

I-205 Toll Project

MEMORANDUM



Date February 11, 2021
To Lucinda Broussard, Mandy Putney, Jeff Jones, Ben White, and Michael Holthoff (ODOT)
From Elizabeth Lundquist, WSP
Subject Geology and Soils Methodology Memorandum – Draft #4
CC

1

2 **INTRODUCTION**

3 This memorandum describes the methods that will be used in the I-205 Toll Project (Project)
4 Environmental Assessment (EA) analysis to evaluate geology and soils impacts of the Project
5 alternatives. The analysis and results will be documented in the EA that will be developed to
6 comply with federal guidelines and regulations, including the National Environmental Policy
7 Act (NEPA) and local and state policies, standards, and regulations.

8 The geology and soils analysis will evaluate impacts from the construction, operations, and
9 maintenance of the Project and will identify mitigation measures as needed.

10 **LEGAL REGULATIONS AND STANDARDS**

11 **Laws, Plans, Policies, Regulations, and Guidance**

12 The analysis will consider NEPA, Council on Environmental Quality (CEQ) and Federal
13 Highway Administration (FHWA) guidance on preparing NEPA documents.

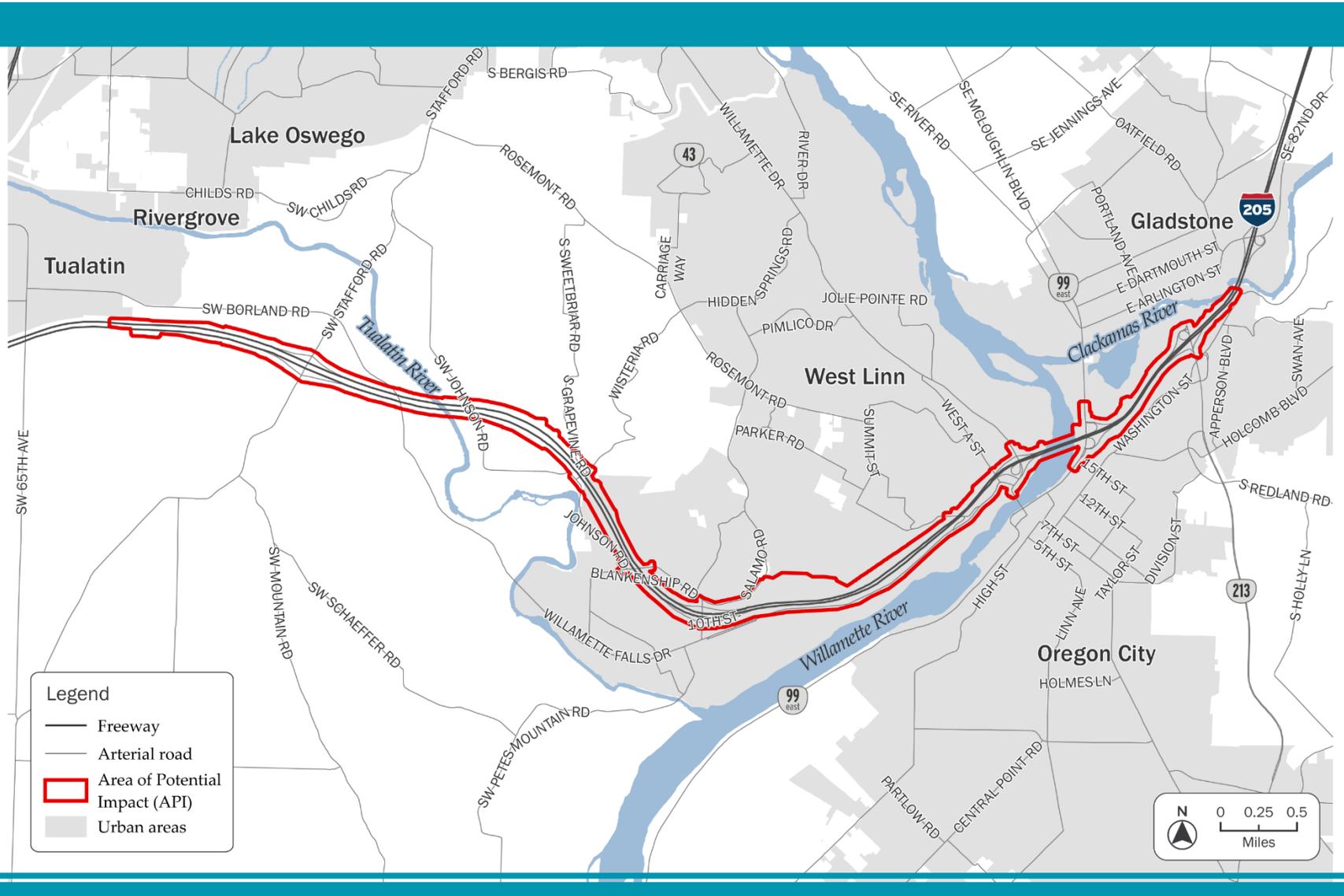
14 There are no regulations and laws pertaining to soils or geology that are specifically applicable
15 to the Project. However, the NEPA Manual published by Oregon Department of Transportation
16 (ODOT 2020) and the ODOT Geotechnical Design Manual (GDM) establishes generally
17 accepted industry practice for transportation projects and geotechnical design.

18 **AREA OF POTENTIAL IMPACT**

19 The area of potential impact (API) is the geographic boundary within which impacts to the
20 environment could occur with the Project alternatives. The API for direct and indirect long-term
21 and short-term impacts to geology and soils is defined as 100 feet from the edge of the I-205
22 right-of-way between SW Stafford Road and Oregon Route 213 to capture areas of permanent
23 project improvements, construction staging areas, and any other areas where ground
24 disturbance may occur as part of project construction, as shown in Figure 1.

25 Prior to preparation of the EA, this API may be modified once the alternatives to be studied in
26 the EA have been identified and projected traffic volumes have been refined.

1 **Figure 1. Preliminary Geology and Soils API**



2

1 **DESCRIBING THE AFFECTED ENVIRONMENT**

2 **Published Sources and Databases**

3 Data used in the 2018 Documented Categorical Exclusion (DCE) prepared for the I-205
4 Improvements Project will be reviewed to confirm its relevancy and applicability to this study.
5 The data required for evaluating how Project construction may be impacted by geologic
6 properties and how the construction may impact geology will be obtained from existing
7 technical reports, maps, and other public information. A desktop assessment will be conducted
8 to document the existing geologic conditions within the API. Existing maps and technical
9 reports published by the U.S. Geological Survey, Oregon Department of Geology and Mineral
10 Industries (DOGAMI), local and state agencies with past or current projects in the Project
11 vicinity, and the Natural Resources Conservation Service will be reviewed for pertinent
12 geologic, hydrogeologic, seismic, and soil property information.

13 **Contacts and Coordination**

14 The following agencies may be contacted for the collection of data to evaluate potential impacts
15 of the Project:

- 16 • DOGAMI
- 17 • Oregon Department of Environmental Quality
- 18 • Local county, city, and regional agencies

19 **Field Surveys or Testing**

20 No testing of soils or geologic conditions is proposed to be conducted as part of the preparation
21 of the EA. When the design is advanced, and the specific locations of toll gantries are identified,
22 it may be necessary to conduct a field survey to confirm soil conditions in the locations of any
23 proposed ground disturbing activities.

24 **IMPACT ASSESSMENT METHODS**

25 The impacts analysis will address the long-term and short-term impacts upon geology and soils
26 for each of the Project alternatives.

27 **Long-Term Impact Assessment Methods**

28 The analysis of direct long-term geology and soils impacts resulting from the Project will
29 consider potential seismic hazards, such as liquefaction, lateral spreading, etc., and soil hazards
30 and how Project construction could be affected by those conditions.

31 Most potential long-term impacts to geology and soils would result from the direct disturbance
32 associated with the installation of toll gantries and associated utilities. It is anticipated that the
33 final location of toll gantries and utilities would be chosen to, as much as possible, limit the
34 direct impacts to any areas with seismic hazards.

1 The seismic hazards analysis will evaluate how the soils and rock conditions in the API behave
2 when subjected to earthquake ground motions. This seismic evaluation will be based on current
3 standards of practice, design codes, and levels of risk developed specifically for this Project.
4 Direct long-term impacts will be assessed by evaluating the relative earthquake hazard of the
5 API.

6 The soil hazards analysis will evaluate how the soil in the API behaves when acted upon by
7 external forces. The direct long-term impacts will be assessed by evaluating what soils underlie
8 each of the Project alternatives and identifying the characteristic adverse behaviors of those
9 soils.

10 Since the final locations of toll gantries and utilities may not be determined for the EA, the
11 assessment of long-term impacts to geology and soils will be qualitative in nature, and will rely
12 on information collected during the desktop analysis.

13 **Short-Term Impact Assessment Methods**

14 The analysis of direct short-term impacts to geology and soils that would occur during Project
15 construction will consider:

- 16 • Seismic hazards
- 17 • Soil hazards

18 Most potential short-term impacts to geology and soil would result from temporary disturbance
19 during installation of toll gantries and associated utilities. As noted for long-term impacts, it is
20 anticipated that the final location of toll gantries and utilities would be chosen as much as
21 possible to limit the direct impacts to any areas with seismic hazards.

22 Since the final locations of toll gantries and utilities may not be determined for the EA, the
23 assessment of short-term impacts to geology and soils will be qualitative in nature, and will rely
24 on information collected during the desktop analysis.

25 **Indirect Impacts Assessment Methods**

26 Indirect impacts occur later in time (after Project completion) or are farther removed in distance,
27 but are still reasonably foreseeable in the future. Potential indirect impacts from the Project
28 would likely be related to erosion-caused damage to the tolling infrastructure. This assessment
29 will be qualitative in nature and will rely in part on the findings in the land use section of the
30 EA regarding the potential for induced changes in traffic and/or development patterns within
31 the API that could potentially affect geology and soils.

32 **Cumulative Impacts Assessment Methods**

33 The analysis of cumulative impacts to geology and soils is described in the I-205 Toll Project
34 Cumulative Impacts Methodology Memorandum.

1 **PERFORMANCE MEASURES**

2 1 presents a preliminary list of performance measures identified to evaluate how the
3 alternatives compare in terms of impacts and benefits to geology and soils.

4 **Table 1. Geology and Soils Performance Measures**

Performance Measure	Tool and/or Data Source used for Assessment of Measure
Area of ground disturbance for project construction	Approximate locations of direct impacts from construction of toll gantries and relocated utilities will be determined from Project drawings. Additional information will be obtained from the APIs of land use and utilities and any changes that may occur.

5

6 Additional performance measures may be identified during the course of analysis.

7 **REFERENCES**

8 Oregon Department of Transportation (ODOT). 2020. National Environmental Policy Act
9 Manual. <https://www.oregon.gov/ODOT/GeoEnvironmental/Pages/NEPA-Manual.aspx>
10 Accessed June 15, 2020.