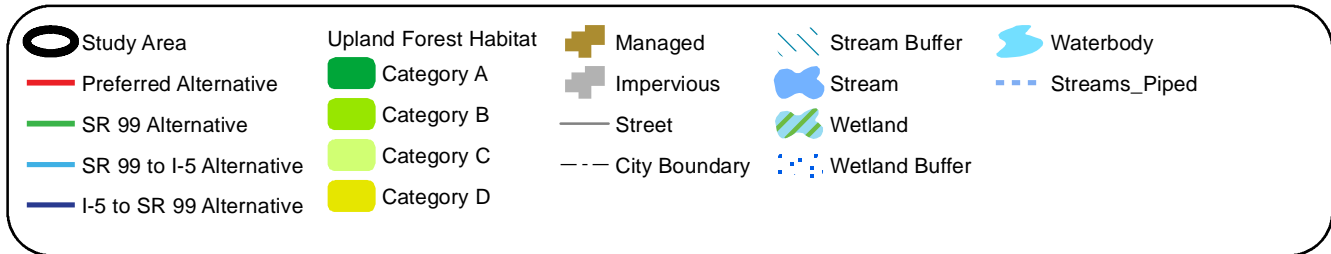
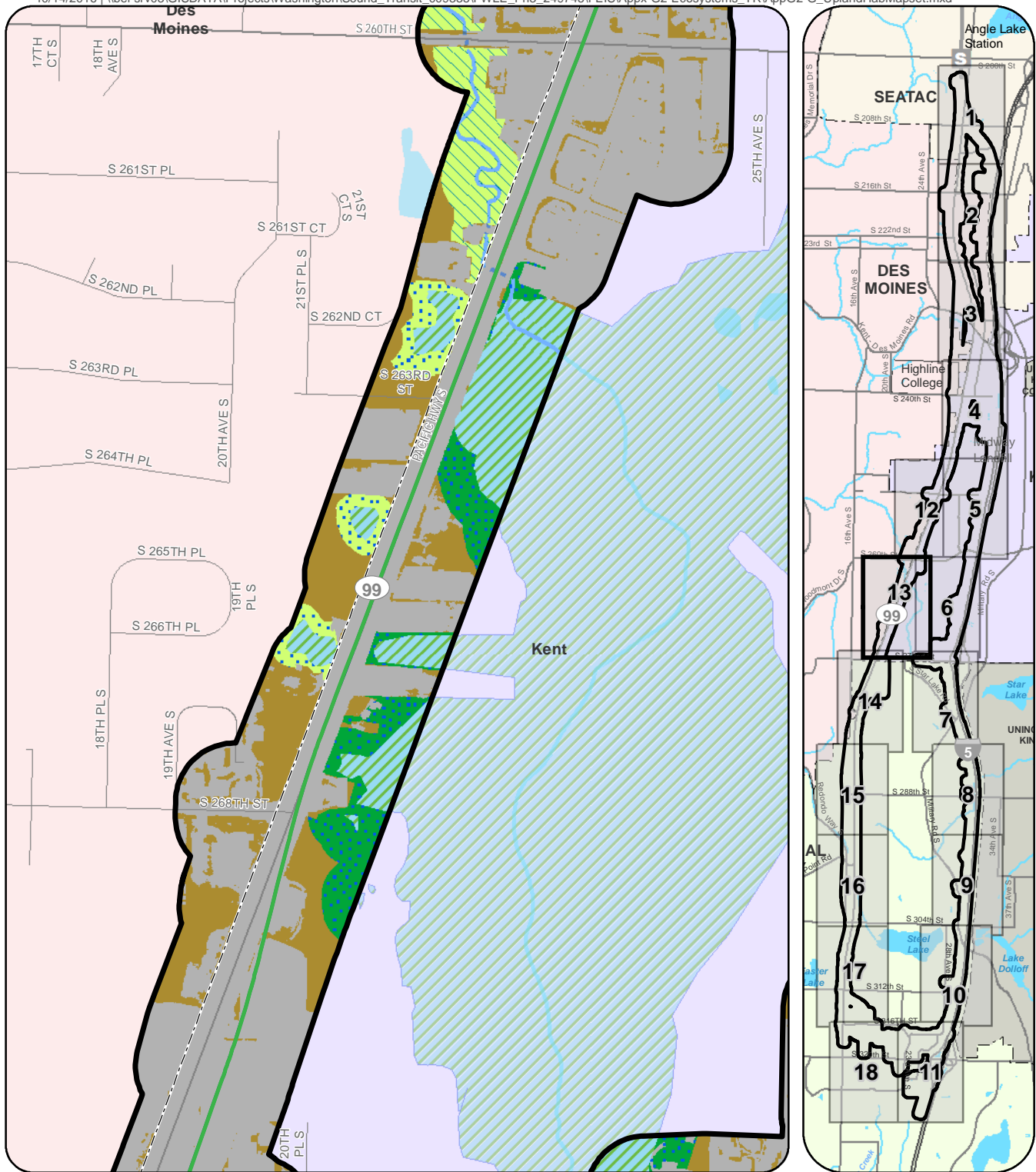




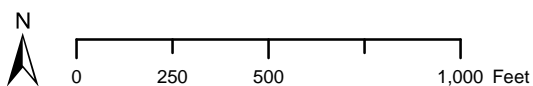
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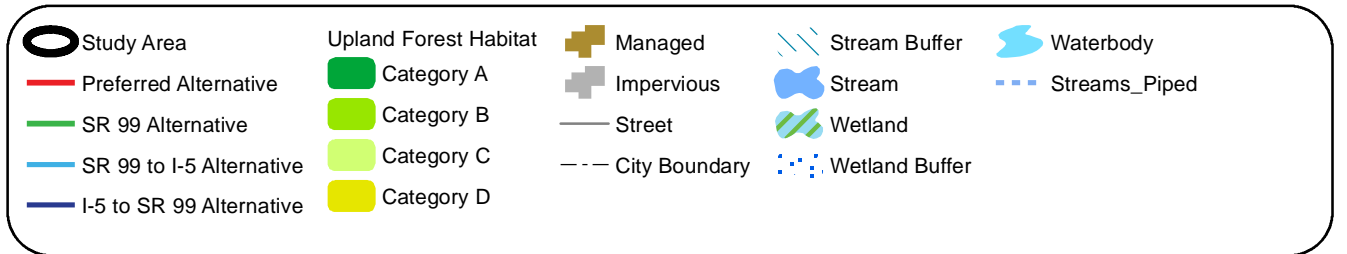
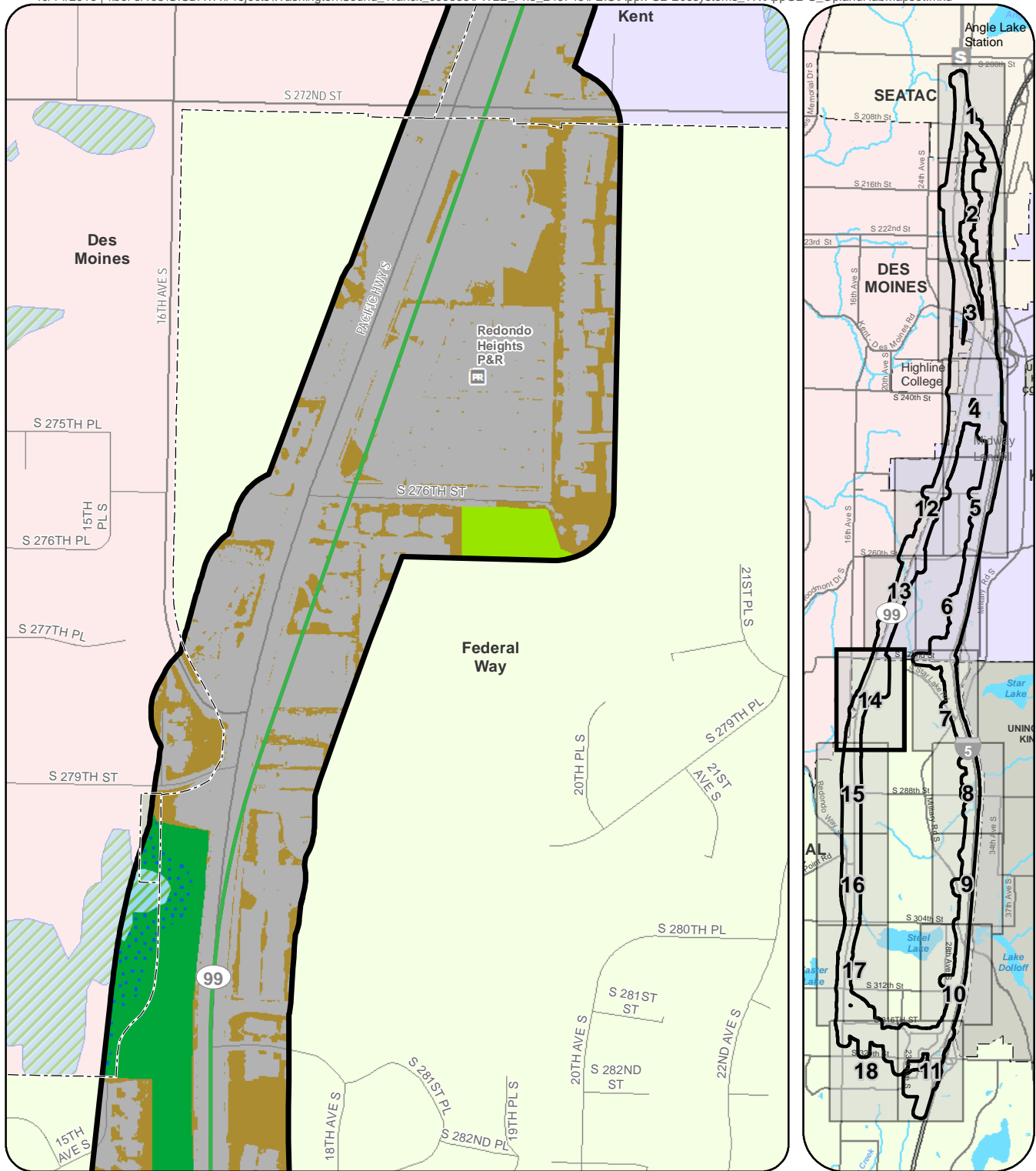




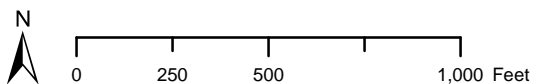


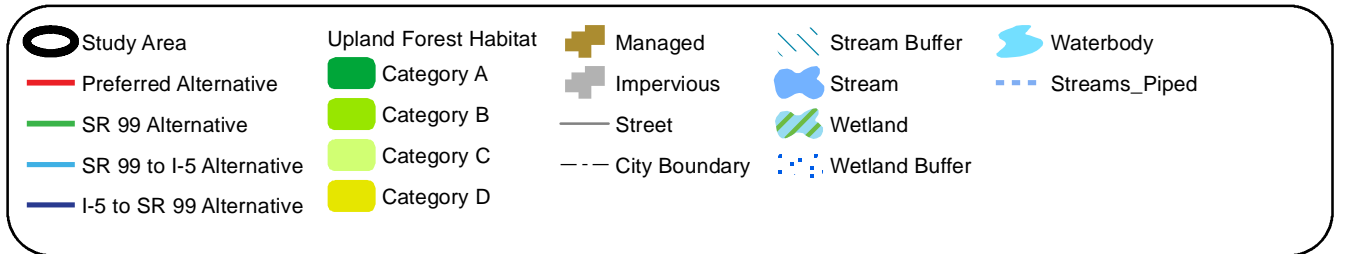
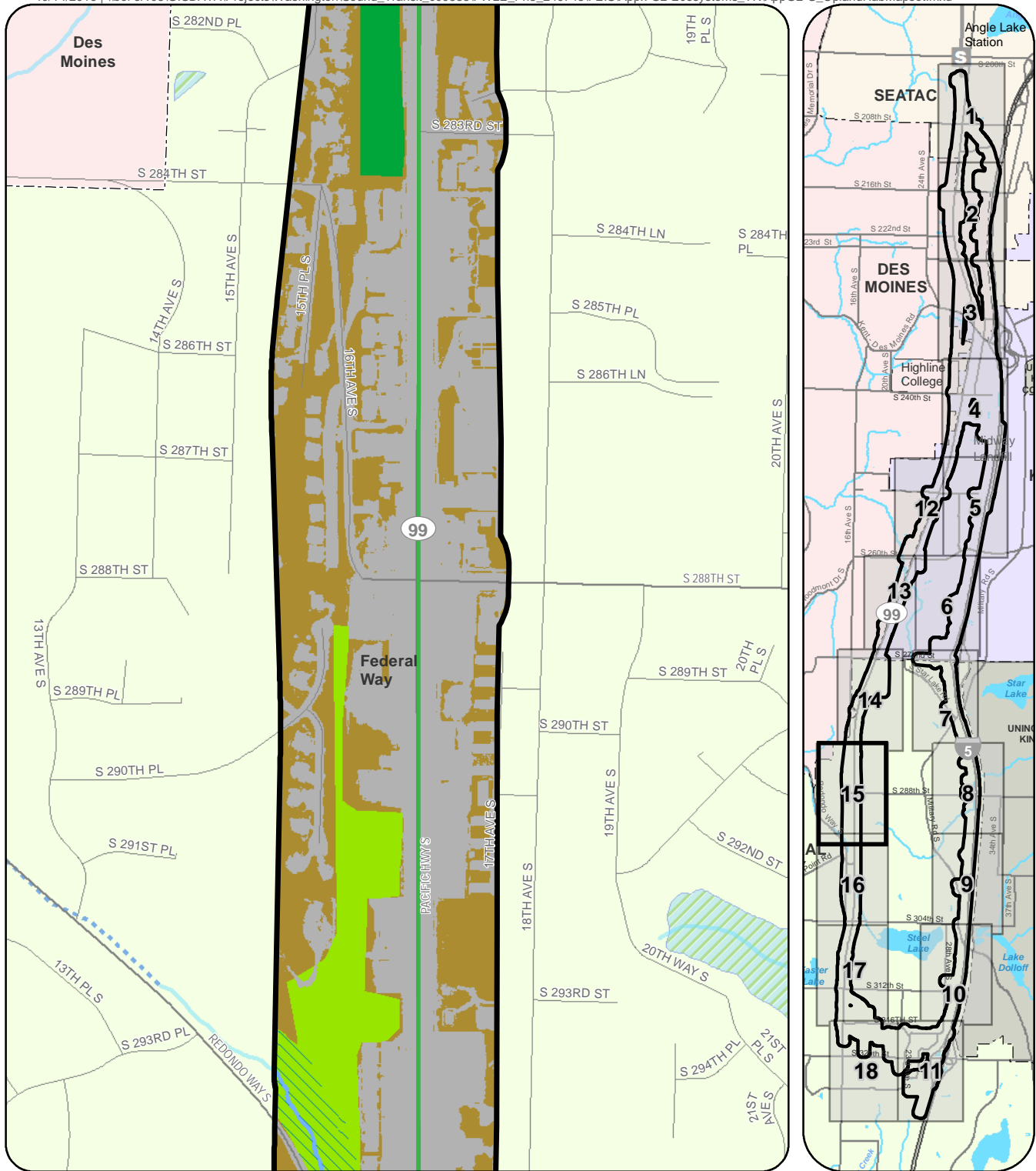
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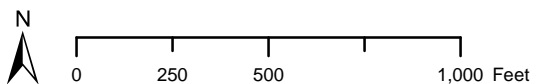


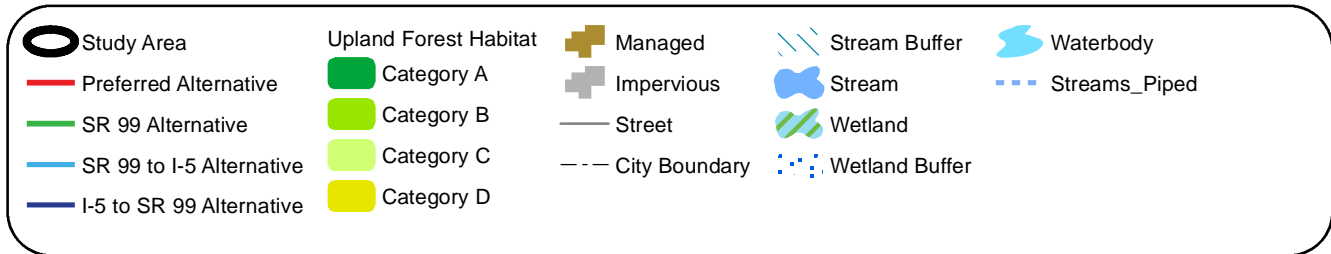
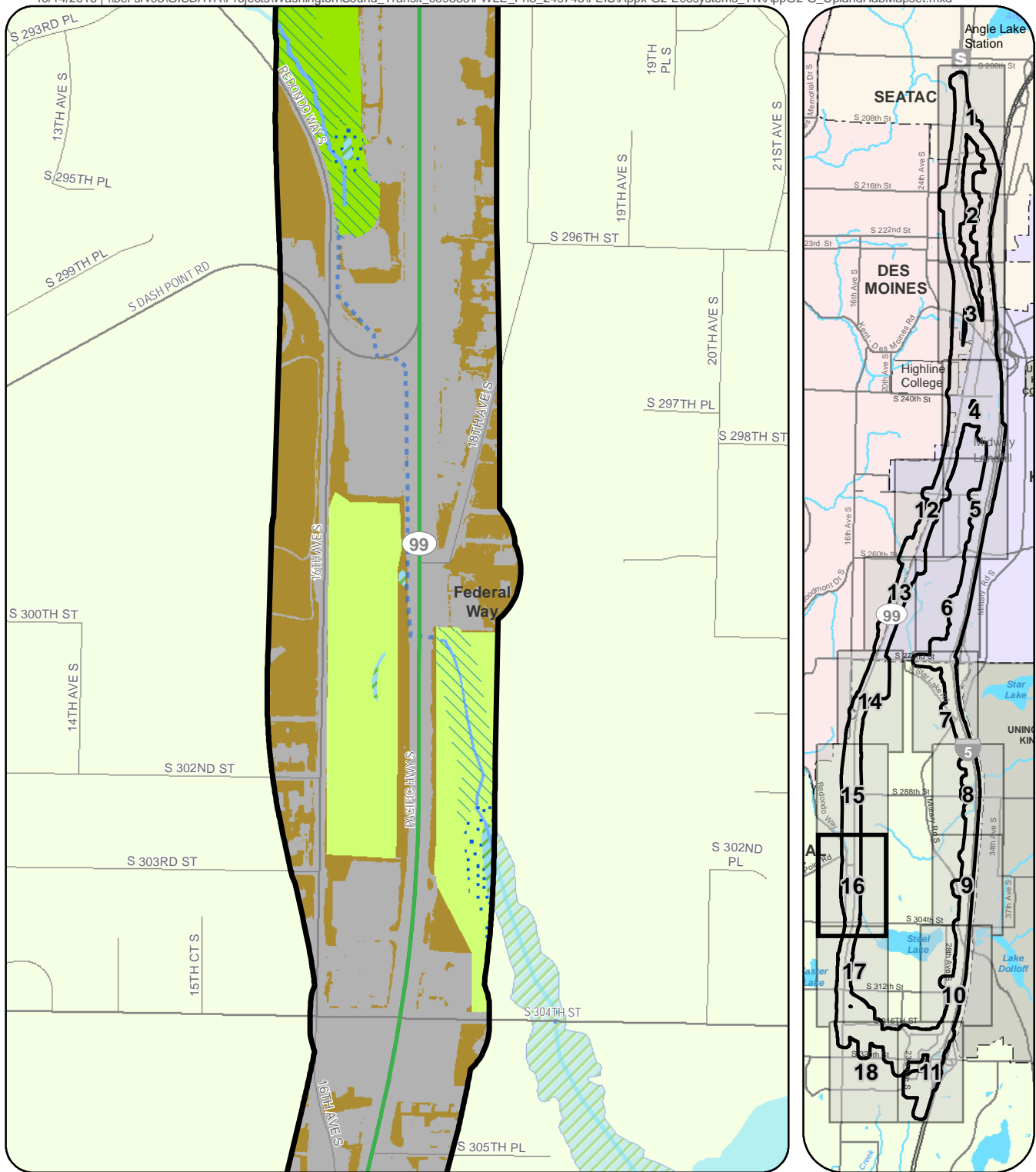
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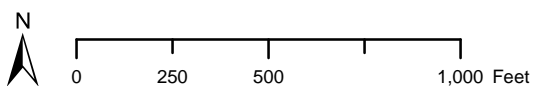


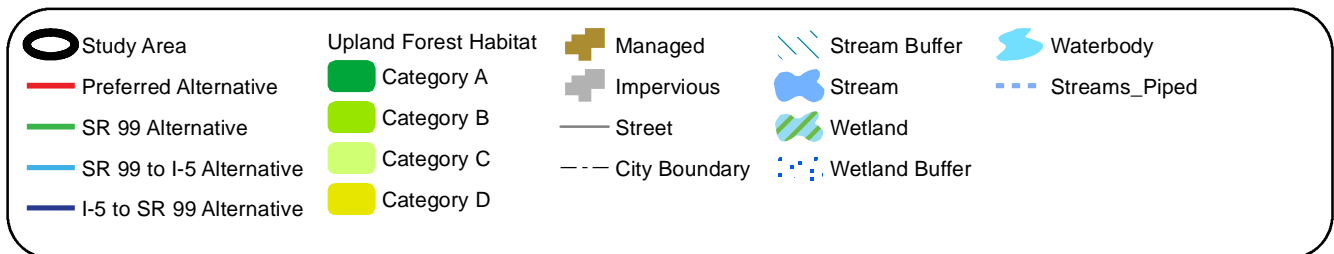
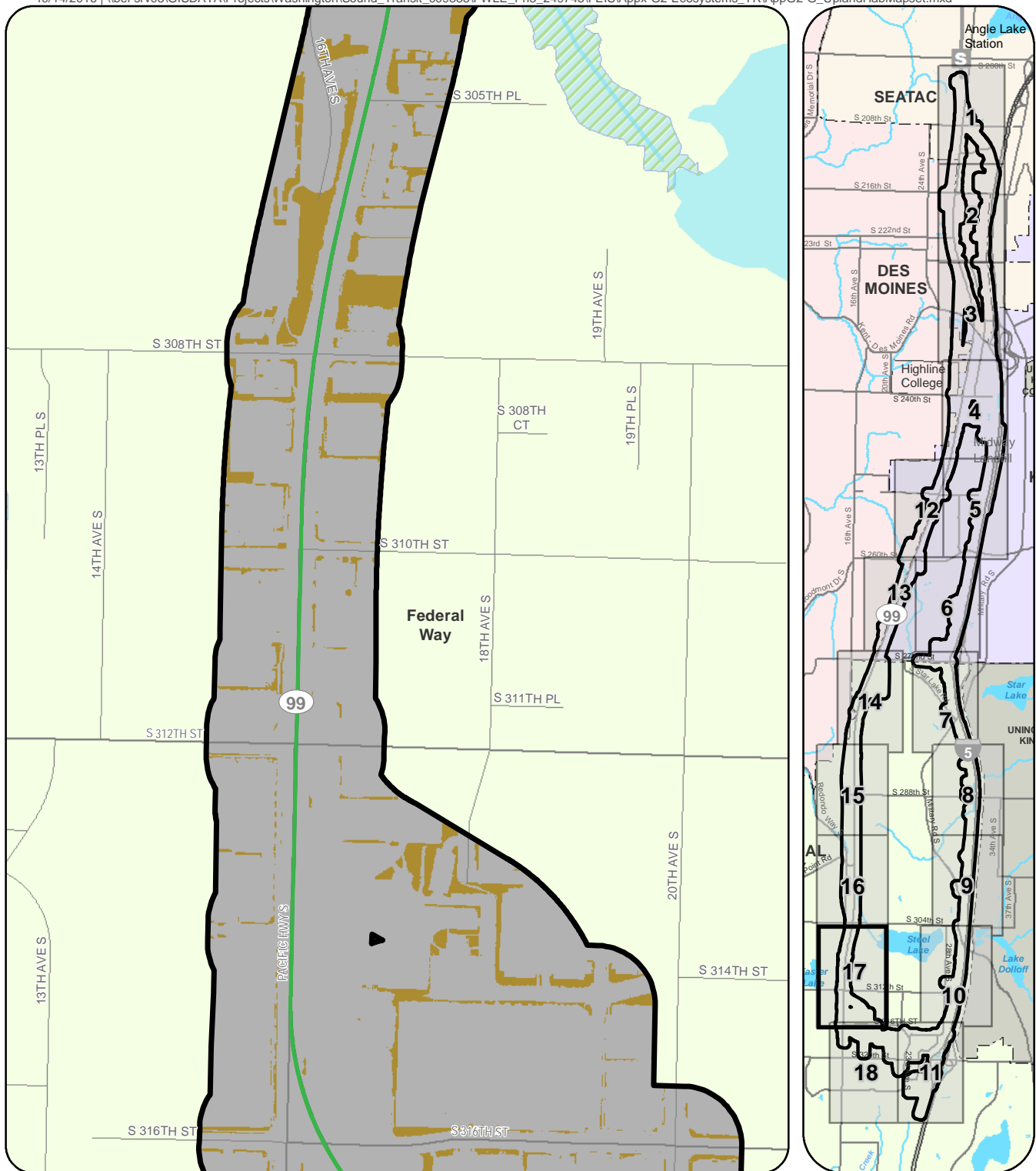
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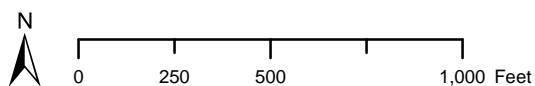


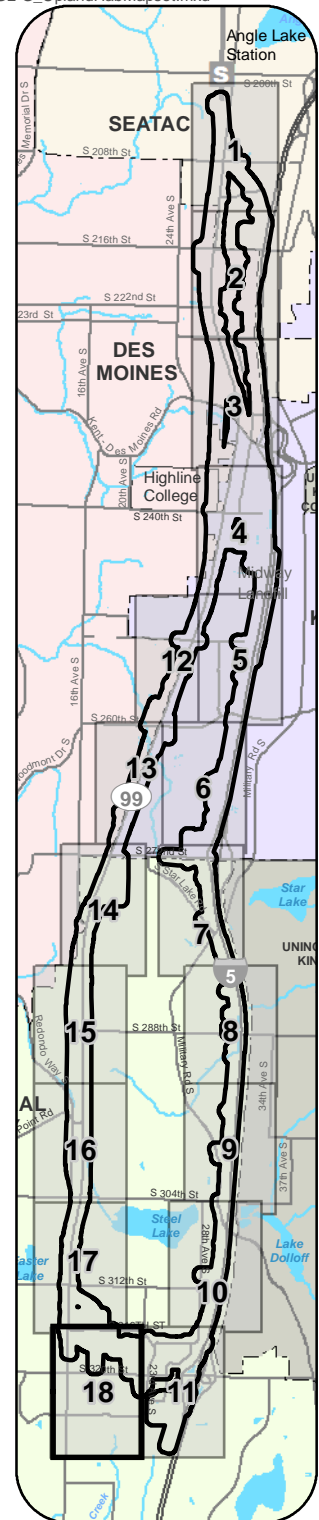
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2015)





Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2015)





-
- Study Area**
- Preferred Alternative
 - SR 99 Alternative
 - SR 99 to I-5 Alternative
 - I-5 to SR 99 Alternative
- Upland Forest Habitat**
- Category A
 - Category B
 - Category C
 - Category D
- Managed**
- Impervious
 - Street
 - City Boundary
- Stream Buffer**
- Stream
 - Wetland
 - Wetland Buffer
- Waterbody**
- Streams_Piped

Appendix H

Ecosystem Impacts by Subbasin

Ecosystem Impacts by Subbasin

TABLE H-1

Summary of Long-Term Direct Impacts on Wetlands by Subbasin and FWLE Alternative and Option

Alternative	Bingaman Creek Subbasin Impacts (acres)	Hylebos Creek Subbasin Impacts (acres)	Massey Creek Subbasin Impacts (acres)	McSorley Creek Subbasin Impacts (acres)	Mill Creek Subbasin Impacts (acres)	Redondo Creek Subbasin Impacts (acres)
Preferred Alternative	0.55	0.02	--	0.07	0.01	--
Kent/Des Moines Station Options						
Kent/Des Moines At-Grade Station Option	--	--	--	+0.56	--	--
Kent/Des Moines I-5 Station Option	--	--	--	+0.29	--	--
Landfill Median Alignment Option	--	--	--	-0.01	--	--
S 272nd Star Lake Elevated Station Option	--	--	--	--	--	--
S 317th Elevated Alignment Option	--	--	--	--	--	--
Federal Way City Center Station Options						
Federal Way I-5 Station Option	--	--	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--	--	--	--
SR 99 Alternative	--	--	--	0.03	--	0.01
S 216th Station Options						
S 216th West Station Option	--	--	--	--	--	--
S 216th East Station Option	--	--	--	--	--	--
Kent/Des Moines Station Options						
Kent/Des Moines HC Campus Station Option	--	--	+0.16	--	--	--
S 216th West Station Option to KDM HC Campus Station Option	--	--	+0.10	--	--	--
Kent/Des Moines SR 99 Median Station Option	--	--	--	--	--	--
Kent/Des Moines SR 99 East Station Option	--	--	--	--	--	--
S 260th Station Options						
S 260th West Station Option	--	--	--	+0.11	--	--
S 260th East Station Option	--	--	--	+0.38	--	--
S 272nd Redondo Trench Station Option	--	--	--	+0.39	--	+0.01
Federal Way SR 99 Station Option	--	--	--	--	--	--
SR 99 to I-5 Alternative	0.42	--	--	0.11	--	--

TABLE H-1

Summary of Long-Term Direct Impacts on Wetlands by Subbasin and FWLE Alternative and Option

Alternative	Bingaman Creek Subbasin Impacts (acres)	Hylebos Creek Subbasin Impacts (acres)	Massey Creek Subbasin Impacts (acres)	McSorley Creek Subbasin Impacts (acres)	Mill Creek Subbasin Impacts (acres)	Redondo Creek Subbasin Impacts (acres)
S 216th Station Options						
S 216th West Station Option	--	--	--	--	--	--
S 216th East Station Option	--	--	--	--	--	--
Landfill Median Alignment Option	--	--	--	-0.1	--	--
Federal Way City Center Station Options						
Federal Way I-5 Station Option	--	--	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	+0.9	--	--	--	--
I-5 to SR 99 Alternative	--	--	--	0.03	--	0.01
S 260th Station Options						
S 260th West Station Option	--	--	--	+0.11	--	--
S 260th East Station Option	--	--	--	+0.38	--	--
S 272nd Redondo Trench Station Option	--	--	--	+0.39	--	+0.01
Federal Way SR 99 Station Option	--	--	--	--	--	--

TABLE H-2

Summary of Long-Term Direct Impacts on Wetland Buffers by Subbasin and FWLE Alternative and Option

Alternative	Bingaman Creek Subbasin Impacts (acres)	Hylebos Creek Subbasin Impacts (acres)	Massey Creek Subbasin Impacts (acres)	McSorley Creek Subbasin Impacts (acres)	Mill Creek Subbasin Impacts (acres)	Redondo Creek Subbasin Impacts (acres)
Preferred Alternative	1.88	1.50	0.22	1.16	1.85	--
Kent/Des Moines Station Options						
Kent/Des Moines At-Grade Station Option	--	--	--	+1.24	--	--
Kent/Des Moines I-5 Station Option	--	--	--	+0.19	--	--
Landfill Median Alignment Option	--	--	--	-0.20	--	--
S 272nd Star Lake Elevated Station Option	--	--	--	--	--	--
S 317th Elevated Alignment Option	--	--	--	--	--	--
Federal Way City Center Station Options						
Federal Way I-5 Station Option	--	-0.04	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	0.30	--	--	--	--
SR 99 Alternative	--	--	--	0.24	--	--
S 216th Station Options						
S 216th West Station Option	--	--	--	--	--	--
S 216th East Station Option	--	--	--	--	--	--
Kent/Des Moines Station Options						
Kent/Des Moines HC Campus Station Option	--	--	+0.18	--	--	--
S 216th West Station Option to KDM HC Campus Station Option	--	--	+0.22	--	--	--
Kent/Des Moines SR 99 Median Station Option	--	--	--	--	--	--
Kent/Des Moines SR 99 East Station Option	--	--	--	--	--	--
S 260th Station Options						
S 260th West Station Option	--	--	--	+0.26	--	--
S 260th East Station Option	--	--	--	+0.18	--	--
S 272nd Redondo Trench Station Option	--	--	--	+0.29	--	+0.08
Federal Way SR 99 Station Option	--	--	--	--	--	--
SR 99 to I-5 Alternative	0.83	0.89	--	1.04	1.29	--
S 216th Station Options						
S 216th West Station Option	--	--	--	--	--	--
S 216th East Station Option	--	--	--	--	--	--
Landfill Median Alignment Option	--	--	--	-0.14	--	--

TABLE H-2

Summary of Long-Term Direct Impacts on Wetland Buffers by Subbasin and FWLE Alternative and Option

Alternative	Bingaman Creek Subbasin Impacts (acres)	Hylebos Creek Subbasin Impacts (acres)	Massey Creek Subbasin Impacts (acres)	McSorley Creek Subbasin Impacts (acres)	Mill Creek Subbasin Impacts (acres)	Redondo Creek Subbasin Impacts (acres)
Federal Way City Center Station Options						
Federal Way I-5 Station Option	--	--	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	+0.32	--	--	--	--
I-5 to SR 99 Alternative	--	--	0.18	0.24	--	
S 260th Station Options						
S 260th West Station Option	--	--	--	+0.26	--	--
S 260th East Station Option	--	--	--	+0.18	--	--
S 272nd Redondo Trench Station Option	--	--	--	+0.29	--	+0.08
Federal Way SR 99 Station Option	--	--	--	--	--	--

TABLE H-3

Summary of Long-Term Direct Impacts on Streams by Subbasin and FWLE Alternative and Option

Alternative	Bingaman Creek Subbasin Impacts (acres)	McSorley Creek Subbasin Impacts (acres)	Redondo Creek Subbasin Impacts (acres)
Preferred Alternative	0.22	--	--
Kent/Des Moines Station Options			
Kent/Des Moines At-Grade Station Option	--	--	--
Kent/Des Moines I-5 Station Option	--	--	--
Landfill Median Alignment Option	--	--	--
S 272nd Star Lake Elevated Station Option	--	--	--
S 317th Elevated Alignment Option	--	--	--
Federal Way City Center Station Options			
Federal Way I-5 Station Option	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--
SR 99 Alternative	--	--	--
S 216th Station Options			
S 216th West Station Option	--	--	--
S 216th East Station Option	--	--	--
Kent/Des Moines Station Options			
Kent/Des Moines HC Campus Station Option	--	--	--
S 216th West Station Option to KDM HC Campus Station Option	--	--	--
Kent/Des Moines SR 99 Median Station Option	--	--	--
Kent/Des Moines SR 99 East Station Option	--	--	--
S 260th Station Options			
S 260th West Station Option	--	+0.02	--
S 260th East Station Option	--	+0.02	--
S 272nd Redondo Trench Station Option	--	+0.02	+0.03
Federal Way SR 99 Station Option	--	--	--
SR 99 to I-5 Alternative	0.22	--	--
S 216th Station Options			
S 216th West Station Option	--	--	--
S 216th East Station Option	--	--	--
Landfill Median Alignment Option	--	--	--
Federal Way City Center Station Options			
Federal Way I-5 Station Option	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--

TABLE H-3

Summary of Long-Term Direct Impacts on Streams by Subbasin and FWLE Alternative and Option

Alternative	Bingaman Creek Subbasin Impacts (acres)	McSorley Creek Subbasin Impacts (acres)	Redondo Creek Subbasin Impacts (acres)
I-5 to SR 99 Alternative	--	--	--
S 260th Station Options			
S 260th West Station Option	--	+0.02	--
S 260th East Station Option	--	+0.02	--
S 272nd Redondo Trench Station Option	--	+0.02	+0.03
Federal Way SR 99 Station Option	--	--	--

TABLE H-4

Summary of Long-Term Direct Impacts on Stream Buffers by Subbasin and FWLE Alternative and Option

Alternative	Bingaman Creek Subbasin Impacts (acres)	Massey Creek Subbasin Impacts (acres)	McSorley Creek Subbasin Impacts (acres)	Redondo Creek Subbasin Impacts (acres)
Preferred Alternative	2.53	--	--	--
Kent/Des Moines Station Options				
Kent/Des Moines At-Grade Station Option	--	--	--	--
Kent/Des Moines I-5 Station Option	--	--	--	--
Landfill Median Alignment Option	--	--	--	--
S 272nd Star Lake Elevated Station Option	--	--	--	--
S 317th Elevated Alignment Option	--	--	--	--
Federal Way City Center Station Options				
Federal Way I-5 Station Option	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--	--
SR 99 Alternative	--	--	--	0.01
S 216th Station Options				
S 216th West Station Option	--	--	--	--
S 216th East Station Option	--	--	--	--
Kent/Des Moines Station Options				
Kent/Des Moines HC Campus Station Option	--	+<0.01	--	--
S 216th West Station Option to KDM HC Campus Station Option	--	+<0.01	--	--
Kent/Des Moines SR 99 Median Station Option	--	--	--	--
Kent/Des Moines SR 99 East Station Option	--	--	--	--
S 260th Station Options				
S 260th West Station Option	--	--	+0.26	--
S 260th East Station Option	--	--	--	--
S 272nd Redondo Trench Station Option	--	--	--	+0.28
Federal Way SR 99 Station Option	--	--	--	--
SR 99 to I-5 Alternative	2.53	--	--	--

TABLE H-4

Summary of Long-Term Direct Impacts on Stream Buffers by Subbasin and FWLE Alternative and Option

Alternative	Bingaman Creek Subbasin Impacts (acres)	Massey Creek Subbasin Impacts (acres)	McSorley Creek Subbasin Impacts (acres)	Redondo Creek Subbasin Impacts (acres)
S 216th Station Options				
S 216th West Station Option	--	--	--	--
S 216th East Station Option	--	--	--	--
Landfill Median Alignment Option	--	--	--	--
Federal Way City Center Station Options				
Federal Way I-5 Station Option	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	--	--
I-5 to SR 99 Alternative	--	--	--	0.01
S 260th Station Options				
S 260th West Station Option	--	--	+0.26	--
S 260th East Station Option	--	--	--	--
S 272nd Redondo Trench Station Option	--	--	--	+0.28
Federal Way SR 99 Station Option	--	--	--	--

TABLE H-4

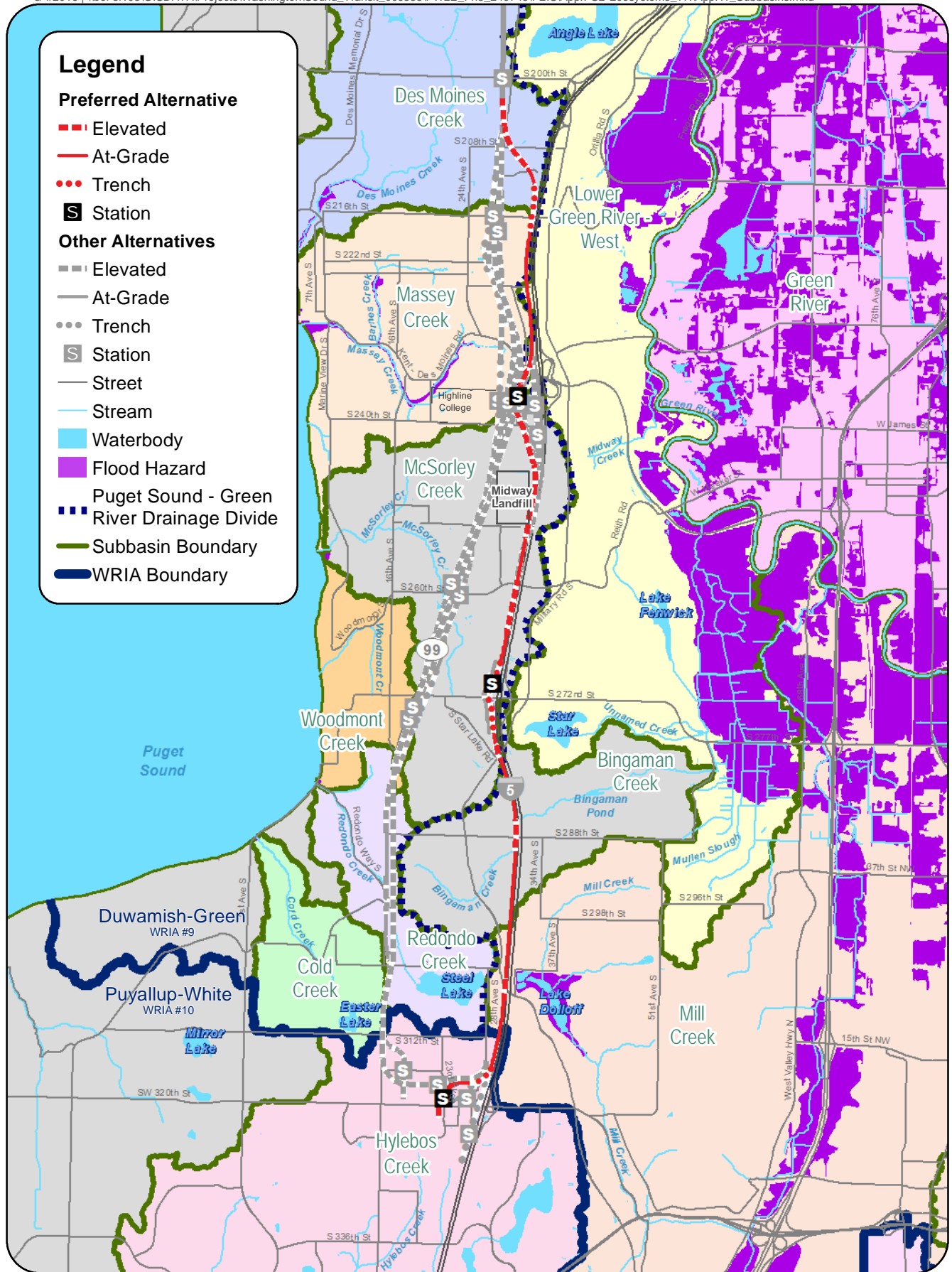
Summary of Long-Term Direct Impacts on Upland Habitat by Subbasin and FWLE Alternative and Option

Alternative	Bingaman Creek Subbasin Impacts (acres)	Des Moines Creek Subbasin Impacts (acres)	Hylebos Creek Subbasin Impacts (acres)	Lower Green River – West Subbasin Impacts (acres)	Massey Creek Subbasin Impacts (acres)	McSorley Creek Subbasin Impacts (acres)	Mill Creek Subbasin Impacts (acres)	Redondo Creek Subbasin Impacts (acres)
Preferred Alternative	9.94	0.82	2.13	0.42	1.82	14.31	5.52	--
Kent/Des Moines Station Options								
Kent/Des Moines At-Grade Station Option	--	--	--	+0.05	-0.08	+1.53	--	--
Kent/Des Moines I-5 Station Option	--	--	--	+0.03	-0.08	+2.98	--	--
Landfill Median Alignment Option	--	--	--	--	--	1.10	--	--
S 272nd Star Lake Elevated Station Option	--	--	--	--	--	+0.060	--	--
S 317th Elevated Alignment Option	--	--	+0.04	--	--	--	--	--
Federal Way City Center Station Options								
Federal Way I-5 Station Option	--	--	-0.28	--	--	--	--	--
Federal Way S 320th Park-and-Ride Station Option	--	--	+0.39	--	--	--	-0.01	--
SR 99 Alternative	--	0.45	--	--	1.11	1.14	--	0.11
S 216th Station Options								
S 216th West Station Option	--	--	--	--	+0.49	--	--	--
S 216th East Station Option	--	--	--	--	--	--	--	--
Kent/Des Moines Station Options								
Kent/Des Moines HC Campus Station Option	--	--	--	--	-0.23	--	--	--
S 216th West Station Option to KDM HC Campus Station Option	--	--	--	--	+0.14	+0.03	--	--
Kent/Des Moines SR 99 Median Station Option	--	--	--	--	-0.90	-0.01	--	--
Kent/Des Moines SR 99 East Station Option	--	--	--	--	-1.00	+0.03	--	--
S 260th Station Options								
S 260th West Station Option	--	--	--	--	--	+0.51	--	--
S 260th East Station Option	--	--	--	--	--	+0.18	--	--
S 272nd Redondo Trench Station Option	--	--	--	--	--	+0.29	--	+3.56
Federal Way SR 99 Station Option	--	--	--	--	--	--	--	--

TABLE H-4

Summary of Long-Term Direct Impacts on Upland Habitat by Subbasin and FWLE Alternative and Option

Alternative	Bingaman Creek Subbasin Impacts (acres)	Des Moines Creek Subbasin Impacts (acres)	Hylebos Creek Subbasin Impacts (acres)	Lower Green River – West Subbasin Impacts (acres)	Massey Creek Subbasin Impacts (acres)	McSorley Creek Subbasin Impacts (acres)	Mill Creek Subbasin Impacts (acres)	Redondo Creek Subbasin Impacts (acres)
SR 99 to I-5 Alternative	5.60	0.45	1.53	--	<0.01	10.27	3.86	--
S 216th Station Options								
S 216th West Station Option	--	--	--	--	+0.49	--	--	--
S 216th East Station Option	--	--	--	--	--	--	--	--
Landfill Median Alignment Option	--				--	+0.03		--
Federal Way City Center Station Options								
Federal Way I-5 Station Option	--		-0.09		--	--		--
Federal Way S 320th Park-and-Ride Station Option	--		+0.56		--	--		--
I-5 to SR 99 Alternative	--	0.69	0.30	1.28	--	1.13	--	0.11
S 260th Station Options								
S 260th West Station Option	--	--	--	--	--	+0.51	--	--
S 260th East Station Option	--	--	--	--	--	+0.18	--	--
S 272nd Redondo Trench Station Option	--	--	--	--	--	+0.29	--	+3.56
Federal Way SR 99 Station Option	--	--	--	--	--	--	--	--



Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2015).

EXHIBIT H-1
Subbasins in the Project Vicinity

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