**SAMPLE RECONNAISSANCE REPORT**

1. The attached Design Aid is a sample report intended to be used as a general format template when writing Reconnaissance Reports. The report should summarize the project design standards, existing condition, recommendations, and cost estimates. To use, download the sample report, and modify all text, names, titles, project numbers, etc., as necessary to create a project specific report. Topics or attachments should be added or removed as necessary.
2. Consultants writing reports for WYDOT are required to include their ***COMPANY NAME, CITY, and STATE*** at the top of the title page as shown in the sample report.
3. Use ‘DRAFT’ watermark until final distribution on all pages except for the signature page and the comment sheet.

**WYOMING DEPARTMENT OF TRANSPORTATION**

**BY COMPANY NAME, CITY, STATE (if consultant)**

**RECONNAISSANCE REPORT**

**Project I254161**

**Glenrock-Casper/Casper Marginal**

**Natrona County**

**LOCATION and DESCRIPTION**: The project is located along I-25 in Casper, Wyoming, Natrona County, beginning just east of the U.S. 26 bridge over I-25 and ending just west of the Poplar St interchange. Proposed work will reconstruct the pavement, rehabilitate/reconstruction bridges, add some auxiliary lanes, replace the median barrier, upgrade some traffic signals, correct some deficient drainage, and improve vertical clearances under some bridges.

**FIELD INSPECTION:** October 3, 2018

**INSPECTION PERSONNEL**:

Lowell Fleenor, P.E., District Engineer, Casper

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Jeri Yearout, P.E., State Hydraulics Engineer, Cheyenne

Kirk Hood, P.G., Project Geologist, Cheyenne

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Christina Spindler, P.E., Assistant State Traffic Engineer, Cheyenne

Ryan Shields, P.E., Traffic – Geometrics, Cheyenne

Rick Amen, P.E., Traffic – Electrical, Cheyenne

Bill Roberts, Traffic – Electrical, Cheyenne

Taylor McCort, Traffic, Cheyenne

Ginni Stevens, Program Performance, Cheyenne

Elizabeth Lack, Environmental Service, Cheyenne

Whitney Wise, P.E., Materials, Cheyenne

Consultant, XYZ Company, Place, Wyoming

**ROUTE:** Interstate I-25

**DISTRICT**: 2

**PROJECT LIMITS AND LENGTH OF PROJECT**: The program limits are from RM 186.45 to RM 188.89 for an overall project length of 2.44 miles.

**FUNCTIONAL CLASSIFICATION**: This section of I-25 is classified as Principal Arterial – Interstate Urban.

**HIGHWAY SYSTEM**: I-25 is on the National Highway System – Interstate.

**CHARACTER OF WORK**: Pavement rehabilitation, bridge rehabilitation, traffic operations improvements, traffic signal upgrades, and drainage improvements.

**PROGRAMMED FUNDING**: NHPPI – Federal Aid.

**CONSTRUCTION YEAR**: FY 2022

**EXISTING FACILITIES:**

**Construction History**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Project No.** | **RM** | **RM** | **Year** | **Work Type** |
| I-25-4(5) | 186.76 | 188.38 | 1960 | Grade & Base |
| I-25-4(6) | 186.53 | 188.38 | 1960 | Grade |
| I-25-4(8) | 187.32 | 188.19 | 1960 |  |
| I-25-4(15) | 188.89 | 189.89 | 1961 |  |
| I-25-4(18) | 188.89 | 189.89 | 1961 |  |
| I-25-4(31 )UNITII | 185.68 | 185.93 | 1969 | Grade & Surface |
| I-25-4(34) | 185.37 | 186.54 | 1969 | Grade & Surface |
| I-25-4(39) | 188.63 | 189.11 | 1972 |  |
| IR-25-4(86) | 188.35 | 188.89 | 1985 | Grade & Surface |
| SMP-CM-25-4(108) | 188.38 | 189.51 | 1987 | Flood Repair |
| IR-25-4(82) | 185.36 | 188.37 | 1989 | Base & Surface |
| I025-04(145) | 185.38 | 185.67 | 2006 |  |
| B172014 |  |  |  | Bridge Rehabilitation |

**Traffic Data**: Traffic data presented are from the WYDOT Planning Program. Truck traffic is approximately 22% of the total.

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility** | **Location** | **Existing 2018 AADT** | **Design Year 2042 AADT**  **(Estimated)** |
| I-25 Both Directions | RM 186.2 | 17,000 | 27,000 |
| I-25 Both Directions | RM 187.4 | 23,000 | 37,000 |
| I-25 Both Directions | RM 188.9 | 16,000 | 26,000 |

**Posted Speed Limit**: This portion of I-25 is posted 60 MPH.

**Highway Geometrics - Horizontal Alignment**: I-25 Mainline - there are six horizontal curves, NBL, and SBL. Three curves (both directions) meet a minimum 75 MPH design speed. Two curves (both directions), at RM 188.60, meet a minimum 45 MPH design speed; two curves (both directions), at RM 186.30 and RM 186.70, meet a minimum 70 MPH design speed.

**Highway Geometrics - Vertical Alignment**: I-25 Mainline - there are seven crest vertical curves, NBL, and SBL. For each direction, one curve meets a minimum 80 MPH design speed, and the remaining six curves, in each direction, have a design speed ranging from 49 MPH to 73 MPH. There are fourteen sag vertical curves, NBL, and SBL. For each direction, six curves meet a minimum75 MPH design speed, and eight curves have a design speed ranging from 40 MPH to 67 MPH.

The maximum grade within the project limits is 5.1% at the west end.

**Highway Geometrics - Roadway Widths**: I-25 mainline has four 12' lanes, 10' outside shoulders, and the inside shoulders widths vary between 2' and 5'. There are continuous auxiliary lanes, 12' wide, between the Poplar St and Shoshoni Interchanges in both directions, and southbound between the Poplar St and Center St Interchanges.

**Median Width:** The median width is primarily 6’ with a concrete barrier. It transitions to 30’ wide, with a cable median barrier, through the Poplar St Interchange to the end of the project.

**Clear Recovery Area/Clear Zone:** Based on the construction history, this section of I-25 has not been safety graded. Curbing is present along I-25 mainline, at ramp gores, and along ramp roadways; concrete barrier/guardrail and taper terminals are present along I-25 mainline.

**Interchange Ramps:** Ramp widths are as noted below:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | FT | | | | | |
|  | On Ramp | | | Off Ramp | | |
| Location | Inside Shoulder | Traveled Way | Outside Shoulder | Inside Shoulder | Traveled Way | Outside Shoulder |
| Bryan Stock Trail Interchange | | | | | | |
| NBL | \* | 20 | \* | \* | 14 | \* |
| SBL | Not applicable – ramp closed\*\* | | | \* | 14 | \* |
| McKinley Street Interchange | | | | | | |
| NBL | na | na | na | \* | 14 | \* |
| SBL | \* | 14 | \* | \* | 14 | \* |
| Center Street Interchange | | | | | | |
| NBL | na | na | na | \* | 16 | \* |
| SBL | \* | 15 | \* | \* | 20 | \* |
| Poplar Street Interchange | | | | | | |
| NBL | 3 | 14 | 3 | 3 | 14 | 3 |
| SBL | 3 | 14 | 3 | 3 | 14 | 3 |
| \* No shoulder but includes 2.5’ curb & gutter. | | | | | | |

**Acceleration and Deceleration Lanes:** Entrance and exit lane tapers and acceleration and deceleration lane lengths are adequate. Several lanes are associated with one-way service roads.

**Access Control:** Full access control on I-25 has been maintained.

**I-25 Service Roads:** E Street runs parallel and along the south side of I-25, from Bryan Stock Trail west to Center Street, as a directional (one-way) two-lane eastbound city street. F Street runs parallel and along the north side of I-25, from Bryan Stock Trail west to Center Street, as a directional (one-way) two-lane westbound city street, and from Center Street to Poplar Street as a two-way, two-lane city street. Both streets provide access and egress from I-25, intersect with the City street system, and provide driveway access to adjacent land use. Some sections of F Street allow on-street parking along the north side; in those sections the left thru lane is only 10’ wide. E and F Street are urban sections, with sections constructed with either PCCP or plant mix pavements.

**Surfacing:**

|  |  |  |  |
| --- | --- | --- | --- |
| Location | Sub-base | Base | Pavement |
| I-25 ML-RM 185.674 to 188.38 |  | 4" SMS\* | 10" PCCP |
| I-25 ML -RM 188.38 to 188.890 |  | 4"CB | 8.5" PCCP |
| I-25 Ramps |  | 4"CB | 8.5" PCCP |
| Service Road -E Street (PCCP) |  | 4"CB | 8.5" PCCP |
| Service Road -F Street (PCCP) |  | 4"CB | 8.5" PCCP |
| Service Road -E Street (PMP) | 3" to 10" SMS | 6"PM | 4"PMP |
| Service Road -F Street (PMP) | 3" to 10" SMS | 6"PM | 4"PMP |
| \*Select Material Surfacing |  |  |  |

**Structures:** Numerous structures are located within the project limits:

RM 188.40, Structure BMA, Herford Lane over I-25: The existing structure is a simple span concrete slab rigid frame bridge. The structure has a back-to-back abutment length of approximately 89.6' and a clear roadway width of 42'. The listed vertical under-clearance is 14’-11”. The inventory rating for the structure is 33 tons for the HS20 truck. The clear distance between the abutments is 80’ measured perpendicular to centerline roadway. This structure is structurally deficient and is currently scheduled to be rehabilitated under a separate project.

RM 186.45, Structure AIA, BNSF Overpass. The existing structure is a 3 span truss bridge with steel girder approach spans. The bridge carries railroad over the interstate. The listed vertical under-clearance is 15’-0”. This structure is frequently impacted by overheight loads. The existing piers extend into the shoulders and are shielded by concrete barrier rail that abuts the existing piers.

RM 186.48, Structure Nos. FXZ and FYA, Misc. Structures: The existing structures are a single 84" diameter RCP and a double barrel 7.5'x3.3' RCB. The structures were constructed in 1962. In 1970, ditch paving between the RCP and double barrel RCB was covered.

RM 187.53, Structure Nos. AIF (NBL) and DKU (SBL), McKinley Street Interchange: The existing twin structures are four span continuous wide flange girder bridges constructed in 1957. Each structure has a back-to-back abutment length of 164.5' and a clear roadway width of 35'. The inventory rating for each structure is 33 tons for the HS20 truck, and 33 tons for the Type 3S2 rating truck which is a rating factor of 0.8. Each structure has a 32" high concrete barrier rail on both the shoulder and median side. A concrete retaining wall exists on the northwest and northeast corner of Structure No. AIH (NBL), to retain the fill slope from encroaching onto East F St. Each retaining wall is 180' in length, and has 32" concrete barrier rail attached to the top of the retaining wall. A brick landscaping wall exists on slope adjacent to the southbound lane structure. The listed vertical under-clearance is 14'-10". In 1989, each bridge was widened to its current configuration. These structures were recently rehabilitated.

Overhead sign structures (seven) are located at RMs 187.14, 187.21, 187.79,

187.92, 188.37, and 188.86. Three of the sign structures are steel space truss sign structures that span both lanes of the interstates, and three of the sign structures are steel cantilevered space truss sign structures.

**Safety Management System - Safety Screening, Evaluations, and Recommendations**: The reports indicate a Safety Index Rating of 4. An evaluation of safety improvements/countermeasures, per the WYDOT, *Guide for Interstate Highways, 2014*, should be conducted based on this screening. The proposed addition of auxiliary lanes to facilitate weaving will enhance safety.

The reports show one CARE Hot Spot, which had 3 critical crashes, from RM 188.6 to RM 189.1 in the southbound direction. This includes the last 0.3 miles of the project location. It is not clear which features, if any, may be contributing to crashes but the section includes part of the horizontal curve, noted above, that only meets a 45 MPH design speed; it also is the location of the NBL entrance ramp and SBL exit ramp for the Poplar Street interchange; and the very west end has the steepest grade on the project, at 5.1%.

**Safety History:** The crash history for the years 2013 to 2017 is summarized.

Total Crashes: 168

Injury Crashes: 36 crashes; 45 injured

Fatal Crashes: 0 crashes; 0 fatalities

**Right-of-Way:** Variable widths, ranging from 135 ft. to 470 ft.

**Utilities**: A Utilities Database report is attached.

**Land Use:** The Interstate 25 corridor, through the City of Casper, has been fully developed with industrial and commercial land uses.

**Environmental:** Natural environmental resources are limited due to urban development. There are some wetlands near the east end of the project. The North Platte River is considered “waters of the U.S.” and there may be associated wetlands. There may be cultural resources to be considered. There is minimal vegetation and, likely, no wildlife issues since the project is in the Casper urban area.

**RECONNAISSANCE REPORT RECOMMENDED PROJECT TYPE:** The selection of a project type is based on the application criteria presented in the WYDOT**,** *Guide for Interstate Highways, 2014.* The notes from the project Kick-Off meeting, held on 8/3/18, were reviewed. It appeared that the intended scope of rehabilitation is more extensive than appropriate under a Preservation project type. The apparent scope fits best under a Rehabilitation project type, with the surfacing being rehabilitated rather than replaced, no intent to correct the several geometric deficiencies, and no intent to modify interchanges and intersections to address capacity needs of design year traffic. The intended addition of some additional auxiliary lanes for weaving will enhance traffic operations and safety, and is appropriate under the Rehabilitation project type.

During the reconnaissance inspection, it was discussed whether it would be more appropriate to replace the concrete pavement rather than a mill and overlay strategy, as envisioned initially. In subsequent discussions, the decision was made to replace the concrete pavement. This calls for a Reconstruction project type.

**RECONNAISSANCE REPORT RECOMMENDATIONS:** The WYDOT*Guide* was used to identify applicable criteria and design values, based on the Reconstruction project type.

1. Recommended Project Type/Character of Work: The project meets the criteria for a Reconstruction type project; the work will include concrete pavement reconstruction, plant mix pavement preservation, bridge rehabilitation and replacement, traffic operations improvements, traffic signal upgrades, median barrier replacement, improve vertical clearances, and drainage improvements.
2. Purpose and Need for Project: Pavement shows distress and deterioration requiring a pavement strategy for rehabilitation or reconstruction of PCCP and resurfacing of PMP; other infrastructure needs for structures, safety, drainages and interchanges will be evaluated.
3. Project Limits: The program limits are from RM 186.45 to RM 188.89 for an overall project length of 2.44 miles. **The beginning of the project should be adjusted to RM 186.24** to coincide with the end of the upcoming adjacent project. The inspection team concurred with the end of the project in the program of RM 188.89. The revised project length will be 2.65 miles.
4. Posted Speed Limit: 60 MPH
5. Design Speed: 60 MPH
6. Horizontal Alignment: The horizontal curves in both directions from RM 188.43 to 188.72 only meet a 45 MPH design speed with the listed superelevation of 4.2%. The superelevation should be confirmed. If it could be modified to 5.2%, it would meet a 50 MPH, or 6.8% would meet a 60 MPH design speed. However, the bridges over Poplar St are in the middle of the curve; if they are superelevated to 4.2%, it will not be useful to attempt to improve the remainder of the curves. A formal design exception may be necessary.
7. Vertical Alignment: Four sag vertical curves do not meet the required design speed of 60 MPH for combination of curve length, and grades (K-factor) and sight distance. However, due to the abundant external lighting in the urban environment, the limited sight distance on sag curves from headlights is not a significant problem. One crest curve in the NBL does not meet the required design speed of 60 MPH. These are likely cost prohibitive to correct due to proximity to bridges and other vertical curves. A formal design exception may be necessary.
8. Roadway Section Type: Rural-ditch section consistent with the existing roadway design. Inlets should be used as needed for underground drainage. Curb & gutter should be used along ramps as they transition in operating speeds to below 45 MPH. Note, this explicitly applies to 6” vertical curbs (WYDOT standard); some sloping curbs can be used at higher speeds if necessary for control of drainage.
9. Roadway Widths:

Mainline

2 Travel lanes each direction

12' Lane widths

10' outside and 4’ inside shoulder widths

Ramps

Single lane

12’ width

8’ outside and 4’ inside shoulder widths

If the inside shoulders cannot be constructed to 4’ widths, a formal design exception may be necessary.

1. Median Widths: Table 3a. in the WYDOT *Guide* calls for medians in urban sections to be 10’ wide. This is a non-controlling criteria but should be followed if feasible on this project. It is likely not possible in some cases due to limitations caused by overhead bridges or interstate bridges, which are not being widened or replaced.
2. Interchanges and Intersections: Retain existing interchange types. The WYDOT *Guide* calls for an evaluation of the interchanges and ramp terminal intersections and states that improvements to correct identified deficiencies will be included in the project scope. Higher volume interchanges, such as on this project should have 24’ wide ramps in accordance with the WYDOT *Road Design Manual*, so ramp widening could be considered.

One likely change suggested by Traffic is to add a dual left turn where the NB off ramp intersects with Poplar Street.

1. I-25 Auxiliary Lanes: Extending these for operation and safety benefits is a primary need identified to drive this project. They should be analyzed at each location based on weaving, speed changes, lane balance and physical constraints. Traffic determined the Auxiliary lanes are not warranted based on level of service/capacity, but the following was noted from the AASHTO, *A Policy on Geometric Design of Highways and Streets, 2011* (Green Book):

Last paragraph, page 10-106 of the 2011 Green Book, indicates that successive noses less than 1500 feet apart should be connected to provide an auxiliary lane/ speed change lane which improves operations. Successive ramp noses (NBL, SBL) between McKinley- Center and Bryan Stock Trail - McKinley are less than 1500 feet apart.

The inspection team concurred with the District’s recommendation of adding auxiliary lanes to connect entrance ramps and exit ramps, in both directions, between Bryan Stock Trail and McKinley Street, and between McKinley Street and Center Street. This is considered one of the essential elements of the project and should supersede the layout of the service roads.

The Green Book calls for a desirable shoulder width of 8’-12’, with a 6’ minimum, adjacent to the auxiliary lanes. The auxiliary lane shoulder width will be 8’ on this project.

1. I-25 Service Roads: F Street and E Street shall generally maintain their same geometry unless modifications are necessary due the addition of the interstate mainline auxiliary lanes as described above. In sections of F Street, where on-street parking results in only a 10’ left thru lane, the service road should be widened to provide a 12’ thru lane if space allows.

The existing outside curb and gutter will remain in place and the PCCP portions will be reconstructed. A plant mix wearing course should be placed, including over the plant mix portions, which were recently overlaid. ADA compliant curb ramps shall be installed at the intersections.

1. Side Slopes and Grading: 1V:6H including surfacing taper.
2. Drainage: The project area has drainage problems around RM 186.5. This needs to be analyzed by the Hydraulics Section and alternatives developed to improve the drainage. Hydraulics will look at this challenging location very early in the design phase as it will drive other decisions, such as the mainline grade lowering to improve bridge clearances. The District said the low point under the BNRR overpass at RM 186.60 is almost the same as the river surface elevation. Pumping systems may be considered. An Intelligent Transportation Systems (ITS) system is being developed to provide timely warnings when the roadway is flooding.
3. Preliminary Surfacing:

I-25 Mainline

Remove PCCP, add 6” crushed base and 10” concrete pavement.

I-25 Mainline Auxiliary Lanes

Widen with 6” crushed base and 10” concrete pavement.

I-25 Ramps

Remove PCCP, add 10” crushed base and 8” concrete pavement.

Service Roads – E and F Streets (PCCP Locations)

Remove PCCP, add 10” crushed base and 8” concrete pavement.

Service Roads – E and F Streets (PMP Locations)

¾” plant mix wearing course (PG 70-28)

All the concrete pavement is to be dowel jointed.

1. Material Sources: Contractor furnished for surfacing and borrow. A specification for the material will be necessary due to recent problems with contractors supplying A-3 materials, which are too sandy to consolidate.
2. Roadside Safety Hardware/Barriers:

Roadside: Project will remove and upgrade all concrete barrier/guardrail and terminals. New barrier types will be selected in consideration of each location, transitions to bridge barriers, and in light of the ongoing implementation of the AASHTO *Manual for Assessing Safety Hardware* (MASH).

Median Barrier: Project will remove and upgrade all concrete median barrier. The District noted that since about half the existing barrier will need to be removed for crossovers and slip ramps during construction, it will be more cohesive to replace all the median barrier. New barrier types will be selected in consideration of each location, transitions to bridge barriers, and in light of the ongoing implementation of MASH.

Curb Removal: Vertical Curbs will be removed along I-25 mainline, ramp gores, and high speed sections of ramps. See previous discussion under Roadway Section.

1. Structures: RM 188.40, Structure BMA, Herford Lane over I-25: The clearance under this structure is 14.92’ so lowering the grade will be evaluated. This is also the location of occasional flooding causing closure of the interstate. In balancing these competing interests, the District would rather improve the clearance even if the flooding cannot be completely resolved; this is because the clearance is more frequent problem than the flooding. It is not anticipated that the grade lowering of the interstate will affect the structure. However, the clear distance between supports may not provide enough width for the proposed interstate template. Assuming a center median barrier width of 2’, 38’ clear roadway in each lane, there is only 1’ foot width available for barrier rail on the shoulders. This will have to be evaluated in design. The possibility of removing this structure entirely should also be evaluated in design. This would help with lowering the grade and save future costs of structure maintenance.

RM 186.45, Structure AIA, BNSF Overpass. The clearance under this bridge is only about 15’ so lowering the grade will be evaluated similar to Structure BMA. Since the existing piers are within the shoulder, a reduced roadway width will be required.

Structure No. AIB, Bryan Stock Trail over I-25. It is not anticipated that grade lowering will affect this structure. This will be evaluated during design but no work is anticipated.

RM 187.53, Structure Nos. AIF (NBL) and DKU (SBL), McKinley Street Interchange and RM 188.19, Structure Nos. AIH (NBL) and DKV (SBL), Center Street Interchange: The existing structures have inventory load rating factors of 0.91 for the HS20 truck and 0.84 for the Type 3S2. The existing roadway width of 35’ does not meet the minimum required roadway width of 38’. The existing 32” high concrete barrier rail will need to be evaluated concurrently with the roadway guardrail. It is anticipated that this guardrail will need to be replaced with MASH compliant rail. The shoulder side barrier rail is integral with the retaining walls. The retaining walls may not be adequate to support the new MASH railing. A retaining wall would be required on the north side to retain the fill slope. If the alignment is shifted to the south, the retaining wall height may be minimized or eliminated entirely. It is anticipated that the cost to widen the structures, update the structures for MASH railing, and perform other bridge rehabilitation would be half the cost to replace the structures. Therefore, due to the age of the structures, low load rating, and substandard width, it is anticipated that the structures will be replaced. A design exception would be required to keep the existing bridges in place due to the low load rating and substandard width. A design exception would also be required to maintain the existing roadway width.

Overhead Sign Structures: Several of the overhead sign structures will likely be in conflict with the proposed additional auxiliary lanes. The Bridge Program will evaluate whether replacement sign structures can span both lanes of the interstate or if separate structures with median columns will be required. Cost estimate assumes replacement of all sign structures.

1. Traffic Signing, Signals, and Roadway Lighting: Permanent traffic signing, including new panels and supports will be reset or reconstructed, as needed due to roadway widening. Variable speed limit (VSL) signs in this corridor will be adjusted on the subject project in the widening areas. The ITS system to provide warning for roadway flooding may be installed before this project, so would require adjustment. It was also noted that there is not a bridge clearance advance warning system in the NBL like there is in the SBL. This will be evaluated during the design.

Signal upgrades are needed at the ramp terminal intersections at Bryan Stock Trail, McKinley Street, Center Street, and Poplar Street. Follow Traffic Program’s analysis recommends considering the removal of the signals at McKinley. There was also some discussion about the possible addition of a signal on the north side of Bryan Stock Trail.

Overall, most of the signal poles are of the old style and there are concerns about the connection to the mast arm and fatigue cracking. The poles need to be replaced. All the roadway lighting on the project will be upgraded, partly due to the widening for the auxiliary lanes and largely due to the current use of 480 volt systems, which present a greater hazard to highway workers.

1. Construction and Traffic Control: This is a significant project. Maintenance of traffic and traffic control plans will be provided. Standard plans will be provided. No long term road closures should occur, but short term closures will be necessary. Detours will be provided if necessary.

Traffic will be switched over to two-way operation on one side during construction, requiring crossovers and slip ramps. Construction of the crossovers will be minimal – just the removal of the existing median barrier. An existing crossover between Poplar Street and the Shoshoni exit, on the north end of the project, will be left in place for use on this project.

1. Access Controls: Full access control on I-25 will be maintained.
2. Right-of-Way: No additional rights-of-way should be needed; construction permits may be needed. The pedestrian access gate onto the interstate right-of-way along the SBL just west of the North Platte River should be removed to discourage pedestrian access.
3. Utilities: Utility locations will be mapped; utilities will be adjusted when in conflict with proposed work.
4. Environmental: There is potential for some wetland impacts outside the existing right-of-way depending on the work to improve the drainage problems noted above. Project will comply with applicable water quality permits, including NPDES. The document type will be a Categorical Exclusion. No public meetings will be conducted as part of the NEPA process, but two public information meetings are requested by the district to meet public involvement Level C.
5. Transportation Enhancements and Context Sensitive Amenities: Transportation Enhancement Funds and 3% Context Sensitive Amenities will be used for corridor landscaping and interchange landscaping within Interstate rights-of-way. The District noted that much of the current landscaping in the project area includes juniper shrubs and sandstone, which the City is probably inclined to replace on this project.
6. Funding: Federal NHPPI
7. Cooperative Agreements will be required with the City of Casper for context sensitive amenities as noted above. The District noted the City may request some ARS agreements for utility work on the project.

**RECONNAISSANCE REPORT RECOMMENDED SCHEDULE:** FY 2022

**CONSTRUCTION COST ESTIMATE BASED ON RECONNAISSANCE REPORT RECOMMENDATIONS:**

The following table illustrates the nominal costs for the various components of work starting with base surfacing as currently programmed. The last line (shown in bold) represents the project work as recommended by the Reconnaissance Team (see detailed estimate attached):

Future inflation calculated at 4% per year.

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**DESIGN VALUES:**

Projected Traffic, AADT: 2042, Variable from 26,000 to 37,000

Type of Area: Urban

Section Type: Rural for high speed roadway sections, urban for low speed roadway sections

Type of Terrain: Rolling

Level of Service: LOS C mainline and LOS D for ramps and crossroads

Selected Posted Speed: 60 MPH

Selected Design Speed: 60 MPH

Number of Lanes: 4 thru lanes with median separation

Travel Lane Widths: 12 ft

Shoulder Widths: Outside: 10 ft

Inside: 4 ft

Ramps: Lane Width: 12 ft

Shoulder Width: Outside: 8 ft

Inside: 4 ft

Maximum Grades: 5%

Clear Zone Width: 30 ft (foreslopes 1V:6H or flatter)

Surface Type: PCCP Interstate, Mainline and Ramps; HPM service roads

**REFERENCE DOCUMENTS:**

AASHTO, *A Policy on Design Standards Interstate System*

AASHTO*, A Policy on Geometric Design of Highways and Streets, 2011*

WYDOT**,** *Guide for Interstate Highways, 2014*

WYDOT*, Road Design Manual*

*WYDOT, Final Reconnaissance Report, Project 0254139, dated 9-7-12*

**SIGNATURES:**

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Date

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Project Development Engineer

Date

Approved By:

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District Engineer

Date

Approved By:

Jeffrey Brown, P.E.

Highway Development Engineer

Date

Concurred By:

Keith Fulton, P.E.

Assistant Chief Engineer for Planning and Engineering

Date

**COMMENTS AND RECOMMENDATIONS**

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Project I254161

Glenrock-Casper, Casper Marginal

Natrona County

Utility Database

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Route (ML)** | **Milepost** | **Folder No.** | **Dist. Ref. No.** | **Util. ID** | **Company** | **Company Ref. No.** | **Facil. Type** | **Encr. Type** |
| ML25 | 185.59 | 58241 |  | CJJE | ROCK-POW |  | POWB | ENCR |
| ML25 | 185.59 | 59230 | 2-514 | CIZL | ROCK-POW |  | POWB | ENCR |
| ML25 | 185.6 | 59805 | 2-606 | CJRK | ROCK-POW |  | POWB | ENCR |
| ML25 | 185.74 | 18924 |  | AWEN | C&NW |  | RR-V | XING |
| ML25 | 185.74 | 19086 |  | AWFG | C&NW |  | RR-V | XING |
| ML25 | 185.753 | 57835 | 2.223A | CHDC | CASPER |  | WATT | XING |
| ML25 | 185.838 | 15147 |  | ALBW | CASPER |  | WATT | ENCR |
| ML25 | 185.959 | 47124 |  | BPYV | ROCK-POW |  | POWA | XING |
| ML25 | 185.96 | 68754 | 2-1445 | DAQX | CHARTER | Lariat | FIOP | XING |
| ML25 | 186 | 65430 | 2-1169 | CURN | ACT | 130501 | FIOP | ENCR |
| ML25 | 186.037 | 55787 | 2-187 | CEKQ | CENLINK | R/W 38049 | TELB | XING |
| ML25 | 186.13 | 65430 | 2-1169 | CURO | ACT | 130501 | FIOP | XING |
| ML25 | 186.2 | 18359 |  | ALJQ | PRVT |  | CTVA | XING |
| ML25 | 186.223 | 58845 |  | CKND | CENLINK |  | FIOP | ENCR |
| ML25 | 186.44 | 40904 |  | BKDN | CASPER |  | WATD | ENCR |
| ML25 | 186.45 | 11809 |  | CBIM | C&NW |  | RR-E | ENCR |
| ML25 | 186.6 | 10841 |  | AWFL | BNSF |  | RR-V | XING |
| ML25 | 186.602 | 49761 |  | BTQT | MCI |  | FIOP | XING |
| ML25 | 186.608 | 19606 |  | ANPF | PRVT |  | SANS | XING |
| ML25 | 186.77 | 40904 |  | BKDM | CASPER |  | WATD | ENCR |
| ML25 | 186.785 | 64987 | 2-1102 | CRSY | NACSD1 |  | STOS | ENCR |
| ML25 | 186.785 | 65541 | 2-1188 | CTDX | CASPER |  | SANS | XING |
| ML25 | 186.79 | 62953 | 2-856 | CNWM | CENLINK | R/W: 39916 | FIOP | XING |
| ML25 | 186.79 | 63048 |  | COAK | WYDOT-TEL |  | FIOP | ENCR |
| ML25 | 186.79 | 54807 | 2-141 | CCZF | BHE-SRCG |  | GASD | ENCR |
| ML25 | 186.79 | 11517 |  | CBIK | ROCK-POW |  | POWB | XING |
| ML25 | 186.79 | 40811 |  | BKAN | BNSF |  | RR-X | XING |
| ML25 | 186.79 | 11476 |  | AZCQ | BHE-SRCG |  | GASD | XING |
| ML25 | 186.79 | 10727 |  | ANOQ | CENLINK |  | TELA | ENCR |
| ML25 | 186.89 | 26399 |  | ALZJ | CENLINK |  | TELB | ENCR |
| ML25 | 186.89 | 15233 |  | ALBU | CASPER |  | WATT | ENCR |
| ML25 | 186.98 | 10726 |  | ANFW | CENLINK |  | TELB | ENCR |
| ML25 | 187 | 10712 |  | AZBI | PRVT |  | WATD | XING |

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| TOTAL ESTIMATED QUANTITIES | | | | COST | |
| ITEM NO. | ITEM | UNIT | ESTIMATED QUANTITIES | UNIT PRICE | EXTENSION |
|
|
| 105.09000 | CONTRACTOR SURVEYING | MI | 2.7 | $ 40,000.00 | $ 108,000.00 |
| 106.05100 | FIELD LABORATORY | EA | 1 | $ 13,000.00 | $ 13,000.00 |
| 106.05200 | CONTRACTOR TESTING | LS | 1 | $ 225,361.85 | $ 225,363.00 |
| 109.04000 | ROCE ACCOUNT WORK | $$ | 50000 | $ 1.00 | $ 50,000.00 |
| 109.08000 | MOBILIZATION | LS | 1 | $ 25,000.00 | $ 2,500,000.00 |
| 202.03165 | REMOVAL OF GUARDRAIL AND BARRIER | FT | 16500 | $ 1.50 | $ 24,750.00 |
| 202.03317 | MILLING CONCRETE (3") | SY | 0 | $ 5.00 | $ - |
| 202.03400 | REMOVAL OF SURFACING | SY | 169588 | $ 7.00 | $ 1,187,117.00 |
| 203.02500 | UNCLASSIFIED EXCAVATION | CY | 26688 | $ 4.00 | $ 106,751.00 |
| 209.01000 | WATER | MG | 2609 | $ 9.00 | $ 23,483.00 |
| 215.01000 | CONTRACTOR STORM WATER CONTROL | LS | 1 | $ 50,000.00 | $ 50,000.00 |
| 301.01085 | CRUSHED BASE | CY | 35411 | $ 36.00 | $ 1,274,799.00 |
| 401.02000 | HOT PLANT MIX | TON | 0 | $ 45.00 | $ - |
| 401.03325 | ASPHALT BINDER (PG 70-28) | TON | 73 | $ 675.00 | $ 48,949.00 |
| 404.01000 | PLANT MIX WEARING COURSE | TON | 1116 | $ 42.00 | $ 46,857.00 |
| 404.01005 | SEAL COAT | TON | 0 | $ 545.00 | $ - |
| 407.01000 | TACK COAT | TON | 0 | $ 545.00 | $ - |
| 413.01000 | HYDRATED LIME | TON | 10 | $ 150.00 | $ 1,668.00 |
| 414.01035 | CONCRETE PVMT (8 IN) | SY | 57930 | $ 55.00 | $ 3,186,150.00 |
| 414.01050 | CONCRETE PVMT (10 IN) | SY | 115917 | $ 55.00 | $ 6,375,409.00 |
| 500.10000 | BRIDGE WORK | LS | 1 | $ 13,454,000.00 | $ 13,454,000.00 |
| 505.06100 | SHOULDER BARRIER | FT | 4500 | $ 70.00 | $ 315,000.00 |
| 505.06005 | MEDIAN BARRIER 42 in | FT | 12000 | $ 110.00 | $ 1,320,000.00 |
| 701.71000 | TRAFFIC SIGNAL SYSTEM | LS | 1 | $ 2,150,000.00 | $ 2,150,000.00 |
| 701.73000 | ROADWAY LIGHTING SYSTEM | LS | 1 | $ 750,000.00 | $ 750,000.00 |
| 702.09110 | OVERHEAD SIGN STRUCTURE | LS | 1 | $ 1,017,000.00 | $ 1,017,000.00 |
| 702.09400 | STL BREAK-AWAY SIGN SUPPORT W6 X 15 | FT | 320 | $ 100.00 | $ 32,000.00 |
| 702.09500 | STL BREAK-AWAY SIGN SUPPORT W8 X 21 | FT | 480 | $ 95.00 | $ 45,600.00 |
| 702.30105 | SIGN POSTS, WOOD 4 X 6 in | FT | 320 | $ 12.00 | $ 3,840.00 |
| 702.30110 | SIGN POSTS, WOOD 6 X 6 in | FT | 480 | $ 15.00 | $ 7,200.00 |
| 702.30500 | SIGN PANELS, ALUMINUM | SF | 3600 | $ 30.00 | $ 108,000.00 |
| 702.50100 | DELINEATORS, TYPE I | EA | 230 | $ 35.00 | $ 8,050.00 |
| 702.50200 | DELINEATORS, TYPE II | EA | 300 | $ 38.00 | $ 11,400.00 |
| 703.03100 | FLAGGING | HR | 3500 | $ 35.00 | $ 122,500.00 |
| 703.03115 | TEMPORARY TRAFFIC CONTROL | LS | 1 | $ 1,100,000.00 | $ 1,100,000.00 |
| 703.10200 | IMPACT ATTENUATOR | EA | 16 | $ 10,000.00 | $ 160,000.00 |
|  |  |  |  | SUBTOTAL | $ 35,826,886.00 |
|  |  |  |  | ROADWAY | $ 21,355,886.00 |
|  |  |  |  | STRUCTURE | $ 14,471,000.00 |
|  |  |  |  | 10% CONTIGENCY | $ 3,582,688.60 |
|  |  |  |  | CURRENT (2019) | $ 39,409,574.00 |
|  |  |  |  | FUTURE (2022) | $ 44,330,411.00 |
|  |  |  |  | INFLATION AT | 4% per year |







