

CHAPTER 4: PILOT STUDY

4.1 OVERVIEW

A. INTRODUCTION

The Washington State Engrossed Substitute Senate Bill (ESSB) 6095¹ commissioned two scopes of work for the purpose of piloting the proposed Buy Clean Washington requirements:

1. **Buy Clean Washington Pilot (Sec. 1030)** authorized the Department of Enterprise Services (DES) to coordinate with five state-funded pilot projects and the University of Washington (UW) College of Built Environments to assess availability of facility-specific EPDs for eligible materials used on selected projects.
2. **Buy Clean Washington Study (Sec. 5014)** authorized an academic research team (UW, CWU, WSU) to develop pilot methods to support information collection. This resulted in a proposed system to categorize eligible structural materials and a method to report EPDs and structural material quantities and origins.

This chapter describes the proposed systems and methods for information collection, which includes model project specifications (formatted according to MasterFormat style of construction specifications) and a reporting template for reporting material quantity information. Also included in this chapter is a brief assessment of potential costs and next steps for the pilot projects. The pilot projects are still in the early stages of development and thus detailed feedback is not possible at this time.

B. PILOT PROJECTS

The Buy Clean Washington Study research team coordinated with DES to engage with pilot project managers and provide background on proposed Buy Clean Washington requirements and study goals. The research team assessed project schedules to understand the timeframe for testing pilot requirements. Initial engagement helped inform pilot methods developed during the study, described in Section 4.2. Table 4.1 provides an overview of the public works projects that participated in the pilot phase.

¹Washington State Legislature, "SB 6095 - 2017-18 Concerning the Capital Budget," 2018, <http://apps2.leg.wa.gov/bills/summary?Year=2017&BillNumber=6095&Year=2017&BillNumber=6095>.

Table 4.1. Pilot projects.

Project (project number)	Use	Current stage	Primary structural system	Project delivery method	Estimated bid date	Estimated construction date	Estimated completion date
Washington State University Tri-Cities: new academic building (30001190)²	Instructional facility (laboratory and classroom space)	Design, construction document (12/2018 to 11/2019)	Unknown	GC/CM delivery	(design consultant contract – June 2018) (final construction contract – Oct. 2019)	Jan. 2020 - Feb 2021	Dec. 2020 (substantial completion)
Western Washington University: Life Sciences building addition and renovation (1730000768)	Instructional facility (laboratory and classroom space)	Schematic design	Unknown	GC/CM delivery	June 1, 2018	Dec. 20, 2019	Occupancy expected by Aug. 27, 2021
Shoreline Community College: Allied Health, Science, and Manufacturing Replacement (30000990)³	Multi-purpose instructional facility	Design development	Structural steel frame supporting concrete floors on metal deck and composite steel beams	Design-bid-build	July 2019	August 2019	June 2021
Secretary of State: Library-Archives Building (30000033)⁴	Office and public spaces, and storage	Pre-design funded but not completed	Unknown	GC/CM delivery	RFQ for architects due 2/12/19	N/A (est. 30 months duration)	Late 2021
Department of Transportation: SR9/Snohomish River Bridge Replacement (N00900R)	Transportation (rural/urban mobility)	Start pre-design in July 2019 (preliminary engineering Oct. 2019-June 2022)	(old bridge – steel thru truss, CIP conc. Deck steel floor beams/stringers precast concrete girders)	Design build	Mid-2021 (design build solicitation)	May 2022 – June 2027	Q4 2026 (operationally complete)

² Western Washington University Office of Facilities Development & Capital Budget, “Sciences Building Addition Request for Qualifications,” 2018, <https://www.wvu.edu/wwuarchitect/consultants/documents/PW733-Sciences-Building-Addition-RFQ.pdf>.

³ Shoreline Community College, “Health Science & Advanced Manufacturing Classroom Complex,” 2017, https://des.wa.gov/sites/default/files/public/documents/Facilities/EAS/2018-102/HSAMCC_Predesign.pdf.

⁴ State of Washington Office of the Secretary of State, “2018 Supplemental Capital Budget,” 2017, https://www.sos.wa.gov/_assets/office/2018_supplemental_capital_budget.pdf.

4.2 PROPOSED METHODS AND TEMPLATES

The purpose of the pilot phase is to assess the availability of current structural material EPDs and understand barriers that project teams may face when accessing EPDs. Additionally, the pilot phase aims to test methods developed by the study team supporting the collection of EPDs and other material information. Note that no penalization or additional effort would result to project teams if product suppliers were unable to provide EPDs during the pilot phase.

In the pilot phase, state awarding authorities will request the following information for eligible materials:

- 1) facility-specific EPDs
- 2) material quantity data (e.g. pounds of steel produced)
- 3) material origin data (e.g. supplier contact address)

To support this information gathering, the research team developed the following:

- a) A general methodology to communicate and report requirements
- b) A set of model construction specifications with language specifying these requirements
- c) An Excel-based reporting sheet for pilot teams to record and submit information

A. GENERAL METHODOLOGY

This section outlines a general methodology for testing requirements on pilot projects. However, due to variances in pilot project schedules and delivery approaches, this is not a prescriptive procedure to uniformly apply across selected projects. Section 4.4 discusses this further and presents alternative options to reflect varying contexts.

The methodology consists of the following steps:

1. State awarding authorities shall reference Buy Clean Washington requirements in advertised RFQs for pilot projects, where possible (contingent on pilot project schedules – some may have already completed the bidding phase). The research team recommends that RFQs should be supplemented with a separate attachment specifying pilot clean requirements and guidelines for complying.
2. Buy Clean Pilot requirements shall be added to the specifications for the bid package. Model specifications are described in the next section.
3. Lead contractor(s) of awarded contracts shall communicate pilot requirements to product suppliers of eligible materials and assess availability of (or capability to provide) information before construction. Contractors would be responsible for reporting to the state project manager any foreseeable barriers using a reporting template.
4. Product suppliers shall complete a reporting template (presented in Appendix B2) to submit material quantity and origin data, and if an EPD is available, a link to the published PDF of the EPD and if no EPD is available, report barriers to obtaining an EPD

5. Contractors shall collect and report data to state project managers before eligible materials are installed.

B. MODEL SPECIFICATIONS

The research team reviewed documentation with model specification language for state-funded projects to assess options for incorporating Buy Clean requirements into current guidelines (e.g. online contract manuals and instructions to bidders). The research team recognizes that each state awarding authority has entity-specific guidelines and standard language that it applies across bid requests to award new public works contracts. Considering the time, coordination and resources needed to adapt and communicate changes to contracting manuals and other agency procurement guidelines, the project team aimed to develop a standard template that all awarding authorities could attach as a supplement to core documents commonly used to specify project requirements to potential bidders.

Appendix B.1 provides the proposed attachment specifying Buy Clean Washington pilot requirements in the form of OmniClass model construction specifications. The model specifications outline general requirements for the Buy Clean Washington pilot and specifies information needed to meet requirements. The University of Washington team will refine the recommended specifications with input from the pilot teams by June 2019 and post updates online at <http://www.carbonleadershipforum.org/buy-clean-washington/>.

C. REPORTING TEMPLATE

The reporting template is presented in the form of a table in **Appendix B.2**. Structural material quantity reporting focuses on constituent materials (e.g. steel and concrete) rather than structural type (e.g. steel framed building), since buildings of a primary structural material category typically include other materials (for example, a steel frame building typically includes foundations made of reinforced concrete). The University of Washington team will refine this template with input from the pilot teams by June 2019 and post updates online at <http://www.carbonleadershipforum.org/buy-clean-washington/>.

Structural material quantity reporting requirements for constituent materials, namely concrete (including grout), masonry, steel, and timber, are summarized in the following subsections.

CONCRETE (INCLUDING GROUT)

Structural material quantity reporting for concrete and grout shall include the material supplier and address, the specified compressive strength (psi), and the volume (cubic yards). Additional optional reporting includes the slump, the supplier mix designation, the structural component or components where the material is used, and whether the material is used precast or in-situ.

MASONRY

Structural material quantity reporting for masonry units includes the material supplier and address, the type of unit (concrete (CMU) or clay brick), the ASTM material designation, the specified compressive strength (psi), the unit weight (pcf), the unit dimension, and the number of units. Additional optional reporting includes the supplier mix designation.

STEEL

Structural material quantity reporting for steel includes the material supplier and address, the product type (structural steel, steel reinforcement (rebar), prestressing tendons, or steel decking), the ASTM material designation, and the weight (pounds). Structural steel includes steel plates and structural steel sections. Structural steel sections are typically selected from the shapes specified in the AISC Steel Construction Manual but may also include built-up or custom structural steel sections fabricated from plates (e.g., plate girders). Additional optional reporting includes the grade and whether the steel is coated or uncoated.

WOOD

Structural material quantity reporting for timber includes the material supplier and address, the product type (boards, plywood, oriented strand board (OSB), laminated veneer lumber (LVL), glued-laminated timber (GLT or Glulam), and cross-laminated timber (CLT)), the ASTM material designation, and the volume (cubic yards). Additional optional reporting includes the dimensions, the species, the grade, and the number of plies. For boards, the number of plies is one. For OSB the number of plies (layers) is not applicable and should be reported as “N/A” (not applicable).

4.3 POTENTIAL COSTS

The potential costs for the pilot projects are projected to be as follows:

1. **Costs to design teams to implement specs:** This is estimated to be low. Following recommendations developed as part of the California Buy Clean implementation, the project team recommends not modifying the standard construction specification process. Rather, teams shall attach an additional document to the standard specifications. The estimated time requirements of implementing the specifications by design/construction team are as follows:
 - a. Introductory discussions: 4 hours
 - b. Evaluation of process and filling survey: 8 hours
 - c. Writing specifications, including back-checking requirements: 8 hours
2. **Effort to collect and report data:** The cost for this is unknown. However, the work of collecting and reporting EPD data can be facilitated by developing EPD datasets. Estimate between 2 days and 2 weeks of a project engineer to complete.
3. **Impact on construction costs:** Cost unknown-expected to be low. Without mandating EPDs or setting any performance targets, no change to costs of materials or produces would be expected. Construction estimates might increase to absorb both the effort identified in item 2 above and to cover any perceived risks of complying with the pilot project.

4.4 PILOT STUDY NEXT STEPS

As shown in Table 4.1, there is notable variance between pilot project schedules and delivery approaches. Therefore, it is challenging to propose a uniform approach and timeline to test requirements across selected projects. Further, DES is required to complete the Pilot Phase by June 2019, and the supplementary Buy Clean Washington Study (this report) is final in December 2018. A timeline extension would be needed to support state agency personnel and/or external researchers to test methods developed by the study and collect information from pilot project teams.

The research team recommends using a simplified approach to pilot methods that limits any disruptions to current project schedules and work streams, especially since several consultants and contractors have already been selected for some projects (design stage underway), whereas other projects are not scheduled to advertise contracts in the near-term. Further, no additional support is currently provided to support contractors to work with product suppliers to collect or generate EPDs.

Given that the different projects are in different stages of development, the research team recommends the following steps to assist pilot teams in implementing the pilot project. The University of Washington project team members will be able to convene and coordinate these efforts with DES through June of 2019 given the current project funding and timeline for UW.

Jan. 2019	Introduction: Present the proposed framework to pilot teams via web conference and solicit feedback via discussion.
Feb. 2019	Stakeholder discussions: UW CLF to host discussions to evaluate reporting method.
March 2019	Collect feedback: Distribute pilot specification language and reporting methods to pilot teams and interested stakeholders and solicit feedback through a survey.
June 2019	Refine: Update pilot specifications and reporting template and distribute to pilot project teams.
June 2019	Report: DES to provide preliminary reports to legislature fiscal committees
2019 - on	Implement: The requirements of the specifications will be met by construction teams and material suppliers as the construction process unfolds. Evaluate: DES to collect reports and survey teams to evaluate the impacts of the process.

As the pilot projects are on differing schedules, the project team recommends that DES staff check in with project teams in September of 2019 and in subsequent years track the project development through final construction and reporting. The Buy Clean Washington Study team recommends that the reporting template be integrated into an organized data collection method to ensure that the results can be analyzed to inform future policy.