

# Work Type Definition and Submittal Requirements

## 1.2 Geometric Layouts

### Work Type Definition

Pages 1-2 detail the work type definition. In order to become *pre-qualified* for this work type, please see the “Work Type Submittal Requirements” on pages 3-4.

#### I. Description

This work type includes preliminary design plan layouts for rural and urban roadways of all functional classifications. Geometric layout preparation includes, but is not limited to: Development of a Base Map; Design Study Reports; Horizontal and vertical alignments; Intersections and Interchanges, including Interchange Modification Requests and Engineering and Operational Analysis Report; Noise walls, retaining walls, traffic barriers, and construction staging. Consideration must be given to pavements, culverts, ponding, storm and sanitary sewers, utilities, erosion control and earthwork.

Geometric Layout Preparation projects are categorized by level and include the following Project Types:

- A. Level 1 projects include design for the following Project Types in the categories Interstate and Non-Interstate National Highway System (NHS):
  - 1. Major Construction
    - a. Freeways, High Speed, Multi-Lane Facilities and Class 1 Rest Areas
  - 2. Major Reconstruction
    - a. Freeways, High Speed, Multi-Lane Facilities and Class 1 Rest Areas
  - 3. Design Exceptions (exception only)
  - 4. Major changes in Freeway Access
- B. Level 2 Projects include design for the following Project Types in all categories except Interstate and Non-Interstate NHS:
  - 1. Raised channelization
  - 2. Change in number of lanes
    - a. Addition
    - b. 3 lane section
    - c. 5 lane section
  - 3. Major intersection revisions
  - 4. Moderate changes in access:
- C. Level 3 Projects may not require layouts, and include design for the following Project Types:
  - 1. Guardrail work
  - 2. Culvert:
    - a. Extensions
    - b. Elimination
    - c. Replacements
  - 3. Road work:
    - a. Overlay only
    - b. Standard right turn lanes
    - c. Standard left turn lanes on divided highway
  - 4. Removal of obstructions from clear zone
  - 5. Overlays with widening or left turn lanes
  - 6. Minor changes standard geometrics

# **Work Type Definition and Submittal Requirements**

## **1.2 Geometric Layouts**

7. Minor painted channelization
8. Minor changes in access
9. Minor intersection revisions
10. Rest Areas non-NHS:

*NOTE: Pre-qualification in Level 1 includes pre-qualification for Levels 2 and 3. Pre-qualification in Level 2 includes pre-qualification for Level 3.*

### **II. Standards and Specifications**

**Standards and specifications required for a project under this work type may include the following:**

- A. All work completed must be in accordance with the current American Association of State Highway & Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets (also known as The Green Book), current AASHTO Roadside Design Guide, current MnDOT Road Design Manual, current Highway Capacity Manual, and Federal Highway Administration (FHWA) and MnDOT design policies, procedures, practices and standards.
- B. The layouts must meet the form and content requirements listed in the Highway Project Development Process (HPDP) Handbook.
- C. The layout must consider the various inputs during the development process, and incorporate where appropriate, and must also include a history that documents the development process and the design influences and decisions.
- D. All work completed must meet MnDOT's Level 2 CADD Standards (as published in the most current CADD Data Standards Manual), including the use of GEOPAK™, MnDOT's automated design software. See <http://www.dot.state.mn.us/caes/cadd>.

### **III. Provided by MnDOT**

**Information to be supplied by MnDOT for a project under this work type may include the following:**

- A. All project-specific documents and studies including but not necessarily limited to Project Scoping Documents and Scoping Decision Documents, following the MnDOT Highway Project Development Process Handbook (HPDP) Guidance.

### **IV. Provided by Consultant**

**Deliverables to be supplied by the consultant for a project under this work type may include the following:**

- A. MnDOT staff approved layout, FHWA approved layouts when required by the Stewardship Plan, subsequent municipal approved layout, and required reports including, for the Level 1 Layouts that require it, the Engineering and Operational Analysis Report. The Engineering and Operational Analysis is a report containing sufficient information to allow the FHWA to independently evaluate that all pertinent factors and alternatives have been appropriately considered.
- B. New or modified access to the Interstate system, regardless of funding source, will require Interstate access approval by FHWA. Approval of Interstate access requests is required by federal regulations at Non-regulatory Supplement (NS) 23 CFR 630C, item #3.

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## 1.2 Geometric Layouts

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**A consultant firm becomes pre-qualified based on the qualifications of the personnel that are employed by the firm and by meeting the demonstrated CADD requirements.**

Key Personnel Requirements	
Minimum Number of Staff:	<ul style="list-style-type: none"> <li>At least two professionals for Level 1 and Level 2 projects.</li> <li>At least one professional for Level 3 projects.</li> <li>Other professional and technical personnel with engineering training, experience, knowledge, and expertise in the appropriate areas necessary to do the project in accordance with AASHTO, FHWA and MnDOT design policies, procedures, practices and standards.</li> </ul>
Professional Certification/Licensure:	Professionals must be Minnesota Board Licensed professional civil engineers.  <i>NOTE: Pre-qualification in Level 1 includes pre-qualification for Levels 2 and 3. Pre-qualification in Level 2 includes pre-qualification for Level 3.</i>
Work Type Submittal Requirements*	
<b>I. Resume and Relevant Project Experience Form (Form PQ1)</b>  <i>Submit in Word format</i>	A. Complete Parts 1, 1A, 2 and 3 of Form PQ1 <b><u>Part 1:</u></b> Fill out general information and names of personnel  <b><u>Part 1A:</u></b> Must demonstrate satisfactory experience on at least two projects per qualified professional in the last ten years in the activities required for Level 1, and in the last five years for Levels 2 and 3. <b>Note: Experience in design office management or overall project management is not sufficient.</b>  <b><u>Part 2:</u></b> Project Examples listed must correlate to those described below in “Project Example Requirements.”  <b><u>Part 3:</u></b> Not Applicable
<b>II. Project Example Requirements</b>  <i>Submit in PDF format</i>	A. Satisfactory experience must be demonstrated on at least two projects in the last ten years for Level 1 and in the last five years for Levels 2 and 3 in the activities required for the level for which pre-qualification is applied. To qualify for Level 1, you must supply two Level 1 project examples OR one Level 1 and two Level 2 project examples.  <u>Project examples must consist of a preliminary geometric layout similar to that which is suitable for MnDOT staff approval as well as accompanying preliminary profile grades.</u> The project examples will be rated for technical integrity and format. Technical integrity will be judged on adherence to the applicable design policy and criteria as published in the MnDOT Road Design Manual. <u>Format and content will be judged using the most current version of the Layout Content Review Checklist,</u> which can be found in the Subject Guidance for Geometric Layouts, HPDP Handbook located at: <a href="http://dotapp7.dot.state.mn.us/edms/download?docId=636152">http://dotapp7.dot.state.mn.us/edms/download?docId=636152</a>

**Work Type Definition and Submittal Requirements**  
**1.2 Geometric Layouts**

<p><b>III. Proof of Professional Certification/Licensure</b></p> <p style="text-align: center;"><i>Submit in PDF format</i></p>	<p>A. Provide a current copy of the applicable Professional Certification/ Licensure.</p>
<p><b>IV. CADD Requirements</b></p> <p style="text-align: center;"><i>Submit in PDF format</i></p>	<p>A. Complete, sign and notarize form indicating the firm is capable of using MnDOT's Level 2 CADD Standards which can be found at: <a href="http://www.dot.state.mn.us/consult/prequal/overview.html">http://www.dot.state.mn.us/consult/prequal/overview.html</a></p> <p>Once at website, click link for Affidavit for MnDOT's Level 2 CADD Standards</p>
<p><b>*Work Type Submittal Instructions:</b></p> <p>Create a CD or flash drive that includes the following individual files or folders in this order:</p> <p>I. Resume and Relevant Project Experience Form (Form PQ1)</p> <p>II. Project Example Requirements (this should be a folder that includes individual files clearly named according to Part 2 of the PQ1)</p> <p>III. Proof of Professional Certification/Licensure</p> <p>IV. CADD Requirements</p> <p style="text-align: center;"><b>Each file should be saved in the format identified above.</b></p> <p style="text-align: center;"><b>Submit 5 copies of the CD or flash drive.</b></p>	