WYOMING DEPARTMENT OF TRANSPORTATION
ROAD DESIGN MEMORANDUM #7
DATE OF ISSUE: January 1, 2026

Approved by: Hank Doering Digitally signed by Hank Doering Date: 2026.01.27 15:30:00 -07'00'

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Highway Development Engineer

Issued by: Project Development, WYDOT, Cheyenne

GENERAL TOPIC: ROAD DESIGN STANDARDS
SUBJECT: 4-LANE NON-INTERSTATE HIGHWAYS

General

Each 4-lane corridor will need to be evaluated to determine the appropriate layout and typical sections to be used along their length. It should be anticipated that the typical sections will vary along the corridor.

Each corridor should be evaluated to determine if two new roadways should be constructed for a divided 4-lane roadway, or if the existing roadway should be used for one travel direction and a new 2-lane roadway should be constructed for the opposing direction. From an economic, mobility, and work zone safety standpoint, the preferred option is to use the existing 2-lane roadway for one direction of a divided 4-lane roadway.

The typical sections shown in the exhibit sheets of this Memorandum can be used for new construction of both lanes, or modify an existing 2-lane roadway being upgraded to a 4-lane roadway within the proposed 4-lane corridor.

Roadway Layouts and Typical Sections

To improve safety and minimize the potential for head-on, crossover crashes, the preferred roadway template is a divided roadway section.

The *WYDOT Design Guides* establish lane and shoulder widths based on roadway Functional Classifications for rural and urban sections. The roadways are designed using posted speed and design speeds as established in the *Design Guides*.

Median Width Greater Than 76 Feet: At major intersections with state highways, county roads, or industrial developments, it may be preferred to provide a median width greater than 76 feet. The median width should be based upon anticipated crossover traffic analysis. For example, a crossover that must accommodate a high volume of WB-65 semi-trucks from a county road should be built with a 90-foot

median to allow for truck storage in the median. In extreme circumstances, a grade separation may be needed.

76-foot Divided Median (preferred): See exhibit sheets 1, 2 and 6. To minimize the potential for head-on, crossover crashes, the preferred median width is 76 feet, which facilitates the U-turn movement of a WB-65 semi-truck. Other states' experience with similar multilane roadways shows that a wide median, comparable to the 76-foot design, is highly desirable. This layout is proposed for non-restricted terrain and right-of-way corridors.

56-Foot Divided Median: See exhibit sheets 3, 4 and 6. This layout is proposed for partially restricted terrain or problem right-of-way locations. The median width is based on being able to store a large school bus in the median and still facilitates the U-turn movement of a WB-65 semi-truck by using all the available roadway and shoulder.

12-Foot Paved Median (5-Lane Section): See exhibit sheet 5. This layout is proposed for difficult terrain or very restricted right-of-way locations where there is a potential need for left-turn movements either now or in the future. A non-divided 5-lane section with a paved 12-foot median may be used, however, with appropriate speed limits. This section type is not preferred because it reduces but does not eliminate the potential for head-on, crossover crashes.

8-Foot Paved Median: See exhibit sheet 5. This layout is proposed for difficult terrain or very restricted right-of-way locations where there is no potential for left-turn movements either now or in the future. Since such a section type reduces but does not eliminate the potential for head-on, crossover crashes, a median barrier crash system should be considered to minimize the head-on crash potential. Appropriate speed limits should also be incorporated.

Roadway Crown and Point of Superelevation Rotation

Establishing a strict policy to govern roadway crown and point of superelevation rotation for every situation is not recommended. General guidelines to consider for each situation should prove more useful. There may be considerations of median width which favor one method or the other.

There is some logic which favors keeping both lanes the same. Routes selected to be upgraded to 4-lanes tend to be "goods and services/recreational" routes internal to the state where many of the users will traverse in both directions frequently. Keeping both lanes the same will not violate driver expectancy. Snow removal, drainage, and maintenance operations may also benefit from having both lanes the same.

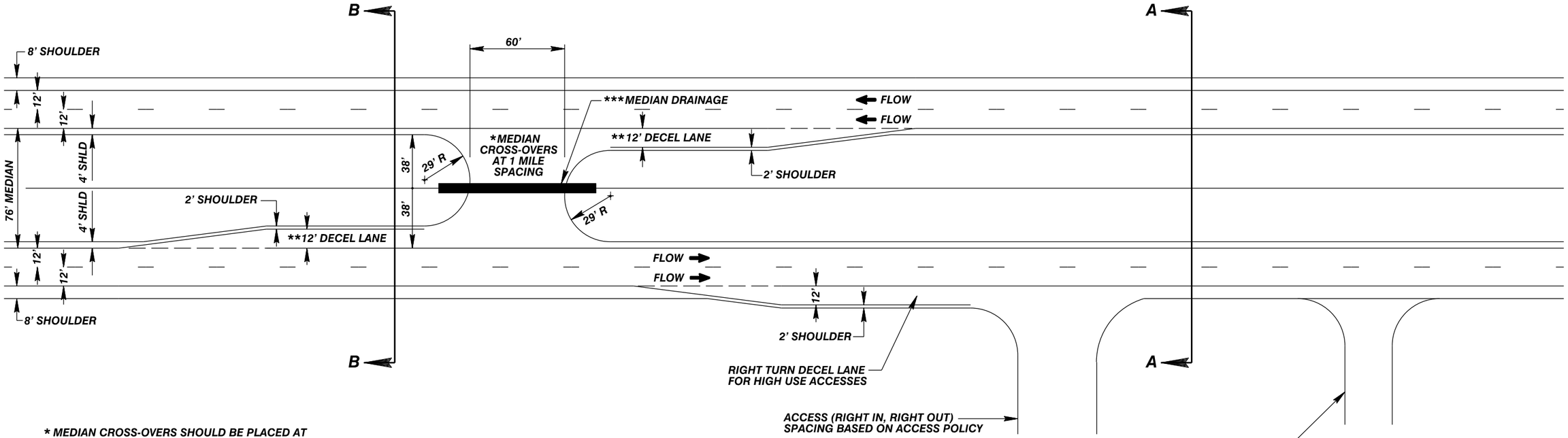
Following this logic, it is recommended that, where an existing center crown highway will function as one lane of a multilane facility, both lanes will employ a centerline crown. The location of the crown may need to shift to provide the requisite 4-foot left, and 8-foot right shoulders. If the existing roadway is being overlaid, the crown should be shifted using milling and/or leveling. If no pavement work is proposed under the initial project, and one or both shoulders will be of deficient width, a design exception should be processed, and should indicate that the crown will be shifted, and/or the roadway will be widened on a future project when pavement conditions require surfacing work.

Where both lanes of a multilane facility will be new construction, it is recommended that both lanes employ an inside shoulder crown. This would seem to simplify the transition from an undivided, multilane section commonly employed in fringe urban areas to the shoulder crown, divided section.

Crossovers should be sloped into the median to facilitate drainage. It is desirable to have the additional roadway widening for acceleration and deceleration lanes on the median side sloped toward the median on a 2% cross slope.

STATE OF WYOMING	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	·	1	6

FOUR LANE ROADWAYS
NON-RESTRICTED TERRAIN LOCATIONS
(76' MEDIAN WIDTH)



* MEDIAN CROSS-OVERS SHOULD BE PLACED AT ALL MAJOR ROADS AND ANY SIGNIFICANT GENERATORS OF TRUCK TRAFFIC.

** THE LENGTH OF TAPERS AND DECEL/STORAGE LANES SHOWN HERE ARE PORTRAYED SHORTER THAN THEY REALLY ARE. USE STANDARD LENGTH TAPERS AND DECEL/STORAGE LANES AS DETERMINED BY THE TRAFFIC PROGRAM.

*** USE CULVERTS AND/OR MEDIAN DRAINS AS NECESSARY TO PROVIDE PROPER DRAINAGE. ENSURE DRAINAGE FEATURES AND CROSSOVER SIDE SLOPES ARE TRAVERSABLE BY ERRANT VEHICLES. PROVIDE ADEQUATE CROSS-SLOPE ON CROSSOVERS TO PREVENT PONDING AND POTENTIAL ICING.

THE MEDIAN MAY NEED TO BE WIDENED TO AT LEAST 90' AT MAJOR INTERSECTIONS (STATE HIGHWAYS, MAJOR COUNTY ROADS, ETC.) TO ACCOMODATE WB-65 STORAGE IN MEDIAN AND VEHICLE TURNING MOVEMENTS.

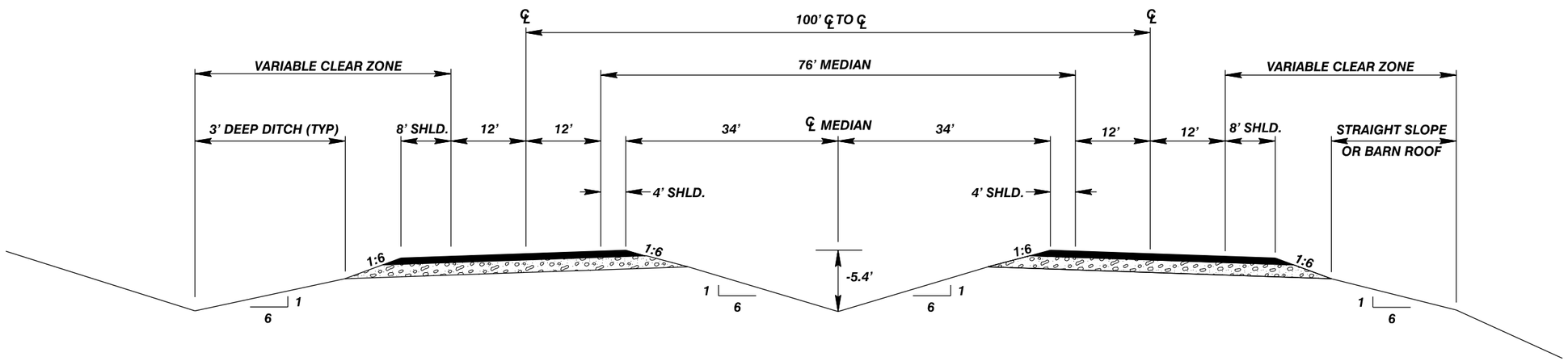
APPROXIMATE RIGHT-OF-WAY WIDTHS

REGULAR 2-LANE	200'
8' MEDIAN	232'
56' MEDIAN	280'
76' MEDIAN	300'

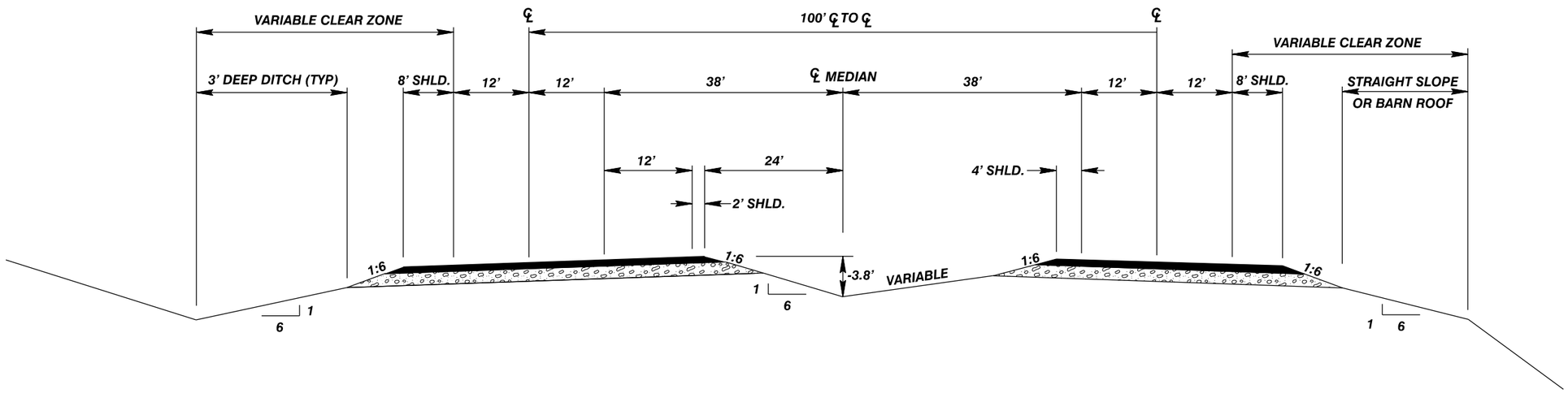
STATE OF WYOMING	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	·	2	6

FOUR LANE ROADWAYS
NON-RESTRICTED TERRAIN LOCATIONS
(76' MEDIAN WIDTH)
TYPICAL SECTIONS

SECTION A-A



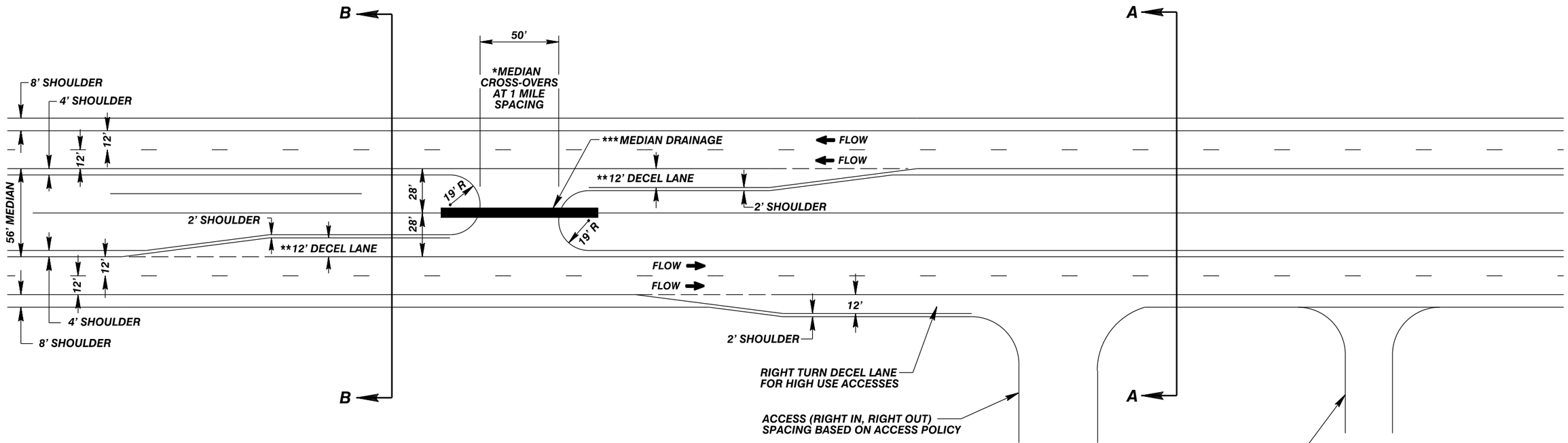
SECTION B-B



NOTE: SURFACING TAPERS WILL BE IN ACCORDANCE WITH THE WYDOT DESIGN GUIDES.

STATE OF WYOMING	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	·	3	6

FOUR LANE ROADWAYS
PARTIALLY RESTRICTED TERRAIN LOCATIONS
(MINIMUM FOR DIVIDED SECTIONS)
(56' MEDIAN WIDTH)



* MEDIAN CROSS-OVERS SHOULD BE PLACED AT ALL MAJOR ROADS AND ANY SIGNIFICANT GENERATORS OF TRUCK TRAFFIC.

** THE LENGTH OF TAPERS AND DECEL/STORAGE LANES SHOWN HERE ARE PORTRAYED SHORTER THAN THEY REALLY ARE. USE STANDARD LENGTH TAPERS AND DECEL/STORAGE LANES AS DETERMINED BY THE TRAFFIC PROGRAM.

*** USE CULVERTS AND/OR MEDIAN DRAINS AS NECESSARY TO PROVIDE PROPER DRAINAGE. ENSURE DRAINAGE FEATURES AND CROSSOVER SIDE SLOPES ARE TRAVERSABLE BY ERRANT VEHICLES. PROVIDE ADEQUATE CROSS-SLOPE ON CROSSOVERS TO PREVENT PONDING AND POTENTIAL ICING.

A MINIMUM MEDIUM WIDTH OF 56' IS NEEDED TO ALLOW A SCHOOL BUS TO STORE IN THE MEDIAN AND THEN MAKE A U-TURN. A TYPICAL LARGE SCHOOL BUS (84 PASSENGERS) IS 40' LONG.

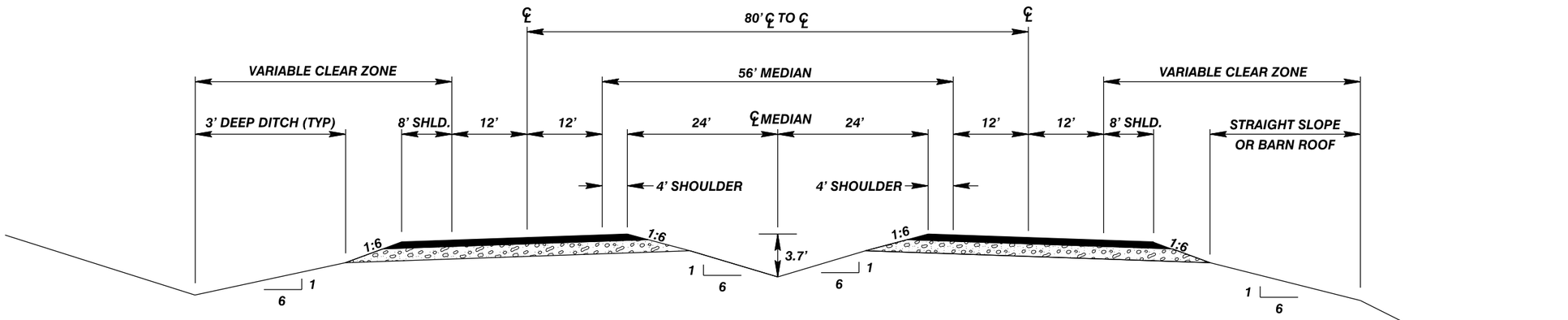
APPROXIMATE RIGHT-OF-WAY WIDTHS

REGULAR 2-LANE	200'
8' MEDIAN	232'
56' MEDIAN	280'
76' MEDIAN	300'

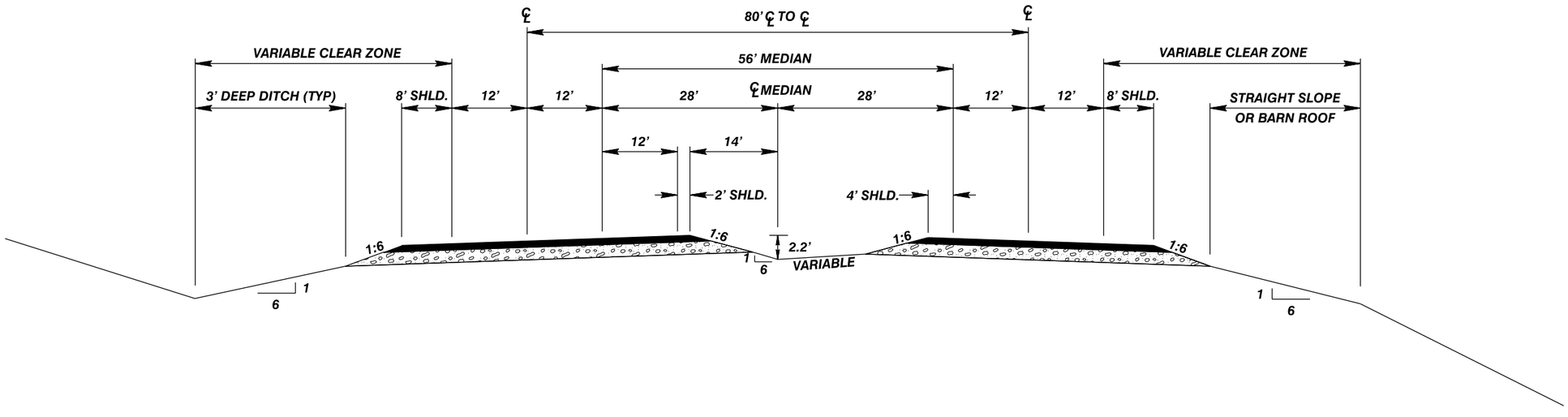
STATE OF WYOMING	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	·	4	6

FOUR LANE ROADWAYS
PARTIALLY RESTRICTED TERRAIN LOCATIONS
(56' MEDIAN WIDTH)
TYPICAL SECTIONS

SECTION A-A



SECTION B-B

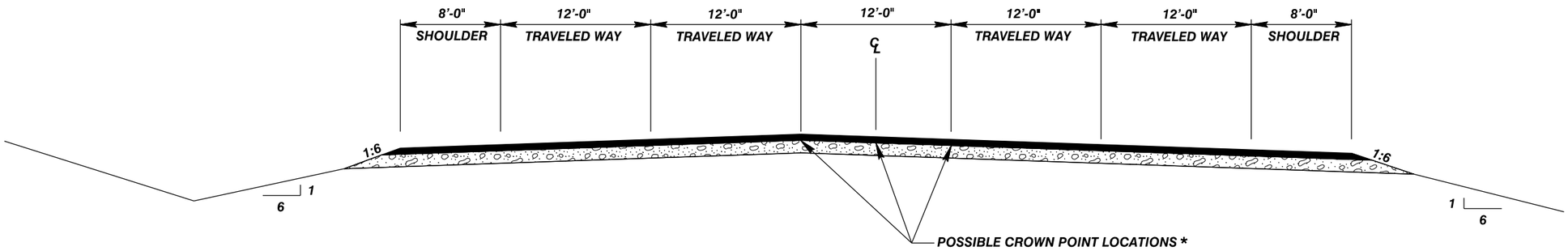


NOTE: SURFACING TAPERS WILL BE IN ACCORDANCE WITH THE WYDOT DESIGN GUIDES.

STATE OF WYOMING	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	·	5	6

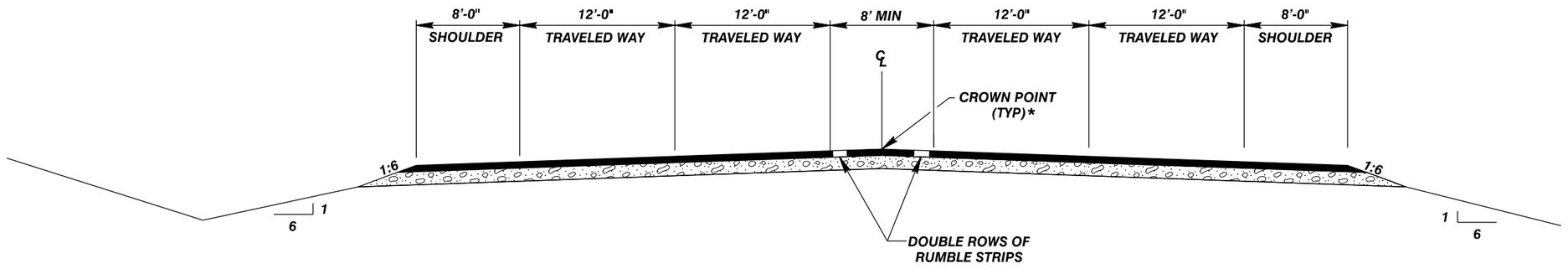
FOUR LANE ROADWAYS

TYPICAL SECTION
5-LANE SECTION IN DIFFICULT TERRAIN
OR RESTRICTED R/W WITH NEED FOR LEFT TURN MOVEMENTS



* THE LOCATIONS OF THE CROWN POINT WILL BE DETERMINED DURING THE DESIGN PHASE. CONSIDERATION SHOULD BE GIVEN TO SNOW REMOVAL METHODS, MEDIAN BARRIER PLACEMENT, AND TRANSITIONS BETWEEN THE DIVIDED AND UN-DIVIDED HIGHWAY SECTIONS.

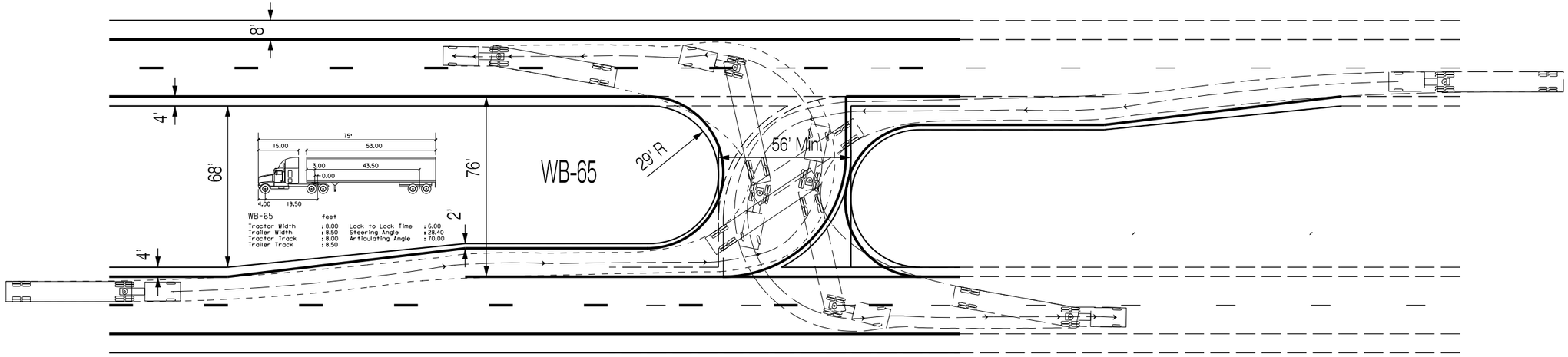
TYPICAL SECTION
4-LANE SECTION IN DIFFICULT TERRAIN
AREAS OR RESTRICTED R/W WITH NO NEED FOR LEFT TURN MOVEMENTS



NOTE: SURFACING TAPERS WILL BE IN ACCORDANCE WITH THE WYDOT DESIGN GUIDES.

STATE OF WYOMING	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	·	6	6

76' MEDIAN



The drawings on this sheet are for reference only. They illustrate how the median widths were originally analyzed. Any further analysis should be done using the actual geometry of a given roadway segment, the appropriate design vehicle and re-running AutoTurn for the speed being analyzed.

56' MEDIAN

