

# Introduction

---

## 1.1 General

The *ODOT Geotechnical Design Manual (GDM)* establishes standard policies and procedures regarding geotechnical work performed for ODOT. The manual covers geotechnical investigations, analysis, design, and reporting for earthwork and structures for highways. The purpose of the geotechnical investigation and design recommendations is to furnish information for an optimum design, which will minimize over-conservatism, as well as to minimize under-design and the resulting failures commonly and mistakenly attributed to unforeseen conditions.

It is to be understood that any geotechnical investigation and design will leave certain areas unexplored. Further, it must also be understood that it would be impractical to provide a rigid set of specifications for all possible cases. Therefore, this manual will not address all subsurface problems and leaves many areas where individual engineering judgment must be used. It is intended that the procedures discussed in this manual will establish a reasonable and uniform set of policies and procedures while maintaining sufficient flexibility to permit the application of engineering analysis to the solution of geotechnical problems.

This manual references publications, which present specific engineering design, construction, or laboratory testing procedures. Each chapter contains a listing of associated references for the subject area of the chapter. Among the commonly referenced materials are the publications of the American Association of State Highway Transportation Officials ([AASHTO](#)), the [Federal Highway Administration \(FHWA\)](#), and the American Society for Testing and Materials ([ASTM](#)).

The ODOT Engineering and Asset Management Unit of the Geo-Environmental Section is responsible for the publication and modification of this manual. Any comments or questions about the *ODOT Geotechnical Design Manual* should be directed to:

Jon Guido, P.E., G.E., Geotechnical Engineering Program Leader  
Engineering and Asset Management Unit  
Geo-Environmental Section  
Oregon Department of Transportation  
4040 Fairview Industrial Drive SE, MS#6  
Salem, OR 97302  
503-986-3993

## 1.2 Manual Revision Procedure

### 1.2.1

It is intended that the GDM will be continually updated as required to clarify geotechnical practice in ODOT and include new information. Revisions and submittals from all users of the GDM, both internal (ODOT) and external (Consultants and others), are encouraged. The following revision procedure should be used:

#### 1. Define the problem

Discuss the suggestion or revision of the GDM with others that have a stake in the outcome. If it is agreed that the item should be proposed, develop a written proposal. Changes to design policy, design practice, or procedures can have wide-ranging effects – including preparation of contract documents for ODOT.

#### 2. Put it in writing

Research and develop a written proposal using the three general subject headings:

- Problem Statement.
- Analysis/ Research Data.
- Proposal.

Check the finished product by reviewing the following guiding comments:

- The existing problem is clearly stated.
- Research and analysis of the problem and potential solution are thorough and understandable.
- The proposed solution is well thought out, is supported by facts, and solves the problem. Has the impact on other areas been considered? Have the details been coordinated with other units or organizations that may be affected?
- No questions remain that need to be answered before implementation.

#### 3. Submittal, Review and Approval

Submit proposed manual revisions to Jon Guido in Salem (contact information above). After reviewing the written proposal for completeness, the Engineering and Asset Management Unit will either:

- Accept, without further review, manual corrections for inclusion in the GDM, or
- Distribute proposed manual revisions to internal (ODOT) stakeholders for review and comments.

After receiving review comments from internal stakeholders, the Engineering and Asset Management Unit will do one of the following:

- Accept proposed revisions and place them into the next upcoming version of the GDM, or
- Return submittal to the originator with comments and recommendations for revision and resubmittal.

Regardless of whether or not a proposal is accepted, the Engineering and Asset Management Unit will reply in writing to the person making the submittal.

#### **4. Implementation of Approved Revision**

Proposals will be incorporated electronically into the GDM on the ODOT Geo-Environmental web page as soon as practical.

### **1.3 ODOT Geotechnical Organization**

The functions of geotechnical design in ODOT are generally managed and performed within the 5 region offices. Tech Centers within each region are staffed with Geotechnical Engineers, Engineering Geologists, Hydraulics Engineers, and HazMat specialists. The geotechnical design, construction, and maintenance support may be performed in-house or contracted out to specialty consultants. The ODOT Headquarters Engineering and Asset Management Unit provides on-call geotechnical design assistance and review, training and software, coordination of section initiatives, and other functions involving development of standards and practices for geotechnical work.