HILLSBORO AIRPORT MASTER PLAN UPDATE

Welcome and Meeting Introduction

Jerry Willey, Committee Chair
Anne Pressentin, EnvirolIssues
Agenda

• Welcome and Meeting Introduction
• Hillsboro Airport Business Report
• Recap and Wrap Up
• Summer Outreach Summary
• Focus Topic: Facility Requirements
• PAC Activity I
• Break
• Public Comment
• Preview Topic: Alternatives Analysis
• PAC Activity II
• Close Out and Meeting Evaluation
HILLSBORO AIRPORT MASTER PLAN UPDATE

Hillsboro Airport Business Report

Steve Nagy, Port of Portland
Business Report

• Security incident: July 3rd
• Oregon International Airshow: Sept. 22, 23 and 24
• U.S. Ninth Circuit Court decision on Runway 13L/31R
• History
  – National Environmental Policy Act established 1970
  – Called “Magna Carta” of environmental legislation
  – Established Council on Environmental Quality (CEQ)

• Goals
  – Trustee of the environment for future generations
  – Preserve cultural, historic and natural aspects of environment
  – Achieve balance between population and resource area
• NEPA is required whenever an agency proposes to take a “major federal action”

• Defined as an action that has the potential for significant impact on human environment

• Typical actions requiring NEPA review:
  – Constructing facilities
  – Awarding federal grant funds
• Categorical Exclusion (CatEx)
  – Routine actions with known insignificant impacts – (examples: access roads, t-hangars, aprons, existing airfield rehabilitation)
  – No public involvement

• Environmental Assessment (EA)
  – Actions with unknown impacts – (examples: new runway, major runway extension)
  – Significant public involvement: workshop/open houses

• Environmental Impact Statements (EIS)
  – Actions with significant impacts – (example: new airport)
  – Significant public involvement: scoping, public workshop/open houses, public hearings
Recap and Wrap Up: Inventory, Role of the Airport, and Forecasts

Dave Nafie, WH Pacific
Key Project Phases

Foundation
2005 Master Plan

Investigation
- Existing Conditions
- Strategic Analysis/Role
- Forecasts

Analysis
- Facility Requirements
- Airport Alternatives
- Costs
- Preferred Alternative

Formalization
- Airport Layout Plan
- Capital Investment Plan
- Port Commission Approval
- FAA Submittal

Plan Implementation
- Follow-on Studies
- Ongoing Community Engagement
- Development

Special Areas of Interest
- Seismic
- Stormwater
- Community Access
- Noise/Air Quality
- Focused Site Planning

Key Project Phases Timeline:
- 2/17
- 8/17
- 6/18
- 2/19
Project Schedule

2017
Jan 2017 Feb Mar Apr May Jun Jul Aug Sept Oct Nov Dec
1 Initiation

2 Existing Conditions
3 Strategic Analysis
4 Forecasts

2018
Jan 2018 Feb Mar Apr May Jun Jul Aug Sept Oct Nov Dec
4 Facility Requirements
5 Airport Alternatives
6 Selection and Refine Plan

2019
Jan 2019 Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
8 Financial Feasibility Analysis
7 Airport Plans
6 Draft Documentation
5 Master Plan Approval

Key:
- Investigation
- Analysis
- Formalization
- Plan Implementation
- Public Advisory Committee (PAC) Meeting
- Contract Begins
- FAA Approves Forecast
- Project Completion
Inventory Summary

- First airport on this site established in 1928.
- In 1966, Port of Portland assumed management of the airport.
- Currently, the airport land is approximately 963 acres.
- 3 Runways, with Runway 13R-31L at 6,600’ long.
- Excellent instrument approaches: ILS to Rwy 13R with ½-mile minimums.
- Mix of hangars: T-hangars, box/executive, conventional.
- Baseline activity and financial data.
- Baseline environmental data.
1. General Aviation/Reliever: Recommended to Maintain this Role
2. General Aviation/Reliever/Commuter with less than 10 passenger seats
3. General Aviation/Reliever/Commercial Service
4. General Aviation/Reliever/Air Cargo
## Forecast Summary: Update

- Forecast revision due to confirmation of 28 additional based aircraft. 326 v. 354.
- Itinerant operations changed slightly as a result.
- Forecasts submitted to FAA on 7/13/17.

### BASED AIRCRAFT

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2021</th>
<th>2026</th>
<th>2036</th>
<th>CAGR</th>
<th>Total</th>
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<tr>
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<td>350</td>
<td>370</td>
<td>410</td>
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<td>84</td>
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<td>Forecast Supplement</td>
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<td>375</td>
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<td>445</td>
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<tr>
<td>Change</td>
<td>+28</td>
<td>+25</td>
<td>+25</td>
<td>35</td>
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### OPERATIONS

<table>
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<tr>
<th></th>
<th>2016</th>
<th>2021</th>
<th>2026</th>
<th>2036</th>
<th>CAGR</th>
<th>Total</th>
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<tbody>
<tr>
<td>PAC Meeting #3</td>
<td>197,763</td>
<td>208,600</td>
<td>221,100</td>
<td>247,400</td>
<td>1.13%</td>
<td>49,637</td>
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<tr>
<td>Forecast Supplement</td>
<td>197,763</td>
<td>208,100</td>
<td>220,600</td>
<td>247,700</td>
<td>1.13%</td>
<td>49,937</td>
</tr>
<tr>
<td>Change</td>
<td>-</td>
<td>-500*</td>
<td>-500*</td>
<td>+300</td>
<td></td>
<td>+300</td>
</tr>
</tbody>
</table>

*The decrease in operations while based aircraft increased, is due to a lower starting number of operations per aircraft (2016 operations/2016 based aircraft).
Critical Aircraft Summary

- Aircraft types currently operating at the airport shown to the right.
- The highlighted box indicates the largest and most demanding aircraft exceeding the 500 operations threshold.
- Design standards for D-III aircraft weighing less than 150,000 pounds apply.
- Representative design aircraft is the Gulfstream-650.
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Summer Outreach Summary

Seth Baker, EnvirolIssues
Summer Outreach Summary

Events attended
- Celebrate Hillsboro (July 15)
- Orenco Station Farmers Market (Aug. 20)
- Hillsboro Downtown Farmers Market (Aug. 19 and Aug. 26)

Stakeholder presentation
- Westside Economic Alliance

Online open house (July 18 – Aug. 31)
- Total visitors: 1,994
- Emails collected: 110
- Surveys completed: 124
Survey findings: Level of agreement with the airport role recommendation

- Total completed: 124
- ZIP 97124 submitted more responses than other ZIP codes (51)
Outreach findings

People who think Hillsboro Airport’s role should remain the same:
• Continue focus on general aviation
• Noise and air quality issues could increase with growth in airport activity

People who want commercial service at Hillsboro Airport:
• The region seems to be growing quickly and PDX seems congested
• Road congestion makes driving to PDX impractical
• Hillsboro Airport could serve tourist destinations

People who want Hillsboro Airport activity to decrease:
• The airport is, or will become, incompatible with growing residential communities
• Quality of life is negatively affected by noise and air quality issues associated with airport activity
Survey findings: How to integrate Hillsboro Airport with the surrounding community

**Community access**
- Public areas with views of airport activity
  - Observation deck
  - Restaurants
- Aviation educational facilities
  - Museum
  - Kiosks
- Activities for kids on airport

**Community facilities/infrastructure**
- Improved bicycle and pedestrian paths around the airport
- Natural areas, dog parks, wildlife habitat
- Improved transit connections between HIO/Fairgrounds and other Hillsboro Communities
- Improved terminal area and add more retail

**Community compatibility**
- Create benefits for non-aviation users to live near HIO
- Take steps to reduce noise and lead emissions
- Measure noise and air quality and report findings to the public
- Share community feedback heard and how it is acted upon

**Airport facilities**
- Improve flight training facilities
- Increase car parking capacity
- Improve natural landscaping to beautify airport property
- Do not change HIO
Survey findings: Other ideas for available property

- Maximize property for aviation
- Drop zone for skydiving or training rescue parachutists
- Freight infrastructure for future air cargo service
- Solar panels
- Community gardens
- Conference center
- Race track for go-carts, motorcycles, or other motorsports
- Host "fly-in breakfasts"
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Focus Topic: Facility Requirements

Patrick Taylor, Coffman Associates
Planning Horizon Levels

- Translate forecast years into planning horizons:
  - Short Term (years 1-5)
  - Intermediate Term (years 6-10)
  - Long Term (years 11-20)
- Promotes demand-based planning.
- Avoids pursuing projects simply because it’s time.
- Reinforces the need for project justification.
Facility Requirements Categories

- **Demand (Forecast) Generated**: Airfield Capacity, Hangars, Aprons, Runways
- **Design Standards Review**: Hot Spots, Pavement Geometry, Airport Reference Code
- **Facility Maintenance**: Pavement, Buildings
- **Support Facilities**: Navigational Aids, Fuel, Security, Land Development/Redevelopment, etc.
- **Airside Facilities**: Runways, Taxiways, etc.
- **Landside Facilities**: Aprons, Hangars, Support Facilities, etc.
Airside Facility Requirements

• Airside Requirements
  - **Airfield Capacity (Annual Service Volume):** The previous master plan recommended the parallel runway and high speed taxiway exits for capacity improvement.
  - **Runway Configuration:** Orientation, Length, Width, Design Standards, Separation Standards.
  - **Taxiway Design Standards:** Taxiway geometry, run-up areas, direct apron to runway access, wide pavement areas, three-node intersection concept.
Airfield Capacity

- When operations account for 60%-75% of capacity, planning for improvements should begin.
- At 80% of capacity, construction of capacity improvements should be underway.
- In 2005, the airport was at 107% of capacity (ASV of 169,000).
- Investments (e.g. parallel runway) have paid off.
- Good News: No projects are needed to specifically increase airfield capacity.

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>Short Term</th>
<th>Long Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations*</td>
<td>152,622</td>
<td>160,677</td>
<td>191,235</td>
</tr>
<tr>
<td>Annual Service Volume</td>
<td>384,000</td>
<td>381,000</td>
<td>381,000</td>
</tr>
<tr>
<td>Demand/Capacity Ratio</td>
<td>39.7%</td>
<td>42.2%</td>
<td>50.2%</td>
</tr>
</tbody>
</table>

* Local helicopter operations excluded
Runway Orientation

• Optimal runway orientation provides greater than 95% wind coverage.
• All runways are in the optimal orientation.

• Less than 95% wind coverage justifies a crosswind runway.
• Crosswind Runway 2-20 is needed and justified for small aircraft due to prevailing winter winds.
Runway Length Parameters

- **Primary factors**: Aircraft type, temperature, runway gradient, elevation, maximum takeoff weight (MTOW), and wet/dry conditions.
- **For aircraft weighing 12,500 lbs. or less**: FAA provides a model with general recommendations for runway length based on a family of aircraft.
- **For aircraft weighing 12,500 lbs. or more**: Flight planning manuals for specific aircraft are to be used.

The recommended length must be supported by at least 500 operations by the critical design aircraft or family of aircraft for each runway.
Runway Length – Small Aircraft *

- **Parallel Runway 13L-31R** (3,600’ existing):
  - 3,600’ is recommended
  - Maintain at current length

- **Crosswind Runway 2-20** (3,821’ existing):
  - 3,600’ – 4,100’ is recommended
  - Maintain at current length

*12,500 pounds or less
Runway Length – Large Aircraft

- All of the business jets can (and do) operate at the airport.
- Several of the listed aircraft including the G-650 and ERJ-145 are weight restricted at times.
Runway Length – Large Aircraft

• Current length available (6,600’) does a good job of meeting the needs of the design aircraft most of the time.
• Under more extreme conditions (i.e. wet runways, very hot days) the design aircraft may be weight restricted.
• Some operators of aircraft in the design aircraft category have expressed a desire for additional runway length.
• Alternatives should evaluate the feasibility of a slightly longer runway (≤ 7,500’).
## Runway Width

<table>
<thead>
<tr>
<th>Runway</th>
<th>Design Standard</th>
<th>Existing Condition</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Runway 13R-31L:</td>
<td>100’</td>
<td><strong>150’</strong></td>
<td><strong>150’</strong></td>
</tr>
<tr>
<td>Crosswind Runway 2-20:</td>
<td>75’</td>
<td>75’</td>
<td>75’</td>
</tr>
<tr>
<td>Parallel Runway 13L-31R:</td>
<td>60’</td>
<td><strong>60’</strong></td>
<td><strong>60’</strong></td>
</tr>
</tbody>
</table>

- The width of the parallel and crosswind runways meet the design standard and should be maintained.
- The width of the primary runway exceeds the design standard. FAA does not participate financially beyond the design standard. The Port, with input from large-jet operators, has elected to self-fund the extra width in order to maintain an additional safety margin.
Instrument Approach Considerations

Runway 13R
- Existing: ½-mile Visibility
- Future: Maintain

Runway 31L
- Existing: 1-mile Visibility
- Future: Consider ¾-mile Visibility

Runway 2-20
- Existing: Visual (3-mile Visibility)
- Future: Consider 1-mile Visibility

Runway 13L-31R
- Existing: Visual (3-mile Visibility)
- Future: Maintain
Landside Facility Requirements

- **Landside Requirements**
  - Hangar needs by type: T-hangars, box/executive, conventional.
  - Apron needs: Local tie-down and transient apron.
  - Vehicle parking needs: Known to be deficient but how much is needed?
  - Terminal building/FBO needs: GA pilot services and community services.
  - Support Needs: Maintenance equipment, fuel capacity, fencing, etc.
Hangar Needs

- Need for additional 98,800 sq.ft. of hangar space.
- Hangar need is ultimately determined by individual user preference.
- Hangar space is currently available (T-hangars)
- 2005 master plan showed a need for 273,100 sq.ft.
- Approx. 120,000 sq.ft. has been constructed since then.

<table>
<thead>
<tr>
<th>BASED AIRCRAFT</th>
<th>Current Supply (est.)</th>
<th>Long Term (2036)</th>
<th>Total Need Less Current Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft to be Hangared</td>
<td>301</td>
<td>378</td>
<td>77</td>
</tr>
<tr>
<td>T-Hangar Positions</td>
<td>182</td>
<td>182</td>
<td>0</td>
</tr>
<tr>
<td>Box Hangar Positions</td>
<td>25</td>
<td>58</td>
<td>33</td>
</tr>
<tr>
<td>Conventional Hangar Positions</td>
<td>170</td>
<td>138</td>
<td>-32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HANGAR AREA REQUIREMENTS</th>
<th>Current Supply (est.)</th>
<th>Long Term (2036)</th>
<th>Total Need Less Current Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-Hangar Area</td>
<td>219,500</td>
<td>255,000</td>
<td>35,500</td>
</tr>
<tr>
<td>Box Hangar Area</td>
<td>60,900</td>
<td>127,000</td>
<td>66,100</td>
</tr>
<tr>
<td>Conventional Hangar Area</td>
<td>373,600</td>
<td>345,000</td>
<td>-28,600</td>
</tr>
<tr>
<td>Total Aircraft Storage Area (s.f.)</td>
<td>654,000</td>
<td>727,000</td>
<td>73,000</td>
</tr>
<tr>
<td>Total Maintenance Area (s.f.)</td>
<td>52,200</td>
<td>78,000</td>
<td>25,800</td>
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</table>
Apron Needs

- Long term need for an additional 13,000 square yards of apron area.
- Transient apron area and positions needed most.
- Far more local tie-down positions available than needed.
- Aircraft parking positions should be in proximity to services.

<table>
<thead>
<tr>
<th></th>
<th>Currently Available (2016)</th>
<th>Long Term (2036)</th>
<th>Change</th>
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</thead>
<tbody>
<tr>
<td>LOCAL APRON POSITIONS</td>
<td>179</td>
<td>77</td>
<td></td>
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<tr>
<td>Local Apron Area (s.y.)</td>
<td>46,500</td>
<td>38,400</td>
<td>(8,100)</td>
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<tr>
<td>TRANSIENT APRON POSITIONS</td>
<td>31</td>
<td>69</td>
<td>38</td>
</tr>
<tr>
<td>Piston Transient Positions</td>
<td>24</td>
<td>55</td>
<td>31</td>
</tr>
<tr>
<td>Turbine Transient Positions</td>
<td>7</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>Transient Apron Area (s.y.)</td>
<td>44,800</td>
<td>65,900</td>
<td>21,100</td>
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<tr>
<td>Total Apron Area (s.y.)</td>
<td>91,300</td>
<td>104,800</td>
<td>13,000</td>
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## Vehicle Parking

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<th>EXISTING</th>
<th>LONG TERM (2036)</th>
<th>CHANGE</th>
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<tr>
<td><strong>TERMINAL AREA PARKING</strong></td>
<td></td>
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<tr>
<td>Terminal Area</td>
<td>283</td>
<td>541</td>
<td>258</td>
</tr>
<tr>
<td>Employee</td>
<td>38</td>
<td>45</td>
<td>7</td>
</tr>
<tr>
<td>Rental Car</td>
<td>139</td>
<td>159</td>
<td>20</td>
</tr>
<tr>
<td><strong>Subtotal Terminal Parking</strong></td>
<td>460</td>
<td>745</td>
<td>285</td>
</tr>
<tr>
<td><strong>OTHER LOCAL PARKING</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based Aircraft Owners¹</td>
<td>177</td>
<td>223</td>
<td>46</td>
</tr>
<tr>
<td>Airport Businesses</td>
<td>396</td>
<td>496</td>
<td>100</td>
</tr>
<tr>
<td><strong>Subtotal Other Local Parking</strong></td>
<td>573</td>
<td>719</td>
<td>146</td>
</tr>
<tr>
<td><strong>Total All Parking</strong></td>
<td>1,033</td>
<td>1,464</td>
<td>431</td>
</tr>
</tbody>
</table>

¹Estimated need if dedicated parking were made available; however most based aircraft owners will park in their hangar when flying.
Terminal Building

- GA Terminal Services: Supplied by both the airport and FBOs
  - Existing: 12,000 sq.ft.
  - Long term need: 9,500 sq.ft.

- Commercial Terminal Services (example)
  - Existing: 20,000 sq.ft.
  - Long term need: 43,000 sq.ft. total

- Consider replacing existing facility due to age, seismic, functionality, and location.
- When designing, build in flexibility, consider community benefits (conference rooms, commercial uses, restaurant, viewing area, connectivity, etc.).
On-Airport Land Use - East

Review of the current plan (ALP).
On-Airport Land Use - West

Review of the current plan (ALP).
Terminal Area Opportunities

• A primary focus of this master plan.
• Several terminal area leases expiring soon.
• Redevelopment opportunities should be considered.

Support Facilities
Access and Circulation

• Access Considerations
  - Key intersection capacity
  - Upcoming improvements
  - Airport contribution
  - Interior airport access roads
  - Circulation in new development
Seismic Resilience

• Many agencies and governments make emergency plans
  - FEMA, Oregon Office of Emergency Management, Washington County Office of Emergency Management, others
  - Oregon Resilience Plan
  - Role of Hillsboro Airport is evolving
  - FAA unable to contribute funds

• Seismic Assessment
  - HIO facilities not built to withstand 9.0 earthquake

• Ways this plan will add value:
  - Better understand needs to inform facility investments
  - Maintain an inventory of infrastructure and assets
  - Coordinate with agencies in plan-making
  - Adapt CIP to meet resilience objectives as feasible
Facility Requirements Summary

• **Airfield Capacity**: No issues through long term.
• **Runway Length**: Consider up to 7,500 feet.
• **Runway Design Standards**: Runway safety area (RSA), object free area (ROFA), runway protection zones (RPZ), obstacle free zone (OFZ).
• **Taxiway Standards**: Review geometry.
• **Instrument Approaches**: Consider improvements.
• **Hangar Needs**: 98,800 sq.ft.
• **Apron**: Up to 13,000 sq.yd.
• **Parking**: Up to 431 new spaces (285 in terminal area).
• **Terminal Area**: Redevelopment opportunities.
• **Terminal Building**: Relocate/replace.
• **On-Airport Land Use**: Meet aviation needs first. Reserve flight lines for aviation.
PAC Discussion/Activity I
Let’s Take a 10 Minute Break
HILLSBORO AIRPORT MASTER PLAN UPDATE

Preview Topic: Alternatives Analysis

Dave Nafie, WH Pacific
• This is the real work of the master plan.
• Each facility requirement that has alternative methods to implement is examined individually and then coordinated with others to ensure the final plan is functional, efficient, and cost-effective.
• Alternatives analysis is only necessary for those elements where there may be several viable solutions to specific problems or challenges.
• Propose draft evaluation criteria based on Port values, previous input, and regulatory requirements.
Preview Topic: Alternatives

Process Overview

- Facility Requirements
- Community Input
- Community Input

- PAC 4: Develop Selection Criteria
- PAC 5: Recommend Airport Alternatives
- PAC 6: Recommend Subarea Alternatives
- PAC 7: Confirm Preferred Alternative

(You Are Here)
Preview Topic: Alternatives

• Selection Criteria

- Guide the development and analysis of the alternatives
- Reflect the goals and values of the airport, stakeholders, and community
- Can be used to identify the most important issues to weigh
- Some criteria recommended by FAA, but we can add or tailor to suit
Preview Topic: Alternatives

- **Airport Alternatives** - Focus of PAC Meeting No. 5
  - Three concepts in various future configurations for analysis
  - Vary the location of one or more major features, remaining facilities fill in
  - Recommended Alternative will be a hybrid incorporating best ideas from stakeholder input
Preview Topic: Alternatives

- **Subarea Alternatives** - Focus of PAC Meeting No. 6
  - Builds on the Recommended Alternative from PAC Meeting No. 5
  - Alternative concepts provide detail for areas that are of special interest
  - Key Subarea: Along Cornell Avenue facing the Fair Complex
  - Market Study: Increase understanding on marketing potential
PAC Discussion/Activity II
Alternatives Criteria Discussion

Community planning compatibility: Conformance with community plans, flexibility to adapt with changing circumstances, preserving opportunities, proposing socially feasible development, meeting needs of multiple stakeholders.

Environmental factors: Increasing the compatibility with neighboring uses with typical airport operations. Includes natural resources, air quality, storm water, noise, airport-induced traffic, etc.

Financial factors: Considers the financial sustainability of the airport, balancing costs with expected benefits, opportunities for new/increased revenues and business success on and around the airport.

Operational safety and efficiency: Increasing the overall operational safety and efficiency of the airport as it grows to meet future traffic levels. Includes meeting all applicable FAA regulations.

Seismic resilience: Enhancement of facilities to be better capable of recovery following a major earthquake. “Resilience” means investments made prior to a major earthquake allow for a quicker recovery.

Social equity: Aimed at the equitable distribution of community and economic benefits while seeking a proportional distribution of any airport impacts.
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Close Out and Meeting Evaluation
Anne Pressentin, EnvirolIssues