

Lake County Airport – KLKV Airport Master Plan **Planning Advisory Committee Meeting #2**

Facility Goals and Requirements
and
Conceptual Development Alternatives

Agenda

- Introductions: Project Team and PAC
- Master Plan Schedule
- Working Paper #1
 - Existing Conditions Analysis
 - Aviation Activity Forecasts
- Facility Goals & Requirements
 - Regional Setting
 - Airside Elements
 - Landside Elements
 - Airport Administration
- Next Steps



Project Planning Team

- Lake County
 - Tristan Witham
 - Dave Berman
- Century West Engineering
 - Mike Dane
 - Mark Hagerdorn
 - Samantha Peterson

PAC Roles and Responsibilities

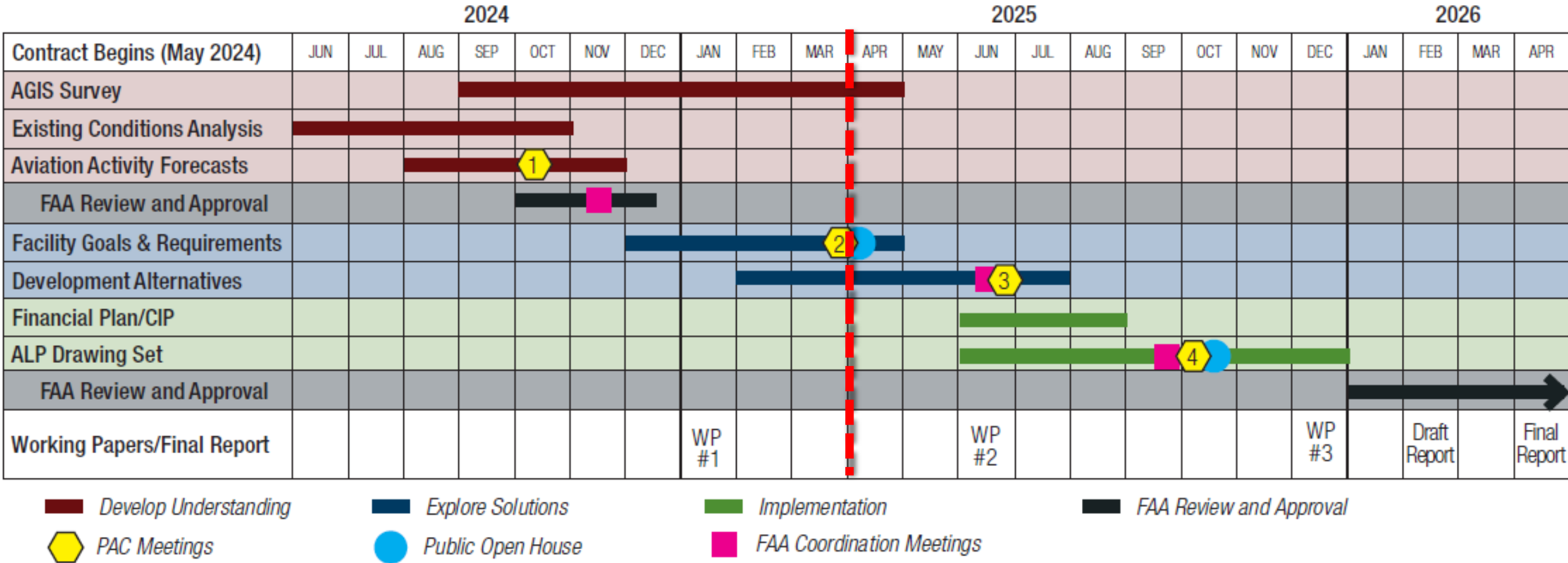
- Listen and respect all viewpoints
- Seek input from peer groups
- Provide comment/feedback on:
 - Chapters
 - PAC meetings
- Advisory non-voting committee

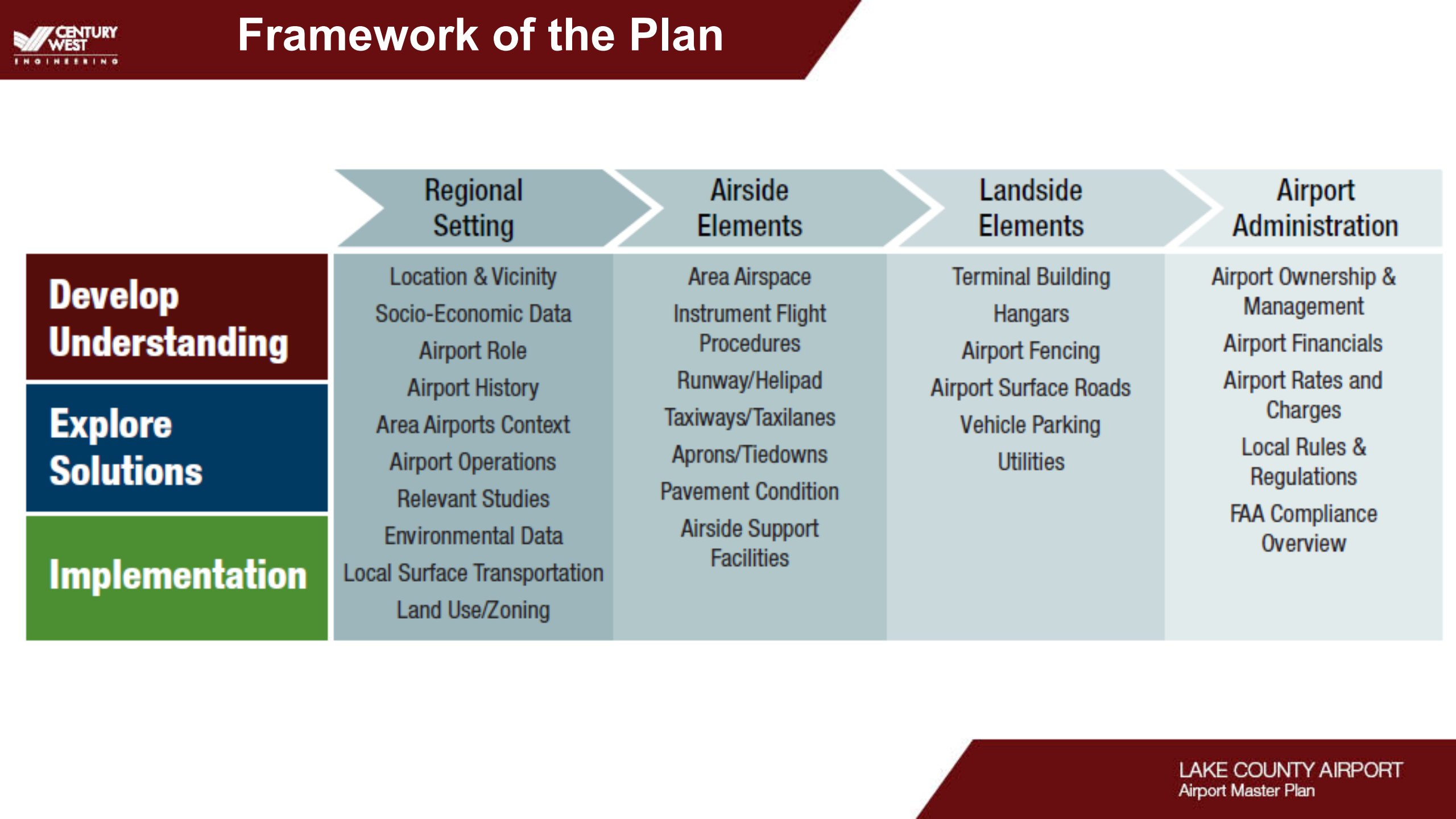
Planning Advisory Committee (PAC)

- Tristan Witham, Airport Manager
- Dave Berman, Lake County
- Greg McCully, Airport Neighbor
- Randy Alves, Airport User
- Mark Albertson Local Representative
- Eric Wolf, BLM
- Tim House, FAA SEA-ADO
- Brandon Pike, ODAV



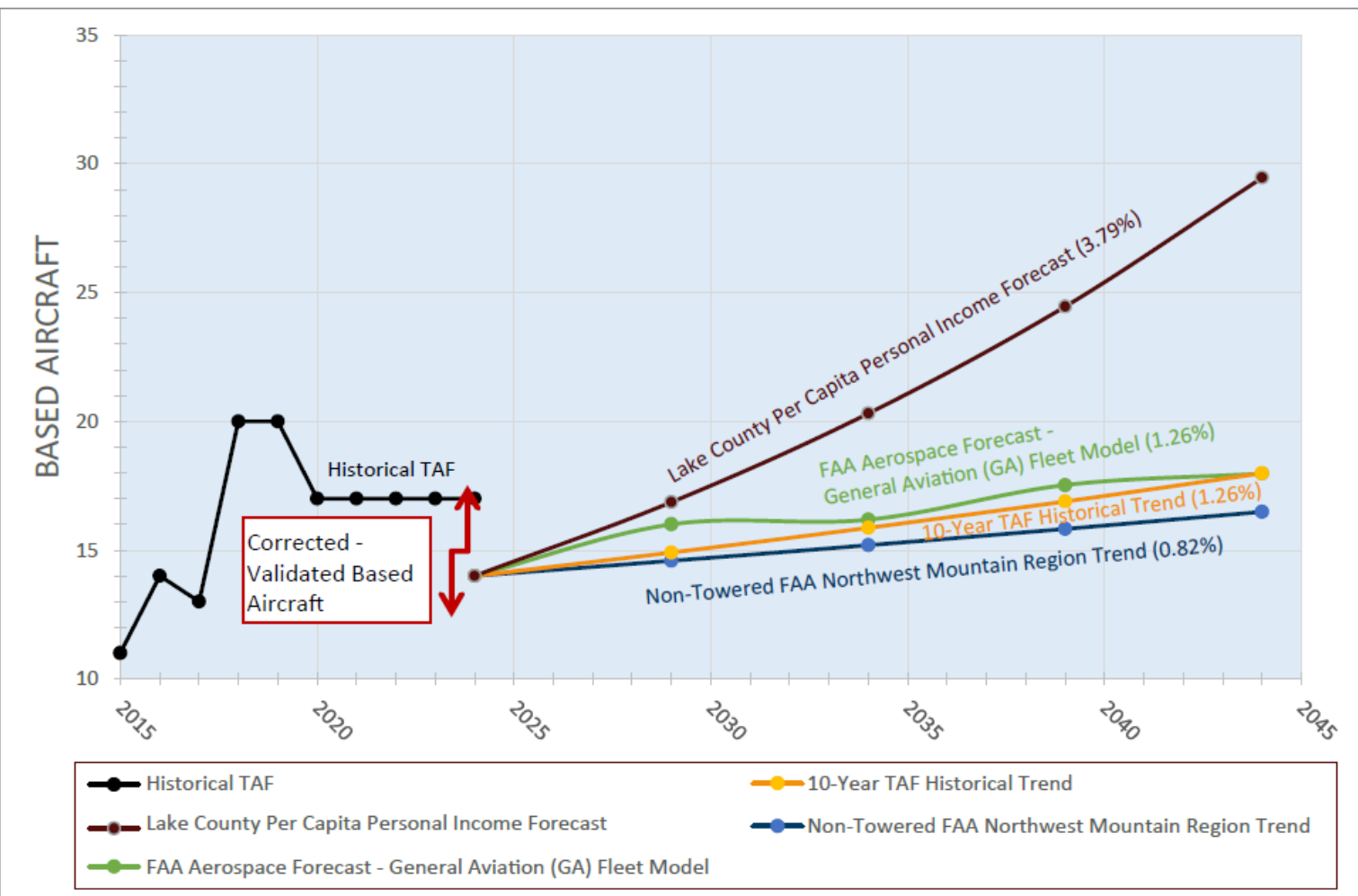
Master Plan Schedule





Aviation Activity Forecasts

Figure 3-3: Based Aircraft Forecast Models (LKV)



Source: Century West Engineering

Figure 3-3: Based Aircraft Forecast Models (LKV)

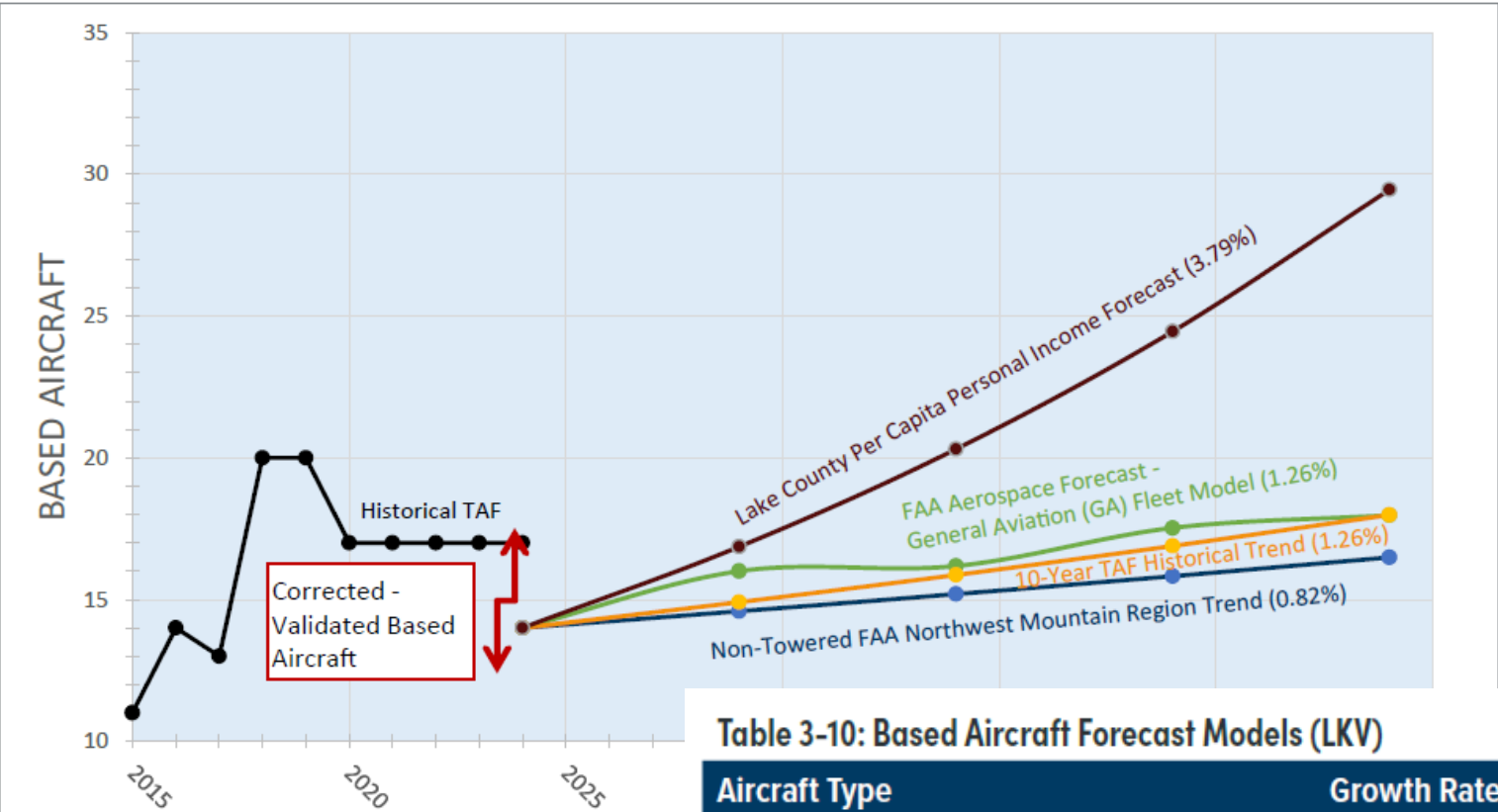
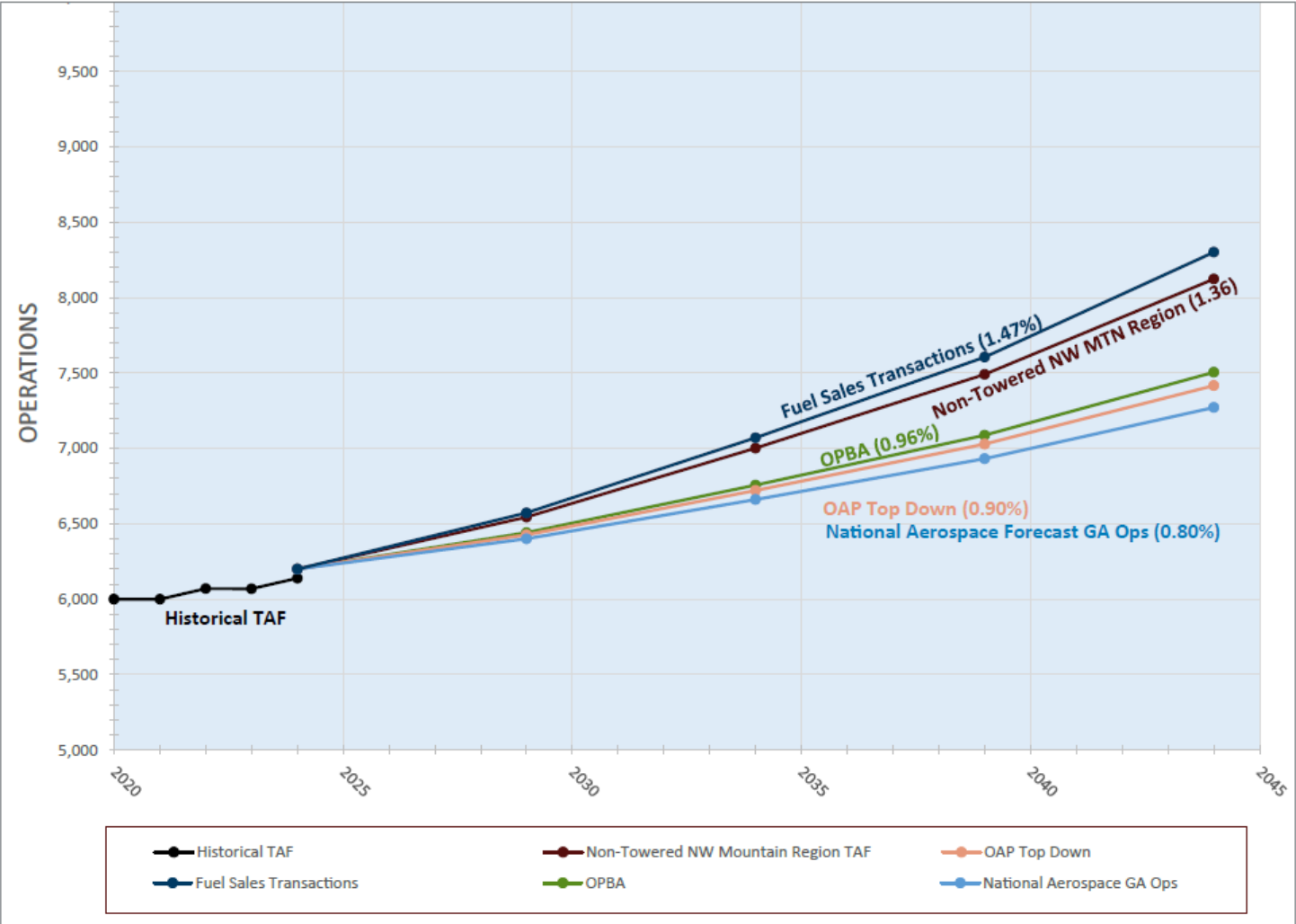


Table 3-10: Based Aircraft Forecast Models (LKV)

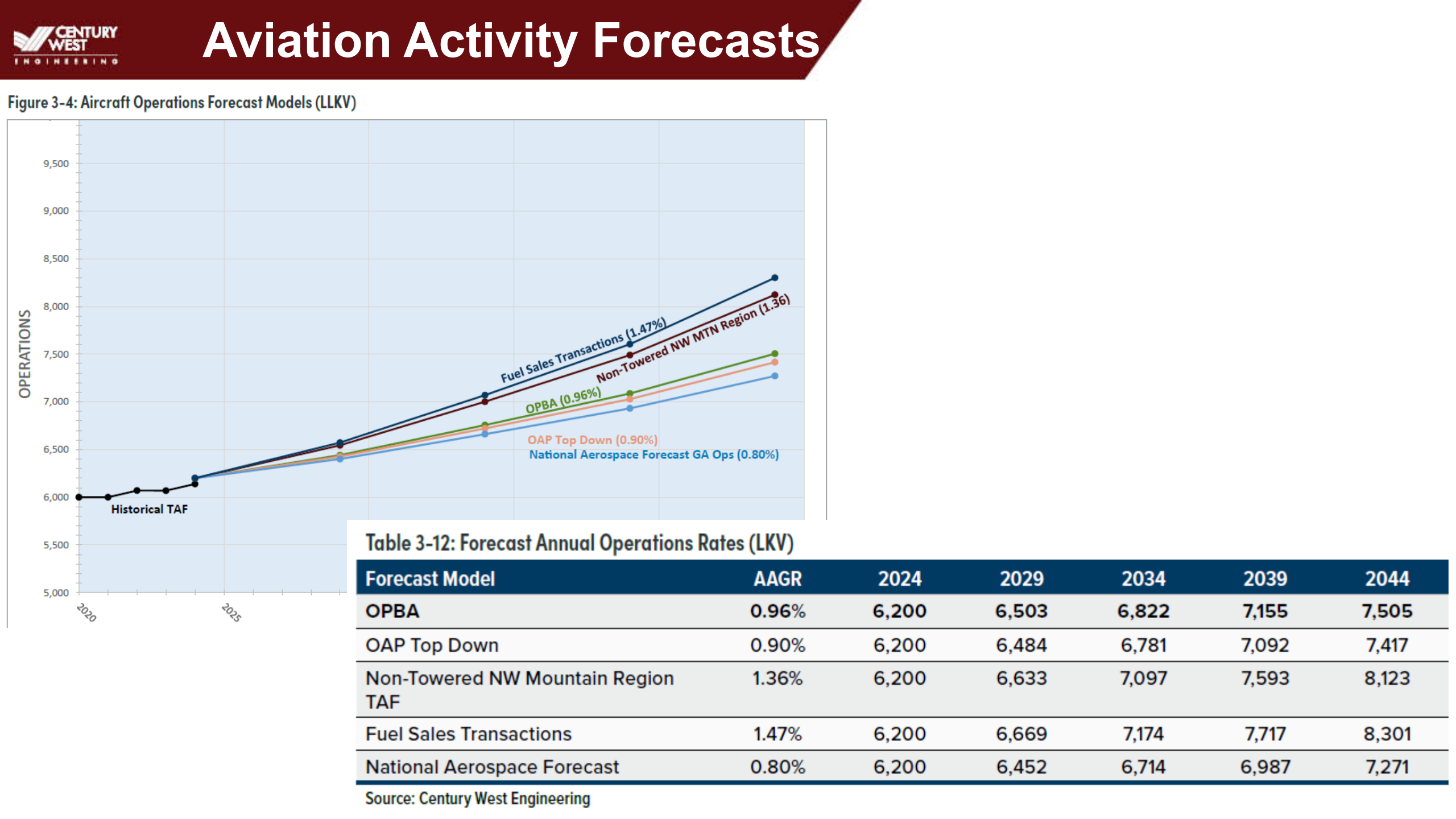
Aircraft Type	Growth Rate	2024	2029	2034	2039	2044
Lake County Per Capita Personal Income Forecast	3.79%	14	17	20	24	29
Non-Towered FAA Northwest Mountain Region Trend	0.82%	14	15	15	16	16
FAA Aerospace Forecast - General Aviation (GA) Fleet Model	1.26%	14	16	16	18	18
10-Year TAF Historical Trend	1.26%	14	15	16	17	18

Source: Century West Engineering

Figure 3-4: Aircraft Operations Forecast Models (LLKV)



Source: Century West Engineering



Design Aircraft

DESIGN AIRCRAFT AND AIRPORT REFERENCE CODE (ARC)

The design aircraft represents the most demanding aircraft using the airport on a regular basis and determines the appropriate airport reference code (ARC) and airport design standards for airport development.

AIRPORT REFERENCE CODE (ARC)

Aircraft Approach Category	Aircraft Approach Speed	Airplane Design Group	Aircraft Wingspan
A	less than or equal to 91	I	less than or equal to 49'
B	92 to 121	II	50' to 79'
C	122 to 141	III	80' to 118'

A-I
12,500 lbs. or less



Beech Baron 55
Beech Bonanza
Cessna 182
Piper Archer

B-I (small)
12,500 lbs. or less



Beech Baron 58
Beech King Air C90
Cessna 402
Cessna 421

A-II, B-II (small)
12,500 lbs. or less



Super King Air 200
Pilatus PC-12
DCH Twin Otter
Cessna Caravan

B-II
Greater than 12,500 lbs.



Super King Air 300, 350
Beech 1900
AT 802
Falcon 20, 50

A-III, B-III
Greater than 12,500 lbs.



DHC Dash 7, Dash 8
Q-200, Q-300
DC-3
Convair 580

C-I, D-I



Lear 25, 35, 55, 60
Israeli Westwind
HS 125-700

B-II
Greater than 12,500 lbs.



Super King Air 300, 350
Beech 1900
AT 802
Falcon 20, 50

BLM Staff Report average of 436 ops/year
Some years well over 500+ ops

Design Standards

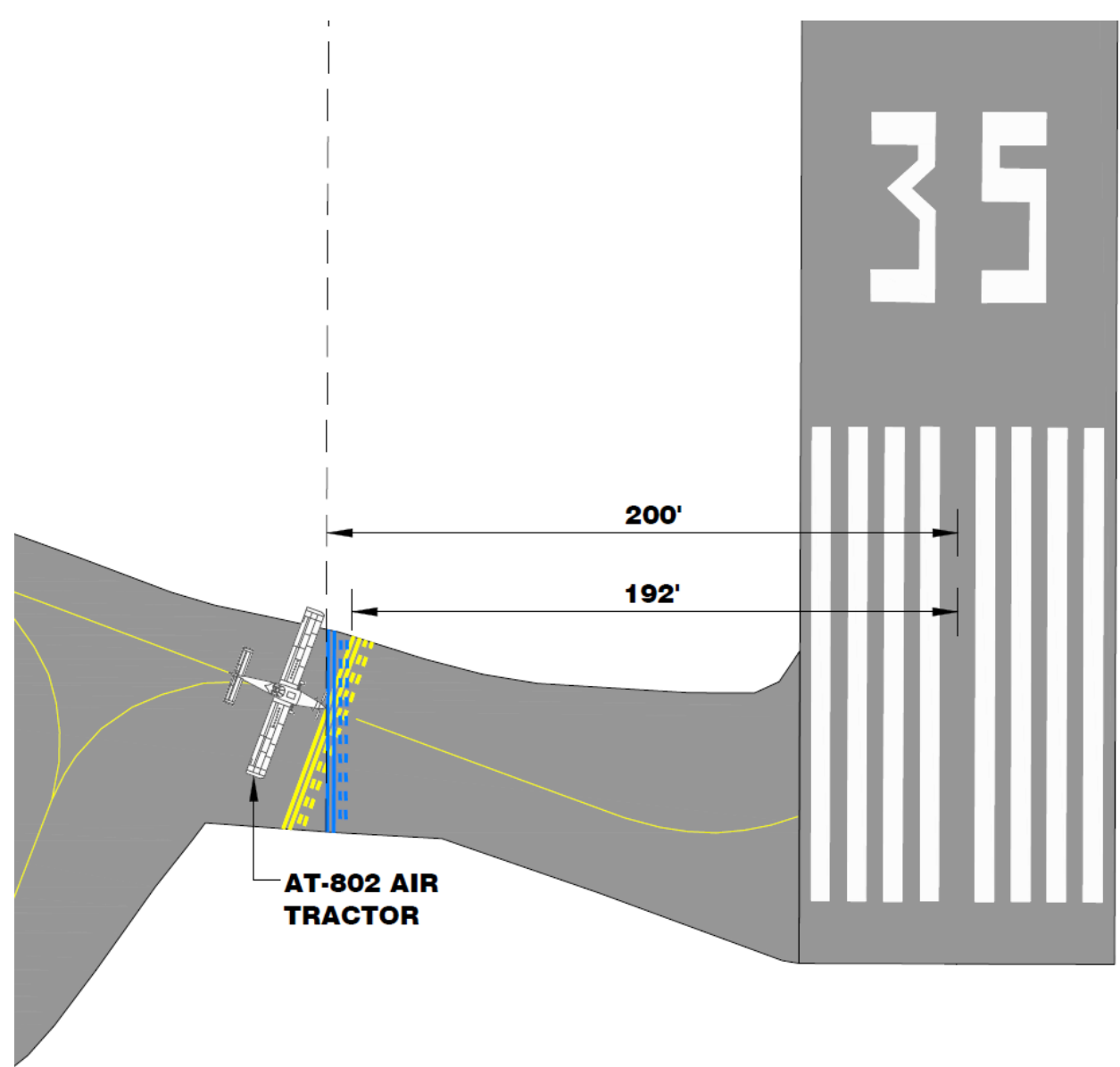
Table 3-2: FAA Design Standards Summary

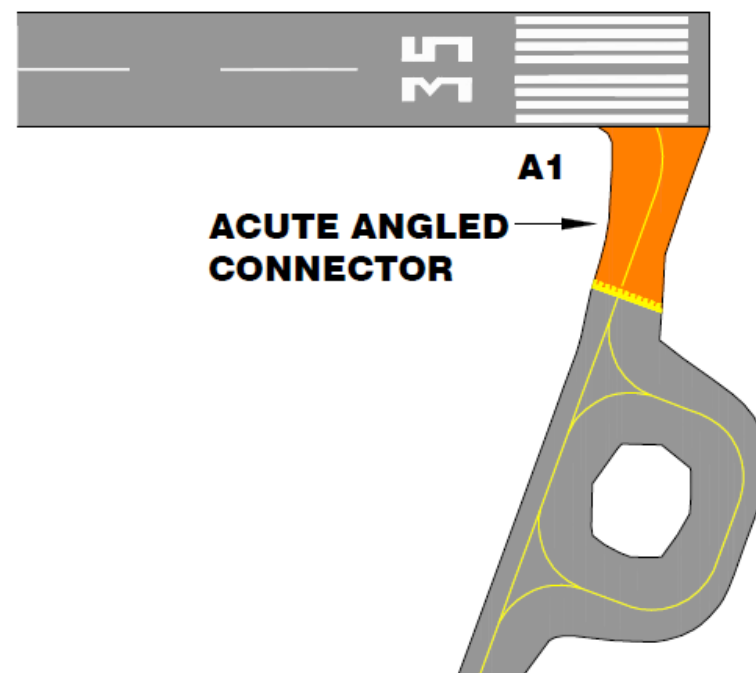
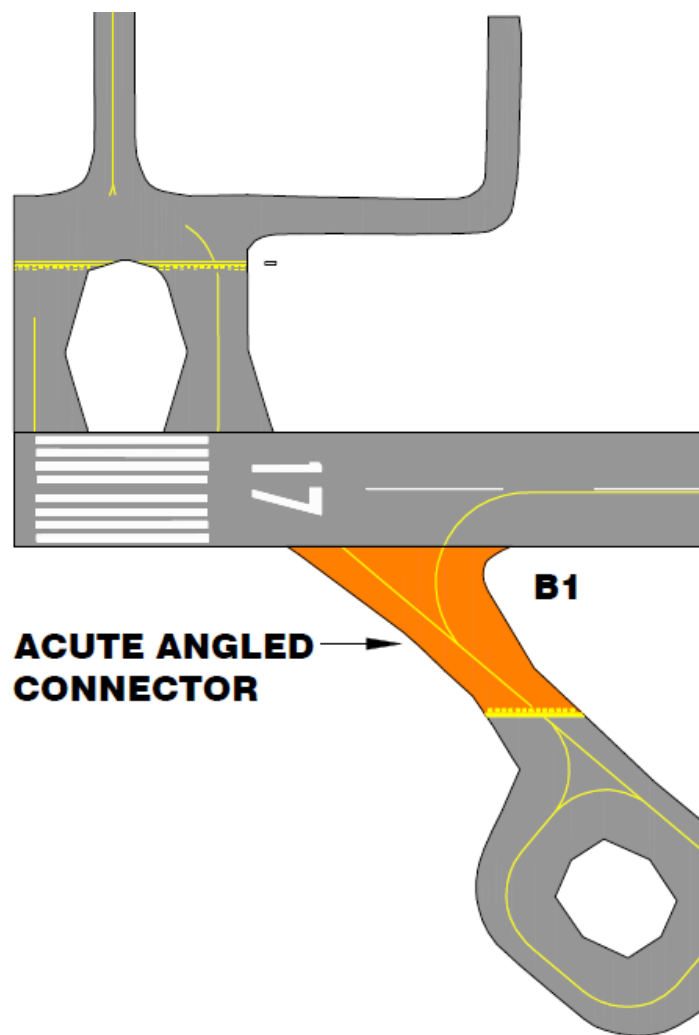
FAA STANDARD	RUNWAY 17/35 EXISTING CONDITIONS	RUNWAY 17/35 ARC B-II NOT LOWER THAN 1-MILE OR VISUAL EXISTING/FUTURE STANDARD
Runway Length	5,318'	See Runway Length Analysis Discussion
Runway Width	100'	75'
Runway Shoulder Width ¹	10'	10'
Runway Safety Area		
• Width	150'	150'
• Beyond RWY End	300'	300'
• Prior to Land Threshold	300'	300'
Runway Obstacle Free Zone		
• Width	400'	400'
• Beyond RWY End	200'	200'
• Prior to Land Threshold	200'	200'
Object Free Area		
• Width	500'	500'
• Beyond RWY End	300'	300'
• Prior to Land Threshold	300'	300'
Runway Protection Zone Length	RWY 17: 1,000'	RWY 17: 1,000'
	RWY 35: 1,000'	RWY 35: 1,000'
Runway Protection Zone Inner Width	RWY 17: 500'	RWY 17: 500'
	RWY 35: 500'	RWY 35: 500'
Runway Protection Zone Outer Width	RWY 17: 700'	RWY 17: 700'
	RWY 35: 700'	RWY 35: 700'
Runway Centerline to:		
• Parallel Taxiway	N/A	240'
• Holding Position	192' ²	200'

Notes:

1. Turf, aggregate-turf, soil cement, lime or bituminous stabilized soil as measured outwards from the runway edge are recommended adjacent to ADG I, II and III runways.
2. Existing hold line on Taxiway A is oriented 45° to Runway. The measurement provided is to the hold line at its nearest point to the runway. All other hold positions are 200' from the runway centerline.







FACILITY GOAL

The community identified goals, policies, and objectives developed in response to issues/opportunities identified in the Existing Conditions Analysis and Aviation Activity Forecasts.

FACILITY REQUIREMENT

The facility improvements required to satisfy identified capacity/demand requirements and FAA standards.

Regional Setting Goals and Requirements

Facility Goal: It is recommended that the Airport be maintained in its current location where it can continue to serve the surrounding community.

Facility Goal: It is recommended that the Airport investigates a based medevac services provider presence at the Airport to better serve the community emergency medical needs.

Facility Requirement: It is recommended that the Airport maintains B-II status but monitors for signs of growth in business aircraft in the C/D category.

Facility Goal: It is recommended that the Airport works with Local and State entities to update comprehensive plans and system plans to reflect the recommendations of this AMP Update.

Facility Goal: It is recommended that the Airport works with Local, State and Federal agencies to conduct appropriate environmental evaluations and permitting for future development projects.

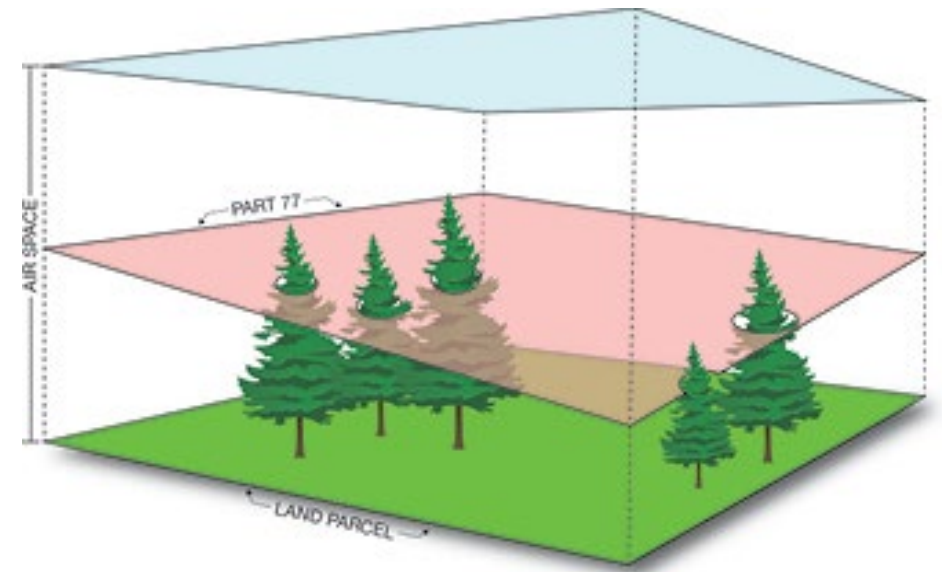
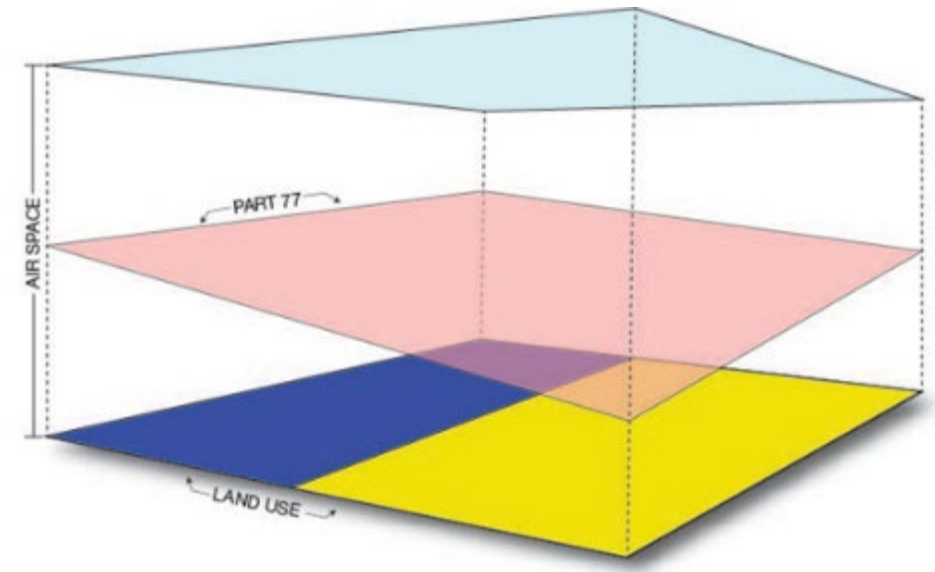
Facility Goal: It is recommended that the Airport coordinate transportation improvements to Airport Road with the County.

Regional Setting Goals and Requirements

Facility Goal: It is recommended that the Airport work with Lake County to codify CFR 14 Part 77 airspace surfaces and ratify the language as airport overlay zoning to specifically protect the airspace of Lake County Airport from incompatible development.

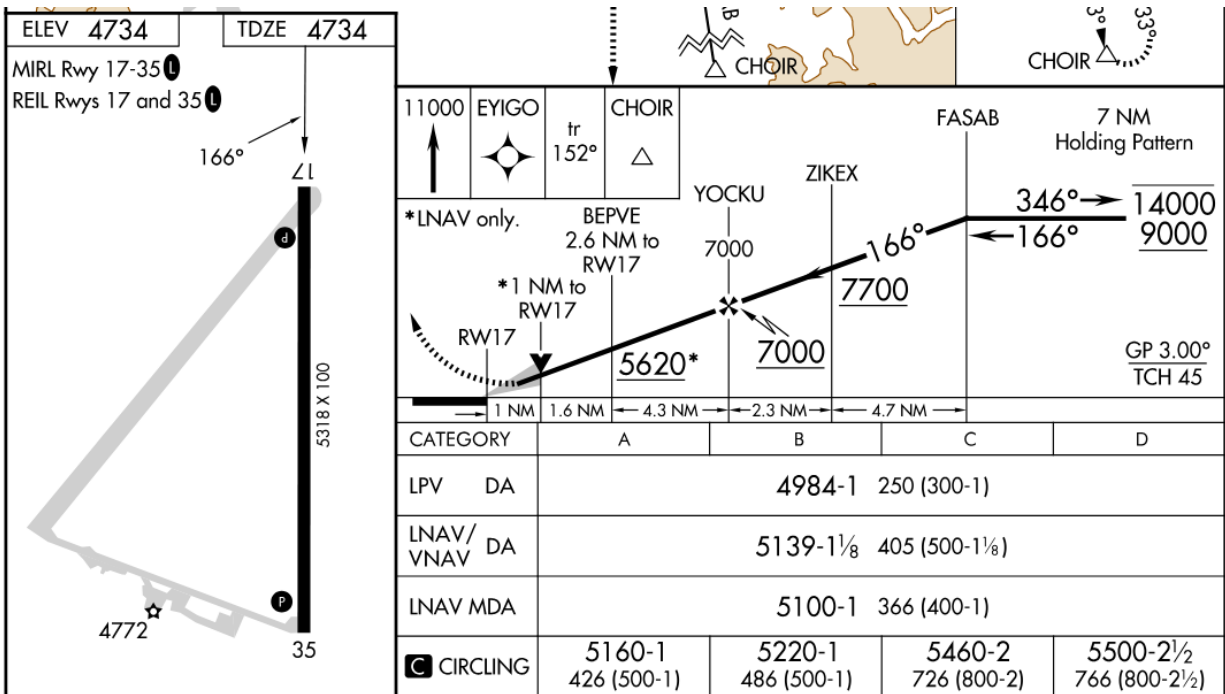
Facility Goal: It is recommended that the Airport work with Lake County to update the existing base zoning districts to better align with recommended best practices in the Oregon Airport Land Use Compatibility Guidebook.

Facility Requirement: Identify obstructions that conflict with existing or future Part 77 surfaces to be mitigated in the alternatives chapter.



Facility Goal: It is recommended that the Airport work with FAA Flight Procedures Team to update procedures to correspond with any changes in runway geometry resulting from the outcome of the development alternatives.

Facility Requirement: Maintain clear approaches to preserve the published instrument procedures.



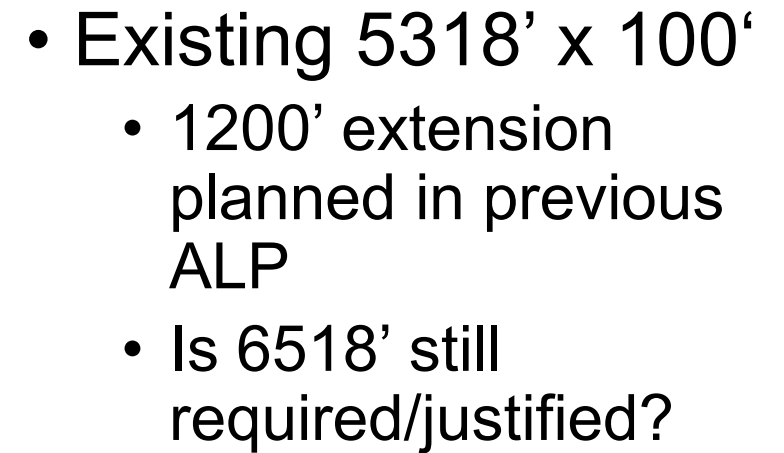
Facility Goal: While a dedicated crosswind runway is not justified or eligible for FAA funding, alternatives to locate an alternate landing area (that is configured for crosswind operations) should be investigated in Chapter 5 – Development Alternatives.

Facility Requirement: The current configuration of Runway 17-35 provides sufficient wind coverage for both small and large aircraft. This configuration should be maintained throughout the planning period.

TABLE 4-x WIND COVERAGE

Crosswind	Runway 17/35		
	All Weather	IFR	VFR
10.5 Knots	96.14%	95.84%	96.17%
13 Knots	97.94%	97.50%	97.98%
16 Knots	99.39%	98.75%	99.45%

Source: FAA Airport Data and Information Portal



Airside Goals and Requirements

- FAA AC Design Curves – 5,800'
- AT-802 Aircraft Specific Data
 - MGW – 16,000 lbs
 - Fuel or Retardant/Water Tradeoff
 - 28 C
 - 4700' MSL
- AT-802 Manufacturers Data – 7,400'
- USFS Contractor Proprietary Performance Charts – 7,095'
 - Reduced takeoff weight of 15,300 lbs requires 6,416'

Facility Requirement: In the future extend the runway to the justified length of 6,518' (1,200' extension).

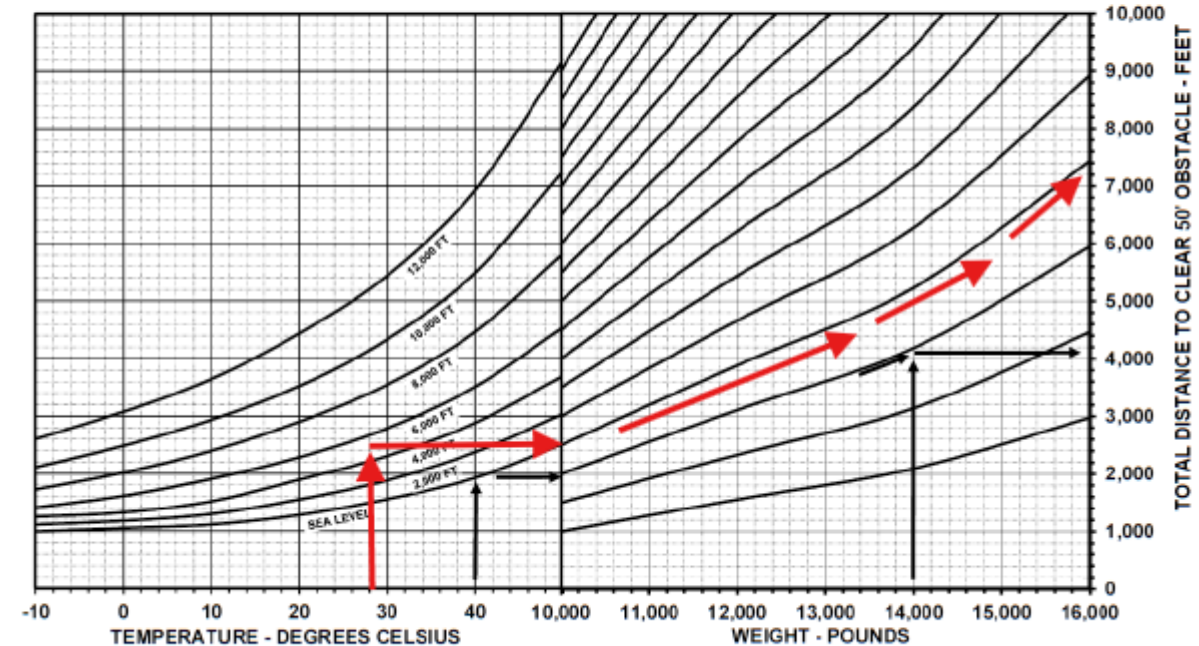
TAKEOFF DISTANCE OVER 50' OBSTACLE

AT-802 WITH PT6A-67AG ENGINE

CONDITIONS

- TAKEOFF POWER
- FLAPS UP AT 12,500 POUNDS AND BELOW
- FLAPS 10° ABOVE 12,500 POUNDS
- PAVED RUNWAY, NO WIND
- DISTANCE IS TO 50 FEET ABOVE GROUND LEVEL

WEIGHT (LBS)	AIRSPEEDS MPH (KIAS)	
	TAKEOFF	50' CLIMBOUT
10,000	90 (78)	94 (82)
12,000	99 (86)	104 (90)
14,000	98 (85)	110 (96)
16,000	105 (91)	116 (101)



DO NOT USE THIS CHART TO DETERMINE MAXIMUM TAKEOFF WEIGHT

Airside Goals and Requirements

Facility Goal: Maintain the 100' runway width which exceeds B-II standards of 75'.
(Pavement width beyond 75' may not be eligible for federal funding)

Facility Requirement: It is recommended that the Airport maintain at a minimum of 75' of width and 10 feet shoulders.

Facility Requirement: It is recommended that the Airport continue to keep the RPZ free of incompatible land uses in the RPZs of Runway 17-35.



Airside Goals and Requirements

Facility Requirement: Provide optimal access to Runway 17-35.

Facility Goal: Maintain Taxiway B existing geometry

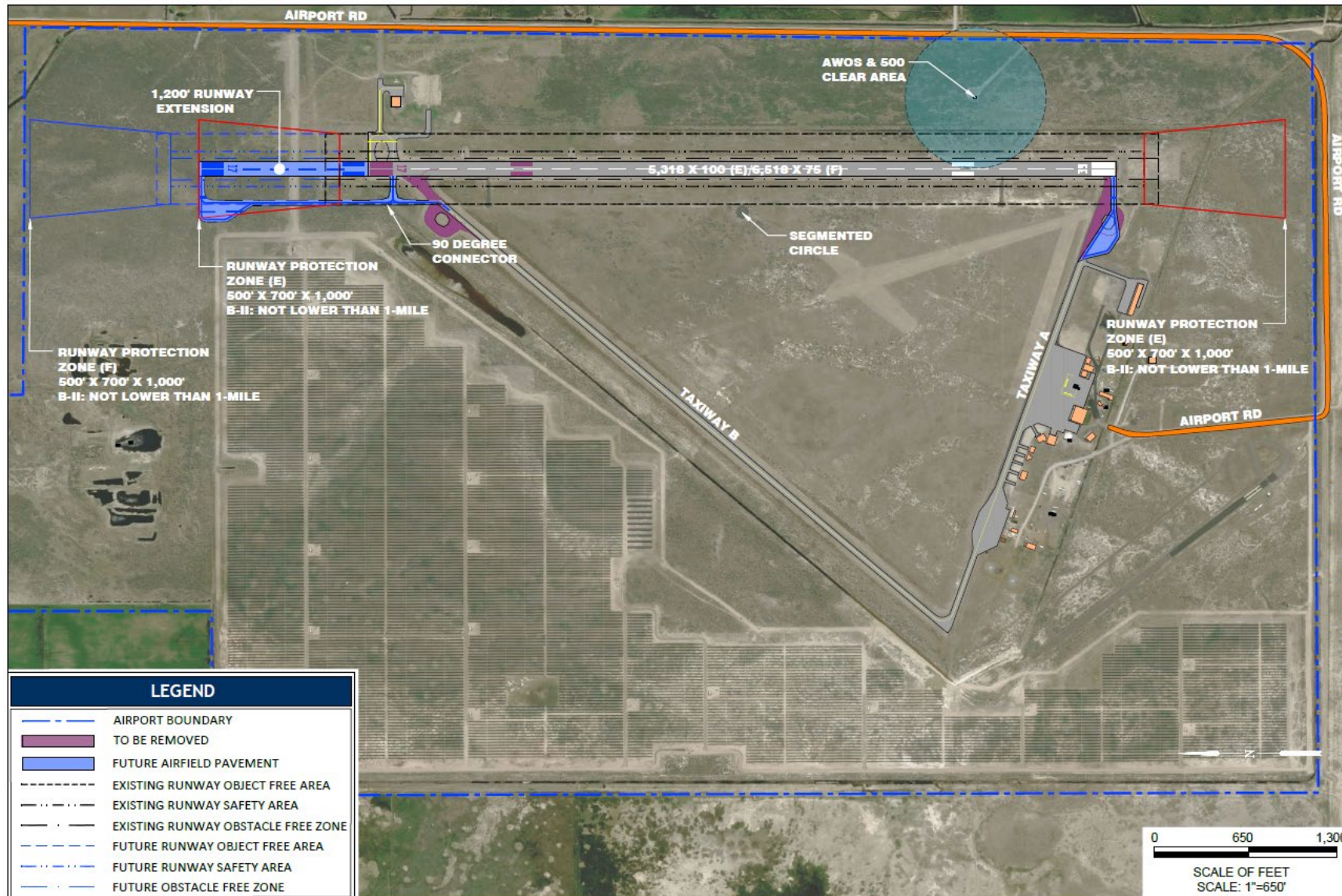
Facility Requirement: It is recommended that the Airport reconfigure the non-standard acute connecting taxiways to 90 degrees.

Facility Requirement: It is recommended that the Airport reconfigure the Taxiway A hold position to provide standard B-II separation from the runway centerline for an aircraft holding short of Runway 17-35.

Facility Goal: Construct additional taxilanes to expand hangar development areas.

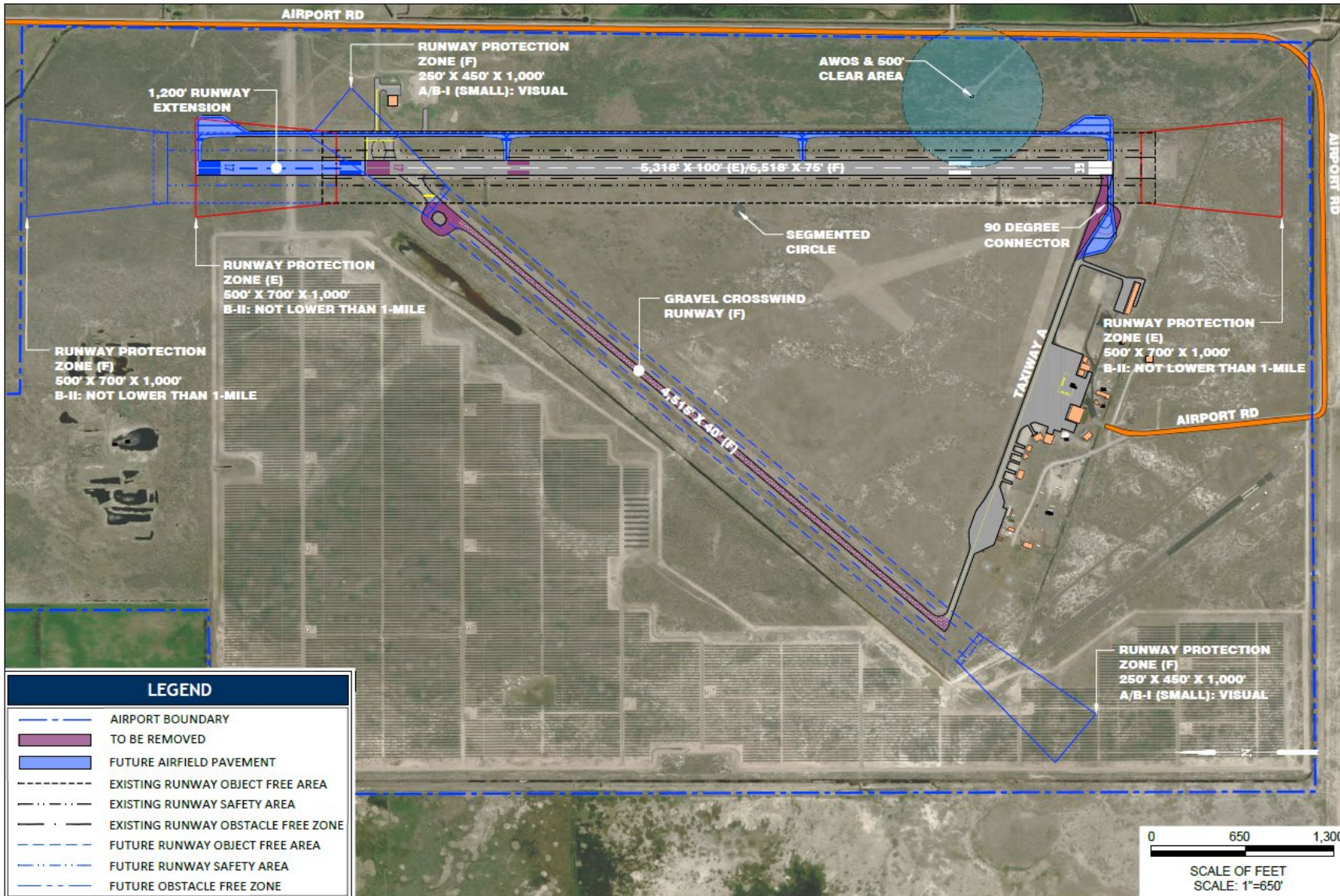
CENTURY WEST ENGINEERING LAKE COUNTY LAKE COUNTY AIRPORT MASTER PLAN UPDATE - COST ESTIMATES DRAFT MASTER PLAN ALTERNATIVES April 1, 2025		
No.	Project	Total Project Cost
1	Maintain Existing Configuration	\$ 15,087,000
2	Parallel Taxiway East of Runway	\$ 19,955,000
3	Parallel Taxiway West of Runway	\$ 17,520,000
4	Parallel Taxiway West of Runway and Remove Taxiway B Completely	\$ 17,426,000

Airside Concept #1



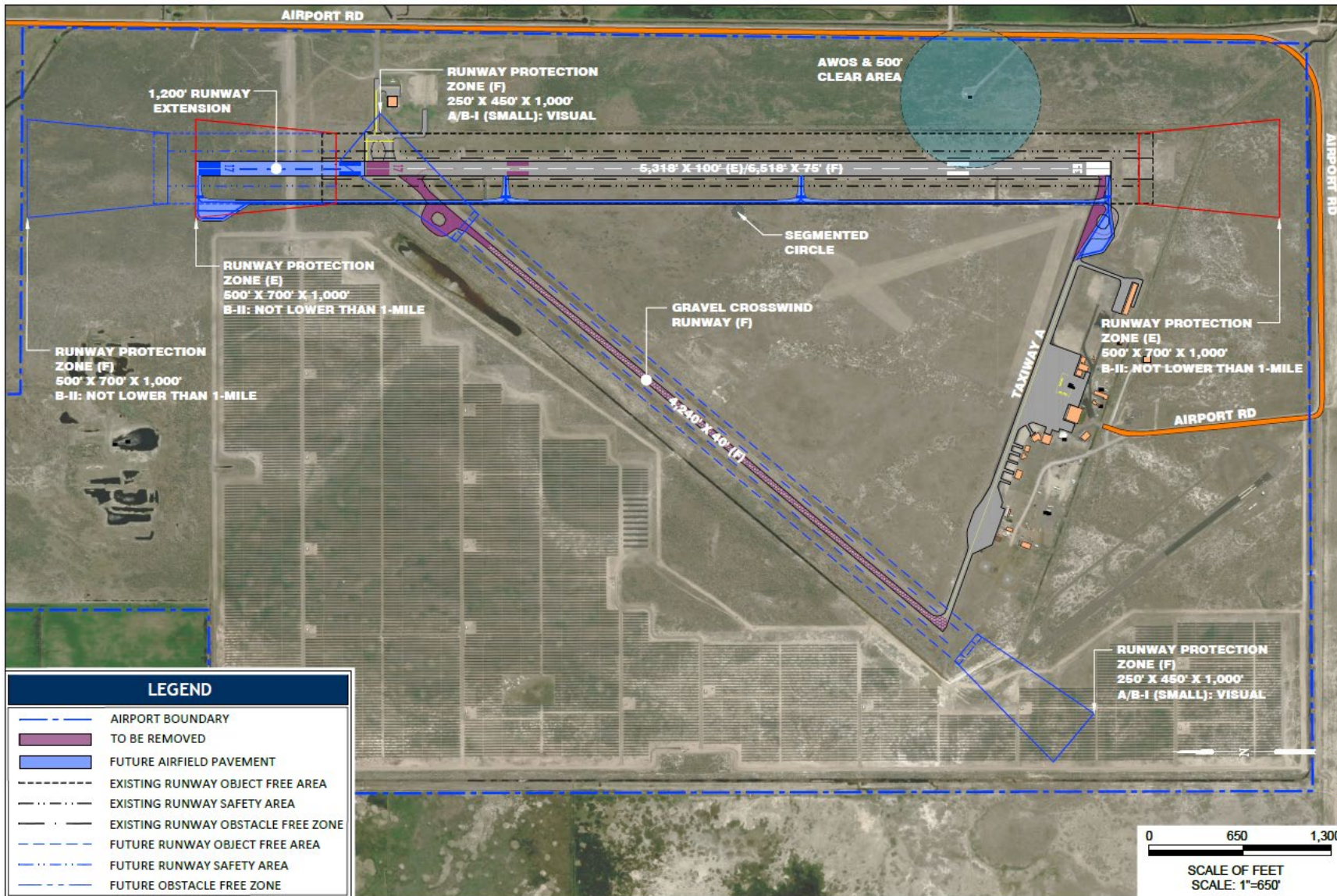
- 1,200' Runway Extension
- Maintains Taxiway B and includes reconstruction
- Corrects Nonstandard Geometry
- Approximately \$15 million

Airside Concept #2



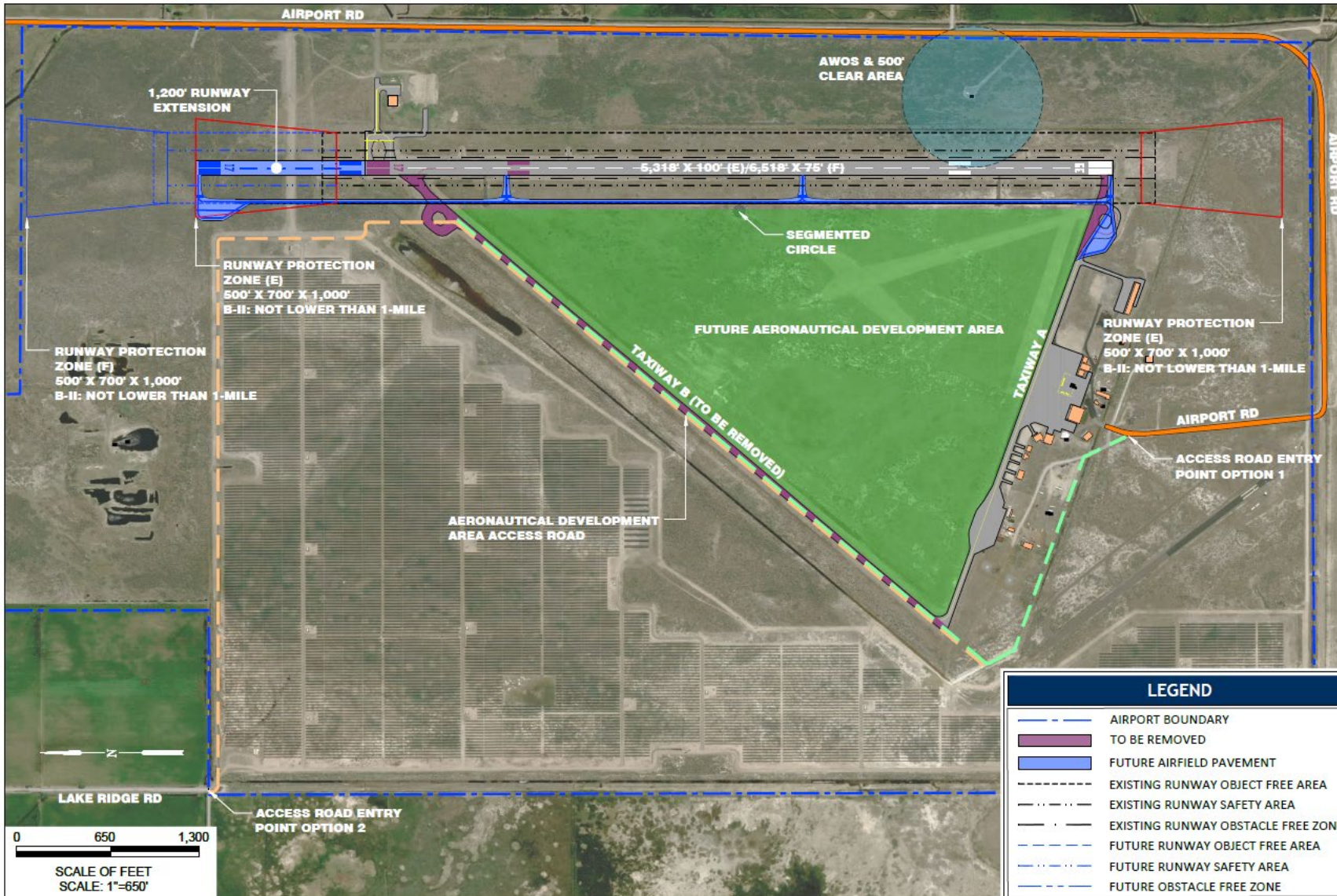
- 1,200' Runway Extension
- Converts Taxiway B to gravel crosswind runway (local funding only)
- Eastside Parallel Taxiway
- Corrects nonstandard taxiway geometry
- Approximately \$19.9 million

Airside Concept #3



- 1,200' Runway Extension
- Converts Taxiway B to gravel crosswind runway (local funding only)
- Westside Parallel Taxiway
- Corrects nonstandard taxiway geometry
- Approximately \$17.5 million

Airside Concept #4



- 1,200' Runway Extension
- Westside Parallel Taxiway
- Corrects nonstandard taxiway geometry
- Removes Taxiway B
- Infield Future Aeronautical Development Area
- Approximately \$17.4 million

Airside Goals and Requirements

Facility Requirement: Identify the necessary/recommended pavement projects that need to be completed to maintain safe and efficient operations at LKV.

Facility Requirement: It is recommended that the runway and taxiway lighting system be maintained through the remainder of its useful life. The lighting should be updated as necessary to address any future changes to the runway identified in the development alternatives analysis process.

Facility Goal: It is recommended that additional signage be installed to assist pilots in navigating the Airport's extensive taxiway system.

Facility Goal: It is recommended that the Airport maintains the current fuel system and updates as necessary.

Facility Goal: It is recommended that LKV purchase snow removal equipment and construct an SRE building to maintain safe operational capabilities of facilities during the winter months.



Landside Goals and Requirements

Facility Goal: Maintain and upgrade existing terminal building facilities as needed.

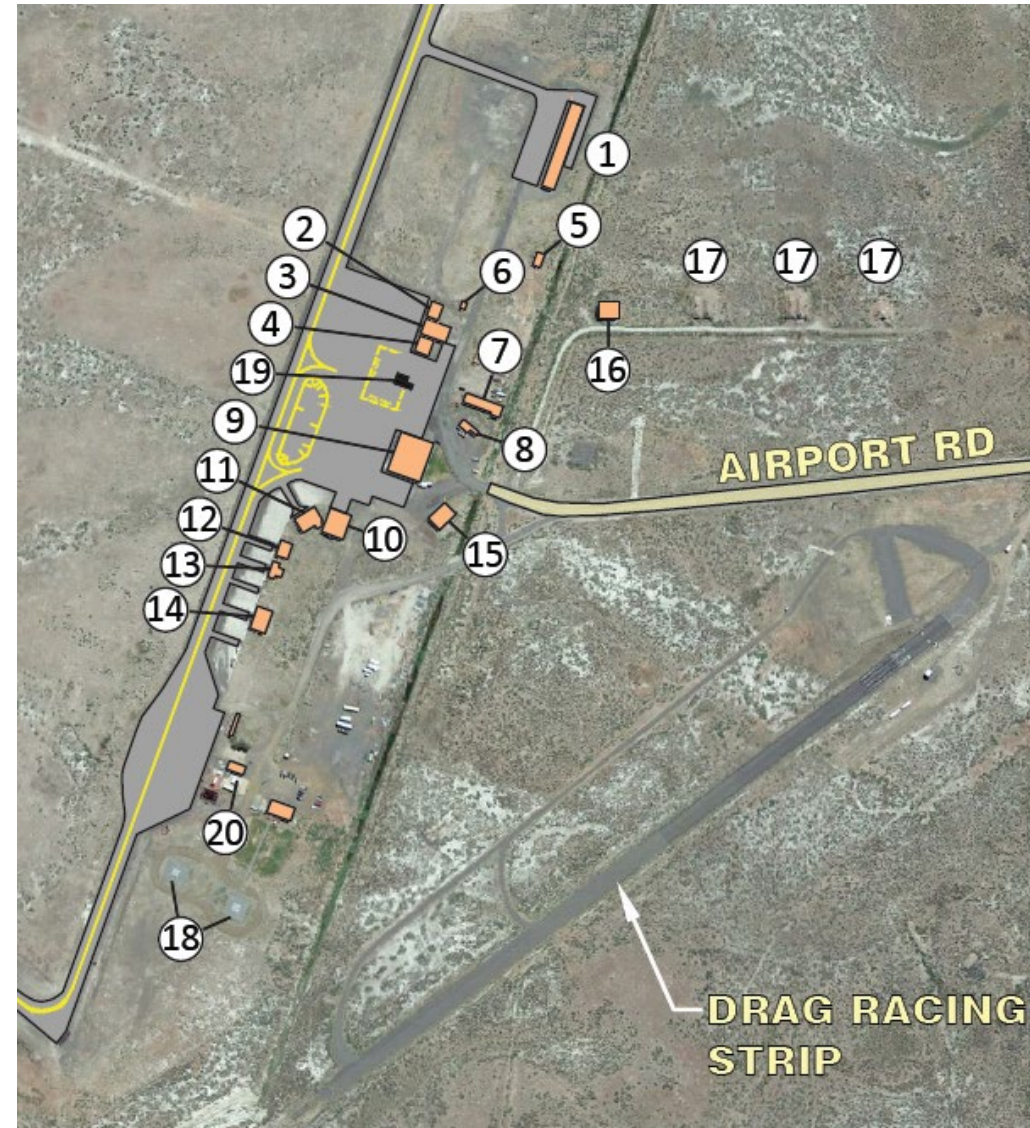
Facility Goal: Prepare a suitable site for the construction of a new FBO facility to house BLM/USFS and medivac operations.

Facility Goal: Identify development areas for new hangars to satisfy forecasted demand and increase revenue streams.



Landside Goals and Requirements

BUILDING LEGEND		
BUILDING #	USE	ELEVATION (AGL)
①	AIRCRAFT STORAGE	20'
② - ④	AIRCRAFT STORAGE	20'
⑤	WELL HOUSE	10'
⑥	ELECTRICAL	10'
⑦	STORAGE	10'
⑧	SECURITY	10'
⑨	FBO / MAINTENANCE	42'
⑩ - ⑭	AIRCRAFT STORAGE	14'-24'
⑮	STORAGE	10'
⑯	STORAGE	30'
⑰	UNUSED BUNKER	8'
⑱	HELIPAD	-
⑲	FUEL ISLAND	14' (SIGNAGE 30')
⑳	TANKER BASE	-



Landside Goals and Requirements

Facility Goal: Provide transient helicopter parking positions.

Facility Requirement: Provide standard clearances for the existing nested tiedown positions per AC 150/5300-13B Change 1, Airport Design.

Facility Goal: Provide parking positions for transient business aircraft.

Facility Goal: Provide efficient access for both ADG I and ADG II aircraft accessing the main apron parking and fueling areas.



Landside Goals and Requirements

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Facility Requirement: Provide standard clearances for the existing nested tiedown positions per AC 150/5300-13B Change 1, Airport Design.

Facility Goal: Provide parking positions for transient business aircraft.

Facility Goal: Provide efficient access for both ADG I and ADG II aircraft accessing the main apron parking and fueling areas.



Landside Goals and Requirements

Facility Requirement: Install 6' perimeter fencing upgrading the existing livestock fencing.

Facility Requirement: Install electronic access gates to improve security and accessibility.

Facility Goal: Maintain and expand on-site utilities as needed to support aeronautical and non-aeronautical development.

Facility Goal: It is recommended that the County develop new access roads to any new development to limit vehicle crossings of aprons and taxiways.

Facility Goal: Maintain and expand on-site utilities as needed to support aeronautical and non-aeronautical development.



Admin Goals and Requirements

FACILITY GOAL: Provide a courtesy car for use by pilots.

FACILITY GOAL: Attract tourist through events/fly ins.

FACILITY GOAL: Facilitate the implementation of the vision, goals, and actions depicted in the Airport Master Plan.

FACILITY GOAL: Develop Airport public outreach strategy to foster greater connection to regional community.

FACILITY GOAL: County could consider conducting an Airport Business Plan to further pursue new revenue potential and other development opportunities.

FACILITY GOAL: County should periodically assess their fees for services and airport staffing and compare them to other similar airports in the region.

FACILITY REQUIREMENT: Continue to work with governing agencies to ensure compliance with all local, state and federal requirements.

FACILITY REQUIREMENT: It is recommended that the County continue to work with state and federal partners to ensure compliance.

Eastside Development Area - Private Development Reserve

- Irrigation/Drainage challenges
- Potential Fire & Emergency Services Base
- Private Development on eastside can expand (meeting FAA standards) and address drainage Issues without County/FAA Investment

RUNWAY PROTECTION ZONE (E)
500 X 700 X 1000
B-II

RUNWAY PROTECTION ZONE (E)
500 X 700 X 1000
B-II

Runway 17-35

- Exiting 5318' x 100'
- 1200' extension planned in previous ALP
- Is 6518' still required/justified?

Terminal Development Area

- Infill Opportunities
- Building Condition Analysis required
- Development Reserve
- Fire Base/BLM Priorities
 - SEAT base reconstruction planned for 2025
 - Maintain BLM Staging Area
 - FBO Relocation with BLM participation has been discussed

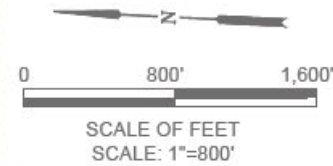
Taxiway "B"

- 40' wide
- approx 5100' length
- Bandaidd Rehabilitation in 2024 is priority
- Needs reconstruction ASAP
- 40' width justification?
 - B200 requires 35'
- Use as alternate Xwind landing area?
 - Wind analysis
 - FAA position?

Taxiway "A"

- Rehab planned for 2027
- Reconstructed in 2022 to 35' width
- Potential for two new helipads

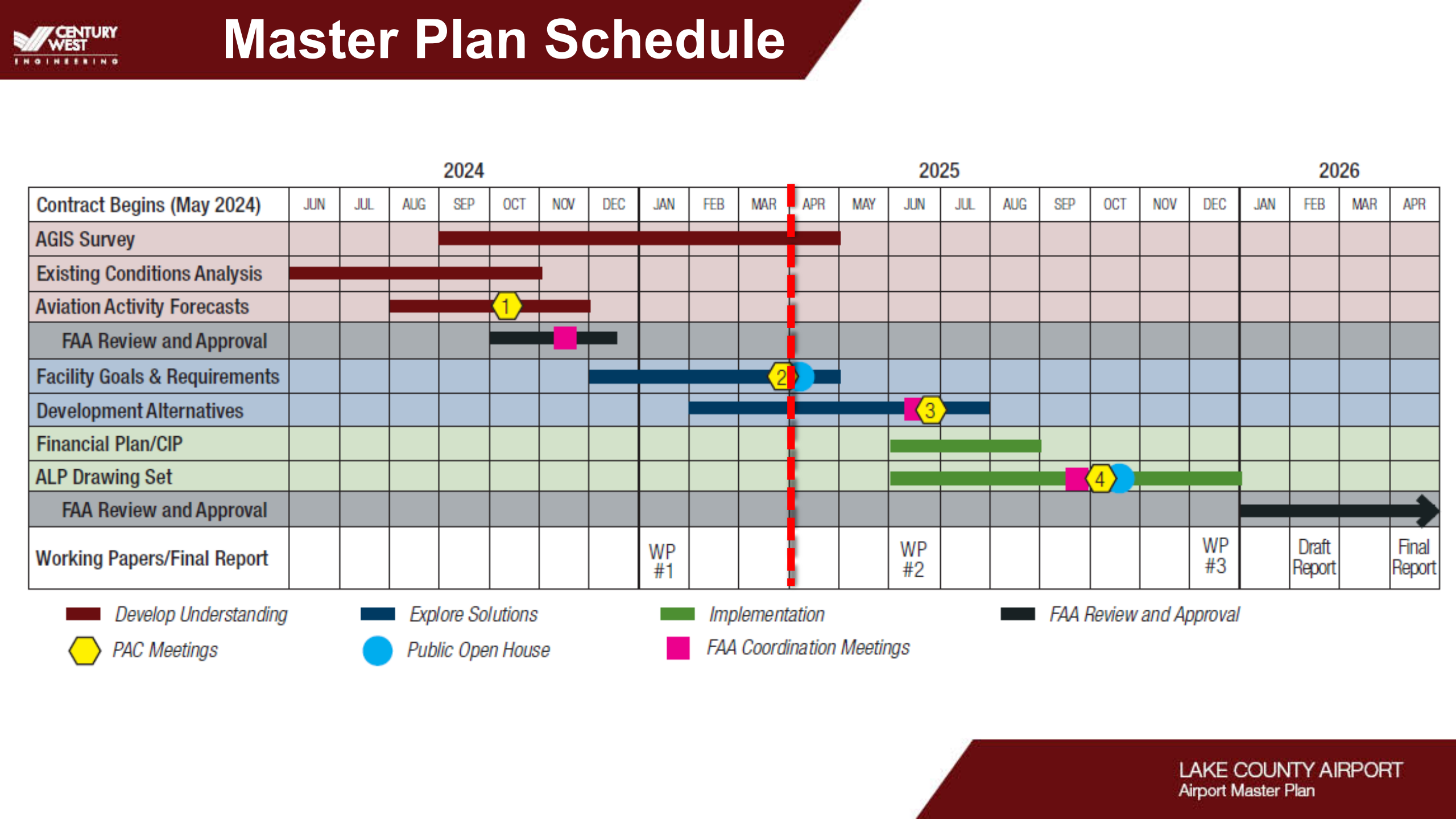
BUILDING LEGEND		
BUILDING #	USE	ELEVATION (AGL)
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⑯	STORAGE	30'
⑰	UNUSED BUNKER	8'
⑱	HELIPAD	-
⑲	FUEL ISLAND	14' (SIGNAGE 30')
⑳	TANKER BASE	-



LEGEND	
	AIRPORT BOUNDARY
	RUNWAY SAFETY AREA (RSA)
	OBSTACLE FREE ZONE (OFZ)
	OBJECT FREE AREA (OFA)

Next Steps

- Complete Facility Goals and Requirements Chapter
- Complete Development Alternatives for presentation
- Conduct PAC #3 – June/July
- Complete Working Paper #2
 - Facility Goals and Requirements
 - Development Alternatives



Thank you... Questions?

Mike Dane – Mdane@centurywest.com