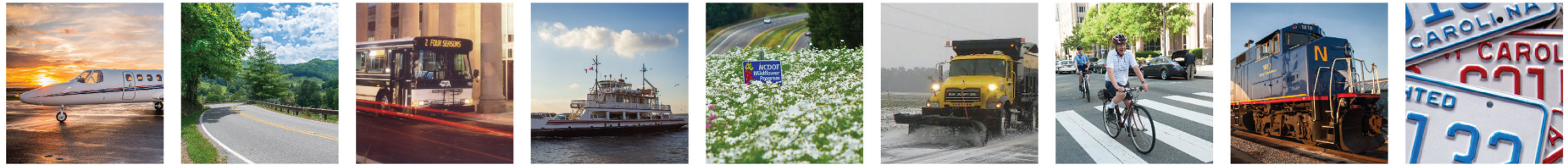


NORTH CAROLINA
Department of Transportation



NCDOT CONNECT WorkSpace

Oak Thammavong

July 24, 2019



The image shows a video player interface with a black background. In the center, the TechSmith logo is displayed in a light gray color, consisting of a square icon with a diagonal line and the text "TechSmith®". Below the logo, the text "MADE WITH CAMTASIA FREE TRIAL" is written in a light gray, all-caps font. In the bottom left corner, there is a video player control bar with a red play button and a timer showing "0:00". In the bottom right corner, the "vevo" logo is visible in white. In the top right corner, there is a white circular icon containing a lowercase "i".

ORD Quarterly Updates

- Major Release in Q1 and Q3
- Minor Release in Q2 and Q4
- WorkSpace must be tested with new version
- WorkSpace must be “upgraded” with new civil data/file format change to be compatible with production version
- Everyone must be on the same ORD version and Workspace!

Bentley Delivered WorkSpace

- Mirror image used to create the NCDOT CONNECT WorkSpace
- Compared and synchronized with every ORD update
- Retrofit and use “out-of-box” settings as much as possible; e.g. civil cells, 3D custom line styles, etc.
- Some fundamental differences; One vs. Separate Workspaces, AASHTO vs. DOT Sup Prefs, Geom vs. CL, Imperial vs. English!
- “One day we will use the Bentley delivered WorkSpace.” – But not anytime soon.

Standalone CONNECT WorkSpace

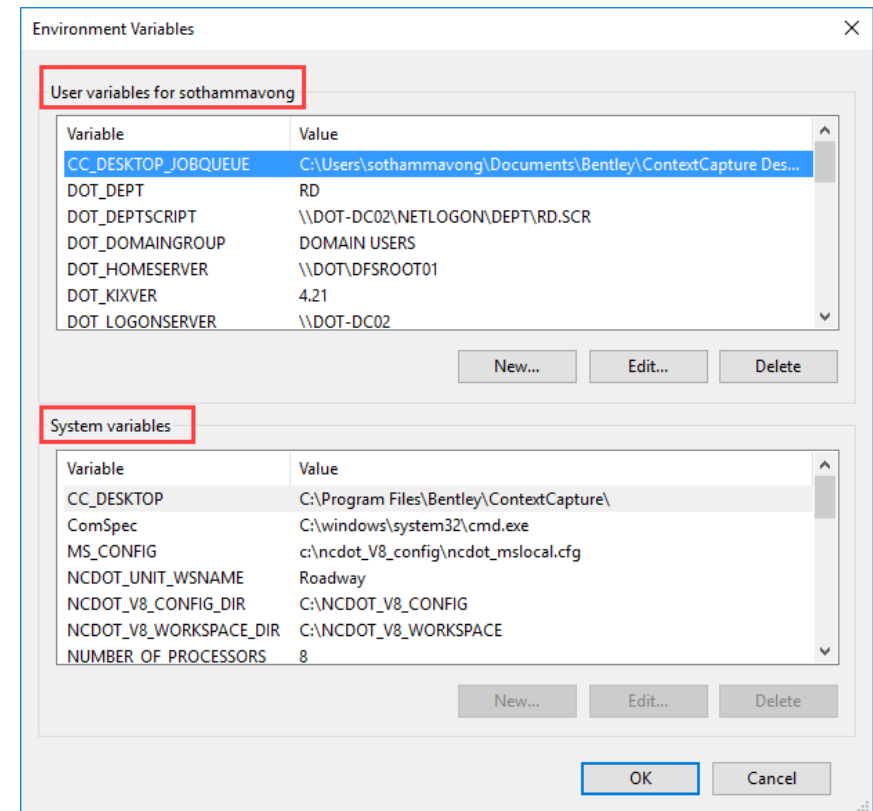
- Not ProjectWise Managed WorkSpace
- Separate from SS2 and SS4 V8 Workspaces
- Can be installed on local drive or on shared server
- Can include other DOTs including Bentley
- Imperial English Only – No Metric

WorkSpace Installation Sequence

1. Set Windows Environment Variables (2)
2. Install UpdateConnectWs App
3. Update CONNECT WorkSpace
4. Replace "WorkSpaceSetup.cfg"
5. NCDOT_ORD_SetupUtility.cmd (optional)
6. Download NCDOT ORD Training Worksets (optional)

Windows Environment Variables

- System Level – Admin
 - Default
 - Admin Rights
 - Image/Deployment Package
- User Level
 - Override System Level
 - Switch Between Workspaces



Windows Environment Variables

- ORD_CONNECT_WORKSPACE_DIR
 - *C:\MICROSTATION_CONNECT_WORKSPACE*
 - Needed by the UpdateConnectWs App
 - Redirect WorkSpace “Configuration” folder location
 - Rename Workspace “Configuration” folder path
 - Examples: C:\WKSP, S:\CoR\WS, W:\StantecCONNECT

Windows Environment Variables

- ORD_ORGANIZATION-CIVIL
 - *NCDOT*
 - Define “Organization-Civil” (DOT) WorkSpace folder
 - Examples: NCDOT, VDOT, SCDOT, Raleigh, Bentley

UpdateConnectWs App

<https://connect.ncdot.gov/resources/CADD/Applications/UpdateConnectWs/UpdateConnectWs.application>



UpdateConnectWS – (Testing only)

This program administers the new CONNECT ORD workspaces. Be aware that NCDOT is still in early stages of development of ORD Workspaces. Please do not use for Production!

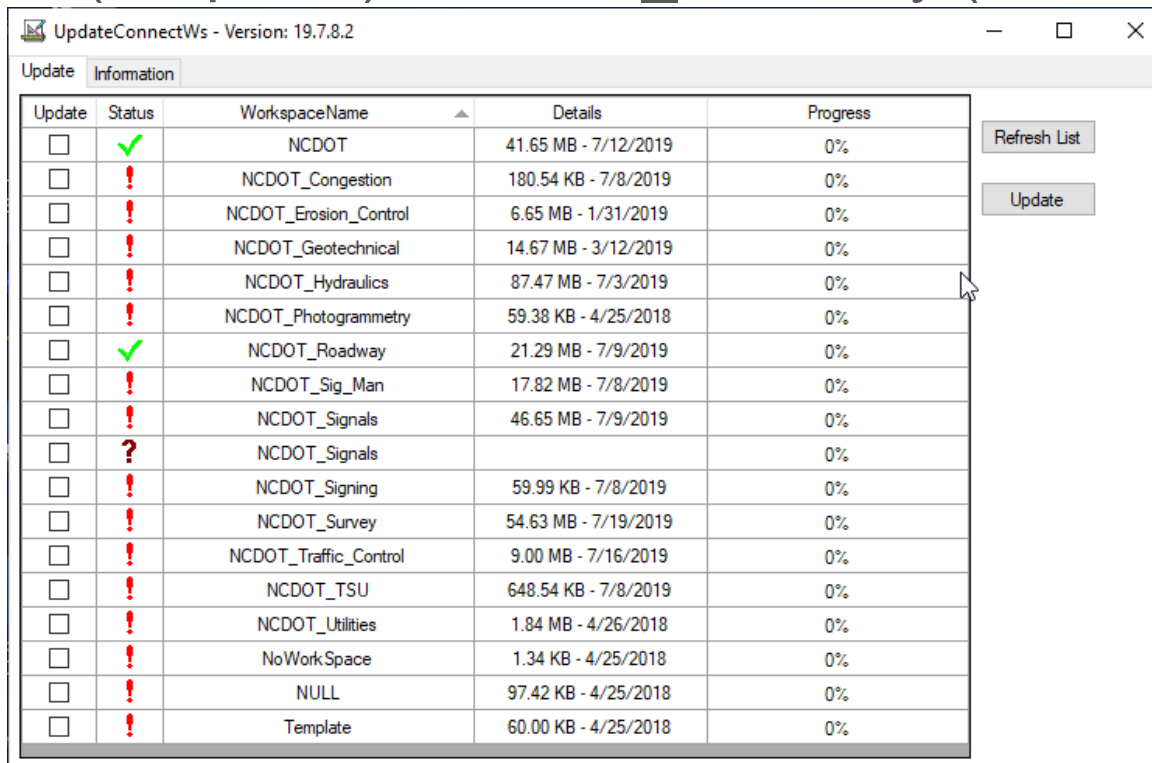
CADD Downloads

SrvConn App



Update NCDOT CONNECT WorkSpace

- NCDOT (Required), NCDOT_Roadway (Recommended)



UpdateConnectWs - Version: 19.7.8.2

Update Information

Update	Status	WorkspaceName	Details	Progress
<input type="checkbox"/>	✓	NCDOT	41.65 MB - 7/12/2019	0%
<input type="checkbox"/>	!	NCDOT_Congestion	180.54 KB - 7/8/2019	0%
<input type="checkbox"/>	!	NCDOT_Erosion_Control	6.65 MB - 1/31/2019	0%
<input type="checkbox"/>	!	NCDOT_Geotechnical	14.67 MB - 3/12/2019	0%
<input type="checkbox"/>	!	NCDOT_Hydraulics	87.47 MB - 7/3/2019	0%
<input type="checkbox"/>	!	NCDOT_Photogrammetry	59.38 KB - 4/25/2018	0%
<input type="checkbox"/>	✓	NCDOT_Roadway	21.29 MB - 7/9/2019	0%
<input type="checkbox"/>	!	NCDOT_Sig_Man	17.82 MB - 7/8/2019	0%
<input type="checkbox"/>	!	NCDOT_Signals	46.65 MB - 7/9/2019	0%
<input type="checkbox"/>	?	NCDOT_Signals		0%
<input type="checkbox"/>	!	NCDOT_Signing	59.99 KB - 7/8/2019	0%
<input type="checkbox"/>	!	NCDOT_Survey	54.63 MB - 7/19/2019	0%
<input type="checkbox"/>	!	NCDOT_Traffic_Control	9.00 MB - 7/16/2019	0%
<input type="checkbox"/>	!	NCDOT_TSU	648.54 KB - 7/8/2019	0%
<input type="checkbox"/>	!	NCDOT_Uilities	1.84 MB - 4/26/2018	0%
<input type="checkbox"/>	!	NoWorkSpace	1.34 KB - 4/25/2018	0%
<input type="checkbox"/>	!	NULL	97.42 KB - 4/25/2018	0%
<input type="checkbox"/>	!	Template	60.00 KB - 4/25/2018	0%

Refresh List

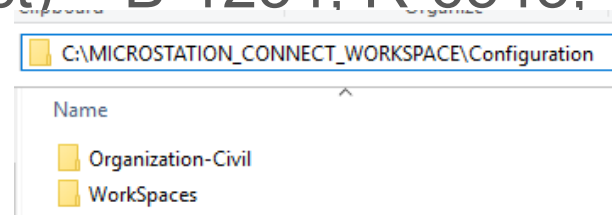
Update

WorkSpaceSetup.cfg

- Rename (view hidden files and folders enabled)-
C:\ProgramData\Bentley\OpenRoads Designer
CE\Configuration\WorkSpaceSetup.cfg_default
- Copy from:
C:\MICROSTATION_CONNECT_WORKSPACE\Configuration\Organization-Civil\NCDOT\Workspace ReadMe\
WorkSpaceSetup.cfg

WorkSpaceSetup.cfg

- WorkSpace Structure (Configuration & Standards folder)
 - Organization-Civil – NCDOT, SCDOT, Bentley
 - WorkSpaces – NCDOT_Roadway, VDOT_Hydraulics
 - WorkSet (project) – B-1234, R-6543, Quick Start



- .CFG and Standards in the same folder
- WorkSet can be different

WorkSpaceSetup.cfg

- MY_CIVIL_ORGANIZATION_ROOT =
\$(ORD_CONNECT_WORKSPACE_DIR)\Configuration\
Organization-Civil\
- MY_WORKSPACES_LOCATION =
\$(ORD_CONNECT_WORKSPACE_DIR)\Configuration\
WorkSpaces\\$(ORD_ORGANIZATION-CIVIL)\
- # MY_WORKSET_LOCATION =
//MyNetwork/MyWorkSpaces/

WorkSpaceSetup.cfg

- MY_CIVIL_ORGANIZATION_ROOT
 - Define Location of “Organization-Civil” .CFG file, e.g.
NCDOT.CFG
 - .CFG defines location of “Organization-Civil” Standards folder
- CIVIL_ORGANIZATION_STANDARDS =
\$(CIVIL_ORGANIZATION_ROOT)\$(CIVIL_ORGANIZATION_NAME)/

C:\MICROSTATION_CONNECT_WORKSPACE\Configuration\Organization-Civil\NCDOT\

WorkSpaceSetup.cfg

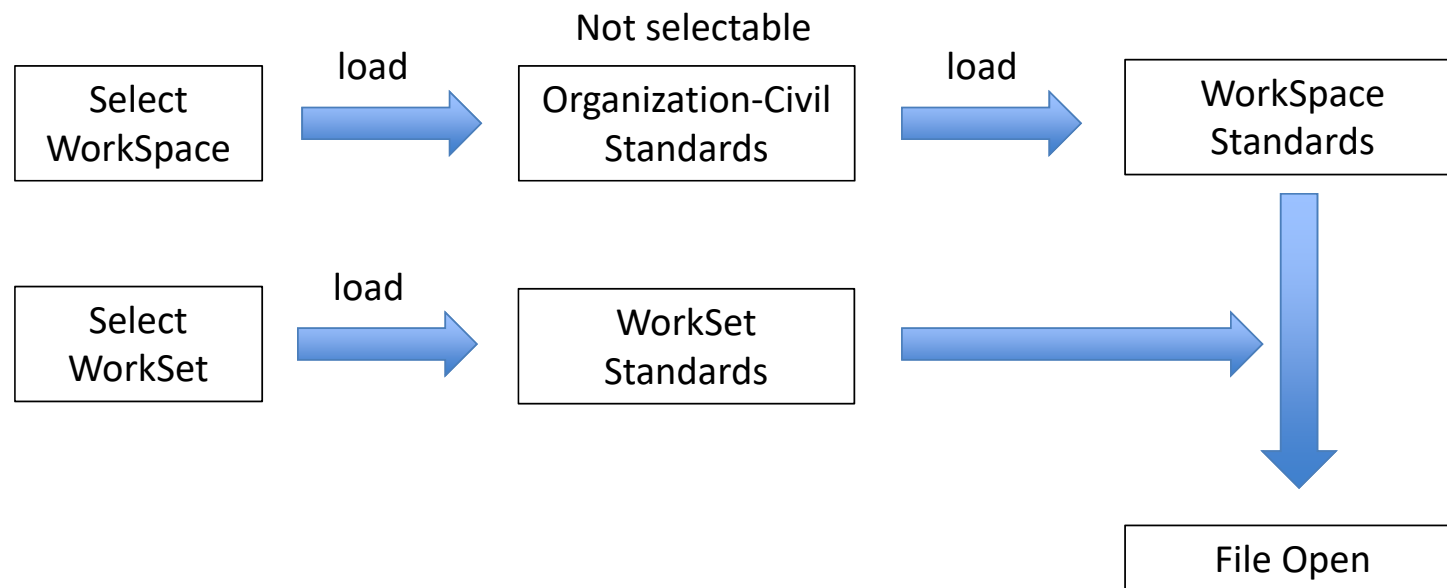
- MY_WORKSPACES_LOCATION (available to select)
 - _USTN_WORKSPACESROOT
 - _USTN_WORKSPACEROOT
 - _USTN_WORKSPACESTANDARDS=
\$_USTN_WORKSPACEROOT)Standards/
- .CFG loads Organization-Civil and WorkSpace Standards

WorkSpaceSetup.cfg

- # MY_WORKSET_LOCATION
 - If not defined or does not exist then default under WorkSpace
C:\MICROSTATION_CONNECT_WORKSPACE\Configuration\WorkSpaces\NCDOT\NCDOT_Roadway\WorkSets
- Location of WorkSet .CFGs and .DGNWSs
- .DGNWS – rsc dgn file containing project info and sheet index
- .CFG – points to project CADD dgn files and Standards location

Opening a DGN File

Loading of Standards



Organization-Civil NCDOT “Umbrella” Standards

- NCDOT as an Organization-Civil is not selectable
- By selecting the WorkSpace the .CFG loads the Organization-Civil Standards
- All WorkSpaces load the Organization-Civil Standards



How to Include other DOT's WorkSpaces

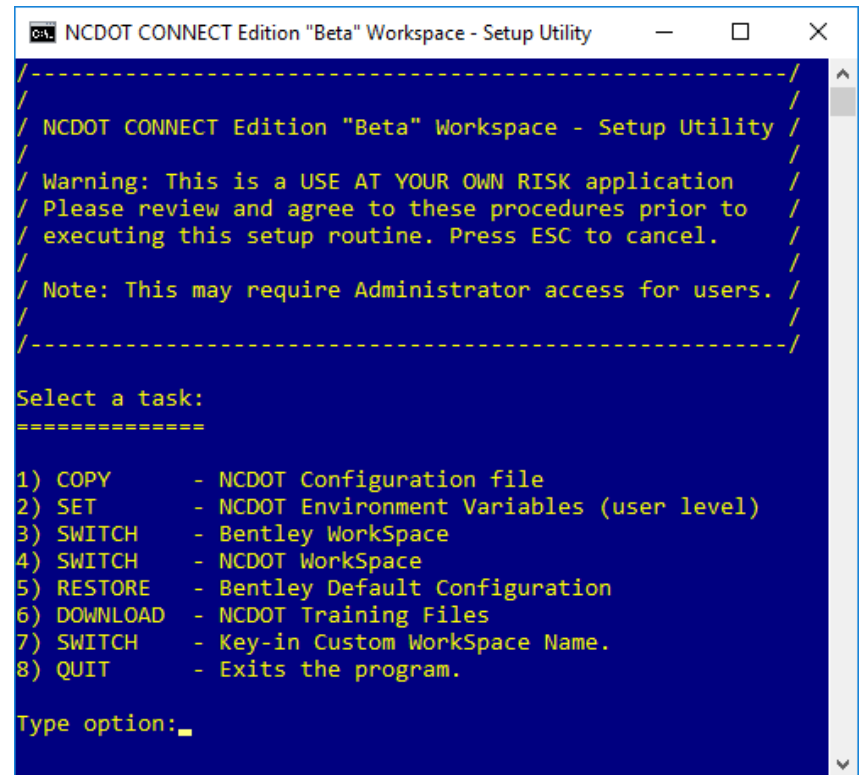
Separate Organization WorkSpaces Folders:

- Redefine the Environment Variable
- Desktop Icon Shortcut Switches

Combined Common Configuration Folder (put all Workspaces in a common USTN_WORKSPACESROOT folder)

NCDOT_ORD_SetupUtility.cmd

C:\MICROSTATION_CON
NECT_WORKSPACE\Conf
iguration\Organization-
Civil\NCDOT\Workspace
ReadMe\



```
ca. NCDOT CONNECT Edition "Beta" Workspace - Setup Utility  -  □  X
/-----/
/ NCDOT CONNECT Edition "Beta" Workspace - Setup Utility /
/
/ Warning: This is a USE AT YOUR OWN RISK application /
/ Please review and agree to these procedures prior to /
/ executing this setup routine. Press ESC to cancel. /
/
/ Note: This may require Administrator access for users. /
/-----/

Select a task:
=====

1) COPY      - NCDOT Configuration file
2) SET       - NCDOT Environment Variables (user level)
3) SWITCH    - Bentley WorkSpace
4) SWITCH    - NCDOT WorkSpace
5) RESTORE   - Bentley Default Configuration
6) DOWNLOAD  - NCDOT Training Files
7) SWITCH    - Key-in Custom WorkSpace Name.
8) QUIT     - Exits the program.

Type option: _
```

Explicit Configuration Variables

DGNLIB with Keyword in File Name

Default: MS_DGNLIBLIST (*.dgnlib)

- MS_DGNLIBLIST_LEVELS (*Level*.dgnlib)
- MS_DGNLIBLIST_TEXTSTYLES (*Text Style*.dgnlib)
- MS_DGNLIBLIST_TEXTFAVORITES (*Text Favorite*.dgnlib)
- MS_DGNLIBLIST_DIMENSIONSTYLES (*Dimension Style*.dgnlib)
- CIVIL_CONTENTMANAGEMENTDGNLIBLIST (*Feature*.dgnlib)

Standards Folder Structure












Organization-Civil, WorkSpace, WorkSet

- Cell
- Data
- Dgnlib
- Fonts
- Image
- Macros
- Materials
- Preference Seeds
- Prefs
- Reports
- Scales
- Seed
- Sheet Borders
- Superelevation
- Symb
- Template Library
- vba
- Widening

WorkSpace Standards Folders

- Cell – 2D and 3D Cell Libraries
- Data – NCDOT.CTB
- Dgnlib – (see next slide)
- Fonts - ncdotFont.rsc (font11, font23, etc.)
- Macro/VBA
- Preference Seeds – UserPrefsSeed
- Scale – units.def
- Seed – 2D/3D Design Seed
- Seed > Sheets – 2D Drawing/Sheet Seed
- Sheet Borders – Plan, Profile, XS Sheet Borders (.dgn and .cel)
- Superelevation – 2011/2018 Superelevation Rule Files (.XML)
- Symb – Custom LineStyle Resource (V8 project scale)
- Template Library - (see next slide)

Roadway Template Libraries

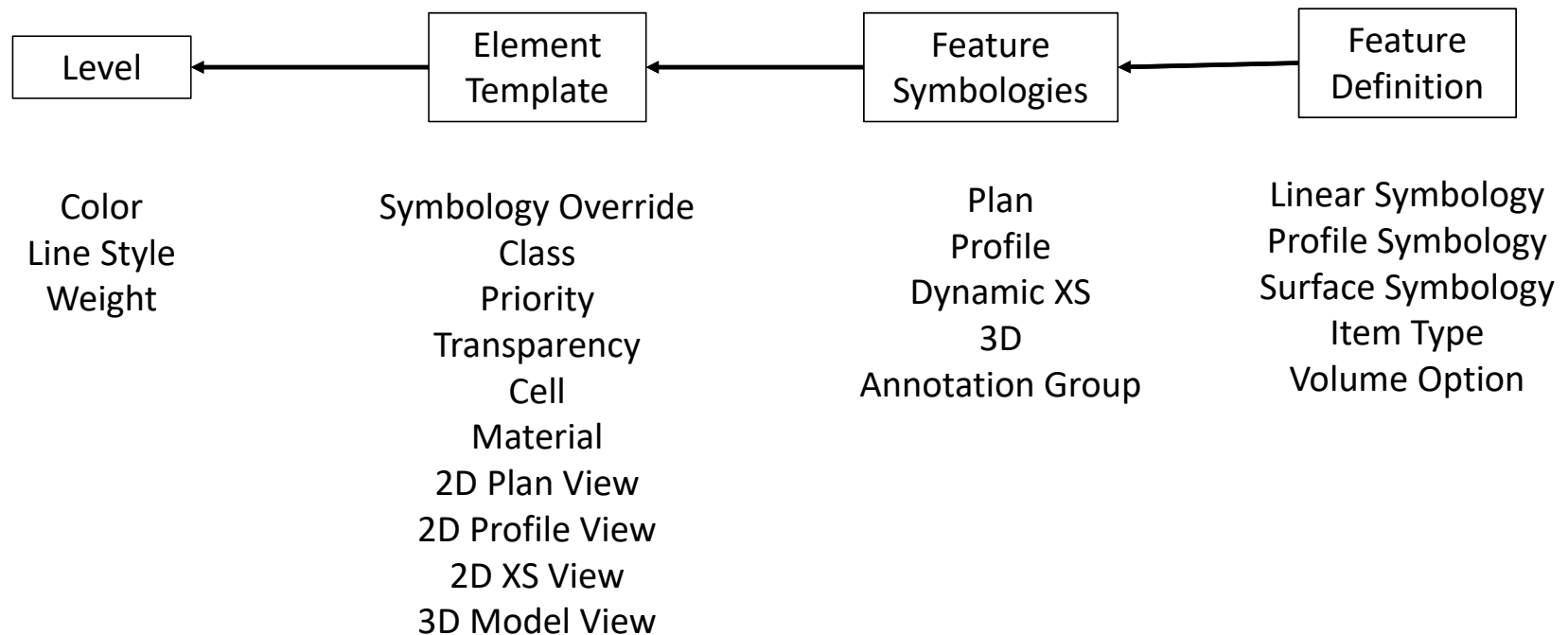
-  NCDOT_HYD_Standard Templates.itl
-  NCDOT_RDY_Components.itl
-  NCDOT_RDY_Functional Design Templates.itl
-  NCDOT_RDY_Geometry Templates.itl
-  NCDOT_RDY_Linear Templates.itl
-  NCDOT_RDY_Specialize Templates.itl
-  NCDOT_RDY_Standard Templates.itl
-  NCDOT_RDY_Superelevation.itl
-  NCDOT_RDY_Surface Templates.itl
-  NCDOT_RDY_Workset.itl
-  NCDOT_STR_Standard Templates.itl

DGN Library (Dgnlib)

- Civil Cells - 2D/3D
- Design Standards – AASHTO 2011
- Display Styles – Wireframe, Illustration, etc.
- Feature Definitions – (see next slide)
- GUI – Custom Tool boxes and Ribbon Tabs
- ItemTypePlus – Used by Asset Manager for Automated Quantities
- Levels – Some levels are stored in the feature definitions dgnlib
- Line Styles – Custom Line Styles for ORD (annotation scale)
- Sheet Seeds – Drawing Seeds for plan, Profile, and XS sheet named boundary, annotation group, and sheet creation
- Text* - Text Styles and Text Favorites

* Exist only in Roadway. Text Styles and Text Favorites exist in the feature definition library everywhere else.

Feature Definition DGNLIB



Annotation Group

- Drawing, Linear, Point
- Label elements and features for plan profile XS sheets
- Grid lines are drawing annotation definitions (not cell)
- Stored in DGNLIB (update from library next release)
- Use element templates, text styles, text favorites

Annotation Group

Linear vs, Drawing

- In Plan View, ***Linear*** will label the horizontal alignment tick marks, cardinal stations, PI, Curve Data, etc.
- When creating sheets, annotation takes place in the ***Drawing*** model, such as label the match lines and placing the north arrows.

Text Favorites

“Ad-hoc” attributes for:

- Civil Plan Elements, e.g. HAL
- Civil Profile Elements, e.g. VAL
- Civil XS Element, e.g. Segment Slope
- Microstation Element Properties, e.g. Level Name
- Microstation File Properties, e.g. Project Number (.dgnws)

Used in conjunction with Element Templates and Text Favorites

My Two WorkSpace *Tech* Favorites

- Steve Atkinson – WorkSpace Guru
NCDIT CADD Services
scatkinson@ncdot.gov
919-707-7034
- Jason Johnson (JJ)– Consultant WorkSpace Mastermind
Kimley-Horn (Raleigh)
Jason.Johnson@kimley-horn.com

Roadway Design Dynamic Duo





THANK
YOU!

Post Conference Initiative

- Form an ORD CONNECT WorkSpace focus workgroup with inputs from our PEFs and Bentley
- Reduce dependencies on environment variables
- No edits to WorkSpaceSetup.cfg (untouched)
- Seamless integration with Bentley and other DOT workspaces
- Rebuild from the ground up for ease of use