NCDOT ProjectWise Workset Folder Definitions and Guidance for Use with OpenRoads Designer

VERSION 1

February 2025
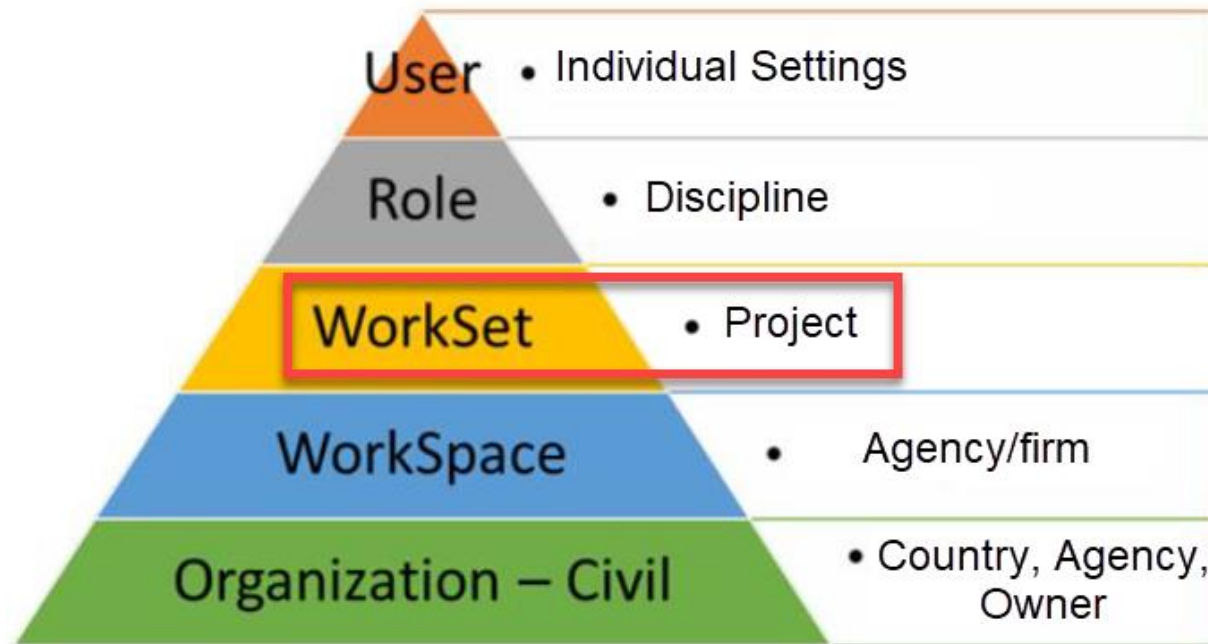
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Background

What is a Workset?

From a CADD perspective, the term **Workset** is interchangeable with the term **project**. Much like how a workspace contains all the CADD resources common to all projects or to an organization, a workset contains all the CADD resources, settings, and files needed for one project's deliverables across preconstruction disciplines. It serves as a bridge between project-specific requirements and broader NCDOT workspace standards, ensuring consistency and compliance with NCDOT CADD Standards.

Why is a Workset Used?

The primary purpose of a Workset is to:
- Facilitate the development of project deliverables using project-specific resources for 3D modeling.
- Enable the project-specific customization of CADD resources that are not available in the NCDOT workspace.
- Support NCDOT's digital delivery goals by providing a structured environment for managing resources like feature definitions, graphical filters, and templates.
- Promote adherence to NCDOT CADD standards through transparency, ensuring uniformity across projects and disciplines.

Compliance

To ensure compliance with NCDOT standards, adhere to the following:

1. **Workset Log File:**
   o Log all additions to the Workset folder using the provided Workset Log File **located directly in the Workset folder** with a clear description of their purpose.
   o The Workset plays a pivotal role in evolving workflows and fostering collaboration among stakeholders.

2. **Standards Compliance:**
   o Familiarize yourself with and follow NCDOT's project and CADD standards found in the NCDOT workspace before adding or using resources in the Workset folder. Plan sheet standards should remain consistent from project to project, including those found on the 1B Symbology Sheet.

3. **Avoid Redundancy:**
   o Do not copy resources from the NCDOT workspace solely for convenience. Any added project-specific resource must directly support the 3D model production process. Coordinate with the relevant NCDOT unit regarding plans production improvements.

4. **Custom Toolbar (a.k.a. GUI) Resources:**
   o If used, exclude organization-specific custom toolbar resources from final project deliverables.
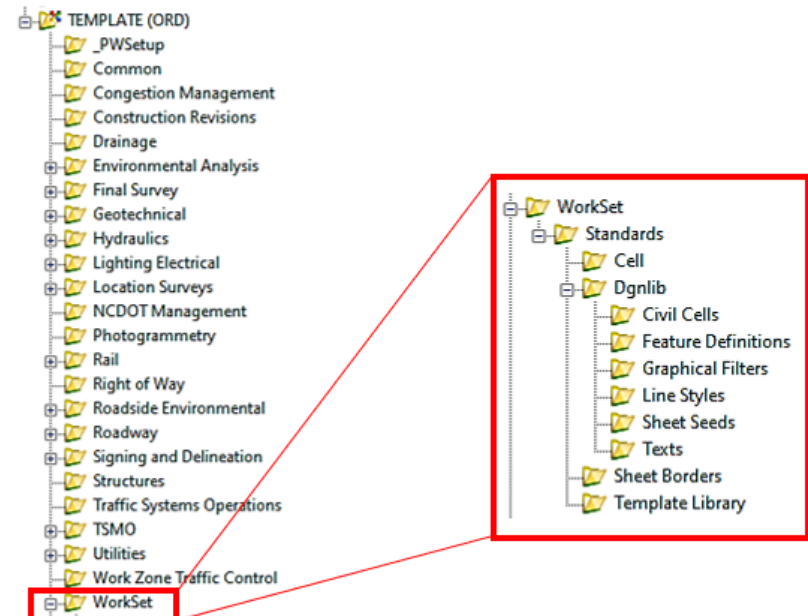
5. **Alternative Workspaces:**
   o If working outside of NCDOT's ProjectWise Managed Workspace (e.g., on a local or network drive), ensure that any resources stored in a different folder structure retain functionality once the resources are submitted to the NCDOT Workset folder.

Subfolders

Be aware of and adhere to project and CADD standards located in the NCDOT workspace before considering use of these folders. This structure will be included in new projects as of February 4th, 2025 or upon request.

<u>**Workset**</u>

- <u>**Standards**</u>
  - **Cell**
    - Customized 2D cells for unique circumstances, such as roundabout signage, or from non-NCDOT stakeholders
  - **Dgnlib**
    - **Civil Cells**
      - Bentley defines Civil Cells as "a collection of previously stored Civil objects that are created using rules that are **flexible** yet well-defined to use repeatedly in many projects."
      - Refer to NCDOT Units for further guidance
    - **Feature Definitions**
      - Additional Feature Definitions could be needed on a project, such as those for a rest area parking lot with unique design requirements or Feature Definitions / Annotation Groups to aid in the 3D model design and review process. Feature Definition DGNLIB files may include Feature Definitions, Feature Symbologies, and Annotation Groups.
    - **Graphical Filters**
      - Additional graphical filter(s) may be required for producing terrain models (surfaces) to reach the desired outcome
    - **Line Styles**
      - 3D line styles may be added for additional clarity in the model. Refer to NCDOT units for the current guidance on 2D linestyles
    - **Sheet Seeds**
      - Dgnlibs to improve the plans production process and accommodate non-NCDOT stakeholders
    - **Texts**
      - Text information such as Label Definitions (Civil Labeler), text favorites, text styles, and dimension styles that may not be covered by the NCDOT workspace.
  - **Sheet Borders**
    - Information needed for sheet borders not provided in the Sheet Seed dgnlibs
  - **Template Library**
    - Template libraries intended for multi-disciplinary modeling. Roadway and Hydraulics prefer template libraries be in their discipline-specific folders. Refer to each units' guidance and standards for template library file locations.

Frequently Asked Questions

1. **Do these files affect the NCDOT workspace?**

No, these files supplement the NCDOT Workspace and do not overwrite any existing resources. They are project-specific and enhance workflows while ensuring compliance with NCDOT standards.

Guidance:

*   **Avoid Redundancy:** Do not duplicate existing NCDOT Workspace resources unless a project-specific customization is necessary.

*   **Ensure Compatibility:** Custom elements must align with NCDOT standards and should not interfere with existing functionality.

*   **Track Changes:** All additions must be logged in the Workset Log File to maintain a record of modifications and facilitate collaboration.

*   **Facilitate Future Standardization:** The Workset folder enables project disciplines to develop workspace items that, if widely beneficial, could be incorporated into the NCDOT standard workspace over time.

*   **Maintain Future Usability:** Ensure custom resources are included in project submittals so that any user can replicate project design work accurately.

    If unsure, consult the appropriate NCDOT unit before adding resources to the Workset.

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2. **Can these custom files be utilized after project submittal or a change in ownership?**

Yes, the files should be included in project submittals to ensure that any user can replicate project design work accurately. To ensure the files and settings stay intact, designers and Project Manager should ensure the Workset Log File discussed above is kept and maintained with submittal packages on ProjectWise.

Guidance:

*   **Workset Log File:** Maintain and submit the Workset Log File to document all added resources for consistency and future accessibility.

*   **Consistent File Management:** Ensure that all project-specific resources are stored in designated Workset folders and do not conflict with NCDOT standards.

- **Encourage Cross-Discipline Adoption:** Custom elements developed within a Workset folder can help multiple disciplines collaborate more efficiently by standardizing frequently used resources.

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3. **Are other states utilizing this feature?**

Yes, several state DOTs implement similar approaches to manage custom CADD resources:
- **Florida DOT:** Uses a Consultant folder within its workspace to manage project-specific customizations.
- **Oregon DOT:** Employs a Workset folder for sheet index plotting, as well as for cells and template libraries.

Guidance:

- **Research best practices** from other DOTs to enhance project workflows while maintaining compliance with NCDOT requirements. Engage with NCDOT Disciplines to assess whether adopting similar methods could improve efficiency and project delivery.

- **Leverage Workset Learnings for Future Standardization:** Observing how other DOTs manage Workset development can provide insights into best practices for integrating project-specific resources into NCDOT's standard workspace.

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4. **How is compliance with NCDOT CADD Standards ensured?**

Users do not have write access to core NCDOT Workspace settings, preventing unauthorized modifications to levels, colors, symbology, etc. All customizations must align with NCDOT CADD Standards and project requirements.

Guidance:

- **Follow NCDOT Standards:** All resources must adhere to the established NCDOT CADD Standards to ensure consistency across projects.

- **Coordinate with NCDOT Units:** If a required customization is not available in the NCDOT Workspace, consult the appropriate unit before implementation.

- **Document Customizations:** Record any deviations or additions in the Workset Log File to maintain transparency and accountability.

- **Support 3D Modeling Goals:** As disciplines develop their respective workspaces within Worksets, commonly used elements can be standardized to accelerate the transition to 3D modeling collaboration.

- **Periodic Review:** Regularly review project files to confirm they align with NCDOT's evolving digital delivery standards.

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5. **Why is the Workset > Standards folder called standards if they are not standard from project to project?**

Recognize that "Standards" in this context refers to resources that support project deliverables, not necessarily NCDOT-wide standards.

Guidance:

- **Maintain clear documentation** in the Workset Log File to differentiate project-specific customizations from system-wide standards.

- **Use as a Pathway for Standardization:** Frequently used custom resources in Worksets can be reviewed and considered for inclusion in future NCDOT workspace updates, promoting consistency across disciplines.

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6. **How might the workset folder be used in the future?**

The Workset folder provides flexibility while maintaining departmental standards. One potential use is for plotting, as Worksets include a sheet index file (workset.dgnws/workset.dgnsi) that helps manage and organize project sheets efficiently.

Guidance:

- **Innovation within Standards:** The Workset folder allows engineers to introduce project-specific enhancements without compromising NCDOT standards.

- **Enhanced Plotting Capabilities:** Workset files could be leveraged for improved sheet management and plotting automation.

- **Future Digital Delivery Integration:** As NCDOT advances digital delivery efforts, the Workset folder may evolve to support additional data-driven project workflows.

- **Collaboration Across Disciplines:** The Workset folder can help project disciplines develop shared resources that may eventually be integrated into the NCDOT standard workspace, supporting the shift to 3D modeling collaboration.

- **Continuous Improvement:** By evaluating how Workset elements contribute to digital delivery goals, NCDOT can refine processes and implement best practices for broader adoption.

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7. **How does the Workset folder support 3D modeling and digital delivery goals?**

The Workset folder provides a structured environment for managing project-specific CADD resources that support NCDOT's transition to 3D modeling and digital delivery.

Guidance:

- **Standardizing 3D Workflows:** The Workset allows disciplines to develop and refine 3D modeling tools that align with NCDOT's digital delivery standards.

- **Encouraging Collaboration:** By using a common Workset structure, multiple disciplines can contribute to model-based design processes while maintaining consistency.

- **Ensuring Long-Term Usability:** Resources developed in Worksets can be tested, refined, and potentially incorporated into the NCDOT standard workspace to streamline future projects.

- **Improving Data Transfer:** Worksets help ensure that project data is managed in a directly consumable format, reducing data loss and rework in the transition between design and construction.

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8. **How should disciplines collaborate when adding resources to the Workset folder?**

Collaboration between disciplines ensures that custom resources are effectively shared and can potentially become standardized for future use.

Guidance:

- **Consult Relevant Units:** Before adding a resource, coordinate with discipline leads to confirm if a similar resource already exists within the NCDOT Workspace.

- **Encourage Cross-Project Reuse:** If a customization is useful across multiple projects, document its application and propose it for broader adoption.

- **Use a Shared Review Process:** Establish a process for reviewing and validating Workset additions within and across disciplines.

- **Standardization Potential:** Identify Workset resources that may be beneficial as part of the NCDOT standard workspace to accelerate the transition to 3D modeling collaboration.

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9. **How should designers use the Workset folder when working with NCDOT?**

Designers should follow NCDOT Workset guidelines to ensure consistency across projects and facilitate seamless integration with NCDOT workflows.

Guidance:

- **Follow NCDOT Standards:** Use the Workset folder structure provided by NCDOT to maintain compliance with department guidelines.

- **Include Custom Elements in Deliverables:** Any project-specific resources used in design should be included in final submittals to ensure long-term usability.

- **Coordinate with NCDOT Teams:** Work with NCDOT discipline leads to verify that any necessary customizations align with department standards.

- **Maintain Workset Log File:** Consultants should document any additions or modifications in the Workset Log File to ensure smooth project transitions and continuity.