WYOMING DEPARTMENT OF TRANSPORTATION
BY DOWL, SHERIDAN, WYOMING

RECONNAISSANCE INSPECTION REPORT

Project No. 1849601
Worland Streets /Washakie Avenue
Washakie County

FIELD INSPECTION: Before the project design can begin, a Field inspection will need to held with WYDOT, the City of Worland, and Washakie County to review the project intent and recommendations. The Reconnaissance Report will need to be amended with the Field Inspection information and any changes to the project intent or recommendations.

INSPECTION PERSONNEL: The Inspection Personnel will be updated when the Reconnaissance Report is amended with the Field Inspection information.

REVIEWED BY:

Randy Merritt, P.E., District Construction Engineer, Basin
Lyle Lamb, P.E., District Maintenance Engineer, Basin
Jack Hoffman, P.E., District Traffic Engineer, Basin
Larry Crosby, P.E, Project Development Design Team Leader, Cheyenne
Kenneth Keel, P.E., Project Development Engineer, Cheyenne
Bob Rothwell, P.E., Materials Program, Cheyenne
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Jeff Booher, P.E., Bridge Program, Cheyenne
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Tanya Geiselhofer, Utilities Section Supervisor, Cheyenne
Mike Donnell, P.E., Eagle Engineering and Surveying, Inc., City Engineer, Worland

LOCATION: The project is located in Worland, Wyoming along the Washakie Avenue corridor. The project is an urban streets project between S. Railway Street/WYO 432 and S. Road 11. The project begins at the intersection of Washakie Avenue and S. Railway Street/WYO 432 and continues east to the intersection of Lane 12 and S. Road 11.

REFERENCE:

1. Washakie Avenue Corridor Study FINAL Report, August 2016, DOWL.
2. 2012 Urban Roadway Functional Classification Map, City of Worland, Washakie County, Wyoming.
3. Washakie County Multi-Hazard Mitigation Plan, December 2013 Final Draft, 4.2.8.1 Flood Chapter Update, WWC Engineering.
4. WYDOT, Guide for Non-NHS State Highways, 2019 (or WYDOT, County Road Fund Manual, 2011)

ROUTE: ML18496B and ML8879B

NHS SYSTEM: Off NHS

DISTRICT: 5

PROJECT LIMITS AND LENGTH OF PROJECT: The program limits are from the intersection of S. Railway Street/WYO 432 and Washakie Avenue (ML18496B) extending east to the intersection of Washakie Avenue and Sage Lane, where the Washakie Avenue, Wilson Drive & 23rd Street project (M-4765(3) began. East of 23rd Street Washakie Avenue is beyond the city limits and is referred to as Lane 12. The project continues east along Lane 12 to the intersection of S. Road 11 (ML8879B) for an overall length of 2.04 miles. See location map.

FUNCTIONAL CLASSIFICATION: Major Collector

CHARACTER OF WORK: Reconstruction

PROGRAMMED FUNDING: STPU-WO

PROGRAMMED CONSTRUCTION YEAR: FY 2024

PURPOSE AND NEED: The purpose of the project is to reconstruct Washakie Avenue from the intersection of S. Railway Street/WYO 432 and Washakie Avenue to the intersection of Lane 12 and S. Road 11. For this section of roadway, the surfacing is in poor condition and requires reconstruction which will incorporate the following improvements:

1. Safely accommodate all types of traffic. Washakie Avenue/Lane 12 is a beet trucking route, and the safety of pedestrian/bicycle traffic and school traffic is a concern.

2. Incorporate Sage Creek and other drainage/irrigation ditches into the roadway cross section.

3. Identify and correct roadway deficiencies including geometrics, connectivity, access, and right-of-way limitations.

EXISTING FACILITY:

Construction History: Washakie Avenue from 23rd Street to S. Road 11 was recently improved with curb and gutter and a 10-foot path on the north side. This section of roadway was paved in the fall of 2015 through a Washakie County Project. The 1991 WYDOT project, "WASHAKIE AVENUE, WILSON DRIVE & 23RD STREET" reconstructed Washakie from Sage Lane 1198 feet east, past 23rd Street (Proj. No. 4765(3), Washakie County), including redesigning the vertical curves going up the hill to improve the sight distance and overall safety. Construction history on the remainder is unknown.

Traffic Data: Traffic volume data was collected October 4, 2015 through October 12, 2015 using pneumatic tube counters installed at four locations:

S. Railway Street/WYO 432 to S. 4th Street

	Year	Avg (veh/day)	Trucks
Existing:	2015	1,016	26.5%
Projected:	2025	1100	26.5%

S. 4th Street to S. 14th Street

	Year	Avg (veh/day)	Trucks
Existing:	2015	1,487	26.1%
Projected:	2025	1550	26.1%

S. 14th Street to S. 23rd Street

	Year	Avg (veh/day)	Trucks
Existing:	2015	1,043	25.3%
Projected:	2025	1050	25.3%

S. 23rd Street to S. Road 11

	Year	Avg (veh/day)	Trucks
Existing:	2015	550	26.0%
Projected:	2025	600	26.0%

Posted Speed Limit: 30 mph with two 20 mph school zones and multiple school crossings. The crossings are located: mid-block between 16th and 17th Streets, and at the intersection of Sage Lane. The two school zones are located between 4th Street and 6th Street, and starting west of 17th Street to just east of Sage Lane.

Horizontal Alignment: The existing road is tangent with an angle point at the intersection of S. 15th Street (at the corner of Sections 25/36, T.47N., R.93W. and Sections 30/31, T.47N., R.92W., Original Survey).

Vertical Alignment: There are two (2) vertical curves along the length of the project:

Location	Curve Type	Curve Length
West of S. 23rd Street	Sag	300 ft.
East of S. 23rd Street	Crest	400 ft.

Roadway Widths:

Location	Total Width	No. of Lanes
S. Railway Street/WYO 432 to Sage Lane	24 to 35 ft	2
Sage Lane to Swan Place	50 ft	2
Swan Place to S. Road 11	30 ft	2

Existing Surfacing: 3 to 3½ inches of asphalt

Side Slopes: Steep slopes exist on the south side of Washakie Avenue from S. Railway Street/WYO 432 to S. 15th Street due to Sage Creek channel adjacent to the road.

Major Structures: Bridge crossing Lower Hanover Canal between S. 8th Street and Charles Avenue. Structure No. DLL, BMS RM 0.55.

The existing structure is a simple span, prestressed precast concrete bi-deck. The abutments are full retaining abutments on steel pipe piles with timber cribbing. There are no as-built plans of the existing structure. The bridge has a 42.92 ft clear roadway width, 9 inch wide curbs, and 3 ft wide sidewalk on the north side of the roadway. The current bridge railing consists of chain link fencing and does not meet any crash testing criteria.

The bridge is in poor condition due to the condition of the substructure. The current NBI rating is as follows: 7 (Deck), 7 (Superstructure), 4 (Substructure). The inventory rating is 34 tons, 21 tons, 38 tons, 42 tons for the HS20, WYO TYPE 3, WYO TYPE 3S2, and WYO TYPE 3-3 trucks, respectively. The most current bridge inspection report dated January 24, 2020 notes the following deficiencies: small hairline cracks in girder webs; minor to moderate decay and checking on timber planks; heavy corrosion of piles with pitting and section loss; retaining walls on northeast and northwest corners have rotated significantly with moderate erosion at ends of wingwalls.

Minor Structures: Culverts: 81" x 123" x 80' CMP Pipe Arch located at 8th & Washakie; 98" x 103" x 88' CMP located at 15th Street and Washakie Ave.; 75" x 112" x 108' CMP Pipe Arch Located at Lower Hanover and Sage Creek (Sage Creek underpass) and a concrete drop structure diversion with 24" steel pipe south of Washakie Avenue.

Intersections: There are eighteen (18) intersections included in this project:

Description	Type	Traffic Control
S. Railway Ave. & Washakie Ave.	T (Three-Leg)	One way Stop
Washakie Avenue & S. 3rd St.	T (Three-Leg)	One way Stop
Washakie Avenue & S. 4th St.	T (Three-Leg)	One way Stop
Washakie Avenue & S. 6th St.	T (Three-Leg)	One way Stop
Washakie Avenue & S. 8th St.	Cross (Four-Leg)	All way Stop
Washakie Avenue & Charles Ave.	T (Three-Leg)	One way Stop
Washakie Avenue & S. 10th St.	T (Three-Leg)	One way Stop
Washakie Avenue & S. 11th St.	T (Three-Leg)	One way Stop
Washakie Avenue & S. 12th St.	T (Three-Leg)	One way Stop
Washakie Avenue & S. 13th St.	T (Three-Leg)	One way Stop
Washakie Avenue & S. 14th St.	T (Three-Leg)	One way Stop
Washakie Avenue & S. 15th St.	Cross (Four-Leg)	All way Stop
Lane 12 & S. 16th St.	T (Three-Leg)	One way Stop
Lane 12 & S. 17th St.	T (Three-Leg)	One way Stop
Lane 12 & Sage Ln	T (Three-Leg)	One way Stop
Lane 12 & S. 23rd/East Pkwy	Cross (Four-Leg)	One way Stop
Lane 12 & Swan Pl.	T (Three-Leg)	One way Stop
Lane 12 & S. Road 11	Cross (Four-Leg)	One way Stop

Crash Experience: A crash analysis was performed for Washakie Avenue for the 10-year time frame from January 1, 2005 to December 31, 2015. Based on the 2010 to 2015 crash data collected there appears to be a higher density of crashes at the intersection of Washakie Avenue and S. 16th Street. This intersection is a three-legged intersection with S. 16th Street controlled with a stop sign and Washakie Avenue having the right of way. Of the crashes in this high-density area, only one crash happened during the summer when school was not in session. Five of the 18 crashes in this high-density area were vehicles

crashing with non-vehicle objects: utility pole, mailbox, or animals. The remaining 13 crashes include the following:

- 7 angle crashes;
- 1 head on crash;
- 4 rear end crashes; and
- 1 sideswipe crash.

Utilities: Utilities located along Washakie Avenue include limited storm drain, sanitary sewer, potable water, overhead power, underground power, gas, fiber optic, telephone, and irrigation ditch facilities with associated appurtenances and structures.

Right-of-Way:

Location	Width	Remarks
S. Railway Street/WYO 432 - S. 15th Street	60± ft	30 ft each side of centerline
S. 15th Street – S. 23rd Street	80± ft	30 ft north/80 ft south
23rd Street to S. Road 11	60± ft	30 ft each side of centerline

It appears the existing roadway features start within the existing right of way at County Road 11. As Washakie Avenue progresses to the west, the road centerline drifts to the north from the right-of-way centerline, this is also the section line. At 15th Street, the road centerline has drifted approximately 9 feet north of the section line and the drift increases to approximately 16 feet north at the Railway Street intersection. Around 6th Street, the north sidewalk appears to exit the existing right of way. At the Railway Street intersection, the north sidewalk, curb and gutter, and a portion of asphalt roadway appear to be outside the existing right of way.

Note that there is another 40-feet of right of way south of Washakie Avenue for maintaining Sage Creek in the NE1/4 of Sec. 36, O.G.S. (from 15th Street west to 8th Street). The agreement, between the Washakie County Commissioners, Worland Drainage District, the Worland Bench Drainage District, the Hanover Irrigation District and the State of Wyoming, was to "keep it (the ditch) from cutting further into said Northeast quarter".

Land Use: Mainly agricultural and some residential on the south side, and mainly residential and some agricultural on the north side.

Environmental Concerns: Impacts to Waters of the U.S. and wetlands from Sage Creek channel modifications. Some of this area is in or close to the flood plain. Also, Sage Creek has a Floodway designation for most of its length in the project. At a minimum, a flood study will have to be done to produce updated FIRMs for FEMA for modifications done to Sage Creek.

RECONNAISSANCE REPORT RECOMMENDED INTENT:

Recommended Schedule: FY 2025

The highest priority on this project is the section from S. Railway Street/WYO 432 to S. 15th Street. The second priority is the section from S. 15th Street to S. 23rd Street. The third priority is from S. 23rd Street to S. Road 11, but a portion of this section (from Sage Lane east to the top of the hill) was reconstructed in the 1991 project. The S. 23rd Street to S. Road 11 has some drainage pipe and ditch sections that need replaced/rebuilt.
After completion of the Reconnaissance Report, a project schedule will be created to more accurately reflect the timeframe for the design of each project as funding allows and as determined by the City of Worland.

Construction Estimate Based On Reconnaissance Report Recommendations:
A summary of the project costs is below, followed by the detailed cost estimates.

Summary of Costs				
Phase	Roadway & Structure Costs	10% Contingency	Current (FY22)	Future (FY25) @5%
Alternate 4a, Section 1a - Washakie Avenue from Railway Ave. to 8th Street	$1,526,408	$152,641	$1,679,049	$1,943,709
Alternate 4a, Section 1b - Washakie Avenue from 8th Street to 15th Street	$1,961,401	$196,140	$1,841,399	$2,497,623
Alternate 4a, Section 2 - Washakie Avenue from 15th Street to 23rd Street	$1,929,572	$192,957	$1,733,641	$2,457,093
Alternate 4a, Section 3 - Washakie Avenue from 23rd Street to Road 11	$1,800,438	$180,044	$1,980,482	$2,292,655

$9,191,080

Alternate 4a, Section 1a - Washakie Avenue from Railway Ave. to 8th Street

Item NO.	Item Name	Units	Quantity	Unit Price	Extended Price
105.09010	CONTRACTOR SURVEYING	LS	LS	16,220.00	$16,220
109.04000	FORCE ACCOUNT WORK	$$	$$	54,067.00	$54,067
109.08000	MOBILIZATION	LS	LS	120,000.00	$120,000
202.03400	REMOVAL OF SURFACING	SY	7964	3.36	$26,780
202.03430	REMOVAL OF SIDEWALK	SY	797	23.59	$18,804
203.02500	UNCLASSIFIED EXCAVATION	CY	4414	8.79	$38,785
207.03100	TOPSOIL STORING	CY	3040	2.58	$7,843
207.03200	TOPSOIL PLACING	CY	3040	2.41	$7,340
215.01000	CONTRACTOR STORMWATER CONTROL	LS	LS	5,000.00	$5,000
216.03105	SEEDING	SY	16615	1.74	$28,942
217.01045	GEOGRID	SY	7964	4.65	$37,053
301.01085	CRUSHED BASE	CY	1562	49.39	$77,150
302.00030	BLENDED SUBBASE	CY	1636	44.74	$73,194
401.02000	HOT PLANT MIX	TON	2241	100.00	$224,100
401.03322	ASPHALT BINDER (PG 64-28)	TON	128	700.00	$89,600
412.01050	BIKE PATH (PLANT MIX)	SY	2850	38.59	$109,974
603.60128	CMP ARCH 128 X 83 in	FT	80	1,157.63	$92,610
608.10203	SIDEWALK (CONC)	SF	11941	8.71	$104,003
609.10200	CURB AND GUTTER TYPE A	FT	5120	57.15	$292,626
620.07010	ADJUSTMENTS, VALVE BOXES	EA	6	1,047.38	$6,284
625.12000	MANHOLE ADJUSTMENT	EA	6	1,631.70	$9,790
702.30300	SIGN POST, SQ TUBULAR STL	EA	16	164.27	$2,628
702.30320	INSTALL SIGN PANELS, ALUMINUM	SF	97	33.08	$3,208
703.03110	TEMPORARY TRAFFIC CONTROL	LS	LS	75,000.00	$75,000
799.71805	EPOXY PAVEMENT MARKINGS	LS	LS	5,407.00	$5,407
	TOTAL ROADWAY ESTIMATE				**$1,526,408**

Alternate 4a, Section 1b - Washakie Avenue from 8th Street to 15th Street

Item NO.	Item Name	Units	Quantity	Unit Price	Extended Price
105.09010	CONTRACTOR SURVEYING	LS	LS	16,855.02	$16,855
109.04000	FORCE ACCOUNT WORK	$$	$$	56,183.40	$56,183
109.08000	MOBILIZATION	LS	LS	150,000.00	$150,000
202.03400	REMOVAL OF SURFACING	SY	8276	3.36	$27,829
202.03430	REMOVAL OF SIDEWALK	SY	828	23.59	$19,535
203.02500	UNCLASSIFIED EXCAVATION	CY	4586	8.79	$40,297
207.03100	TOPSOIL STORING	CY	3160	2.58	$8,152
207.03200	TOPSOIL PLACING	CY	3160	2.41	$7,630
215.01000	CONTRACTOR STORMWATER CONTROL	LS	LS	5,000.00	$5,000
216.03105	SEEDING	SY	17265	1.74	$30,075
217.01045	GEOGRID	SY	8276	4.65	$38,505
301.01085	CRUSHED BASE	CY	1624	49.39	$80,213
302.00030	BLENDED SUBBASE	CY	1701	44.74	$76,102
401.02000	HOT PLANT MIX	TON	2329	100.00	$232,900
401.03322	ASPHALT BINDER (PG 64-28)	TON	134	700.00	$93,800
412.01050	BIKE PATH (PLANT MIX)	SY	2961	38.59	$114,258
603.50102	CMP 102 in	FT	88	992.25	$87,318
603.60112	CMP ARCH 112 X 75 in	FT	108	1,047.38	$113,117
608.10203	SIDEWALK (CONC)	SF	12409	8.71	$108,079
609.10200	CURB AND GUTTER TYPE A	FT	5320	57.15	$304,057
620.07010	ADJUSTMENTS, VALVE BOXES	EA	6	1,047.38	$6,284
625.12000	MANHOLE ADJUSTMENT	EA	7	1,631.70	$11,422
702.30300	SIGN POST, SQ TUBULAR STL	EA	17	164.27	$2,793
702.30320	INSTALL SIGN PANELS, ALUMINUM	SF	101	33.08	$3,341
703.03110	TEMPORARY TRAFFIC CONTROL	LS	LS	85,000.00	$85,000
799.71805	EPOXY PAVEMENT MARKINGS	LS	LS	5,618.34	$5,618
999.25000	STRUCTURAL ITEMS	LS	LS	237,038.00	$237,038
	TOTAL ROADWAY ESTIMATE				**$1,961,401**

Alternate 4a, Section 2 - Washakie Avenue from 15th Street to 23rd Street

Item NO.	Item Name	Units	Quantity	Unit Price	Extended Price
105.09010	CONTRACTOR SURVEYING	LS	LS	27,562.50	$27,563
109.04000	FORCE ACCOUNT WORK	LS	LS	82,687.50	$82,688
109.08000	MOBILIZATION	LS	LS	125,000.00	$125,000
202.03400	REMOVAL OF SURFACING	SY	10010	3.36	$33,660
202.03430	REMOVAL OF SIDEWALK	SY	864	23.59	$20,385
203.02500	UNCLASSIFIED EXCAVATION	CY	4000	8.79	$35,148
207.03100	TOPSOIL STORING	CY	2750	2.58	$7,095
207.03200	TOPSOIL PLACING	CY	2750	2.41	$6,640
215.01000	CONTRACTOR STORMWATER CONTROL	LS	LS	5,000	$5,000
216.03105	SEEDING	SY	15100	1.74	$26,303
217.01045	GEOGRID	SY	10010	4.65	$46,572
301.01085	CRUSHED BASE	CY	3186	49.39	$157,363
302.00030	BLENDED SUBBASE	CY	3337	44.74	$149,296
401.02000	HOT PLANT MIX	TON	2,815	100.00	$281,500
401.03322	ASPHALT BINDER (PG 64-28)	TON	162	700.00	$113,400
603.20030	30" RCP DRAIN PIPE	FT	1925	132.05	$254,189
608.10203	SIDEWALK (CONC)	SF	21325	8.71	$185,735
609.10200	CURB AND GUTTER TYPE A	FT	4620	57.15	$264,050
620.07010	ADJUSTMENTS, VALVE BOXES	EA	4	1,047.38	$4,190
625.12000	MANHOLE ADJUSTMENT	EA	6	1,631.70	$9,790
703.03110	TEMPORARY TRAFFIC CONTROL	LS	LS	75,000	$75,000
702.30300	SIGN POST, SQ TUBULAR STL	EA	22	164.27	$3,614
702.30320	INSTALL SIGN PANELS, ALUMINUM	SF	132	33.08	$4,366
799.71805	EPOXY PAVEMENT MARKINGS	LS	LS	11,025.00	$11,025
	TOTAL ROADWAY ESTIMATE				**$1,929,572**

Alternate 4a, Section 3 - Washakie Avenue from 23rd Street to Road 11

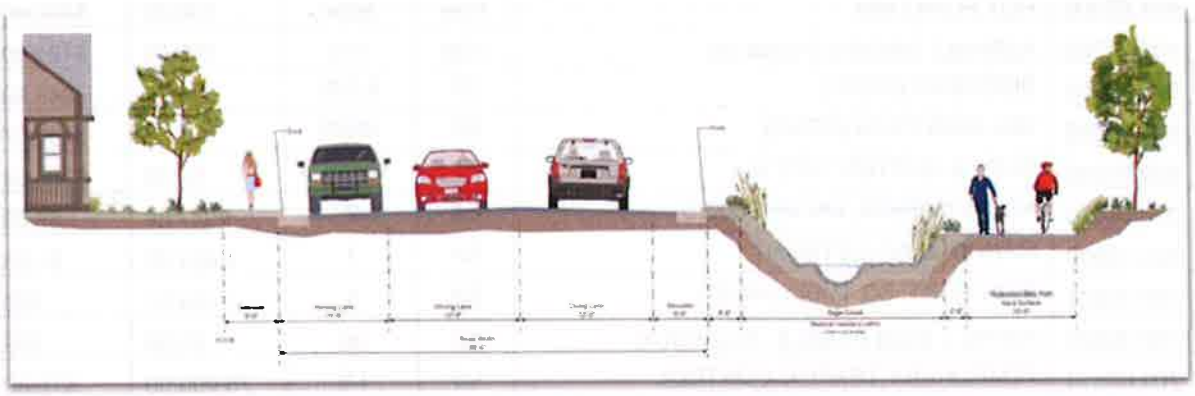
Item NO.	Item Name	Units	Quantity	Unit Price	Extended Price
105.09010	CONTRACTOR SURVEYING	LS	LS	27,562.50	$27,563
109.04000	FORCE ACCOUNT WORK	$$	$$	82,687.50	$82,688
109.08000	MOBILIZATION	LS	1	120,000.00	$120,000
202.03400	REMOVAL OF SURFACING	SY	10750	3.36	$36,148
202.03430	REMOVAL OF SIDEWALK	SY	300	23.59	$7,078
203.02500	UNCLASSIFIED EXCAVATION	CY	5500	8.79	$48,328
207.03100	TOPSOIL STORING	CY	3840	2.58	$9,907
207.03200	TOPSOIL PLACING	CY	3840	2.41	$9,272
215.01000	CONTRACTOR STORM WATER CONTROL	LS	LS	5,000.00	$5,000
216.03105	SEEDING	SY	20900	1.74	$36,407
217.01045	GEOGRID	SY	10750	4.65	$50,015
301.01085	CRUSHED BASE	CY	3408	49.39	$168,328
302.00030	BLENDED SUBBASE	CY	3570	44.74	$159,720
401.02000	HOT PLANT MIX	TON	3024	100.00	$302,400
401.03322	ASPHALT BINDER (PG 64-28)	TON	174	700.00	$121,800
608.10203	SIDEWALK (CONC)	SF	5,385	8.71	$46,902
608.10305	WALKING PATH (CONC)	SF	12670	8.58	$108,676
609.10200	CURB & GUTTER TYPE A	FT	6450	57.15	$368,641
620.07010	ADJUSTMENTS, VALVE BOXES	EA	2	1,047.38	$2,095
625.12000	MANHOLE ADJUSTMENT	EA	1	1,631.70	$1,632
702.30300	SIGN POST, SQ TUBULAR STL	EA	5	164.27	$821
702.30320	INSTALL SIGN PANELS, ALUMINUM	SF	30	33.08	$992
703.03110	TEMPORARY TRAFFIC CONTROL	LS	LS	75,000.00	$75,000
799.71805	EPOXY PAVEMENT MARKINGS	LS	LS	11,025.00	$11,025
	TOTAL ROADWAY ESTIMATE				**$1,800,436**

Design Criteria:

S. Railway Street/WYO 432 to S. 15th Street

Project Type:	Reconstruction
Type of Terrain:	Flat
Type of Area:	Urban; Agriculture
Number of Lanes	2 lanes plus parking (10 ft) on north side
	Separated multiuse path (10 ft) on south side
Minimum Design Speed:	30 mph
Lane Width:	12 ft
Shoulder Width:	NA
Clear Zone Width:	4 ft
Surface Type:	Plant Mix Pavement

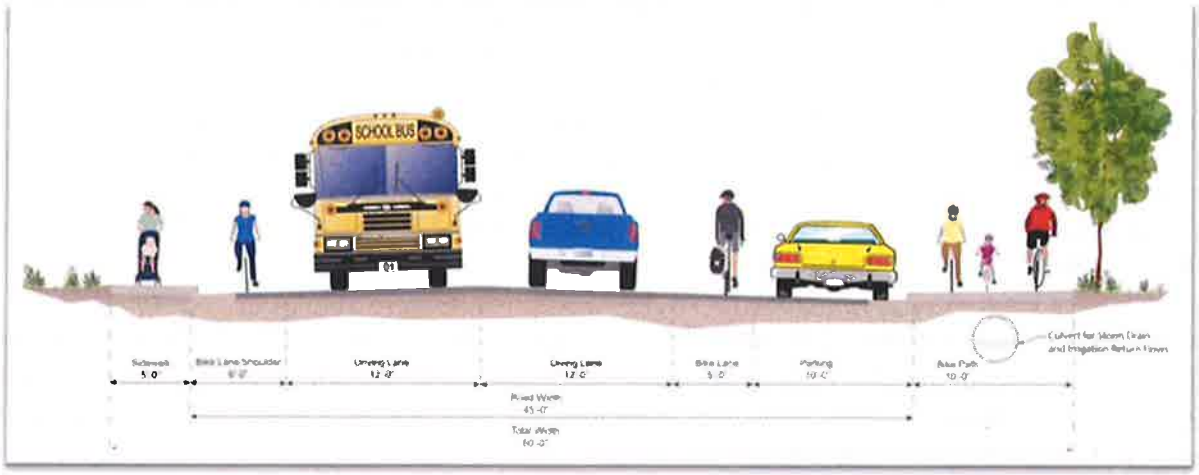
Figure 7.8 Washakie Avenue Cross Section from Railway to 15th Street (Alternate 4a.)



S. 15th Street to S. 23rd Street

Project Type:	Reconstruction
Type of Terrain:	Flat
Type of Area:	Urban; Agriculture
Number of Lanes	2 lanes plus parking (10 ft) on south side
	Multiuse path (10 ft) on south side
	Sidewalk (5 ft) on the north side
	Bike Lane (6 ft) north side, (5 ft) south side
Minimum Design Speed:	30 mph
Lane Width:	12 ft
Shoulder Width:	NA
Clear Zone Width:	4 ft
Surface Type:	Plant Mix Pavement and Crushed Base

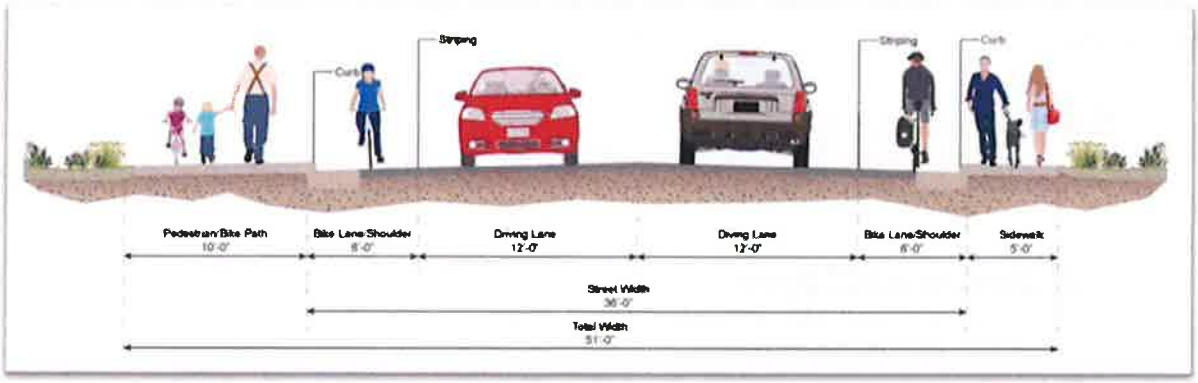
Figure 7.9 Washakie Avenue Cross Section from 15th Street to 23rd Street



S. 23rd Street to S. Road 11

Project Type:	Reconstruction
Type of Terrain:	Flat
Type of Area:	Urban; Agriculture
Number of Lanes	2 lanes
	Multiuse path (10 ft) on north side
	Sidewalk (5 ft) on the south side
	Bike lanes (6 ft) north side and south side
Minimum Design Speed:	30 mph
Lane Width:	12 ft
Shoulder Width:	NA
Clear Zone Width:	4 ft
Surface Type:	Plant Mix Pavement

Figure 7.10 Washakie Avenue Cross Section from 23rd Street to Road 11



RECONNAISSANCE REPORT RECOMMENDATIONS

The Guide for Non-NHS State Highways, 2019 will be used to guide the selection of project type and identification of applicable Wyoming design values and criteria for a collector.

Project Limits: The project will begin at the intersection of S. Railway Street/WYDOT 432 and Washakie Avenue and continue east to S. Road 11 broken into small sections. The highest priority on this project is the section from S. Railway Street/WYO 432 to Sage Lane. The second priority is the section from S. 15th Street to S. 23rd Street. The third priority is from S. 23rd Street to S. Road 11.

Intent and Typical Section: The intent of this project is to reconstruct Washakie Avenue/Lane 12 as shown in Exhibit "B", Typical Sections. This work will include ADA upgrades at all the intersections, addition of bike lanes, on street parking, and multiuse paths as illustrated in the Design Criteria section of this report.

Horizontal Alignment: The existing horizontal alignment will not be changed as part of this project.

Vertical Alignment: The vertical alignment will be adjusted during design to improve cross slope grades and surface drainage as needed and will conform to the project design standards.

Grading: Side slope grading from S. 15th Street to S. Road 11 will be completed within the limits of the right-of-way. From S. Railway Street/WYO 432 to S. 15th Street, side slope grading will be completed within the existing right-of-way for the street side. The pathway side slopes south of Sage Creek will require obtaining right-of-way or easement. Note the existing additional 40 foot ROW agreement for ditch maintenance between S. 15th St. and S. 8th St.

Geology: A geological investigation has been completed and a soils profile has been prepared. A copy of the geological investigation and soils profile will be provided to WYDOT as part of the project records.

Surfacing: A life-cycle cost analysis was performed on each option to compare the various pavement sections. Based on this analysis, the preferred option for three sections of Washakie Avenue are:

S. Railway Street to S. 8th Street

5 inches Plant Mix Pavement (PG 64-28)
14 inches Crushed Base

S. 8th Street to S. 23rd Street

5 inches Plant Mix Pavement (PG 64-28)
16 inches Crushed Base

S. 23rd Street to S. Road 11

5 inches Plant Mix Pavement (PG 64-28)
10 inches Crushed Base

Multiuse Path

4 inches Plant Mix Pavement
8 inches Crushed Base

Materials Source: Material source for this project will be contractor furnished.

Plant Site: Plant site for this project will be contractor furnished.

Water Source: The water source for this project will be the City of Worland.

Right-of-Way: The proposed pathway between S. Railway Street/WYO 432 and S. 15th Street will require an additional right-of-way. ADA upgrades at intersections will require additional right-of-way. Construction permits will be needed throughout the length of the project.

Irrigation: The project will be contiguous with Sage Creek between S. Railway Street/WYO 432 and S. 15th Street. Sage Creek is used mainly for irrigation return flows. The Lower Hanover Canal will be crossed between S. 8th Street and Charles Street.

Hydraulics: Hydraulic analysis will need to be performed on Hanover Canal crossing and Sage Creek in addition to other irrigation ditches that are affected. Sage Creek is in FEMA flood zone so this will have to be considered. The canal water right plus flood right will also need to be specified. Proposed irrigation structures will have to be approved by the irrigation company.

Major Structures: Hanover Canal Bridge Replacement. Bridge structure will be designed for HL93 loading in accordance with latest edition of LRFD Bridge Design Specifications.

Hanover Canal Pedestrian Bike Path/Foot Bridge.

Minor Structures: The following structures are planned to be replaced: Culverts: 81" x 123" x 80' CMP Pipe Arch located at 8th & Washakie; 98" x 103" x 88' CMP located at 15th Street and Washakie Ave.; 75" x 112" x 108' CMP Pipe Arch Located at Lower Hanover and Sage Creek (Sage Creek underpass).

The following structure will be inspected during construction and if needed replaced: located at Hanover Canal and Sage Creek south of Washakie Avenue, a concrete drop structure diversion with 24" steel pipe.

The Sage Creek Ditch west of the Lower Hanover Canal was constructed by the canal board as a wasteway, prior to flowing through town, sometime after 1916 (the old railroad plat calls the ditch "Waste Hanover Canal", and the wasteway structure has been upgraded since then. The City does not want to become an owner of that wasteway structure. Therefore, if it needs replaced/upgraded, it should be done under an agreement that suits all parties, including the Lower Hanover Board and the County.

Storm Drain: The existing storm drain and irrigation return flow ditch will be piped under the multiuse path between S. 15th Street and S. 23rd Street Section on the south side.

Utilities: There are several utilities located within the right-of-way. These utilities include overhead power, fiber optic, gas, underground power, potable water, sanitary sewer, irrigation facilities and storm drain. It is anticipated that the utility companies will be notified of the project to provide them an opportunity to install, move, or upgrade infrastructure.

Sidewalk: A five (5) foot concrete sidewalk will be installed contiguous with Washakie Avenue on the north side between Railway and 23rd street. A five (5) foot concrete sidewalk will be installed contiguous with Washakie Avenue on the south side between 23rd Street and S. Road 11.

Pedestrian/bike path: A ten (10) foot asphalt/concrete pathway will be installed on the south side of Sage Creek between S. Railway Street/WYO 432 and S. 15th Street. A ten (10) foot concrete pathway will be installed contiguous with Washakie Avenue on the south side from S. 15th Street to S. 23rd Street. A ten (10) foot concrete pathway will be installed contiguous with Washakie Avenue on the north side from 23rd Street to S. Road 11. Six (6) foot and five (5) foot bike lines will be delineated in roadway section of Washakie Avenue between S. 15th Street and S. Road 11.

Traffic Control: Concerns with traffic control during construction involve consideration for both vehicular and pedestrian traffic related to Worland High School and Westside Elementary School. Special consideration and a working relationship with the local school district will be needed to communicate with the public and to minimize any traffic impacts associated with the construction.

Signing/Striping: New signing and striping will be installed per the *Manual on Uniform Traffic Control Devices (MUTCD).* The bike lanes and pedestrian crossings will also be striped.

Fencing:
There are some residential properties adjacent to Washakie Avenue which may be impacted as part of this project and may require isolated areas of fence reset/replacement.

Public Meetings: For this project, the public involvement will be a WYDOT Level C, which will include a minimum of two (2) public meetings. Additional public meetings may be required if additional right-of-way is needed to accommodate ADA upgrades.

Project Schedule: FY 2025 letting pending availability of project funds.

SURVEY REQUIREMENTS:

Engineer Survey: WYDOT's Photogrammetry and Surveys Section will complete preliminary survey work including field supplements required for this project. During design, it may be determined that a subsurface utility engineering (SUE) survey is required.

Land Survey: A Level II Land Survey is anticipated for this project to acquire construction permits and additional right-of-way that may be required for the ADA upgrades. WYDOT Right-of-Way Program will complete the Level II Land Survey for this project.

WORK PLAN REQUIREMENTS

Environmental Services: WYDOT's Environmental Services Section will complete the environmental portion of this project. This project is expected to be completed under a Categorical Exclusion.

Geology: A geotechnical report was completed during the *Washakie Avenue Corridor Study.* It is anticipated that this report will suffice for the project design and construction. A copy of the report will be issued to WYDOT for project records.

Materials: *Washakie Avenue Corridor Study* completed a recommendation for the surfacing of this project. The preliminary surfacing recommendations have been reviewed by the WYDOT Materials Program. A copy of the report will be issued to WYDOT for project records.

Project Development: WYDOT Project Development Section will work with a consultant responsible for the development of the contract documents including preparation of the road design plans, compilation of all design plans and details, specifications and quantity summaries for the project.

Bridge: WYDOT Bridge Program will work with a bridge consultant to prepare the design plans and details for the replacement structure at the Hanover Cannel.

Hydraulics: WYDOT Hydraulics Section will work with a consultant to complete the design for the replacement of the existing storm drain/irrigation return ditch that will be piped under the multiuse path between S. 15th Street to S. 23rd Street with the design consultant responsible for the development of the contract documents including preparation of the storm drain plans, details, specifications and quantity summaries.

Traffic: WYDOT Traffic Program will prepare the temporary traffic control and permanent signing plans for the project.

Right-of-Way: WYDOT Right-of-Way Program will complete the right-of-way work for the project.

SIGNATURES:

Prepared By:
Jeff Rosenlund, P.E., DOWL

Jeffrey Rosenlund 1/11/2022
Date

Reviewed By:
Kenneth Keel, P.E., Project Development Engineer

_____
Date

Approved By:
Peter Hallsten P.E., District Engineer

_____
Date

Approved By:
Jeff Brown, P.E., Highway Development Engineer

_____
Date

Concurred By:
Keith Fulton, P.E., Assistant Chief Engineer for Planning and Engineering

_____
Date

Concurred By:
Mike Donnell, P.E., City Engineer Representative, City of Worland

_____
Date

Concurred By:
County Representative, Washakie County

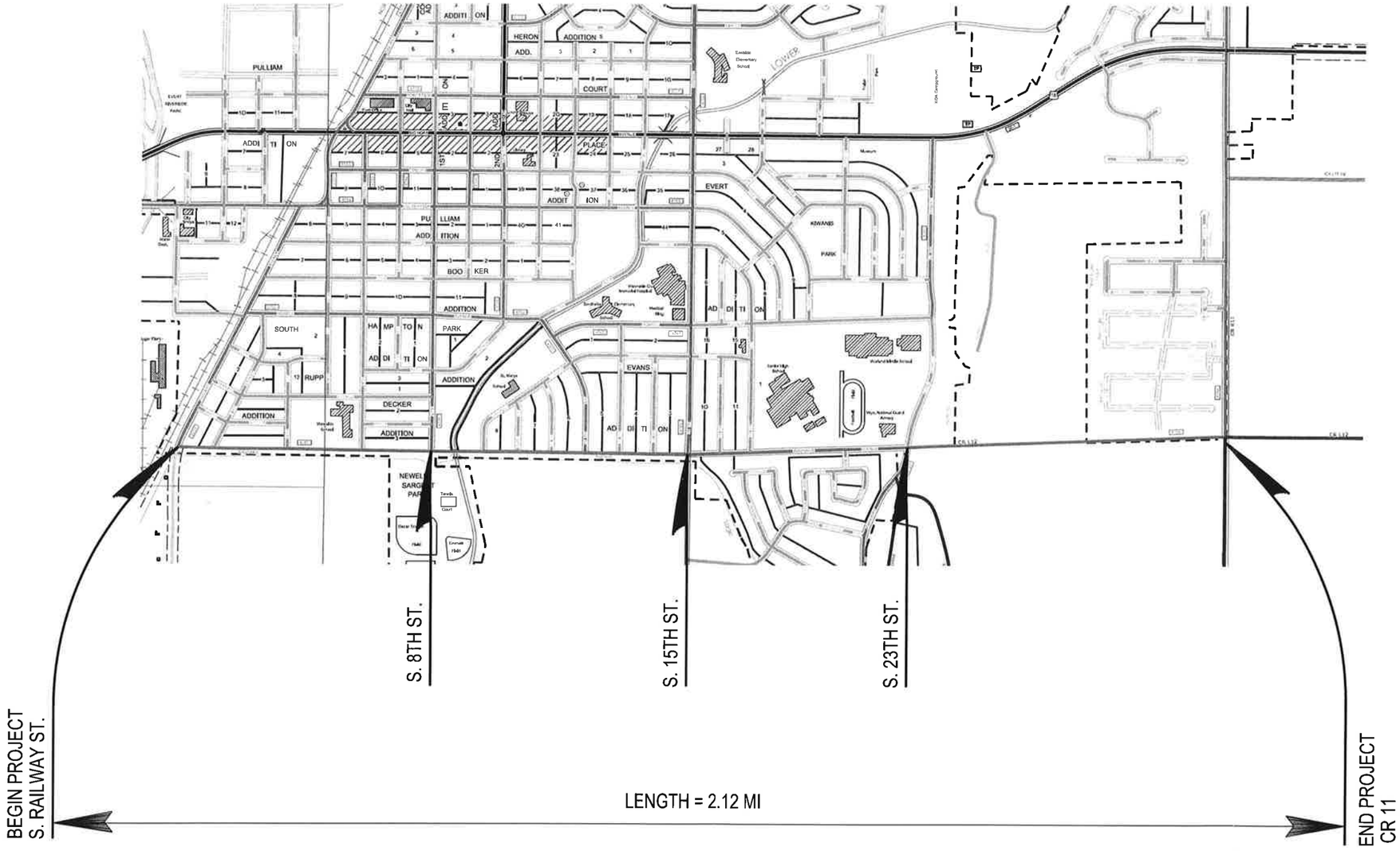
_____
Date

COMMENTS AND RECOMMENDATIONS

APPENDIX B

Washakie Avenue Corridor Study FINAL Report, August 2016, DOWL

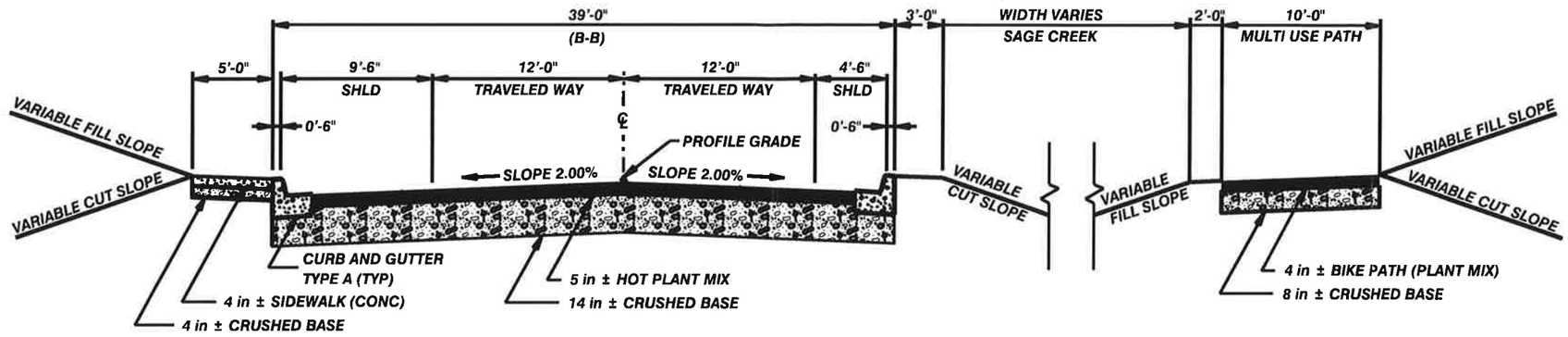
WASHAKIE AVENUE
PROJECT 1849601



STATE OF WYOMING	PROJ. NO.	SHEET NO.	TOT SHE
	•	•	•

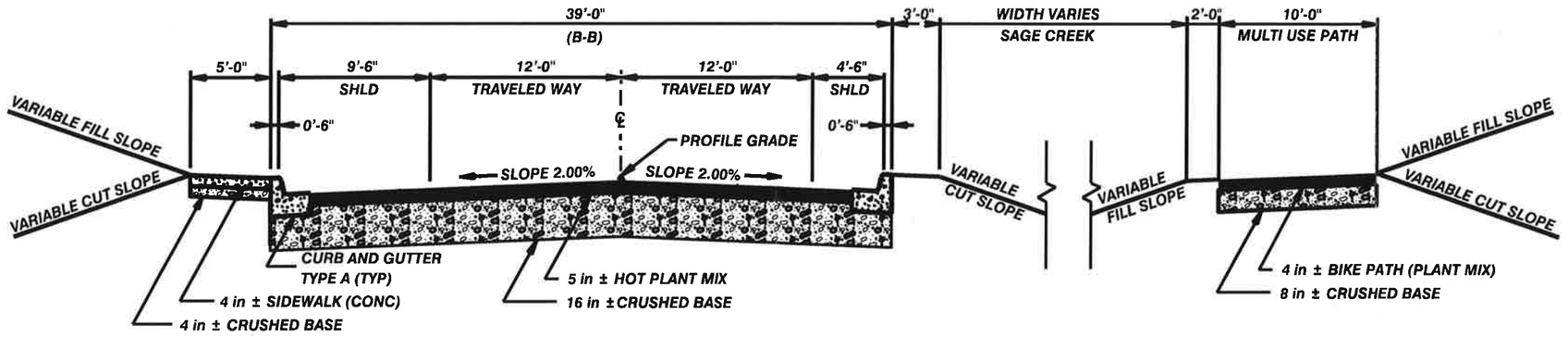
PROPOSED TYPICAL SECTION

S. RAILWAY ST. - S. 8TH ST. (2580')
WASHAKIE AVENUE



PROPOSED TYPICAL SECTION

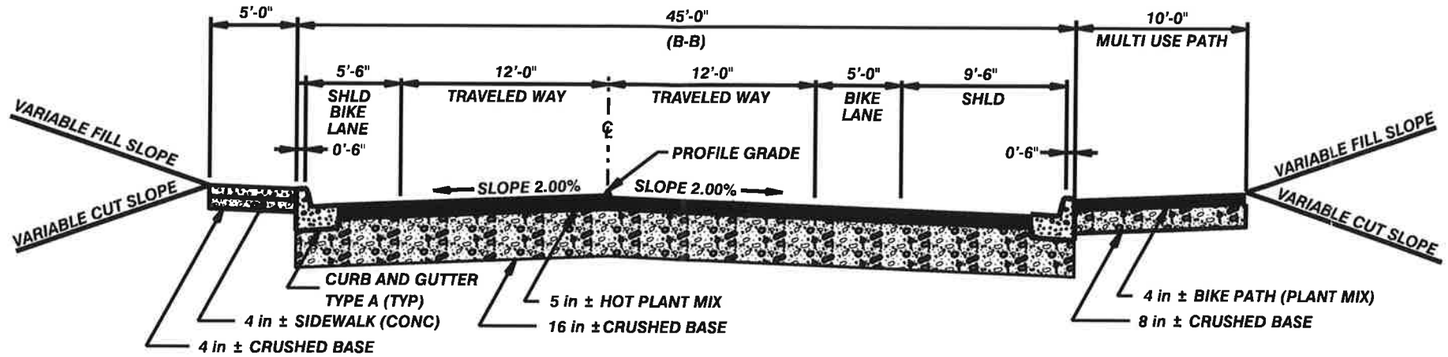
S. 8TH ST. - S. 15TH ST. (2660')
WASHAKIE AVENUE



STATE OF WYOMING	PROJ. NO.	SHEET NO.	TOT SHE
	•	•	•

PROPOSED TYPICAL SECTION

S. 15TH ST. - S. 23RD ST. (2660')
WASHAKIE AVENUE



PROPOSED TYPICAL SECTION

S. 23RD ST. - S. RD.11 (3270')
WASHAKIE AVENUE