

CHAPTER 5 IDENTIFICATION AND EVALUATION OF ALTERNATIVES

This chapter identifies and evaluates facility development alternatives for Southwest Oregon Regional Airport. These alternatives are designed to meet the following objectives:

- Meet the facility demand requirements outlined in the previous chapter
- Satisfy the strategic objectives and goals of the Airport
- Adhere to safe operational standards set by the FAA, State of Oregon, and the Airport

The result of this analysis is a cohesive plan for Airport development that functionally combines all recommended improvements. This plan will enable the Coos County Airport District to effectively develop the Airport so that it remains a leading transportation asset for the southwest Oregon area.

As discussed in **Chapter 4, Facility Requirements**, certain identified facility needs will require further analysis to determine the optimum layout and potential. Additionally, as a result of the consensus of the Master Plan Advisory Committee Meeting, held on May 16, 2012, alternatives for extending Runway 4/22 will be identified and evaluated separately. A summary of the major airport facilities to be addressed within this chapter is listed in Table 5-1.

Table 5-1
SUMMARY OF MAJOR AIRPORT FACILITY NEEDS

| Category | Facility | Item | Requirement |
|-------------------|------------------------|--|--|
| Safety Items | Runway 4/22 | ROFA and RSA | Fill and grade as needed beyond east end of runway to provide ROFA and RSA to meet C-III design criteria |
| | Runway 13/31 | ROFA | Clear objects from the ROFA beyond south end of runway to meet C-II design criteria |
| | Taxiways A1 and A2 | Engineering Brief No. 75 Compliance | Relocate connector taxiways to eliminate direct access from the GA apron to Runway 13/31 |
| Capacity Items | Runway 4/22 | Provide 6,400' of Rwy. length for departures | Extend Runway 4/22 by 400 feet |
| | General Aviation Apron | Total Hangar Space | An additional 45,000 SF of hangar space by 2030 |
| | General Aviation Apron | Main Hangar Replacement | Replace 36,800 SF of main hangar space |
| | General Aviation Apron | T-Hangars | One additional 4,400 SF of T-Hangar space (or 10-unit) is needed by 2014 |
| Replacement Items | General Aviation Apron | Itinerant parking apron | An additional 3,000 SY (5 Positions) of apron required by 2020 An additional 10,000 SY (15 Positions) of apron required by 2030 Accommodate a potential 10,000 SY (15 Positions) of apron beyond planning period |
| | Support Facilities | ARFF | Replace aging ARFF building including 3 truck bays |
| | Support Facilities | Maintenance | Replace aging maintenance shop to suitable location |
| | Support Facilities | Air Cargo | Identify appropriate location for additional apron and building space necessary for beyond planning period |

Source: Chapter 4, Facility Requirements, RS&H, 2012.

5.1 ALTERNATIVE DEVELOPMENT AND EVALUATION PROCESS

The identification and analysis of development alternatives divides the Airport into two key target areas of study - Airfield (Runways and Taxiways) and General Aviation (Hangars, and Support Facilities). The purpose of this division is to focus on those elements that are interrelated and may require land area, both in terms of physical facilities and space reserved for operational safety.

5.1.1 Identification of Alternatives

The process of determining viable alternatives and ultimately the preferred development plan is performed in a series of steps. Factors that drive the alternative development process are directly related to current infrastructure limitations identified from the facility requirement analysis. Further, the process was designed to meet the forecast aviation demand for the 20-year planning horizon. Therefore, these factors provided the framework necessary to formulate feasible development alternatives to meet future growth at the Airport. Preliminary alternatives were put through an initial screening and those that clearly failed to meet facility requirements were eliminated. The remaining preliminary alternatives were developed into conceptual alternatives with the purpose of meeting the facility requirements, while minimizing negative impacts. These alternatives were evaluated against one another to produce the preferred alternative for Airport development.

5.1.2 Evaluation of the Alternatives

Evaluation criteria were refined throughout the process. The following broad categories were initially used for the screening and ranking of alternatives:

- **Operational Performance** – How well the Airport functions as a system was evaluated from several perspectives, including capacity, safety, and efficiency.

Capacity – Test for the ability to accommodate future activity levels. Various capacity techniques were applied to the airside, terminal, and ground access elements. Consistent application of the technique to each alternative permitted the planners to compare each alternative.

Capability – Test for the capability of meeting specific functional objectives, such as accommodating the design aircraft, providing the required number of aircraft parking positions/gates, or allowing space for the runway length requirement.

Efficiency – Test how well the alternatives work together as a system by examining combined alternative elements.

- **Best Planning Tenets** – Relative strengths and weaknesses of the alternatives following the best planning tenets as applicable:
 - 1) Conforms to best practices for safety and security
 - 2) Conforms to the intent of applicable FAA design standards and other appropriate planning guidelines
 - 3) Provides for the highest and best on- and off-airport land use
 - 4) Allows for forecast growth throughout the planning period
 - 5) Provides for growth beyond the planning horizon, as applicable

- 6) Provides balance (typically capacity) between elements
 - 7) Provides the flexibility to adjust for unforeseen changes
 - 8) Conforms to the Airport sponsor's strategic vision
 - 9) Conforms to appropriate local, regional, and state transportation plans and other applicable policies
 - 10) Technically feasible (limited site constraints)
 - 11) Socially and politically feasible
 - 12) Satisfies user needs
- **Environmental Factors** – The potential environmental effects of the alternatives are an important consideration. The impact categories defined in FAA Order 1050.1, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions* were examined at a Master Planning level of detail and applicable categories were considered.
 - **Fiscal Factors** – Compare rough cost estimates with an emphasis on any special differences among alternatives. Note that these rough cost estimates will be substantially refined in the Facilities Implementation Plan portion of this study. The rough cost estimates for the alternatives analysis served for screening alternatives only, and will represent a broad order magnitude of cost only.

Contained within these various categories were specific criteria that reflected the goals and objectives identified in the Airport's vision and goal setting exercises described in Chapter 1. These criteria were applied to each potential development alternative within each main airport area of study, Airfield (Runways and Taxiways) and General Aviation (Aprons, Hangars, and Support Facilities). Alternatives were reviewed and arranged to allow for quantitative analysis and ranking of each potential development alternative.

Not all identified solutions resulted in a review of alternatives within each area of study. In some cases, it is clear that alternatives addressing specified needs do not require further evaluation. This is true for improvements that are essential to meet FAA design standards and to establish Airport infrastructure that supports the preferred alternatives. These improvements are discussed throughout the chapter and are presented as recommendations.

5.2 AIRFIELD SAFETY RELATED IMPROVEMENTS

As mentioned in the previous section, some facility improvements are simply required by regulation. These improvements are directly specified by design criteria established by FAA that apply to the airfield to meet a particular Airport Reference Code. When the approach to compliance with applicable regulations is fairly straightforward, an analysis of alternatives is not needed and the projects can be included in the capital program. Two such projects are discussed in the following sections.

5.2.1 Runway 4/22 ROFA and RSA

A former project to increase the centerline offset and extend Taxiway C was intended to result in the upgrade of the Runway 4/22 and Taxiway C airfield facilities to meet C-III design criteria. However, as can be seen in Figure 5-2, a small portion of the Runway Safety Area (RSA) and the Runway Object Free Area (ROFA) do not meet the RSA and ROFA criteria for C-III. An additional project is necessary to extend the Runway Safety Area to the full length required. The City of Coos Bay owns the section of water to be filled to meet the RSA and ROFA criteria; however, that portion of the waterway is managed by the Port of Coos Bay. Therefore, based on the existing government controls already in place, no additional controls (such as acquisition of land or avigation easement) would be necessary for the RSA, ROFA.

This project is necessary regardless of the selected alternative for meeting the additional facility requirement to increase the runway length to 6,400 feet. Not undertaking the project to meet the safety critical and regulatory design criteria would fail to meet the associated facility requirement. Should the preferred alternative include adding length to the Runway 22 end of the runway, meeting these design criteria would be incorporated into that project's design and not be a separate project.

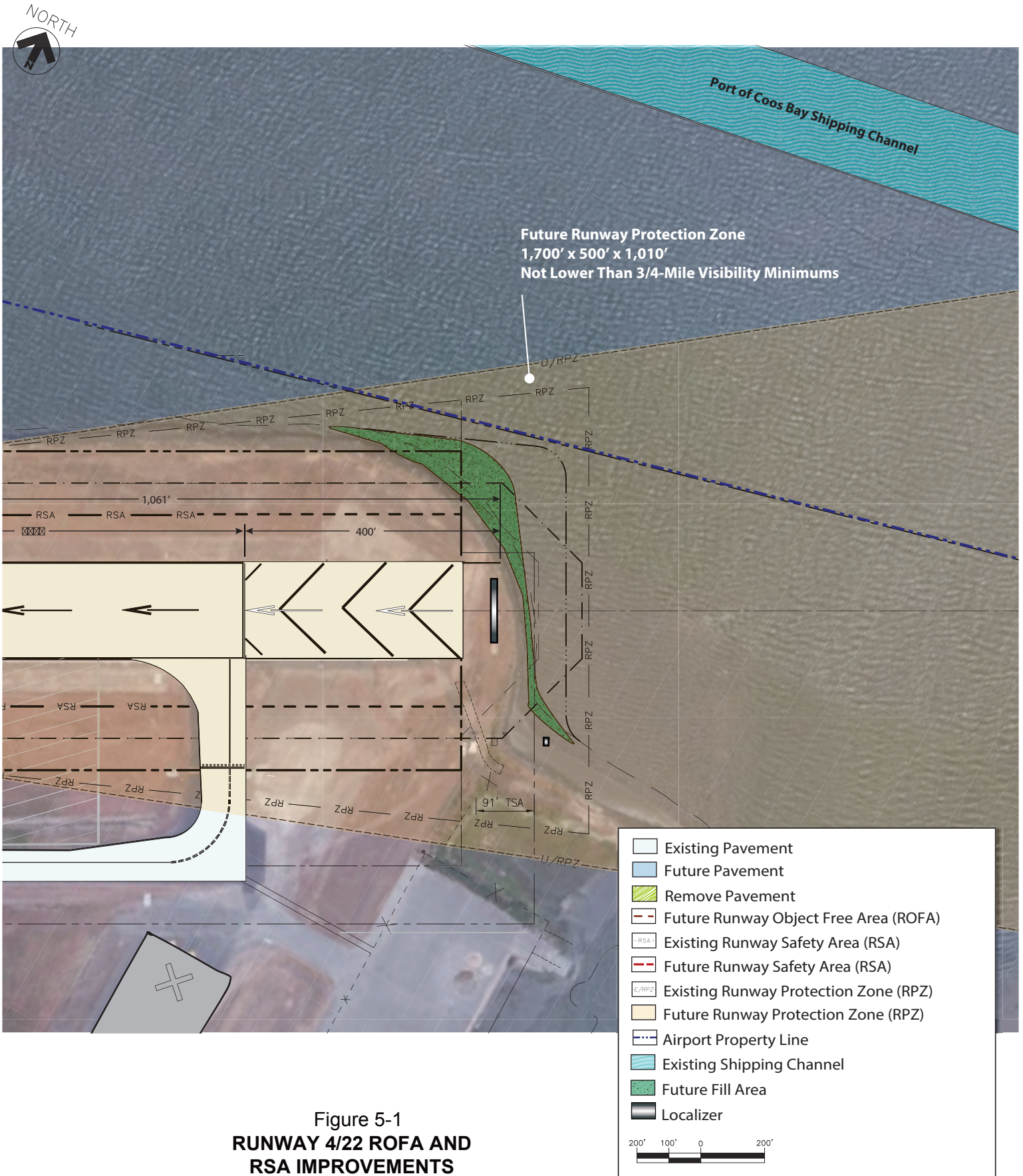


Figure 5-1
**RUNWAY 4/22 ROFA AND
 RSA IMPROVEMENTS**

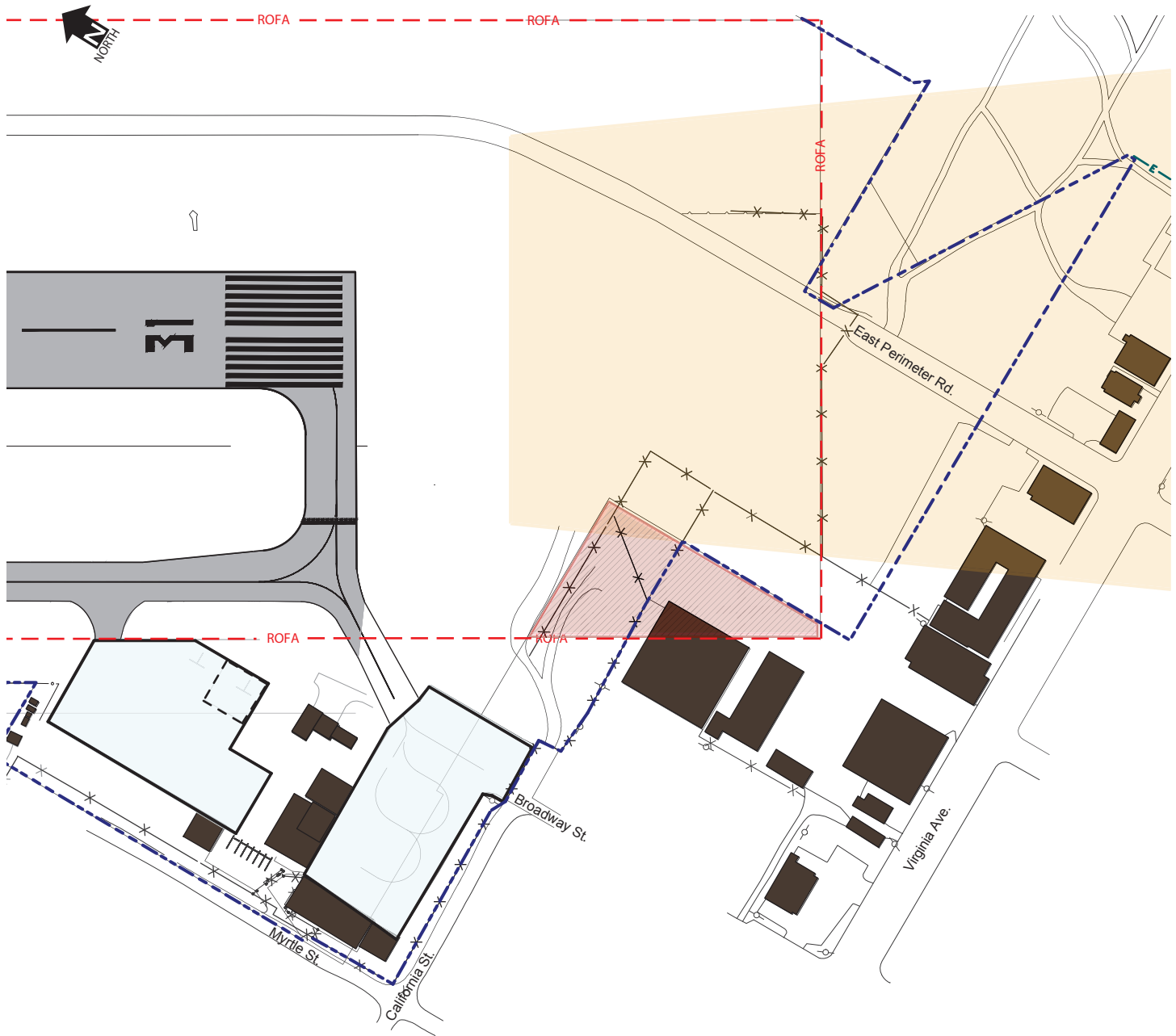
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5.2.2 Runway 13/31 ROFA

Compliance with the ROFA design criteria requires the clearance of all objects that are not fixed by their function and protrude above the elevation of the adjacent RSA. In order to comply with the ROFA standard for ARC C-II beyond the south end of Runway 13/31, a number of objects will need to be addressed through removal or approved in place by extension of a modification to airport design standards.

As depicted in Figure 5-2, areas shown in red are within the ROFA, but outside of Airport property. In addition, the corner of a building and numerous fences also are within the C-II ROFA. The former Airport Layout Plan approved by FAA indicates that there is a current modification to airport standards in place for this existing condition. The recommended course of action is to conduct a full boundary survey to verify the actual property lines as they appear different in multiple sources. This recommendation will be reflected in the Airport Capital Improvement Program presented in Chapter 6 of this report. It is important to understand that while this modification to standard exists today, if ultimate improvements are necessary to this runway, the FAA may require this modification be corrected before such ultimate improvements are supported by the FAA.

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| | |
|--|--|
| | Existing Pavement |
| | Existing Hangar/Broadway |
| | Existing/Future Runway Protection Zone (RPZ) |
| | Airport Property Line |
| | Existing Avigation Easement |
| | Off-Airport Safety Critical Property |
| | Runway Object Free Area (ROFA) |
| | Fence Line |

Note: Conduct a full boundary survey to verify the actual property line as they appear different in multiple source.

Figure 5-2
RUNWAY 13/31 ROFA IMPROVEMENTS

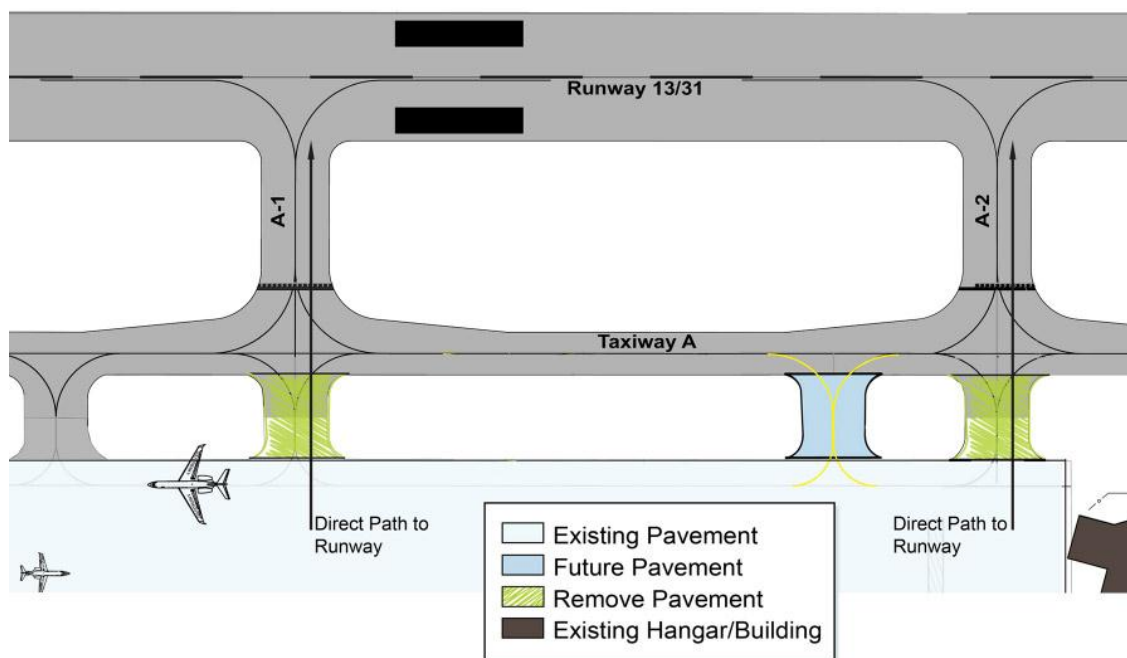
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5.2.3 Taxiway A1 and A2

Through the release of Engineering Brief Number 75, and soon to be implemented, AC 150/5300-13A, FAA has issued additional guidance aimed at the reduction of runway incursions, described as the inadvertent entry into the active runway environment without a clearance by aircraft, vehicles, or pedestrians. One of the recommendations was the elimination of direct access (without turns) from apron or gate areas to a runway. There are two such taxiway connectors at OTH that provide direct access to Runway 13/31 from the main GA ramp via A1 and A2.

As depicted in Figure 5-3, the recommended solution is to remove connecting Taxiways A1 and A2 and add a connecting taxiway at a convenient location that is not directly across from a connector between Taxiway A and Runway 13/31.

Figure 5-3
TAXIWAY A1 AND A2 IMPROVEMENTS



5.3 ARFF SAFETY RELATED ALTERNATIVES

The selection of a site for an ARFF building at the Southwest Oregon Regional Airport will consider a number of criteria that combine both the accommodation of required functions and those that can increase efficiency and lower operational costs. The most important factor is the ability to meet the required response time for an aircraft emergency. Each alternative presented meets this requirement. The following alternatives were examined and this analysis provides positive and negative attributes (Pros and Cons) for the purpose of selecting the best alternative. The three ARFF Development Alternatives are graphically depicted together on Figure 5-4, ARFF Development Alternatives.

5.3.1 ARFF Alternative 1: Centrally Located on the Westside of the Main Apron

ARFF Development Alternative 1 places the ARFF building centrally on the main apron adjacent to Coos Aviation. The ARFF building can be constructed once the large main hangar is removed. Utility connections exist, no airfield access improvements are necessary, and minimal improvements are required to allow vehicle access. The following pros and cons summarize the analysis of this site:

Pros:

- Remains centrally located on the main apron
- The existing ARFF building can remain occupied while the new facility is constructed
- Minimal new utility infrastructure would be needed

Cons:

- The ARFF building's new location decreases the amount of potential ramp space gained after the large main hangar is removed
- Decreases the potential for additional hangar development along the main apron following the removal of the large main hangar
- ARFF vehicles will have to traverse through a busy ramp area to get to other areas of the Airport
- ARFF clear area in front of bays will result in lost aircraft parking ramp space
- A new ARFF building cannot be constructed until the large main hangar has been razed

5.3.2 ARFF Alternative 2: East of Runway 13/31

ARFF Development Alternative 2 locates the new ARFF site on the east side of the airfield, east of Runway 13/31, and south of Runway 4/22 on a site that has not been previously developed for buildings or aircraft parking. New utility connections would be required along with taxiway access to the airfield. Access improvements and coordination with ATCT will be necessary to allow vehicles to access the facility from the south. In addition, the proximity to the boat ramp, which is to the northeast of ARFF Alternative 2 site, can facilitate water rescues and provide equipment storage for a rescue boat. The following pros and cons summarize the analysis of this site:

Pros:

- Open site ready for development
- The existing ARFF building can remain occupied while the new facility is constructed
- Location is isolated from aircraft ramp activity
- Close proximity to Pony Slough boat ramp for water rescues access
- Easily expandable if added ARFF capacity is needed in the future

Cons:

- Vehicle access improvements are require
- Access controls measure coordinated with ATCT will be necessary for vehicles accessing the airport property
- Utility infrastructure development costs

5.3.3 ARFF Alternative 3: Redevelop an FBO into an ARFF Building

ARFF Development Alternative 3 explores a potential scenario that FBO services could change location. The building and site currently occupied by Ocean Air, which is located on the far northwest portion of the main apron, would relocate. This alternative would renovate the existing building to accommodate an ARFF facility. Redeveloping this site into an ARFF building would require Ocean Air and the taxilane connection to the existing T-hangars be relocated. Utility connections exist, and no airfield or vehicles access improvements are necessary. The site offers efficient access to the main ramp area, by placing the ARFF building at the far end of the aircraft ramp. The following pros and cons summarize the analysis of this site:

Pros:

- Additional ramp area can be gained once the existing ARFF facility is removed
- Locating the building on the edge of the current itinerant parking apron will limit circulation impacts
- Centrally located between both runways
- Resolves access challenges for adjacent FBO
- The existing ARFF building can remain occupied while the new facility is constructed

Cons:

- Modification of the existing building will increase the cost per square foot
- New apron connection from the T-hangar would be required
- ARFF vehicles will have to traverse through a busy ramp area to get to other areas of the Airport
- ARFF clear area in front of bays will result in lost aircraft parking ramp space

5.3.4 ARFF Safety Related Alternative Evaluation

As part of the evaluation, each of these ARFF alternatives was evaluated against specific criteria for each category discussed in Section 5.2.1, Evaluation of the Alternatives. Following this evaluation, each alternative was graded against the criteria with one of three values:

























-  the Alternative surpasses the criteria
-  the Alternative exceeds the criteria
-  the Alternative meets the criteria

Table 5-2 summarizes the analysis performed by the consultant team. These alternatives will be presented to the CCAD and/or the Advisory Committee, which will allow for a review and commentary of possible alternatives. This will be followed by the application of a weighting/scoring system that will identify the preferred alternative.

Table 5-2
EVALUATION MATRIX FOR ARFF SAFETY RELATED ALTERNATIVES

| Category | ARFF Safety Related Alternatives | | |
|-------------------------|---|---|---|
| | Alternative 1 | Alternative 2 | Alternative 3 |
| Operational Performance | | | |
| Capacity |  |  |  |
| Capability |  |  |  |
| Efficiency |  |  |  |
| Best Planning Tenets |  |  |  |
| Environmental Factors |  |  |  |
| Fiscal Factors |  |  |  |
| Grand Total |  |  |  |

Source: Reynolds Smith, and Hills, Inc., 2012

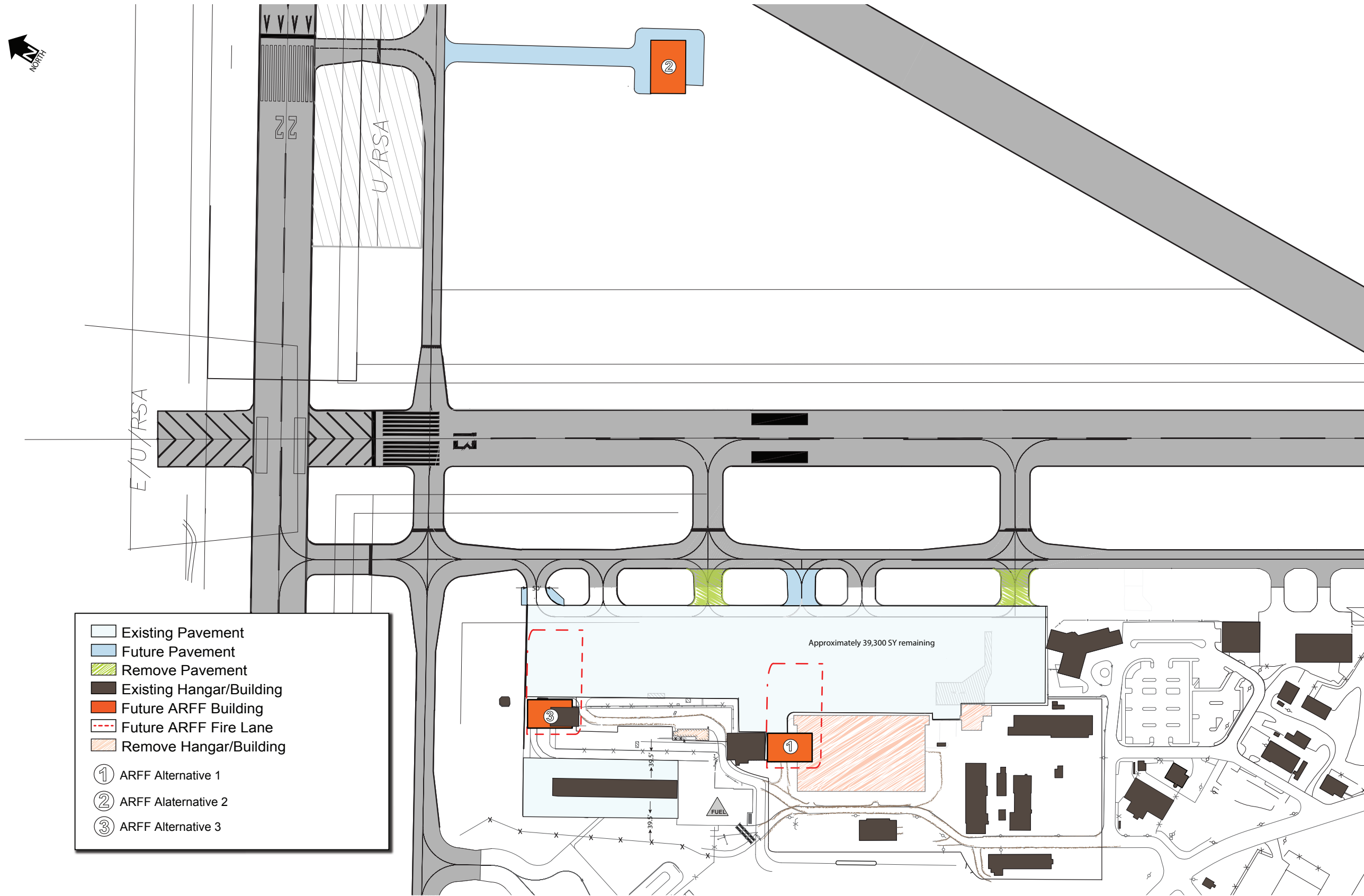


Figure 5-4
ARFF DEVELOPMENT ALTERNATIVES

5.4 AIRFIELD DEVELOPMENT ALTERNATIVES

The airfield is the primary, most critical portion of the Airport, and will be the most important factor in determining the locations, alignments, sizes, and orientations of any other planning elements. The following alternatives were examined and this analysis provides positive and negative attributes (Pros and Cons) for the purpose of selecting the best alternative.

5.4.1 Airfield Alternative 1: Extend Runway 4/22 and Taxiway C to the West

This alternative meets the requirement to provide at least 6,400 feet of runway available for takeoff by extending the west end of Runway 4/22 by 400 feet along with Taxiway C. This runway extension also involves the relocation of the navigational aids associated with the Instrument Landing System. Alternative 1 would involve approximately 138,000 cubic yards of fill material required for the extended portion of Taxiway C and the RSA (for ARC C-III standards) into the regularly flooded tidal and sub-tidally influenced estuarine ecosystem on the western end of the airfield. A Rough Order-of-Magnitude (ROM) cost of this alternative is estimated at \$17.6 million. This alternative also extends towards the Coos Bay Shipping Channel and is graphically depicted on Figure 5-5.

A characteristic of the existing 5,980 foot Runway 4/22 (total of 6,000 feet available for takeoff runs from the Runway 22 end), is that it has a 660 foot displaced threshold at the Runway 22 end. This displaced threshold is necessary to provide required safety areas around the runway and to provide arriving aircraft clearance over an obstruction, while still allowing departing aircraft the maximum amount of runway for takeoff. Extending the Runway 4 end out 400 feet increases the takeoff runway available to 6,400 feet and improves the landing distance available to 5,721 feet. This extension will benefit pilots departing Runway 22 and arriving Runway 4; however, this does not significantly improve the runway available for pilots arriving on 22.

Pros:

- Takeoff Runway Available (TORA), Takeoff Distance Available (TODA), and Accelerated Stop Distance Available (ASDA) each increase to 6,400 feet
- Landing Distance Available (LDA) increases to 5,721 feet
- Accommodates future design aircraft (Bombardier CRJ-200) and the majority of GA business jets

Cons:

- May require direct coordination with the operators of the Port of Coos Bay in order to ensure that the ship channel is clear
- Potential environmental impacts for Runway Extension into Coos Bay

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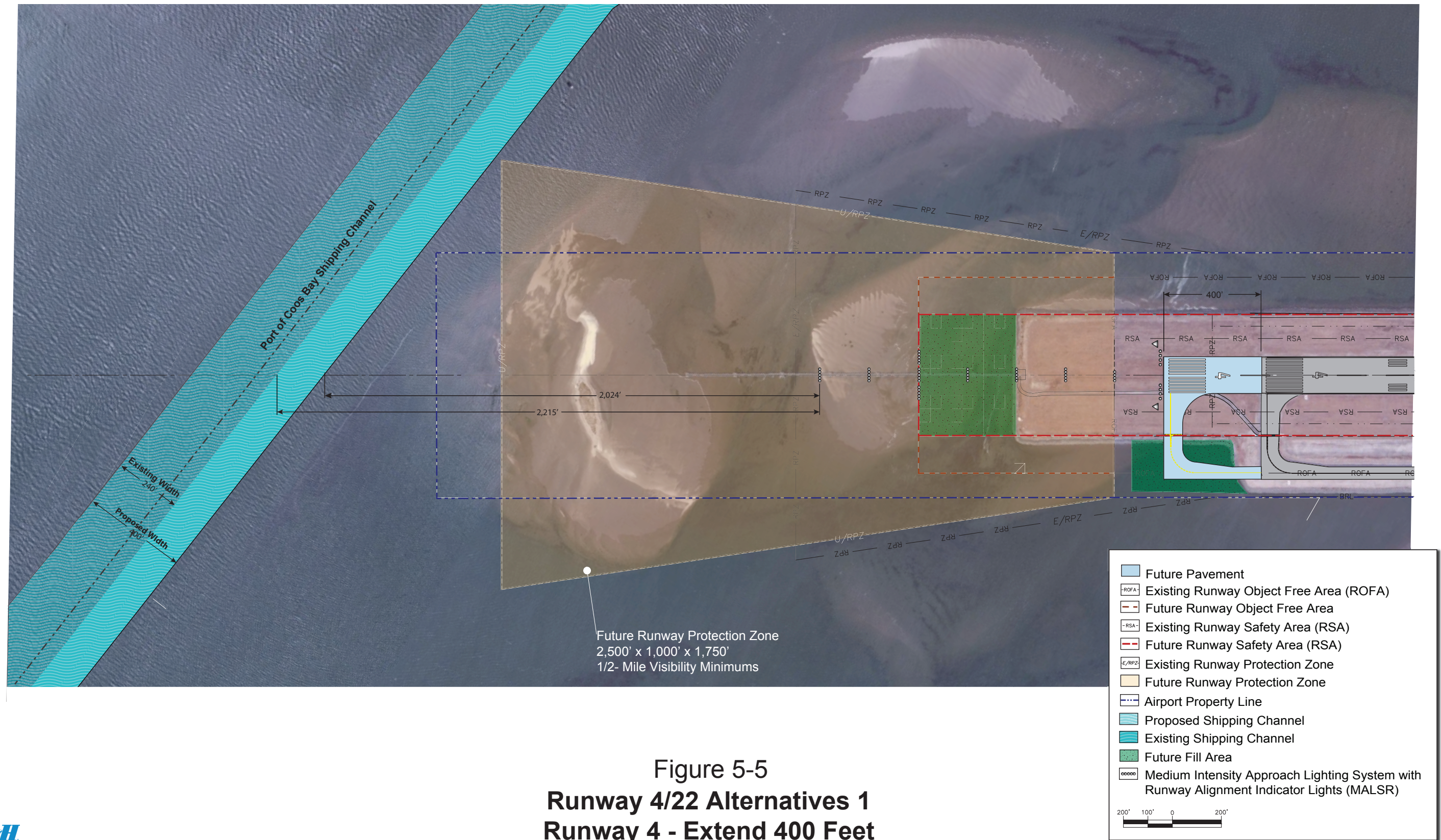


Figure 5-5
Runway 4/22 Alternatives 1
Runway 4 - Extend 400 Feet

5.4.2 Airfield Alternative 2: Extend Runway 4/22 and Taxiway C to the East

Alternative 2 achieves the required 6,400 feet of runway length by extending Runway 4/22 and Taxiway C by 400 feet to the east and is graphically depicted on Figure 5-6. In a similar way to Alternative 1, the alternative would involve material being placed into the regularly flooded tidal and sub-tidally influenced estuarine ecosystem on the eastern end of the airfield. For this alternative, approximately 20,000 cubic yards of fill material would be required to extend a portion of Taxiway C and the RSA (for ARC C-III standards). A Rough Order-of-Magnitude (ROM) cost of this alternative is estimated at \$7.7 million. This alternative also extends into the Pony Slough, a highly environmentally sensitive area.

Pros:

- An existing 250-foot long blast pad requires less upfront costs for new pavement
- Lower development cost
- No impact to the existing Medium Intensity Approach Lighting System With Runway Alignment Indicator Lights (MALSR)
- 6,400 feet available for TODA, TORA, ASDA from Runway 22

Cons:

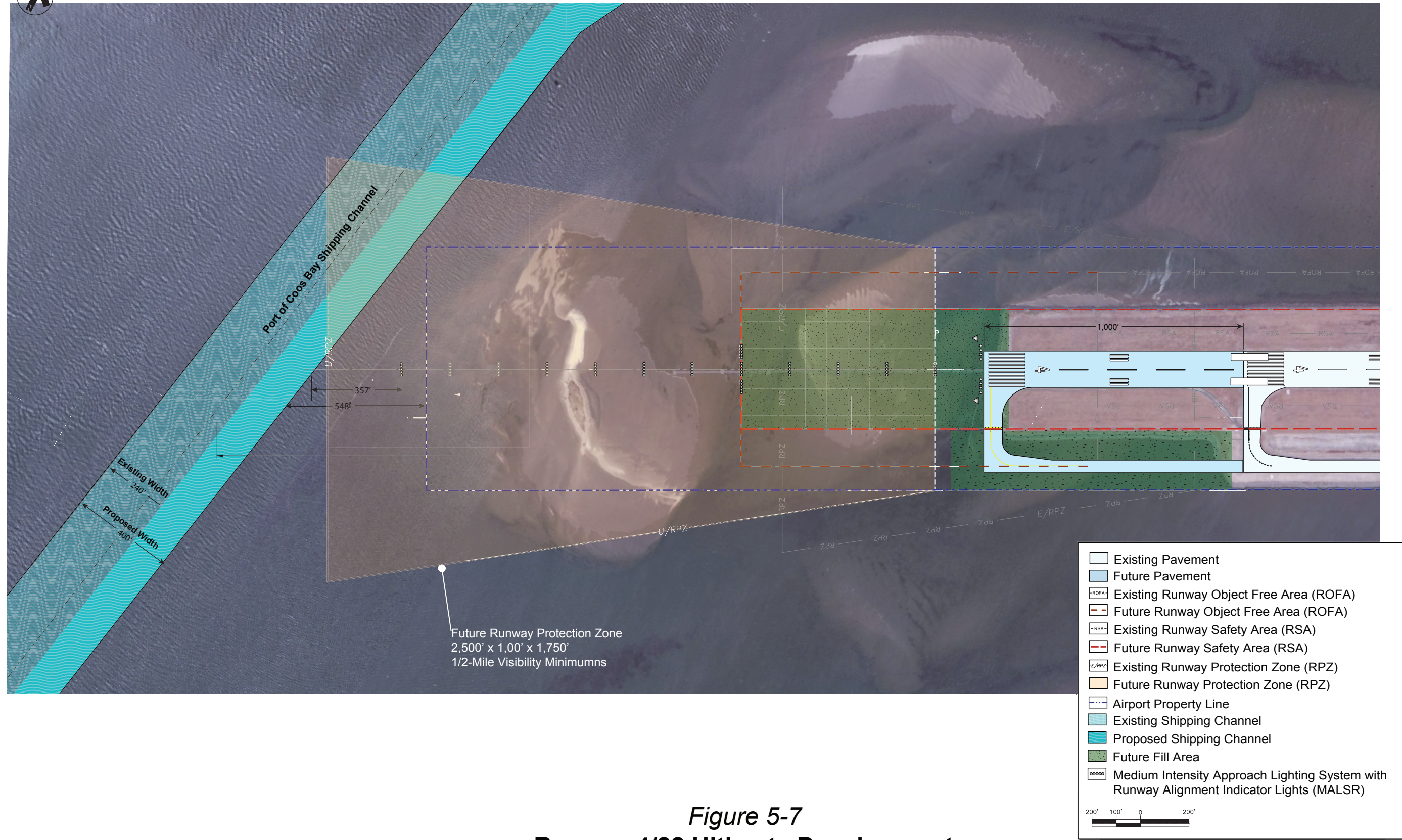
- The Landing Distance Available (LDA) only increases to 5,381 feet for Runway 4 and 5,321 for Runway 22, which further complicates existing declared distances
- Higher flooding risks due to the flow patterns and size of the channel associated with portions of Pony Slough, and would require Section 401 and 404 permits
- Direct wetland impacts, and increased erosion risks to areas adjacent to the North Bend Peninsula shoreline and could potentially cause a drainage problem in the event flooding conditions occurred in the Pony Creek Watershed
- Localizer would have to be relocated
- Higher costs for environmental mitigation

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5.4.3 Ultimate Development: Extend Runway 4/22 – 1,000 feet to the West

The Master Plan Advisory Committee (MPAC) asked the Consultant to consider a maximum build-out extension to the west if the Port of Coos Bay shipping channel were a non-factor. Such a potential option is reflected in Figure 5-9 and reflects a 1,000 foot extension of Runway 4/22 and Taxiway C to the west without Airport infrastructure physically encroaching into the channel. As such; however, a ship condition is not addressed in the approach, or departure if aircraft were to use the runway at its full length. This would also involve the relocation of the navigational aids associated with the Instrument Landing System. This consideration would require extensive fill material into the regularly flooded tidal and sub-tidally influenced estuarine ecosystem of Coos Bay. Should technology or the approach change in the future, this option could become viable for extended transcontinental flights. This development would require approximately 300,000 cubic yards of material and a rough order of magnitude cost is \$31.6 million. As cited in Chapter 4, Facility Requirements, currently such demand is not yet warranted; however, consideration for future planning is prudent. A thorough environmental review would be required when and if this decision is considered in the future.

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Future Runway Protection Zone
2,500' x 1,000' x 1,750'
1/2-Mile Visibility Minimums

Figure 5-7
Runway 4/22 Ultimate Development

5.4.4 Airfield Development Alternatives Evaluation

As part of the evaluation, both of these airfield development alternatives were evaluated against specific criteria for each category discussed in Section 5.2.1, Evaluation of the Alternatives. Following this evaluation, each alternative was graded against the criteria with one of three values:


















-  the Alternative surpasses the criteria
-  the Alternative exceeds the criteria
-  the Alternative meets the criteria

Table 5-2 summarizes the analysis performed by the consultant team. These alternatives will be presented to the CCAD and/or the Advisory Committee, which will allow for a review and commentary of possible alternatives. This will be followed by the application of a weighting/scoring system that will identify the preferred alternative.

Table 5-3
EVALUATION MATRIX FOR AIRFIELD DEVELOPMENT ALTERNATIVES

| Category | Airfield Development Alternatives | |
|-------------------------|---|---|
| | Runway 4/22 Alternative 1 | Runway 4/22 Alternative 2 |
| Operational Performance | | |
| Capacity |  |  |
| Capability |  |  |
| Efficiency/Safety |  |  |
| Best Planning Tenets |  |  |
| Environmental Factors |  |  |
| Fiscal Factors |  |  |
| Grand Total |  |  |

Source: Reynolds Smith and Hills, Inc., 2012

5.5 GENERAL AVIATION DEVELOPMENT ALTERNATIVES

General aviation aircraft facilities at Southwest Oregon Regional Airport consist of fixed base operator (FBO) services, tenant development, aircraft parking aprons, and aircraft hangar storage. The requirements analysis evaluated future facility needs by reviewing existing and future general aviation operation levels, based aircraft estimates, and the capacity and condition of existing facilities. The general aviation development areas at OTH are located within the Main Apron area and the South GA Apron areas.

The Main Apron is located west of Taxiway A, adjacent to the northern one-third of Runway 13/31. This apron is approximately 36,110 square yards and serves both based and transient general aviation aircraft. Aircraft access to the Main Apron is provided by five connecting taxiways on the east side of the apron, Taxiways A1, A2, B, F, and G via parallel Taxiway A. The Main Apron pavement was resurfaced in 2001.

The alternatives were based upon a number of key factors that were considered during the analysis.

- The first factor is that the apron experiences high demand for itinerant parking and the peak demand can stretch on for days because of the higher than standard dwell times, largely due to the proximity and use of the Bandon Dunes Golf Resort. Therefore, maximizing existing apron area and accommodating as much apron growth as possible is a strong criteria for selection.
- The second factor is the anticipated funding and construction of a large storage hangar under a Connect Oregon IV grant in the very near term.
- The third factor is that the new hangar is justified by the razing of the large main hangar, which opens up a large amount of ground that was inefficiently utilized.

The following sections discuss the General Aviation Development alternatives that were analyzed for this study and provide positive and negative attributes (Pros and Cons) for the purpose of selecting the best alternative.

5.5.1 Main Apron Development Alternative 1:

Main Apron Development Alternative 1 incorporates a minimum development focus by maintaining nearly all of the existing facilities in their current location and layout. This alternative is graphically depicted in Figure 5-8 and meets short-term facility to accommodate based aircraft currently stored in the large main hangar (which is scheduled to be removed) and for long-term local aircraft apron parking. With the removal of the large main hangar, the apron can be expanded by approximately 9,000 square yards. This apron development can accommodate the ARFF building centrally on the main apron adjacent to Coos Aviation, if desired. This alternative places the new CCAD hangar (30,000 square feet) located on the northwest side adjacent to a potential lessee. In addition to the 30,000 square feet available from the CCAD hangar, this alternative provides approximately 10,000 square feet of executive hangar space.

Pros:

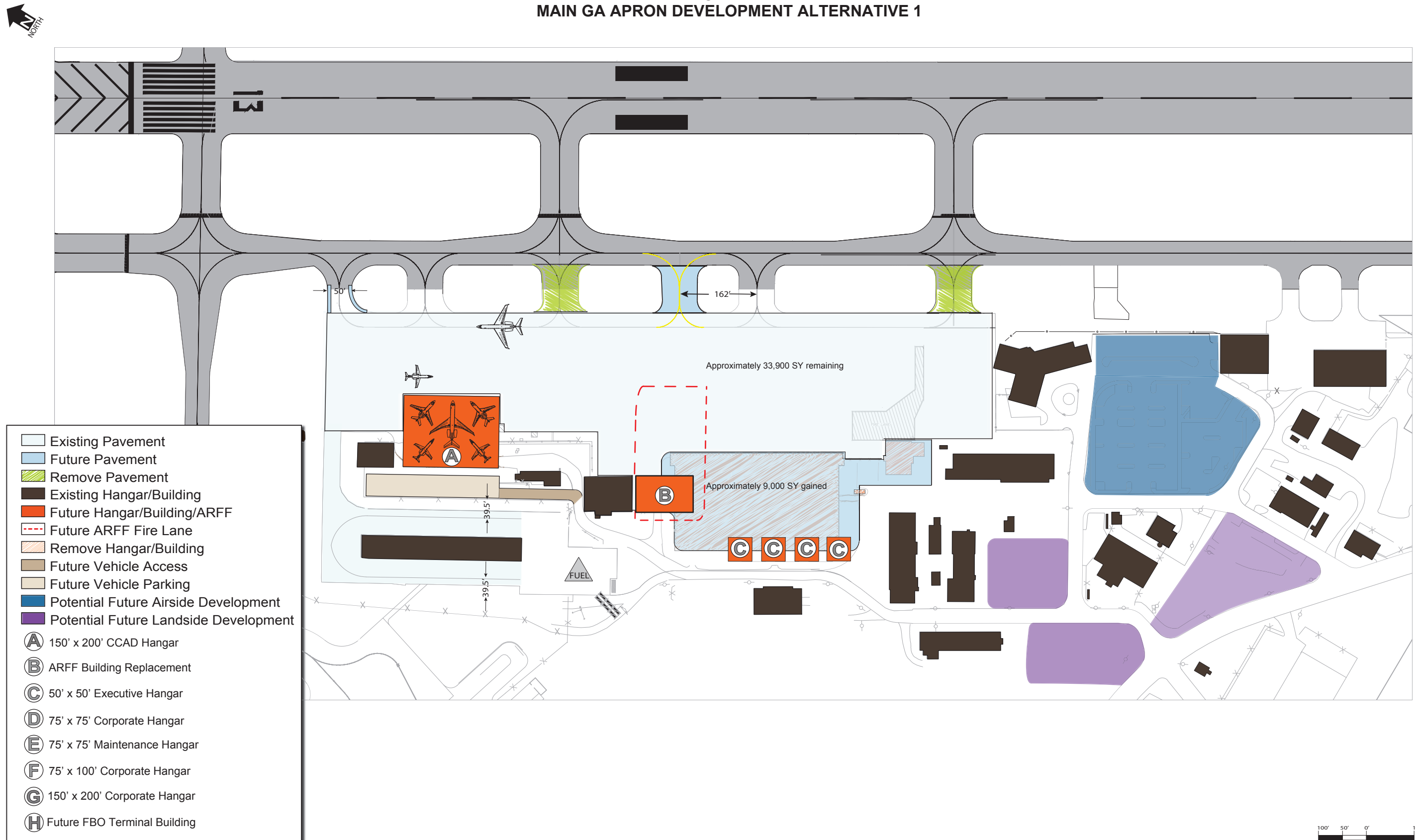
- Minimum disruption to operating revenue in near term since existing revenue-producing buildings remain
- No impacts to existing roadway
- No new utility infrastructure needed
- Reserves vehicle parking area for future airside uses adjacent to former passenger terminal building
- Provides dedicated access to Ocean Air terminal building
- ARFF building stays centrally located
- Potential landside development opportunities remain

Cons:

- Less efficient due to limited circulation on the north side of the main apron
- Only 9,000 square yards of apron gained
- New executive hangar development on the west edge of the apron limits the ability to relocate the road and expand the ramp in the future, precluding potential future development
- Can only accommodate up to 19 jets parked on the ramp simultaneously; therefore, it does not meet the short-term facility requirements for itinerant jet parking on the ramp
- No surplus hangar space available for peak overnight storage (assuming all based aircraft are stored in hangars)
- Limited vehicle parking area on the west side
- Development costs occur for an FBO access road

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Figure 5-8
MAIN GA APRON DEVELOPMENT ALTERNATIVE 1



5.5.2 **Main GA Apron Development Alternative 2:**

Main Apron Development Alternative 2 is designed to maximize the ramp and accommodate future FBO growth over time. This alternative includes both short-term and long-term development phases, which are graphically depicted in Figure 5-9 and Figure 5-10. This alternative assumes that the new ARFF building will be developed on the east side of the airfield. With the removal of the large main hangar and multiple landside buildings, the apron can be expanded by approximately 36,100 square yards. By maximizing the ramp, this alternative is capable of providing an additional 45,000 square feet available for peak overnight aircraft storage. This alternative also places the new CCAD hangar on the northwest side adjacent to a potential lessee, relocates an existing FBO, and provides up to 90,000 square feet of additional hangar space. This alternative exceeds the long-term need for aircraft hangar storage and parking.

Pros:

- Hangar development potential exists for beyond the 20-year planning period, creating greater opportunities for airside revenue generation
- Accommodates FBO growth in designated areas
- Can be implemented in phases and expanded as demand dictates
- Leaves existing GA vehicle parking lot available for future airside development
- Can accommodate up to 37 jets parked on the ramp simultaneously, which exceeds itinerant apron requirements for the long-term
- Meets local apron requirements for the long-term

Cons:

- Limits potential landside development opportunities
- Existing landside revenue-producing buildings are lost in 10-20 years
- Less efficient due to limited aircraft circulation on the north side of the main apron
- Utility and roadway infrastructure development costs required

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Figure 5-9
MAIN GA DEVELOPMENT ALTERNATIVE 2
 Short Term

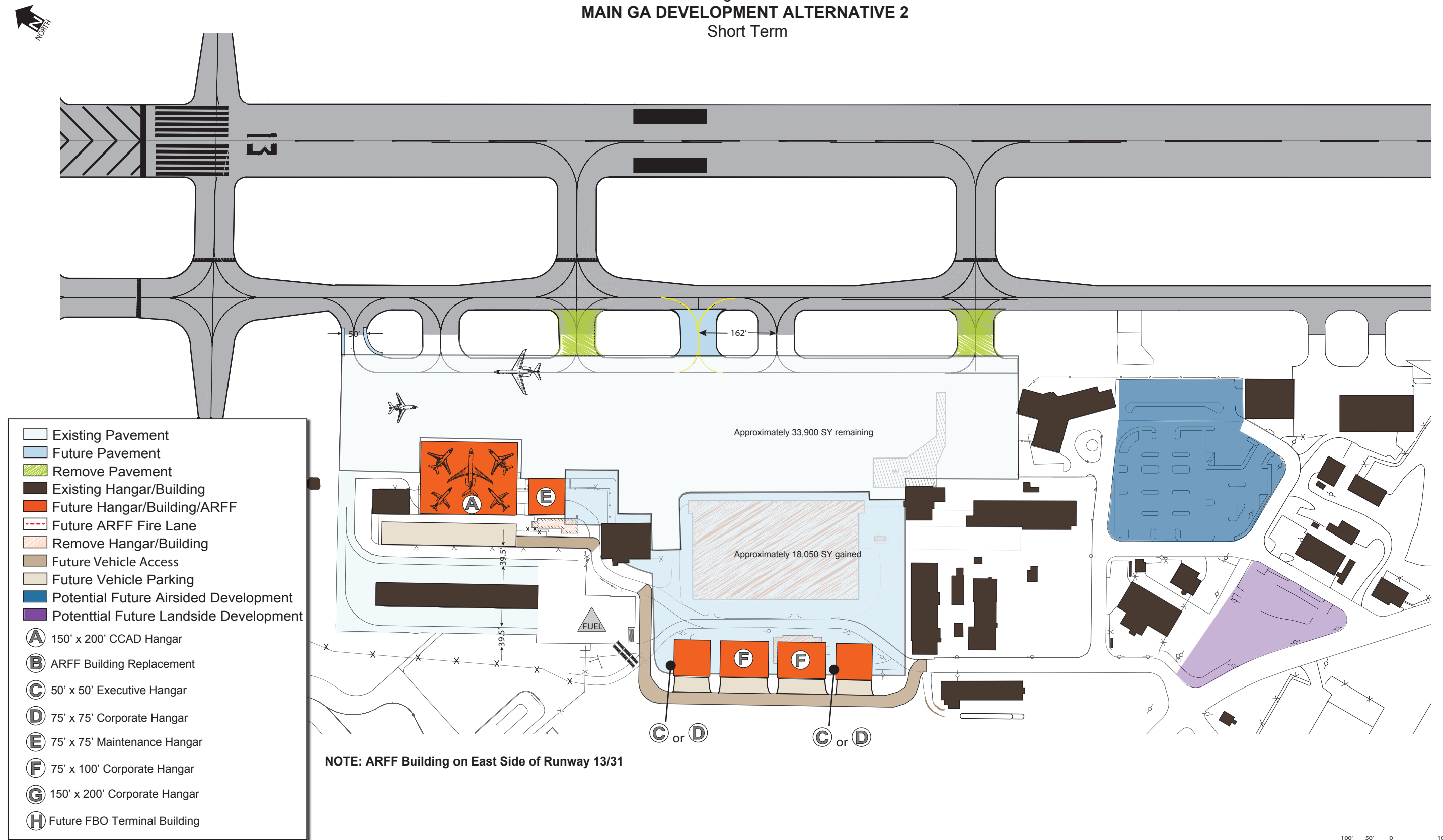
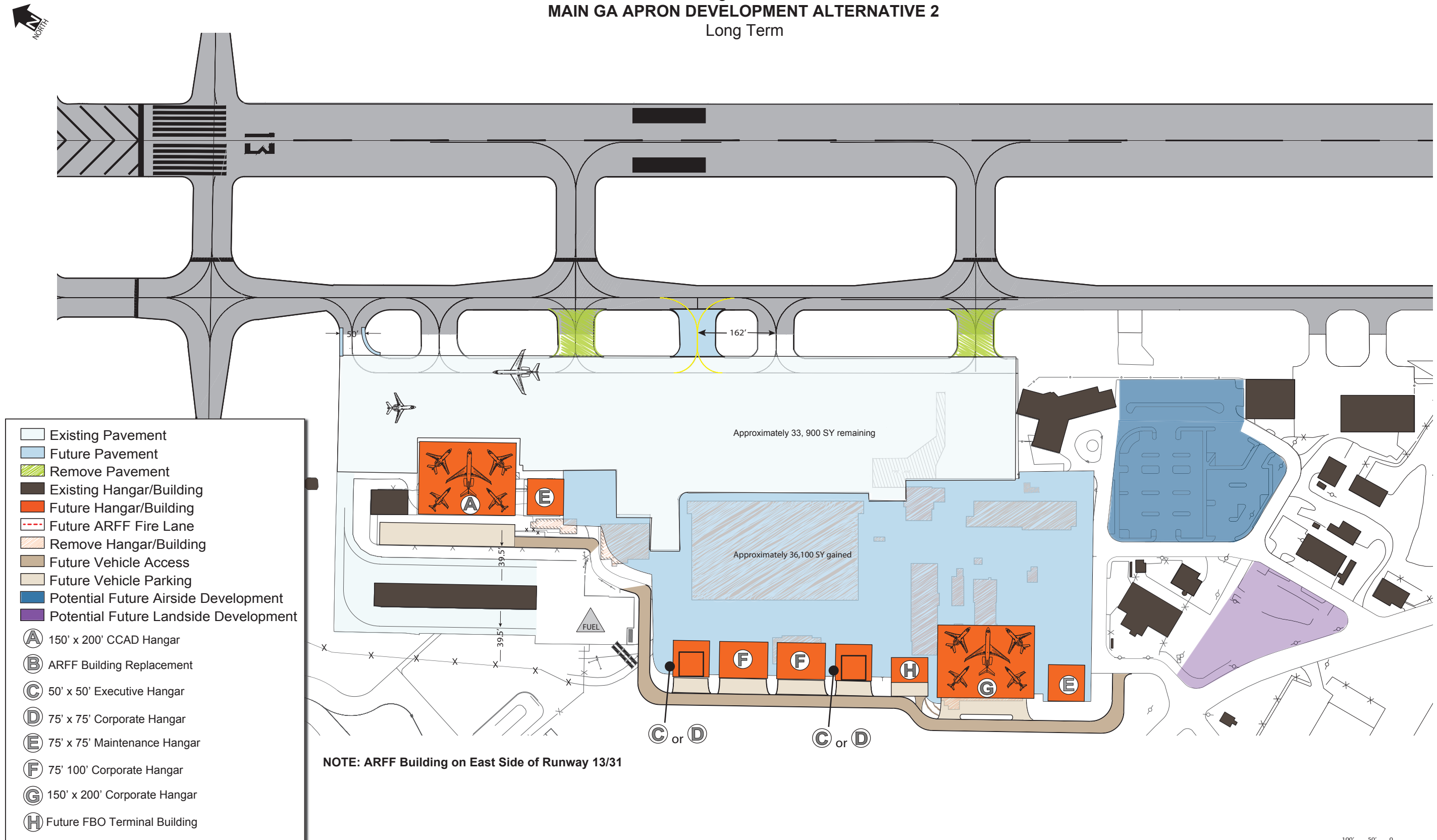


Figure 5-10
MAIN GA APRON DEVELOPMENT ALTERNATIVE 2
 Long Term



5.5.3 Main GA Apron Development Alternative 3:

Main GA Development Alternative 3 is also designed to maximize airside development and accommodate future FBO growth. This apron development can accommodate the ARFF building centrally on the main apron adjacent to Coos Aviation, if desired. Further, this alternative separates the CCAD hangar from the Main Apron, while providing the opportunity for the development of several Corporate and Executive sized hangars. This alternative includes both short-term and long-term development phases, which are graphically depicted in Figure 5-11 and Figure 5-12.

Within the short-term, this alternative expands the main apron by approximately 3,000 square yards and provides approximately 40,000 square feet of executive/corporate hangar space, which meets the short-term facility needs.

Pros:

- Can be implemented in phases, and expanded as demand dictates
- The CCAD hangar can be constructed in the short-term
- Separates small based aircraft activity from large aircraft activity
- Minimum disruption to current revenue in near-term since revenue-producing buildings remain in phased approach
- New executive hangar development on the west edge of apron provides the ability to relocate the road and expand the ramp in the future, encouraging potential future development
- Can accommodate up to 19 jets parked on the ramp simultaneously, which meets the short-term facility requirements for itinerant jet parking on the ramp

Cons:

- Roadway infrastructure is required and limits vehicle parking on the west side
- Minimal apron gained within the short-term
- Limits potential landside development opportunities

For the long-term, Alternative 3 incorporates a complete airside build-out and large ramp expansion to the west. An additional 29,500 square yards of apron and 17,000 square feet of executive/corporate hangar space are gained.

Pros:

- Establishes future airside uses when the former passenger terminal building exceeds its useful life beyond the 20-year planning period
- Accommodates FBO growth in designated areas
- Can be implemented in phases and expanded as demand dictates
- Can accommodate up to 33 jets parked on the ramp simultaneously, which exceeds apron requirements for the long-term

Cons:

- Utility and roadway infrastructure development costs required
- Existing landside revenue-producing buildings are lost in 10-20 years

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Figure 5-11
MAIN GA DEVELOPMENT ALTERNATIVE 3
 Short Term

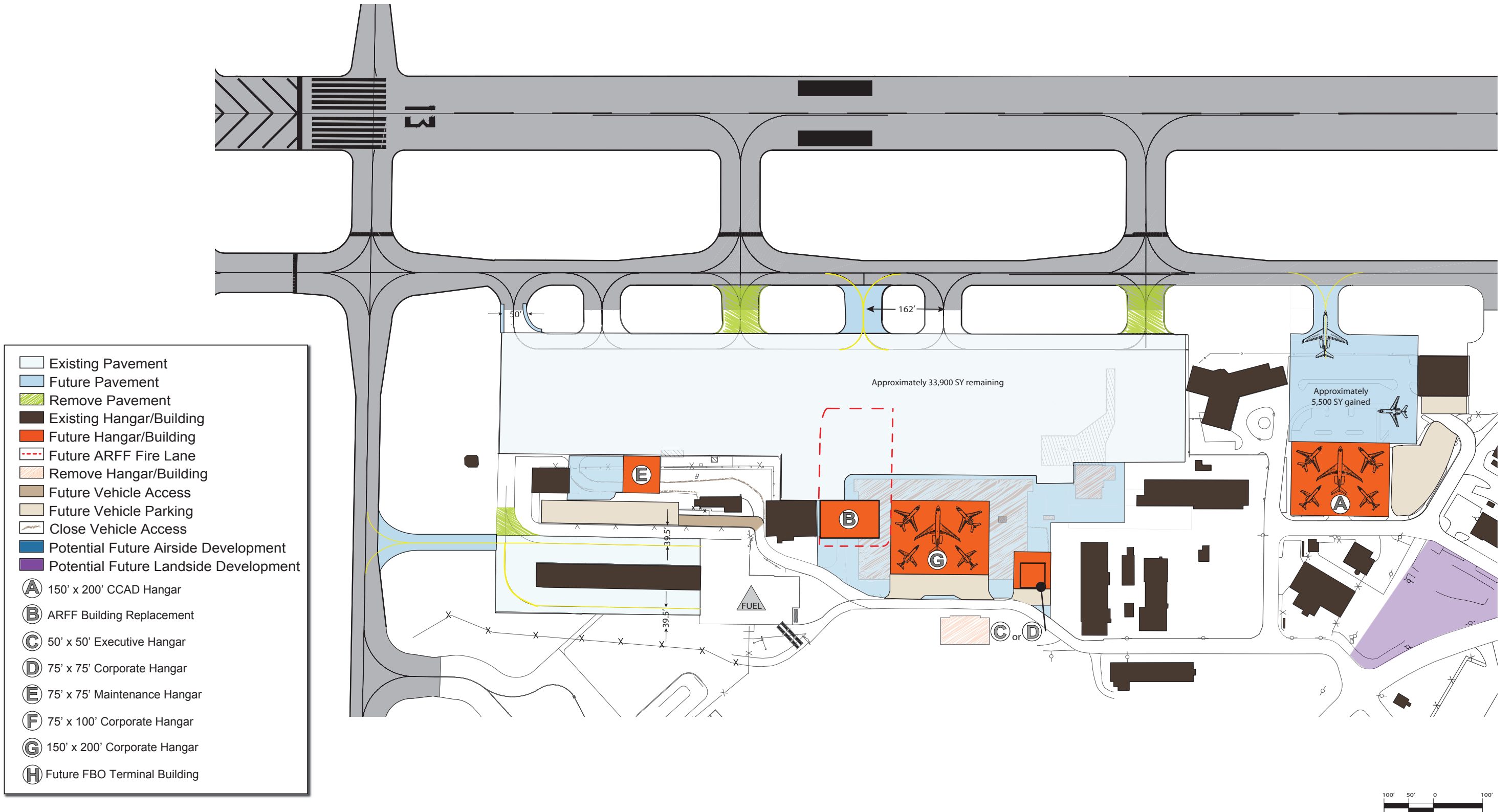
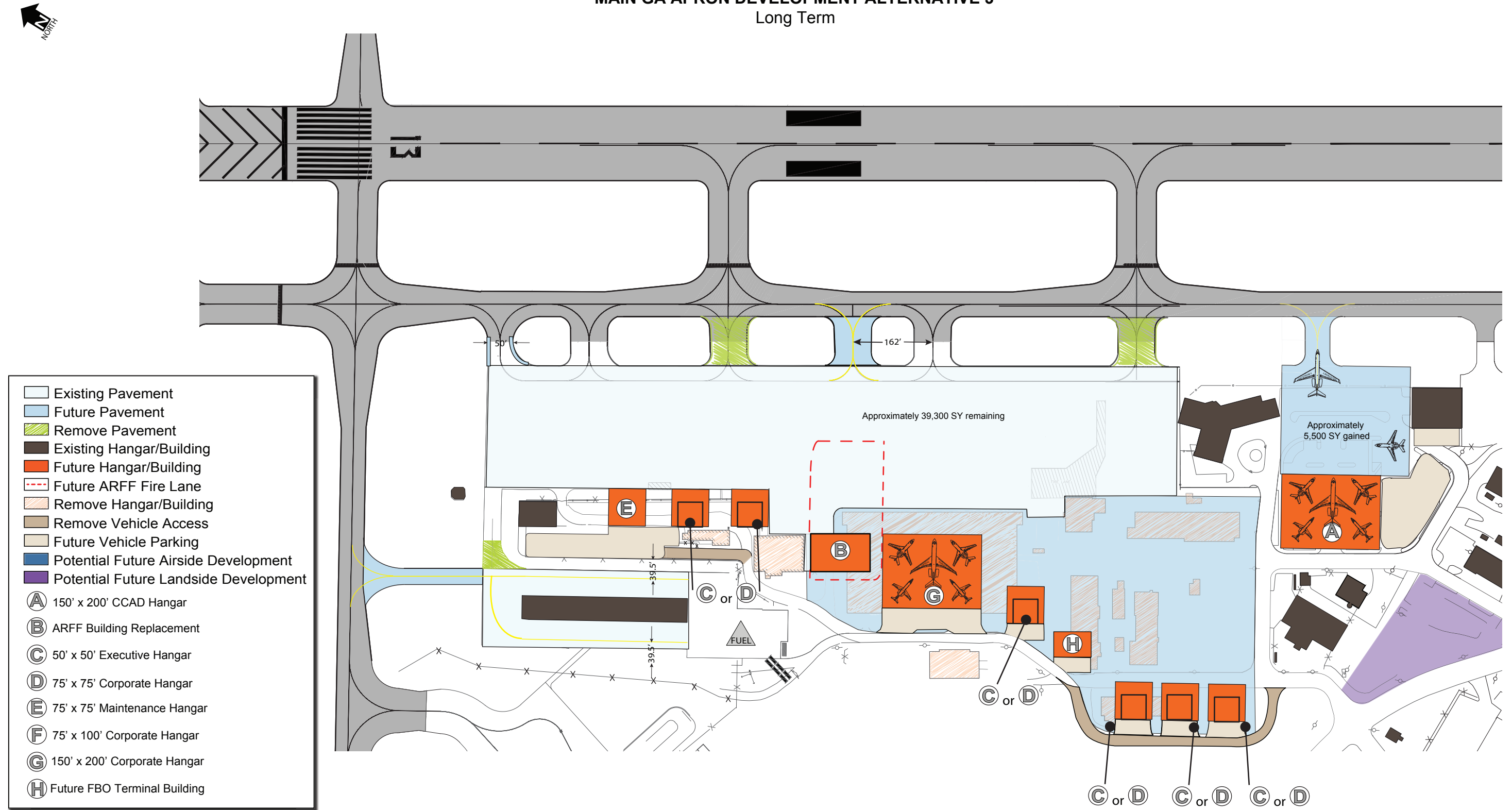


Figure 5-12
MAIN GA APRON DEVELOPMENT ALTERNATIVE 3
 Long Term



5.5.4 Main General Aviation Apron Development Alternatives Evaluation

As part of the evaluation, these three main general aviation apron development alternatives were evaluated against specific criteria for each category discussed in Section 5.2.1, Evaluation of the Alternatives. Following this evaluation, each alternative was graded against the criteria with one of three values:

























-  the Alternative surpasses the criteria
-  the Alternative exceeds the criteria
-  the Alternative meets the criteria

Table 5-4 summarizes the analysis performed by the consultant team. These alternatives will be presented to the CCAD and/or the Advisory Committee, which will allow for a review and commentary of possible alternatives. This will be followed by the application of a weighting/scoring system that will identify the preferred alternative.

Table 5-4
EVALUATION MATRIX FOR MAIN GA APRON DEVELOPMENT ALTERNATIVES

| Category | Alternatives | | |
|-------------------------|---|---|---|
| | Main GA Apron Alternative 1 | Main GA Apron Alternative 2 | Main GA Apron Alternative 3 |
| Operational Performance | | | |
| Capacity |  |  |  |
| Capability |  |  |  |
| Efficiency |  |  |  |
| Best Planning Tenants |  |  |  |
| Environmental Factors |  |  |  |
| Fiscal Factors |  |  |  |
| Grand Total |  |  |  |

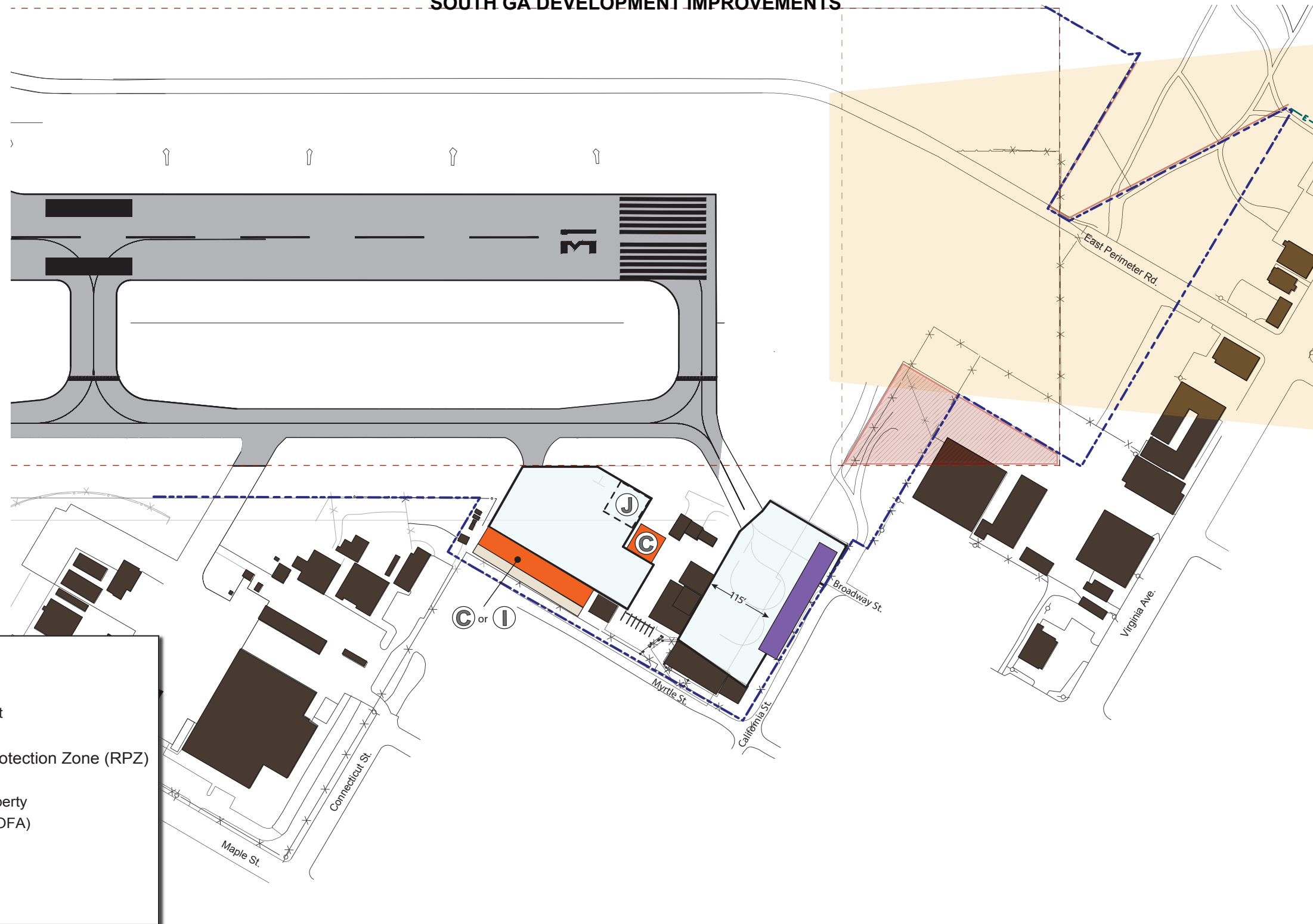
Source: Reynolds Smith and Hills, Inc., 2012

5.5.5 South GA Apron Development:

Two smaller general aviation aprons are located at the southern end of the Airport, adjacent to Runway 31, and are used primarily for based general aviation aircraft. From Taxiway A, Taxiway K provides aircraft access to the southernmost apron, and Taxiway J provides access to the adjacent apron area. Combined, both aprons are approximately 8,770 total square yards in size and are graphically depicted in Figure 5-13.

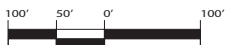
The south GA development supports each of the Main Apron development alternates discussed in the previous section. This development examines existing potential within the current Airport property limits and offers the opportunity to accommodate 7,500 square feet in small executive/box hangars or up to 10,000 square feet for a single-row T-hangar. The apron can accommodate an aircraft wash area, which has been a desire of the existing tenants. Furthermore, the development of a hangar on the South GA Apron will improve the safety of airfield by separating the small GA aircraft from the larger GA aircraft that utilize the Main Apron.

Figure 5-13
SOUTH GA DEVELOPMENT IMPROVEMENTS



-  Existing Pavement
-  Existing Hangar/Building
-  Future Hangar/Building
-  Ultimate Hangar Development
-  Future Vehicle Parking
-  Existing/Future Runway Protection Zone (RPZ)
-  Airport Property Line
-  Off Airport Safety Critical Property
-  Runway Object Free Area (ROFA)
-  50' x 50' Executive Hangar
-  T-Hangars
-  Aircraft Wash Area

Note: Conduct a full boundary survey to verify the actual property line as they appear different in multiple sources.



5.6 THE RECOMMENDED AIRPORT DEVELOPMENT PLAN

The Recommended Airport Development Plan is the combination of each functional area's preferred alternative, and recommended improvements. The Recommended Airport Development Plan is illustrated in Figure 5-14. The functional area alternatives have been evaluated in such a way that they enhance the Airport independently, but also work together harmoniously and in balance. Airport staff and the consultant team reached a consensus on each functional area's preferred alternative on October 30, 2012. The recommended Airport Development Plan for the Southwest Oregon Regional Airport includes the following key elements:

- The replacement of the aging ARFF facility to support airport emergency response as well as water rescues within Pony Slough.
- A 400' extension of Runway 4/22 to obtain a 6,400' runway length for departing aircraft.
- The development of general aviation facilities, which include specific elements from each proposed Main Apron Development Alternative. Over time, these improvements provide the Airport with the 45,000 SF of hangar space and 23,000 SF of itinerant parking apron identified as necessary within the planning horizon.
- The replacement of the Airport Maintenance facility.
- The allocation of space for Air Cargo operations and required sorting facilities.
- Reorganization of airport land uses to ensure land has the highest and best future uses.

The preferred alternative also plans for the ultimate development of facilities. The following facility improvements are either part of the strategic vision for the airport or are planned to ensure orderly development as the need materializes.

- An additional 600' extension to Runway 4/22 to obtain a 7,000' runway length for departing aircraft.
- Land use for General Aviation Development
- Land use for Non-Aviation Landside Development

This development plan is carried forward into the Airport Layout and Capital Improvement Plans as part of this Master Plan study. Further refinement of each project occurs as prioritization, phasing, and funding methods of these projects are determined.

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RECOMMENDED AIRPORT DEVELOPMENT PLAN

