Pearson Field Airport Master Plan

Pearson Field
Vancouver, WA

Prepared by

Mead & Hunt

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Background

Pearson Field (VUO or "the Airport") is located in the City of Vancouver, Washington. VUO serves general aviation (GA) users, and does not have scheduled commercial airline service. The Airport is classified as a GA airport by the Federal Aviation Administration (FAA) National Plan of Integrated Airport Systems (NPIAS) and a Community Service airport by the Washington Department of Transportation Long-Term Air Transportation Study (LATS). In addition to Vancouver, VUO supports GA activity in nearby counties in Washington and Oregon, and the Portland, Oregon Metropolitan Area.

The Airport Master Plan Update (Plan) addresses planning facility development and resource allocation. The consultant team assisting the Airport with this effort is led by Mead & Hunt, with support from BergerABAM.

Purpose

This Plan provides information on historic and current airport activity levels, facilities, and operations, and generates activity forecasts that support improvements to satisfy demand over the next twenty years. Information collected from state and federal agencies and the City of Vancouver is augmented with data from airport stakeholders, including airport management, airport tenants and users, and the public that live and work near VUO.

Outreach

This Plan is as much about the planning process as it is the resulting document. During the development of the Plan, the Airport and the consultant team involved community agencies, neighbors, Airport users, and the public. These stakeholders were assembled into a Planning Advisory Committee (PAC), which met at key points during the planning process.

Two public open houses occurred during the development of the Plan. These meetings allowed public stakeholders to ask questions, and provide feedback on the planning efforts.

Presentation

This Plan consists of the following chapters and appendices.

Chapter 1 **Inventory and Forecasts** - The inventory catalogs existing physical characteristics of VUO, and a review of historic aviation activity data provides a foundation for aviation activity forecasts.

Chapter 2 **Airport Improvements** - Aviation activity forecasts are used to assess the existing and forecasted capacity of existing physical characteristics of VUO. Improvement recommendations are made to accommodate forecasted activity levels, and a capital improvement plan identifies project phasing and potential funding sources.

Appendix A **National Parks Service Lease** - A copy of the 2011 lease for the western portion of airport property between the City of Vancouver and the National Parks Service.

Appendix B **Airport Layout Plan** - A graphic representation of existing and planned airport facilities, improvement projects, and design standards.

Chapter 1

Inventory and Forecasts

1. Introduction

This chapter provides a baseline of the existing facilities at Pearson Field (VUO or Airport), and includes historical and forecasted aviation activity. The information collected for this chapter serves as a baseline for airport improvements recommended in **Chapter 2**. This chapter evaluates land use and land use controls for properties surrounding the Airport. The nature of aircraft operations causes an airport to have influence over land outside of its property boundary.

Data is collected from airport management and stakeholders, the City of Vancouver, Washington State, and the Federal Aviation Administration (FAA). The 2001 Pearson Field Airport Master Plan (2001 Plan) is used as reference.

This chapter consists of the following sections:

- Airfield Facilities
- Aviation Activity
- Land Use
- Natural Environment

1.1 Location and History

VUO is located along State Route 14, in southern Clark County, Washington. The Airport is located to the northwest of the Portland International Airport (PDX), and east of downtown Vancouver. The Airport is located within the Fort Vancouver National Historic Reserve, east of the Fort Vancouver National Site (FVNS). The western section of the runway is located on property owned by the National Parks Service, and leased by the City of Vancouver. The Airport has an elevation of 28.6 feet above mean sea level (MSL).

Pearson Field is one of the oldest continuously operating airfields in the United States and one of the last remaining examples of an Army airfield of the pre-World War II period. The western half of Pearson Field and the buildings within the Pearson Air Museum are listed on the National Register of Historic Places as part of the Vancouver National Historic Reserve National Historic district.

Fort Vancouver was established as a fur trading outpost for the Hudson's Bay Company before coming under the control of the U.S. Army in 1846. Aviation activity began at VUO in 1905, with the first fixed-wing aircraft landing in 1911. During World War I, the Airport was the site of a saw mill that processed Sitka spruce for airframes used by the armed forces of the United States and its World War I allies. The Airport was named Pearson Field in 1925 after Army First Lieutenant and Vancouver native Alexander Pearson Jr., who was killed one year earlier.

In the 1920s, the Vancouver Chamber of Commerce developed a civilian airport adjacent to the military airfield. The Army took control of the Airport during World War II, and maintained an emergency landing strip. The Airport was declared surplus by the Army at the end of World War II. In 1947, the City of Vancouver acquired the airfield from the U.S. War Assets Administration, and converted Pearson Field into a municipal airport.

The City of Vancouver sold the western half of the Airport to the National Parks Service (NPS) in 1971, after it was determined that NPS use of this property would be compatible with aviation. Proceeds from the sale were used to purchase the eastern portion of the airfield from the Burlington Northern Railroad. The western half of Runway 08-26 remains on property leased from the NPS; however, aircraft storage has been relocated to the eastern portion of the airfield, owned by the City of Vancouver.

In 2011, the City and NPS signed a 40-year lease agreement for the western half of the Airport, ensuring continued operation of GA activity, and eligibility for FAA grants. The 2011 NPS lease is included in **Appendix A**.

1.2 Airport Role

VUO is the primary general aviation (GA) airport for Southwest Washington, Clark County, and the City of Vancouver. Of the public airports in Clark County, VUO has the greatest number of based aircraft, the most aircraft operations, and the longest runway. VUO and Grove Field to the east are the only airports included in the FAA 2011-2015 National Plan of Integrated Airport Systems (NPIAS) in Clark County. The NPIAS classifies VUO as *General Aviation*, indicating the presence of 10 or more based aircraft. NPIAS airports are considered significant to national air transportation, and eligible for federal funding through the Airport Improvement Program.

The vision statement in the 2005 Pearson Field Business Plan states "The City of Vancouver recognizes Pearson Field as a valuable transportation, public service, and economic asset of both historic and contemporary significance within the Vancouver National Historic Reserve. The City's long-term vision for Pearson Field is to maintain the [Airport's] existing character and capabilities while balancing the needs of the historic district and surrounding community." VUO is an enterprise fund airport, which means that it is expected to operate profitably. The City of Vancouver intends to maximize the Airport's economic role in the community.

Washington State Department of Transportation Aviation Division (WSDOT Aviation) estimated the total economic impacts of the Airport in the 2012 Aviation Economic Impact Study (2012 AEIS). The 2012 AEIS performed a data driven analysis using Washington Department of Revenue, WSDOT Aviation Division, and FAA databases to support findings.

Impacts are measured in two ways: direct, and indirect/induced. Direct impacts include jobs that occur within the airport property boundary, and include airport tenant functions and governmental agencies that support the Airport. Economic impacts from businesses located on the Airport are considered direct. Indirect/Induced impacts represent a multiplier effect of "increases in regional impacts from the local re-spending of direct dollars." Total impacts are "the sum of direct, indirect, and induced impacts, for a total regional impact." The 2012 EWIA also measures the impacts of visitor spending, generated by itinerant users of the Airport in the community.

Annual economic impact numbers for regional impact and visitor spending associated with VUO are included in **Table 1-1**.

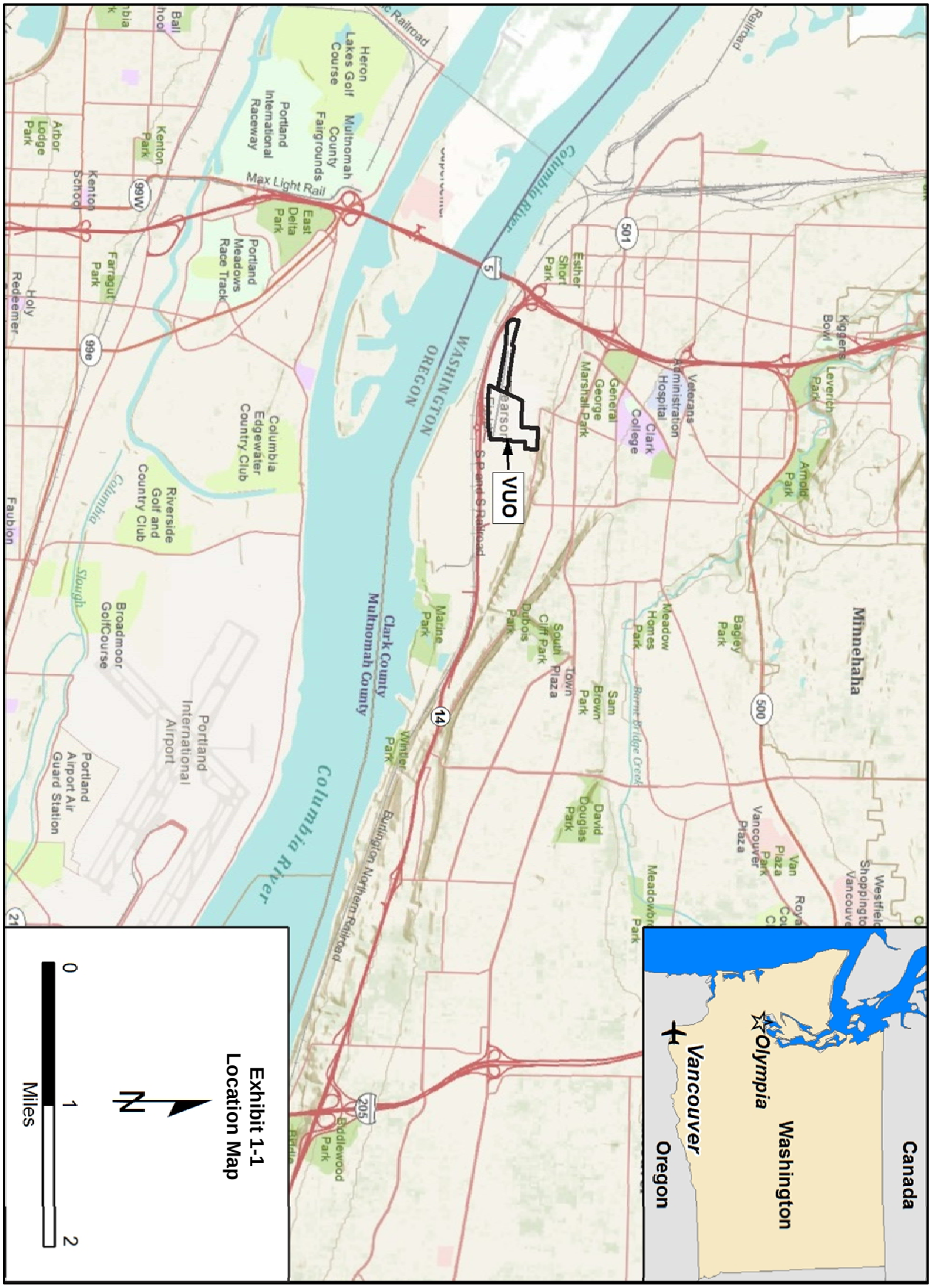
Table 1-1: VUO Annual Economic Impact

Category	Direct Impacts	Indirect/Induced Impacts	Total Impacts
Jobs	43	15	58
Labor Income	$1,111,000	$628,000	$1,739,000
Sales Output	$2,634,000	$1,913,000	$4,547,000

Source: WSDOT Aviation, 2012

In addition to VUO's role as a GA airport, facilities associated with the Airport and the FVNS provide benefit to the community. The MJ Murdock Aviation Center and Pearson Air Museum hosts school trips, youth camps, fly-ins, and community events, in addition to the aircraft and aviation memorabilia on display. Many of these events would not be possible without the aviation facilities at VUO. The MJ Murdock Aviation Center and Pearson Air Museum serve as community outreach and education about the history of Pearson Field and aviation in the Pacific Northwest, and requires an airfield because it is an active flying museum.

A location map is included in **Exhibit 1-1**.


VUO
WASHINGTON
OREGON
Columbia River
Columbia Slough
Clark County
Multnomah County
Vancouver
Minnehaha
Portland International Airport
Portland International Raceway
Portland Meadows Race Track
Heron Lakes Golf Course
Multnomah County Fairgrounds
Max Light Rail
Columbia Edgewater Country Club
Riverside Golf and Country Club
Broadmoor GolfCourse
Portland Airport Air Guard Station
Marine Park
Esther Short Park
Kiggens Bowl
Leverich Park
Arnold Park
Meadow Homes Park
Bagley Park
Sam Brown Park
David Douglas Park
Vancouver Plaza Park
Van Plaza
Meadowbrook Park
Dubois Park
South Cliff Park
Town Plaza
Whitter Park
Burlington Northern Railroad
S P and S Railroad
Veterans Administration Hospital
Clark College
General George Marshall Park
East Delta Park
Portland Meadows Race Track
Farragut Park
Kenton Park
Kenton School
Arbor Lodge Park
Holy Redeemer
Faubion
Bridlewood Park
Canada
Washington
Oregon
Olympia
Vancouver
Exhibit 1-1
Location Map
N
0
1
2
Miles

2. Airport Facilities

Airport facilities include airport pavements, navigational aids (NAVAIDs), aircraft parking, storage, fueling facilities, and businesses that cater to aircraft. VUO has one runway and a parallel taxiway. Runway-taxiway centerline separation is 162 feet. Aircraft parking and storage are located on the north side of airport property. Airport facilities are depicted in **Exhibit 1-4**.

2.1 Runway

VUO has one asphalt runway, designated 08-26, and oriented east-west. Runway 08-26 is 60 feet wide and 3,275 feet long. The threshold at Runway End 26 is displaced by 762 feet. Runway End 26 has runway end identifier lights (REIL) at the displaced threshold. Runway 08-26 is lit with medium intensity runway lights (MIRL). Runway markings include designation markings at each end, centerline striping, and arrows identifying the displaced threshold.

Runway End 08 has a visual approach slope indicator (VASI), and Runway End 26 has a precision approach path indicator (PAPI). These NAVAIDs assist pilots in maintaining the correct glide path on approach by displaying different colored lights when viewed at different angles. The PAPI is owned and maintained by the Airport, and the VASI is owned and maintained by the FAA.

2.1.1 Runway Design Surfaces

Airport design surfaces are described in FAA Advisory Circular (AC) 150/5300-13, *Airport Design*. Additional surfaces associated with the runways are found in Federal Aviation Regulations (FAR) Part 77. The purpose of design surfaces is to protect aircraft and airspace, and to safely accommodate aircraft operations. Key airport design surfaces include the Runway Safety Area (RSA), Runway Object Free Area (ROFA), and the Runway Protection Zones (RPZ).

The dimensions of design surfaces are based on the aircraft characteristics of approach speed (to determine the *approach category*), and wing span and tail height (to determine the *design group*). The approach category and design group collectively represent the airport reference code (ARC). Aircraft weight and approach procedures affect the design surfaces. VUO has an ARC of B-I (small), which is characterized by: an aircraft with an approach speed of 91 knots, but less than 121 knots; a wingspan of less than 49 feet; a tail height of less than 20 feet; and weighing 12,500 pounds or less.

The critical design aircraft is the Cessna 421.

ARC definitions are included in **Table 1-2**.

Table 1-2: Airport Reference Code (ARC) Categories		
Approach Category	**Approach Speed (knots)**	
A	Less than 91	
B	91 or greater, but less than 121	
C	121 or greater, but less than 141	
D	141 or greater, but less than 166	
E	166 or greater	
Design Group	**Wingspan (feet)**	**Tail Height (feet)**
I	<49	<20
II	49 - <79	20 - <30
III	79 - <118	30 - <45
IV	118 - <171	45 - <60
V	171 - <214	60 - <66
VI	214 - <262	66 - <80

Source: FAA AC 150/5300-13

The RSA and ROFA run the length of the runway, and additional distance beyond each runway end. The RPZs begin 200 feet beyond the end of runway pavement. Runway End 26 has two RPZs because of the displaced threshold. Runway End 26 approach RPZ begins 200 feet before the displaced threshold and Runway End 26 departure RPZ begins 200 feet before the end of the runway pavement.

The RSA at the approach end of Runway 26 is shown as non-standard because of a berm and a fence beyond the runway end in the 2001 Plan. Standard RSAs must be contained within airport property, clear and graded, and free of objects except those required for navigation. The Airport continues to operate safely with the existing conditions, and uses declared distances for departures on Runway End 08 to achieve RSA compliance. Declared distances are defined in **Section 2.1.2**.

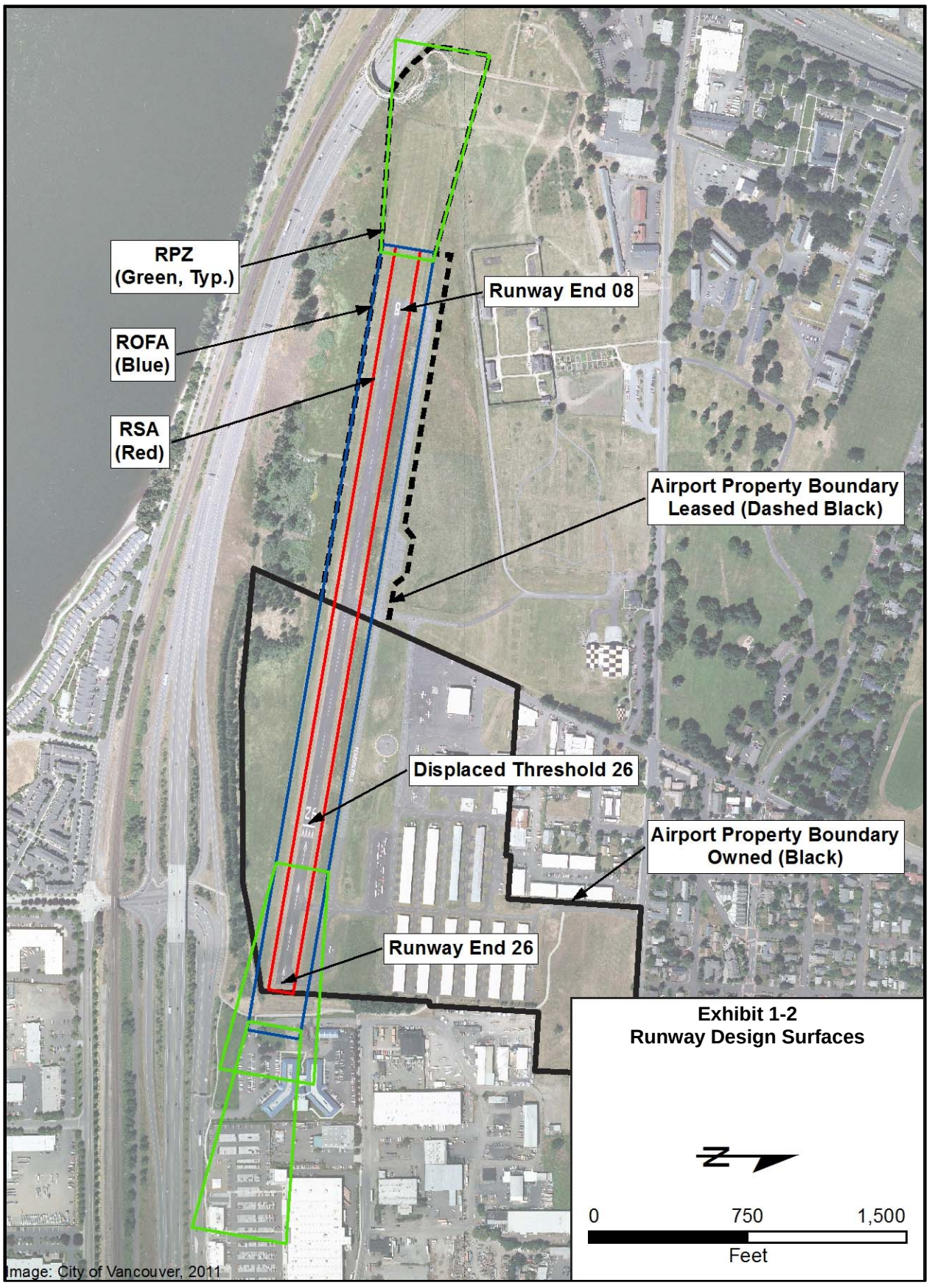
The ROFA extends beyond airport property by 210 feet at Runway End 26, and is considered non-standard. Existing Design surfaces for Runway 08-26 are included in **Table 1-3**, and shown in **Exhibit 1-2**.

Table 1-3: Runway Design Surfaces	
Surface	**Dimensions (Feet)**
RSA[+]	120 wide x 240* long
ROFA	250 wide x 240* long
RPZ	250 inner width x 450 outer width x 1,000 length

Source: FAA AC 150/5300-13

[+] Declared distances reduce length of RSA beyond pavement at Runway End 08.

* Surface extends full runway length.


RPZ
(Green, Typ.)
ROFA
(Blue)
RSA
(Red)
Runway End 08
Airport Property Boundary
Leased (Dashed Black)
Displaced Threshold 26
Airport Property Boundary
Owned (Black)
Runway End 26
Exhibit 1-2
Runway Design Surfaces
N
0
750
1,500
Feet
Image: City of Vancouver, 2011

2.1.2 Displaced Threshold and Declared Distances

The threshold of Runway End 26 is displaced by 762 feet to meet threshold siting criteria. The RSA, which is a concept that was developed after Runway 08-26 was built, extends 210 feet beyond airport property if measured from the end of pavement. The displaced threshold and non-standard design surfaces result in different runway lengths being available depending on the type of operation, and the direction of the operation. These runway lengths are referred to as declared distances and include the takeoff run available (TORA), takeoff distance available (TODA), accelerate-stop distance available (ASDA), and landing distance available.

AC 150/5300-13 defines the TORA as "the runway length declared available and suitable for the ground run of an airplane taking off"; the TODA as "the TORA plus the length of any remaining runway or clearway beyond the far end of the TORA"; the ASDA as "the runway plus stopway length declared available and suitable for the acceleration and deceleration of an airplane aborting a takeoff"; and the LDA as "the runway length declared available and suitable for a landing airplane."

The declared distances for Runway 08-26 are presented in **Table 1-4**.

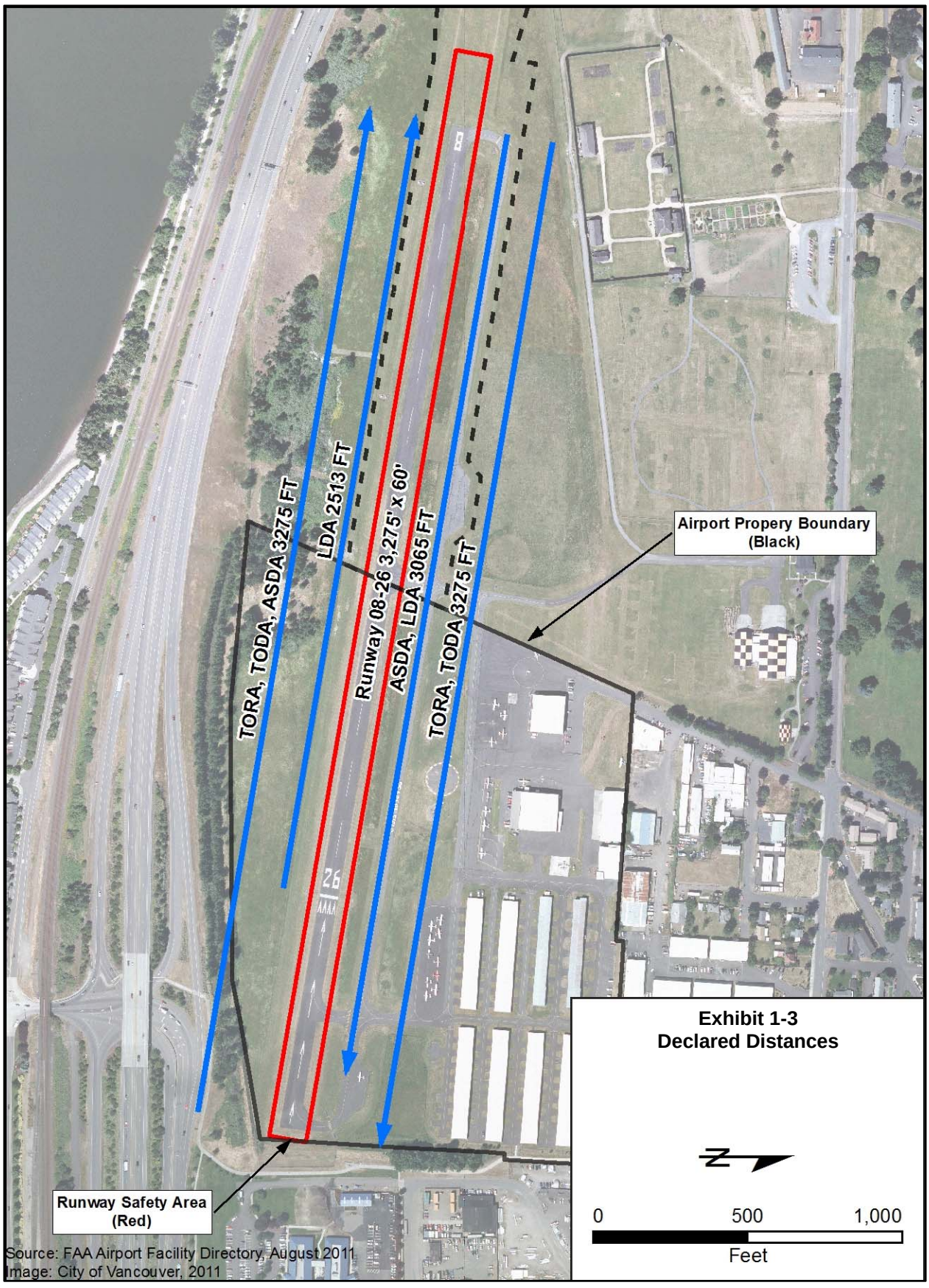
Table 1-4: Declared Distances

Declared Distance	Runway End 08	Runway End 26
TORA	3,275 Feet	3,275 Feet
TODA	3,275 Feet	3,275 Feet
ASDA	3,065 Feet	3,275 Feet
LDA	3,065 Feet	2,513 Feet

Source: FAA Airport Facility Directory, August 2011

ASDA and LDA associated with Runway End 08 are 210 feet short of the full runway length to keep the RSA on airport property. LDA on Runway End 26 is 762 feet short of the full runway length to compensate for the displaced threshold. The 2001 Plan recommended relocating the displaced threshold to improve the LDA on Runway End 26. Displaced threshold location and declared distances are analyzed in **Chapter 2**.

Declared distances are shown in **Exhibit 1-3**.


TORA, TODA, ASDA 3275 FT
LDA 2513 FT
Runway 08-26 3,275' x 60'
ASDA, LDA 3065 FT
TORA, TODA 3275 FT
Airport Propery Boundary (Black)
Runway Safety Area (Red)
26
Exhibit 1-3
Declared Distances
N
0
500
1,000
Feet
Source: FAA Airport Facility Directory, August 2011
Image: City of Vancouver, 2011

2.2 Taxiways

Taxiway A runs parallel to the runway and has four entrance taxiways, labeled from east to west as A1, A2, A3, and A4. Taxiways are paved with asphalt. The taxiway system ties into aircraft parking and storage areas, which are not named. AC 50/5300-13 recommends 25 foot wide taxiways for design group I aircraft, and the taxiways at VUO are 35 feet wide. Wider taxiways allow VUO to accommodate design group II aircraft as necessary. Taxiway lighting assists aircraft operating at night.

Aircraft run-up areas are included on Taxiway A, near Runway End 26 and west of Taxiway A3.

2.2.1 Taxiway Design Surfaces

Taxiway and taxilane design surfaces include the safety areas (TSA) and the object free areas (TOFA), which extend outward from the taxiway and taxilane centerline. The TSA must be kept clear of fixed objects, aircraft, and ground vehicles; graded; and capable of supporting aircraft and ground vehicle passage in an emergency. The TOFA must be clear of fixed objects; however, aircraft and ground vehicles may occupy the TOFA provided they give way to aircraft using that taxiway or taxilane. TSA clearance standards and TOFA clearance standards are the same for taxiways and taxilanes. The taxiway OFA includes a larger area than the taxilane OFA. Taxiway and taxilane design surfaces are presented in **Table 1-5**.

Table 1-5: Taxiway and Taxilane Design Surfaces

Surface	Width (Feet)
TSA	49* (Taxiway and Taxilane)
TOFA	89* (Taxiway), 79* (Taxilane)

Source: FAA AC 150/5300-13 * Surface extends full taxiway length.

TSAs and TOFAs at VUO are depicted on the Airport Layout Plan, included in **Appendix B**.

2.2.2 Compass Rose

The Airport's compass rose is located outside of the property boundary, to the west of the Pearson Air Museum. Access is provided by a taxiway used by aircraft that visit the Museum.

2.3 Navigational Aids, Air Traffic Control, and Airspace

In addition to approach slope indicators, and runway and taxiway lighting, VUO has airfield NAVAIDs to assist pilots operating at the Airport. Airport weather information is measured by an automatic surface observation system (ASOS). A wind indicator and segmented circle are located between the itinerant parking apron and Taxiway A, west of the ASOS. VUO had a temporary FAA air traffic control tower (ATCT) from April 2011 to April 2012, while the south runway at PDX was closed for maintenance.

VUO is within an operational area of Class D airspace "cutout" of PDX Class C airspace. The Class D airspace is considered non-standard because VUO does not have its own ATCT. Aircraft operating in Class D airspace near VUO are in contact with the ATCT at PDX when entering or leaving the airspace. Class D airspace extends from the surface to 1,100 feet MSL. Airspace above 1,100 feet MSL to 4,000 feet MSL is part of PDX Class C airspace.

Class C airspace dimensions are tailored to local conditions, but generally consist of a five nautical mile (NM) cylinder centered on the primary airport from the surface to 4,000 feet MSL, and then an outer ring from five NM to ten NM. The outer ring of PDX Class C airspace is divided into four sections, with base heights of 1,800 feet MSL to the west, 2,000 feet to the north, 1,700 feet to the east, and 2,300 feet to the south. The Class C outer ring extends to 4,000 feet MSL in the four sections. Pilots are required to establish and maintain communication with FAA air traffic control prior to entering, and while flying through, Class C airspace.

The Airport has one instrument approach procedure (IAP), a localizer type directional aid (LDA) approach. An IAP is a series of maneuvers to facilitate landing during periods of inclement weather. The IAP uses PDX Runway 10L localizer, and very-high frequency omnidirectional range (VOR) NAVAIDs at PDX and Battle Ground (BTG) to direct aircraft to Runway End 08. The IAP does not align aircraft with Runway 08-26, and requires at least one mile of visibility.

VUO has special departure procedures, and take-off minimums. These are a series of maneuvers that help aircraft navigate out of the Airport, while keeping them clear of obstacles. Take-off minimums require different rates of climb depending on visibility conditions.

The airspace surrounding VUO is shown in **Exhibit 1-4**.

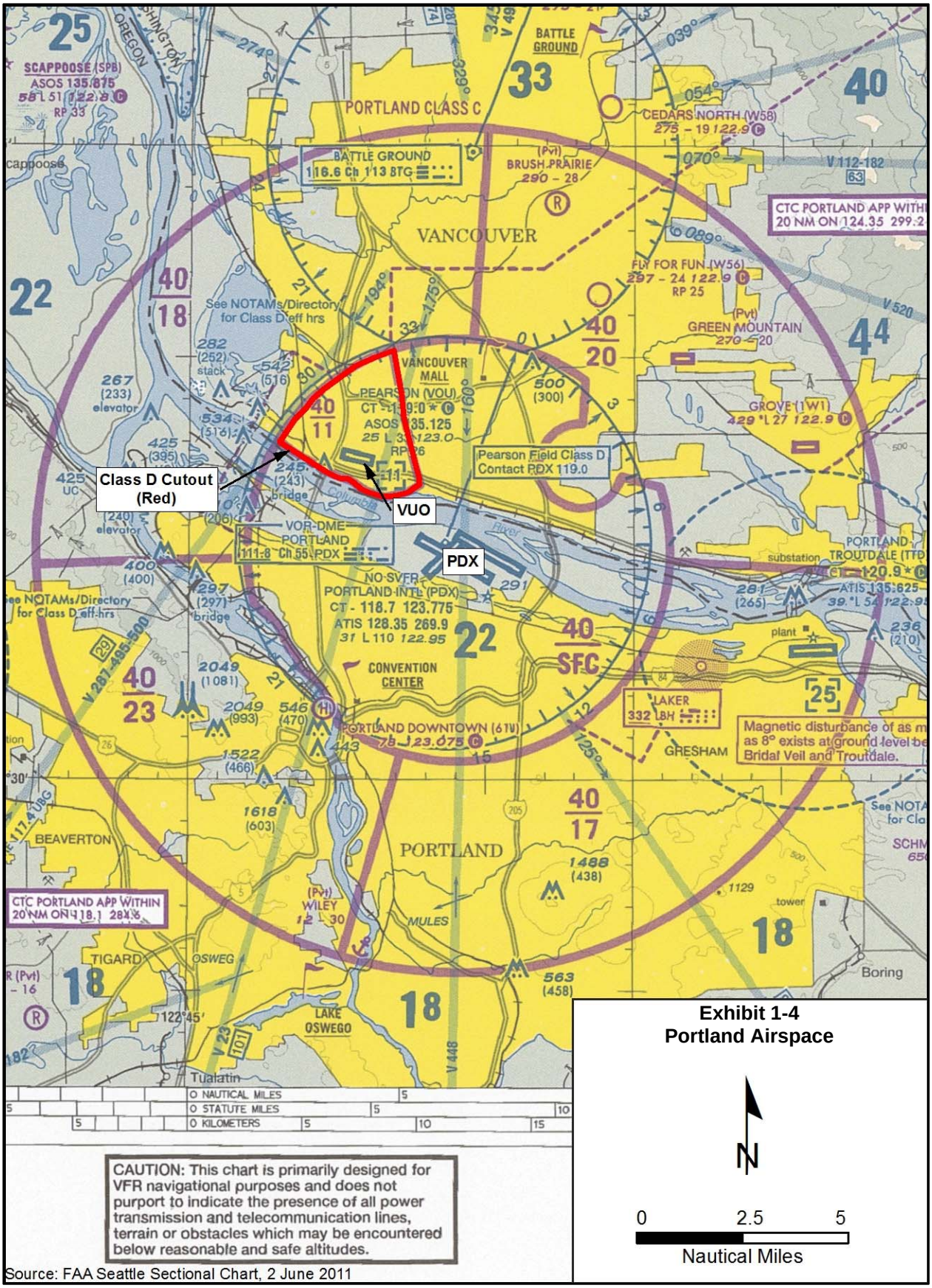


Exhibit 1-4
Portland Airspace

2.4 Aircraft Parking and Storage

Aircraft parking and storage facilities are located north of Taxiway A. Facilities include box hangars, T-hangars, parking aprons with tie-down spaces, and an unimproved grass parking area.

2.4.1 Aircraft Hangars

VUO has three box hangars and ten T-hangar buildings with 150 T-hangar units. The T-hangars are located on the northeast section of the Airport, and are owned and managed by the Airport. The box hangars are located north of the two fixed base operator (FBO) buildings, and are privately owned. Box hangar owners lease the land from the Airport.

2.4.2 Parking Areas

VUO has two paved parking aprons, and one grass parking apron for overflow parking. The based aircraft parking apron is located near Taxiway A2, south of the T-hangar buildings. There are 12 reserved tie-down positions for based aircraft.

The itinerant parking apron is located south of the FBO buildings. There are 11 marked parking spaces. Airport and FBO management indicate that the itinerant parking apron is undersized, causing overflow traffic to spill onto other parking areas. Itinerant aircraft occasionally use the grass parking apron when the itinerant parking apron is full.

The grass parking apron is located north of the FBO offices. Aircraft parking spaces are not marked.

2.5 Airport Businesses

The Airport has one FBO that offers fuel sales, pilot services, flight training, avionics services, and major and minor aircraft maintenance for contemporary and historic aircraft. The FBO has facilities to serve contemporary and historic aircraft, and classroom space for flight training ground school. The FBO has offices in the maintenance hangar, near the aircraft fueling area. The building to the east of the FBO includes a pilot's lounge and a visitor information center.

Underground fuel storage tanks are owned by the City, and Aero Maintenance Inc. owns the fuel inside of the tanks. Fuel storage includes three 10,000 gallon underground storage tanks. Two tanks are used for 100LL fuel, used by piston powered aircraft. The third tank is not in use but is able to be brought back into service.

The northeast corner of airport property is undeveloped. **Chapter 2** evaluates development options for this area, including access, additional hangars and non-aviation related businesses.

2.6 Airport Facility Summary

A summary of the airport facilities at VUO is presented in **Table 1-6**, and an overview of airport facilities is included in **Exhibit 1-5**.

Table 1-6: Major Facilities Summary

Pearson Field

- Runway 08-26: 3,275 feet x 60 feet
  - Airport Reference Code: B-I (small)
  - Critical Aircraft: Cessna 421
  - Parallel Taxiway
  - Compass Rose

Runway Navigational Aids

- Runway 08
  - Visual Approach Slope Indicator (VASI)
  - Visual Runway Markings
  - TORA/TODA: 3,275 feet
  - ASDA/LDA: 3,065 feet
- Runway 26
  - Precision Approach Path Indicator (PAPI)
  - Visual Runway Markings
  - Runway End Identifier Lights (REIL)
  - TORA/TODA/ASDA: 3,275 feet
  - LDA: 2,513 feet
- Runway 08-26
  - Medium Intensity Runway Lights (MIRL)

Airport and Local Navigational Aids

- Wind Indicator
- Segmented Circle
- VOR (PDX)
- VOR (BTG)
- LOC (I-VDG)

Weather Information

- Automated Surface Observation System (ASOS)

Instrument Approach Procedures

- Runway End 08
  - LDA-A

Departure Procedures

- Special departure procedures
- Special take-off minimums

Building Area

- East Airfield
  - 10 T-hangar buildings, 150 units
  - 12 based aircraft tie-down positions
  - 11 itinerant aircraft tie-down positions
  - Undeveloped grass parking apron
  - Three box hangars
  - Two FBO buildings
  - Underground fuel storage tanks
  - Northeast corner undeveloped
- West Airfield
  - FVNS property, owned by NPS
  - MJ Murdock Aviation Center and Pearson Air Museum

Fixed Base Operator and Services

- FBO
  - Fuel
    - 100LL (self-service)
  - Flight School
  - Avionics Installation and Maintenance
  - Major and Minor Aircraft Maintenance
  - Historic Aircraft Maintenance
- Pilot's Lounge
- Visitor Information Center


Compass Rose
Pearson Air Museum
Airport Property Boundary Owned (Black)
Box Hangar (Yellow, Typ.)
Airport Property Boundary Leased (Black Dash)
Fort Vancouver
Grass Apron
FBO & Flight School (Green, Typ,)
T-Hangars (Blue, Typ.)
Fuel Pump
Itinerant Aircraft Apron
A4
Taxiway A
08
A3
3,275' x 60'
ASOS
VASI
Based Aircraft Apron
Wind Indicator Segmented Circle
PAPI
26
A2
A1
REILS
14
Image: City of Vancouver, 2009
Exhibit 1-5
Airfield Facilities
N
0
500
1,000
Feet

3. Aviation Activity

Aviation activity indicators include based aircraft and aircraft operations. Data comes from the 2010 terminal area forecast (2010 TAF), and airport management records. The TAF is the FAA's official forecast for airports across the country, and is updated annually to reflect national changes in aviation activity. Aviation activity indicators help the Airport identify potential capacity constraints and plan for future demand. Aviation activity includes a five year historical baseline from 2006 to 2010. Based aircraft and aircraft operations forecasts span 20 years, with reporting years in 2015, 2020, 2025, and 2030.

The aviation activity forecast is carried forward to design airport improvement alternatives in **Chapter 2**.

3.1 Based Aircraft

Based aircraft include those that hangar and tie-down at VUO. Aircraft that are temporarily stored at VUO are classified as itinerant, and not included in based aircraft totals. The 2010 TAF classifies based aircraft as *single-engine*, *multi-engine*, *jet*, *helicopter*, and *other*, which includes lighter-than-air aircraft and gliders. Historically, the based aircraft fleet at VUO is 97 percent single-engine aircraft and three percent multi-engine aircraft. The 2010 TAF does not show a change in the number of based aircraft from 2006 to 2010, and carries a zero percent rate of growth forward. Historical and forecasted based aircraft at VUO are presented in **Table 1-7**.

Table 1-7: 2010 TAF Historical and Forecasted Based Aircraft

Type	Single-engine	Jet	Multi-engine	Helicopter	Other	Total
2006	170	0	5	0	0	175
2007	170	0	5	0	0	175
2008	170	0	5	0	0	175
2009	170	0	5	0	0	175
2010	170	0	5	0	0	175
2015	170	0	5	0	0	175
2020	170	0	5	0	0	175
2025	170	0	5	0	0	175
2030	170	0	5	0	0	175
CAGR	0%	0%	0%	0%	0%	0%

Source: 2010 TAF

Hangar and tie-down space availability limit the number of based aircraft at VUO. Runway facilities are another determining factor as jet aircraft generally require 5,000 feet of runway length. The 2010 TAF forecasts no growth, likely because the previous NPS lease agreement limited VUO to 175 based aircraft. The 2011 NPS lease agreement removed this restriction, and airport management anticipates airfield capacity of 185 based aircraft at full build out. It is expected that TAF forecasts for based aircraft will be adjusted as VUO adds facilities to accommodate additional aircraft. The critical aircraft is expected to remain B-I (small), although the Airport may see larger aircraft periodically.

3.2 Aircraft Operations

An aircraft operation is the act of an aircraft taking off, landing, or performing a touch-and-go. An arrival and departure of an aircraft is considered two operations. The 2010 TAF classifies aircraft operations as *local*, where an aircraft takes off and lands at the same airport; and *itinerant*, where different airports are used for takeoff and landing. Aircraft operations are further classified by operator, and include *air carrier*, *air taxi*, *GA*, and *military*. The 2010 TAF indicates that VUO did not have air carrier, or local military operations between 2006 and 2010, or in the forecast years. These operation categories are removed from further consideration. Air taxi operations are not included in the 2010 TAF; however, the Airport anticipates that air taxi service will return during the forecast period. Historical and forecasted aircraft operations are presented in **Table 1-8**.

Table 1-8: 2010 TAF Historical and Forecasted Aircraft Operations

Type	Itinerant GA	Local GA	Itinerant Military	Total
2006	37,060	11,146	300	48,506
2007	37,391	11,203	300	48,894
2008	37,726	11,261	300	49,287
2009	38,064	11,318	300	49,682
2010	38,404	11,377	300	50,081
2015	40,154	11,672	300	52,126
2020	41,984	11,974	300	54,258
2025	43,893	12,285	300	56,478
2030	45,891	12,605	300	58,796
CAGR	1%	0.5%	0%	0.8%

Source: 2010 TAF

The 2010 TAF shows itinerant operations growing faster than local operations, which is similar to trends across the U.S. It is expected that single-engine aircraft will constitute the majority of operations at VUO, with multi-engine aircraft contributing a smaller percentage.

The temporary ATCT recorded 21,724 operations from April 2011 to April 2012. Prior to the economic recession in 2008, VUO experienced operations numbers closer to the TAF. It is expected that economic conditions and fuel costs contributed to the decline in 2011-2012 operations. The FAA Aerospace Forecast for Fiscal Years 2012-2032 indicates that national GA operations will return to growth at a rate of 0.3 percent annually over the next 20 years.

3.3 Forecast Summary

The 2010 TAF Forecasts suggest steady, measured growth in aircraft operations at VUO. It is expected that single-engine aircraft will remain the dominant aircraft type, and that itinerant operations will remain the dominant operation type, with close to 80 percent of total operations. The number of based aircraft is expected to grow as the Airport constructs additional hangar and tie-down facilities. The forecast summary is presented in **Table 1-9**.

Table 1-9: Forecast Summary

Type	Based Aircraft	Aircraft Operations
2010	175	50,081
2015	175	52,126
2020	175	54,258
2025	175	56,478
2030	175	58,796
CAGR	0%	0.8%

Source: 2010 TAF

4. Land Use

VUO is contained within Vancouver city limits. Land use surrounding the Airport includes industrial and mixed use land uses to the east; residential-commercial mixed use, parks and open space, and the Columbia River to the south; residential-commercial mixed use to the west; and single-and multi-family residential to the north. The western half of the Airport is part of the FVNS. The land use section evaluates federal, state, and local guidelines and regulations. The Columbia River Crossing project, a key public infrastructure improvement for the region, is addressed at the end of the section.

4.1 Federal Land Use Guidelines

Federal Aviation Regulations (FAR) Part 77, *Objects that Affect Navigable Airspace,* is used by the FAA to evaluate the height of structures built near airports. FAR Part 77 protects the approach and departure paths, and the airspace surrounding airports where aircraft fly. FAR Part 77 surfaces are the basis of a local overlay zone that protects VUO from height obstructions, discussed in **Section 4.3.1**.

VUO is considered a visual utility runway. Although VUO has an LDA instrument approach procedure, FAR Part 77 requires runways to have straight-in approach capability to be classified anything other than visual. FAR Part 77.1 states that “utility runway means a runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.”

FAA Advisory Circular (AC) 150/5020-1, *Noise Control and Compatibility Planning for Airports*, includes land use compatibility strategies. These strategies are summarized and updated to reflect best practices in land use compatibility publications produced by WSDOT Aviation.

4.2 State Land Use Regulations and Guidelines

Some land uses, regardless of height, can be incompatible with aircraft operations. Revised Code of Washington (RCW) 36.70.547 states that "every county, city, and town in which there is located a general aviation airport that is operated for the benefit of the general public, whether publicly owned or privately owned public use, shall, through its comprehensive plan and development regulations, discourage the siting of incompatible uses adjacent to such general aviation airport."

To help municipalities meet the requirements under RCW 36.703.547, WSDOT Aviation prepared the 2011 Airports and Compatible Land Use Guidebook (WSDOT Guidebook), which provides airports and local governments with tools to help promote land use compatibility for the benefit of airports and people living and working near airports.

One of the primary land use compatibility tools in the WSDOT Guidebook is the Airport Safety Compatibility Zones (ASCZs). The ASCZs include six zones that delineate an airport's area of influence. The ASCZs are based on aircraft accident data collected from airports across the country over several years. It is recommended that City planners consult the WSDOT Guidebook when evaluating land uses around VUO. .

4.3 City of Vancouver Land Use Regulations and Guidelines

The land use surrounding the Airport is subject to zoning and comprehensive planning of the City of Vancouver. The City has underlying land use zoning, and overlay zones that address the presence of the Airport and promote compatible interaction between the Airport and surrounding land uses. Existing land use is presented in **Exhibit 1-6**.

4.3.1 City of Vancouver Zoning

VUO property has the zoning designation of Central Park Mixed Use (CPX). Land use within this zone includes parks, educational facilities, government buildings, and Pearson Field facilities. CPX zoning includes the FVNS, which is subject to special design standards that preserve the historic integrity of the area. Structures built on airport property must comply with Modern Era/NPS Period (1948 to Present) Design Standards. City planners indicate that these design standards promote conformity between existing and new structures built on the Airport.

In addition to land use controls associated with the City of Vancouver's zoning, the City has a Noise Impact Overlay District, and an Airport Height Overlay District (Airport District). Chapter 20.520 of the Vancouver Municipal Code defines the Noise Impact Overlay District as "a means by which the public and owners of property within the overlay district can be advised that unusually high levels of aircraft, railroad, and/or traffic noise are to be expected on properties in such a district." The Noise Impact Overlay District is located in downtown Vancouver, beyond Runway End 08. Regulations include additional building performance standards to protect residents from excessive noise. City planners indicate that noise impacts in this area are more commonly associated with automobiles, trains, and aircraft departing from PDX, rather than VUO.

Chapter 20.570 of the Vancouver Municipal Code defines the Airport District as an overlay zone that "has been established in order to protect the health, welfare, safety, and quality of life of the general public, property owners, and aircraft operators; and to protect the long-term viability of Pearson Field as an essential public facility."

The Airport District consists of surfaces modeled after FAR Part 77 surfaces, and includes approach, transitional, horizontal, and conical surfaces. Zoning regulations prohibit land owners from placing structures that will penetrate these surfaces. The Airport District, as defined in the Vancouver Municipal Code, is presented in **Exhibit 1-7.**

The City of Vancouver has maximum building height zones in the downtown area to protect the Airport and adjacent neighborhoods from tall buildings that do not meet FAR Part 77 standards, or comply with existing building scale and character. Maximum building heights in the Downtown District are presented in **Exhibit 1-8**.

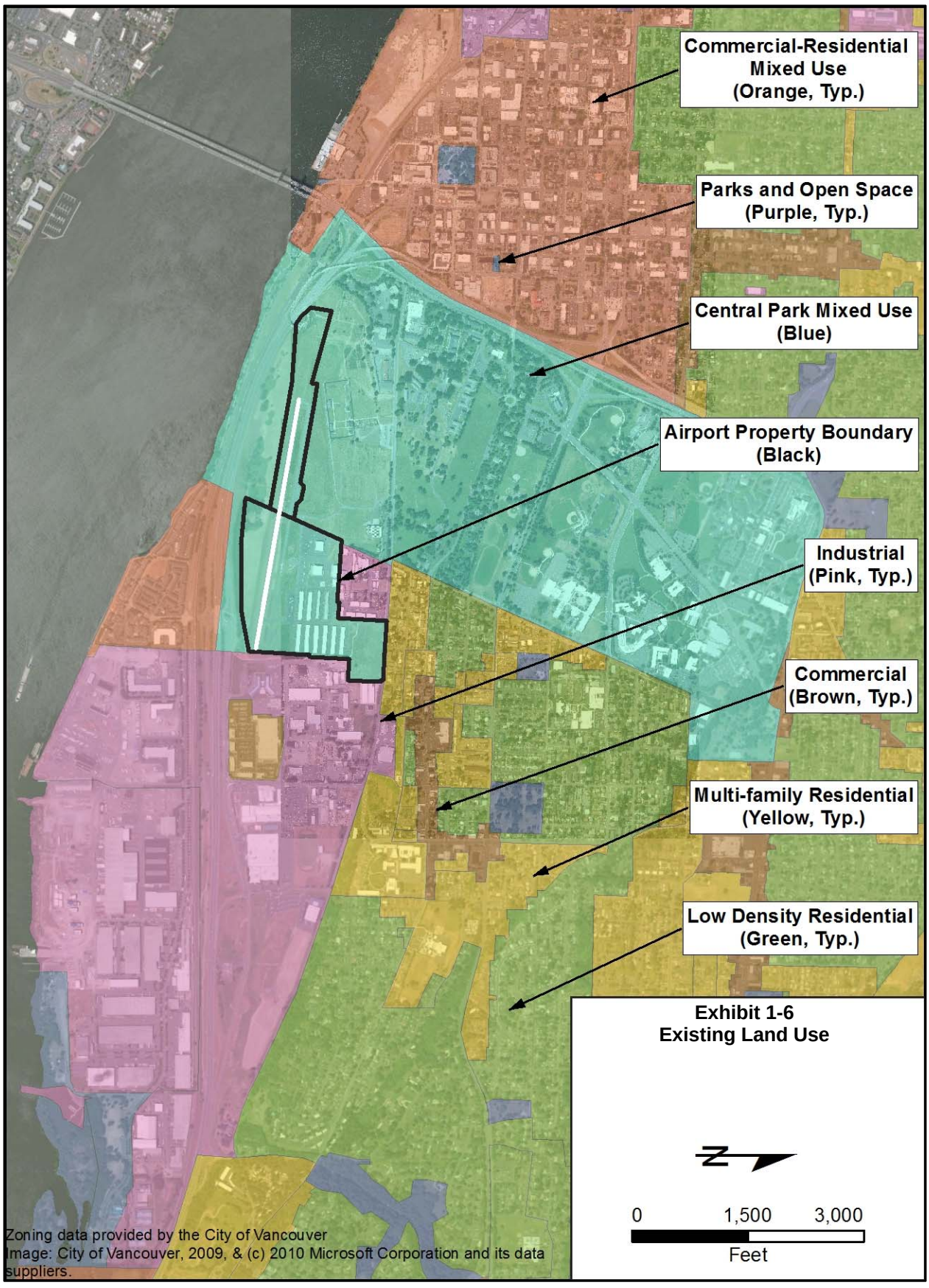
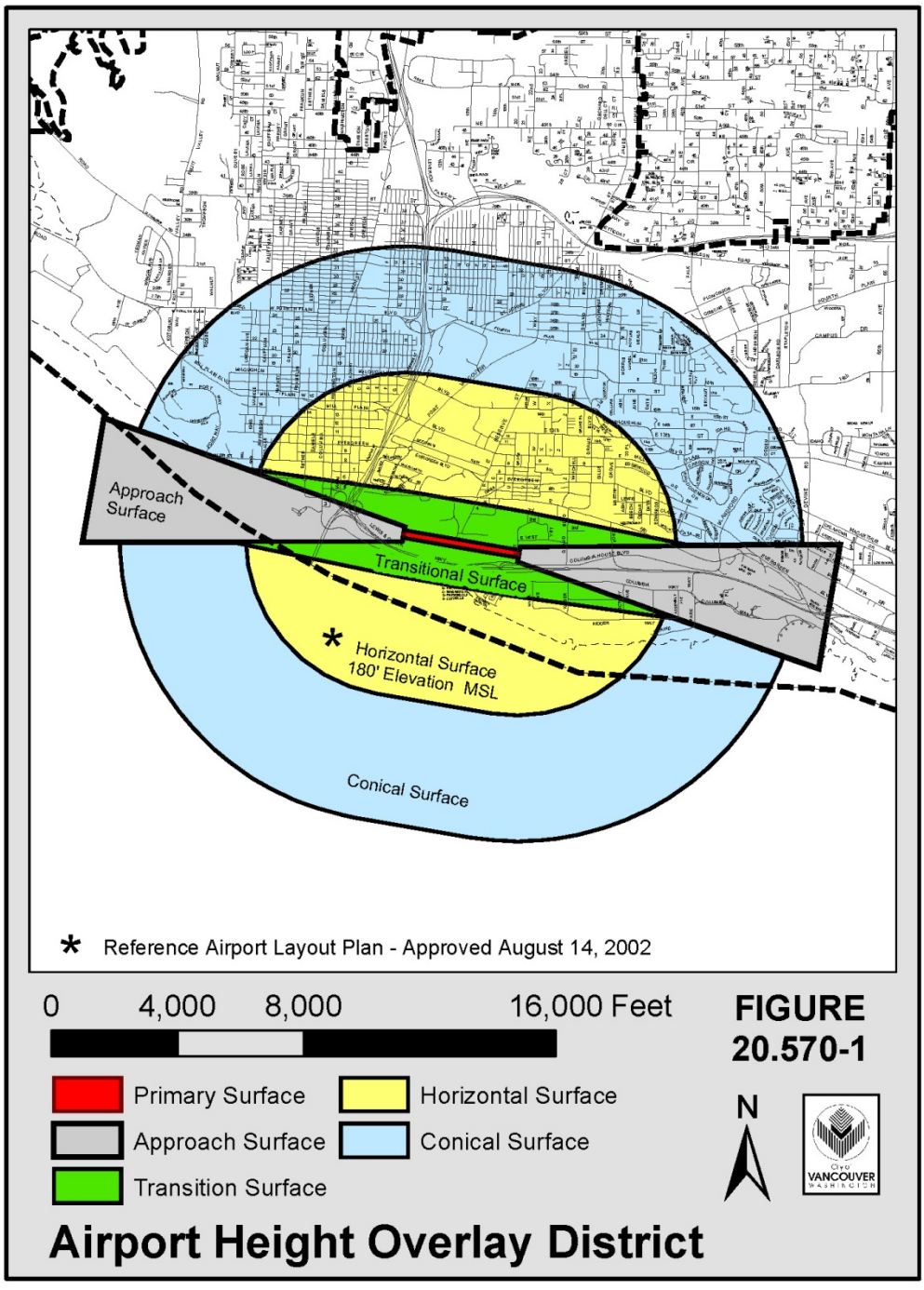
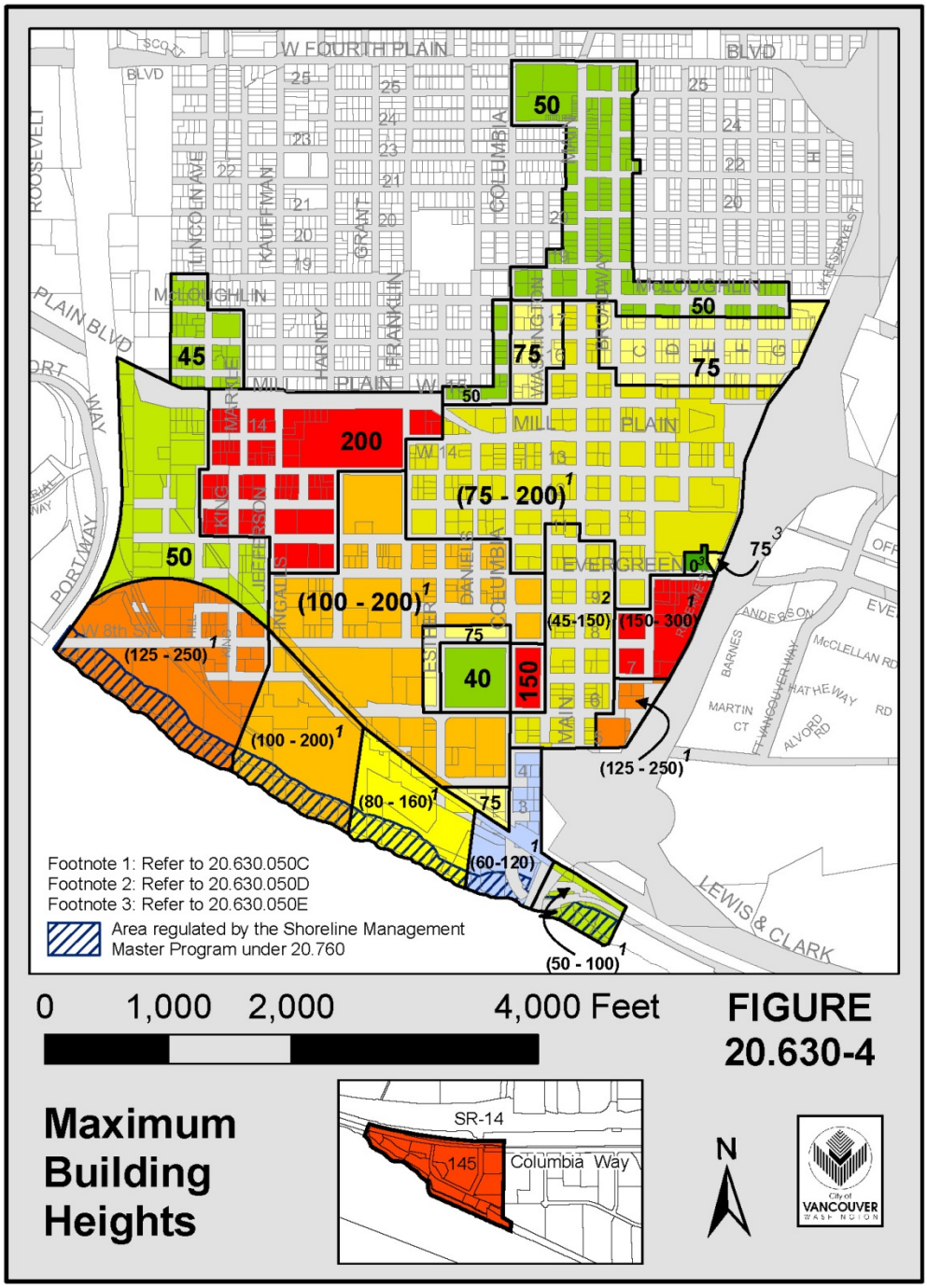

Commercial-Residential Mixed Use (Orange, Typ.)
Parks and Open Space (Purple, Typ.)
Central Park Mixed Use (Blue)
Airport Property Boundary (Black)
Industrial (Pink, Typ.)
Commercial (Brown, Typ.)
Multi-family Residential (Yellow, Typ.)
Low Density Residential (Green, Typ.)
Exhibit 1-6
Existing Land Use
N
0
1,500
3,000
Feet
Zoning data provided by the City of Vancouver
Image: City of Vancouver, 2009, & (c) 2010 Microsoft Corporation and its data suppliers.

Exhibit 1-7: Airport Height Overlay District



Source: Vancouver Municipal Code, Chapter 20.570

Exhibit 1-8: Maximum Building Heights, Downtown District



Source: Vancouver Municipal Code, Chapter 20.630

4.3.2 City of Vancouver Comprehensive Plan

The City of Vancouver Comprehensive Plan 2003-2008 (Vancouver Plan) identifies VUO as an essential public facility. Vancouver Plan Goal PFS-20 intends to "discourage incompatible land use located adjacent to general aviation airports." The Vancouver Plan General Comprehensive Land Use Designations map shows property surrounding the Airport retaining existing land use patterns. Land use north of the Airport is planned to remain residential; land use west of the Airport is planned to remain open space or public facility, and commercial; and land use south of the Airport, and east of the Airport is planned to remain industrial.

Planned land use surrounding the Airport is shown in **Exhibit 1-9**.

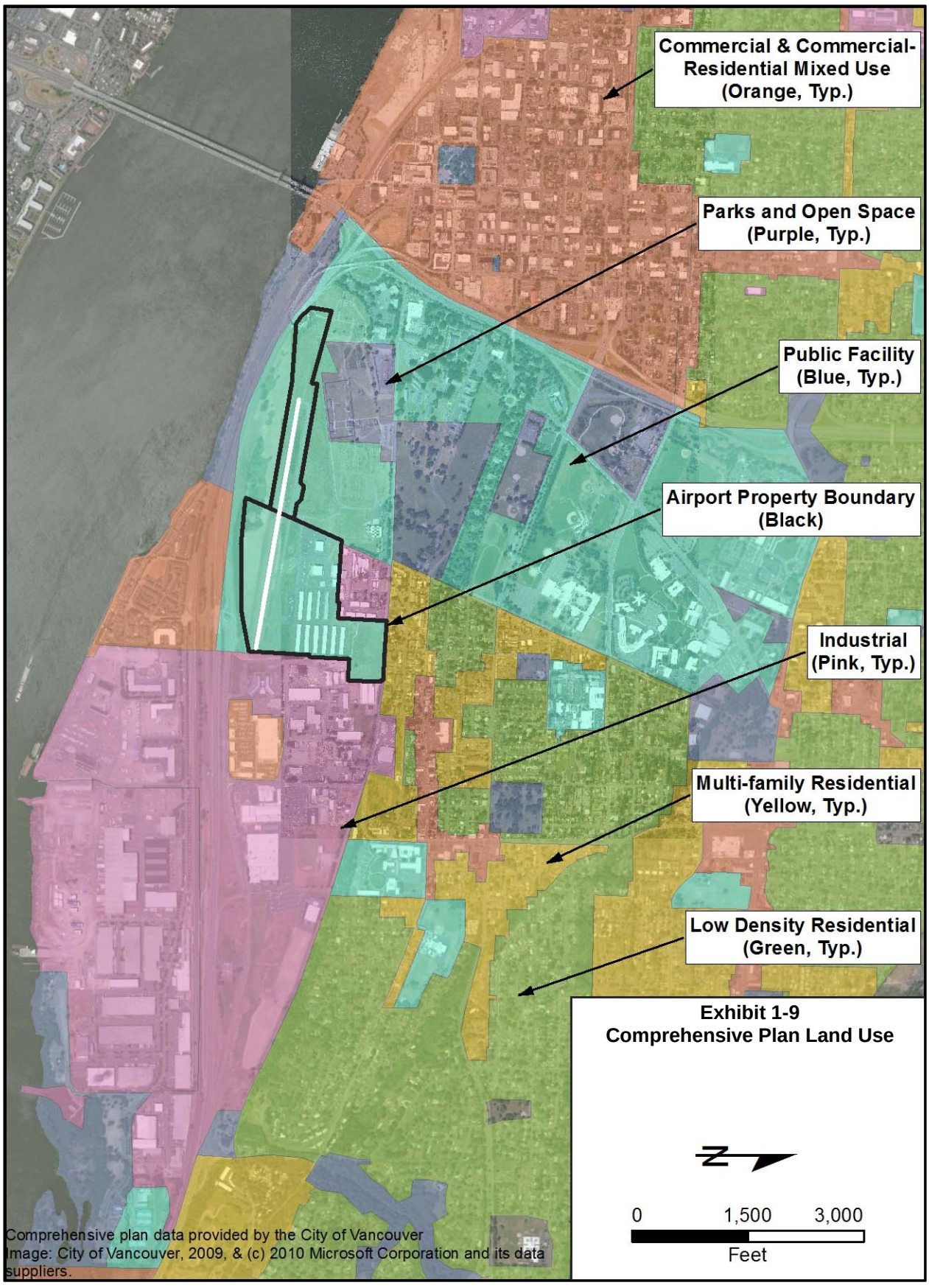
4.4 Land Use Evaluation

Land use is evaluated for height based on FAR Part 77 standards in **Appendix B**. Land use decisions are local policy matters; therefore, guidance and evaluation contained in this document is solely intended to provide local planners and policy makers with tools to make land use decisions around the Airport that will benefit aviation and municipal needs.

4.5 Columbia River Crossing

The Columbia River Crossing (CRC) is described as "a long-term, comprehensive solution to address safety and congestion problems on five miles of [Interstate] 5 from State Route 500 in Vancouver, Washington, to approximately Victory [Boulevard] in Portland, Oregon. The CRC will replace the [Interstate] 5 Bridge over the Columbia River and may extend light rail into Vancouver." The CRC is intended to improve traffic flow between Vancouver and Portland by reducing congestion, improving accident prone locations on the existing bridge, and enhancing public transportation options. The CRC will bring the Interstate 5 Bridge in line with federal highway safety standards, and improve seismic stability of the bridge.

The proposed design would eliminate the existing drawbridge, and replace it with a deck truss bridge type, similar to the Interstate 205 Bridge to the east. A deck truss bridge design will eliminate the towers associated with the existing drawbridge. The existing drawbridge towers penetrate the FAR Part 77 approach surface beyond Runway End 08.


Commercial & Commercial-Residential Mixed Use (Orange, Typ.)
Parks and Open Space (Purple, Typ.)
Public Facility (Blue, Typ.)
Airport Property Boundary (Black)
Industrial (Pink, Typ.)
Multi-family Residential (Yellow, Typ.)
Low Density Residential (Green, Typ.)
Exhibit 1-9
Comprehensive Plan Land Use
N
0
1,500
3,000
Feet
Comprehensive plan data provided by the City of Vancouver
Image: City of Vancouver, 2009, & (c) 2010 Microsoft Corporation and its data suppliers.

5. Summary

The inventory and aviation activity forecasts define where VUO is in 2012, and what sort of development may be planned for over the next 20 years. Land use and sustainability elements help maintain Airport operability and viability over the forecast period. Items presented in this chapter will help define the facility requirements and airport improvement projects in **Chapter 2**.

- The airport facility inventory will serve as a baseline for facility requirements. Potential demand will be evaluated against what existing facilities to determine the need for improvement projects.

- Aviation activity forecasts will be used to evaluate airport capacity, and recommend improvements than maintain or enhance the Airport's level of service.

- Land uses surrounding the Airport include established neighborhoods and historic districts, and new commercial and industrial development. The Airport and surrounding land uses are encouraged to maintain open communications to promote land use compatibility.

- Airport improvement projects that are federally funded will require environmental process and documentation. It is recommended floodplain considerations are included.

- The Airport is exploring methods to reduce resource use, and potentially generate resources in surplus to Airport needs. It is recommended that sustainable design elements are considered during development activities.

Chapter 2

Facility Requirements and Improvement Alternatives

1. Introduction

This chapter presents facility recommendations and requirements and improvement alternatives to accommodate the forecasted level of demand at Pearson Field (VUO or "the Airport"). Facility recommendations and requirements are developed in coordination with the aviation activity forecasts in **Chapter 1**. After facility requirements have been established, improvement alternatives are developed to meet expected demand. This chapter identifies existing and forecasted demands that require physical improvements to airport facilities, evaluates alternatives to meet facility requirements, and selects a preferred alternative. Facility requirements and improvement alternatives are developed with airport management and stakeholders, and FAA Advisory Circulars (AC), including 150/5300-13A, *Airport Design*, and AC 150/5070-6B, *Airport Master Plans.*

Development scenarios often have multiple alternatives, but in some cases only one improvement is feasible. Where there is one clearly advantageous development scenario, improvement alternatives are not developed, and only the recommended improvement is presented.

This chapter is organized into the following sections:

- Runway and Taxiways
- Aircraft Parking and Storage
- Street Access
- Capital Improvement Program

The preferred improvement alternatives will be carried forward onto the Airport Layout Plan (ALP), included as **Appendix B**.

2. Runway and Taxiways

Runways and taxiways consider existing dimensions and design surfaces, defined in **Chapter 1**. Requirements established by the runway object free area (ROFA) and taxiway object free area (TOFA) will determine where building and parking improvements can be made. VUO has an airport reference code (ARC) of B-I (small), and the Cessna 421 is the critical design aircraft. A Cessna 421 is based at VUO. Airport management has expressed interest in attracting twin engine aircraft, and consideration is given to aircraft design group (ADG) II clearances when planning building setbacks near taxiways.

FAA funding for ADG II taxiway widths will require further justification at the time of implementation.

2.1 Runway Length and Width

Runway length is determined by the needs of the most demanding aircraft that meet the FAA substantial use threshold of 500 operations per year. Runway width is determined by the ADG of the critical design aircraft. Runway 08-26 is 3,275 feet long, with declared distances that reduce landing distance available into both runway ends, and accelerate-stop distance available on Runway End 08. Declared distances are discussed in **Chapter 1**. Runway 8-26 is 60 feet wide, the recommended width for B-I (small) airports in AC 150/5300-13A.

Runway length requirements are determined by aircraft operating procedures, and criteria set forth in AC 150/5325-4B, *Runway Length Requirements for Airport Design*. Runway length requirements are calculated using FAA design software, *Airport Design for Microcomputers*. AC 150/5325-4B and FAA design software provide runway length recommendations for small aircraft, depending on the number of passenger seats. Runway length requirements for VUO are shown in **Table 2-1**.

Table 2-1: Runway Length Requirements for Small Aircraft

Category	Runway Length
Existing Runway Length—Runway 08-26	3,275 Feet
Small Airplanes with Less Than 10 Passenger Seats—75% of Fleet	2,430 Feet
Small Airplanes with Less Than 10 Passenger Seats—95% of Fleet	2,990 Feet
Small Airplanes with Less Than 10 Passenger Seats—100% of Fleet	3,530 Feet
Small Airplanes with More Than 10 Passenger Seats	4,130 Feet

Source: AC 150/5325-4B, Airport Design for Microcomputers

Existing Runway 08-26 is long enough to accommodate up to 95 percent of small airplanes with less than 10 passenger seats. A 225-foot runway extension to 3,530 feet would accommodate 100 percent of small airplanes with less than 10 passenger seats, and an 855-foot runway extension to 4,130 feet would accommodate small airplanes with more than 10 passenger seats. The decision to extend Runway 08-26 should be made based on the demands of aircraft that exceed the substantial use threshold of 500 operations per year. Airport management indicates that runway length is adequate for existing users. Runway extension is not recommended at this time.

2.2 Runway Design Standards

The critical aircraft operating in excess of the FAA substantial use threshold is a criterion for a change in facility design standards; however, meeting the substantial use threshold does not require the Airport make changes. Design standards associated with Runway 08-26 are shown in **Table 2-2**.

Table 2-2: Visual Runway Aircraft Reference Code B-I (small) Design Standards

Design Standard	Existing Conditions	B-I (small)
Runway Width	60’	60’
Runway/Taxiway Centerline Separation	160’	150’
Runway Safety Area (Width)	120’	120’
Runway Safety Area (Length*)	240’ beyond declared distances, Runway End 26	240’
Runway Object Free Area (Width)	250’	250’
Runway Object Free Area (Length*)	240’	240’

Source: AC 150/5300-13A ** Surface Extends Full Runway Length*

As identified in **Chapter 1**, the ROFA extends beyond the airport property by 210 feet. Departures from Runway End 08 have a published accelerate-stop distance available and landing distance available that are shorter than the pavement available to account for the non-standard design surfaces.

2.3 Runway End 26 Threshold

The threshold of Runway End 26 is displaced by 762 feet from the end of the runway to provide clearance over a building that no longer exists. The 2001 Master Plan recommended relocating the threshold 310 feet to the east, resulting in a displacement of 452 feet.

Runway threshold siting is governed by threshold siting surfaces (TSS), described in AC 150/5300-13A Section 303, *Runway End Siting Requirements*. TSS is used to evaluate obstacles beyond a runway’s end, and determine the appropriate location for the runway threshold where aircraft operations will not be compromised by the obstacle.

In most situations, more than one TSS will apply to a runway. There are three TSS that apply to Runway End 26: Type 1, Type 2, and Type 4. The Type 4 TSS is lowest, encompasses the Type 1 and Type 2 surfaces, and is used for threshold siting. TSS Type 4 is defined as “approach end of runways expected to support instrument night operations, serving approach category A and B aircraft only.” Although Runway End 26 does not have a straight-in IAP, the FAA considers it an instrument runway because of the existing LDA-A circling approach. This differs from the “visual” classification of Runway 08-26 per FAR Part 77 standards. Criteria for TSS, including dimensions and slopes, are included in AC 150/5300-13A, Table 3-2. TSS are shown in **Appendix B**.

The 2001 Master Plan Update indicates that the controlling obstacle beyond Runway End 26 is an office building located 1,088 feet beyond the existing displaced threshold at a height of 54 feet above mean sea level (AMSL). It appears that trees on the property to the east of the Airport are taller than the building and are the new controlling obstacles. It is recommended that this building and adjacent objects be surveyed to determine appropriate threshold location. The City of Vancouver has an avigation easement over the office building property that limits the height of structures and natural growth; however, this easement is less restrictive than the Type 4 TSS.

Using the slope and dimension of the Type 4 surface, it is estimated that the displaced threshold of Runway End 26 can be relocated by as much as 260 feet to the east. TSS analysis is shown on the **Airport Layout Plan**. FAR Part 77 approach surface location is defined by the runway end, not the displaced threshold, and will not shift with threshold relocation. Runway End 26 threshold shift alternatives are described in **Table 2-3**.

Table 2-3: Runway End Threshold Shift Alternatives

Scenario	Threshold Displacement	Runway End 26 Landing Distance Available
Existing	762 Feet	2,513 Feet
Proposed	502 Feet	2,773 Feet

Source: FAA Airport Facility Directory, August 2011

It is recommended that an obstruction survey be conducted beyond Runway End 26 prior to restriping the runway and determining the new Runway End 26 displaced threshold. AC 150/5300-13A states that the RSA extends for 240 feet beyond the landing threshold, which indicates that the RSA for aircraft using Runway End 26 will remain on Airport property. Declared distances on Runway End 08 will not change with the threshold relocation.

The FAA released a memorandum regarding *Interim Guidance on Land Uses within a Runway Protection Zone* in September 2012. Language within this memorandum requires a proposed action that would change the land use within an RPZ to go to the FAA National Airport Planning and Environmental Division (APP-400) for approval. Coordination with the Seattle ADO revealed that an improvement project that brings the Runway End 26 threshold closer to the office building to the east of the Airport will require coordination with APP-400 prior to implementation.

2.4 Instrument Approach Procedures

It is recommended that VUO consider additional IAPs to improve airport accessibility. The FAA is in the process of developing the next generation air traffic control system (NextGen), which includes the transition away from ground-based NAVAIDs, and increased utilization of global positioning system (GPS) satellites. GPS technology facilitates implementation of IAPs without requiring as many airport improvements as traditional IAPs.

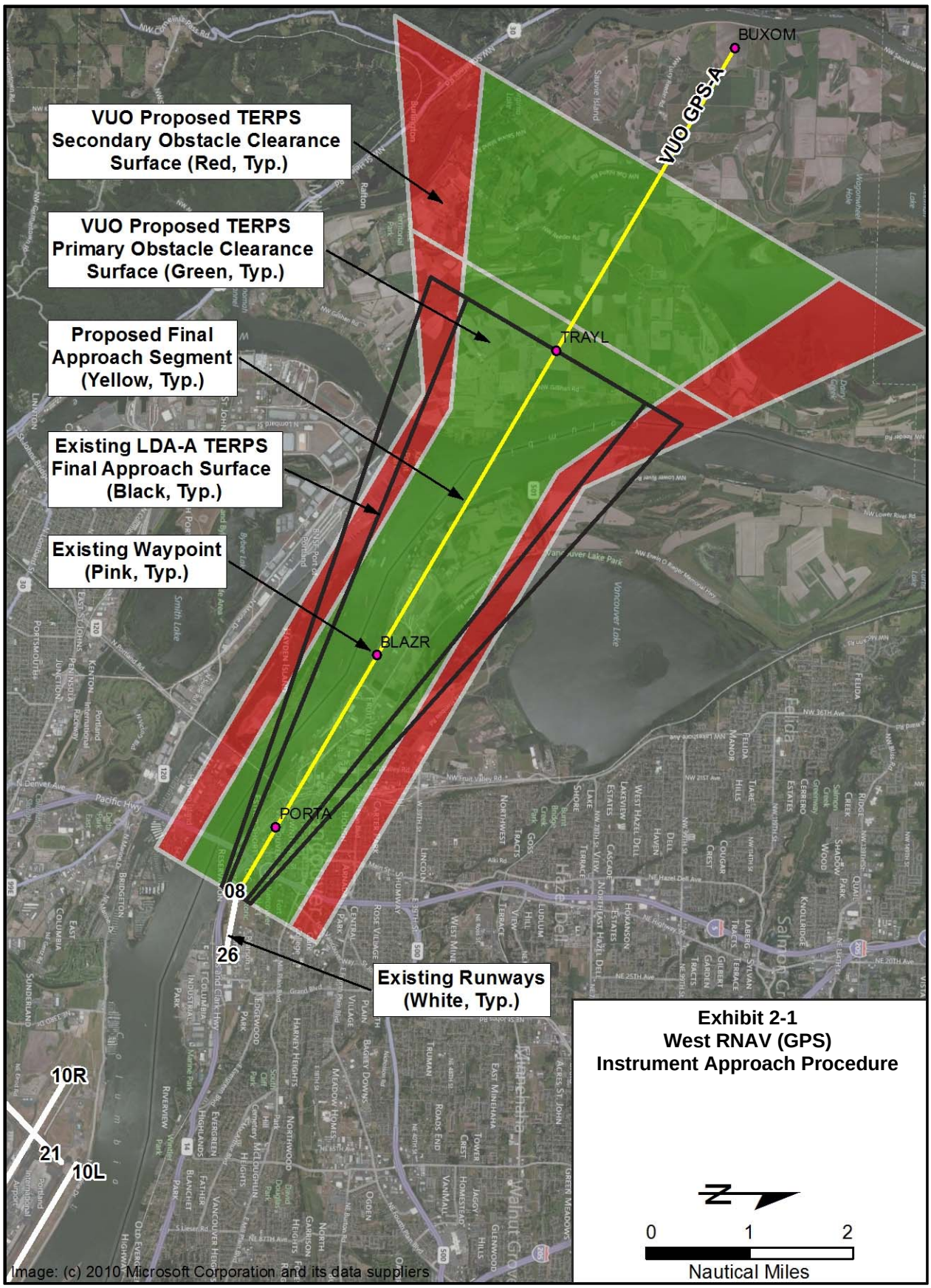
An IAP consists of four segments, including initial approach, intermediate approach, final approach, and missed approach. These segments have required obstacle clearances (ROC) associated with them, which determine the altitude at which they may be flown. This Master Plan considers the final approach segment as it relates to VUO. Other IAP segments and tie-in to existing airspace should be considered during procedure design.

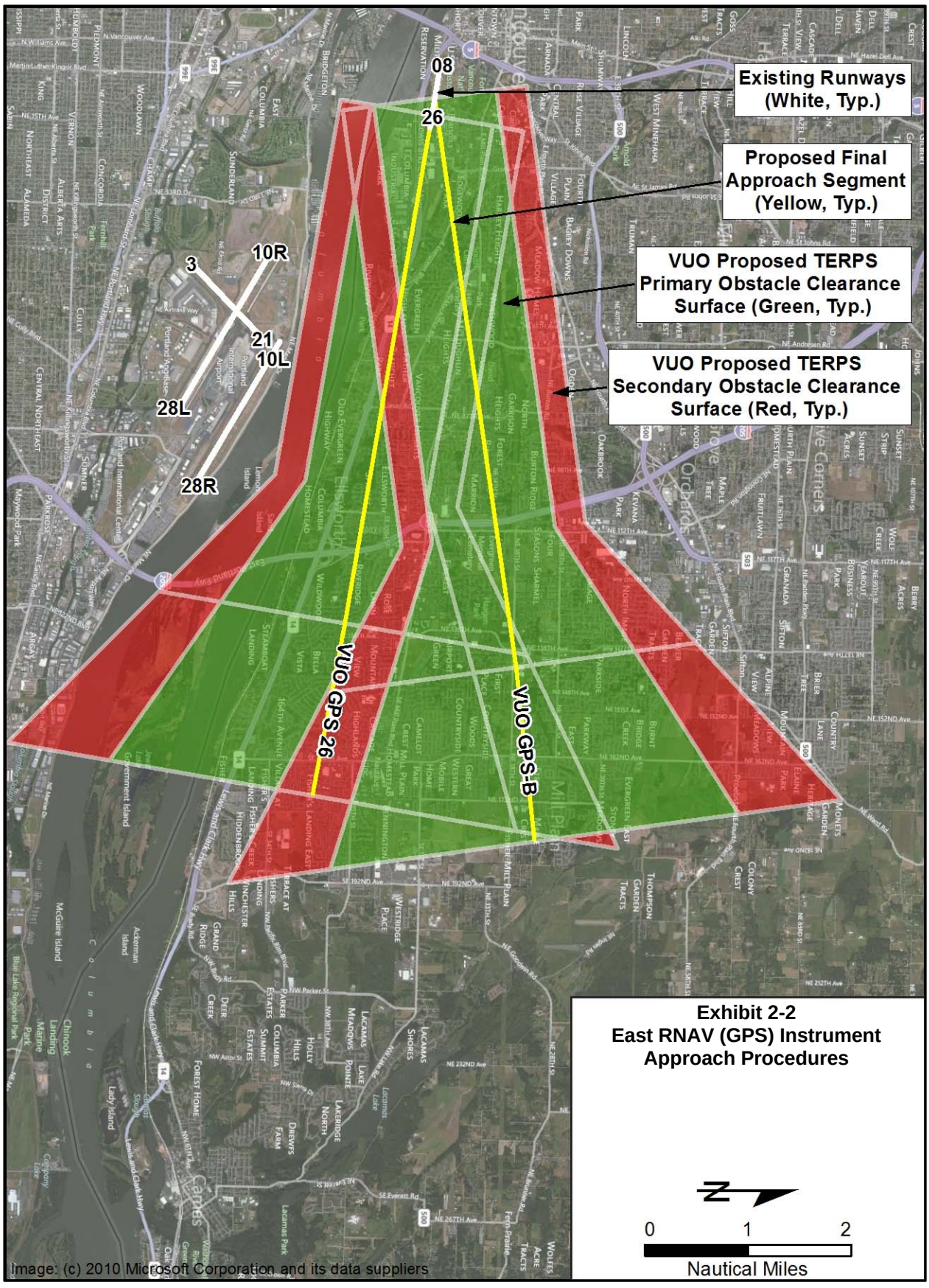
The existing IAP at VUO is a localizer-type directional aid approach (LDA-A). An RNAV (GPS) approach that uses the same approach path will not be eligible for straight-in minimums because the maximum difference between approach course and runway centerline alignment for RNAV (GPS) approaches is 15 degrees, and the existing final course alignment difference is 20 degrees. Aligning RNAV (GPS) approaches within 15 degrees of Runway 08-26 will require aircraft to fly through airspace used by aircraft approaching and departing PDX Runways 10R-28L and 10L-28R.

An RNAV (GPS) approach that maintains the approach path of the existing LDA-A IAP can still benefit VUO without straight-in minimums. RNAV (GPS) approaches have a required obstacle clearance of 250 feet, compared to 300 feet for LDA-A. This may reduce minimum decision altitude by 50 feet, allowing pilots to fly closer to runway elevation, which may improve airport utility during periods of low visibility. The obstacle clearance surfaces of the proposed RNAV (GPS) approach and the existing LDA-A will be at the same altitude, but the approach paths of the RNAV (GPS) approach can be lower. The ROC of an RNAV (GPS) IAP covers a larger area than the ROC of the LDA-A IAP, and an airspace survey is necessary to confirm obstacle clearance.

Runway 26 is considered for an RNAV (GPS) IAP; however, implementation of a straight-in IAP will change the FAR Part 77 primary, transitional, and approach surface dimensions as Runway 08-26 would be reclassified as a non-precision instrument runway by FAR Part 77 standards. It is not expected that larger FAR Part 77 dimensions will require structure removal or relocation; however, some existing structures may require identification lights. An RNAV (GPS) IAP that approaches the Airport from the east, but is not straight-in, will not change FAR Part 77 surfaces.

It is recommended that VUO consider an RNAV (GPS) IAP that follows a similar course to the existing LDA-A IAP. The benefits and feasibility of an RNAV (GPS) IAP into Runway End 26 or an RNAV (GPS) circling IAP that approaches from the east requires additional study and coordination with FAA Flight Procedures and the PDX air traffic control tower. The IAP from the west is shown in **Exhibit 2-1**, and IAPs from the east are shown in **Exhibit 2-2**. Differences in FAR Part 77 surface dimensions between visual utility and non-precision utility runways are shown in **Exhibit 2-3** and **Table 2-4**.


BUXOM
VUO GPS-A
VUO Proposed TERPS Secondary Obstacle Clearance Surface (Red, Typ.)
VUO Proposed TERPS Primary Obstacle Clearance Surface (Green, Typ.)
Proposed Final Approach Segment (Yellow, Typ.)
Existing LDA-A TERPS Final Approach Surface (Black, Typ.)
Existing Waypoint (Pink, Typ.)
TRAYL
BLAZR
PORTA
08
26
Existing Runways (White, Typ.)
10R
21
10L
Image: (c) 2010 Microsoft Corporation and its data suppliers
Exhibit 2-1
West RNAV (GPS)
Instrument Approach Procedure
N
0
1
2
Nautical Miles


08
26
Existing Runways (White, Typ.)
Proposed Final Approach Segment (Yellow, Typ.)
VUO Proposed TERPS Primary Obstacle Clearance Surface (Green, Typ.)
VUO Proposed TERPS Secondary Obstacle Clearance Surface (Red, Typ.)
10R
3
21
10L
28L
28R
VUO GPS 26
VUO GPS-B
Image: (c) 2010 Microsoft Corporation and its data suppliers
Exhibit 2-2
East RNAV (GPS) Instrument Approach Procedures
N
0
1
2
Nautical Miles

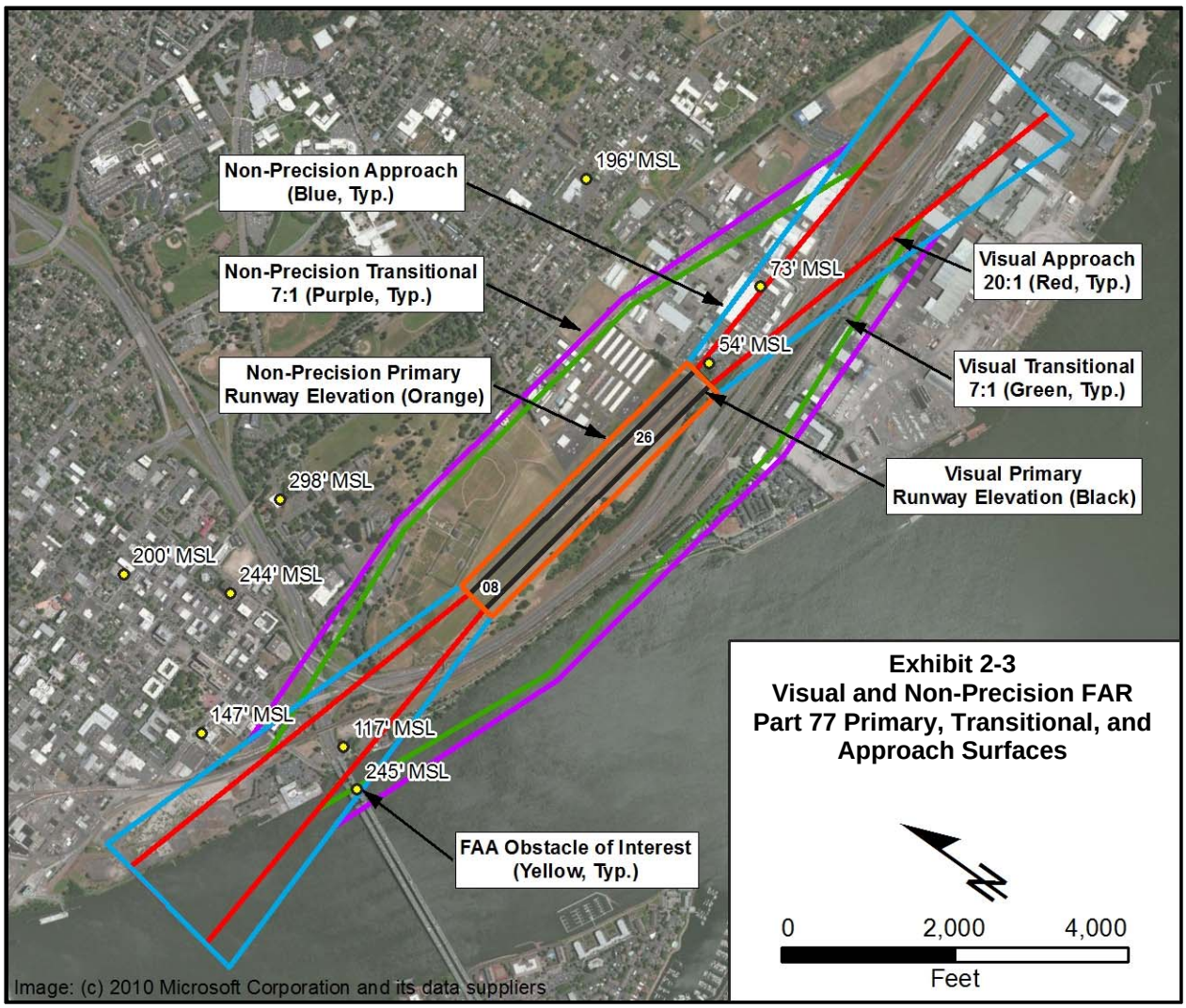


Table 2-4: Visual Utility and Non-Precision Utility FAR Part 77 Surfaces

Surface Type	Visual Utility Runway	Non-Precision Utility Runway
Primary Surface and Inner Approach Width	250 Feet	500 Feet
Outer Approach Width	1,250 Feet	2,000 Feet
Approach Slope	20:1	20:1
Approach Surface Length	5,000 Feet	5,000 Feet

Note: Horizontal and Conical surface dimensions do not change between Visual Utility and Non-Precision Utility runways.
Source: FAR Part 77

Survey of building and object heights is required to verify whether a change in FAR Part 77 standards will impact existing buildings. It is recommended that VUO include this survey during the development of a new IAP to identify potential problems.

2.5 Runway Markings

Existing Runway End 26 designation and threshold markings are non-standard per AC 150/5340-1K, *Standards for Airport Markings*. Runway 08-26 will need to be remarked if Runway End 26 displaced threshold is relocated. Runway 08-26 has visual runway markings, including runway designation markings, centerline markings, and a threshold bar at the Runway End 26 displaced threshold. Implementation of an RNAV (GPS) IAP into Runway End 26 will not likely require additional markings, provided the length and width of Runway 08-26 remain unchanged.

It is recommended that VUO maintain existing runway markings and remark Runway 08-26 when the displaced threshold is relocated.

2.6 Taxiways

Existing taxiways, taxilanes, and taxiway/taxilane object free areas (OFA) are designed to meet ADG I standards, although the Airport occasionally sees operations by larger aircraft. Taxiway A is 35 feet wide, which is the recommended width for ADG II aircraft. Development plans for the Airport consider providing facilities for ADG II aircraft on the west side of airport property. This would include access to box hangars, the fuel pump, and the FBO. It is expected that the east side of airport property will remain dedicated to ADG I aircraft.

Further justification will be required prior to the FAA funding ADG-II taxiways; however, it is recommended that future buildings are located with ADG-II setbacks in mind. This will reduce the number of buildings that must be relocated or removed when ADG-II taxiways are justified.

Taxiway development alternatives are shown in **Section 3**.

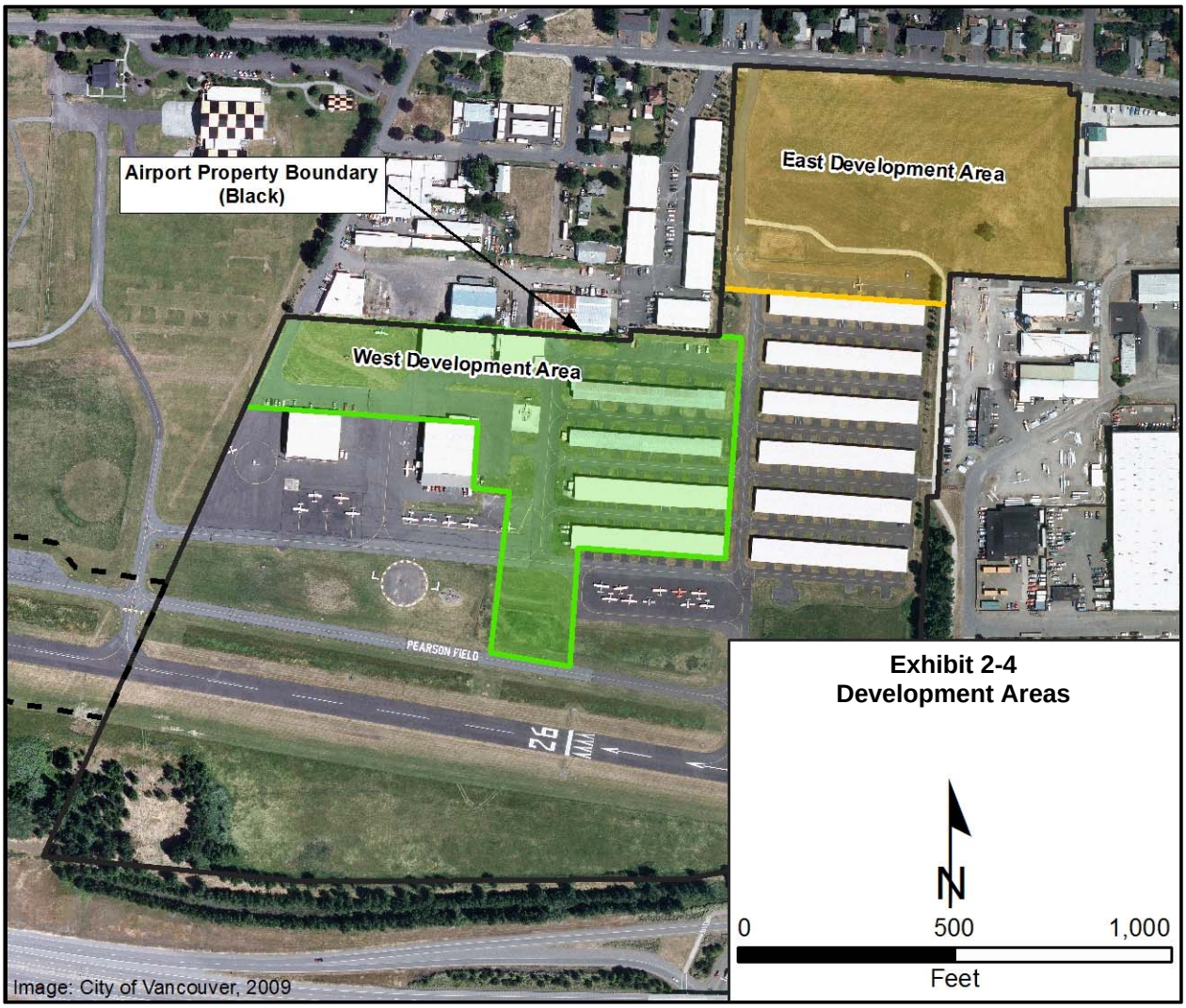
2.7 Navigational Aids

VUO has an automatic surface observation system (ASOS) weather reporting system. Winter weather conditions commonly feature low clouds and precipitation, and conditions can change rapidly. It is recommended that VUO consider updating the ASOS to an automatic weather observation system (AWOS), which will provide more detailed weather reports and voice advisory capability.

An AWOS will improve pilot awareness of weather conditions at VUO during flight planning and while enroute to VUO, facilitating decision making and situational awareness.

3. Aircraft Parking and Storage

Aircraft parking and storage development includes new hangar and apron space, and redevelopment of existing aircraft storage areas to facilitate aircraft movement from hangars to the runway. New box hangars are proposed in the west development area (WDA), and new T-hangars are proposed in the east development area (EDA). Aircraft parking and storage alternatives are developed separately for the east and west sections of the Airport, and can be built independently of one another. Development areas are shown in **Exhibit 2-2**, and development alternatives are compared in **Section 3.3**.



3.1 East Development Area

The EDA includes property north of T-hangar building J, and south of 5th Street. Property in this area is undeveloped and slopes upward from existing T-hangars to meet the street grade. Underground utility lines are present in the eastern section of the EDA, and the Fort Vancouver National Historic Site trail runs along the existing Airport fence line. The property is zoned by the City of Vancouver as Central Park Mixed Use, and adjacent property is zoned as Light Industrial to the east and west, and R-30 Residential to the north. The east development area is located in the Vancouver National Historic Reserve, and development must comply with *Modern Era/NPS Period (1948 to Present) Design Standards*, defined in the Vancouver National Historic Reserve Guidebook.

The EDA will require grading and utility realignment to develop hangars on the entire property. The Airport is considering subdividing the EDA with T-hangar buildings on the western section, and aviation/commercial business and automobile parking on the eastern section of the property. The EDA is designed to ADG I standards.

A road is proposed to pass through the EDA, dividing hangars and aviation/commercial business areas. It is expected that the Fort Vancouver National Historic Site trail will be realigned with the road. Alignment of the road will influence T-hangar units and the size of aviation/commercial business development.

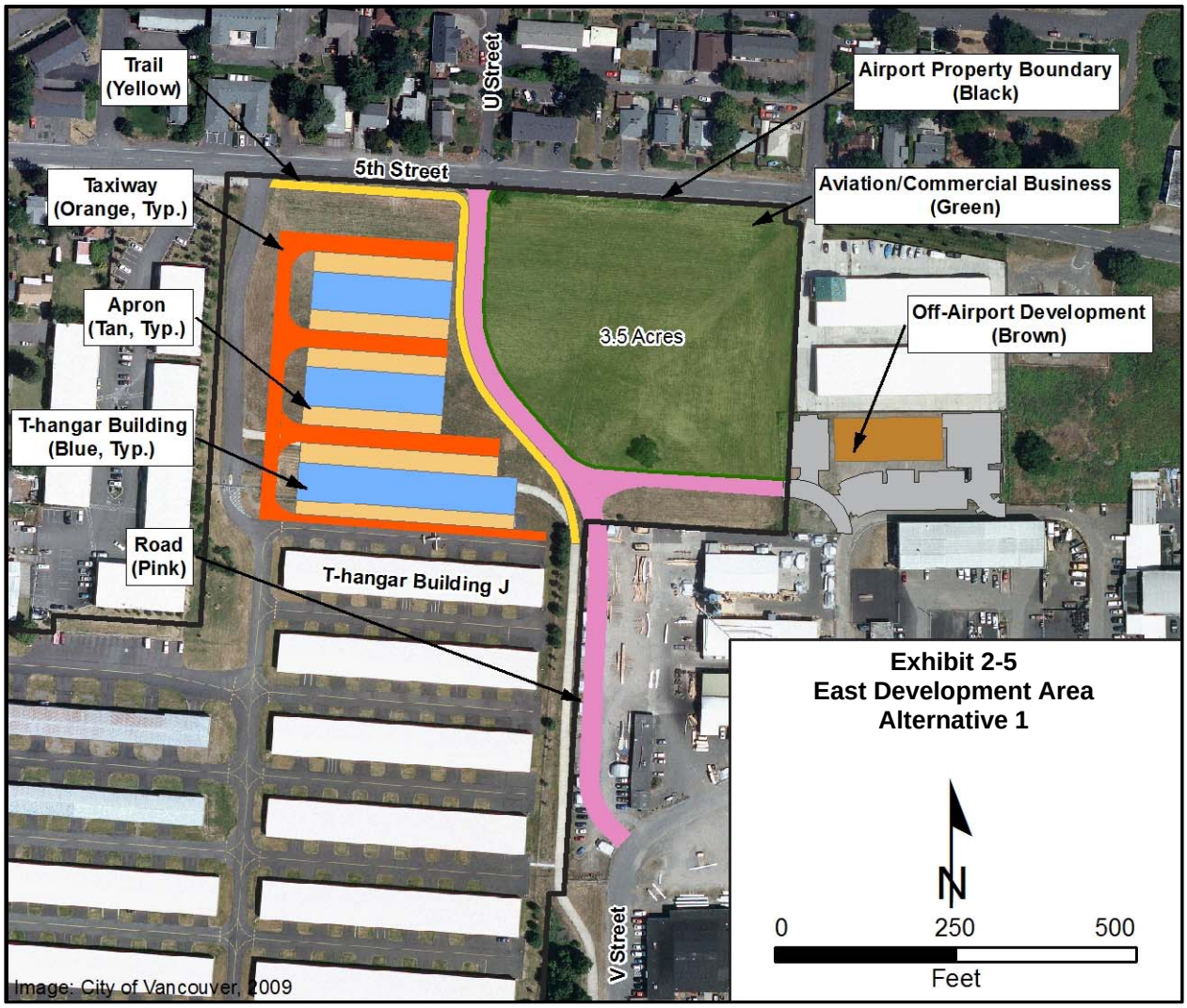
Four alternatives are proposed for the EDA. The alternatives modify the alignment of the proposed road, which influences the area available for aircraft storage and aviation/commercial business development.

3.1.1 Alternative 1

Alternative 1 provides 22 T-hangar units and 3.5 acres of aviation/commercial business development area. Alternative 1 includes 32,000 square feet of taxilane and 35,000 square feet of apron. Automobile access may be provided by proposed street development east of the T-hangar buildings.

Alternative 1 has a curved road alignment, tying into U Street at 5th Street, and making a four-way intersection.

Alternative 1 is shown in **Exhibit 2-5**.



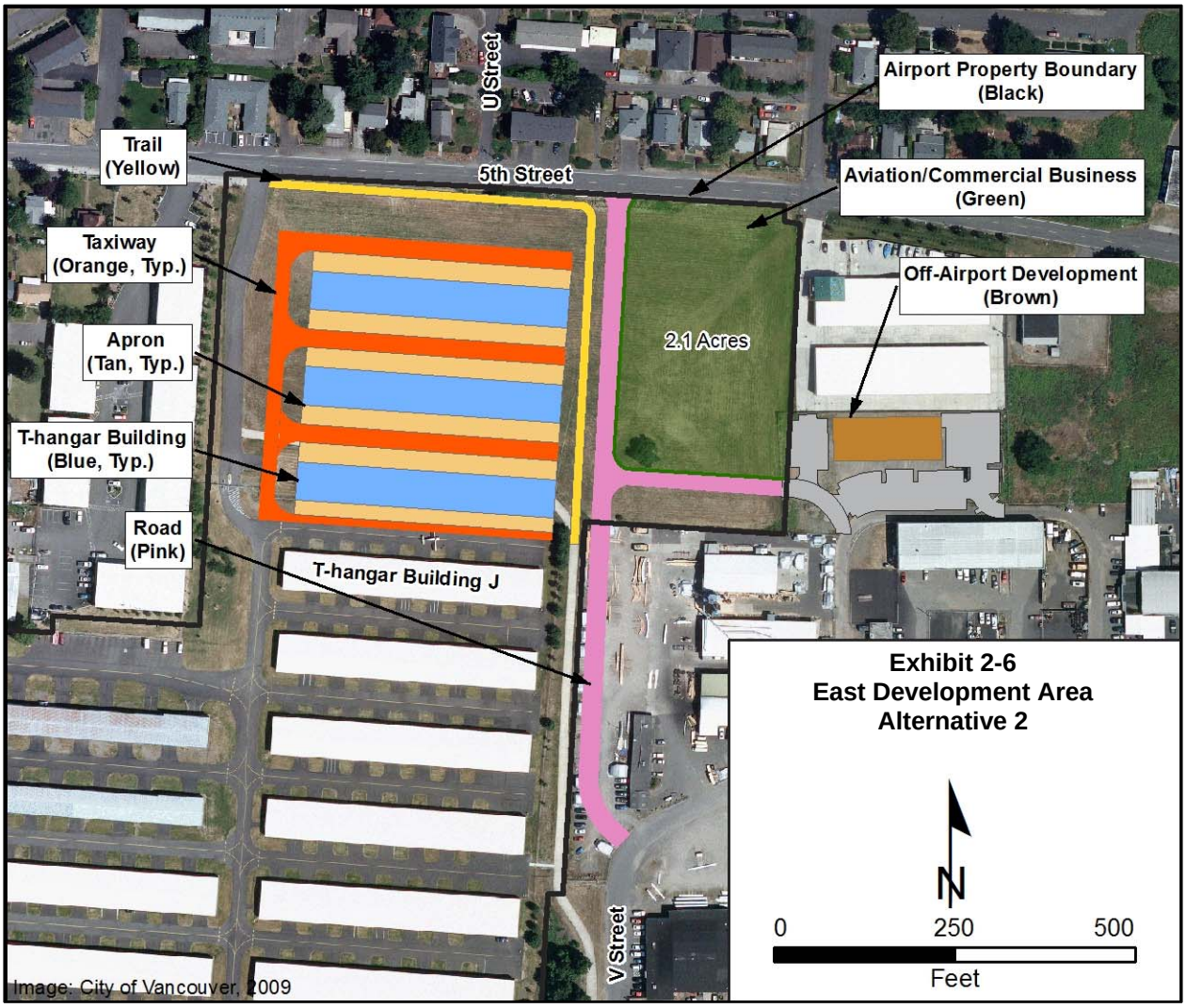
Alternative 1 is not the preferred alternative. The reasoning is presented in **Section 3.3**.

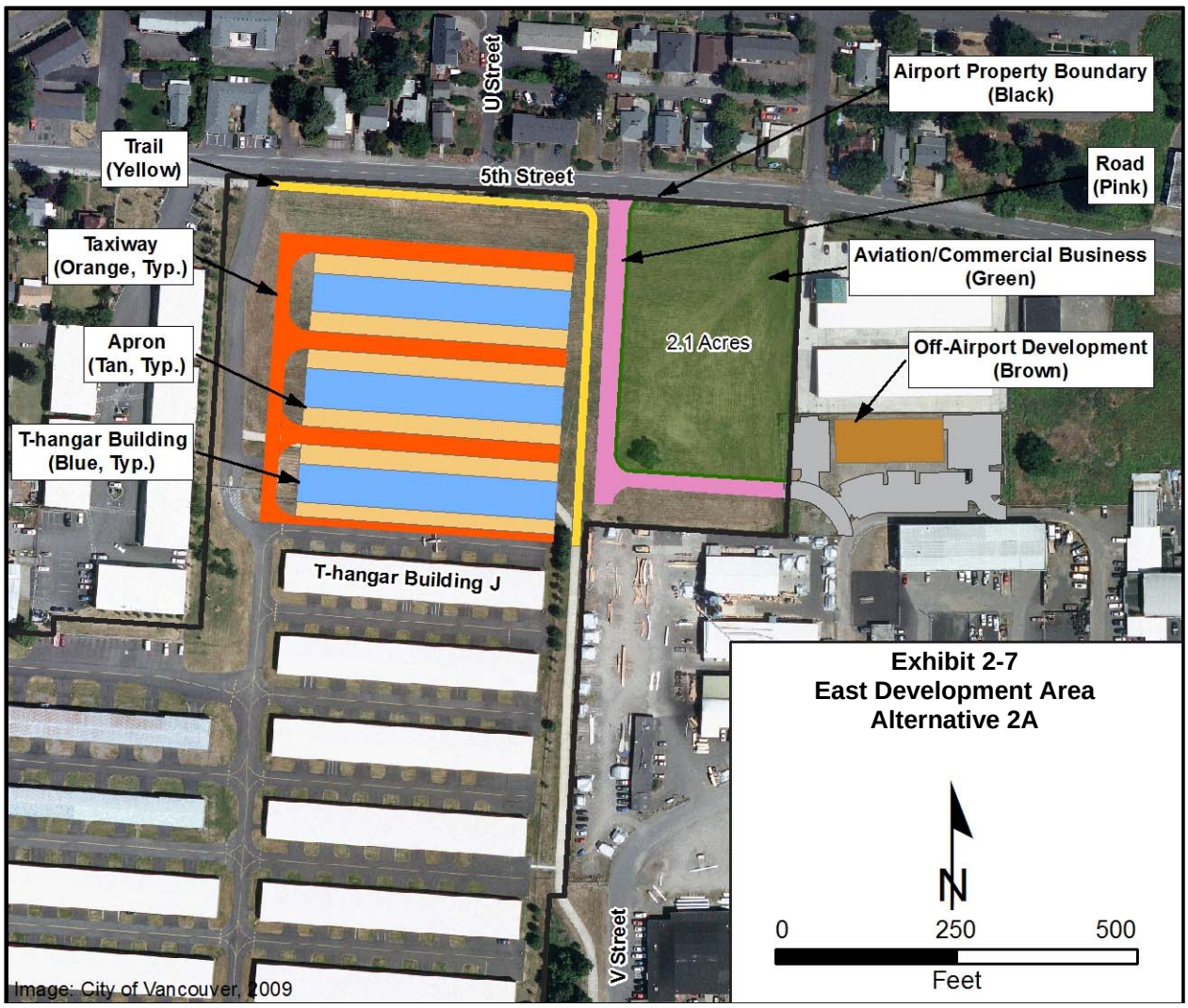
3.1.2 Alternative 2

Alternative 2 provides 30 T-hangar units and 2.1 acres of aviation/commercial business development area. Alternative 2 includes 43,000 square feet of taxilane and 56,000 square feet of apron. Alternative 2 is expected to require more excavation to bring the aircraft storage development area down to Airport grade than Alternatives 1 and 3; however, underground utilities located east of the proposed road are not expected to be impacted by hangar development.

Alternative 2 includes a straight road alignment that makes an additional three-way intersection with 5th Street. A variation, called Alternative 2A, has the same aviation features but the proposed road does not leave airport property.

Alternative 2 is shown in **Exhibit 2-6** and Alternative 2A is shown in **Exhibit 2-7**.





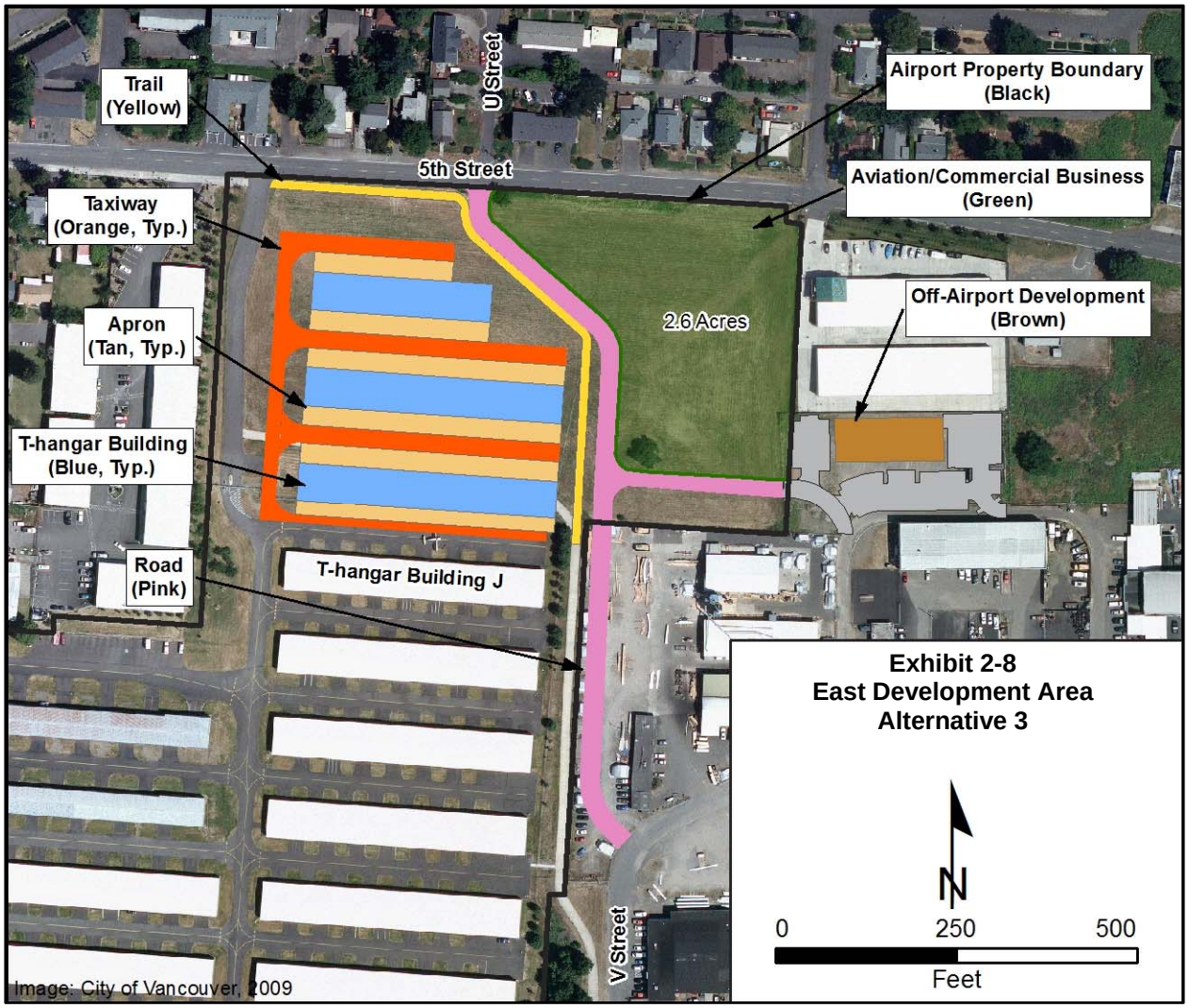
Alternative 2/2A is the preferred alternative. The reasoning is presented in **Section 3.3**. A road configuration selection between Alternative 2 and Alternative 2A will be determined at time of implementation.

3.1.3 Alternative 3

Alternative 3 provides 27 T-hangar units and 2.6 acres of aviation/commercial business development area. Alternative 3 includes 38,000 square feet of taxilane and 49,000 square feet of apron. Alternative 3 is a compromise between Alternatives 1 and 2, attempting to balance aircraft storage and aviation/commercial business development area.

Alternative 3 includes the four-way intersection with U Street at 5th Street before curving to the southeast to maximize aircraft storage development area. The curve radii of the road may not meet City of Vancouver design standards. 12,000 square feet of automobile parking space are provided south of the proposed road.

Alternative 3 is shown in **Exhibit 2-8**.



Alternative 3 is not the preferred alternative. The reasoning is presented in **Section 3.3**.

3.2 West Development Area

The WDA is planned to accommodate existing ADG I aircraft, but new buildings will be built with ADG II object free area setbacks, allowing accommodation of ADG II aircraft in the future without requiring building removal. FAA requires at least 500 operations per year by ADG II aircraft to justify designing airfield pavements to ADG II widths; therefore, the design of airfield pavements to ADG II standards will require further justification to receive FAA funding. ADG II pavement widths are presented for planning purposes.

The three WDA alternatives include the removal of T-hangar buildings A and B. ADG II taxiway and taxilane OFA requirements are greater than what exists with the existing building and aircraft parking layout. An extension of the taxilane that runs between the FBO and the T-hangar buildings is planned to provide Taxiway A access for ADG II aircraft without relocating aircraft tie-down positions. Radio and communications equipment next to T-hangar building C will need to be relocated to meet taxilane OFA requirements.

Configuring the WDA to meet ADG II standards requires the removal of existing T-hangar buildings and relocation of taxilanes. The number and location of box hangars impacts T-hangar buildings A, B, and may impact T-hangar building C.

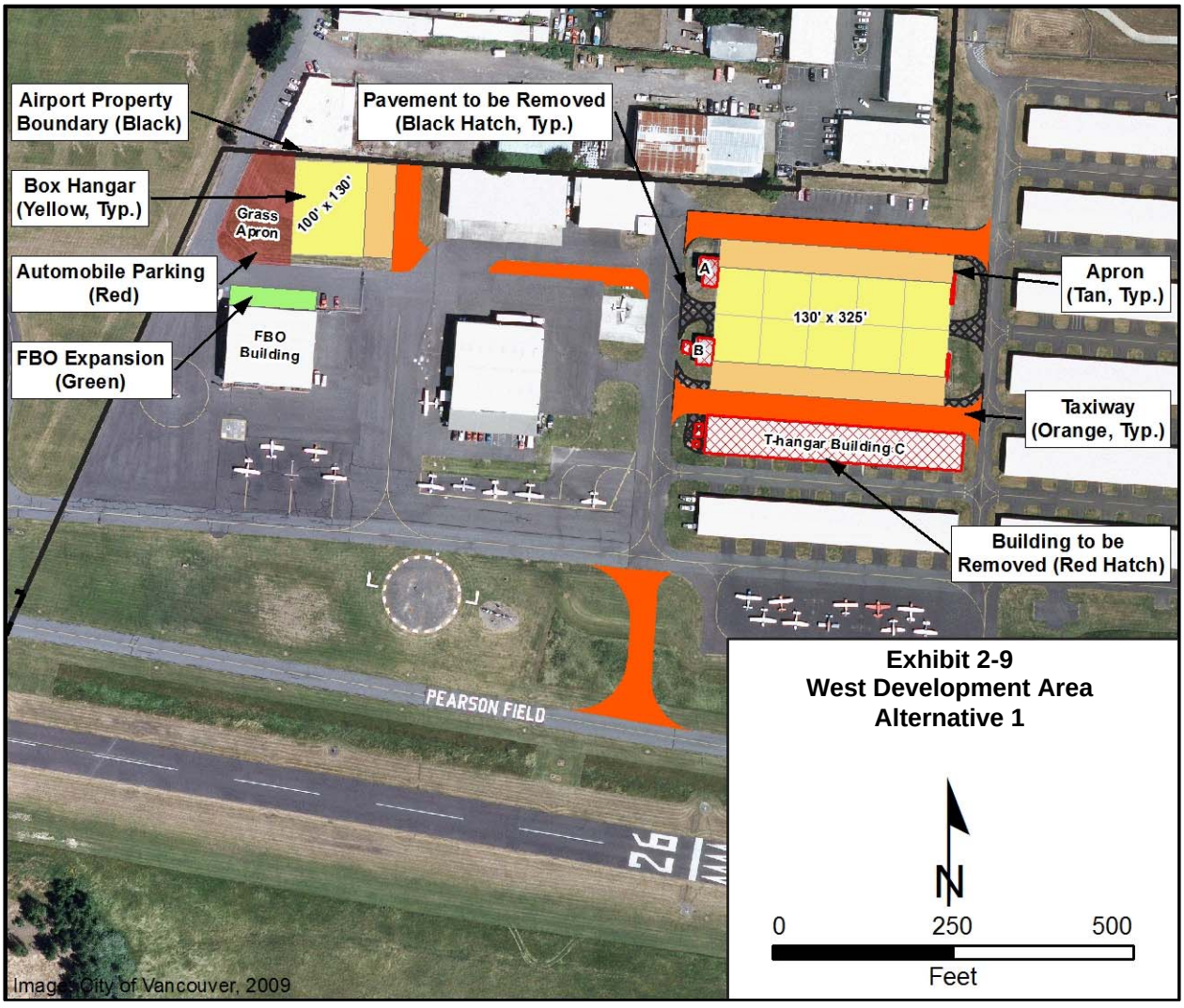
The existing west FBO building is planning an expansion to the north of the existing structure that will accommodate a new entrance and additional office space. This expansion removes some existing automobile parking spaces. New automobile parking is proposed in the west side of the grass apron. The west side of the grass apron has existing utility easements, and is not suitable for permanent structure development. A box hangar is planned on the east side of the grass apron. This box hangar may be subdivided to suit tenant needs. The taxilane that runs from existing T-hangar building A to the proposed box hangar can be widened to meet ADG II standards if necessary. Existing box hangars meet ADG II taxilane OFA requirements.

Three alternatives are presented for the WDA.

3.2.1 Alternative 1

Alternative 1 includes one 130-foot by 325-foot box hangar, divided into ten 65-foot by 65-foot aircraft storage areas, and one 100-foot by 130-foot box hangar. Access taxilanes meet ADG II standards. The taxilane OFA south of the box hangars extends through T-hangar building C, which will have to be removed.

Alternative 1 includes 52,000 square feet of new taxilane, 33,000 square feet of new parking apron, and removes 44,000 square feet of existing pavement. Proposed taxilanes overlap sections of existing taxilanes. Existing taxilane pavement can be overlaid and reused instead of removed, reducing new pavement requirements. Removal of T-hangar buildings A, B, and C eliminates 38 T-hangars. Taxilane OFA requirements eliminate automobile parking spaces north of the new taxilane. Alternative 1 is shown in **Exhibit 2-9**.

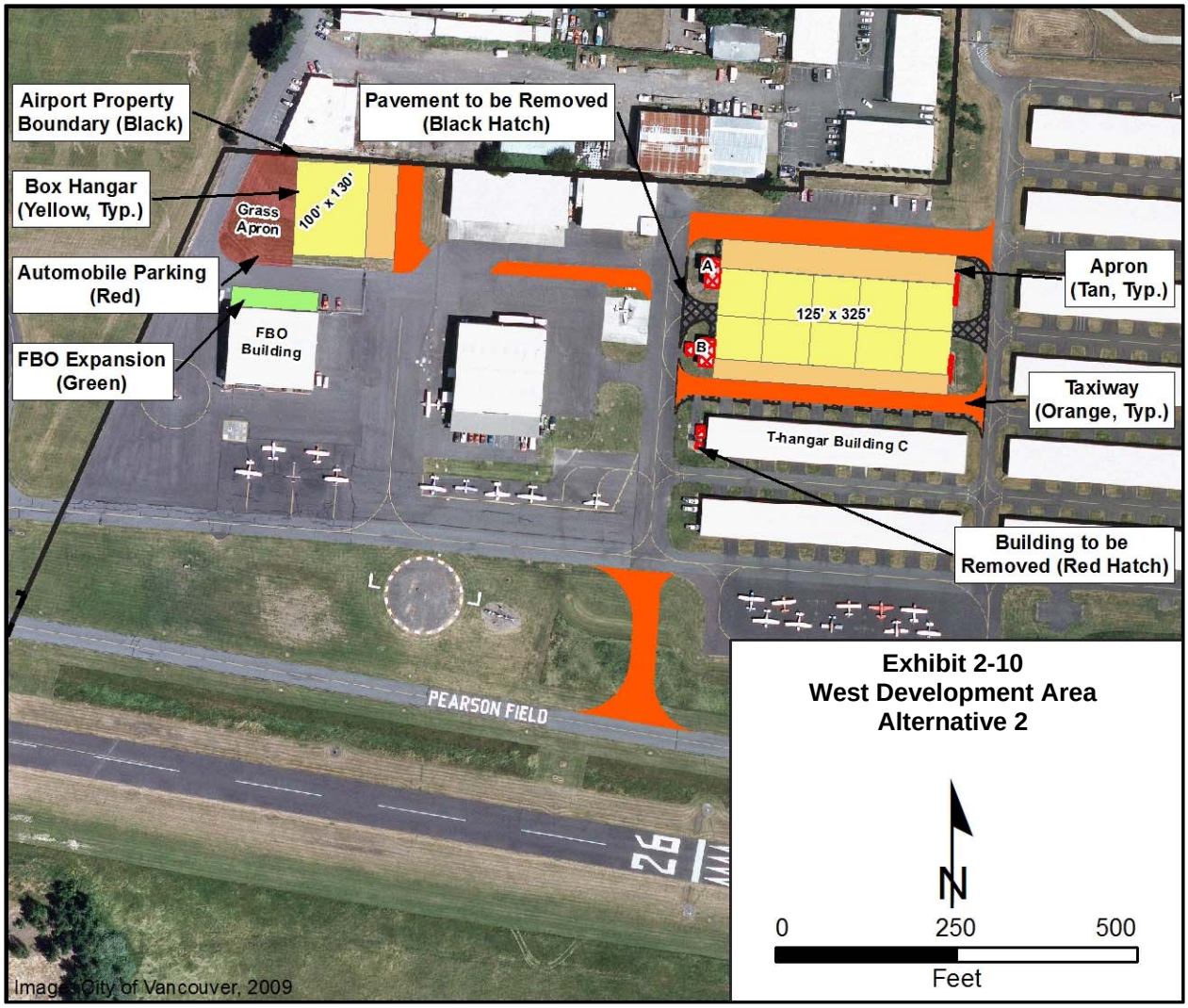


Alternative 1 is not the preferred alternative. The reasoning is presented in **Section 3.3**.

3.2.2 Alternative 2

Alternative 2 includes one 125-foot by 320-foot box hangar, divided into five 65-foot by 65-foot aircraft storage areas on the north, and five 65-foot by 60-foot aircraft storage areas on the south. There is one 100-foot by 130-foot box hangar north of the FBO building. Alternative 2 includes an ADG II taxilane north of the hangars and an ADG-I taxilane south of the hangars. Using ADG I standards on the southside preserves T-hangar building C, but restricts ADG II aircraft from the new box hangars on the south.

Alternative 2 includes 59,000 square feet of new taxilane, 29,000 square feet of new parking apron, and removes 31,000 square feet of existing pavement. Proposed taxilanes overlap sections of existing taxilanes. Existing taxilane pavement may be overlaid and reused instead of removed, reducing new pavement requirements. Removal of T-hangar buildings A and B eliminates 22 T-hangars. Taxilane OFA requirements eliminate automobile parking spaces north of the new taxilane. Alternative 2 is shown in **Exhibit 2-10**.



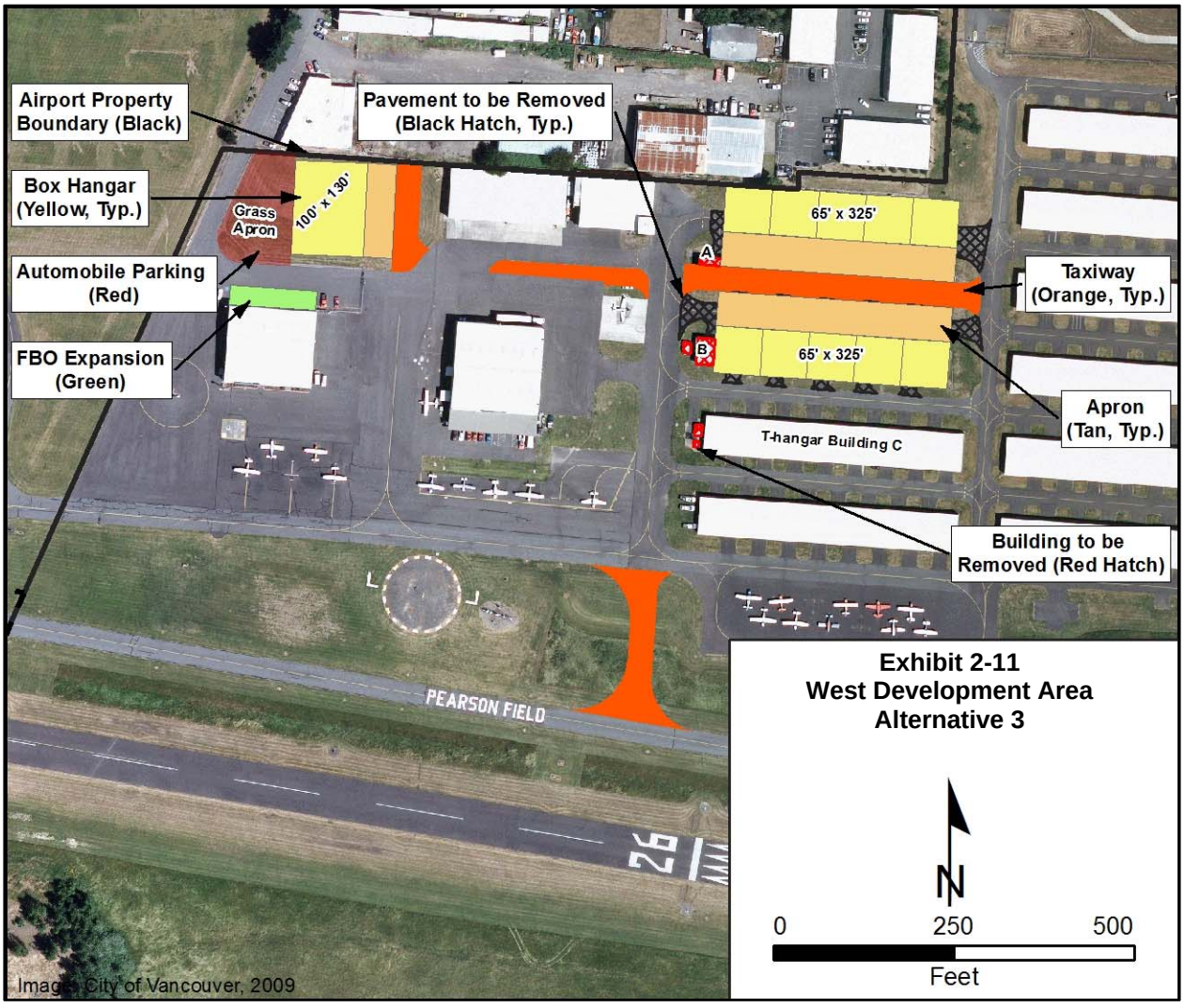
Alternative 2 is not the preferred alternative. The reasoning is presented in **Section 3.3**.

3.2.3 Alternative 3

Alternative 3 includes two 60-foot by 360-foot box hangars, which are each divided into six 60-foot by 60-foot aircraft storage areas, and one 100-foot by 130-foot box hangar. Alternative 3 develops a new taxilane to ADG II standards, and features new box hangars along the north property boundary.

Alternative 3 includes 36,000 square feet of new taxilane, 40,000 square feet of new parking apron, and removes 41,000 square feet of existing pavement. The proposed taxilane passes over existing T-hangar building A. Alternative 3 places box hangars over existing taxilanes; therefore, reuse of existing taxilane pavement is not possible in Alternative 3 as it is in Alternatives 1 and 2.

Removal of T-hangar buildings A and B eliminates 22 T-hangars. North box hangar development eliminates automobile parking spaces. Alternative 3 is shown in **Exhibit 2-11**.



Alternative 3 is the preferred alternative. The reasoning is presented in **Section 3.3**.

3.3 Aircraft Parking and Storage Alternative Comparison

The preferred GA development alternatives may not be developed as single projects, but instead be developed in phases as demand occurs. The purpose of presenting alternatives in addition to those preferred is to provide the Airport with flexibility should need and demand change. If VUO sees demand increase for ADG II storage space, alternatives that provide more box hangars may be more beneficial than alternatives that provide more T-hangars. Because WDA alternatives remove some existing T-hangars before adding box hangars, the Airport may need to begin developing the EDA before the WDA to maintain aircraft storage options for existing tenants.

Aircraft parking and storage alternatives are presented in **Table 2-4**.

Table 2-5: Aircraft Parking and Storage Alternative Comparison

	East Development Area			West Development Area		
Alternative	**1**	**2**	**3**	**1**	**2**	**3**
Hangars Added	22 T-hangars	30 T-hangars	27 T-hangars	13 Box Hangars	13 Box Hangars	13 Box Hangars
T-hangars Removed	0	0	0	38	22	22
Taxiway/lane Added	32,000 Square Feet	43,000 Square Feet	38,000 Square Feet	52,000 Square Feet	59,000 Square Feet	36,000 Square Feet
Apron Added	35,000 Square Feet	56,000 Square Feet	49,000 Square Feet	33,000 Square Feet	29,000 Square Feet	40,000 Square Feet
Pavement Removed	0	0	0	44,000 Square Feet	31,000 Square Feet	41,000 Square Feet

Based aircraft forecasts indicate that single-engine aircraft will remain the primary based aircraft type at VUO. It is expected that T-hangars will remain in higher demand than box hangars. The preferred aircraft parking and storage alternatives maximize new T-hangar unit development while minimizing T-hangars lost due to box hangar development.

3.3.1 East Development Area

Road alignment will influence the number of potential T-hangars in the EDA; however, it is not entirely up to the Airport which road alignment is chosen. As a public road, the City of Vancouver will provide design review and approval of the alignment. The sharp corners in EDA Alternative 3 do not meet City of Vancouver design standards, which require a 45-foot radius for roads expected to serve trucks. Alternative 3 is not preferred.

EDA Alternative 1 provides 1.4 more acres of aviation/commercial business development area and eight fewer T-hangars than Alternative 2. If WDA Alternative 2 or Alternative 3 are chosen, selection of EDA Alternative 1 over Alternative 2 will result in no net change in T-hangars. If WDA Alternative 1 is chosen as preferred, EDA Alternative 2 will provide more T-hangars than EDA Alternative 1. WDA preference is included in **Section 3.3.2**.

The road alignment in EDA Alternative 2 creates a three-way intersection on 5th Street. EDA Alternative 1 creates a four-way intersection, and ties into existing U Street. Street access is discussed in more detail in **Section 5**.

EDA Alternative 2 includes more aircraft storage capacity than EDA Alternative 1, supporting continued aviation use of the property. Soil taken from the west side of the road can be used to fill and level the east side of the road, providing space for aviation/commercial business development. This development will help the Airport diversify its revenue base, and benefit the Airport and the surrounding community through primary, secondary, and induced job creation and spending. **The preferred alternative for the EDA is Alternative 2.**

3.3.2 West Development Area

The intent of redeveloping the WDA is to provide adequate clearance for ADG II aircraft to access new box hangars. Pavement is shown built to ADG II standards, but it is understood that further justification will be required to receive FAA funding for pavement wider than ADG I standards. WDA preference includes consideration of the potential impact that the loss of T-hangar units will have on airport capacity.

WDA Alternative 1 requires the removal of T-hangar buildings A, B, and C. The removal of T-hangar building C is not recommended to gain an additional ADG II taxilane because of existing and forecasted demand by single-engine aircraft. WDA Alternative 1 is not preferred.

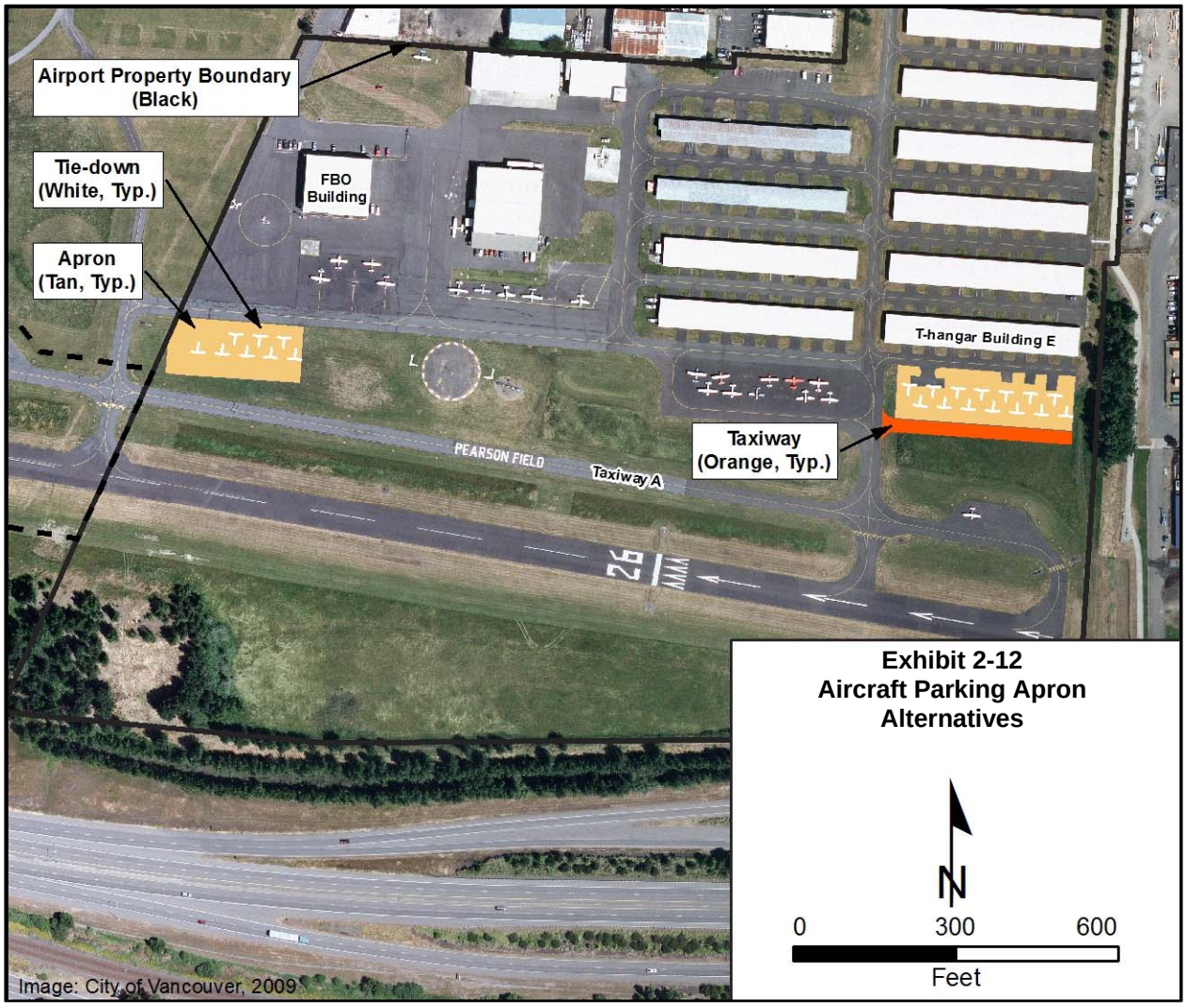
WDA Alternatives 2 and 3 provide the same number of box hangars with different taxilanes ADGs. There are seven box hangars in WDA Alternative 2 that are accessible by ADG II aircraft, compared to 13 in WDA Alternative 3. WDA Alternative 2 may require more taxilane pavement than WDA Alternative 3; however, WDA Alternative 2 may be able to use some existing pavement, reducing new pavement needs.

WDA Alternative 3 provides the same number of box hangars as WDA Alternative 2 while requiring less new pavement. Less pavement area is expected to reduce initial construction costs and the cost of future maintenance. **The preferred alternative for the WDA is Alternative 3.**

3.4 Aircraft Parking Apron

Chapter 1 identified aircraft parking apron capacity as an existing need. Aviation activity forecasts show itinerant operations increasing by one percent annually at VUO, which likely will increase demand for tie-down spaces. VUO has limited property to build additional parking apron without removing existing taxiways, taxilanes, and buildings. Parked aircraft are considered objects, and AC 150/5300-13A indicates that parking and tie-down spaces may not be located within runway and taxiway object free areas.

Two potential development areas have been identified for aircraft parking apron. The west area is located between the apron south of the FBO and Taxiway A. The east area is located south of T-hangar building E. Development of the east area was proposed in the 2001 Master Plan. Aircraft parking apron areas are shown in **Exhibit 2-12**.



The west area includes 26,000 square feet of apron and 8 tie-down spaces. Access is provided by the taxilane south of the FBO. The west area is constrained by the airport property boundary to the west, the segmented circle and wind indicator to the east, and taxiway and taxilane object free areas to the north and south. Aircraft fuel storage, discussed in **Section 3.5**, is planned to the east.

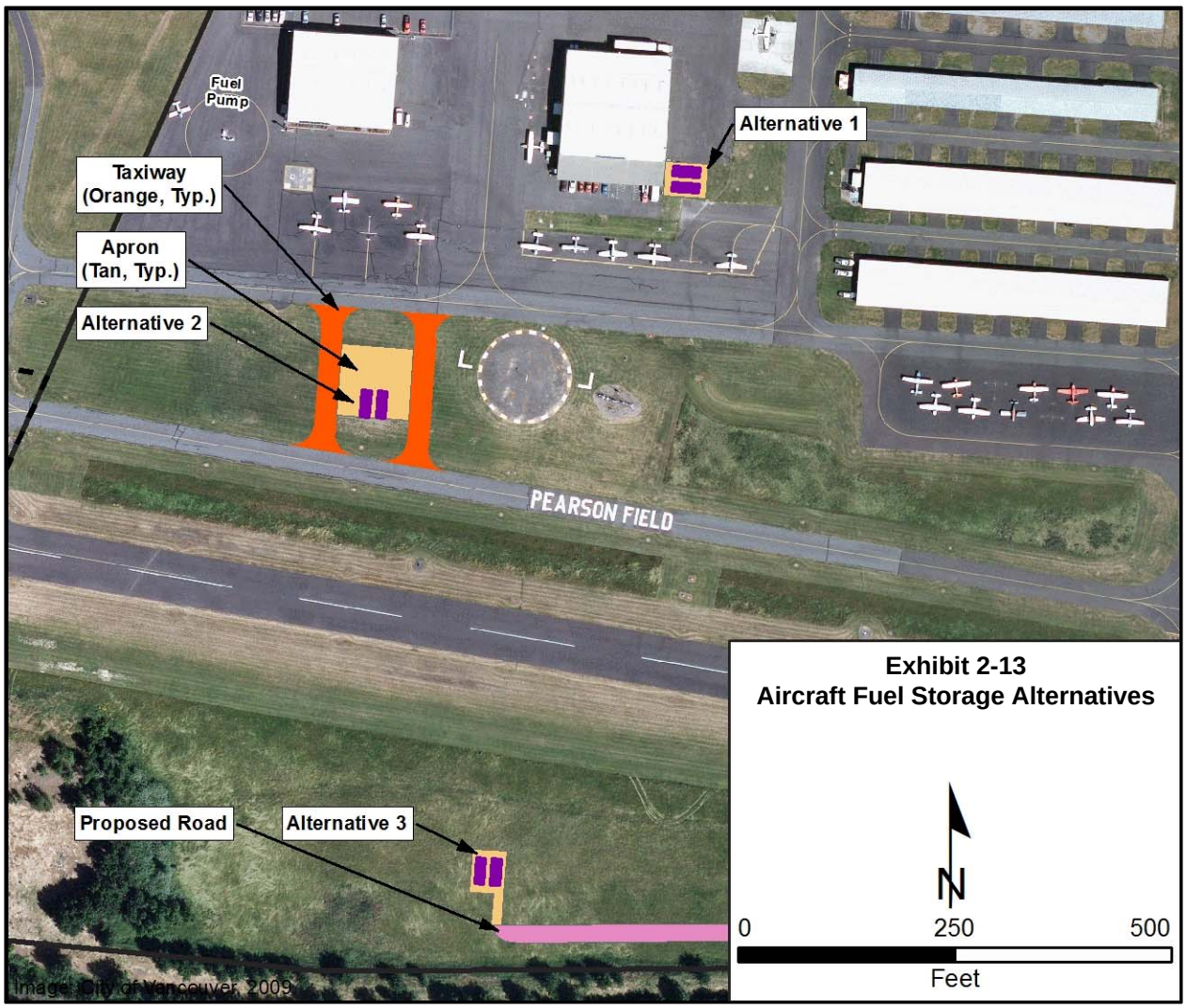
The east area includes one apron with an area of 30,000 square feet, an ADG I taxilane, and 14 tie-down spaces. Access is provided by the taxilane south of T-hangar E, and a new connecter taxilane between the two aprons. The east area is constrained by TOFAs to the north, south, and west, the run-up area to the south, and by the airport property boundary to the east.

3.5 Aircraft Fuel Storage

The Airport owns three 10,000 gallon underground fuel storage tanks (UST) that are used by the FBO. Washington State is in the process of revising Washington Administrative Code (WAC) Chapter 173-360, *Underground Storage Tank Regulation,* to comply with requirements of the Federal Energy Policy Act of 2005. The Airport expects that when existing USTs are due to be replaced, it will be more cost effective to replace them with above-ground storage tanks (ASTs). ASTs are not permitted in the RPZ, and must be clear of runway, taxiway, and taxilane safety areas and object free areas. It is expected that the fuel pump will remain in its existing location. Fuel will flow from the ASTs to the pump through underground pipes.

ASTs are regulated pursuant to WAC 173-180. The proposed site will need to be evaluated for compliance with International Fire Code, which is part of the Washington State Uniform Building Code, and American Petroleum Institute Standard 653. Underground piping connecting the AST to the fuel pump may be subject to the requirements of WAC 173-180-340.

Alternative 1 is next to an FBO hangar, Alternative 2 is between Taxiway A and the apron in front of the FBO, and Alternative 3 is south of Runway 08-26. For safety and practicality reasons, it is recommended that fuel storage be located away from buildings, but near the fuel pump. Fuel storage locations are shown in **Exhibit 2-13**.



Alternative 1 is located next to a large box hangar and aircraft tie-downs 575 feet east of the fuel pump. Alternative 2 is located next to the existing wind indicator and segmented circle, and alongside planed apron development. ASTs in Alternative 2's location may block the view of the wind indicator, and reduce available aircraft storage, but is the closest of the alternatives at 325 feet from the fuel pump. There are other locations for aircraft storage on the Airport. Alternative 3 is located south of Runway 08-26, 875 feet from the fuel pump. Alternative 3 is clear of existing and planned aircraft storage, but would require new roads for fuel trucks and emergency vehicles.

Alternative 2 impacts planned aircraft storage but does not conflict with existing facilities like Alternative 1. Access to Alternative 2 exists unlike with Alterative 3.

Alternative 2 is preferred.

4. Street Access and Signage

Visitors to VUO do not have direct access to SR 14 and major arterial roads in Vancouver. It is expected that improved signage will make the Airport easier to find. Airport management is working with NPS and the Pearson Air Museum to develop signage that promotes historic attractions and business located in the area. Signage near exits to Interstate 5 and SR 14 that progressively direct traffic to the Airport are expected to improve access, and consolidate traffic onto appropriate roads, reducing the level of Airport-associated traffic in the Hudson's Bay neighborhood to the north of Airport property.

Neighborhood groups and Airport tenants have raised concerns regarding traffic on 5th Street and passing through neighborhoods north of the Airport. This traffic is not necessarily Airport related; however, traffic volume impacts airport users and airport neighbors. It is recommended that the Airport and neighborhood groups work with the City of Vancouver to study the effect of installing traffic calming devices, such as speed bumps along 5th Street in the interest of safety for automobiles, cyclists, and pedestrians.

The Airport access plan considers major facilities on and near the Airport that are likely to draw visitors. Existing facilities include Fort Vancouver, the Pearson Air Museum, the FBO, and the trail that passes through the Fort Vancouver National Site. Future facilities include business/aviation properties in the East Development Area, as described in **Section 3.1**, and future build-out of the Vancouver Barracks area after it is transferred to the NPS. Streets identified on the access plan are managed by the City of Vancouver, and not the Airport. It is recommended that the Airport and the Fort Vancouver National Site coordinate signage needs with the City of Vancouver.

The purpose of the access plan is to include signage on what the City of Vancouver designates as arterial streets, reducing the number of cars that pass through what the City designates as collector streets. 5th Street, a collector street, is the exception as it is the primary means of access to the Airport.

Stakeholders from the Airport and the City have recommended that mass transit bus service be extended to the Airport to support business and recreational development. The nearest bus routes are on Grand Avenue to the east and Evergreen Boulevard to the north. It is recommended that the Airport work with local transit provider C-Tran to develop bus service along 5th Street. Improvements may include benches, bus shelters, bus pullouts, lighting, and signage.

The automobile access plan is presented in **Exhibit 2-14**.


Preferred Access Routes
(Blue, Typ.)
Airport Property Boundary
(Black)
5
Mill Plain Boulevard
Reserve Street
5th Street
Columbia House Boulevard
Hudson's Bay
Neighborhood
Grand Boulevard
14
Exhibit 2-14
Automobile Access Plan
N
0
1,000
2,000
Feet
Image: (c) 2010 Microsoft Corporation and its data suppliers

5. Capital Improvement Plan

Facility improvements are demand driven rather than planned for a specific year. The Capital Improvement Plan (CIP) focuses on improvements that are expected to be needed in the near-term, serving as the Airport's long-term budget for facility improvements. The CIP assists the Airport in preparing grant requests and prioritizing projects. The CIP is not a static document, and is subject to revision as need and circumstances require. The FAA is the primary funding source for CIP projects, and projects are organized by FAA fiscal year, which begins October 1.

CIP projects are funded from federal, state, and local sources. FAA funding rules and regulations are included in FAA Order 5100.38C, *Airport Improvement Program Handbook*. VUO receives an annual entitlement of $150,000 from the FAA for being part of the National Plan of Integrated Airport System, described in **Chapter 1**. Entitlement funds come from the Aviation Trust Fund, which is funded by user fees such as ticket and fuel taxes. Entitlement dollars can be accumulated and carried forward.

FAA funding generally covers 90 percent of an eligible project, and requires a 10 percent local match. VUO is an enterprise fund Airport, and uses operating revenues as a source of local match funds. The Airport does not receive general funds from the City of Vancouver. Another source of local match funds is the Washington State Department of Transportation. Projects may be eligible for grants from other government agencies and sources.

The Airport can apply for additional funding from the FAA, called *discretionary,* to help cover additional cost. Unlike entitlement funding, discretionary funding is not guaranteed and the Airport competes with other airports. It is recommended that the Airport apply for discretionary funding for more expensive projects, and consider carrying forward entitlement dollars when necessary. Discretionary funding may expedite the implementation of projects by allowing the Airport to afford more work in a year.

Some funding sources are unidentified. These projects are expected to occur after five years. It is recommended that the Airport evaluate potential funding sources as these projects move closer to implementation.

In addition to projects identified in this chapter, the CIP programs funds for on-going maintenance of existing facilities. These facilities include airfield lighting upgrades and pavement rehabilitation. The Airport is also considering safety and security improvements that are expected to include new gates, access systems, security cameras, and lighting.

Construction of a permanent ATCT at VUO may be added to the CIP at a later date; however, the decision of whether or not to build an ATCT hinges on agreements from several stakeholders including the City of Vancouver and the FAA. Once agreements have been reached, it is recommended that an ATCT be added to the CIP.

Cost estimates in the CIP are for planning purposes only, and should be verified prior to requesting funding. The CIP is presented in **Table 2-6**.

Table 2-6: Capital Improvement Plan 2013-2022

Year	Project	Cost	FAA Entitlement	FAA Discretionary	Unidentified	Local Match
2013	Fuel Farm Improvements	$169,000	$150,000	$0	$0	$19,000
2014	AWOS Installation	$85,000	$77,000	$0	$0	$9,000
2015	Slurry Seal and Restripe Pavement Parking Aprons, Taxilanes, Taxiway A	$533,000	$224,000	$255,000	$0	$54,000
2016	Carry Forward AIP Entitlement	$0	$0	$0	$0	$0
2017	Carry Forward AIP Entitlement	$0	$0	$0	$0	$0
2018	Airfield Lighting Replacement Runway, Taxiway, and Electrical Vault	$1,650,000	$450,000	$1,035,000	$0	$165,000
2019	Safety and Security Improvements Lighting, Fencing, Access Control	$170,000	$150,000	$0	$0	$20,000
2020	Southside Runway Grading and Drainage	$260,000	$150,000	$0	$84,000	$26,000
2021	Pavement Rehabilitation Runway, Taxiways, Aprons	$2,100,000	$150,000	$1,800,000	$0	$210,000
Total		**$4,967,000**	**$1,351,000**	**$3,090,000**	**$84,000**	**$503,000**
Percent of Project Cost			**28%**	**60%**	**2%**	**10%**

Project costs developed in 2012 dollars, and escalated for inflation at a rate of three percent annually.
Numbers may not add due to rounding.

6. Summary

VUO has limited property available for expansion, and the location within the Fort Vancouver National Historic Site, between a neighborhood, state and interstate highways, and a major retail center, presents challenges and opportunities that influence development plans. Aviation activity forecasts in **Chapter 1** suggest that the Airport will not see a significant increase in the number of based aircraft; however, VUO may attract different types of aircraft, and itinerant aircraft operations are expected to grow steadily over the next 20 years. This chapter provides a strategy that airport management can use to meet the forecasted demand, and perpetuate the viability of VUO to aircraft operators and aviation businesses, and to build upon existing economic benefit to the community.

A summary of recommended and preferred airport improvement projects is presented in **Table 2-7**, and a graphic summary of the preferred airport layout is included in **Exhibit 2-15**.

Table 2-7: Recommended and Preferred Airport Improvement Summary

• Maintain existing ARC of B-I (small). • Relocate Runway End 26 threshold to the east by 450 feet. • Consider RNAV (GPS) instrument approach procedures for Runway 8-26. • Replace ASOS with an AWOS. • Provide access between aircraft storage and the runway for ADG II aircraft. • Work with the City of Vancouver to implement a road across the east development area. • Provide space for 30 additional T-hangar units in the east development area.	• Provide 2.1 acres of aviation/commercial business development area. • Remove T-hangar buildings A and B. • Provide 11 new box hangars in the west development area. • Replace UST fuel storage with AST fuel storage. • Expand automobile parking north of the FBO. • Provide 22 additional tie-down spaces. • Work with the City of Vancouver and other Fort Vancouver National Historic Site entities to develop an access plan.

Exhibit 2-15
Proposed Airport Layout

Appendix A
Fort Vancouver National Historic Site
Pearson Airfield
Lease NO. L-FOVA001-11

Prepared by the National Park Service and the City of Vancouver
April 2011

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

--ooOoo—

FORT VANCOUVER NATIONAL HISTORIC SITE

PEARSON AIRFIELD

LEASE NO. L-FOVA001-11

--ooOoo--

City of Vancouver, Washington

Covering the period April 1, 2011 through March 31, 2051

PEARSON FIELD LEASE FOR RUNWAY 08 & PARALLEL TAXIWAY

PEARSON FIELD LEASE FOR RUNWAY 08 & PARALLEL TAXIWAY

INDEX

INTRODUCTION

This Lease ("Lease") is made and entered into and effective as of April 1, 2011 ("Effective Date"), by and between the United States Department of the Interior, acting through the National Park Service, an agency of the United States of America, Fort Vancouver National Historic Site, a unit of the National Park Service, acting through the Regional Director, hereinafter, together with his or her successor or successors in office and his, her, or their duly appointed representatives (collectively, "Lessor" and/ or "FVNHS") and the City of Vancouver, Washington, ("Lessee" and/or "City").

RECITALS

This Lease is entered into upon the following facts, understandings and intentions of Lessor and Lessee, sometimes collectively referred to herein as the "Parties," and individually as a "Party":

A. FVNHS is administered by the Secretary of the Department of the Interior through the National Park Service pursuant to the National Park Service Organic Act, 16 U.S.C. Section 1 et seq., and FVHNS Enabling Act, 16 U.S.C. § 450 ff.

B. In 1996, Section 502 of the Omnibus Parks and Public Lands Management Act, Pub. Law No. 104-333 (Nov. 12, 1996), 16 U.S.C. § 461 note, established the Vancouver National Historic Reserve for the management, preservation and protection of the 366 acre Historic Reserve which includes FVNHS and Pearson Field.

C. Pearson Field has been the site of many important events in aviation history dating back to 1905.

D. Pearson Field was established as a formal airfield in 1921 and as a U.S. Army airfield in 1923.

E. In 1947, the City acquired 72.57 acres of property from the United States War Assets Administration for the purposes of operating a municipal airfield. This property, together with 61.8 adjacent acres to the east owned by the City, currently constitutes Pearson Field.

F. In 1971 the City agreed to sell 72.57 acres of Pearson Field to the National Park Service for use in conjunction with FVNHS the funds from the purchase to be used by the City to purchase adjacent property for airport uses and to initiate planning for a new municipal airport at a different location.

G. By agreement dated September 24, 1971, the City conveyed the property to National Park Service and the National Park Service agreed to permit the continued operations of Pearson as a general aviation airfield until April 6, 2002.

H. With no new airport having been located in either the City or Clark County, Washington, Congress authorized and directed the National Park Service, through Section 334 of Pub. Law No. 104-134, 110 Stat. 1321-210 (Apr. 26, 1996), and in accordance with the Memorandum of Agreement dated November 4, 1994, between the National Park Service and the City, to permit general aviation on the National Park Service portion of Pearson Field until the year 2022 during which time a plan and method for transitioning from general aviation aircraft to historic aircraft would be completed, and that the transition be accomplished by this date.

I. In 2007 the Vancouver National Historic Reserve, including the National Park Service owned portion of Pearson Field, was listed on the National Register of Historic Places by the Secretary of the Interior.

J. The City and FVNHS have agreed that the transition to historic use, as directed by Section 334 of Public Law 104-134, 110 Stat. 1321-210 (Apr. 26, 1996), will be substantially accomplished through the following steps:

- The City has developed Pearson Air Museum and the Jack Murdock Aviation Center in the National Park Service owned historic buildings on Pearson Field. The Museum, which opened in 1998, is designed to be a "living" Museum where many of the planes on exhibit still fly and where periodic "fly-ins" provides visitors the opportunity to see historic aircraft in action. The Museum interprets the history of Pearson Field and the "Golden Age of Flight" in the Pacific Northwest.

- The City removed all non-historic, aviation buildings and devices on National Park Service property, except for the airfield and associated taxiways, and the property has been restored to pasture land that can be used in the future for historic crops associated with the Hudson's Bay era Fort Vancouver.

- The City, as part of upgrades to the municipal airfield, constructed an airplane taxiway from the runway to the Air Museum to provide access for historic fly-ins.

- The City constructed new t-hangars and other buildings to support the operation of the municipal airfield on the eastside of the airfield property, as removed from Fort Vancouver as possible, to allow visitors to experience more of the restored landscape without modern intrusions;

- The National Park Service implemented a Reserve-wide Wayside Exhibit plan to create an interpretive experience for visitors. Four waysides exhibits at Pearson Field and the Air Museum explain the history of the Field.

- The City installed new signage at Pearson Field to reflect a more historic era.

K. Pearson Field has continuously operated as a public use airport for a period that predates the establishment of the Fort Vancouver National Monument in 1948 and the Vancouver National Historic Reserve in 1996.

L. The City and the National Park Service, in cooperation with the Federal Aviation Administration, have agreed to submit to the Director of the National Park Service, after appropriate NEPA compliance and no later than January 1, 2021, a plan as required by Section 334 of Pub. Law No. 104-134. The parties also intend that the plan, once adopted will be incorporated into this lease by reference. It is the intent of all parties that the plan not conflict with the Federal Grant Assurances that the City has accepted or will accept as a condition of their receiving federal funds. The parties also intend that the plan shall not be construed to limit the authority of the Federal Aviation Administration over air traffic control or aviation activities at Pearson Field or limit operations and airspace of Portland International Airport.

M. FVNHS contains property that the National Park Service has determined as suitable for leasing under 36 Code of Federal Regulations, Part 18. The National Park Service has determined that the use and occupancy of the property that is made available under this Lease is consistent with the FVNHS General Management Plan and the requirements of Part 18 of Title 36 of the Code of Federal Regulations.

N. Lessor and Lessee desire to enter into a lease of the Premises based on the terms and conditions set forth in this Lease.

THEREFORE, in consideration of their mutual promises, the Lessor and Lessee hereby agree as follows:

Section 1. DEFINITIONS

As used in this Lease, the following defined terms are applicable to both singular and plural forms.

1.1. Alterations - means any construction, physical modifications, rehabilitation, reconstruction,
and/or restoration of the Premises.

1.2. Applicable Laws - means all present and future laws, statutes, requirements, ordinances, judgments, regulations, and administrative and judicial determinations that are applicable by their own terms to the Premises, the Lessor or the Lessee, even if unforeseen or extraordinary, of every governmental or quasi-governmental authority, court or agency claiming jurisdiction over the Premises now or hereafter enacted or in effect (including, but not limited to, Part 18 and the Park Area's General Management Plan, environmental laws and those relating to accessibility to, usability by, and discrimination against, disabled individuals), and all covenants, restrictions, and conditions now or hereafter of record which may be applicable to the Lessee or to all or any portion of the Premises, or to the use, occupancy, possession, operation, and maintenance of the Premises even if compliance therewith results in interference with the use or enjoyment of all or any portion of the Premises.

1.3. Annual Rent - means the annual fixed rent to be paid to Lessor by Lessee under Section 5.

1.4. Assignment - means the transfer, whether it is direct or indirect, voluntary or by operation of law, assignment, sale, or conveyance, of the Lessee's leasehold estate, or the Lessee's rights

under this Lease in whole or part. Such transfer may be designated as a sale, a conveyance, or an assignment. The sale, conveyance, or assignment (including by consolidation, merger or reorganization) of a controlling interest in the Lessee (if such entity is a corporation), or any sale or other transfer of a controlling interest in the partnership interests (if such entity is a partnership), whether in a single transfer or in a series of related transfers, and whether directly or by sales or transfers of underlying partnership or corporate ownership interests, is an assignment. For a corporate entity, the term controlling interest means an interest, beneficial or otherwise, of sufficient outstanding voting securities or capital of the Lessee so as to permit exercise of managerial authority over the actions and operations of the Lessee. For a partnership, limited partnership, joint venture, limited liability company, or individual entrepreneur, controlling interest means the beneficial ownership of the capital assets of the Lessee so as to permit exercise of managerial authority over the actions and operations of the Lessee.

1.5. Commencement Date - means the first day of the Lease term as stated in Section 4 of this Lease.

1.6. Encumbrance - means the direct or indirect, voluntary or by operation of law, encumbrance, pledge, mortgage, or other hypothecation of the Lessee's interest or rights under this Lease and/or the Premises or Lessee's leasehold estate.

1.7. Expiration Date - means the last day of the Lease Term as stated in Section 4 of this Lease.

1.8 FF&E - means all furniture, fixtures and equipment in or on the Premises.

1.9. Hazardous Materials - means any material or other substance: (a) that requires investigation or correction under Applicable Laws; (b) that is or becomes defined as a hazardous waste, hazardous substance, pollutant, or contaminant, under Applicable Laws; (c) that is toxic, explosive, corrosive, flammable, infectious, radioactive, carcinogenic, mutagenic, or otherwise hazardous, and is or becomes regulated under Applicable Laws; (d) that, without limitation of the foregoing, contains gasoline, diesel fuel or other petroleum hydrocarbons; (e) that, without limitation of the foregoing, contains polychlorinated biphenyls (PCBs), asbestos or urea formaldehyde foam insulation; or (f) without limitation of the foregoing, contains radon gas. The term Hazardous Materials as used in this Lease includes Pre-Existing Hazardous Materials unless otherwise stated in a particular provision of this Lease.

1.10. Hazardous Materials Occurrence - means any use, treatment, keeping, storage, sale, release, disposal, migration, transport, or discharge of any hazardous materials from, on, under, or into the Premises or other Park Area property that occurs during the Lease Term.

1.11 Historic Property - means building(s) and land located within the boundaries of the Park Area that are part of a pre-historic or historic district or site included on, or eligible for inclusion on, the National Register of Historic Places.

1.12 Interest Rate - means the percentage of interest charged based on the current value of funds to the United States Treasury that is published annually in the Federal Register or successor publication.

1.13 Inventory and Condition Report - means the document contained in Exhibit A to this Lease that describes the FF&E in the Premises and the condition of the Premises (including FF&E) as of the Commencement Date. The Pearson Field Airport Layout Plan and Pavement Management report will serve as the Inventory and Condition report.

1.14 Lease Term - is the term of this Lease as stated in Section 4 of this Lease.

1.15 Lease Year - means a year of the Lease Term. The first Lease Year shall commence on the Commencement Date and shall end on the expiration of the twelfth full calendar month following thereafter. Each subsequent Lease Year shall commence on the next day following the expiration of the preceding Lease Year, and shall end on the expiration of the twelfth full calendar month following thereafter, or on the last day of the Lease Term, whichever occurs first.

1.16 Notice of Default - means an instrument in writing from the Lessor to the Lessee providing notice of that the Lessee is in default of the lease.

1.17 NPS 28 - means the National Park Service document entitled, "A Cultural Resource Management Guideline" that is hereby made a part of this Lease by reference.

1.18 Park Area - means Fort Vancouver National Historic Site

1.19 Part 18 - means Part 18 of Title 36 of the Code of Federal Regulations.

1.20 Personal Property - means all furniture, fixtures, equipment, appliances, and apparatus placed in or on the Premises that are neither permanently attached to or form a part of the Premises.

1.21 Pre-existing Hazardous Materials - means hazardous materials (including storage tanks) that existed in, on, or under the Premises or other Park Area property prior to the Commencement Date of the Lease.

1.22 Premises - means the property of the Park Area that is described in Section 2 of this Lease.

1.23 Preservation Maintenance Plan - is a document that sets forth a plan for the Lessee's repair and maintenance of Historic Property. The 2005 Pearson Field Pavement Management Manual will serve as the initial Preservation Maintenance Plan.

1.24 Rent - means the rent to be paid Lessor by Lessee described in Section 5 of this Lease and any additional Rent this Lease may require.

1.25 Secretary's Treatment Standards - shall mean the Secretary of the Interior's Treatment Standards for Historic Property (36 Code of Federal Regulations Part 68) that are hereby made a part of this Lease by reference.

1.26 Sublease - means an agreement under which the Lessee grants a person or entity (a Sublessee) the right to use, occupy, or possess a portion of the Premises.

1.27 Termination Date - means the date this Lease may be terminated or cancelled in accordance with its terms prior to the Expiration Date.

Section 2. LEASE OF PREMISES

2.1. Lease of Premises; Reservation of Rights

(a) The Lessor hereby leases and demises to the Lessee under the authority of Part 18, and the Lessee hereby leases, upon and subject to the covenants and agreements contained in this Lease, from the Lessor, the Premises described as follows:

See Exhibit B

(b) Subject to all Applicable Laws, and all liens, encumbrances, restrictions, rights and conditions of law or of record or otherwise; and

(c) Excepting and reserving to the Lessor the right, at reasonable times and (except in case of emergency) following advance notice to the Lessee, to enter and to permit any governmental agency, public or private utilities and other persons to enter upon the Premises as may be necessary for the purposes of the administration of this Lease and/or the Park Area as determined by the Lessor and to close the Premises when immediate danger to life or property is discovered;

(d) Excepting and reserving exclusive rights to all oil, gas, hydrocarbons, and other minerals in, under, or on the Premises and ownership of any current or future water rights applicable to the Premises.

2.2 Waiver

The Lessee hereby waives any claims for damages for any injury or inconvenience to or interference with the Lessee's use and occupancy of the Premises, any loss of occupancy or quiet enjoyment of the Premises or any other loss occasioned by the Lessor's lawful exercise of its rights under this Lease or by the Lessor's actions taken for the management and protection of the Park Area's resources and visitors; provided, however, if Lessor's action result in the temporary deactivation of the runway or taxiway, or otherwise alters the use of the airport, the Lessee will be granted sufficient time to fulfill all standards and notification requirements of the FAA. The FAA, consistent with 14 CFR Part 157 has a responsibility to evaluate the effects of any such temporary closure on existing or proposed traffic patterns of neighboring airports, on the existing airspace structure and on projected FAA programs. The Lessee requires adequate time to work with the FAA to identify potential aeronautical hazards and minimize any adverse impact to the safe and

efficient operation of the navigable airspace. Rent under this Lease shall be abated pro rata for any period of closure extending longer than one day.

2.3 Easements

Nothing contained in this Lease shall give or be deemed to give the Lessee a right to grant any type of easement or right-of-way affecting the Premises. Lessor agrees to execute, if otherwise appropriate as determined by the Lessor, such easements for utilities as Lessee shall require in connection with the use and operation of the Premises.

2.4 Ownership of the Premises

This Lease does not vest in the Lessee any fee interest in the Premises. Title to the Premises at all times is with and shall remain solely with the Lessor.

2.5 Historic Property

The Premises (or portions of the Premises) are Historic Property. The Vancouver National Historic Reserve, which includes Pearson Airfield, is listed on the State and National Historic Registers. The City-owned portion of Pearson Field is not included on either the State or National Historic registers. The National Park Service-owned portion of Pearson Field, the subject of this lease, is included on the State and National Registers.

Section 3. Acceptance of the Premises

3.1 As Is Condition of the Premises

The Lessee agrees to lease the Premises in its existing "as is" condition and acknowledges that in entering into this Lease, the Lessee does not rely on, and the Lessor does not make, any express or implied representations or warranties as to any matters including, without limitation, any characteristics of the Premises or improvements thereon, the suitability of the Premises for the intended use, the likelihood of deriving trade from or other characteristics of the Park Area, the economic or programmatic feasibility of the Lessee's use and occupancy of the Premises, or hazardous materials on or in the vicinity of the Premises.

3.2 Lessee's Due Diligence

Prior to entering into this Lease, the Lessee in the exercise of due diligence has made a thorough, independent examination of the Premises and all matters relevant to the Lessee's decision to enter into this Lease, and the Lessee is thoroughly familiar with all aspects of the Premises and is satisfied that they are in an acceptable condition and meet the Lessee's needs.

3.3 Inventory and Condition Report

In the exercise of its due diligence, City has adopted an Airport Layout Plan and Pavement Management Report (Exhibit A) and certifies that the runway, taxiway, navigation aids and associated lighting and signage exist and are in good condition.

Section 4. LEASE TERM AND ABANDOMENT

4.1 Lease Term

The Lease Term shall be a period of forty (40) years commencing on April 1, 2011 (commencement date) and expiring on March 31, 2051 (Expiration Date) or ending on such earlier date as this Lease may be terminated in accordance with its terms (Termination Date).). In order for Lessee to remain eligible for Federal Aviation Administration grants, Lessor and Lessee agree to meet prior to December 31, 2029 for the purpose of discussions regarding executing a new lease.

4.2 Abandonment

The Lessee shall occupy the Premises during the entire Lease Term. If it fails to do so, the Lessee may be determined as in Default for abandoning the Premises.

Section 5. RENT

5.1. Net Lease and Rent Payments

(a) All Rent shall be absolutely net to Lessor without any abatement, deduction, counterclaim, set-off or offset. Lessee shall pay all costs, expenses and charges of every kind and nature relating to the Premises, including, without limitation, all taxes and assessments.

(b) All Rent payments consisting of $10,000 or more shall be deposited electronically by the Lessee using the Treasury Financial Communications System. At Lessor's option, Rent payments of $3,722.58 shall be payable by wire transfer or other electronic means to such account as Lessor may from time to time designate. Interest at the Interest Rate will be assessed on overdue Rent payments, defined as 5 days. The Lessor may also impose penalties for late Rent payments to the extent authorized by Applicable Law.

5.2 Annual Rent

During the Lease Term, Lessee shall pay to Lessor Annual Rent for the Premises in the aggregate annual amount of $44,671 (as adjusted for CPI as provided below) payable in advance in equal monthly installments on the first day of each calendar month.

5.3 CPI Adjustment The Annual Rent will increase effective as of the beginning of the second Lease Year and annually thereafter during the Lease Term to reflect the proportionate cumulative increase in the CPI, if any, during the previous Lease Year. For purposes of this section, CPI means the United States Department of Labor, Bureau of Labor Statistics, All Cities Average Consumer Price Index, or if such index is no longer published, a successor or substitute

index agreed to by the Lessor and Lessee, that shows changes in consumer prices in the general locale of the Premises.

5.4 Reserved

5.5. Rent Reconsideration

(a) The Rent otherwise required by this Lease shall be subject to reconsideration at the request of the Lessor or the Lessee after the end of the 10, 20 and 30 Lease Years of this Lease in order to maintain the Rent under this Lease in an amount and structure consistent with "fair market value rent." "Fair market value rent" for the purposes of this section means the most probable rent, as of a specific date, in cash or in terms equivalent to cash, for which the Premises, subject to the terms and conditions of this Lease, should rent for their highest and best permitted use for airport operations, with an airport reference code of B-I after reasonable exposure in a competitive market under all conditions requisite to a fair leasing opportunity, with the Lessor and the Lessee each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress.

(b) To request a Rent reconsideration, the Lessor or Lessee (or both) must notify the other party in writing of its request within sixty (60) days after the end of the applicable Lease Year. Upon receipt of such notice, the Lessor and Lessee must negotiate in good faith a Rent adjustment. If, after the end of such sixty (60) day negotiation period, agreement as to a possible Rent adjustment has not been reached, either party may request that the matter be resolved by binding arbitration conducted by an arbitration panel. Such request must be made be made by written notice to the other party within thirty (30) days of the end of the negotiation period.

(c) One member of the arbitration panel is to be selected by the Lessor, one member is to be selected by the Lessee, and the two party-appointed members are to select the third (neutral) member. The neutral arbiter must be a licensed real estate appraiser. The expenses of the neutral arbiter and other associated common costs of the arbitration will be borne equally by the Lessor and the Lessee. The arbitration panel will adopt procedures that treat each party equally, give each party the opportunity to be heard, and give each party a fair opportunity to present its case. A Rent adjustment determination must be made by a majority of the members of the panel and will be binding on the Lessor and the Lessee. The arbitration panel will determine an appropriate adjustment to Rent, if any, to reflect "fair market value rent" effective as of the beginning of the 10, 20, and 30 Lease Year, as applicable.

Section 6. USE OF PREMISES

6.1 Authorized Uses

The Lessee may utilize the Premises, subject to Paragraphs L and M of "Recitals", only for the following purposes:

(a) The existing runway and taxiway system will continue in operation under the terms of this Lease and consistent with the Airport Master Plan and FAA policies. Continued operation of a the Pearson Field Airport shall be maintained to accommodate aircraft up to and including the B-1, Small Aircraft (weighing 12,500 lbs. and less) in keeping with FAA standards for airport design.

i. Consistent with Pearson Field's Airport Reference Code classification, only fixed wing, propeller driven aircraft will be based at Pearson Field. The City will make no provisions for the accommodation of jet aircraft or helicopters at Pearson Field except as necessary to accommodate emergency, law enforcement, military, disaster or national security needs.

ii. The aircraft based at Pearson Field will be hangared or tied down on property owned by the City of Vancouver. At full build-out, this area has the capacity to hangar and tiedown an estimated 185 permanent aircraft. The hangar and tiedown areas do not include aircraft associated with police or emergency services functions, aircraft on display at Pearson Air Museum, aircraft in service at the Pearson Field Fixed Base Operator, aircraft under going long-term restoration or otherwise not operable or transient aircraft.

(b) After January 1, 2022 the airport will be operated in accordance with the plan described in the Recitals section, Paragraph L, of this Lease.

6.2 Changes to Authorized Uses

The Lessee may amend or change approved uses subject to the prior written approval of the Lessor. No change of the uses of the Premises shall be approved unless the Lessor, among other matters, determines the proposed use to be consistent with Part 18, the Park Area's General Management Plan, all other Applicable Laws, and that the proposed change will not have an adverse impact on the Lessor's ability to manage and protect the Park Area's resources and visitors.

6.3 Applicable Laws

The Lessee shall comply with all Applicable Laws in its use and occupancy of the Premises.

6.4 Forbidden Uses

In no event shall the Premises be used for any purpose that is not permissible under Part 18 or, even if so permissible, may be dangerous to life, limb, property or public health; that in any manner causes or results in a nuisance; that is of a nature that it involves substantial hazard, such as the manufacture or use of explosives, chemicals or products that may explode, or that otherwise harms the health or welfare of Park Area resources and/or visitors; or that results in any discharge of Hazardous Materials in, on or under the Premises.

6.5 Site Disturbance

Lessor shall not plant any trees or vegetation on the Premises without Lessee's prior written consent. Lessee shall not cut any trees on the Premises without Lessor's prior written consent. Lessor and Lessee agree to not plant or develop landscaping that may attract undesirable wildlife including geese and other migratory birds to the Premises and agree to work collaboratively to mitigate wildlife threats to aviation and the general public. Lessor and Lessee shall respond within 30-days to written requests for tree or vegetation planting or removal.

The trimming or removal of other woody vegetation or landscape features will be determined as part of the annual operating agreement between the Lessee and the Lessor. The Lessee has permission to mow and manage the landscaping as necessary to insure safe aircraft operations, reduce fire hazards, maintain proper storm drainage and reduce the potential for unauthorized access and overnight camping.

The Lessee shall conduct no mining or drilling operations, remove no sand, gravel or similar substances from the ground, and allow no unreasonable waste of any kind.

6.6 Protection of Cultural and Archeological Resources

The Lessee shall ensure that any protected sites and archeological resources within the Park Area are not disturbed or damaged by the Lessee except in accordance with Applicable Laws and only with the prior written approval of the Lessor. Discoveries of any archeological resources by the Lessee shall be promptly reported to the Lessor. The Lessee shall cease work or other disturbance, which may impact any protected site or archeological resource until the Lessor may grant approval to continue upon such terms and conditions as the Lessor deems necessary to protect the site or resource.

6.7 Signs

Except for signs already located within the Runway and Taxiway Building Restriction Lines as of the effective date of this Lease, the Lessee may not post signs on the Premises of any nature without the Lessor's prior written approval. Any approval of a sign that may be given by the Lessor shall specify the type, size, and other appropriate conditions concerning its display. The Lessor may post signs on the Premises as appropriate for the administration of the Park Area with due consideration of FAA regulations and aircraft safety.

The Lessee shall work with the Lessor to ensure the protection and preservation of the Site's acoustical environment and soundscape by minimizing noise intrusions where possible. The Lessee will continue to work with the Lessor to schedule historic fly-ins and other flights around noise-sensitive special events. The Lessee will also inform pilots about National Park Service and other Historic Reserve events and encourage pilots to fly quietly whenever and wherever possible during these times. The Lessee will also place stationary noise sources as far from sensitive areas as possible.

6.8 Permits and Approvals

Except as otherwise may be provided in this Lease, the Lessee shall be solely responsible for obtaining, at its expense, any permit or other governmental action necessary to permit its activities under this Lease.

6.9 Alterations

The Lessee shall not make Alterations of any nature to the Premises without the written permission of the Lessor. Any such permission that may be given will be subject to an amendment of this Lease to incorporate appropriate terms and conditions regarding the nature of the Alterations and construction requirements, including, without limitation, construction insurance requirements.

Section 7. RECORDS AND AUDITS

The Lessee shall provide the Lessor and its agents and affiliates, including without limitation, the Comptroller General of the United States, access to all books and records relating to the Premises and the Lessee's use of the Premises under this Lease for the purpose of conducting audits to verify the Lessee's compliance with the terms and conditions of this Lease for any of the five (5) preceding Lease Years. The Lessee shall keep and make available to the Lessor these books and records at a location in the Premises or within the locale of the Park Area. The Lessee shall, if requested by the Lessor, provide the Lessor with complete information and data concerning the Lessee's operations and operating results, including without limitation, information and data regarding the number and type of landings.

Section 8. MAINTENANCE AND REPAIR

8.1 Lessee's Responsibilities

The Lessee shall be solely responsible for the repair and maintenance of the Premises during the Lease Term. This responsibility includes, without limitation:

(a) The performance of all repairs, maintenance, replacement, upgrading, capital improvements, (whether structural or non-structural, foreseen or unforeseen, ordinary or extraordinary) necessary to maintain the Premises and the improvements thereon in good order, condition, and repair in a manner consistent with FAA Standards and in compliance with all applicable laws and airport operational safety;

(b) The replacement, as they become worn out or obsolete, of all FF&E;

(c) Housekeeping and routine and periodic work scheduled to mitigate wear and deterioration without altering the appearance of the Premises;

(d) The repair or replacement in-kind of broken or worn out elements, parts or surfaces so as to keep the existing appearance of the Premises;

(e) Scheduled inspections of all building systems on the Premises; and

(f) Maintaining the grounds of the Premises in good condition, including, without limitation, regular grass mowing, managed lawn and ornamental plantings, and avoidance or removal of unsightly storage or parking of materials, equipment, or vehicles.

Any repair and maintenance actions that may result in Alterations to the Premises require the prior written approval of the Lessor.

8.2 Maintenance Plan

If requested by the Lessor, the Lessee shall submit to the Lessor for its approval, which approval shall not be unreasonably withheld, a Lessee Maintenance Plan. The plan, when approved by Lessor, shall become an Exhibit to this Lease without further action and the Lessee shall comply with its terms. The Lessee may make reasonable modifications to the plan from time to time to reflect changing maintenance and repair needs of the Premises.

The Lessee has an adopted Airport Master Plan (October 2001), a Pavement Management Plan (February 2006) and an Airport Runway Safety Assessment and Recommendation Report (August 2006). Maintenance for the FVNHS property at Pearson Field will be limited to navigational aids (Visual Approach Slope Indicator), runway and taxiway lighting, signage, pavement management, vegetation management, signage and mowing.

8.3 Preservation Maintenance Plan

If the Premises (or any part of the Premises) are Historic Property, the Lessee shall repair and maintain all portions of the Premises that are Historic Property through a Preservation Maintenance Plan prepared by the Lessee and approved by the Lessor as appropriate and consistent with the requirements of the Secretary's Treatment Standards and NPS 28. The Lessee may make reasonable modifications to the plan from time to time to reflect changing maintenance and repair needs of the Premises. The Lessee shall submit to the Lessor such modifications, whose approval shall not be unreasonably withheld. The Lessee shall submit a proposed Preservation Maintenance Plan to the Lessor within thirty (30) calendar days of the Commencement Date of the Lease. The plan, when approved by Lessor, shall become an Exhibit to this Lease without further action and the Lessee shall comply with its terms.

The Lessee agrees to preserve the operation of the airport in its existing configuration as defined in the Airport Layout Plan approved by the FAA on August 14, 2002 as hereafter modified; provided, however, that any future modification of the Airport Layout Plan shall only be applicable to City-owned airport property. FVNHS may request reasonable modifications to the City's operation and maintenance activities from time to time to reflect changing maintenance and repair needs of the Premises.

Section 9. UTILITIES

The Lessee at its sole expense shall make all arrangements with appropriate utility providers (including the Lessor where applicable), for all utilities furnished to the Premises, including, without limitation, gas, electricity, other power, water, cable, telephone and other communication services, sewage, and waste removal. Any utility service provided by Lessor will be subject to the Lessor's established policies and procedures for provision of utility services to third parties.

Section 10. HAZARDOUS MATERIALS

The Lessee shall comply with the following provisions concerning Hazardous Materials:

(a) No Hazardous Materials shall be used, treated, kept, stored, sold, released, discharged or disposed of from, on, about, under, or into the Premises except in compliance with all Applicable Laws and as approved by the Lessor in writing;

(b) The Lessee shall use, manage, treat, keep, store, release discharge and dispose of its approved Hazardous Materials in accordance with all Applicable Laws. The Lessee is responsible for timely acquisition of any permits required for its Hazardous Materials and related activities and will be fully responsible for compliance with the provisions and conditions of such permits;

(c) If any Hazardous Materials Occurrence caused by Lessee results in any contamination of the Premises, other Park Area property or neighboring property, the Lessee shall promptly take all actions at its sole expense as are required to comply with Applicable Laws and to allow the Premises or such other property to be used free of any use restriction imposed under Applicable Laws as a result of the Hazardous Materials Occurrence. Except in cases of emergency, the Lessor's written approval of such actions shall first be obtained;

(d) Lessee at its expense shall be responsible for the abatement of Hazardous Materials in accordance with Applicable Laws in, on, or under the Premises as of the Commencement Date and thereafter; and

(e) If the Lessee discovers any unapproved Hazardous Materials in or on the Premises or becomes aware of a Hazardous Materials Occurrence related to the Premises, the Lessee shall immediately notify the Lessor.

Section 11. INSURANCE AND INDEMNIFICATION

11.1 Insurance During the Lease Term

At all times during the Lease Term and at the Lessee's sole expense, it shall obtain and keep in force for the benefit of the Lessee and Lessor the insurance coverages set forth in Exhibit C to this Lease under the terms and conditions of Exhibit C.

11.2 Insurance Requirements Modification

If the Lessor at any time, but not more than annually, believes that the limits or extent of coverage, conditions and deductibles with respect to any of the insurance required by this Lease are

insufficient for a prudent owner of property of the nature of the Premises, the Lessor may determine the proper and reasonable limits and extent of coverage, conditions and deductibles for such insurance and such insurance shall thereafter be carried by the Lessee until changed pursuant to the provisions of this section.

11.3. Disposition of Insurance Proceeds

All insurance proceeds received by or payable with respect to damage or destruction of the Premises (except proceeds of insurance covering loss or damage of the Lessee's Personal Property), less actual expenses incurred in connection with their collection, shall be held by the Lessee in an interest bearing account, with all interest accrued thereon deemed proceeds of insurance for purposes of this Lease. However, if required by the Lessor, an insurance trustee acceptable to the Lessor shall hold such proceeds for application in accordance with this Lease.

11.4 Inadequate Insurance Coverage

The Lessee's responsibilities under this Lease for the repair or replacement of the Premises assume full risk and responsibility for any inadequacy of insurance coverage or any failure of insurers. No approval by the Lessor of any insurer, or the terms or conditions of any policy, or any coverage or amount of insurance, or any deductible amount shall be construed as a representation by the Lessor of the solvency of the insurer or the sufficiency of any policy or any coverage or amount of insurance or deductible.

11.5 Indemnity

The Lessee shall indemnify, defend, save and hold the United States of America, its employees, successors, agents and assigns, harmless from and against, and reimburse the United States of America for any and all claims, demands, damages, injuries, losses, penalties, fines, costs, liabilities, causes of action, judgments, and expenses, including without limitation expenses incurred in connection with or arising in any way out of this Lease, the use, occupancy or manner of use or occupancy of the Premises by the Lessee or any other person or entity, the design, construction, maintenance, or condition of any improvements on the Premises, the condition of the Premises, and/or any accident or occurrence on the Premises from any cause whatsoever; provided, however, that the Lessee shall not be liable to the extent that the damages, expenses, claims or suits result from the willful misconduct or negligence of the United States of America, or its employees, contractors, or agents; provided, further, that the United States of America shall be liable only to the extent such claims are covered by the Federal Tort Claims Act (28 USC 2671 et seq.).

The provisions of this section shall survive the Expiration Date or Termination Date of this Lease.

Section 12. DAMAGE OR DESTRUCTION

12.1 Damage or Destruction; Duty to Restore

If the Premises or any portion thereof are damaged or destroyed at any time during the Lease Term, the following will occur as directed by the Lessor:

(a) the Lessee, as promptly as reasonably practicable and with all due diligence, subject to the written prior approval of the Lessor, shall repair or replace the damaged or destroyed Premises to the condition that existed prior to the damage or destruction in accordance with the Airport Layout Plan.

(b) the Lessor may terminate this Lease without liability and the Lessee shall pay to the Lessor as additional rent the insurance proceeds resulting from the damaged or destroyed Premises.

12.2 No Termination; No Effect on Rental Obligation

No loss or damage by fire or other cause resulting in either partial or total destruction of the Premises, the improvements thereon, any other property on the Premises shall operate to terminate this Lease except as provided in Section 12.1 of this Lease. No such loss or damage shall affect or relieve the Lessee from the Lessee's obligation to pay the Rent required by this Lease and in no event shall the Lessee be entitled to any prorated return or refund of Rent paid hereunder. Unless this Lease is terminated under Section 12.1, no such loss or damage shall relieve or discharge the Lessee from the payment of taxes, assessments, or other charges as they become due and payable, or from performance of other the terms and conditions of this Lease.

13. LIENS

13.1. No Power in Lessee to Create Liens

The Lessee shall have no power to take any action that may create or be the foundation for any lien, mortgage or other encumbrance upon the reversion, fee interest or other estate of the Lessor or of any interest of the Lessor in the Premises, except as otherwise may be expressly approved by the Lessor in writing in accordance with the terms of this Lease.

13.2. Discharge of Liens by Lessee

The Lessee shall not suffer or permit any liens known to the Lessee to stand against the Premises for any reason. If a lien is filed against the Premises, the Lessee shall cause it to be discharged of record within sixty calendar (60) days after notice to the Lessee of filing the lien. If the Lessee fails to discharge or contest the lien within this period and the failure shall continue for a period of fifteen calendar (15) days after notice by the Lessor, then, in addition to any other right or remedy of the Lessor, the Lessor may, but shall not be required, to procure the discharge of the lien either by paying the amount claimed to be due, by deposit in court, or by bonding. All amounts paid or deposited by the Lessor for any of these purposes, and all other expenses of the Lessor and all necessary disbursements in connection with them, shall become due and payable forthwith by the Lessee to the Lessor upon written demand therefore as additional Rent.

13.3 No Consent or Waiver by Lessor

Nothing in this Lease shall be deemed to be or be construed in any way as constituting the consent or request of the Lessor, expressed or implied, by inference or otherwise, to any person, firm or corporation, for performance of any labor or the furnishing of any materials in connection with the Premises.

Section 14. ASSIGNMENTS AND ENCUMBRANCES

14.1 Assignments

The Lessee shall not effectuate an Assignment of this Lease, in whole or in part, or any real property on the Premises, nor Sublease the Premises to a Sublessee or any part thereof or any property thereon, nor grant any interest, privilege or license whatsoever in connection with this Lease, without the express prior written permission of the Lessor. Approval of any Assignment is in the discretion of the Lessor and in no event shall the Lessor grant an approval unless it is able to determine that the proposed assignee or Sublessee is financially and managerially capable of carrying out the terms of this Lease.

With respect to proposed assignments and without otherwise limiting the criteria upon which the Lessor may withhold its consent to any proposed assignment, the Lessee shall furnish to the Lessor the following information: [1] all instruments proposed to implement the transaction; [2] a statement as to the existence of any litigation questioning the validity of the proposed transaction; [3] a description of the management qualifications and financial background of the proposed transferee, if any; [4] a detailed description of the financial aspects of the proposed transaction including but not limited to prospective financial forecast statements that have been examined by an independent accounting firm and that demonstrate to the satisfaction of the Lessor that terms of the transfer do not impede or interfere with the financial ability of the Lessee to perform the requirements of this Lease; [5] if the transaction may result in an encumbrance on the Lessee's assets, full particulars of the terms and conditions of the encumbrance; and [6] such other information as the Lessor may reasonably require. The Lessor shall have the right to approve the form of any assignment.

Any consideration for transfers of leasehold interests (as such costs are approved by the Lessor) received by the Lessee from an assignee for or in connection with an assignment of this Lease shall be payable to the Lessor.

The Lessor has an unconditional right to assign this Lease or any or all of its rights and obligations under it at any time.

14.2 Encumbrances

The Lessee may not effectuate an Encumbrance on the Premises without the prior written permission of the Lessor. Approval of any Encumbrance is in the discretion of the Lessor and in no event shall an encumbrance be approved unless the Lessor is able to determine that it only grants its holder, in the event of a foreclosure, to assume the responsibilities of the Lessee under this Lease or to select a qualified new lessee subject to the written approval of the Lessor, and that

it does not grant its holder any rights to alter or amend in any manner the terms and conditions of this Lease.

Section 15. DEFAULTS AND LESSOR'S REMEDIES

15.1 Termination for Default

The Lessor may terminate this Lease for default if the Lessee fails to keep and perform any of the terms and conditions of this Lease, provided that the Lessor shall first give the Lessee written notice of at least three hundred sixty (360) calendar days in the case of monetary defaults and one hundred eighty (180) calendar days in the case of non-monetary defaults of the Lessor's intention to terminate if the default is not cured within the applicable time period. If the Lessor terminates this Lease, all of the rights of the Lessee under this Lease and in the Premises shall terminate.

If termination of lease results in deactivation of the runway or taxiway, or otherwise alters the use of the airport, the Lessee will be granted sufficient time to fulfill all standards and notification requirements of the FAA. The FAA, consistent with 14 CFR Part 157 will evaluate the effects of any closure on existing or proposed traffic patterns of neighboring airports, on the existing airspace structure and on projected FAA programs. The Lessee requires adequate time to work with the FAA to identify potential aeronautical hazards and minimize any adverse impact to the safe and efficient operation of the navigable airspace. The Lessee hereby acknowledges the sovereign right of Lessor to cancel this lease at any time to the extent otherwise provided by law. Lessor will consider such a cancellation as a default of the Lease.

15.2 Bankruptcy

The Lessor may terminate this Lease, in its discretion, in the event of a filing or execution of: (a) a petition in bankruptcy by or against the Lessee which is not dismissed within ninety calendar (90) days of its filing; (b) a petition seeking relief of the same or different kind under any provision of the Bankruptcy Act or its successor; (c) an assignment for the benefit of creditors; (d) a petition or other proceeding against the Lessee for the appointment of a trustee, receiver or liquidator; or (e) the taking by any person of the leasehold created by this Lease or any part thereof upon execution, attachment or other process of law.

15.3 No Waiver

No failure by the Lessor to insist upon the strict performance of any of the terms and conditions of this Lease or to exercise any right or remedy upon a default, and no acceptance by the Lessor of full or partial rent during the continuance of any default shall constitute a waiver of any default or of such terms and conditions. No terms and conditions of this Lease may be waived or modified except by a written instrument executed by the Lessor. No waiver of any default shall affect or alter this Lease, but each and every term and condition of this Lease shall continue in full force and effect with respect to any other then existing or subsequent default.

15.4 Lessor's Right to Cure Defaults

If a default occurs under the terms of this Lease and the Lessee fails to correct the default within the applicable grace period, the Lessor may choose to correct the default (entering upon the Premises for such purposes if necessary), and the Lessor shall not be liable or in any way responsible for any loss, disturbance, inconvenience, or damage resulting to the Lessee as a result, and the Lessee shall pay to the Lessor upon demand the entire expense of the correction as additional Rent, including, without limitation, compensation to the agents, consultants and contractors of the Lessor and related expenses. The Lessor may act upon shorter notice or no notice at all if necessary in the Lessor's judgment to meet an emergency situation or governmental time limitation or to protect the Lessor's interest in the Premises.

Section 16. SURRENDER AND HOLDING OVER

16.1 Surrender of the Premises

(a) On or before the Expiration Date or Termination Date of this Lease, the Lessee shall surrender and vacate the Premises, remove Lessee's Personal Property, and return the Premises, including the FF&E, to as good an order and condition as that existing upon the Commencement Date.

(b) For these purposes, the Lessor and Lessee shall prepare an inventory and condition report of the Premises to constitute the basis for settlement by the Lessee to the Lessor for Lessor's FF&E, or elements of the Premises shown to be lost, damaged or destroyed. Any such FF&E, or other elements of the Premises shall be either replaced or returned to the condition required under this Section by the Lessee, ordinary wear and tear excepted, or, at the election of the Lessor, reimbursement made therefore by the Lessee at the then current market value thereof.

16.2 Holding Over

This Lease shall end upon the Expiration Date or Termination Date and any holding over by the Lessee or the acceptance by the Lessor of any form of payment of rent or other charges after such date shall not constitute a renewal of this Lease or give the Lessee any rights under this Lease or in or to the Premises.

Section 17. EQUAL OPPORTUNITY LAWS

The Lessee and Lessee's Agent's shall comply with the requirements of (a) Title VII of the Civil Rights Act of 1964 (as amended), as well as Executive Order 11246 of September 24, 1965, as amended by Executive Order 11375 of October 13, 1967; (b) Title V, Sections 503 and 504 of the Rehabilitation Act of September 26, 1973, Public Law 93-112 (as amended), which prohibits discrimination on the basis of disability and requires government contractors and subcontractors to take Affirmative Action to employ and advance in employment qualified handicapped individuals; (c) 41 C.F.R. Chapter 60, which prescribes affirmative action requirements for government contractors and subcontractors; (d) the Age Discrimination in Employment Act of December 15, 1967 (as amended); (e) the Americans with Disabilities Act, 42 U.S.C. Sections 12101 et seq.; (f)

and all other Applicable Laws relating to nondiscrimination in employment and in providing facilities and services to the public. The Lessee shall do nothing in advertising for employees that will prevent those covered by these laws from qualifying for such employment.

Section 18. NOTICES

Except as otherwise provided in this Lease, any notice, consent or other communication required or permitted under this Lease shall be in writing and shall be delivered by hand, sent by courier, sent by prepaid registered or certified mail with return receipt requested and addressed as appropriate to the following addresses (or to such other or further addresses as the parties may designate by notice given in accordance with this section):

If to the Lessor:

Superintendent
Fort Vancouver National Historic Site
610 E. Reserve St.
Vancouver, WA 98661

If to the Lessee:

City Manager,
City of Vancouver
PO Box 1995
Vancouver, WA 98668

Section 19. GENERAL PROVISIONS

The following general provisions apply to this Lease:

(a) The Lessor is not for any purpose a partner or joint venture participant of the Lessee in the development or operation of the Premises or in any business conducted on the Premises. The Lessor under no circumstances shall be responsible or obligated for any losses or liabilities of the Lessee. The Lessee shall not publicize, or otherwise circulate, promotional or other material of any nature that states or implies endorsement of the Lessee or its services or products by the Lessor or any other governmental agency.

(b) This Lease shall not, nor be deemed nor construed to, confer upon any person or entity, other than the parties hereto, any right or interest, including, without limiting the generality of the foregoing, any third party beneficiary status or any right to enforce any provision of this Lease.

(c) This Lease provides no right of renewal or extension to the Lessee, nor does it provide the Lessee with the right to the award of a new lease upon termination or expiration of this Lease. No rights shall be acquired by virtue of this Lease entitling the Lessee to claim benefits under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646.

(d) The Lessee warrants that no person or selling agency has been employed or retained to solicit or secure this Lease upon an agreement or understanding for a commission, percentage, brokerage or contingent fee. For breach or violation of this warranty, the Lessor shall have the right to terminate this Lease for Default.

(e) In case any one or more of the provisions of this Lease shall for any reason be held to be invalid, such invalidity shall not affect any other provision of this Lease, and this Lease shall be construed as if the invalid provisions had not been contained in this Lease.

(f) All Exhibits that may be referenced in this Lease are hereby attached to and incorporated in this Lease.

(g) Time is of the essence to this Lease and all of its terms and conditions.

(h) The laws of the United States shall govern the validity, construction and effect of this Lease.

(i) This Lease constitutes the entire agreement between the Lessor and Lessee with respect to its subject matter and supersedes all prior offers, negotiations, oral and written. This Lease may not be amended or modified in any respect except by an instrument in writing signed by the Lessor and Lessee.

(j) The voluntary sale or other surrender of this Lease by the Lessee to the Lessor, or a mutual cancellation, or the termination by the Lessor pursuant to any provision of this Lease, shall not work a merger, but, at the option of the Lessor, shall either terminate any or all existing subleases hereunder or operate as an assignment to the Lessor of any or all of subleases.

(k) If more than one Lessee is named in this Lease, each Lessee shall be jointly and severally liable for performance of the obligations of this Lease.

(l) Any and all remedies available to Lessor for the enforcement of the provisions of this Lease are cumulative and are not exclusive, and Lessor shall be entitled to pursue either the rights enumerated in this Lease or remedies authorized by law, or both. Lessee shall be liable for any costs or expenses incurred by Lessor in enforcing any term of this Lease, or in pursuing legal action for the enforcement of Lessor's rights, including, but not limited to, court costs. The Lessee's recovery of attorney fees and costs should it prevail in defense of its rights are subject to, and as allowed by, the Equal Access to Justice Act, 5 USC 504.

(m) The Lessee shall not construct new buildings or structures on the Premises, except that, with the prior written approval of the Lessor, the Lessee may construct minor additions, buildings and/or structures determined by the Lessor to be necessary for support of the uses authorized by this Lease.

(n) Nothing contained in this Lease shall be construed as binding the Lessor to expend, in any fiscal year, any sum in excess of the appropriation made by Congress for that fiscal year or

administratively allocated for the subject matter of this Lease, or to involve the Lessor in any contract or other obligation for the future expenditure of money in excess of such appropriations. Nothing in this Lease shall be construed as preventing the cancellation of this Lease by the Lessor in the exercise of sovereign authority otherwise provided by Applicable Laws.

IN WITNESS WHEREOF, the, Regional Director, Pacific West Region, National Park Service, acting on behalf of the United States, in the exercise of the delegated authority from the Secretary of the Interior, as Lessor; and the Lessee have executed this Lease by proper persons thereunto duly authorized as of the date heretofore written.

LESSOR

THE UNITED STATES DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE
By

Patrick J. Neubacher

Regional Director
acting **Pacific West Region**

LESSEE

By ERIC J. HOLMES
City Manager

EXHIBIT A: Inventory and Condition Report

[Include a Condition and Inventory Report as described in Section 3.3.]

EXHIBIT B: Boundary Survey of Leased Property

Pearson Field Airport - NPS lease

A tract of land lying in Sections 26, 27, 34, and 35, Township 2 North, Range 1 East of Willamette Meridian, within the Historic Vancouver Barracks Military Reservation in Clark County, Washington, more particularly described as follows:

Beginning at the Section corner common to said Sections 26, 27, 34, & 35 marked by a. square stone with the section numbers chiseled in roman numerals on each side (as noted in LCR Book 13, Page 18 records of Clark County);

Thence North 68° 06' 23" West 61.53 feet to a PK nail in the edge of the asphalt on the centerline of the runway at the west end of the Pearson Field runway threshold designated RUNWAY 8 END; located at N45°37'15.949", W122°39'46.174";

Thence running South 80013 '36" East along the centerline of the runway 1462.70 feet to the point where the centerline of the runway intersects with the East line of said Reservation, said point being the True Point of Beginning;

Thence North 25° 0'l" East 211.81, feet along the East line of said Reservation, to the North line of the Taxiway Object Free Area (TW-OFA);

Thence North 80° 13' 36" West 188.69 feet, along said North TW-OFA line, to an angle point;

Thence North 40° 3' 6" West 74.32 feet, along said North TW-OFA line, to another angle point;

Thence North 80° 13' 36" West 164.78 feet, along said North TW-OFA line, to a third angle point;

Thence South 53° 18' 19" West 66.14 feet, along said North TW-OFA line, to a fourth angle point;

Thence North 80° 13' 36" West 1262.26 feet, along said North TW-OFA line, to the Northwest corner of the TW-OFA;

Thence South 9° 49' 57" West 79.18 feet, along the West line of the TW-OFA, to the northeast corner of the Runway Protection Zone (RPZ);

Thence North 74° 30'13" West 1005.14 feet, along the north line of said RPZ to its Northwest corner;

Thence South 9° 47' 42" West 278.48 feet, along the West line of the RPZ to its intersection with the North WDOT right-of-way line for SR-14;

Thence South 45° 16' 7" East 262.00 feet, along said North right-of-way line, to the South line of the RPZ;

Thence South 85° 54' 33" East 789.12 feet, along the South line of the RPZ, to the Southwest corner of the Object Free Area/Obstacle Free Zone (OFA/OFZ);

Thence South 80° 13' 36" East 1628.71 feet, along the South line of the OFA/OFZ, to the East line of said Reservation;

Thence North 25° 0' 21" East 129.59 feet, along the East line of said Reservation, to its intersection with the centerline of the runway, said point being the True Point of Beginning.

Described tract contains approximately 20.50 acres

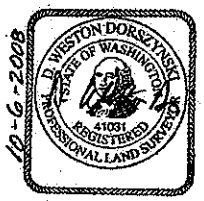


EXHIBIT C: Insurance Requirements

During the term of this Lease, the Lessee shall maintain the following insurance coverage (where applicable as determined by the Lessor) under the following general terms and conditions and under such specific terms and conditions as the Lessor may further require with respect to each particular insurance policy.

It is acknowledged that the Lessee is self-insured. The Lessee acknowledges that as such, it is subject to liability costs to the United States as may arise in connection with the activities under this lease should damages, injuries, or loss be caused by the Lessee, Lessee's employees, representatives, contractors, agents, and its airport clients and users. Terms of the Lessee's self-insurance shall follow the conditions below.

1. In general.

(a) Property Insurance - An all risk or special form, including fire, vandalism and malicious mischief insurance. The amount of such insurance shall be the full insurable value of the Premises. All such policies shall specify that proceeds shall be payable whether or not any damaged or destroyed improvements are actually rebuilt.

(b) Worker's Compensation and Employer's Liability Insurance - Worker's compensation insurance in the statutory amounts and coverage required under worker's compensation, disability and similar employee benefit laws applicable to the Premises and to the Lessee's use and occupancy of the Premises; and employer's liability insurance, with limits of not less than one million ($1,000,000) for bodily injury per incident and one million ($1,000,000) aggregate, or such higher amounts as may be required by law.

(c) General Liability - Comprehensive Farm Liability and/or Commercial General Liability through one or more primary and umbrella liability policies against claims for bodily injury and property damage occurring on the Premises, the improvements thereon, or the streets, curbs or sidewalks adjoining the Premises, with such limits as may be required by the Lessor, but in any event not less than ten million ($10,000,000) per incident and ten million ($10,000,000) aggregate for the Premises. Such insurance shall insure the performance by the Lessee of its indemnity obligations under this Lease.

(d) Airport Owners and Operators Liability Insurance- The Lessee maintains additional Airport Owners and Operators Liability insurance. Established general liability policy limits are five million dollars ($5,000,000). The policy also includes hangarkeepers coverage.

(e) Other - All other insurance that the Lessee should maintain to adequately protect the Premises, Lessor, and Lessee.

2. Conditions of Insurance

(a) The policy or policies required under this section shall provide that in the event of loss, the proceeds of the policy or policies shall be payable to the Lessee to be used solely for the repair or

replacement of the property damaged or destroyed, as approved and directed by the Lessor, with any balance of the proceeds not required for repair or replacement; provided, however, that the insurer, after payment of any proceeds to the Lessee, will have no obligation or liability with respect to the use or disposition of the proceeds by the Lessee.

(b) All property and liability insurance policies shall name the National Park Service as an additional insured.

(c) All of the insurance required by this section and all renewals shall be issued by one or more companies of recognized responsibility licensed to do business in the state of Washington with a financial rating of at least a Class B+ (or equivalent) status, as rated in the most recent edition of Best's Insurance Reports (or equivalent) or as otherwise acceptable to the Lessor.

(d) All insurance policies shall provide that such policies shall not be cancelled, terminated or altered without thirty (30) days prior written notice by the company to the Lessor. The Lessee must provide to the Lessor a copy of each policy and a certificate of the policy executed by a properly qualified representative of the insurance company evidencing that the required insurance coverage is in full force and effect on or before the Commencement Date, and annually thereafter. The Lessee shall maintain all policies provided throughout the Lease Term and the Lessee shall renew such policies before the expiration of the term of the policy.

(e) If the Lessor at any time, but not more than annually, believes that the limits or extent of coverage, deductibles or self insurance retention, with respect to any of the insurance required by this section are insufficient for a prudent owner of property of the nature of the Premises, the Lessor may determine the proper and reasonable limits and extent of coverage, deductibles and self insurance retention limits for such insurance and such insurance shall thereafter be carried by the Lessee until changed pursuant to the provisions of this section.

(f) The Lessee assumes full risk and responsibility for any inadequacy of insurance coverage or any failure of insurers. No approval by the Lessor of any insurer, or the terms or conditions of any policy, or any coverage or amount of insurance, or any deductible amount shall be construed as a representation by the Lessor of the solvency of the insurer or the sufficiency of any policy or any coverage or amount of insurance or deductible.

(g) The Lessee and Lessee's Agents shall not do anything, or permit anything to be done, in or about the Premises or on adjacent or nearby property that would invalidate or be in conflict with the provisions of any fire or other insurance policies covering the Premises or result in a refusal by insurance companies of good standing to insure the Premises in the amounts required under this section.

Appendix B
Airport Layout Plan

Prepared by Mead & Hunt
May 2013

AIRPORT LAYOUT PLAN

FOR THE

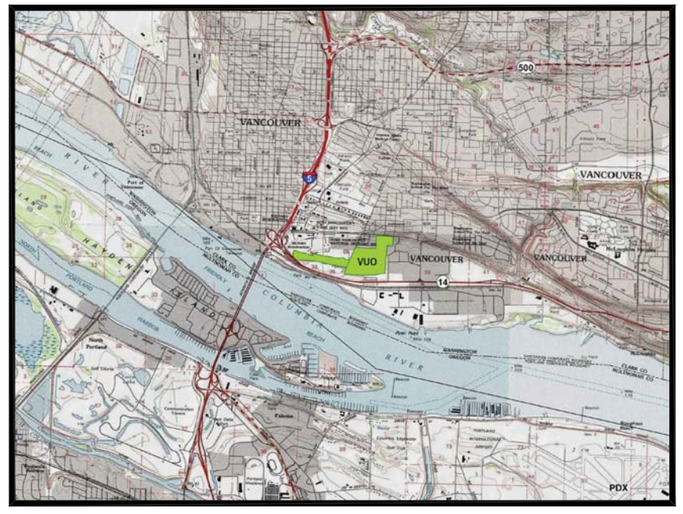
PEARSON FIELD

VANCOUVER, WASHINGTON

LOCATION MAP

MAY 2013

INDEX TO SHEETS



VICINITY MAP

FEDERAL AVIATION ADMINISTRATION

FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
SEATTLE AIRPORTS DISTRICT OFFICE

DATE

CITY OF VANCOUVER

CITY OF VANCOUVER

DATE

DATE	REVISION	SPONSOR	DATE

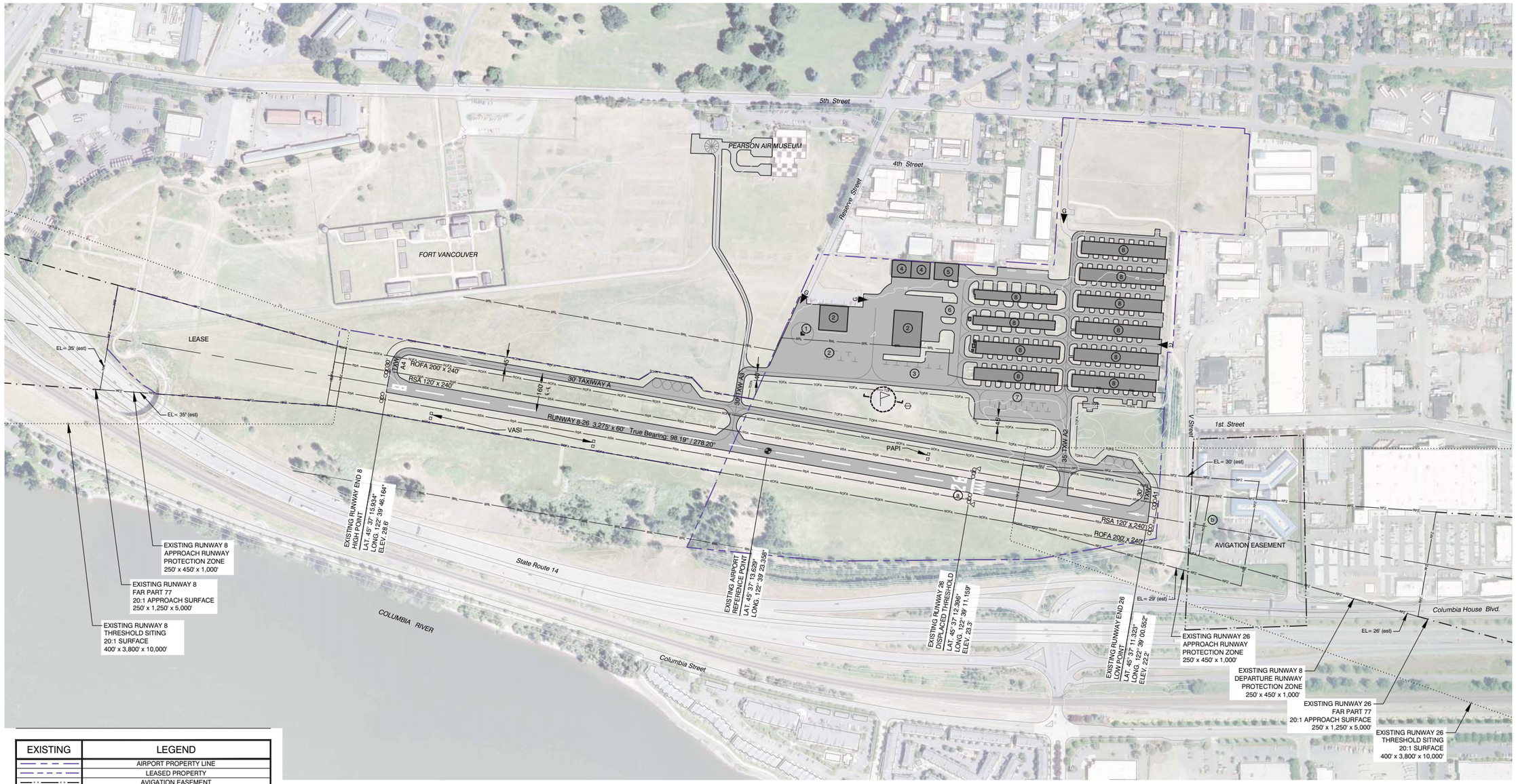
AIRPORT LAYOUT PLAN
PEARSON FIELD (VUO)
VANCOUVER, WASHINGTON

COVER

Mead & Hunt

DESIGN: DS/MH/BM	DRAWN: BM/TE	DATE: MAY 2013	SHEET 1 OF 8

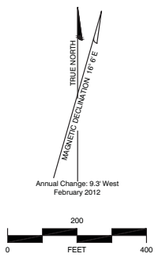
The preparation of these documents was financed in part through a planning grant from the Federal Aviation Administration as provided under Section 505 of the Airport and Airway Improvement Act of 1982, as amended. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of these documents by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted herein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws. Projects depicted in the Capital Improvement Plan and on the Airport Layout Plan are conditionally approved and will require evaluation and a finding pursuant to the National Environmental Policy Act and the National Historic Preservation Act prior to receiving FAA funding or approval to proceed.



EXISTING	LEGEND
	AIRPORT PROPERTY LINE
	LEASED PROPERTY
	AVIGATION EASEMENT
	AIRFIELD PAVEMENT
	BUILDINGS ON AIRPORT
	AIRPORT REFERENCE POINT
	RUNWAY END IDENTIFIER LIGHTS (REIL)
	THRESHOLD LIGHTS
	WIND INDICATOR
	SEGMENTED CIRCLE
	AUTOMATED SURFACE OBSERVING SYSTEM
	PRECISION APPROACH PATH INDICATOR (PAPI)
	VISUAL APPROACH SLOPE INDICATOR (VASI)
RSA	RUNWAY SAFETY AREA (RSA)
RPZ	RUNWAY PROTECTION ZONE (RPZ)
ROFA	RUNWAY OBJECT FREE AREA (ROFA)
TOFA	TAXIWAY OBJECT FREE AREA (TOFA)
BRL	BUILDING RESTRICTION LINE (BRL)
	FAR PART 77 SURFACE
	THRESHOLD SITING SURFACE
	FENCE
	GATE
	PUBLIC ROAD

BUILDING AND FACILITY LEGEND	
1	FUEL PUMP
2	FBO & FLIGHT SCHOOL
3	ITINERANT AIRCRAFT TIE-DOWN APRON
4	BOX HANGAR (70' x 80')
5	BOX HANGAR (70' x 100')
6	WASH AREA
7	BASED AIRCRAFT TIE-DOWN APRON
8	T-HANGARS

EXISTING NON-STANDARD CONDITIONS	
a	RUNWAY DESIGNATION AND THRESHOLD MARKINGS ARE NON-STANDARD, AS PRESCRIBED IN ADVISORY CIRCULAR 150-5340-1K, STANDARDS FOR AIRPORT MARKINGS.
b	ROAD AND FENCE LOCATED WITHIN RUNWAY OBJECT FREE AREA (OFA) AT APPROACH END OF RUNWAY 26 IS NON-STANDARD. OFA STANDARD REQUIRES CLEARING THE AREA OF OBJECTS PROTRUDING ABOVE THE RUNWAY SAFETY AREA AND OBJECTS NOT ESSENTIAL FOR AIR NAVIGATION.



DATE	REVISION	SPONSOR	DATE

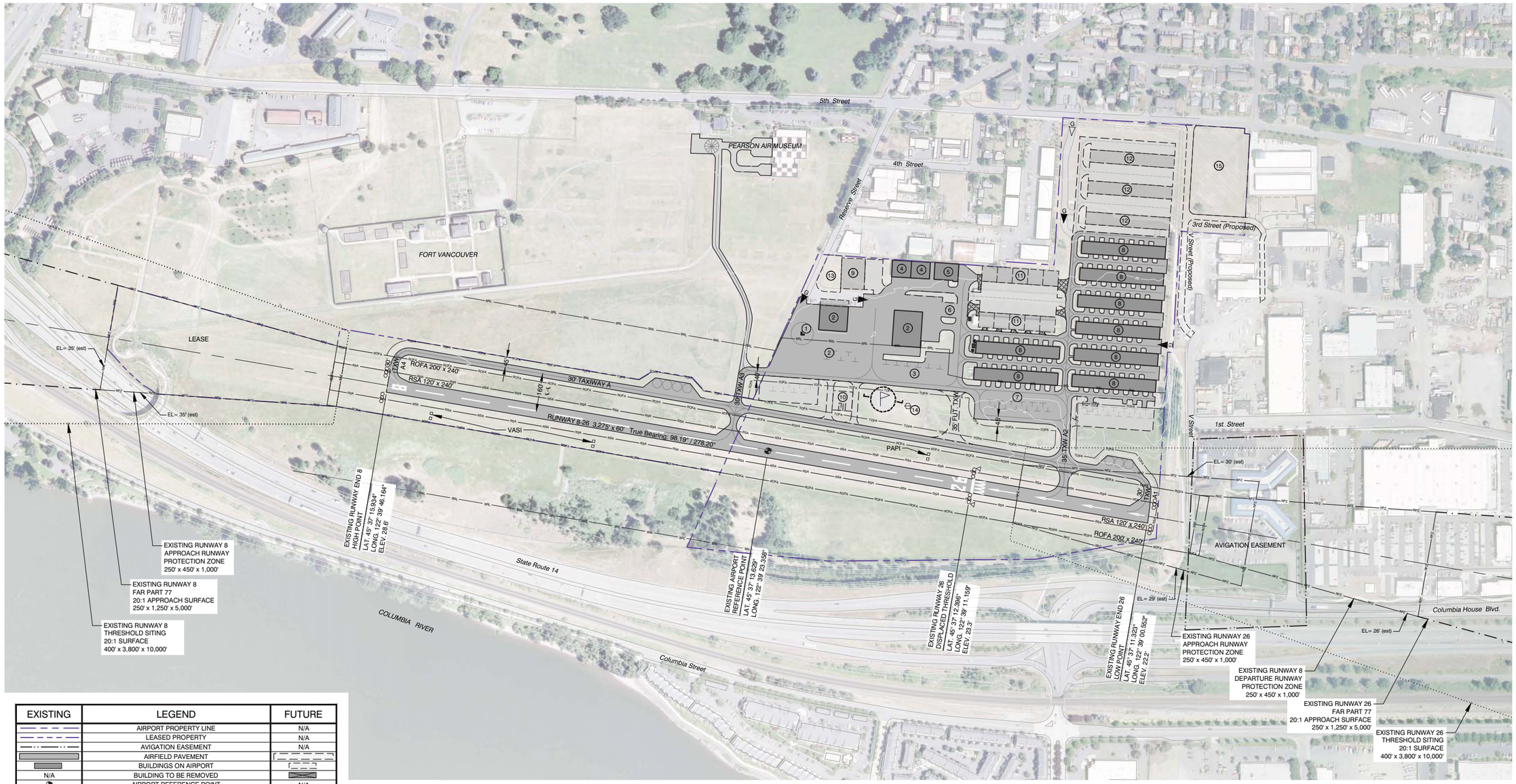
AIRPORT LAYOUT PLAN
PEARSON FIELD (VUO)
VANCOUVER, WASHINGTON

EXISTING AIRPORT LAYOUT PLAN

Mead & Hunt

DESIGN: DS/MH/BM	DRAWN: BM/TE	DATE: MAY 2013	SHEET 2 OF 8

The preparation of these documents was financed in part through a planning grant from the Federal Aviation Administration as provided under Section 505 of the Airport and Airway Improvement Act of 1982, as amended. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of these documents by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted herein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws. Projects depicted in the Capital Improvement Plan and on the Airport Layout Plan are conditionally approved and will require evaluation and a finding pursuant to the National Environmental Policy Act and the National Historic Preservation Act prior to receiving FAA funding or approval to proceed.



EXISTING	LEGEND	FUTURE
	AIRPORT PROPERTY LINE	N/A
	LEASED PROPERTY	N/A
	AVIGATION EASEMENT	N/A
	AIRFIELD PAVEMENT	
	BUILDINGS ON AIRPORT	
N/A	BUILDING TO BE REMOVED	
	AIRPORT REFERENCE POINT	N/A
	RUNWAY END IDENTIFIER LIGHTS (REIL)	N/A
	THRESHOLD LIGHTS	N/A
	WIND INDICATOR	N/A
	SEGMENTED CIRCLE	N/A
	AUTOMATED SURFACE OBSERVING SYSTEM	N/A
	PRECISION APPROACH PATH INDICATOR (PAPI)	N/A
	VISUAL APPROACH SLOPE INDICATOR (VASI)	N/A
RSA	RUNWAY SAFETY AREA (RSA)	N/A
RPZ	RUNWAY PROTECTION ZONE (RPZ)	N/A
ROFA	RUNWAY OBJECT FREE AREA (ROFA)	N/A
TOFA	TAXIWAY OBJECT FREE AREA (TOFA)	See Building Area Plan
BRL	BUILDING RESTRICTION LINE (BRL)	N/A
	FAR PART 77 SURFACE	
	THRESHOLD SITING SURFACE	
	FENCE	N/A
	GATE	
N/A	PAVEMENT TO BE REMOVED	
N/A	FUTURE COMMERCIAL/AVIATION DEVELOPMENT	
	PUBLIC ROAD	

BUILDING AND FACILITY LEGEND

1	FUEL PUMP
2	FBO & FLIGHT SCHOOL
3	ITINERANT AIRCRAFT TIE-DOWN APRON
4	BOX HANGAR (70' x 80')
5	BOX HANGAR (70' x 100')
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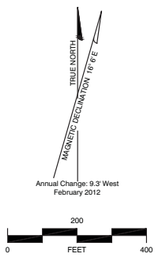
7	BASED AIRCRAFT TIE-DOWN APRON
8	T-HANGARS
9	BOX HANGAR (100' x 130') - FUTURE
10	ABOVE GROUND FUEL TANKS - FUTURE
11	BOX HANGARS (65' x 65') - FUTURE
12	T-HANGARS - FUTURE
13	AUTO PARKING - FUTURE
14	AWOS - FUTURE
15	AVIATION/COMMERCIAL DEVELOPMENT AREA - FUTURE



DATE	REVISION	SPONSOR	DATE

AIRPORT LAYOUT PLAN
PEARSON FIELD (VUO)
VANCOUVER, WASHINGTON

FUTURE AIRPORT LAYOUT PLAN

Mead & Hunt

DESIGN: DS/MH/BM	DRAWN: BM/TE	DATE: MAY 2013	SHEET 3 OF 8

The preparation of these documents was financed in part through a planning grant from the Federal Aviation Administration as provided under Section 505 of the Airport and Airway Improvement Act of 1982, as amended. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of these documents by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted herein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws. Projects depicted in the Capital Improvement Plan and on the Airport Layout Plan are conditionally approved and will require evaluation and a finding pursuant to the National Environmental Policy Act and the National Historic Preservation Act prior to receiving FAA funding or approval to proceed.

EXISTING AIRPORT LOCATION

AIRPORT REFERENCE POINT (ARP)	LATITUDE N 45° 37' 13.629" LONGITUDE W 122° 39' 23.358"
ESTABLISHED AIRPORT ELEVATION [2]	28.6 FT MSL

EXISTING RUNWAY END COORDINATES

RUNWAY END	LATITUDE	LONGITUDE	ELEVATION [2]	TRUE BEARING
8	N 45° 37' 15.934"	W 122° 39' 46.164"	28.6'	98.19°
26	N 45° 37' 11.323"	W 122° 39' 00.552"	22.2'	278.20°

EXISTING RUNWAY DATA

RUNWAY	LENGTH	WIDTH	HIGH POINT ELEV [2]	LOW POINT ELEV [2]	EFF. GRAD.	SURFACE	STRENGTH, LBS
8-26	3,275'	60'	RWY END 8 28.6'	RWY END 26 22.2'	0.2%	ASPHALT	SNIGLE 10,000

EXISTING RUNWAY DESIGN STANDARDS

RUNWAY END	RUNWAY PROTECTION ZONE (Inner Width x Outer Width x Length)	SAFETY AREA		OBJECT FREE AREA		OBSTACLE FREE ZONE	
		LENGTH*	WIDTH	LENGTH*	WIDTH	LENGTH*	WIDTH
8	250' x 450' x 1,000'	240'	120'	240'	250'	200'	250'
26	250' x 450' x 1,000'						

* LENGTH BEYOND RUNWAY END. SURFACE EXTENDS FULL RUNWAY LENGTH.

EXISTING RUNWAY DISPLACED THRESHOLD

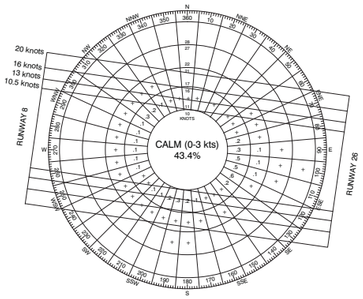
RUNWAY	DISTANCE FROM RUNWAY END	LATITUDE	LONGITUDE	ELEVATION [2]
8	N/A	N/A	N/A	N/A
26	762'	N 45° 37' 12.396"	W 122° 39' 11.159"	23.3'

EXISTING RUNWAY DECLARED DISTANCES

RUNWAY	TAKEOFF RUN AVAILABLE (TORA)	TAKEOFF DISTANCE AVAILABLE (TODA)	ACCELERATE STOP DISTANCE AVAILABLE (ASDA)	LANDING DISTANCE AVAILABLE (LDA)
8	3,275'	3,275'	3,065'	3,065'
26	3,275'	3,275'	3,275'	2,513'

GENERAL NOTES

1. ALP PREPARED USING DESIGN CRITERIA FROM FAA ADVISORY CIRCULAR 150/5300-13 "AIRPORT DESIGN" CHANGE 18 AND PART 77 OF THE FEDERAL AVIATION REGULATIONS (FAR), "SAFE, EFFICIENT USE, AND PRESERVATION OF THE NAVIGABLE AIRSPACE."
2. HORIZONTAL AND VERTICAL DATUM SOURCE: FAA AVN DATA SHEET, SUPPLEMENTED WITH 5010 MASTER RECORD AND AIRPORT FACILITY DIRECTORY. COORDINATES ARE NAD83. ALL ELEVATION DATA CONVERTED TO NGVD88 FROM NGVD29 BY ADDING 3.5 FEET. CONVERSION SOURCE: NGS. OFFICIAL SURVEY RECOMMENDED.
3. CONTOUR SOURCE: USGS NATIONAL ELEVATION DATASET
4. ORTHOPHOTO SOURCE: CITY OF VANCOUVER, 2011
5. LINE WORK SOURCE: CITY OF VANCOUVER GIS AND PREVIOUS ALP.
6. TEMPERATURE DATA SOURCE: WESTERN REGIONAL CLIMATE CENTER.
7. MAGNETIC DECLINATION SOURCE: NOAA, FEBRUARY 2012.
8. OBJECTS MAY EXIST THAT ARE NOT ILLUSTRATED.
9. FUTURE PROJECTS MAY REMOVE, RELOCATE, AND LIGHT OBJECTS TO ACCOMMODATE AIRFIELD OPERATION AND DEVELOPMENT.



WIND ROSE
ALL WEATHER CONDITIONS

AIRPORT DATA

AIRPORT IDENTIFIER CODE	VUO
AIRPORT-OWNING MUNICIPALITY	CITY OF VANCOUVER
COUNTY	CLARK
MEAN MAXIMUM TEMPERATURE OF THE HOTTEST MONTH (AUGUST) [6]	79.2° F
MAGNETIC DECLINATION	16° 6' EAST
RATE OF CHANGE	0° 9' WEST PER YEAR
AIRFIELD NAVAIDS	SEGMENTED CIRCLE, WIND INDICATOR, ASOS

WIND COVERAGE

RUNWAY	ALL WEATHER				VFR			
	10.5KT	13KT	16KT	20KT	10.5KT	13KT	16KT	20KT
8-26	98.81%	99.35%	99.90%	99.99%	98.75%	99.32%	99.90%	99.99%

- WIND DATA SOURCE: NOAA, VANCOUVER - PEARSON FIELD, STATION 72791. FROM JAN 2000 - DEC 2009.
- TOTAL OBSERVATIONS: ALL WEATHER = 76,098, VFR = 71,952
- CROSSWIND COMPONENTS PER AC 150/5300-13, PAGE 10, PARA 203 B.

CRITICAL AIRCRAFT

RUNWAY	ARC*	DESIGN AIRCRAFT	APRCH SPEED	WING SPAN	LENGTH	TAIL HEIGHT	MAXIMUM T/O WEIGHT
8-26	B-I (SMALL)	CESSNA 421	96 KTS	41' 8"	36' 1"	11' 6"	7,450 LBS

* ARC-AIRPORT REFERENCE CODE. DESIGN AIRCRAFT DESIGNATED BY:
APPROACH SPEED: B AT LEAST 91 KNOTS, LESS THAN 121 KNOTS
WINGSPAN: I LESS THAN 49 FEET.
TAIL HEIGHT: I LESS THAN 20 FEET.

EXISTING NAVIGATIONAL AIDS

RUNWAY END	MARKING	LIGHTING	VISUAL NAVAIDS	ELECTRONIC NAVAIDS
8	BASIC	MIRL	VASI-4R	NONE
26	BASIC		REIL, PAPI-2L	NONE

EXISTING INSTRUMENT APPROACH PROCEDURES

RUNWAY END	APPROACH	VISIBILITY MINIMUMS*	INSTRUMENTATION	TOUCHDOWN ZONE ELEV
N/A	CIRCLING	ADG A: 1 MILE ADG B: 1 ¼ MILE ADG C&D: N/A	LDA-A (LOCALIZER TYPE DIRECTIONAL AID)	N/A

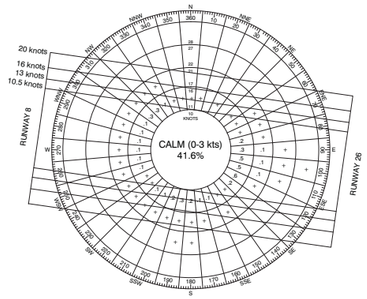
* ADG: AIRPLANE DESIGN GROUP

EXISTING FAR PART 77 APPROACH SURFACES

RUNWAY END	PART 77 APPROACH CATEGORY	DIMENSIONS (Inner Width x Outer Width x Length)	DISTANCE FROM RUNWAY END	SLOPE
8	VISUAL [A(V)]	250' x 1,250' x 5,000'	200'	20:1
26	VISUAL [A(V)]	250' x 1,250' x 5,000'	200'	20:1

EXISTING CRITICAL THRESHOLD SITING SURFACES

RUNWAY END	CATEGORY	DIMENSIONS (Inner Width x Outer Width x Length)	DISTANCE FROM THRESHOLD	SLOPE
8	4	400' x 3,800' x 10,000'	200'	20:1
26	4	400' x 3,800' x 10,000'	200'	20:1



WIND ROSE
VFR CONDITIONS

FUTURE NAVIGATIONAL AIDS

RUNWAY END	MARKING	LIGHTING	VISUAL NAVAIDS	ELECTRONIC NAVAIDS
8	BASIC	MIRL	VASI-4R	NONE
26	BASIC		REIL, PAPI-2L	NONE

FUTURE INSTRUMENT APPROACH PROCEDURES

RUNWAY END	APPROACH	VISIBILITY MINIMUMS*	INSTRUMENTATION	TOUCHDOWN ZONE ELEV
N/A	CIRCLING	ADG A: 1 MILE ADG B: 1 ¼ MILE ADG C&D: N/A	LDA-A (LOCALIZER TYPE DIRECTIONAL AID)	N/A

* ADG: AIRPLANE DESIGN GROUP

FUTURE FAR PART 77 APPROACH SURFACES

RUNWAY END	PART 77 APPROACH CATEGORY	DIMENSIONS (Inner Width x Outer Width x Length)	DISTANCE FROM RUNWAY END	SLOPE
8	VISUAL [A(V)]	250' x 1,250' x 5,000'	200'	20:1
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FUTURE CRITICAL THRESHOLD SITING SURFACES

RUNWAY END	CATEGORY	DIMENSIONS (Inner Width x Outer Width x Length)	DISTANCE FROM THRESHOLD	SLOPE
8	4	400' x 3,800' x 10,000'	200'	20:1
26	4	400' x 3,800' x 10,000'	200'	20:1

FUTURE AIRPORT LOCATION

AIRPORT REFERENCE POINT (ARP)	LATITUDE N 45° 37' 13.629" LONGITUDE W 122° 39' 23.358"
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FUTURE RUNWAY DATA

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FUTURE RUNWAY DESIGN STANDARDS

RUNWAY END	RUNWAY PROTECTION ZONE (Inner Width x Outer Width x Length)	SAFETY AREA		OBJECT FREE AREA		OBSTACLE FREE ZONE	
		LENGTH*	WIDTH	LENGTH*	WIDTH	LENGTH*	WIDTH
8	250' x 450' x 1,000'	240'	120'	240'	250'	200'	250'
26	250' x 450' x 1,000'						

* LENGTH BEYOND RUNWAY END. SURFACE EXTENDS FULL RUNWAY LENGTH.

FUTURE RUNWAY DISPLACED THRESHOLD

RUNWAY	DISTANCE FROM RUNWAY END	LATITUDE	LONGITUDE	ELEVATION
8	N/A	N/A	N/A	N/A
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FUTURE RUNWAY DECLARED DISTANCES

RUNWAY	TAKEOFF RUN AVAILABLE (TORA)	TAKEOFF DISTANCE AVAILABLE (TODA)	ACCELERATE STOP DISTANCE AVAILABLE (ASDA)	LANDING DISTANCE AVAILABLE (LDA)
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26	3,275'	3,275'	3,275'	2,513'

DATE	REVISION	SPONSOR	DATE

AIRPORT LAYOUT PLAN
PEARSON FIELD (VUO)
VANCOUVER, WASHINGTON
AIRPORT DATA SHEET

Mead & Hunt

DESIGN: DS/MH/BM	DRAWN: BM/TE	DATE: MAY 2013	SHEET 4 OF 8

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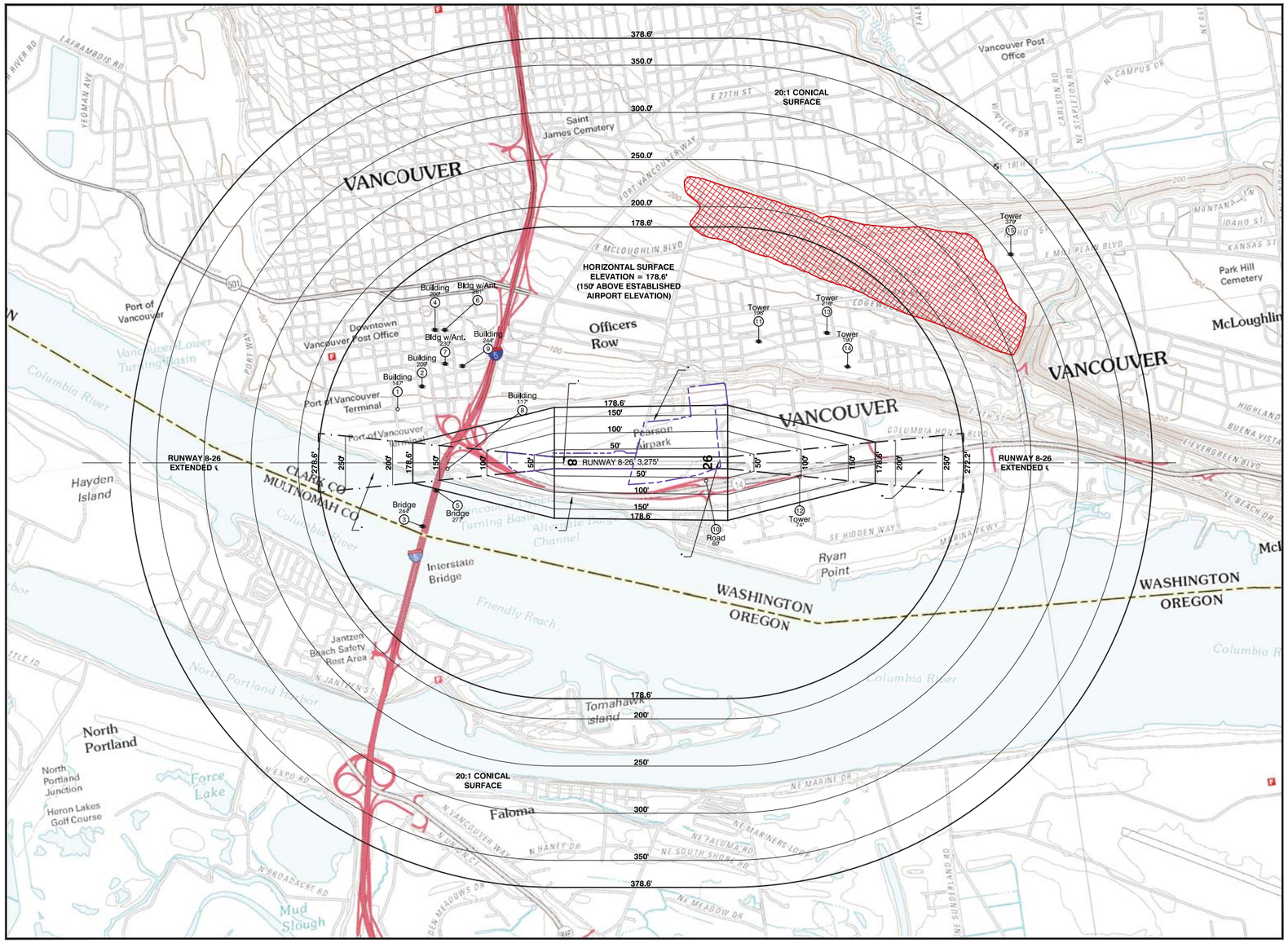
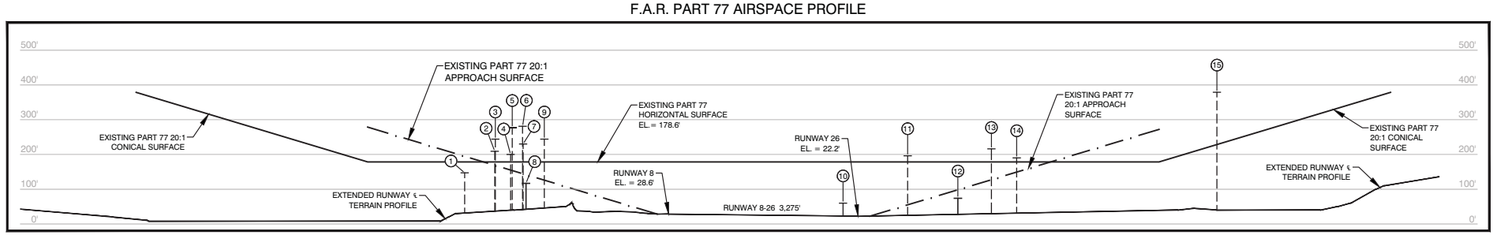
F.A.R. PART 77 AIRSPACE PLAN



F.A.R. PART 77 AIRSPACE PROFILE



OBJECTS

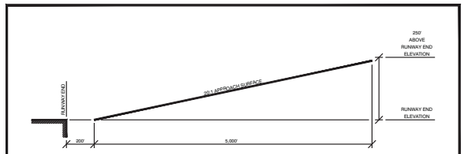
OBJ #	DESCRIPTION	OBJECT ELEVATION	PART 77 SURFACE	PART 77 SURFACE ELEVATION	PENETRATION OR CLEAR OF PART 77 SURFACE
1	BUILDING	147'	HORIZONTAL	179'	CLEAR 32'
2	BUILDING	209'	HORIZONTAL	179'	30' PENETRATION
3	BRIDGE	244'	HORIZONTAL	179'	65' PENETRATION
4	BUILDING	200'	HORIZONTAL	179'	21' PENETRATION
5	BRIDGE	277'	HORIZONTAL	179'	98' PENETRATION
6	BUILDING w/ANT.	281'	HORIZONTAL	179'	102' PENETRATION
7	BUILDING w/ANT.	230'	HORIZONTAL	179'	51' PENETRATION
8	BUILDING	117'	APPROACH	142'	CLEAR 25'
9	BUILDING	244'	HORIZONTAL	179'	65' PENETRATION
10	ROAD*	60'	TRANSITIONAL	59'	CLEAR 1'
11	TOWER	196'	HORIZONTAL	179'	17' PENETRATION
12	TOWER	74'	TRANSITIONAL	101'	CLEAR 27'
13	TOWER	216'	HORIZONTAL	179'	37' PENETRATION
14	TOWER	190'	HORIZONTAL	179'	11' PENETRATION
15	TOWER	379'	CONICAL	301'	78' PENETRATION

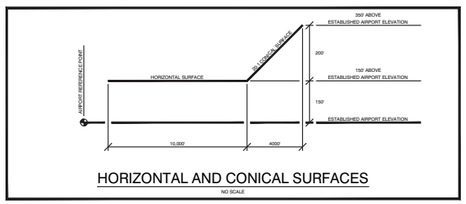
EXISTING	LEGEND	FUTURE
	AIRPORT PROPERTY LINE	N/A
	LEASED PROPERTY	N/A
	FAR PART 77 APPROACH SURFACE	
	FAR PART 77 CONICAL/HORIZONTAL SURFACES	
	OBJECT CLEAR OF PART 77 AIRSPACE	N/A
	OBJECT PENETRATES PART 77 AIRSPACE	N/A
	OBJECT LOCATED IN PART 77 APPROACH SURFACE	N/A
	OBJECT LOCATED IN OTHER PART 77 SURFACES	N/A
	TERRAIN PENETRATION OF PART 77 AIRSPACE	N/A

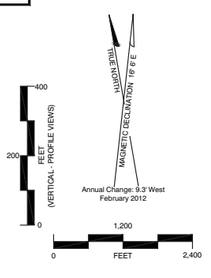
NOTES

- ELEVATION VALUES ARE IN FEET ABOVE MEAN SEA LEVEL (MSL) AND NAD83.
- OBJECT ELEVATION SOURCE: TERRAIN AND OBSTACLES DATA DIGITAL OBSTACLE FILE (DOF), MARCH. 2012. SOME OBJECT ELEVATIONS ARE ESTIMATED AND BASED ON TOPOGRAPHIC CONTOURS .
- ONLY ULTIMATE AIRSPACE SURFACES ARE ILLUSTRATED AND ANALYZED ON THIS SHEET.
- SEE INNER PORTION OF THE APPROACH PLAN VIEW FOR CLOSE-IN OBSTRUCTIONS.

* 15 FEET ADDED TO ROADS, 17 FEET ADDED TO INTERSTATE HIGHWAYS AND 23 FEET TO RAILROADS.







DATE	REVISION	SPONSOR	DATE

AIRPORT LAYOUT PLAN
PEARSON FIELD (VUO)
VANCOUVER, WASHINGTON

F.A.R PART 77 AIRSPACE

Mead & Hunt

DESIGN: DS/MH/BM	DRAWN: BM/TE	DATE: MAY 2013	SHEET 5 OF 8

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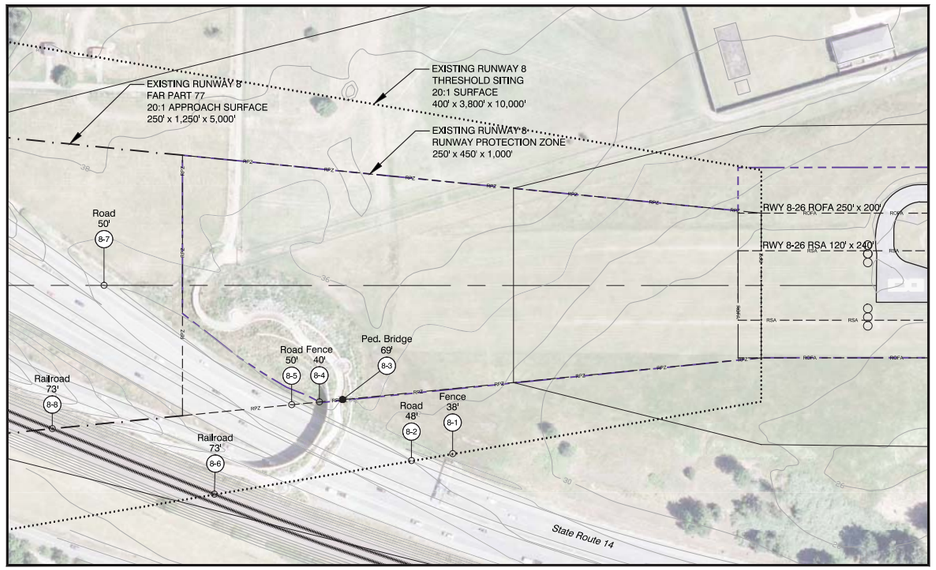
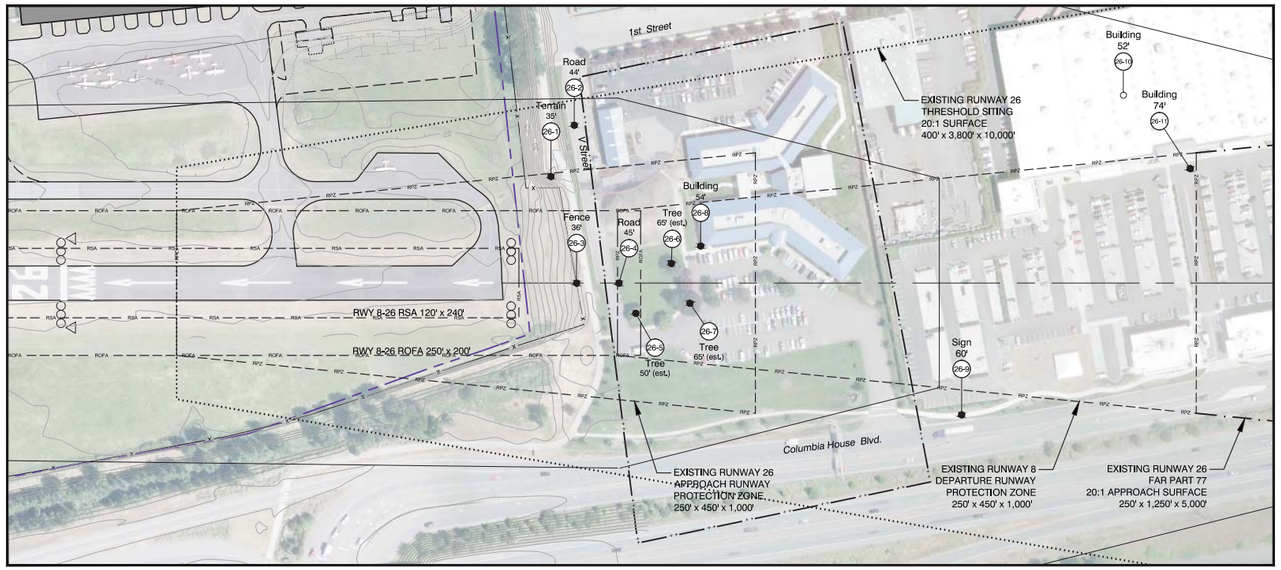
RUNWAY 8 INNER-APPROACH PLAN



RUNWAY 26 INNER-APPROACH PLAN



RUNWAY 8 INNER-APPROACH PROFILE

RUNWAY 26 INNER-APPROACH PROFILE

EXISTING	LEGEND	FUTURE
	AIRPORT PROPERTY LINE	N/A
	LEASED PROPERTY	N/A
	AVIGATION EASEMENT	N/A
	FAR PART 77 APPROACH SURFACE	
	THRESHOLD SITING SURFACE	
	OBJECT CLEAR OF PART 77 AIRSPACE	N/A
	OBJECT PENETRATES PART 77 AIRSPACE	N/A
	OBJECT LOCATED IN PART 77 APPROACH SURFACE	N/A
	OBJECT LOCATED IN PART 77 TRANSITIONAL SURFACE	N/A
RSA	RUNWAY SAFETY AREA (RSA)	RSA
RPZ	RUNWAY PROTECTION ZONE (RPZ)	RPZ
ROFA	RUNWAY OBJECT FREE AREA (ROFA)	ROFA
x	FENCE	N/A

NOTES

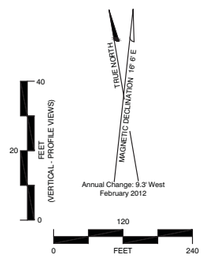
- ELEVATION VALUES ARE IN FEET ABOVE MEAN SEA LEVEL (MSL) AND NAD83.
- OBJECT ELEVATION SOURCE: TERRAIN AND OBSTACLES DATA DIGITAL OBSTACLE FILE (DOF), MARCH. 2012. SOME OBJECT ELEVATIONS ARE ESTIMATED AND BASED ON TOPOGRAPHIC CONTOURS.
- ONLY ULTIMATE AIRSPACE SURFACES ARE ILLUSTRATED AND ANALYZED ON THIS SHEET.
- * 15 FEET ADDED TO ROADS, 17 FEET ADDED TO INTERSTATE HIGHWAYS AND 23 FEET TO RAILROADS.

RUNWAY 8 - OBJECTS

OBJ. #	DESCRIPTION	OBJECT ELEVATION	PART 77 SURFACE	PART 77 SURFACE EL.	PEN. OR CLEAR OF PART 77 SURFACE	THRESHOLD SITING SURFACE EL.	PEN. OR CLEAR OF TSS
8-1	FENCE	38'	TRANSITIONAL	72'	CLEAR 34'	55'	CLEAR 17'
8-2	ROAD*	48'	TRANSITIONAL	76'	CLEAR 28'	60'	CLEAR 11'
8-3	PED. BRIDGE	69'	APPROACH	65'	4' PENETRATION	65'	4' PENETRATION
8-4	FENCE	40'	APPROACH	67'	CLEAR 27'	67'	CLEAR 27'
8-5	ROAD*	50'	APPROACH	69'	CLEAR 19'	69'	CLEAR 19'
8-6	RAILROAD*	73'	TRANSITIONAL	96'	CLEAR 23'	76'	CLEAR 3'
8-7	ROAD*	50'	APPROACH	85'	CLEAR 35'	85'	CLEAR 35'
8-8	RAILROAD*	73'	APPROACH	90'	CLEAR 17'	90'	CLEAR 17'

RUNWAY 26 - OBJECTS

OBJ. #	DESCRIPTION	OBJECT ELEVATION	PART 77 SURFACE	PART 77 SURFACE EL.	PEN. OR CLEAR OF PART 77 SURFACE	THRESHOLD SITING SURFACE EL.	PEN. OR CLEAR OF TSS
26-1	TERRAIN	35'	TRANSITIONAL	32'	3' PENETRATION	56'	CLEAR 20'
26-2	ROAD*	45'	TRANSITIONAL	44'	1' PENETRATION	58'	CLEAR 14'
26-3	FENCE	36'	PRIMARY	23'	13' PENETRATION	58'	CLEAR 23'
26-4	ROAD*	45'	APPROACH	22'	23' PENETRATION	62'	CLEAR 17'
26-5	TREE	50' (est)	APPROACH	24'	26' PENETRATION	63'	CLEAR 13'
26-6	TREE	65' (est)	APPROACH	27'	38' PENETRATION	66'	CLEAR 1'
26-7	TREE	65' (est)	APPROACH	28'	37' PENETRATION	68'	CLEAR 3'
26-8	BUILDING	54'	APPROACH	29'	25' PENETRATION	69'	CLEAR 15'
26-9	SIGN	60'	TRANSITIONAL	59'	1' PENETRATION	91'	CLEAR 31'
26-10	BUILDING	52'	TRANSITIONAL	81'	CLEAR 29'	105'	CLEAR 53'
26-11	BUILDING	74'	APPROACH	72'	2' PENETRATION	111'	CLEAR 37'



DATE	REVISION	SPONSOR	DATE

AIRPORT LAYOUT PLAN
PEARSON FIELD (VUO)
VANCOUVER, WASHINGTON

INNER-APPROACH PLAN & PROFILE

Mead & Hunt

DESIGN: DS/MH/BM	DRAWN: BM/TE	DATE: MAY 2013	SHEET 6 OF 8

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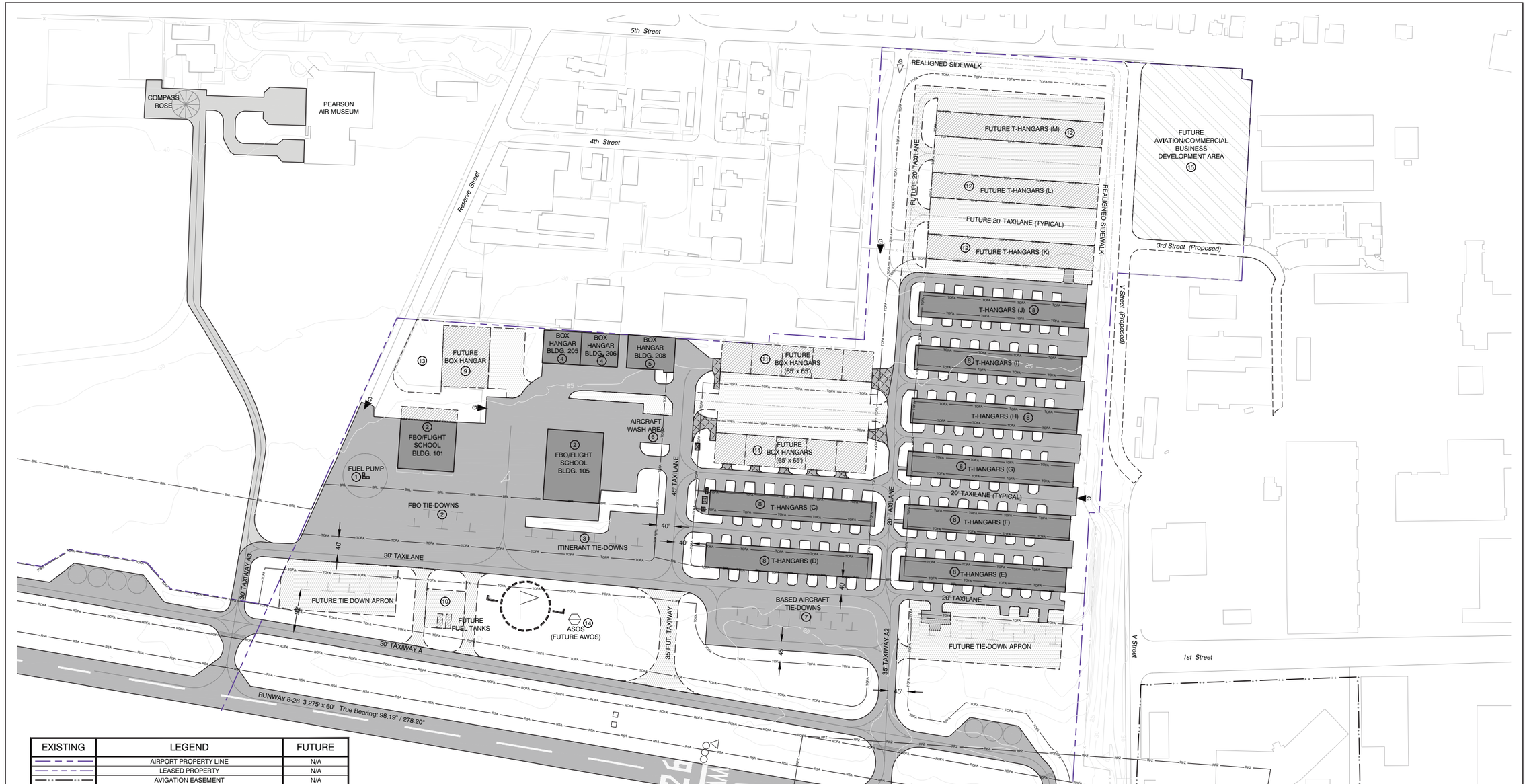
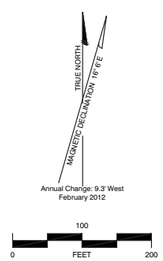


EXISTING	LEGEND	FUTURE
	AIRPORT PROPERTY LINE	N/A
	LEASED PROPERTY	N/A
	AVIGATION EASEMENT	N/A
	AIRFIELD PAVEMENT	
	BUILDINGS ON AIRPORT	
N/A	BUILDING TO BE REMOVED	
	AIRPORT REFERENCE POINT	N/A
	RUNWAY END IDENTIFIER LIGHTS (REIL)	N/A
	THRESHOLD LIGHTS	N/A
	WIND INDICATOR	N/A
	SEGMENTED CIRCLE	N/A
	AUTOMATED SURFACE OBSERVING SYSTEM	N/A
	PRECISION APPROACH PATH INDICATOR (PAPI)	N/A
	VISUAL APPROACH SLOPE INDICATOR (VASI)	N/A
RSA	RUNWAY SAFETY AREA (RSA)	N/A
RPZ	RUNWAY PROTECTION ZONE (RPZ)	N/A
ROFA	RUNWAY OBJECT FREE AREA (ROFA)	N/A
TOFA	TAXIWAY OBJECT FREE AREA (TOFA)	TOFA
BRL	BUILDING RESTRICTION LINE (BRL)	N/A
	FENCE	N/A
	GATE	
N/A	PAVEMENT TO BE REMOVED	
N/A	FUTURE COMMERCIAL/AVIATION DEVELOPMENT	
	PUBLIC ROAD	

BUILDING AND FACILITY LEGEND	
1	FUEL PUMP
2	FBO & FLIGHT SCHOOL
3	ITINERANT AIRCRAFT TIE-DOWN APRON
4	BOX HANGAR (70' x 80')
5	BOX HANGAR (70' x 100')
6	WASH AREA
7	BASED AIRCRAFT TIE-DOWN APRON
8	T-HANGARS
9	BOX HANGAR (100' x 130') - FUTURE
10	ABOVE GROUND FUEL TANKS - FUTURE
11	BOX HANGARS (65' x 65') - FUTURE
12	T-HANGARS - FUTURE
13	AUTO PARKING - FUTURE
14	AWOS - FUTURE
15	AVIATION/COMMERCIAL DEVELOPMENT AREA - FUTURE



DATE	REVISION	SPONSOR	DATE

AIRPORT LAYOUT PLAN
PEARSON FIELD (VUO)
VANCOUVER, WASHINGTON
BUILDING AREA PLAN

Mead & Hunt

VANCOUVER WASHINGTON

DESIGN: DS/MH/BM	DRAWN: BM/TE	DATE: MAY 2013	SHEET 7 OF 8

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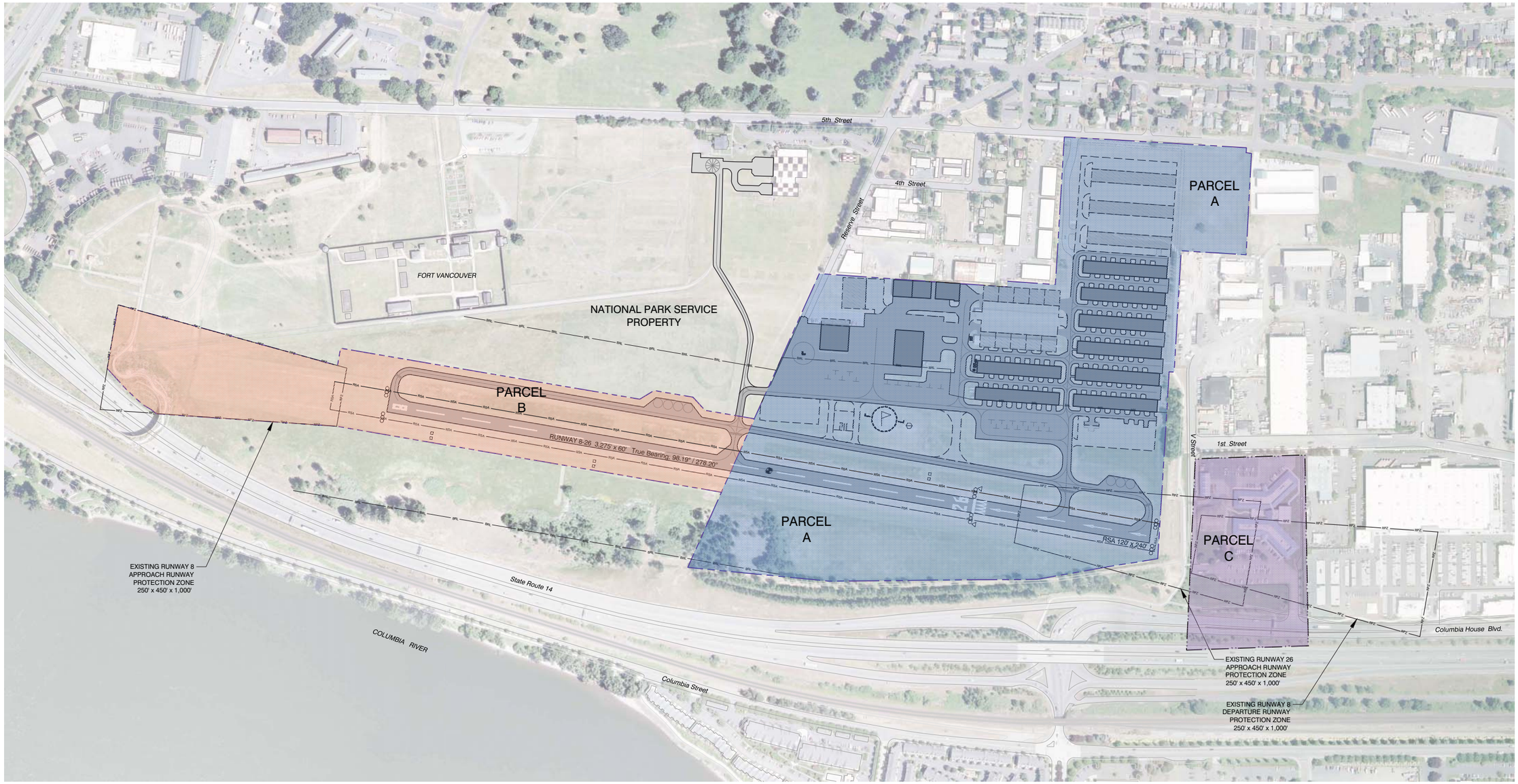

EXISTING	LEGEND	FUTURE
	AIRPORT PROPERTY LINE	N/A
	LEASED PROPERTY	N/A
	AVIGATION EASEMENT	N/A
	AIRFIELD PAVEMENT	N/A*
	BUILDINGS ON AIRPORT	N/A*
	BUILDING TO BE REMOVED	N/A*
	AIRPORT REFERENCE POINT	N/A
	RUNWAY END IDENTIFIER LIGHTS (REIL)	N/A
	THRESHOLD LIGHTS	N/A
	WIND INDICATOR	N/A
	AUTOMATED SURFACE OBSERVING SYSTEM	N/A
	PRECISION APPROACH PATH INDICATOR (PAPI)	N/A
	VISUAL APPROACH SLOPE INDICATOR (VASI)	N/A
RSA	RUNWAY SAFETY AREA (RSA)	N/A
RPZ	RUNWAY PROTECTION ZONE (RPZ)	N/A
BRL	BUILDING RESTRICTION LINE (BRL)	N/A

AIRPORT PROPERTY

PARCEL	PARCEL #	ACREAGE	DATE ACQUIRED	FEDERAL AID PROJECT #	TYPE OF OWNERSHIP
	A	60.7	1971	-	FEE SIMPLE
	B	20.5	1971	-	LEASE
	C	9.1	JAN. 3 1956	-	AVIG. EASEMENT

NOTES

- AIRPORT PROPERTY BOUNDARY SOURCE: CITY OF VANCOUVER GIS
- AIRPORT BOUNDARY IS NOT SURVEYED AND IS NOT A LEGAL DESCRIPTION.
- PARCEL A - CITY OF VANCOUVER USED PROCEEDS FROM SALE OF LAND TO NATIONAL PARK SERVICE TO ACQUIRE PARCEL A.
- PARCEL B - CITY OF VANCOUVER ACQUIRED 73 ACRES VIA QUIT CLAIM DEED FROM U.S. WAR ASSETS ADMINISTRATION IN 1947 FOR AIRPORT. IN 1971, PARCEL B WAS SOLD TO NATIONAL PARKS SERVICE WITH AGREEMENT THAT AREA VITAL TO AERONAUTICAL SERVICE WOULD BE LEASED TO CITY.

* FUTURE AIRPORT DEVELOPMENT NOT SHOWN ON EXHIBIT 'A' FOR SIMPLICITY REASONS. SEE SHEETS 3 AND 8 FOR FUTURE PAVEMENT AND BUILDING DEVELOPMENT.

DATE	REVISION	SPONSOR	DATE

AIRPORT LAYOUT PLAN
PEARSON FIELD (VUO)
VANCOUVER, WASHINGTON

EXHIBIT 'A' AIRPORT PROPERTY MAP

Mead & Hunt

DESIGN: DS/MH/BM	DRAWN: BM/TE	DATE: MAY 2013	SHEET 8 OF 8

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