

APPENDIX A REFERENCES

1. **AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) PUBLICATIONS** (using latest approved versions):
 - A. A Policy on Design Standards-Interstate System
 - B. A Policy on Geometric Design of Highways and Streets
 - C. Guide for Design of Pavement Structures
 - D. Standard Specifications for Highway Bridges
 - E. Guide for the Design of High Occupancy Vehicle and Public Transfer Facilities
 - F. Guide for the Development of Bicycle Facilities
 - G. Standard Specifications for Transportation Materials and Methods of Sampling and Testing – Part I, Specifications and Part II, Tests
 - H. Highway Design and Operational Practices Related to Highway Safety
 - I. Roadside Design Guide
 - J. Load Resistance Factor Design (LRFD) Specifications

2. **COLORADO DEPARTMENT OF TRANSPORTATION PUBLICATIONS** (using latest approved versions):
 - A. Design Guide (all volumes)
 - B. Bridge Design Guide
 - C. Bridge Detailing Manual
 - D. Bridge Rating Manual
 - E. Project Development Manual
 - F. Erosion Control and Stormwater Quality Guide
 - G. Field Log of Structures
 - H. Cost Data Book
 - I. CDOT Traffic Analysis and Forecasting Guidelines
 - J. Drainage Design Manual
 - K. Landscape Architecture Manual
 - L. NEPA Manual
 - M. Environmental Stewardship Guide
 - N. Various CDOT Environmental Resource Guidance (i.e Air Quality, Hazardous Materials, Noise, Visual)
 - O. Quality Manual
 - P. Survey Manual
 - Q. Field Materials Manual
 - R. Standard Plans, M & S Standards

- S. Standard Specifications for Road and Bridge Construction and Supplemental Specifications
- T. Item Description and Abbreviations (with code number) compiled by Engineering Estimates and Market Analysis Unit (“Item Book”)
- U. Right-of-Way Manual
- V. The State Highway Access Code
- W. Utility Manual
- X. TMOSS Generic Format
- Y. Field TMOSS Topography Coding
- Z. Topography Modeling Survey System User Manual
- AA. Interactive Graphics System Symbol Table

3. **CDOT PROCEDURAL DIRECTIVES** (using latest approved versions):

- A. No. 27.1 Social Marketing – Use of Web 2.0 and Similar Applications
- B. No. 31.1 Web Site Development
- C. No. 501.1 Requirements for Storm Drainage Facilities and Municipal Separate Storm Sewer System Facilities
- D. No. 503.1 Landscaping with CO Native Plant Species and Managing the CO Pollinator Highway
- E. No. 1050.1 Contracts with Local Agencies for Maintenance of State Highways
- F. No. 1601 Interchange Approval Process

4. **FEDERAL PUBLICATIONS** (using latest approved versions):

- A. Manual on Uniform Traffic Control Devices
- B. Highway Capacity Manual
- C. Urban Transportation Operations Training – Design of Urban Streets, Student Workbook
- D. Reference Guide Outline – Specifications for Aerial Surveys and Mapping by Photogrammetric Methods for Highways
- E. Executive Order 12898
- F. Executive Order 11988 & 13690 FHWA Federal-Aid Policy Guide
- G. FHWA NHI Hydraulic Circular (HEC) and Hydraulic Design Series (HDS) Reports
- H. Technical Advisory T6640.8A
- I. U.S. Department of Transportation Order 5610.1E
- J. Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques
- K. ADAAG Americans With Disabilities Act Accessibility Guidelines
- L. 23 CFR 771, the FHWA Technical Advisory T6640.8A

- M. 44 CFR 59-72, standards of the National Flood Insurance Program (NFIP)
- N. U.S. Army Corps of Engineers Wetlands Delineation Manual of 1987 and appropriate regional supplements

5. AREA:

- A. Manual for Railway Engineering
- B. Urban Storm Drainage Criteria Manual (MHFD, formerly UDFCD)
- C. Any appropriate local agencies references as appropriate

APPENDIX B SPECIFIC DESIGN CRITERIA

Note: The following criteria will be developed by the consultant and coordinated with the CDOT/PM prior to starting the design. The Consultant shall develop the CDOT Form 463 and insert a copy upon completion.

1. ROADWAY

A. BASIC DESIGN

The basis for design will be the data in CDOT Form 463, Design Data. A copy of the latest applicable Design Data form will be furnished to the consultant.

B. GEOMETRIC AND STRUCTURE STANDARDS:

- a Design Speed, horizontal alignment, curvature, vertical alignment, sight distance and superelevation is specified in Form 463.
- b Use of Spirals – [YES OR NO]
- c Passing Sight Distance
- d Decision Sight Distance
- e Frontage Roads, Separation Width
- f CDOT Access Code
- g Airway – Highway Clearances Design Guide
- h Bridges and Grade Separation Structures, Clearances to Structures and Obstructions, CDOT Design Guide
- i Curb and Gutters, Type

C. GEOMETRIC CROSS SECTION are as specified in Form 463

D. INTERSECTIONS AT GRADE:

- a. Type
- b. Special Considerations

E. TRAFFIC INTERCHANGES:

- a. Type
- b. Ramp Type
- c. Special Considerations

F. DESIGN OF PAVEMENT STRUCTURE:

- a. Pavement Type & Percent Trucks are as specified in Form 463
- b. Economic Analysis Period
- c. Design Life

G. MISCELLANEOUS DESIGN CONSIDERATIONS:

- a. Fence Type
- b. FEMA Flood Zone
- c. Design Flood Frequency

H. ROADSIDE DEVELOPMENT

- a. Landscaping
- b. Specifications for Revegetating Disturbed Areas to be provided by CDOT
- c. PWQ Design
- d. Noise Control
- e. Type
- f. Guardrail and End Treatments

I. LIGHTING:

- a. Type

APPENDIX C DEFINITIONS

Note: For other definitions and terms, refer to Section 101 of the CDOT Standard Specifications for Road and Bridge Construction and the CDOT Design Guide.

| | |
|------------------------|---|
| AASHTO | American Association of State Highway & Transportation Officials |
| ADT | Average two-way 24-hour Traffic in Number of Vehicles |
| AREA | American Railway Engineering Association |
| ATSSA | American Traffic Safety Services Association |
| AT&SF | Atchison, Topeka & Santa Fe Railway Company |
| ADAAG | Americans with Disabilities Accessibility Act Guidelines |
| BAMS | Bid Analysis and Management Systems |
| BFE | Base Flood Elevation |
| BLM | Bureau of Land Management |
| BNRR | Burlington Northern Railroad |
| CA | Contract Administrator – The CDOT Manager responsible for the satisfactory completion of the contract by the consultant |
| CAP | CDOT's Action Plan |
| CBC | Concrete Box Culvert |
| CDOT | Colorado Department of Transportation |
| CDOT/PM | Colorado Department of Transportation Project Manager – The CDOT Engineer responsible for the day to day direction and CDOT Consultant coordination of the design effort (as defined in Section 2 of this document) |
| CDOT/STR | Colorado Department of Transportation Structure Reviewer – The CDOT Engineer responsible for reviewing and coordinating major structural design |
| CDPHE | Colorado Department of Public Health and Environment |
| CEQ | Council on Environmental Quality |
| COG | Council of Governments |
| COGO | Coordinate Geometry Output |
| CONSULTANT | Consultant for the project |
| CONTRACT ADMINISTRATOR | Typically, a Region Engineer or Branch Head. The CDOT employee directly responsible for the satisfactory completion of the contract by the Consultant. The contract administration is usually delegated to a CDOT Project Manager (as defined in Section 2 of this document). |
| C/PM | Consultant Project Manager – The Consultant Engineer responsible for combining the various inputs in the process of completing the project plans and managing the Consultant design effort. |
| CWCB | Colorado Water Conservation Board |
| DDM | Drainage Design Manual |
| DEIS | Draft Environmental Impact Statement |
| DHV | Future Design Hourly Volume (two-way unless specified otherwise) |
| DRCOG | Denver Regional Council of Governments |
| D&RGW | Denver & Rio Grande Western Railroad |
| EA | Environmental Assessment |
| EIS | Environmental Impact Statement |
| ESAL | Equivalent Single Axle Load |

| | |
|---------------------|---|
| ESE | Economic, Social and Environmental |
| FEIS | Final Environmental Impact Statement |
| FEMA | Federal Emergency Management Agency |
| FHPG | Federal Aid Highway Policy Guide |
| FHWA | Federal Highway Administration |
| FIPI | Finding In Public Interest |
| FIR | Field Inspection Review |
| FONSI | Finding of No Significant Impact |
| FOR | Final Office Review |
| GIS | Geographic Information Systems |
| GPS | Global Positioning System |
| LA | Professional Landscape Architect registered in Colorado |
| MAJOR STRUCTURES | Bridges and culverts with a total clear span length greater than twenty feet. This length is measured along the centerline of roadway for bridges and culverts, from abutment face to abutment face. Retaining structures are measured along the horizontal distance along the top of the wall. Structures with exposed heights at any section over five feet and total lengths greater than a hundred feet as well as overhead structures including (bridge signs, cantilevers and butterflies extending over traffic) are also considered major structures. |
| MHFD | Mile High Flood District (formerly UDFCD) |
| MPO | Metropolitan Planning Organization (i.e. Denver Regional Council of Governments, Pikes Peak Area Council of Governments, Grand Junction MPO, Pueblo MPO, and North Front Range Council of Governments). |
| MS4 | Municipal Separate Storm Sewer System |
| NEPA | National Environmental Policy Act |
| NFIP | National Flood Insurance Program |
| NGS | National Geodetic Survey |
| NICET | National Institute for Certification in Technology |
| NOAA | National Oceanic and Atmospheric Administration |
| PAPER SIZES | See Computer-Aided Drafting Manual(CDOT); Table 6-13 and Table 8-1 |
| PE | Professional Engineer registered in Colorado |
| PM | Program Manager |
| PLS | Professional Land Surveyor registered in Colorado |
| PRT | Project Review Team |
| PS&E | Plans, Specifications and Estimate |
| PROJECT | The work defined by this scope |
| PWQ CM | Permanent Water Quality Control Measure |
| ROR | Region Office Review |
| ROW | Right-of-Way: A general term denoting land, property, or interest therein, usually in a strip acquired for or devoted to a highway |
| ROWPR | Right-of-Way Plan Review |
| RTD | Regional Transportation Director |
| T/E | Threatened and/or Endangered Species |
| SFHA | Special Flood Hazard Area |
| SH | State Highway Numbers |
| TMOSS | Terrain Modeling Survey System |
| TOPOGRAPHY | In the context of CDOT plans, topography normally refers to existing cultural or manmade details. |
| USACE | United States Army Corp of Engineers |