Bus Barn Facility

Planning and Design Report

PENDLETON, OREGON

JUNE 2022

mwa architects

CITY OF PENDLETON
INCORPORATED
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Contents

SECTION 1. Project Approach 5

1.1 Purpose, Goals and Report Organization 5

1.2 Project Approach 5

1.3 Project Goals 6

SECTION 2. Executive Summary 7

SECTION 3. Site Visits and Discovery 7

3.1 Site Visit and Local Precedents 7

3.2 Workflow Precedent Site Visit 8

3.1 Sustainability 8

SECTION 4. Workflow Assessment 10

4.1 Introduction 10

4.2 Program 10

4.3 External Precedents 12

4.3.1 Site 12

4.3.2 Building 13

4.4 Codes and Regulatory Design Basis 14

4.4.1 Preliminary Code Analysis 14

SECTION 5. Alternatives Development 15

5.1 Alternative 1 16

5.2 Alternative 2 18

5.3 Alternative Preference 20

SECTION 6. Recommended Plan Development 21

6.1 Administration Building 21

6.2 Bus Barn 22

6.3 Bus Shelter 23

6.4 Recommended Plan Development 24

SECTION 7. Construction Cost Estimates 27

SECTION 8. Appendix 29

8.1 Planning Construction Cost Estimates 29

8.2 Material Preferences 36

8.3 Meeting Notes 37

List of Figures

Figure 1	Hybrid online White Board tool process	6
Figure 2	Recommended Site Plan	7
Figure 3	Project site looking southeast towards the Blue Mountains	7
Figure 4	(from left) Playful industrial at Tum-A-Lum Lumber, Contemporary industrial approach to Fire Station 1, Central Oregon Materiality at Wildhorse Casino and Umatilla Forest Service, Pendleton Police Department	8
Figure 5	(from left) Entry with key box for drivers, dispatch and supervisors; dispatch workstation and supervisors office; drivers' lockers; drivers check-in desk; bus assignments and logs; driver status white board; training and driver's lounge.	8
Figure 6	Passive Design Strategies (image credit Branz 2011)	9
Figure 7	Building Conservation Hierarchy	10
Figure 8	Bus Barn Facility Building and Site Space Program	12
Figure 9	Preferred site and landscaping precedents	12
Figure 10	Preferred building exterior and interior precedents	13
Figure 11	Building code analysis	15
Figure 12	Requirements for a successful facility: attention to wind, activity, access, views, and turning safety 'always left'	16
Figure 13	Alternative 1 Site Plan	17
Figure 14	Alternative 1 Bus Barn, Bus Shelter and Administration Building Plans with Workshop Notes	18
Figure 15	Alternative 2 Site Plan	19
Figure 16	Alternative 2 Bus Barn, Bus Shelter and Administration Building Plans	20
Figure 17	Recommended Site Plan	25
Figure 18	Recommended Bus Barn, Bus Shelter and Administration Building Plans	26
Figure 19	Interiors Recommendations	26
Figure 20	Exteriors Conceptual Illustration - Facility Entrance	27
Figure 21	Exteriors Conceptual Illustration – Site Perimeter	27

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SECTION 1. Project Approach

1.1 PURPOSE, GOALS AND REPORT ORGANIZATION

The City of Pendleton (City) and surrounding rural communities are growing, creating increased demand for transit options. The City transit fleet and staff need new facilities to support ongoing transit operations and protect community assets. The approximately 0.9 acre project site is located along NW 'H' Avenue in the 4800 block, south side of the road. This report gathers planning and preliminary design information developed with City stakeholders and the project Technical Advisory Committee.

Following 'Section 1 - Project Approach' and 'Section 2 - Executive Summary' the report organization aligns with the chronological project phases and deliverables. Summaries of those sections are provided below.

Project Site Visits and Discovery. During this phase, project team members participated in visits to the project site, local buildings and the Kayak Public Transit Facility to collect environmental data, establish preliminary workflow, and set expectations for project aesthetics. This information was assembled into an online white board environment for use in the Workflow Workshop.

Workflow Assessment. Collecting information about how transit staff need to move through their workday is critical to the success of the project. In this phase, a Workflow Workshop was conducted to hear staff describe why and where activities and spaces need to be located on the site to best aid safety, efficiency, aesthetics and security. MWA shared preliminary project precedents from local developments for discussion. A public open house was conducted to share the site location and program with community members.

Alternatives Development. Building on findings from the Workflow Workshop, the project team developed two alternatives. Through weekly check-ins with the Technical Advisory Committee, the design team refined plans and shared for discussion at an Alternatives Workshop. MWA presented project precedents from beyond the Pendleton area to confirm aesthetic direction. A public open house was conducted to share the possible development alternatives with community members.

Recommended Plan Development. A recommended plan was refined from the preferred alternative selected at the Alternatives Workshop. A Design Meeting was planned to review assumptions and collect additional comments to pass into the next phase of development. Cost estimates reviewed.

Planning Level Construction Cost Estimates. Project team developed cost estimates for the two plan alternatives. Minimal site information was available during this phase. The recommended plan was derived from the alternatives and the final construction cost estimate for the planning and design phase was completed. This project is anticipated to move forward with CM/GC delivery and will be estimated at 30% Schematic Design by both the design team and the successful CM proposer.

1.2 PROJECT APPROACH

The design of the Facility is largely focused on the basic need to shelter the transit assets and provide a home for the City transit program, *Let 'er Bus*. The design of the Facility includes several buildings, enclosures, and other structures that house transit fleet vehicles, equipment, and administrative functions which provide critical space for bus drivers and other staff. Architectural design is required to ensure that these buildings and structures meet the functional requirements and are safe and comfortable for staff and visiting public, while also designed to fit within the existing aesthetic and architectural context on the airport industrial neighborhood.

Through a series of design workshops, community forums, criteria analyses, and coordination with partner disciplines, a strong architectural concept developed around the following intentions:

- Inspired by the landscape and views
- Influenced by the Pendleton aesthetic
- Set precedent for future developments

The design recommendations described in this report are influenced by the hybrid, online white board tools used for each workshop, see Figure 1. This process created a place where the project alternatives, decisions and data were held throughout the planning and design phase. This transparent communication style provided a platform for all participants to see the evolution of the project at each workshop. The online white board was also open to the entire design team for coordination and collaboration between workshops. This process led to a preferred site layout and facility concept that is on track to meet Project goals.

Figure 1 Hybrid online White Board tool process

1.3 PROJECT GOALS

Through a collaborative process between the City and MWA, preliminary project goals were established. These goals are the basis of all Facility design work. The goals are listed below:

- Provide a safe and high-quality home for the City transit program
- Be good stewards of funds
- Provide a good and functional place to work
- Design for more than 50 years of operation
- Provide site improvements and buildings that are durable and low maintenance
- Consider future expansion
- Provide a safe, secure site that is welcoming to visitors
- Provide a positive public interface
- Design for sustainability and resilience

These goals serve as a guide throughout the design process.

SECTION 2. Executive Summary

The City of Pendleton Bus Barn Facility is comprised of three buildings on a 0.9 acre site in the neighborhood of the Eastern Oregon Regional Airport northwest of the City central business district (Figure 2). The buildings are:

Administration Building 1,832 sf

Bus Barn 2,618 sf

Bus Shelter 3,212 sf

This report completes the Planning and Design project phase and provides a starting point for Schematic Design through permitting and construction. Occupancy is estimated in the third quarter of 2024.

The planning level estimated construction cost for the project is $3,163,756 prior to Energy Trust of Oregon grants and incentives. The project will be delivered using the CM/GC method and construction costs will be updated by the design team and successful CM proposer at the 30% (Schematic Design) milestone.

This project will apply net zero and Envision™ design principals where feasible.

Figure 2 Recommended Site Plan

SECTION 3. Site Visits and Discovery

3.1 SITE VISIT AND LOCAL PRECEDENTS

To start the conversation about what style of architecture is appropriate for this project, MWA and the project Technical Advisory Committee attended a tour of local commercial-industrial projects. The results were brought to the Workflow Workshop to solicit preliminary expectations for the facility. Style is best used as a framework for discussion in order to gain insight as to why certain elements are preferred and why some are not.

Several architectural styles were presented as a way of beginning the conversation about architectural preferences and determining an appropriate path forward for the facility design.

Figure 3 Project site looking southeast towards the Blue Mountains

Four aesthetic styles were visited on the tour:

- Contemporary Industrial (metal buildings)
- Playful Industrial (super graphics)

- Agrarian (Barn)
- Central Oregon Materiality (Basalt, earth tones)

The City felt that the Contemporary Industrial style was too bold, austere, and not in keeping with the context of the site. It was recommended to proceed with the design with the following two styles as reference.

- Contemporary Industrial
    - Applies to Bus Barn and Bus Shelter
    - Incorporate window, door protections
    - Use simple readily available materials in a creative way to meet functional needs
- Central Oregon Materiality
    - Reflect the colors and textures of the Pendleton area (Figure 3)
    - Use locally made materials (Figure 4)

Figure 4 illustrates a representative precedent project for each style described above:

Figure 4 (from left) Playful industrial at Tum-A-Lum Lumber, Contemporary industrial approach to Fire Station 1, Central Oregon Materiality at Wildhorse Casino and Umatilla Forest Service, Pendleton Police Department

3.2 WORKFLOW PRECEDENT SITE VISIT

To support workflow understanding, MWA and the project Technical Advisory Committee attended a tour of Kayak Public Transit conducted by Susan Johnson, Public Transit Manager for the Department of Planning at the Confederated Tribes of Umatilla (Figure 5).

Figure 5 (from left) Entry with key box for drivers, dispatch and supervisors; dispatch workstation and supervisors office; drivers' lockers; drivers check-in desk; bus assignments and logs; driver status white board; training and driver's lounge.

3.1 SUSTAINABILITY

The Facility does not have required sustainability goals from local regulatory or funding entities. The Facility is required to meet the Oregon Energy Code. The City has also established project sustainable priorities dependent on

the capacity of the established construction budget. Two external program approaches have been identified to pursue through design and will be assessed at cost estimate milestones:

- Net Zero Design
- Envision™ Design

These external programs may be applied to all, one or two of the facilities based on opportunity, budget and return on investment.

Some notable considerations affecting design include the following:

- Design in support of energy savings over the Oregon Energy Efficiency Specialty Code
- Resilient, contextual, no-water (Xeriscape) landscaping
- Bird-Friendly Design – Landscape and building glazing designed in concert to reduce building related bird fatalities
- Rooftop photovoltaic (PV) panels
- Super-insulated and air- and vapor-controlled exterior envelope
- Passive design when and where appropriate
- A focus on conservation measures followed by application of renewable energy sources
- Selection of materials that have low environmental impacts
- High level of indoor environmental quality through selection of healthy materials, thermal comfort, and access to daylight and views

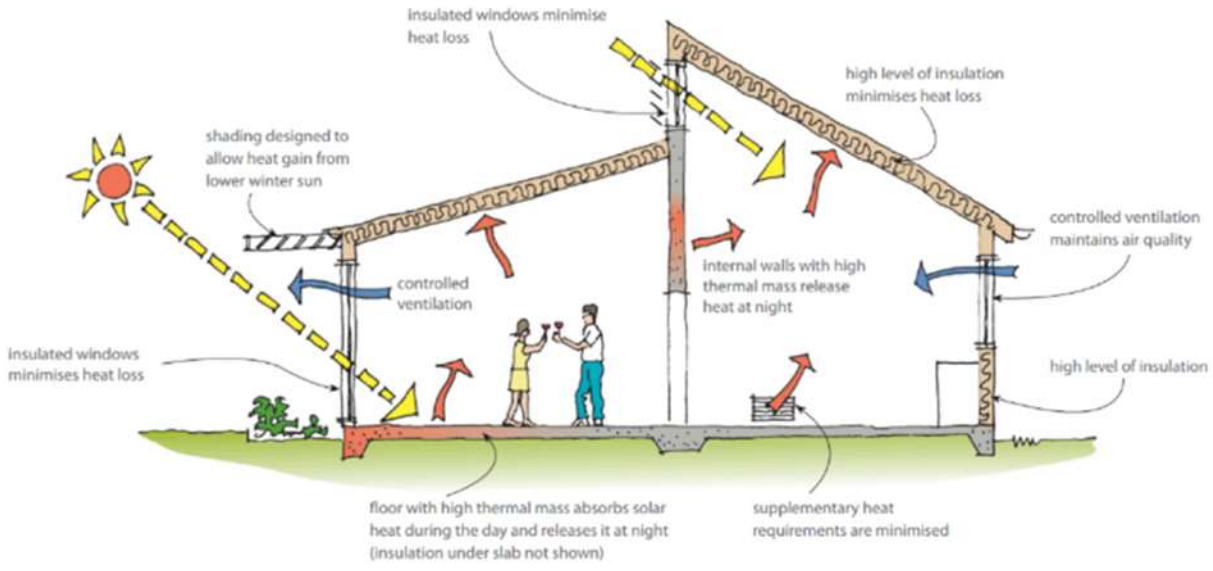


Figure 6 Passive Design Strategies (image credit Branz 2011)

Figure 6 illustrates various components of a building designed with passive design principles in mind. The key aspects of passive design are as follows:

- High performance building envelope
- Access to daylighting during winter months
- Sun shading during summer months
- Controlled ventilation for occupant comfort and air quality
- Thermal mass for diurnal heat storage and release

- Stack ventilation for nighttime heat flush

Figure 7 illustrates how a focus on conservation in all building systems can considerably reduce the energy use of a building. This leads to a reduction of renewables that are needed to allow the building to approach net zero energy.

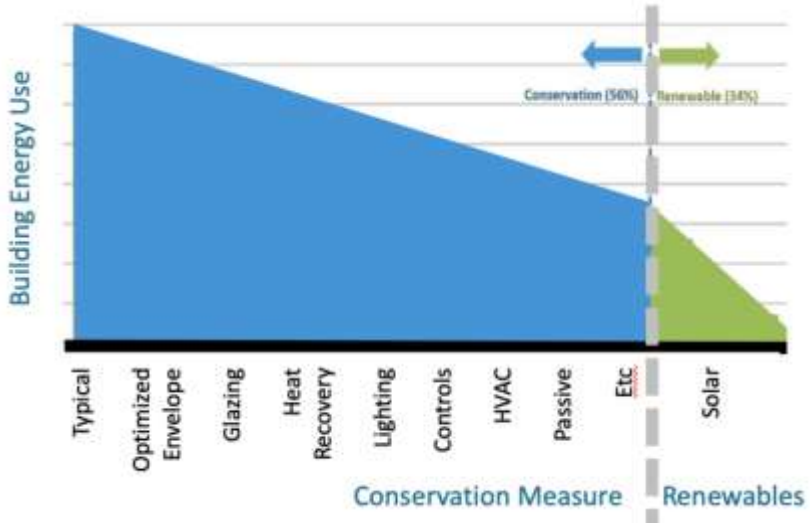


Figure 7 Building Conservation Hierarchy

SECTION 4. Workflow Assessment

4.1 INTRODUCTION

The Workflow Assessment phase included verification of the provided program through site visit, interviews, and a workshop with City staff. This work included simultaneous collection of aesthetic and functional influences from outside the Pendleton area and assembly of pertinent code and regulatory information in preparation for the Alternatives Development phase.

4.2 PROGRAM

A successful architectural design for these buildings is critical to the function of the facility, health and well-being of staff, engagement of the public, and overall success of the entire Project.

The required spaces were analyzed and a list of questions with items to verify and suggestions for modifications was developed and included in the Workflow Workshop. The following questions were asked throughout the workshop:

- What is the typical schedule for the staff who will report to this facility?
- What is needed to successfully perform the job?
- Who and what is needed to successfully perform the job?
- What is the toughest part of the job currently?

With these questions in hand, the workshop facilitators and stakeholders discussed the impacts of placement for each facility element and site access. Stakeholders offered their thoughts on why elements needed to be placed next to each other or not. These conversations are captured in the Workflow Workshop meeting notes in the Appendix, Section 8.2.

The final program (Figure 8) was reviewed with the Technical Advisory Committee and comments were incorporated into the Bus Barn Building and Site Space Program table. This review was affected by 2022 labor and materials costs concerns and resulted in splitting the bus barn into an active ‘barn’ located near the Administration Building and a

reserve bus 'shelter' storage building for less frequently used buses and vans. The shelter is open on two sides and is lower in cost per square foot as no mechanical heating or ventilation or doors are needed. This strategy meets the needs of the transit group while allowing for a lower cost development overall.

Program space allowances for the Administration, Bus Barn and Burn Shelter Buildings are listed below.

Location	Space Name	Units Req	Approx. Dimensions (Feet)		SF per unit	Total SF	Equipment/ Furnishings	Notes
Bus Shelter			Length	Width				
	Category C Buses	2	40	14	560	1120		Own 4 buses and 6 vans currently - 2 buses and 4 vans not operating everyday
	Minivan/Sedans	4	20	14	280	1120		
	Seasonal Equipment	1	20	3	60	60		
	Wash Storage	1	10	2.5	25	25		Mop basin/hose bibb, wall-mounted mop rack, wall shelving
	Fire Riser	1	11	2.5	27.5	27.5		
	Covered Wash Area	1	40	14	560	560		
							Total SF (Bus Shelter)	2912.5
Bus Barn			Length	Width				
	Category C Buses	2	40	14	560	1120		
	Minivan/Sedans	2	20	14	280	560		
	Cleaning Supplies	1	8	7.5	60	60		
	Bus Storage	1	9	6	54	54		
	Janitor's closet	1	8	2	16	16	Mop basin, wall-mounted mop rack, wall shelving	
	Electrical Room	1	9.5	6	57	57		
	Circulation	1	52	5	260	260		
	EV Charging/Circ	1	40	8	320	320		
							Total SF (Bus Barn)	2447
Office	Public Vestibule	1	7	8	56	56		
	ADA restroom, all-gender	1	9	6	54	54		
	ADA restroom with shower, all-gender	1	9	14	126	126		
	Wellness room	1	10	8	80	80		
	Private offices	2	9	13.5	121.5	243		1 for managers to share; 1 for dispatch (dispatch office near locker room)
	Driver's lounge	1	20	15	300	300		includes kitchenette and work counter
	Locker room	1	7	9	63	63		Includes uniform area
	Mechanical Room	1	7	9	63	63		

Location	Space Name	Units Req	Approx. Dimensions (Feet)		SF per unit	Total SF	Equipment/ Furnishings	Notes
	Electrical Room	1	7	8	56	56		
	IT/Comm	1	11	2.5	27.5	27.5		
	Training Room (12 people)	1	22	12	264	264		
	Janitor's closet	1	6	8	48	48	Mop sink	
	Circulation	1	40	5.5	220	220		
							Total SF (Office)	1600.5
Site	Visitor parking	3						
Site	Personnel parking paved	8						
Site	Personnel parking gravel	8						
Site	Outdoor break area	1						

Figure 8 Bus Barn Facility Building and Site Space Program

4.3 EXTERNAL PRECEDENTS

In addition to the local precedent examples collected during the site visit, follow-on site and building precedents were collected from examples outside of Pendleton to clarify the design direction for the project.

4.3.1 SITE

The site improvement elements identified for this project include:

- Drive path paving
- Pedestrian paving on-site
- Pedestrian paving in right-of-way
- Landscaping adjacent to pedestrian areas on-site
- Landscaping adjacent to pedestrian areas in right-of-way
- Fencing and security
- Parking areas for employees and visitors

Figure 9 Preferred site and landscaping precedents

Parking, right-of-way environments and drive paths will be designed to meet the Pendleton Unified Development Code and are not addressed through design in this report. The design of these elements will be influenced by the on-site landscaping adjacent to pedestrian areas. The following precedents address the project goals for low maintenance, security, no water, and use of local materials (Figure 9).

Security/Fencing: Black vinyl coated chain link for areas other than entry and right-of-way. Engineered solutions in black painted metal construction will be considered for right-of-way conditions, specifically gates and entries. Gabion walls will be considered nearest the public building entry where visual screening and aesthetic goals must be met. Vehicle gate technology will be appropriate for high winds and snowy conditions.

Landscaping and Pedestrian Areas: Concrete pedestrian paths with integrated xeriscape planting will be featured along the path from the public right-of-way to the Administration Building entrance. Along the right-of-way similar treatment is anticipated as a buffer between the street and the parking area. Additionally, integrated gabion wall and xeriscaping will be required at the driver's lounge outdoor patio due to changes in elevation from the street to the rear of the Administration Building. Wind screening will be addressed in the next project phase.

4.3.2 **BUILDING**

The exterior and interior building elements identified for this project include:

Exterior

- Wall finish, upper
- Wall finish, lower
- Window openings
- Door openings, people
- Door openings, vehicle
- Roof

Interior

- Ceiling
- Walls
- Floor

Figure 10 Preferred building exterior and interior precedents

In general, the following exterior aesthetic preferences were collected, see Figure 10:

Exterior Walls: An upper wall cost-effective material and lower wall resilient finish are demanded in this industrial environment. For the upper walls, cement plank or panel is recommended. For the lower wall, cast-in-place concrete with or without form liner or concrete masonry unit construction are preferred. The finish must be washable with a pressure washer. Earth tones and regional colors will be considered to attend to solar gain concerns during the hot summer months and to integrate into the regional context. Where necessary for vehicle storage, all-metal siding may be considered.

Windows: High shading co-efficient glazing is required to protect interiors from the direct sun. Due to the large change in temperature throughout the day and night, triple-glazed windows are preferred, however double-glazed windows can be effective where direct sun can be avoided through overhangs and glazing treatments. Any windows wider than 6 feet will be considered for bird-safe design.

Doors, people: Fiberglass is recommended for durability, however standard steel doors are acceptable. Sliding glazed doors should be used where access to the driver's lounge patio is desired.

Doors, vehicle: Panelized overhead doors with glazed panels at vision level are preferred for safety and to introduce daylighting into the vehicle storage buildings.

In general, the following interior aesthetic preferences were collected:

Walls: Light colors to reflect light and give the spaces a larger, brighter feel. Limit number of colors to give a cohesive feeling. Use of interior windows to connect building occupants and give a sense of spaciousness while providing privacy as needed.

Ceilings: Where hard cap (gypsum board) ceilings occur, color to match walls. In larger spaces exposed trusses with wrapped (white) batt insulation is acceptable. Where trusses are wood, it is preferred that they are painted white to blend with the exposed wrapped batt insulation above.

Floors: Preferred flooring is luxury vinyl tile throughout for ease of maintenance. Alternately, all spaces except the Driver's Lounge and Training Room may receive sheet vinyl.

4.4 CODES AND REGULATORY DESIGN BASIS

The City of Pendleton Bus Barn Facility will host several essential buildings including the Administration Building, Bus Barn and Bus Shelter. This analysis is not a comprehensive survey of all code related requirements. However, it does attempt to identify issues as they relate to current life safety risk. This analysis focuses on Construction Type, Building Occupancy, and Fire-Resistive Construction.

4.4.1 PRELIMINARY CODE ANALYSIS

This preliminary code analysis summarizes relevant building data and identifies building requirements (Figure 11). The following building codes are applicable to this project:

- 2021 Oregon Energy Efficiency Specialty Code (OEESC)
- 2019 Oregon Structural Specialty Code (OSSC)
- 2021 Oregon Electrical Specialty Code (OESC)
- 2019 Oregon Mechanical Specialty Code (OMSC)
- 2021 Oregon Plumbing Specialty Code (OPSC)

The following site development codes and regulations are applicable to this project:

- City of Pendleton Unified Development Code (Zoning Code)

ADMINISTRATION BUILDING

Item	Current Code	Description
Type of Construction	Type V-B (S1)	Single story building
Building Occupancy	B	
Automatic Fire Suppression	Yes	
Height Limitations	60 feet	Actual height: 16 feet
Allowable Area	9,000 sf	Actual area: 1,832 sf

BUS BARN		
Item	**Current Code**	**Description**
Type of Construction	Type V-A (S1)	Single story building
Building Occupancy	S-2	Vehicle storage
Automatic Fire Suppression	Yes	
Height Limitations	60 feet	Actual height: 19 feet
Allowable Area	9,000	Actual area: 2,618 sf

BUS SHELTER		
Item	**Current Code**	**Description**
Type of Construction	Type V-A (S1)	Single story building
Building Occupancy	S-2	Vehicle storage
Automatic Fire Suppression	Yes	
Height Limitations	60 feet	Actual height: 21 feet
Allowable Area	9,000 sf	Actual area: 3,212 sf

Figure 11 Building code analysis

SECTION 5. Alternatives Development

Following the Workflow Workshop, two alternatives were developed based on feedback from stakeholders and confirmed site, code, precedents and programming data.

Adjacency and program feedback used to develop the Alternatives includes:

General

- No "barn" aesthetic or all metal buildings
- Do not cross streets from office to Bus Barn
- Provide covered breezeway to Bus Barn, maximum walk of 10-12 ft.
- Align facility entrance with NW 48th Drive where the high point is along NW 'H' Avenue for best visual access to cross traffic and reduced chance of iced intersection in winter

Office Building

- Dispatch near main entrance with transaction window to air lock
- Office supply storage and cleaning storage is needed
- Provide storage in locker room/ breakroom area
- Provide exterior break space adjacent to lounge, secure seating to patio

Bus Barn

- Park daily use buses and vans
- Heated, exhausted/ventilation/sprinklers

- Overhead doors will provide enclosure, auto operation for drivers

Bus Shelter

- Two or three-sided structure open on two sides; one bus deep
- Require sprinklers, but no heating, exhausting, overhead doors

In addition to stakeholder feedback, the response to site conditions and transit safety needs are prioritized (Figure 12). Concerns about gusting winds that are frequent at the site, building access by staff and public, protected views into the working site, and separating active from passive activities to support efficient work habits were raised. In consideration of a potential net zero energy facility, the passive strategy of isolating building areas that do not need heating or cooling from those that do influenced building program organization. Finally, best practices note that organizing the site around predominantly left turns for buses creates enhanced visibility and safest driving conditions for bus drivers.

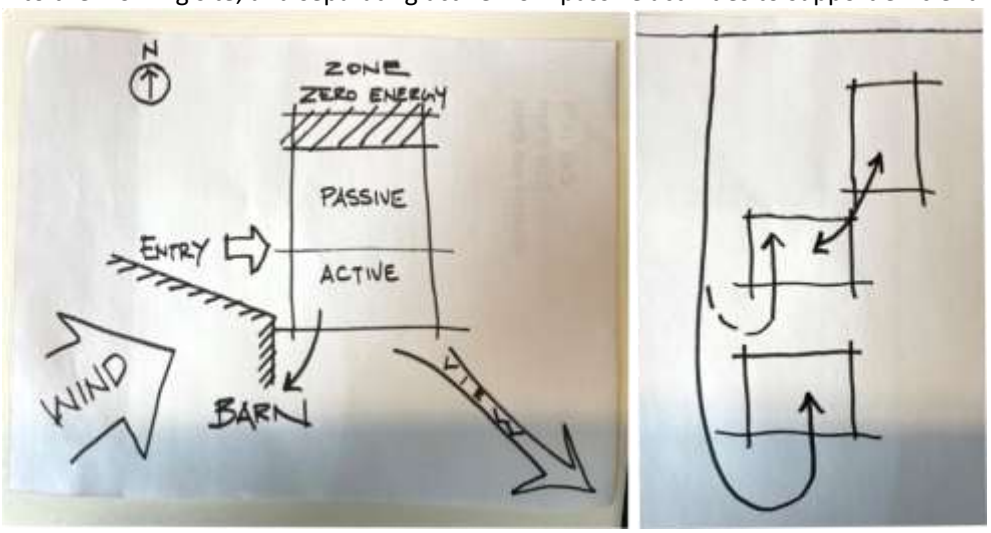


Figure 12 Requirements for a successful facility: attention to wind, activity, access, views, and turning safety 'always left'

Refinements to material preferences were also made during this phase. See Appendix, Section 8.2.

5.1 ALTERNATIVE 1

This Alternative site layout, Figure 13, is similar to that of Kayak Public Transit. Bus Barn and Bus Shelter buildings are oriented east-west and stacked from north to south. This protects doors and openings from frequent west wind and tumbleweeds carried by the wind gusts. The Administration Building is oriented north-south to reach towards NW 'H' Avenue and into the secure site. This orientation captures views across the City of Pendleton to the Blue Mountains while also acting as part of the secure site edge. Using buildings as security barriers at the public site edge presents a friendly entrance sequence while maintaining the needed security and reducing fencing cost. Landscaping is integrated into the pedestrian approach to the Administration Building and will incorporate a gabion wall nearest the building entrance. There is an opportunity to add a gate at the south end of the facility to access NW 'J' Avenue, which will provide access to the new stormwater detention facility.

The Administration Building (Figure 14) follows the workflow needs of the dispatcher and drivers while maintaining a welcoming public face. A vestibule mitigates the wind gusts at the entry and serves as a security control point featuring a transaction window for public interaction. Once admitted, views to the Blue Mountains open to the right beyond the Driver's Lounge and Training Room. Quieter office workspaces and support spaces such as restrooms are located to the left of the entrance. Where possible building infrastructure is accessed from the exterior and not tempered.

The Bus Barn parks two buses and two vans. The bays will include conduit and are designed to support transition to electric vehicles in the future. Tire storage, the site electrical room, and a storage/cleaning alcove complete this facility. Aside from building orientation, the Bus Barn is identical in both Alternatives.

The Bus Shelter is designed to house two buses and four vans. It also includes an open wash bay. Aside from building orientation, the Bus Shelter design is identical in both Alternatives.

For additional detail about Alternative 1 from the Alternatives Workshop see the Appendix, Section 8.3.

Figure 13 Alternative 1 Site Plan

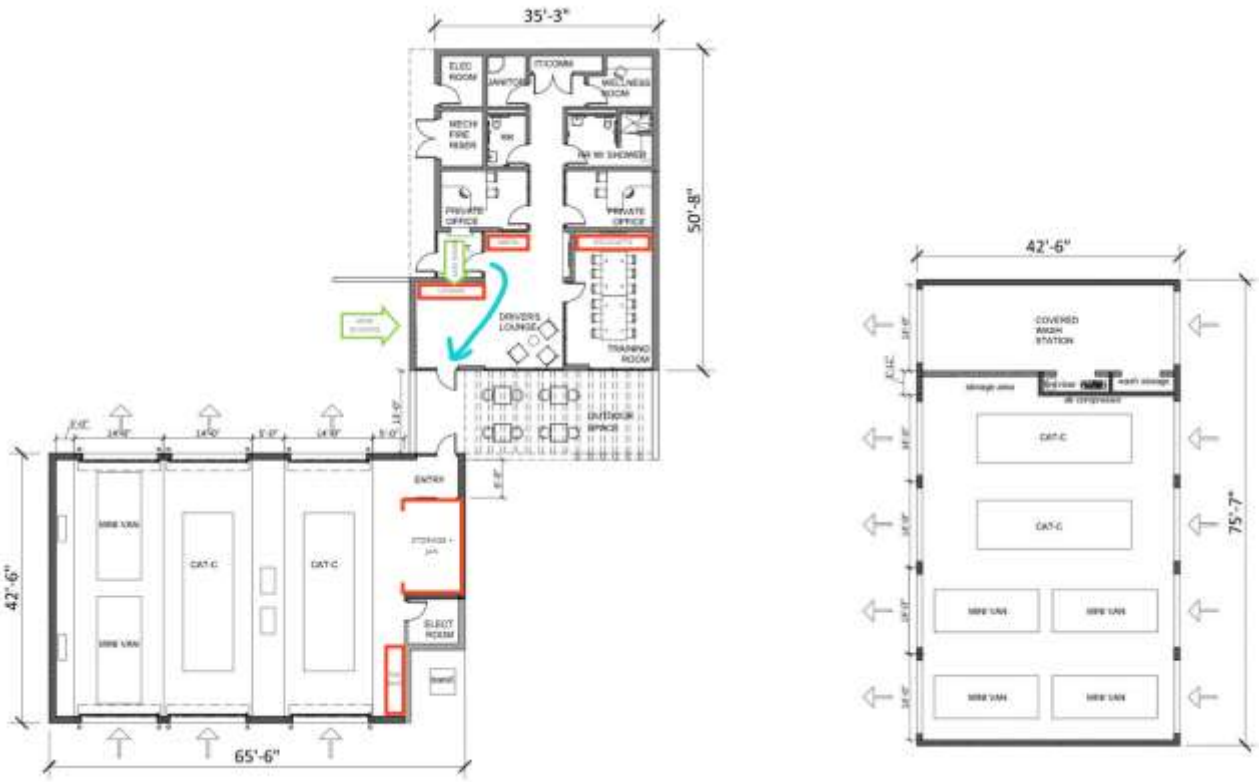


Figure 14 Alternative 1 Bus Barn, Bus Shelter and Administration Building Plans with Workshop Notes

5.2 ALTERNATIVE 2

This Alternative organizes the Bus Barn and Bus Shelter building bars north-south close to NW 'H' Avenue in an effort to reduce the extent of site improvements needed. The buildings are stacked from east to west (Figure 15). The Administration Building is oriented east-west to block views into the secure site and present a civic face to the facility. This orientation captures views east and into the secure site while also acting as part of the secure site edge. Landscaping is integrated into the pedestrian approach to the Administration Building and crosses the staff and visitor parking area.

There is no opportunity to add a gate at the south end of the facility to access NW 'J' Avenue without expanding the site development area.

The Administration Building (Figure 16) follows the workflow needs of the dispatcher and drivers while maintaining a welcoming public face. A vestibule mitigates the wind gusts at the entry and serves as a security control point featuring a transaction window for public interaction. Once admitted, views to the left feature the Driver's Lounge and Training Room. Quieter office workspaces and support spaces such as restrooms are located to the right of the entrance. Where possible building infrastructure is accessed from the exterior and not tempered.

The Bus Barn and Bus Shelter plans are identical in both alternatives, aside from building orientation

For additional detail about Alternative 2 from the Alternatives Workshop see the Appendix, Section 8.3.

Figure 15 Alternative 2 Site Plan

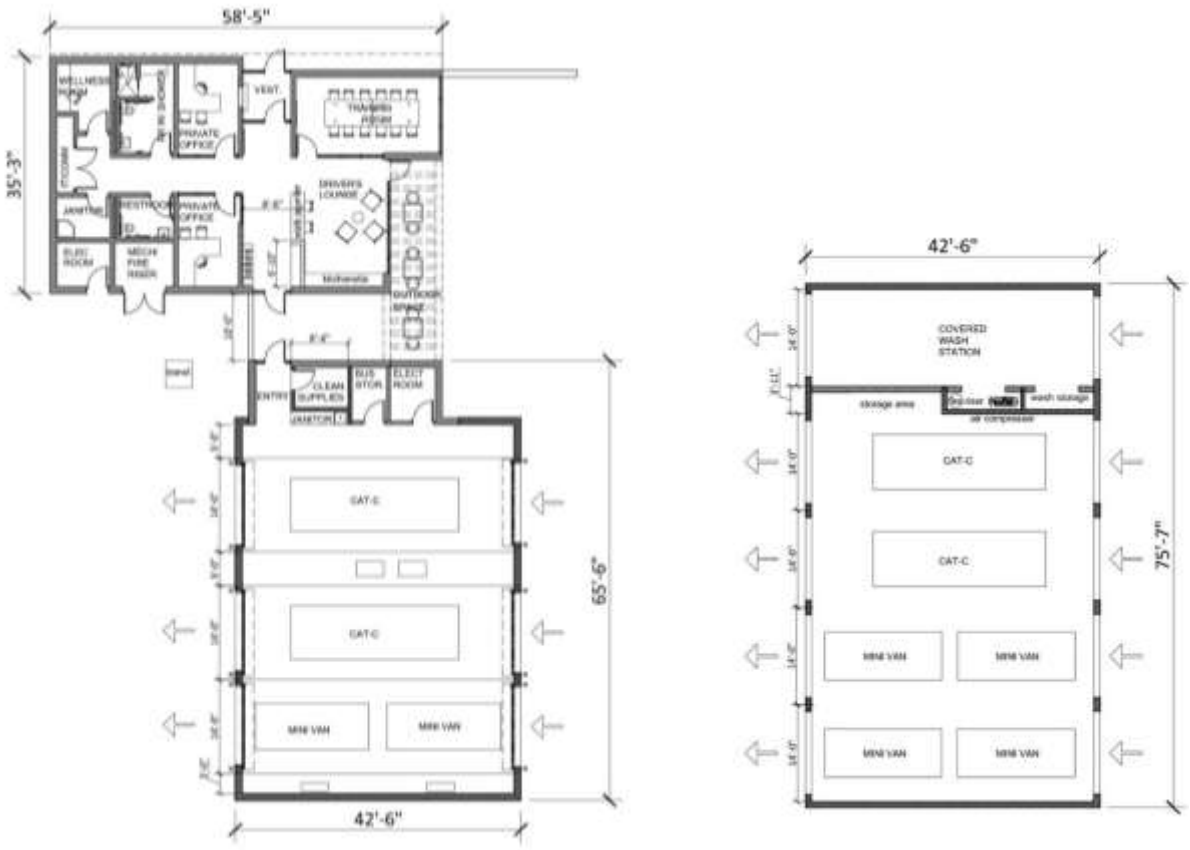


Figure 16 Alternative 2 Bus Barn, Bus Shelter and Administration Building Plans

5.3 ALTERNATIVE PREFERENCE

Alternative 1is preferred with limited refinement to the Bus Barn and Administration Building Plans. The following are the points made by stakeholders that resulted in the preference:

- This is a bus barn facility, and the community should be able to see that function clearly from NW 'H' Avenue
- Alternative 1 performs better in windy conditions
- Alternative 1 site plan is expandable and flexible for adding parking, future expansion and works well with the topography
- Alternative 1 provides opportunity to connect to NW 'J' Avenue for large tow truck circulation option or if stormwater facilities need maintenance
- Alternative 2 'civic' front building blocks police quick view into site for safety

SECTION 6. Recommended Plan Development

This section describes the preferred, recommended plan in technical detail and captures refinements requested by stakeholders at the Alternatives Workshop.

6.1 ADMINISTRATION BUILDING

The Administration Building construction consists of the following:

EXTERIOR WALLS	
Item	**Description**
Siding/ Cladding	Cast-in-place concrete/cementitious siding
Insulation	Batt insulation within wall cavity and continuous rigid insulation exterior of stud wall and vapor barrier
Window System	Double-pane glazing, limited operation due to area high winds; metal frame thermally broken (triple-pane preferred)

ROOF SYSTEM	
Item	**Description**
Roofing	Standing seam metal roofing
Downspouts/Gutters/ Drainage system	Break metal gutters and downspouts. Water drains to grade and detention facilities are located on site
Roof Insulation	Batt insulation at underside of roof diaphragm, rigid insulation under the standing seam metal roof

INTERIOR	
Item	**Description**
Floor covering	Carpet in offices Luxury Vinyl Tile (LVT) in lobby, hallway, Driver's Lounge, Training Room, restrooms Concrete slab in mechanical and electrical service spaces
Interior walls	Gypsum board wall, smooth finish preferred
Ceiling systems	Exposed, wrapped batt insulation in Driver's Lounge and Training Room; batt insulation above hard cap ceiling all other locations
Doors & Relites	Hollow metal doors (Fiberglass preferred) Veneer wood solid core at interior

STRUCTURAL	
Item	**Description**
Roof Structure	Plywood diaphragm over pre-engineered wood trusses
Floor Structure	Cast-in-place concrete slab-on-grade
Foundation System	Continuous perimeter concrete stem wall

MECHANICAL AND LIGHTING SYSTEMS	
Item	**Description**
Heating	Mini-split system with 3 zones and ducted ventilation where required
Cooling	Offices: Ductless fan coil units
Ventilation	Driver's Lounge/Training Room: Ducted fan coil units
	Solar hot water pre-heat (roof mounted)
Lighting	All LED
Electrical	Site-wide transformer located at Bus Barn

6.2 BUS BARN

The Bus Barn construction consists of the following:

EXTERIOR WALLS	
Item	**Description**
Siding/ Cladding	Cast-in-place concrete/cementitious siding
Insulation	Batt insulation within wall cavity and continuous rigid insulation exterior of stud wall and vapor barrier
Window System	Double-pane glazing; metal frame, thermally broken

ROOF SYSTEM	
Item	**Description**
Roofing	Standing seam metal roofing
Downspouts/ Gutters/ Drainage System	Break metal gutters and downspouts. Water drains to grade and detention facilities on site
Roof Insulation	Batt insulation at underside of roof diaphragm, rigid insulation under the standing seam metal roof

INTERIOR	
Item	**Description**
Floor covering	Exposed sealed, concrete slab
Interior walls	1/2 inch plywood painted white where required for equipment, shelving or storage Exposed wrapped batt insulation within wall cavity, white finish
Ceiling systems	Exposed wrapped batt insulation, white finish
Doors & Relites	Hollow metal at exterior (prefer fiberglass) Panelized overhead doors with view lites, insulated and motorized

STRUCTURAL	
Item	**Description**
Roof Structure	Plywood diaphragm over pre-engineered steel trusses
Floor Structure	Cast-in-place concrete slab-on-grade
Foundation System	Continuous perimeter concrete stem wall

MECHANICAL AND LIGHTING SYSTEMS	
Item	**Description**
Heating	Assume 50-degree Fahrenheit tolerance
Cooling	Electric unit heaters with heat recovery (preferred radiant floor heating)
Ventilation	All electric system Natural ventilation approach allowed by code; no dedicated ventilation Interlock louvers with dampers and carbon monoxide detection system with link to exhaust fan
Lighting	All LED
Electrical	Site-wide transformer located at Bus Barn

6.3 BUS SHELTER

The Bus Shelter construction consists of the following:

EXTERIOR WALLS	
Item	**Description**
Siding/ Cladding	All metal building
Insulation	Batt insulation within wall cavity where electrical or wet equipment are stored
Window System	No windows

ROOF SYSTEM	
Item	**Description**
Roofing	Standing seam metal roofing
Downspouts/ Gutters/ Drainage System	Break metal gutters and downspouts. Water drains to grade and detention facilities are located on site
Roof Insulation	Batt insulation at underside of roof diaphragm

INTERIOR	
Item	**Description**
Floor covering	Exposed sealed, concrete slab
Interior walls	1/2 inch plywood painted white where required for equipment, shelving or storage Concrete masonry unit wall between bus parking stalls and wash down bay, painted white
Ceiling systems	Exposed wrapped batt insulation, white finish
Doors & Relites	N/A

STRUCTURAL	
Item	**Description**
Roof Structure	Standing seam roof (structural) over pre-engineered steel trusses
Floor Structure	Cast-in-place concrete slab-on-grade
Foundation System	Continuous perimeter concrete stem wall

MECHANICAL AND LIGHTING SYSTEMS	
Item	**Description**
Heating Cooling Ventilation	Fire suppression is dry type and will require an air compressor co-located with electrical and washdown equipment storage No heating, cooling, or ventilation required, open-air structure
Lighting	All LED
Electrical	Site-wide transformer located at Bus Barn

6.4 RECOMMENDED PLAN DEVELOPMENT

The recommended plan development is a refinement of Alternative 1 and includes implemented comments noted in Alternatives Development, see Figure 14. The recommended plan development includes:

- Site plan (Figure 17)
- Building plans (Figure 18)
- Administration Building interior conceptual illustrations (Figure 19)

- Overall site conceptual illustrations (Figures 20 and 21)

A few ongoing project considerations include:

- This project will be delivered through a CM/GC format.
- Labor and materials costs continue to be volatile; the project team will work with the selected CM/GC to design to budget moving forward into construction documents.
- Geotechnical, topographical, environmental, and cultural resource data have been in simultaneous development and will influence refinements to the recommended plan development.
- The City will self-perform utility and stormwater detention system work.
- Funding sources have requirements for pace of spending and construction document packages, phasing and cooperation with the City and CM/GC will be required.
- The State of Oregon has adopted the 2021 Oregon Energy Efficiency Specialty Code featuring ASHRAE 90.1-2019. This may require a detailed energy model for the Bus Barn and Administration Building.

Figure 17 Recommended Site Plan

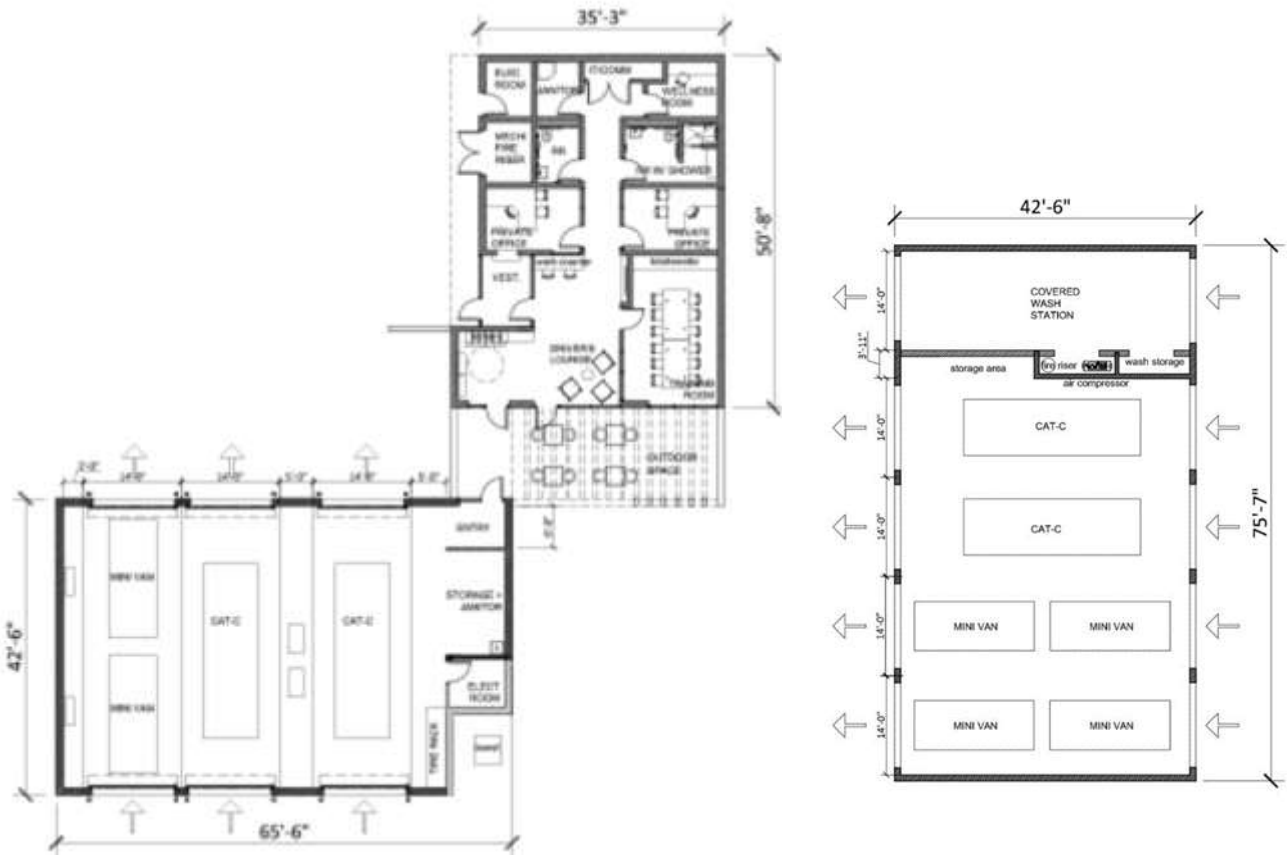


Figure 18 Recommended Bus Barn, Bus Shelter and Administration Building Plans

Figure 19 Interiors Recommendations

Figure 20 Exteriors Conceptual Illustration - Facility Entrance

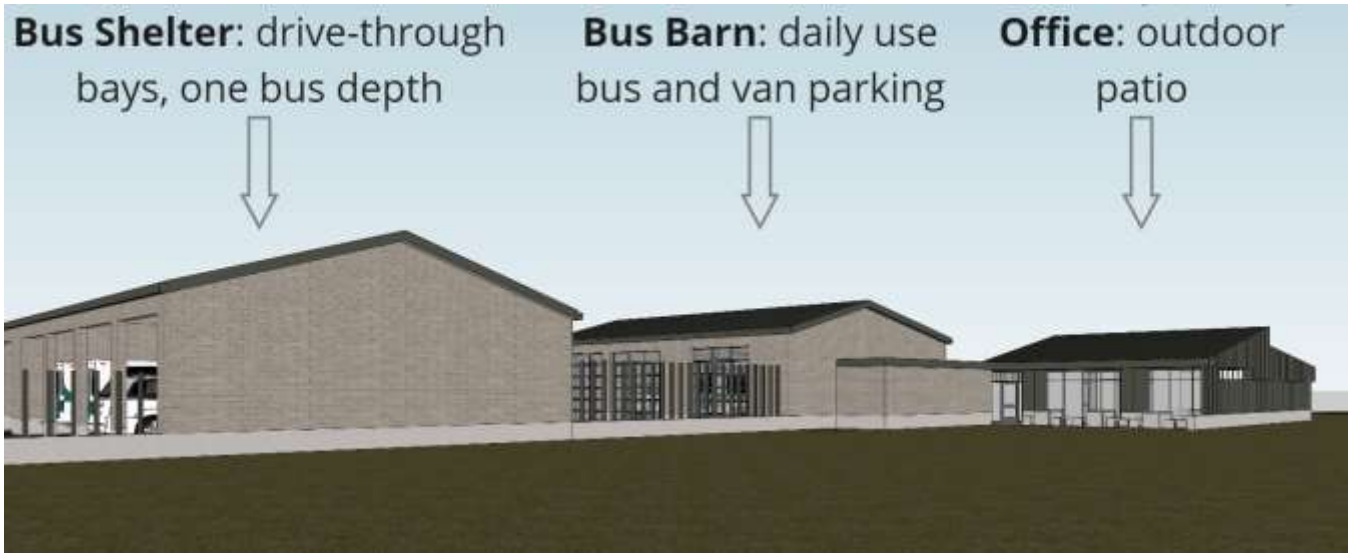


Figure 21 Exteriors Conceptual Illustration – Site Perimeter

SECTION 7. Construction Cost Estimates

Construction cost estimates were prepared for Alternative 1 and Alternative 2. Cost basis for these estimates is the program (site and building) areas and general building massing diagrams. The end usage or purpose of these estimates is to screen alternatives and establish a planning level construction cost estimate.

The methodology used was to provide high-level pricing for each building element using construction cost data available from other similar projects in Oregon and Washington that our team has collected construction costs on. Our design team provided quality review for costs by discipline.

These estimates are for direct construction costs only with limited attention to contractor mark-ups. This will be updated at kick-off to the next design phase in coordination with a selected CM/GC services provider. We have excluded:

- Pricing Escalation and or Inflation
- Hazardous Materials Remediation and or Abatement
- Contingencies of any kind
- Soft Costs
    - Taxes of any kind
    - Change Order Contingency
    - Permit and Plan Check
    - Printing and Bidding
    - Design Services & Consultants
    - Sustainable Construction Certifications
    - Commissioning & QC
    - Testing & Inspections
    - Utility Fees
    - FF&E

For planning purposes, the estimated construction costs for each alternative are:

Alternative 1: $3,163,756

Alternative 2: $2,887,600

See Section 8.1 for the cost estimate detail for each alternative. The recommended design incorporated adjustments in plan that did not change the overall building area or construction components. The estimated construction cost for the recommended plan is $3,163,756.

SECTION 8. Appendix

8.1 PLANNING CONSTRUCTION COST ESTIMATES

Pendleton Bus Barn Project
Cost Model - Summary
15% Design
June 14, 2022

ALTERNATIVE 1

Category		Product
Administration Building	$	657,934
Bus Barn	$	663,395
Bus Shelter	$	514,444
Site	$	695,232
	$	2,531,005
Contractor OH & P 5%	$	126,550
General Requirements 5%	$	126,550
Bonds & Insurance 1.5%	$	37,965
Oregon Tax 0.5%	$	12,655
Mobilization, General Conditions	$	75,930
Contingency 10%	$	253,100
Sum	$	3,163,756

ALTERNATIVE 2

Category		Product
Administration Building	$	667,021
Bus Barn	$	663,395
Bus Shelter	$	514,444
Site	$	602,259
	$	2,447,118
Contractor OH & P 5%	$	122,356
General Requirements 5%	$	122,356
Bonds & Insurance 1.5%	$	36,707
Oregon Tax 0.5%	$	12,236
Mobilization, General Conditions	$	73,414
Contingency 10%	$	73,414
Sum	$	2,887,600

Pendleton Bus Barn Project
Cost Model - Alt 1 - Site
15% Design
June 14, 2022

Site Area (SF)		20,584
Half Street (SF)		5,500
Parking Area (SF)		4,080
Site Pedestrian (SF)		1,619
$/SF	$	33.78

Category	Count	Unit	Materials/ Labor	Product	Remarks
Site Clearing	20,584	SF	$ 0.55	$ 11,321	
Site Earthwork	20,584	SF	$ 2.35	$ 48,372	
Site Improvements - Paving	14,885	SF	$ 12.00	$ 178,620	
Site Improvements - Parking	4,080	SF	$ 9.50	$ 38,760	
Site Improvements - Sidewalks	1,619	SF	$ 9.50	$ 15,381	
Site Improvements - Landscape	1,619	SF	$ 8.00	$ 12,952	Assume landscaping is part of pedestrian environments only
Site Mechanical Utilities	20,584	SF	$ 8.00	$ 164,672	Expect between water meters, oil/water separators, backflow prevention, piping, connections to existing and a detention pond
Site Electrical Utilities	1,619	SF	$ 16.00	$ 25,904	Pedestrian area includes service to buildings
Site Security - Fencing and Gates	615	LF	$ 150.00	$ 92,250	
Site Lighting and CCTV	1	LS	$ 8,000.00	$ 8,000	
Half Street Improvements	5,500	SF	$ 18.00	$ 99,000	
				$ 695,232	

Pendleton Bus Barn Project
Cost Model - Alt 2 - Site
15% Design
June 14, 2022

Site Area (SF)		18,199
Half Street (SF)		5,500
Parking Area (SF)		4,800
Site Pedestrian (SF)		1,397
$/SF	$	33.09

Category	Count	Unit	Materials/Labor		Product		Remarks
Site Clearing	18,199	SF	$	0.55	$	10,009	
Site Earthwork	18,199	SF	$	0.45	$	8,190	
Site Improvements - Paving	12,002	SF	$	12.00	$	144,024	
Site Improvements - Parking	4,800	SF	$	9.50	$	45,600	
Site Improvements - Sidewalks	1,397	SF	$	9.50	$	13,272	
Site Improvements - Landscape	1,397	SF	$	10.00	$	13,970	Assume landscaping is part of pedestrian environments
Site Mechanical Utilities	18,199	SF	$	8.00	$	145,592	Expect between water meters, oil/water separators, backflow prevention, piping, connections to existing and a detention pond
Site Electrical Utilities	1,397	SF	$	16.00	$	22,352	Pedestrian area includes service to buildings
Site Security - Fencing and Gates	615	LF	$	150.00	$	92,250	
Site Lighting and CCTV	1	LS	$	8,000.00	$	8,000	
Half Street Improvements	5,500	SF	$	18.00	$	99,000	
					$	602,259	

Pendleton Bus Barn Project
Cost Model - Alt 1 - Administration Building
15% Design
June 14, 2022

Perimeter (LF)		180
Height-wall (SF)		9
Height-roof (SF)		16
Area (SF)		1,832
$/SF	$	359.13

Category	Count	Unit	Materials/Labor	Product	Remarks
Standard Foundations (cont footing system)	180	LF	$ 700.00	$ 126,000	
Slab On Grade (4" SOG assembly)	1,832	SF	$ 20.00	$ 36,640	
Superstructure	1,832	SF	$ 34.00	$ 62,288	Assume 8x8 wood post system
Exterior Enclosure	1,620	SF	$ 25.00	$ 40,500	Assume wood studs @ 18" O.C.
Roof Construction	1,832	SF	$ 24.00	$ 43,968	Assume wood trusses @ 2' O.C.
Interior Construction	1,832	SF	$ 26.00	$ 47,632	
Interior Finishes	1,832	SF	$ 16.00	$ 29,312	Includes limited interior signage
Fire Sprinkler System	1,832	SF	$ 9.00	$ 16,488	
Mechanical Insulation	1,832	SF	$ 1.25	$ 2,290	
Plumbing and Fixtures	1,832	SF	$ 66.00	$ 120,912	
Controls - Low Voltage	1,832	SF	$ 23.00	$ 42,136	
Lighting - Low Voltage	1,832	SF	$ 18.00	$ 32,976	Does not include ETO assistance
Air Handling	1,832	SF	$ 31.00	$ 56,792	
				$ 657,934	

Pendleton Bus Barn Project
Cost Model - Alt 2 - Administration Building
15% Design
June 14, 2022

Perimeter (LF)	188
Height-wall (SF)	9
Height-roof (SF)	16
Area (SF)	1,845
$/SF	$ 361.53

Category	Count	Unit	Materials/Labor	Product	Remarks
Standard Foundations (cont footing system)	188	LF	$ 700.00	$ 131,600	
Slab On Grade (4" SOG assembly)	1,845	SF	$ 20.00	$ 36,900	
Superstructure	1,845	SF	$ 34.00	$ 62,730	Assume 8x8 wood post system
Exterior Enclosure	1,620	SF	$ 25.00	$ 40,500	Assume wood studs @ 18" O.C.
Roof Construction	1,845	SF	$ 24.00	$ 44,280	Assume wood trusses @ 2' O.C.
Interior Construction	1,845	SF	$ 26.00	$ 47,970	
Interior Finishes	1,845	SF	$ 16.00	$ 29,520	Includes limited interior signage
Fire Sprinkler System	1,845	SF	$ 9.00	$ 16,605	
Mechanical Insulation	1,845	SF	$ 1.25	$ 2,306	
Plumbing and Fixtures	1,845	SF	$ 66.00	$ 121,770	
Controls - Low Voltage	1,845	SF	$ 23.00	$ 42,435	
Lighting - Low Voltage	1,845	SF	$ 18.00	$ 33,210	Does not include ETO assistance
Air Handling	1,845	SF	$ 31.00	$ 57,195	
				$ 667,021	

Pendleton Bus Barn Project
Cost Model - Alt 1 + 2 - Bus Barn
15% Design
June 14, 2022

Perimeter (LF)	225
Height-wall (SF)	13
Height-roof (SF)	19
Area (SF)	2,618
$/SF	$ 253.40

Category	Count	Unit	Materials/Labor	Product	Remarks
Standard Foundations (cont footing system)	225	LF	$ 700.00	$ 157,500	
Slab On Grade (4" SOG assembly)	2,618	SF	$ 20.00	$ 52,360	
Superstructure	2,618	SF	$ 24.00	$ 62,832	Assume steel system
Exterior Enclosure	2,925	SF	$ 34.00	$ 99,450	Assume CMU veneer + metal stud insulated construction
Roof Construction	2,618	SF	$ 32.00	$ 83,776	Assume pre-eng metal trusses
Interior Construction	2,618	SF	$ 6.00	$ 15,708	
Interior Finishes	2,618	SF	$ 6.00	$ 15,708	Includes limited interior signage
Fire Sprinkler System	2,618	SF	$ 9.00	$ 23,562	
Mechanical Insulation	2,618	SF	$ 0.25	$ 655	
Plumbing and Fixtures	2,618	SF	$ 16.00	$ 41,888	
Controls - Low Voltage	2,618	SF	$ 12.00	$ 31,416	
Lighting - Low Voltage	2,618	SF	$ 18.00	$ 47,124	Does not include ETO assistance
Air Handling	2,618	SF	$ 12.00	$ 31,416	
				$ 663,395	

Pendleton Bus Barn Project
Cost Model - Alt 1 + 2 - Bus Shelter
15% Design
June 14, 2022

Perimeter (LF)	236
Height-wall (SF)	13
Height-roof (SF)	21
Area (SF)	3,212
$/SF	$ 160.16

Category	Count	Unit	Materials/Labor	Product	Remarks
Standard Foundations (cont footing system)	236	LF	$ 700.00	$ 165,200	
Slab On Grade (4" SOG assembly)	3,212	SF	$ 20.00	$ 64,240	
Superstructure	3,212	SF	$ 24.00	$ 77,088	Assume steel system
Exterior Enclosure	3,068	SF	$ 6.00	$ 18,408	Assume metal stud construction
Roof Construction	3,212	SF	$ 16.00	$ 51,392	Assume pre-eng metal trusses and S.S. roofing
Interior Construction	3,212	SF	$ 2.00	$ 6,424	Assume CMU interior wall at wash down bay
Interior Finishes	3,212	SF	$ 2.00	$ 6,424	Includes limited interior signage
Fire Sprinkler System	3,212	SF	$ 9.00	$ 28,908	
Mechanical Insulation	3,212	SF	$ -	$ -	No tempering in this structure
Plumbing and Fixtures	3,212	SF	$ 8.00	$ 25,696	
Controls - Low Voltage	3,212	SF	$ 8.00	$ 25,696	
Lighting - Low Voltage	3,212	SF	$ 14.00	$ 44,968	Does not include ETO assistance
Air Handling	3,212	SF	$ -	$ -	No tempering in this structure
				$ 514,444	

8.2 MATERIAL PREFERENCES

SIDING PANELS

SMOOTH, RAW CONCRETE

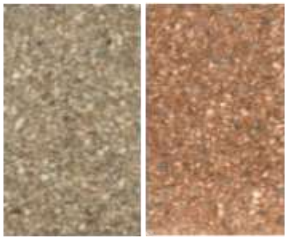
STOREFRONT GLASS

CONCRETE FORMLINER

GABION WALL

STANDING SEAM METAL ROOF

METAL WALL SYSTEMS



CONCRETE MASONRY UNITS

8.3 MEETING NOTES

4/6/2022 Workflow Workshop Notes

5/19/2022 Alternatives Workshop Notes

7/19/2022 Design Workshop Notes

April 06, 2022

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Workshop Notes

Project: City of Pendleton Bus Barn Planning and Design
MWA Project No: 202203.00
Phase: Discovery/Review Existing Information (Basis of Design)
Workflow Workshop
Meeting Date: 04/06/2022
Attendees:

Linda Carter (CoP)
Bob Patterson (CoP)
Karen Kendall (CoP)
Wayne Green (CoP)
Jeff Brown – Future PW Super (CoP)
Rocky House – Facilities (CoP)
Matt Johlke (CoP/Elite Taxi)
Rod Johlke (CoP/Elite Taxi)
John Honemann (EORA)
Jean Root (MWA)
Leslee Randolph (MWA)
Mike Faha - LA (GW)
Brian Hansen – Civil (AP)
Ryan Abbotts – SME (TYL - virtual)
Joseph Purkey - SME (CA – virtual)
Gaby Alija – Designer (MWA – virtual)
Caitlin Smith – Notetaker (MWA – virtual)
Clinton Ambrose – Structural (ABHT–virtual)

<u>CoP – Transportation Committee</u>
Staci Kunz
John Cook (not present)
Teresa Hollibaugh (not present)
Tom Phelan (not present)
Julie Smith (not present)

The Workflow Workshop was divided into two parts: Buildings/Facilities Workshop and Site Workshop. The presentation used to conduct the workshop is attached to these notes as an appendix. The buildings/facilities workshop confirmed and identified building and facility space needs and preferred adjacencies. Attendees were interviewed about how a typical day flowed and who and what they needed to successfully perform their jobs. Through these workflow conversations viable building/facilities options were established. The conversation began by reviewing the space needs and adjacencies data provided by City of Pendleton:

Bus Barn (~8000 SF)	Office (~2000 SF)	Wash Station
(4) Category C buses	Break room	Single bay
(6) Category E vehicles	Restroom (shower/all-gender)	
(4) Minivan/Sedans	Private office	
	Dispatch	
	Public lobby	

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After a short presentation covering best practices in similar facilities an updated, refined program was assembled:

Bus Barn (~8000 SF)	Office (~2000 SF)	Wash Station
(4) Category C buses	Public lobby with airlock/vestibule	Single bay
(6) Category E vehicles	Kitchenette (no range or oven)	Equipment
(4) Minivan/Sedans	(1) ADA Restroom, all gender	Access
Seasonal equipment	(1) ADA Restroom, with shower, all gender	Covered
Secure storage	Wellness room	Mobile wash unit
Enclosed with doors	Private office - Dispatch	
Janitorial mop sink	Driver's lounge	
Bus cleaning supplies storage	Work counter with pre/post trip packets/keys/notices	
	Private office - manager	
	(12) Employee lockers with uniform rod (1/2 height)	
	Receiving closet/rod for clean uniforms	
	Receiving bin for used uniforms	
	Mechanical space	
	Electrical space	
	Data/Server/telephone room	
	Training space with data and power (12-person)	
	Janitorial closet with mop sink	

Outstanding questions to resolve include verification of this program with local codes and confirmation with the technical stakeholder group. Some considerations:

- A fully enclosed bus barn may require air showers at each overhead door to meet energy code.
- Overhead doors require annual maintenance and frequently use doors may require more frequent maintenance.
- Storage and maintenance of the mobile wash unit.
- Employee lockers, driver's lounge, kitchenette, uniform receiving in one space.
- Data/server and IT needs for this facility and future facilities.

Exterior program considerations:

- Visitor parking for three passenger vehicles
- Visitor parking for one ADA vehicle, per local code
- Personnel parking for 15 passenger vehicles

- Smoking area
- Windbreak/protect entries from dominant wind direction (SW)
- Consider low-maintenance native plantings
- Preserve views from people spaces (test building heights south of 'H' Street)
- Ask Brian what the largest busses turning radius is
- Busses should turn left for safety, when possible
- Avoid crossing pedestrian connections with bus traffic
- Consolidating facilities near 'H' Street to reduce site improvement costs
- Single access from 'H' Street for safety
- Consider view into site from Highway 84 eastbound
- Industrial streets per local code require a sidewalk and planting zone
- Electrical 6MW substation to support future electrified vehicles
- Stormwater detention facility for the site

Bus Electrification

For future planning for an all-electric fleet, the following provides current guidance on bus, vehicle, charging and facility considerations.

Electric Busses Similar to Let 'er Bus Program

- Electric Cutaway Bus (Ford EV Chassis)
- Electric Shuttles (Medium/Heavy-duty Transit)
- Electric Vans (Greenpower, Ford- Lightning Electric)

Vehicle Considerations

- Battery Sizing
    - Degradation over life of vehicle
    - Driving style affects range
- Adverse Weather Operation
    - Reduced range in hot/cold temperatures
    - Gas powered heaters increase range (not zero-emission)
- Maintenance Practices
    - High Voltage battery maintenance
    - Electric propulsion systems
    - Estimated $0.55/mi operating cost
- Fleet size and charging durations, demand frequency
- Passenger Seating
    - Floorplans, capacity, wheelchairs

Charging Considerations

- Charger Type
  - Level 2 AC/DC ~19kW
  - Fast DC ~50kW+
- Charging Windows
  - Service Mon-Fri (7am to 6pm)
  - Vehicles can charge overnight
  - Staff required to monitor charging
- On-route Charging
  - Charging vehicles away from bus depot
  - Charge vehicles during driver breaks

Facility Considerations

- Costs of utilities
  - Ground breaking to install conduit and chargers
  - kWh costs
  - Electrical service upgrades
  - Possible substation
- Maintenance
  - Space for electric vehicles
- Parking/Charging
  - Rearrangement of vehicle parking to accommodate charging activities

Typical day for various work staff

There are three types of personnel who currently define the daily activities for the Pendleton transit program: drivers, dispatch and managers. The site opening hours are 6:00am until 7:00 pm in the evening. There are a total of eight drivers currently for City-owned transit fleet. The busses and dispatch work Monday through Friday, however passengers may schedule dial-a-rides for weekend trips. These must be scheduled when Dispatch is on site.

Facility daily routine:

6:20am First two bus drivers arrive and park personal vehicles. (get which busses these are) Put personal items into lockers.

6:25am Drivers pick up their pre-trip packages and keys. They check in with Dispatch, so it is known they have reported to work. If someone does

	not show, then Dispatch calls for a back-up driver. Pick up charged I-Transit IPads/Tablets.
6:30am	First two busses leave to complete their four, 45-minute route loops. Breaks are taken at the end of each loop at the final stop.
6:40am	Van drivers arrive and park personal vehicles. Put personal items into lockers.
6:55am	Drivers pick up their pre-trip packages and keys. They check in with Dispatch, so it is known they have reported to work. If someone does not show, then Dispatch calls for a back-up driver.
7-9:00am	Vans leave to complete their routes, call requests for transit. Breaks are taken between trips.
9am-12:15pm	The site is mostly quiet and only occupied by Dispatch and the Manager.
12:30pm	Busses return and are sanitized. Bus drivers from the morning routes take a break, eat lunch.
1:15pm	Busses head out again to complete four more, 45-minute route loops.
6:00pm	Busses return and are sanitized.
6:15pm	Bus drivers from the morning routes complete their post-trip log and check out with Dispatch and provide their timecard for the day. Plug in to charge I-Transit IPads/Tablets for next day.
7:00pm	Last van returns to site and checks out to head home.

The perspective of the drivers and dispatch were provided by Elite Taxi representatives. Elite Taxi currently provides the dispatch service for the City busses and vans. The most difficult challenge currently (daily, seasonal) is the intermittent congestion of personal vehicles, busses and vans when routes are starting and ending. Although the routes are staggered, it is a rush to get each wave of drivers on their routes before the next wave arrives. This congestion can happen inside the building too where drivers are checking in and attending to their pre and post trip materials. Maintenance is currently handled offsite.

Other considerations discussed:

- Simultaneous uses
- Uses that change over time
- Expansion
- Adaptability

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Site Workshop

The site workshop established site feature locations in an interactive site activity. Several site options were developed when the attendees split into two working groups. Two of the layouts were viable and are included in these notes. The site planning exercise used plans of the potential project site and cutout paper shapes of the needed buildings and facilities. This approach gave attendees opportunity to try out and discuss how building siting, adjacencies and circulation effected the efficiency, safety and public face of the project. Facilities were added to the future site program considerations based on the neighborhood existing utility conditions. Future facilities are not part of the Bus Barn project, however by making space for known future utility improvements future cost to further develop the site is controlled. The following notes relay the discussions shared about the influences effecting the locations of buildings, facilities and circulation on the site.

<u>Group 1</u>

Entry

- 48th Drive is central to the main routes approaching the site (north and east).
- Queuing may be needed and stacking vehicles on 48th Drive, which is less frequently used, is better than blocking 'H' Street, which has heavier traffic.
- 48th Drive intersection is the high point of the site which would drain best, avoiding ice, flooding conditions at the main site entrance. Also is best for visibility.
- Bus turning radius will determine how close to 'H' Street this configuration can be.

Bus Barn

- Use best practices to have busses turn left when entering the barn and entering/leaving the site.
- Orient the barn east-west to minimize grading and use the topography to best advantage and also roof mounted solar array, if needed.

Office Building

- Give the Dispatcher and Manager views of the valley and Blue Mountains.
- Needs to be a 'front door' for the site on 'H' Street until other development comes; need to make space for future facilities to also have a 'front door.'
- Make sure visitor parking movements do not cross with bus movements
- East-west orientation of the office building gives it the best access to views, daylight.

'H' Street improvements

- Will require sidewalk, landscaping. Consider how that might be part of the overall neighborhood development style.
- Locate new bus stop either at the public park or across the street from it, depending on the bus route and turning. This is also central to the rest of 'H' Street.

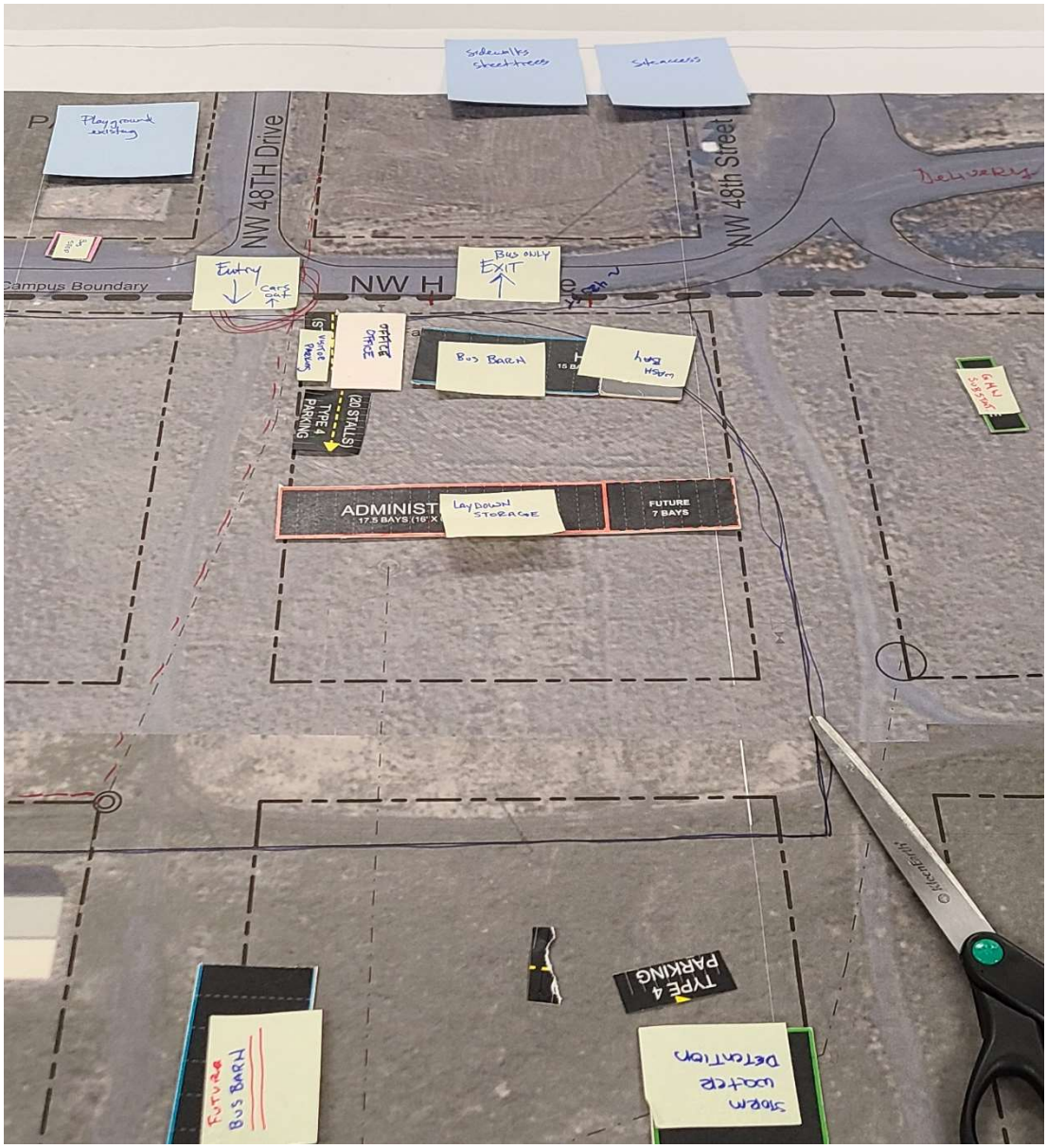
Site Utilities

- Locate the stormwater detention facility directly south of 'J' Street alignment between 48th Drive and 48th Avenue. This will serve all development in the area to the north of the detention facility.
- Preserve 30-foot long by 30-foot-wide area for future substation at the intersection of 'J' Street alignment and 48th Drive. This follows the alignment of existing power infrastructure.
- Site improvements to make best use of existing infrastructure.

Considerations for Group 1 layout:

- Bus barn does not need daylighting in walls; skylights could be more effective. Solar array is more expensive and more difficult to maintain when roof mounted. Currently there is an array on adjacent site. Consider array at grade, if needed, while site area is available since technology will advance before the site is fully developed.

Group 2



Entry
- Consider a single direction for bus traffic with separate exit.

Bus Barn
- Consider bus barn as a frontage building to 'H' Avenue.
- Attach wash bay to the end of the bus barn to maximize utilization of the circulation improvements

Office Building
- Stack employee parking needs with visitor parking in front of the office building to consolidate parking activities and separate them from the bus traffic.

'H' Street Improvements
- Assume future main entrance to the campus will be at intersection of 'H' Avenue and

Site Utilities
- Set east side of site adjacent to 'H' Avenue aside for future electrical infrastructure.

Considerations for Group 2 layout:
- Consider what it looks like to minimize paving/development and push bus barn against 'H' Avenue; verify if this is in conflict with street development requirements for sidewalks or drive aprons.

<u>Other considerations:</u>
- Site adjacencies options
- Circulation should prioritize left turn movements for busses to give drivers clearest view of safe drive path
- Include space for personal vehicles, fleet, visitors, deliveries
- Security, hours of operation
- Other future developments

Aesthetics and Materials

The approach to aesthetics and materials selection was to survey existing developments in the Pendleton area. This survey approach provided information on how various materials aged and weathered in the Pendleton climate and what scale, massing and style of development has been well-received. There was a focus on public, industrial and commercial properties: these best fit the bus barn development type. Some considerations in exterior/interior finish recommendations:
- Materials palette, sourcing and pictures as applied on other projects
- Operations and maintenance

- Expansion / material and design replicability
- Interiors/materials images to consider
- Consider the impact of views from buildings and into site when selecting materials to be adjacent to those experiences

Roof

- Standing seam metal roof with snow guards over entries and sidewalks
- Consider where gutters and downspouts are needed and if they can integrate with the landscape
- No 'flat' roof due to maintenance needs and first costs; spans are less than 60 feet
- Gable or shed type forms using pre-engineered trusses

Walls (structure and siding)

- Base (wainscot) materials must be resilient to dirt and dust; must be able to power wash; consider concrete masonry, or cast-in-place concrete with board form finish
- Upper wall: cement board/panel, metal panel (pre-finished)

Windows

- Triple pane windows should have an operable component
- Shade exterior east, west and south facing windows
- Insulated translucent sandwich panels
- Skylights: tube-type where daylight needs are unmet by windows
- Minimize mullions to give views a greater impact

Doors

- 3x7 single doors: Insulate, pre-glazed doors for visual safety; ideally fiberglass for durability and insulative value
- Overhead doors: panelized have fewer thermal breaks and allow for some vision glazing for safety
- If practical, other insulated, glazed doors could be considered to access outdoor break area

Heating, ventilating and cooling equipment

Split-system units will be mounted at grade away from the public entrance and mounted on concrete housekeeping pad

Next steps

5/19/2022	Alternatives Development Workshop
6/2/2022	Public Outreach Workshop #2
7/14/2022	Design Workshop
8/4/2022	Final Design Memorandum

June 10, 2022

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Workshop Notes

Project:	City of Pendleton Bus Barn Planning and Design
MWA Project No:	202203.00
Phase:	Alternatives Development (Alternative Memorandum)
	Alternatives Workshop
Meeting Date:	05/19/2022
	9am-11:00am

Attendees:

Linda Carter (CoP)
Bob Patterson (CoP)
Karen Kendall (CoP)
Wayne Green (CoP)
Jeff Brown – Future PW Super (CoP)
Matt Johlke (CoP/Elite Taxi)
Rod Johlke (CoP/Elite Taxi)
John Honemann (EORA-virtual)

Jean Root (MWA)
Mike Faha - LA (GW - virtual)
Brian Hansen – Civil (AP-virtual)
Gaby Alija – Designer (MWA – virtual)
Caitlin Smith – Notetaker (MWA – virtual)

CoP – Transportation Committee
Staci Kunz

The Alternatives Workshop was organized into three sequential parts to establish a preferred alternative for the Bus Barn project:

1) Where we came from: findings from the Workflow Workshop and how alternatives have evolved since then.
2) Review of the alternatives for site and buildings: two alternatives provided.
3) Evaluation of the alternatives for preferred design path forward.

0. Introductions and general project updates:

- The City of Pendleton has been awarded $2.012 million in grants for this project. Additional STIFF funds of $500,000 and another $500,000 from the County transportation program make the total available funds to build the Bus Barn facility $3.012 million.
- Bob Patterson will remain City PM through next design phase.
- Jean introduced the Miro board as the organization for the final report. The team will take this approach into design development. The final deliverable for this phase will be Miro board content with recommendations for preferred path and cost estimates.

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1. Review where we have come from:

- Workflow workshop group concepts looked at site opportunities. The design team took those concepts and tested them with technical advisory committee. This resulted in a refined and updated program.
- Site analysis will remain incomplete until next phase: geotechnical, survey and environmental to be completed during Design Development late this summer.
- SW winds and winter/summer sun angles are determining factors in orientation and design for this facility.
- Kayak Public Transit bus barn facility was used as an example to gain an understanding of workflow and operational/programming needs.
- Assumption from technical advisory committee: Pendleton's public transit needs will grow over time.
- Bus Barn should be fully enclosed and heated to prepare the buses for drivers and riders.
- The alternatives presented in the Alternatives Workshop began in the workflow workshops and were refined through a series of meetings with the technical advisory committee in combination with code, constructability, and regulatory requirements.

<u>Programming updates and cost considerations</u>:

- Stakeholder input is critical for a success bus barn facility.
- Challenge right now is the rising cost of construction.
- Middle of the first quarter construction costs are changing.
- MWA PM asked technical advisory committee to prioritize program and workflow needs.
- Technical advisory committee was flexible and re-examined workflow to help make this successful with the budget.
- Team looked at the whole site to build on the flattest part of the site and avoid stepped foundations, which also required shorter building footprints.
- Maximize future expansion possibilities for the Bus Barn Facility without limiting site development.
- The program was updated to two smaller bus storage facilities that better matched topography:
    - Bus Barn: Vehicles used daily store in the heated, enclosed bus barn.
    - Bus Shelter: Overflow vehicles stored in the open shelter.

- Updated office space needs: Looked for program overlap to control costs and spaces based on need. Example, training and break room combined as one program.
- Precedents: The design team looks for campus examples, material example, landscape arch added some, and more detail about what we think is possible.
- Scheduling for efficiency: Today drivers and staff arrive at 7am and leave about 4:4:30, there are some exceptions for vans. We could adjust schedules to minimize that conflict.
- Construction Admin Building
    - Wood structure. It is a cost effective and locally sourced product and can be erected with local labor.
    - Premanufactured wood trusses. In some areas it could be exposed and painted.
    - Roof: Standing seam metal roofs with snow guards.
    - Duct work will be exposed some spaces to get a larger volume feel within the space.
    - Flexibility between training and lounge, incorporating sliding glass with a man door to help delineate the space.
    - Interior windows may be constructed locally in wood to reduce impact on construction schedule.
    - Heating/Cooling/Ventilation/Electrical/Fire
        - Mini-split system ducted or ductless fan coil units with 3 zones
        - Ductless to smaller spaces like offices
        - Ducted to Lounge and Training Room
        - Outdoor units need 30"x30" each housekeeping pads
        - Need ducts for ventilation
        - Avoid roof mounted equipment
        - All electric is a goal to be investigated during Energy Workshop
        - Solar hot water is a goal to be investigated during Energy Workshop
        - Lighting: LED
        - Electrical room need 6 feet clearance inside
        - IT/Communications: 6’x8’ minimum (for entire site)
        - Fire riser room required
        - Wet system fire sprinklers

- Construction Bus Barn
    - Limited concrete masonry unit veneer over insulated metal stud walls.
    - Overhead insulated, panelized vehicle doors with limited view lites for safety and daylighting.
    - Exposed insulation at underside of steel truss roof.
    - Roof: Standing seam metal roofs with snow guards.
    - Interior walls will be metal stud and gypsum board or painted plywood to 8 feet above the floor with wipe down finish.
    - Heating/Cooling/Ventilation/Electrical/Fire
        - Assume 50 degree
        - Electric unit heaters
        - Heat recovery should be investigated in next phase
        - Avoid roof mounted equipment
        - All electric is a goal to be investigated during Energy Workshop
        - Solar hot water is a goal to be investigated during Energy Workshop
        - Natural ventilation approach based on vehicles not required to idle inside with doors closed
        - Interlock louvers with damper and carbon monoxide detection system
        - No dedicated ventilation
        - Exhaust fan system linked to louver system
        - One louver between the doors on each side of the building 2' x4' (4) total louvers can be high on the wall above the overhead doors
        - Ductwork between the fan and the louver box
        - No air curtains required
        - Can use one electrical room in Bus Barn for all electrical and co-locate the transformer
        - Transformer - box - 4x4x3' tall (Serves all three buildings)
        - Locate transformer near building, need to be able to drive up to it about 6' feet from building
        - Need fire riser in each bus storage facility
        - Thickened wall 2.5-3' deep closet
        - Bus barn fire pipe system wet

- Construction Bus Shelter
    - Premanufactured metal building with limited custom finishes.
    - No doors, louvers required.
    - Limited concrete masonry unit wall between wash bay and bus parking bays.
    - Roof: Standing seam metal roofs with snow guards.
    - Electrical/Fire
        - Need fire riser in each bus storage facility
        - Thickened wall 2.5-3' deep closet
        - Dry pipe system in Shelter
        - Need air compressor in Shelter (co-locate with washdown equipment)
        - In freeze conditions - might need an electric resistance heater in the wet space set point at 50 degrees
        - Lighting: LED
- Site Improvements
    - Landscape will be hardscape (rock, gabion walls) as this is an industrial site. The administration building steps back from the street with hardscape between street and facility. to make sure the security was working.
        - Gate movement: preferred lift gates
        - Gabion walls for visual screening, wind screening and limited security where adjacent to pedestrian areas. Materials are readily available in Pendleton.
        - Non-structural steel elements may be available locally and low in cost.
        - Layer from street on to campus (public to private/secure layers with some views highlighted and others obscured).
        - Make landscaping approach different at Administration entry than at the secure bus areas. This alerts visitors they are where to go.
        - Important to give staff respite: outdoor patio is a simple extension of the Administration Building eave.

2. **Alternative 1** (Alt 1) - Discussion

- Approach to Administration (Office) Building: Enter from 'H' Street turn left to park. Gabian wall to block views into the bus yard. For anyone who is coming

by bus, a partial street improvement will accommodate their needs to access the site.

- We are testing with local official the concept of visitor parking on street
- Bus Barn facility is closest to the Administration Building, bus shelter is behind farthest from street view.
- On Bus Shelter contains the wash bay in both Alternatives; Bus Shelter is the same layout and construction for both Alternatives.
- Possible gravel overflow parking area if there is seasonal demand. Public parking and general public and overflow parking (gravel) for training purposes are combined and external to the secure area to save on paving and for better pedestrian safety.
- Provides a covered breezeway between the buildings with a wash bay.
- Future expansion is incorporated into both alternatives.
- This alternative is focused on the transportation teams needs and builds facilities tight and close. Slow growth is expected, and most building materials required some renewing at 30 years from construction. That could match up well to when an expansion might be warranted.
- It is ideal to keep the bus barn facility separate from future campus development which is ideal.
- Turning and bus storage planning: Largest bus is the 22 I don't see us going bigger for a long time. Next bus will be a 14 passenger because it does not require a CDL.
- Put a gate to the south of the facility so there can be access to the back. For the once every 5 years when a large tow truck needs access for the busses.

3. **Alternative 2** (Alt 2) - Discussion

- Main presence in this alternative is the Administration building. The other option has the bus barn front and center.
- The development is tight to minimize paving, but this made it difficult to navigate from street to Administration Building.
- Visitor parking is included in the parking lot.
- If you flipped the bus shelter you could expand to the north. You would lose the views to the Blue Mountains to the south.
- To avoid mixing buses and personal/visitor vehicles we looked at two separate entries. This was additional cost that did not improve the function of the facility since the bus movements are at predictable intervals.
- Mid-block curb cut onto the site was considered however this is not best practice for safety at intersections.

- We will widen the site entry lane and divide the traffic in the next phase to accommodate the security gate movements.
- Current volume of traffic into parking suggests conflict between the buses and visitors/staff should be limited to under 10 employee vehicles and the busses/vans they drive.
- In the future if the parking lot had to extend to the east, then another curb cut off of 'H' Street could offer a rear entrance to the extended parking area.
- The E450 vehicles are accommodated for turning radius and the pavement shown is the "safety range" not the minimum possible. Final vehicle turning will be provided in the next phase.
- Compact efficient site plan balancing cut and fill with bus circulation system that is efficient and comfortable.
- The goal is to strike a balance between function and site disturbance.
- The design vehicle is going to become a decision point for the future development, currently that is the E450.
- Doors open east-west will be unsuccessful because of the wind impact on opening, closing and pressure issues on opposite sides of the buildings.

4. **Preferred path forward** - Discussion

- Alt 2: Like the office up front and the formal look.
- Alt 2: More expansion options but otherwise equal to Alt 1.
- Both Alts: Storm water detention will be down the hill from the site so only and put far away so it doesn't conflict with the future expansion.
- Alt 2: Like the looks of the administration building blocking view into the secure area.
- Alt 2: Disadvantage is back gate desire is not as simple as in Alt 1.
- Alt 2: Does not work well for functionality and flow. And the ways the doors open (east-west).
- Alt 1: Prefer the Bus barn front and center. The emphasis is on the bus barn demonstrating the project's purpose.
- Alt 1: Office building windows and entry may be affected by the wind. Gabion will act as a wind break.
- Alt 1 and 2: Plans show a vestibule to act as an air lock to manage the wind.
- All plans: Move the work counter from by the lockers.
- Alt 1: Fewer doors and has a nice division of the bus barn from folks working.
- Both Alts: Dispatch is looking out on the parking lot; it is helpful for dispatch to see the circulation.
- Both Alts: Outdoor space is just an extension of the roof.

- Both Alts: Use actuated gates because of the weather. Knife gates run horizontally because of the tumble weeds and rolling gates are problematic.
- Bus Barn: Show future charging stations locations. We plan for conduit in this project and electrify in future for charging stations.
- Bus Barn: Auto door openers for bus doors; located in each bus.
- Bus Barn Storage: New tires are stored inside and used tires outside under eave. Tire storage indoors may be racked and open.

Decision: Alternative 1 is preferred based on site plan opportunities for access to lower road and orientation of buildings to avoid wind impacts.

Action items

- In next phase provide detailed Alt 1 administration building exterior color and materials selection.
- Textures, materials for fencing and landscaping. Establish a standard for fencing options that can provide basic security, reinforce site layering, obscure views and provide wind break.
- Consider this project will be the first for the master plan of the whole airport neighborhood. This project will establish initial standards.
- Working with the preferred alternative, MWA will be collaborate with the technical advisory committee to establish standards in the report.
- In next phase facilitate a conversation about deliveries and other site access needs for future.
- In the next phase facilitate a conversation to verify that detailed day-to-day and seasonal needs are met by the preferred alternative for future operations.
- Verify regulatory requirement for a shower (OSHA).
- Provide planning level construction cost estimates.

5. Next steps

a. Public Outreach Event #2 6/2
b. Design Workshop 7/14
c. Energy Workshop (hosted by ETO) July or August (IP)
d. Final Planning and Design Package 8/4

July 20, 2022

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Meeting Notes

Project: City of Pendleton Bus Barn Planning and Design
MWA Project No: 202203.00
Phase: Recommended Plan Development
Design Workshop
Meeting Date: 07/14/2022
9am-10:00am

Attendees:

Linda Carter (CoP)
Bob Patterson (CoP)
Karen Kendall (CoP)
Wayne Green (CoP)
Jeff Brown (CoP)
Rocky House (CoP)
Jean Root (MWA)
Mike Faha/Andrew Holder - LA (GW - virtual)
Brian Hansen – Civil (AP - virtual)
Gaby Alija – Designer (MWA – virtual)

CoP – Transit Committee
Staci Kunz
John Cook
Teresa Hollibaugh
Tom Phelan

Goal of Design Workshop: Review draft design report.

MWA presented the preferred site and building alternative for comment:

a. Site: Circulation, expansion, flexibility
    i. Attendees agreed that the preferred alternative meets stated requirements for bus, van, and private car circulation of the site. Next phase will bring more detail around security edge and how gates support safe navigation of the site.
    ii. Options to expand parking to the west if the need grows is well-received. Bus facilities expansion options to enclose the shelter and build additional shelters was well-received as planned.
    iii. Stakeholders continue to support including flexibility to convert to all-electric fleet and facility in the future.
b. Building: Aesthetics, plan layouts, workflow, systems
    i. Updated plan layouts with workflow improvements were approved to move into schematic design.

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ii. Approach to aesthetics and material/color palette was well-received, however final application of materials to be completed in schematic design with costs and CM/GC collaboration.
iii. Systems presented were well-received; additional clarity will be gained through conversation with the Energy Trust of Oregon at scheduled Early Assistance meeting 8/8/2022.

c. Cost Estimate
    i. The cost estimate is planning level and needs more site data for designs to yield refined costs. Site data is being collected under separate contract and will be applied in schematic design.
    ii. Costs to be reconciled at 30% design alongside CM/GC estimates.
d. Discussion
    i. Stakeholders and Technical Advisory Committee endorse the preferred alternative to move into schematic design.
    ii. Project to continue to use a whiteboard approach to gain acceptance on outstanding design decisions.