Campus Masterplan: Western Federal Lands Highway Division FOVA-XX3-WFL Facility Space Management and Improvements Vancouver National Historic Reserve (VNHR), Washington

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1. Introduction

1.1 | Project Overview Western Federal Lands Highway Division (WFLHD) has engaged our architectural design team to provide a Campus and Construction Masterplan for the WFLHD Main Office building and adjacent property site located in Vancouver, Washington. This document establishes a comprehensive framework for future facility planning, supported by component condition assessments, deferred maintenance recommendations, space planning layouts, and strategic construction phasing.

Our team conducted a thorough review of existing background documentation, including planning studies, programming data, and historical records. Concurrently, we performed non-destructive visual investigations of the building and site to evaluate code compliance, identify deficiencies, and formulate corrective actions.

1.2 | Goals & Objectives Based on consultation with WFLHD leadership, the following core objectives direct our facility masterplan efforts:

- **Improvement of the office and lab environment:** The existing facility lacks modern office amenities and clear organization. Our design proposes Class A office space that fosters staff interaction, organizational excellence, and improved laboratory process flow.
- **Addressing climate change and natural hazards:** We will implement sustainable strategies that align with federal goals to reduce carbon pollution and increase building energy efficiency.
- **Code compliance:** The design will rectify existing deficiencies in fire-life safety, accessibility, and structural systems to establish a safe and durable facility.

- **Deferred maintenance:** The project will upgrade building envelope elements and utility systems to ensure long-term performance and reliability.

1.3 | Project Team Directory

- **Project Owner:** Federal Highway Administration, Western Federal Lands Highway Division.
- **Project Management:** TBD
- **Architecture/Historic Preservation/Interior Design:** A&E TBD
- **Plumbing / Fire Protection / Electrical / Mechanical:** TBD

2. Campus Masterplan Facility Recommendations

2.1 | Recommendations Overview Recommendations for the WFLHD Main Building and site encompass a blend of targeted corrective actions for condition deficiencies and comprehensive strategies for long-term improvement. Recognizing that portions of the building infrastructure are over 90 years old, substantial facility upgrades are required to maintain operations. Our overall recommendation is to implement these improvements in a cohesive manner to minimize disruption to WFLHD lab operations while maximizing design value.

2.2 | Site Circulation and Access The main pedestrian entry and accessible approach are located on the southwest side of the building along E 5th Street. Refuse trucks currently enter the site from Anderson Street, utilizing the material storage yard for turning and unloading.

Parking The site currently provides a paved surface lot with 41 standard parking stalls to the west of the office building. However, the campus currently lacks adequate on-site ADA parking stalls. To achieve full accessibility compliance, we recommend converting two standard stalls into accessible ADA stalls and striping one existing stall as an ADA unloading zone, complete with an accessible crosswalk and curb ramp connecting directly to the main building entrance. Additionally, the material storage yard can be formalized to accommodate up to 37 additional parking stalls by paving the area and defining specific parking locations.

Utilities To support future upgrades and fire-life safety improvements, a new 6-inch connection to the public 16-inch water main in E 5th Street is recommended to supply a new automatic fire protection sprinkler system for the Main Building. We also recommend that new bioretention basins be established to responsibly manage stormwater generated by any new pavement surfaces.

2.3 | Main Building

Code Compliance The Main Building currently exceeds the allowable area for a Type III-B construction Business occupancy. Due to extended egress travel distances and the absence of an automatic sprinkler system, the building poses potential fire-life safety risks. Any major renovation will be classified as a Level 3 Alteration, thereby mandating the installation of a comprehensive automatic sprinkler system and an upgraded fire alarm and detection system.

Accessibility enhancements are also critical. We recommend comprehensive modifications to ground floor ramps to achieve compliant slopes and landing depths. All internal and external stairs require updated, code-compliant handrails and guardrails to meet ABAAS standards.

Other code concerns have been identified and shall be restified.

Architectural Improvements

- **Roof and Envelope:** We recommend the removal of abandoned exterior wall appurtenances, deteriorated steel dunnage on the roof, and the replacement of non-compliant roof access hatches with OSHA-compliant ships ladders and guardrails. To mitigate air leakage and weather intrusion, existing damaged window assemblies should be replaced with high-performance engineered units equipped with insulated glass.
- **Fall Protection:** Install tie-off anchor points at roof locations frequently accessed for maintenance and install guardrails at skylights for additional fall protection.
- **Loading Dock:** The existing loading dock requires intensive concrete cleaning and the installation of code-compliant safety guards to ensure staff safety during use. We also recommend replacing the existing spring-loaded manual dock leveler with a hydraulic dock leveler.

Programming and Space Planning Through rigorous staff interviews and space validation, programming layouts were developed to foster a collaborative and efficient Class A office environment.

- **Circulation:** The design eliminates dead-end corridors by connecting the north and south corridors at the ground level, establishing a continuous, navigable circulation loop.
- **Daylighting and Acoustics:** We desire new skylights to penetrate the upper floor spaces with natural light. The plan implements comprehensive direct/indirect LED

lighting with daylight sensors. We also recommend extending white noise propagation throughout the open offices and installing acoustic batting above ceilings to limit sound transmission.

- **Upgrade the Stairwell:** Modifying the main entry stairwell to an open configuration will visually connect the first and second floors, usher in natural light to the center of the building and create a highly welcoming arrival sequence.

Structural The building requires a seismic upgrade to establish a compliant lateral force-resisting system and mitigate risks associated with the existing unreinforced masonry (URM) walls. Structural design enhancements could include adding reinforced concrete shear walls and footings, structural steel collectors, metal roof deck replacement, and securely anchoring the roof-to-wall connections.

Systems | Mechanical, Electrical, and Plumbing

- **Mechanical:** The existing water-source heat pump (WSHP) and condenser loop system is in good operating condition and will be retained where possible to maintain energy efficiency. AHU-1 should be replaced with a high-efficiency Energy Recovery Ventilator (ERV) to manage building ventilation and relief. A full review of HVAC should be part of the renovation.
- **Electrical:** A new main switchboard in a dedicated electrical room is proposed to feed a unified 480V service, streamlining the building's electrical distribution.
- **Plumbing:** The potable water system is in need of replacement to include tie-ins and domestic water piping system to improve general water quality, alongside the replacement of waterless urinals with standard pint-flush urinals.

3. Construction Overview: Due to construction timelines, a Design Build approach has been chosen vice phasing.

- **Single Phase Approach / Design-Build Delivery:** To reduce the inherent inefficiencies of multi-phasing, this approach executes the major renovation as a single continuous project, significantly shortening the construction duration and operational disruption. It anticipates the need for an integrated design-build team to coordinate early scope investigations.

4. Existing Conditions

4.1 | Site The campus is bounded by Martin Court to the north, Fort Vancouver Way to the east, E 5th Street to the south, and Interstate 5 to the west. Vehicular access relies heavily on E 5th Street and Anderson Street. Site landscaping currently consists of standard lawns,

planting beds, and street trees, with no existing vegetated stormwater management facilities present on site.

4.2 | Main Building: The Main Building is a non-sprinklered, Type III-B structure categorized as a Business occupancy. The building exceeds code-allowed area limitations and exhibits serious egress challenges, notably exit access distances exceeding the 200-foot maximum for un-sprinklered facilities.

Aesthetically, the exterior envelope displays degradation from atmospheric soiling, with mortar actively spalling out of the brick veneer joints. Several abandoned mechanical appurtenances and structural remnants remain on the facades, compromising the thermal integrity of the exterior walls. Internally, the floorplan heavily restricts circulation through long, narrow corridors, segregating departments and inhibiting natural light and workflow efficiency. Acoustically, mechanical ducts readily transmit sound between private offices and meeting spaces, fundamentally degrading the workplace environment. The primary structural frame consists of 1930s-era unreinforced masonry alongside later CMU additions, relying on aging steel joists and concrete slabs. Electrical distribution relies on outdated sub-sections and an inadequately spaced main electrical room that will require total reconfiguration. Environmental remediation will also be required prior to construction due to the presence of hazardous materials.