

Western Federal Lands Highway Division

Guidelines for Uniform ROW Plans

NOTE:

1. Consultants providing right-of-way mapping to Western Federal Lands Highway Division Reality Group will consult the project Statement of Work to verify which files are to be provided and to determine which files it will be necessary to obtain from Western Federal Lands Highway Division to be used in the preparation of the Right-of-Way drafting.
2. The Property and R/W - CADD file (PRW) is the responsibility of Western Federal Lands Highway Division Survey Group and will be provided by and/or approved by WFLHD Survey Group for use in right-of-way drafting.

1. CADD Filenames.

Most Right-of-Way plan sheets are created with references to other files that contain the planimetrics (survey data) and horizontal alignment (design data).

Planimetric files have the suffix “plm” prior to the Microstation file extension (...plm.dgn) and horizontal alignment files have the suffix “ha” prior to the Microstation file extension (...ha.dgn). The Right-of-Way files should be named in a similar manor. The Right-of-Way base map should have the suffix “row” prior to the Microstation file extension (...row.dgn).

Standard file naming convention can be determined by using the WFLHD file names generator located at: <http://www.wfl.fhwa.dot.gov/resources/design/sample-plans/file-names/>

More information on WFLHD file naming convention suffixes can be found at the link below: <http://www.wfl.fhwa.dot.gov/resources/design/supplements/ch09/9.6.5-1.pdf> (Section 9.6.5.2)

More information on WFLHD file naming convention prefixes can be found at the link below: <http://www.wfl.fhwa.dot.gov/resources/design/sample-plans/file-names/prefix-convention.pdf>

CADD Filenames example:

R/W Filename	wa-a2013011row.dgn
Planimetrics	wa-a2013011plm.dgn
Existing Property & R/W	wa-a2013011prw.dgn
Alignment	wa-a2013011ha.dgn
**ROW Plans Sheets	wa-a2013011ja-kz.dgn
ROW Plats Sheets (nps, fs, blm, bia, ...)	wa-a2013011nps01-99.dgn
ROW Exhibits	wa-a2013011ex01-99.dgn
ROW Utility Relocation Sheets	wa-a2013011ut01-99.dgn

Note: Consultants preparing Right-of-Way sheets may need to use copies of files from Design or Survey/Mapping as references in the creation of the sheets. Changes to these files should not be made by the consultant. It is recommended that “_copy” be added to the name just before the “.dgn” file extension as a queue that the reference file may need to be replaced with the original file at a later date. (example: ak915plm_copy.dgn)

2. CADD Notes.

Standard abbreviations and codes used in these guidelines are shown in Figure B.

Figure B

LEGEND

AS	Active Scale
LV	Level
CO	Color
WT	Line Weight
LC	Line Style
TX	Text Size
LS	Text Line Spacing
FT	Font
CST	Set By Custom Line Style
Cell	Set By Cell
PRW	Property & R/W file
ROW	R/W Base Map

3. Resource Files.

Resource Files are located in the [Right-of-Way Downloads](#) section.

4. Cell Libraries.

Graphics that are used on a consistent basis such as plan sheet borders, key maps, and symbols are located in the [WFHD cell libraries](#) section. Many of the cells in these libraries have been created for use with annotation scale. Those cells that are intended to be used with annotation scale will scale automatically when placed with the annotation scale toggle set to “on” and Active Scale set to “1”, providing that the appropriate active model scale has been chosen/set in the Model Properties Dialog Box. See Figure C & D. The Right-of-Way cell libraries includes cells necessary to complete Right-of-Way plans (11x17) and exhibits (8.5x11) for private acquisition of Right-of-Way through and abutting private properties and the cells necessary to complete Right-of-Way plats (8.5x11) for Federal Land Transfers.

* View the [Right-of-Way cell Library](#).

5. Right-of-Way Sheet Scale & Orientation Rules

1. North arrows should always be vertical or horizontal, preferably pointing to the top or left of side of the sheet.
2. **DO NOT** scale, move or rotate reference files to fit on the sheet. Reference files should remain world coordinate correct. Instead, place and adjust sheets as follows to fit the reference files:
 - a. In the Model Properties Dialog box, make sure that the desired annotation scale is selected for the design model. This will set the sheet to the corresponding sheet scale. See Figure C.
 - b. Place the sheet cell making sure that the annotation scale button is highlighted. (Active scale of 1 will result in sheet placement at the active model Scale) See Figures C & D.
 - c. Move the sheet to the desired area of the map to be shown.
 - d. Rotate the sheet to the desired 90° incremental rotation.
 - e. Rotate the view to sheet orientation.

Figure C

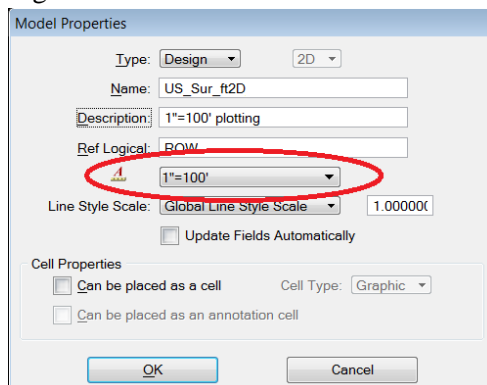
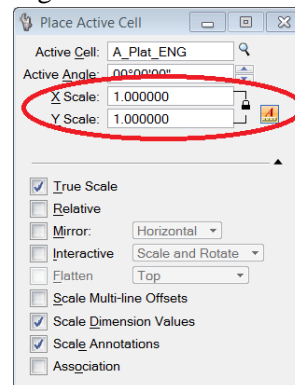


Figure D



6. What's in the Right-of-way Base Map?

The Right-of-Way Base map should include references to the following base files:

- The Engineers Design Plan
- The Engineers HA file
- The Surveyed PLM file
- The Property PRW file

The Right-of-Way Base map (R/W Design file) should contain:

- Proposed Right-of Way Line-work
- Proposed Construction Easement/Permit Line-work
- Proposed Right-of-Way Dimensions and Stationing
- Proposed Construction Easement/Permit Dimensions and Stationing
- Property Ownership Information
- Parcel Numbers
- Boundary Control Monuments
- Boundary Control Description Text

The following should be in a separate model (named HA_Annotation), within the R/W Design file:

- Major Station Labels
- Control Point Station Labels
- Centerline Bearings
- Curve Information

All text and labels should be rotated and positioned appropriately for 11x17 Plans Sheets. Most text will be placed using annotation scale and will scale automatically to model scale. All text and labels on Plats and Exhibits will usually be copied directly into the sheets.

The various Right-of-Way sheets may contain information copied from the Right-of-Way Base Map when necessary for clean sheet organization and layout. Use discretion when copying information.

Other line-work and text may be included as necessary for facilitation of Right-of-Way Plans, Plats and Exhibits. Some levels, in some references, may not be displayed for clarity. See the Right-of-Way Plans Checklist for what is to be included in the Right-of-Way Plans sheets set.

[ROW Plans Checklist.doc](#)

7. Stations and Offsets

Do not use “Station” or “Sta” as a prefix to the station numbers. Any numbering including a plus sign (for example 2+959 or 30+00 is understood to be a station number. Station and offset callouts should be used at all crucial points on the R/W and Easements. Stand-alone offsets may be used to dimension R/W when R/W constant over a large stretch of the alignment or in other special cases.

8. Constraints for Mapping New ROW Boundaries

1. The following constraints should be weighed appropriately for each design to achieve the desired goals for the project and ease of writing the R/W descriptions.
2. Right-of-Way lines should be a **minimum** of 3 feet (1 meter) beyond the **Outer Design Limits**.
3. Stay parallel to centerline when possible.
4. Do not take unnecessary Right-of-Way.
5. Right-of-Way widths are to be in even 1 foot or (1 meter) increments.
6. Do not change ROW offsets within a curve unless **absolutely necessary**.
7. Transition only on even 50 foot (20 meter) stations or at curve / spiral points.
8. Maintain a consistent offset through spiral curves, unless the transition starts at the beginning stations of the spiral and ends at the ending stations of the spiral.
9. **Do Not** transition on the same station unless **absolutely necessary** and the change in offset is 10 feet (3 meters) or more. (i.e. PC 27+129.33 15ft – 25ft offset.)
10. Always show chord distances and bearings, especially on spirals and curves.

9. Text Styles & Dimension Styles

Standard Text Styles and Dimension Styles to be use in the preparation of Right-of-Way plans, plat and exhibits are the same as those used for design files/plans preparation with some exceptions. These styles have been created with the intension that annotation scale be used. All text and dimensions, except in special circumstances, should be place with the annotation scale toggle set to “on”. This sets the text/dimensions scale using the chosen Text or Dimension Styles based on the Active Model Scale as seen in the Model Properties Dialog Box. Exceptions include the use of Style (none), without the use of annotation scale, for some text. It may be necessary to selectively copy some text from reference files directly into the Right-of-Way base map, plan or plat sheet and Text Styles with annotation scale may not have been used. In this case it is usually recommended that the Text Style be changed to a current annotative Text Style, but in some special cases where Text Style (none) – font001 is use it is best not to change the Text Style. For more information about prescribed Text and Dimension Style using annotation scale, see the [Right-of-Way Sample Plans](#).

Tip: It will be advantageous to manually modify the standard Dimension Style Properties to place dimensions on the P_RW_Dimensions level before placing dimensions in Right-of-Way base map. This can be accomplished by opening the Dimension Style Dialog Box, selecting the Advanced Tab, Expanding the General Properties and Placement Property in the Properties Window, and selecting P_RW_Dimensions from the levels drop-down.

Figure H

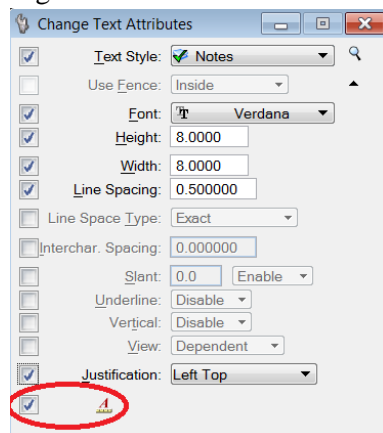
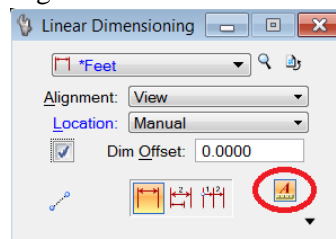


Figure I



10. Lettering Sizes

Standard lettering sizes are shown in Figure J. text line spacing (LS) should generally be half of the text size (0.5). For text placed using Text Styles with annotation scale “on” the sizes shown in figure J should be set automatically.

Figure J
LETTERING SIZES (TX)

UNITS	US CUSTOMARY UNITS			METRIC UNITS	
	Plot scale			Plot scale	
Standard size Scale	1"=200ft	1"=100ft	1" = 40ft	1:2000	1:1000
Minimum text size	8	4	1.6	2	1
File location and date	10	5	2	2.5	1.25
Sheet number block	12	6	2.4	3	1.5
Small text	14	7	2.8	3.5	1.75
Normal text size	16	8	3.2	4	2
Large text	18	9	3.6	4.5	2.25
Drawing minor headings	20	10	4	5	2.5
Drawing major headings, NOTE: and FOOTNOTE: text & Title block text	24	12	4.8	6	3

NOTE: Other scales may be used to comply with the needs of the local public agency.

Use a “Footnote” to supplement labels where insufficient space is available at the label location. Use a “Note” for general information that is relevant to the entire sheet. Do not use the term “General Notes”. When possible, place Notes and Footnotes on the right hand side of the sheet with Notes placed above Footnotes.

Write numbers with commas separating millions or thousands (i.e. 99,999 rather than 99999 or 99 999).

11. Plan and Plat Distribution.

Color Right-of-Way plan and plat sheets should be distributed for plan reviews and to clarify complex information on the plan sheets. One set of color plans will normally be distributed to county or state agencies along with three sets of black & white plans. For Federal Land Transfers, federal agencies shall receive one color copy of Right-of-Way plats along with three sets of black and white plats. Color exhibit sheets will be needed for use in Right-of-Way negotiation. The first sheet of each parcel exhibit set will include one “Symbols and Abbreviations sheet” for clarification of exhibit content. Standard colors to be used for colored plans sheets are shown in Figure E. Most of the standard colors are set according to the level that the element resides on (ByLevel). Further information about Level Assignments and Element Symbology can be seen in the Levels and Symbology section, Figures F & G.

Figure E

STANDARD COLORS (FYI – Most colors are set By-Level automatically)

CO = 0	Black	R/W Dimensions and Information not listed below
CO = 1	Blue	Water (streams, culverts, wetlands)
CO = 2	Green	Existing vegetation, National Forest Service Lands boundaries
CO = 3	Red	Proposed centerline, National boundaries, State boundaries County boundaries, City boundaries, BIA boundaries, BLM boundaries
CO = 5	Pink	Parcels, Property lines, Ownership information, Existing R/W, Permanent easements, Prescriptive easements, Utility easements, Township & Range lines, Section & Subsection lines, Boundary control & descriptions,
CO = 79	Purple	Proposed R/W, Permanent Easements (P/E), Construction Easements (C/E)
CO = 194	Light Green	National Wildlife Refuge boundaries
CO = 253	Brown	National Park boundaries

12. Levels & Symbology.

Figure F - LEVEL ASSIGNMENTS

DESCRIPTION	FILE	LEVEL
<i>Existing Right of Way information (FYI)</i>	PRW	
Property lines		E_RW_Property_Line
Existing Right of Way (Lt side of Alignment)		E_RW_Right_of_Way_Line
(Rt side of Alignment)		
Existing Permanent Easement (Easement Lt)		E_RW_Perm_Easement
(Easement Rt)		
Existing Prescriptive Easement		E_RW_Prescriptive_Easement
Township, Range		E_RW_Township_or_Range_Line
Sections & Subsections		E_RW_Section_Line...
Sec. & Sub. Labels		E_RW_Section_Text
Corners & Corner Labels		E_RW_Boundary_Control
Government & Fed. Lands Boundaries		E_RW_Boundary...
Other Existing Right of Way info.		E_RW_...
<i>Proposed Right of Way information</i>	ROW	
Proposed Right of Way (Lt side of Alignment)		P_RW_Right_of_Way
(Rt side of Alignment)		
Proposed Permanent Easement (Easement Lt)		P_RW_Permanent_Easement
(Easement Rt)		
Proposed Temp. Const. Easement (Easement Lt)		P_RW_Construction_Easement
(Easement Rt)		
Dimensions for Proposed Line-work	P_RW_Dimensions	
<i>Other Information Pertinent to Right of Way</i>	ROW	
Copied text information from HA, PLM or PRW; Scaled, Rotated or Moved for Readability NOTE: It is preferable to use reference file information whenever possible as copied information does not reflect any additional information or later adjustments made within the original file.		Preserve the Level of original information or use the AUX levels (as needed)

Figure G - ELEMENT SYMBOLOGY

DESCRIPTION	FILE	CO	WT	LC
<i>Existing Right of Way information (FYI)</i>	PRW	<i>All Symbology is ByLevel unless noted with *</i>		
Property lines		5	1	
Existing Right of Way (Lt side of Alignment)		5	1	*E_Right_of_Way_Left
(Rt side of Alignment)				*E_Right_of_Way_Right
Existing Permanent Easement (Easement Lt)		5	1	*E_Permanent_Easement_Left
(Easement Rt)				*E_Permanent_Easement_Right
Existing Prescriptive Easement		5	1	E_Permanent_Easement_Inline
Township, Range		5	1	E_RW_Township_or_Range_Line
Sections & Subsections		5	Varies	E_Section_Line... (Varies)
Sec. & Sub. Labels		5	1	E_Section_Text
Corners & Corner Labels		5	1	E_RW_Boundary_Control
Government & Fed. Lands Boundaries		Varies	Varies	E_RW_Boundary... (Varies)
Other Existing Right of Way info.		Varies	Varies	Varies
<i>Proposed Right of Way information</i>	ROW	<i>All Symbology is ByLevel unless noted with *</i>		
Proposed Right of Way (Lt side of Alignment)		79	4	*P_Right_of_Way_Left
(Rt side of Alignment)				*P_Right_of_Way_Right
Proposed Permanent Easement (Easement Lt)		79	4	*Permanent_Easement_Left
(Easement Rt)				*Permanent_Easement_Right
Proposed Temp. Const. Easement (Easement Lt)		79	4	*Construction_Easement_Left
(Easement Rt)	*Construction_Easement_Right			
Dimensions for Proposed Line-work	*0	*0	P_RW_Dimensions	
<i>Other Information Pertinent to Right of Way</i>	ROW			
Copied text information from HA, PLM or PRW; Scaled, Rotated or Moved for Readability NOTE: It is preferable to use reference file information whenever possible as copied information does not reflect any additional information or later adjustments made within the original file.		Preserve original symbology		

13. Sample Right-of-Way Plans, Plats & Exhibits.

Sample Right-of-Way plans, plats are located in the [Sample Plans & Plats](#) section. Exhibits for use in private party negotiations for Right-of-Way acquisition are created using the same (8.5x11) sheet cell as the Right-of-Way plats and will be very similar in appearance. Right-of-Way exhibits sets do not require the creation of a Title Sheet, Plans and Symbols Sheet, Vicinity Map Sheets or Typical Section Sheets as this information is available in the (11x17) Right-of-Way Plans Set.

These Sample Sheets can be utilized to identify TextStyles, text size, levels, symbology, cells and file referencing structure use in the preparation of Right-of-Way Plans, Plat and Exhibits.

14. Finalization of Right-of-Way Projects.

Any design files referenced by the Right-of-Way Base Map, Plan sheets, Utility Relocation sheets, Plats or Exhibits shall be copied to the ".../Right-of-Way/References" folder upon approval of the final right-of-way plan by all parties involved. This should be done just prior to the recording of the legal right-of-way documents. These are only for the purpose of comparison should changes to the design file be evident when right-of-way files are opened at a later date. The copied files will retain the name of the original file with the addition of "_final(mm-dd-yy)" before the file extension. Do Not re-associate any references to these copies at this time. These are for backup purposes only.