Kickoff Meeting

Airport Board & Airport Staff

Cris Jensen, Airport Director
Project Manager
Missoula County Airport Authority (MCAA)

September 25, 2007

Agenda (Why Are We In This Room?)

- **Introduction:** Who we are?
- **Master Plan Update Background**
- **Master Plan Update Process:**
  - What are we doing?
  - What is all involved in the process?
  - How does the decision making process work?
- **Stakeholder Outreach:** Who and how people can weigh in on the process?
- **Project Schedule:** What is our timeline for completion?
- **Next Steps:** What are our immediate and future steps?
- **Discussion:** Your input?
Introduction (Who Are We?)

- **MCAA/Client/Sponsor**
  - Owner and operator of Missoula International Airport
  - Comprised of airport authority board and staff
- **CH2M HILL Team**
  - Full service consultant with national airport expertise
  - Reports to MCAA
- **Federal Aviation Administration (FAA)**
  - Approval authority over Aviation Forecast and
    Airport Layout Plan
  - Airport improvement funding agency

Introduction – Key Staff (Who Are These People?)

- **MCAA**
  - Cris Jensen – Airport Director
  - Greg Philips – Airport Deputy Director
  - Cathy Tortorelli – Administrative Manager
  - Teri Norcross – Fiscal Manager
  - Kelly Smith – Operations Supervisor
  - Dave Kreis – Public Safety Supervisor
  - Rob Foote – Facility Operations Supervisor
  - Dennis Chudy – Airport Operations Supervisor

- **CH2M HILL & Sub Consultant Team**
  - John van Woensel – Project Manager & Master Plan Update Task Lead
  - Jon Erion – Deputy Project Manager
  - Mark Rutyna – General Aviation Lead
  - Guy Geerds – Client Services Manager & Senior Aviation Engineer/PM
  - Yorgos Papatheodorou – Lead Market Demand Assessor, Collateral Land Development Plan
  - Suzanne Geckle – Environmental Auditor Lead
  - Sharon Sarmiento – Forecast Lead, UCG Associates
  - Joel Hirsh – Terminal Planning Lead, Hirsh & Associates
Master Plan Background (Why are updates needed?)

- Purpose
  - To take a fresh look at the aviation needs of Missoula International Airport over the next 20 years
- Last FAA Approved ALP completed in 2000-2004
- Previous Master Plan Update outdated (1996)
- Terminal expansion plan needed
- General aviation plan needed
- Long-term runway needs
  - Crosswind runway
  - Parallel runway

Master Plan Update Process (What Is Involved?)

- Master Plan Update Steps
  - Terminal & general aviation area concept plans
  - Projected aviation Demand
  - Facility capacity & needs
  - Alternatives to address deficiencies
  - (Non-aviation land-use study)
  - Development of the Airport Layout Plan (ALP) Set
  - Implementation/ project costs
Stakeholder Outreach (Who May Weigh In?)

- Known Stakeholders
  - City/County of Missoula
  - Missoula Chamber of Commerce
  - Airport Users - Passengers, Airlines, Cargo carriers, GA, U.S. Forest Service
  - Regulatory Agencies
  - Elected Officials
  - General Public
  - Utilities
  - Others

Stakeholder Outreach (How May They Weigh In?)

- Outreach Efforts
  - Group Meetings:
    - Study Resource Committee meetings
    - Public Workshops (2)
  - Ongoing Contact
    - Airport staff and Board coordination/updates
    - Local Government Agencies
    - FAA
What are we doing?

- Terminal Area and General Aviation Concept Plan
- Master Plan Update
  - Forecast of Aviation Activity
  - Facility Needs
  - Alternatives Analysis
  - Airport Layout Drawings
- Aerial Photography
- Non-Aviation Collateral Development Study
- Airfield Pavement Condition Overview
- Utility Workshop and Sample Mapping
- Environmental Compliance Audit

Project Schedule (When Will Things Be Done?)

- Terminal Concepts Decision Point (January 2008)
- GA Concepts Decision Point (April 2008)
Next Steps (What Are Our Next Steps?)

- Current and Next Steps
  - Identification of Goals and Objectives
  - Technical and Stakeholder Interviews
  - Forecast Data Collection
  - Additional Site Inspections

- Next Steps
  - Start terminal Concept Plan and Projections of Aviation Demand
  - Aerial Photo
  - Environmental Audit

Discussion

- Your Priorities
- Questions
- Other Discussion
Thank You!

• The CH2M HILL Team thanks you for the opportunity to assist you with the planning of the future for this airport.
Study Resource Committee (SRC) Workshop
Airport Board & Airport Staff

Cris Jensen, Airport Director
Greg Phillips, Deputy Director, Project Manager
Missoula County Airport Authority (MCAA)

November 14, 2007

Key Participants

- **MCAA**
  - Cris Jensen – Airport Director
  - Greg Phillips – Airport Deputy Director
  - Cathy Tortorelli – Administrative Manager
  - Teri Norcross – Fiscal Manager
  - Kelly Smith – Operations Supervisor
  - Dave Kreis – Public Safety Supervisor
  - Rob Foote – Facility Operations Supervisor
  - Dennis Chudy – Airport Operations Supervisor

- **CH2M HILL & Sub Consultant Team**
  - John van Woensel – Master Plan Project Manager
  - Jon Erion – Deputy Project Manager
  - Cheryl DeGroot – Aviation Planner
  - Joel Hirsh – Terminal Planning Lead, Hirsh & Associates
Purpose of Workshop

• To support early decisions for:
  – GA development areas
  – Next phase(s) of terminal expansion
  – Runways-parallel & crosswind
• Define property available for non-aviation uses

Agenda

Order of Events:
• Present Preliminary Findings & Assumptions
  – Forecast & Design Aircraft
  – Airfield Capacity
• Develop Range of Concepts
  – Airfield
  – Terminal
  – General Aviation Concepts
Workshop Approach

- Present sufficient Data to Support Concept development
- “Work through” concepts/options with you
- Big-picture only, 20-year outlook
- Early-concept approach has inherent risk

Master Plan Approach:
- Analysis occurring in parallel with Workshop
- Detailed findings follow
  - Chapters- forecast
  - ALP

Findings & Assumptions: Forecasts

- Enplanement Forecast in progress

<table>
<thead>
<tr>
<th></th>
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<th>MSO 1</th>
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Growth Rates

- 1981-2007: 5.0% 5.0% 5.0% 5.0% 5.0% 4.1% 5.0%
- 2007-2026: 3.1% 2.2% 2.6% 1.9% 2.0% 2.9% 3.3%
Findings & Assumptions: Forecasts

Preliminary Forecast

Year

Enplanements

2006 2011 2016 2021 2026

Findings & Assumptions: Fleet Mix


Source: BACK Aviation Services OAG data.
Findings & Assumptions: Operations

- Old MPU – 107,000 in 2015
- 2004 ALP Update – 90,000 in 2020
- TAF
  - 67,000 in 2020
  - 73,000 in 2025
- Workshop purposes, assume 110,000 operations in 2025

Findings & Assumptions: Airfield Capacity

- Approximate annual capacity - 180,000 operations
- Target airfield utilization – 60 percent of capacity, or 110,000 annual operations
- Conclusion – Additional runway capacity will be needed around the end of the planning period
Findings & Assumptions: Design Standards

Design aircraft drives applicable FAA standards

• Preliminary findings: Boeing 737
• Boeing 737 vs. 757; flexibility vs. standards/space required

Findings & Assumptions: Airfield Requirements

• Runway Length
  – GA/Regional Jet Runway – Approximately 6,500
  – Air Carrier – Minimum Approximately 9,500 feet
• Runway Separation
  – 700’: simultaneous VFR takeoff and landings (min 1,200’ recommended)
  – 3,500- 5,000’: simultaneous precision operations
  – min 2,500’: simultaneous radar approach/ departures
• Runway/Taxiway Separation: Group III/IV: (400’/400’)
• Taxiway/Taxiway Separation: Group III/IV: (152’/215’)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services
Findings & Assumptions: Terminal

Key Terminal Requirements
• Number of Gates
  – Approximately 8-10
• Approximate Building Size
  – 400,000 sq. ft.

Findings & Assumptions: GA Requirements

• Long Term Considerations:
  – Organic growth
  – Potential third FBO
• For purpose of workshop, focus on functional areas (blob)
Workshop Sequence

Priorities of Planning Options:
1. Airfield- biggest and most restrictive
2. Terminal- next biggest property envelope
3. General Aviation- more flexible in layout and location

Opportunities & Constraints

- Airfield
  - Crosswind runway
  - Parallel runway
  - Approaches/Minimums
- Terminal
  - Existing infrastructure
  - Access
- GA
- Utilities
- Others?
Concepts: Airfield

- Crosswind Runway
- New Parallel Runway
  - Closely spaced
  - Widely spaced
  - Different roles and lengths
  - Other

Concepts: Terminal and GA

- Expand as planned
- Demolish and rebuild in current location
- Build new in other site
Review of Workshop Results/Input

Key input and findings:

Next Steps: Project Schedule Update

Terminal/GA Concepts Decision Point (January 2008)
Thank You

- The CH2M HILL Team thanks you for participating in this SRC workshop!

Comparable Airports

- ATW - Appleton
- CHS - Charleston
- DAB - Daytona Beach
Comparable Airports

JAC – Jackson Hole

LAN – Lansing

MFR – Medford
Study Resource Committee (SRC)  
Meeting One  
Airport Board & Airport Staff  

Cris Jensen, Airport Director  
Greg Phillips, Deputy Director, Project Manager  
Missoula County Airport Authority (MCAA)  

November 14, 2007  

Introduction (Who Are We?)  

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• **Project Schedule:** What is our timeline for completion?
• **Early Indications:** Sneak Peak
• **Next Steps:** What are our immediate and future steps?
Master Plan Background (Why are updates needed?)

- **Purpose**
  - To take a fresh look at the aviation needs of Missoula International Airport over the next 20 years
- **Last FAA Approved ALP completed in 2000-2004**
- **Previous Master Plan Update outdated (1996)**
- **General aviation plan needed**
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Master Plan Update Process (What Is Involved?)

- **Master Plan Update Steps**
  - Upfront terminal & general aviation area concept plans
  - Projected aviation demand
  - Facility capacity & needs
  - Alternatives to address deficiencies
  - (Non-aviation land-use study)
  - Development of the Airport Layout Plan (ALP) Set
  - Implementation/ project costs
Stakeholder Outreach (Who May Weigh In?)

- Known Stakeholders
  - Study Resource Committee
  - Regulatory Agencies
  - Elected Officials
  - General Public
  - Others

Stakeholder Outreach (How May They Weigh In?)

- Outreach Efforts
  - Group Meetings:
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Project Schedule (When Will Things Be Done?)

- Terminal Concepts Decision Point (January 2008)
- GA Concepts Decision Point (April 2008)
Early Indications (Sneak Peak)

- Upfront concept work ongoing
- Present Preliminary Findings & Assumptions
  - Forecast & design aircraft
  - Airfield capacity
  - Summarize range of concepts to be considered
    - Airfield
    - Terminal
    - General Aviation Concepts
### Upfront Concept Approach

- **Upfront Concept Approach:**
  - Big-picture only, 20-year outlook
  - Early-concept approach has inherent risk

- **Master Plan Approach:**
  - Analysis occurring in parallel
  - Detailed findings follow
  - Chapters- forecast
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### Findings & Assumptions: Forecasts

#### Enplanement Forecast in progress

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Findings & Assumptions: GA Requirements

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Opportunities & Constraints

- **Airfield**
  - Crosswind runway
  - Parallel runway
  - Approaches/Minimums
- **Terminal**
  - Existing infrastructure
  - Access
- **GA**
- **Utilities**
- **Others?**

Next Steps

- Upfront concept work continues
- Forecast work completed
- Utility sample survey underway
- Next SRC meeting – December
- Detailed needs assessment
- (Completion of process 18 months)
Thank You

• The Airport and the CH2M HILL Team thanks you for participating!

Comparable Airports (2026 activity)
Comparable Airports (current activity level)

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Comparable Airports (current activity levels)

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Study Resource Committee (SRC)
Meeting Two
Airport Board and Airport Staff

Cris Jensen, Airport Director
Greg Phillips, Deputy Director, Project Manager
Missoula County Airport Authority (MCAA)

December 18, 2007

Introduction – Key Staff

• MCAA
  – Cris Jensen – Airport Director
  – Greg Phillips – Airport Deputy Director, Project Manager

• CH2M HILL & Subconsultant Team
  – John van Woensel – Master Plan Project Manager
  – Jon Erion – Deputy Project Manager
  – Cheryl DeGroot – Aviation Planner
  – Joel Hirsh – Terminal Planner
  – Guy Geerdts – Senior Aviation Engineer & PM
Today's Meeting Agenda

- Recap of Progress
- Purpose of this Meeting
- Reality Checks & Any Changes/Impacts
- Concept Introduction & Evaluation
  - Airfield
  - Terminal
  - GA
- Narrow the Range of Concepts
- Next Steps
Purpose of this Meeting

- Concept Planning Purpose:
  - Answer the GA question – most urgent
  - Answer the Terminal question- mid-term
  - Answer the Airfield question– long term
- Today’s Purpose: To obtain input on the presented concepts of airfield, terminal, and GA layouts

Recap of Last Meeting

- Definition of a Master Plan – Big picture, 20-year outlook
- Early Concept Planning Assumptions for +2026
  - Gross Outlook – approximately 500,000 enplanements & 110,000 operations
  - Future Aircraft– larger presence of regional jets, replacing narrow body fleet
  - Largest common aircraft - Boeing 737 (not 757)
  - Airfield capacity +/- 180,000 operations
  - Target max airfield utilization – 60 percent of capacity, or 110,000 annual operations
  - Conclusion – Additional runway capacity will be needed around the end of the planning period
Recap of Last Meeting (continued)

- **Number of Gates**
  - Approximately 8-10

- **Approximate Building Size**
  - 400,000 sq. ft.

- **Runway Length**
  - GA/Regional Jet Runway – Approximately 6,500 feet
  - Air Carrier – Minimum approximately 9,500 feet

Reality Checks

- **Preliminary Forecast**
  - Enplanements-- consistent with assumptions
  - Operations-- lower than assumed

![Total Forecast Operations Graph](image)
Reality Checks & Assumptions

• Key Question: Is Forecast Inconsistent with Concept Planning?
  – No

• Implications
  – Airfield Capacity - Runway need post 2026
  – Terminal Size - 250,000 to 300,000 square feet
  – Passenger Gates - 7 to 10

• Long-term Concept Assumptions:
  – Wye Mullan Road Plan implemented
  – Utilities available south of runway
  – VOR will be gone before additional runway capacity is needed

Airfield Concepts Considered

1. No Build

• Crosswind Concepts (Post 2026)
  2. Shift CW, maintain intersection
  3. Shift CW, remove intersection
  4. Widen and extend CW
  5. Relocate & extend CW, RWY 29
  6. Relocate & extend CW, RWY 11
  7. Reestablish old crosswind
Airfield Concepts Considered

- Parallel Options, Maintain Crosswind

- Eliminate Crosswind

Evaluation of Airfield Concepts - Findings

- Crosswind Runway
  - Not a lot of opportunity to move & improve existing runway
  - Plays a small but important role
  - Other crosswind configurations possible, but yield little benefit

- Conclusion: Maintain Crosswind as-is
- Future parallel needed to address post-2026 capacity needs
  - Semi-dependent (2,500-3,000) is adequate, no justification for independent/wide layout
Terminal Development Constraints

Typical Terminal Configurations

- Double piers/concourses
Typical Terminal Configurations

• Linear layout frontal gates

• Single pier
Typical Terminal Functional Areas

- ATO and claim

Gross GA Site Requirements

- FBO Expansion (current FBOs)
  - Hangars
  - Apron area
- T-Hangar Replacement & Growth
- Potential 3rd FBO
Full-range GA Sites Considered

1. Near Neptune
2. Near Minuteman

3. Existing terminal Location (relocate terminal)
4. Midfield
Full-range GA Sites Considered

5. South Airfield

GA Concepts – Preliminary Evaluation

- Less suitable near-term: midfield, southfield, existing TA
- Area near Neptune
  - Highest value - continued FBO use
  - Allow for expansion
  - Not large enough for replacement & additional T-hangars
  - Utilities need upgrading
- Area near Minuteman
  - Highest value - continued FBO use
  - Allow for expansion
  - Large enough for replacement & additional T-Hangars
  - Utilities need upgrading
  - Landslide access needed
Next Steps

- Narrow airfield concepts to preferred composite concept(s)
- Confirm preferred GA site & develop layout concept(s) (January)
- Select terminal site & concept(s)
- Select long-term airfield layout
- MPU analyses (Forecast chapter)
The Airport and the CH2M HILL Team thanks you for participating!
Study Resource Committee (SRC)
Meeting Three

Cris Jensen, Airport Director
Greg Phillips, Deputy Director, Project Manager
Missoula County Airport Authority (MCAA)

February 13, 2008

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Introduction – Key Staff

- **MCAA**
  - Cris Jensen – Airport Director
  - Greg Phillips – Airport Deputy Director, Project Manager

- **CH2M HILL Team**
  - John van Woensel – Master Plan Project Manager
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Today’s Meeting Agenda

- Sketch Planning Update
- Chamber of Commerce Survey Results
- Forecast Results
- Demand Capacity/Requirements
- Other Services
  - Aerial Photography
  - Sample Utility Survey
  - Environmental Compliance Review
- Next Steps

Schedule & Process – Progress to Date

Concept Planning

- Gross Requirements
- Constraints and Range of Options
- DEC Preliminary Concepts
- JAN Final Concept Plan

Inventory
Forecast
Demand Capacity
Alternatives
ALP
Sketch Plan Summary

- **Purpose:** Answer immediate GA develop needs
- **Future Airfield Options**
  - Conclusion: Maintain Crosswind as-is
  - Semi-dependent (2,500-3,000) is adequate for long-term
- **Future Terminal Options**
  - Single pier new building at existing site
  - Double pier new building at midfield site (requires approximately 2,800-foot minimum separation)
- **Future GA Options (Immediate Need)**
  - Multiple GA locations are adequate for short-term development
  - LOS issues in the short-term are alleviated in the long-term by the new ATCT location
Chamber of Commerce Survey

• Survey of Chamber members about the airport—204 responses
• Findings useful for planning and customer service
• Survey Findings:
  – Top four zip codes:
    • 59803 (28%)
    • 59808 and 59801 (16% each)
    • 59802 (15%)
  – Flight frequency in the past year:
    • 4.5 times out of MSO
    • Spokane was the next alternative (less than one percent)

Chamber of Commerce Survey

• Survey Findings Continued:
  – Top reasons for choosing an airport:
    • Airport location
    • Pricing and Availability/Frequency of flights
  – Purpose of trip:
    • 52 percent business
    • 48 percent leisure
  – MSO rated well for all services, except for flight availability
  – MSO needs more service and competition
• 20-year outlook, updated every 5-10 years
• MSO Service Area (Counties)- Missoula; Lake; Mineral; Powell; Granite; Ravalli; Sanders; Idaho, Idaho; Clearwater, Idaho
• Enplanement Forecast
  – Base year - 275,125 in 2006 (283,000 in 2007)
  – 457,730 in 2026
• Average annual enplanement growth rate
  – 3.1% (2006-2011)
  – 2.5% (2011-2016)
  – 2.4% (2016-2026)
Forecast Results - Operations

**Total Forecast Operations**

- 2006 - 52,624
- 2011 - 56,859
- 2016 - 61,395
- 2026 - 68,908

**Average Annual Growth Rate**

- 2006-2011: 1.6%
- 2011-2016: 1.5%
- 2016-2026: 1.2%

**Demand Capacity/Requirements**

- **Runway Capacity**
  - Comparison of airport’s ability to accommodate forecast demand
  - Identifies shortfalls to be remedied in the Alternatives Chapter
  - Hourly Capacity
    - Visual Flight Rules – 63 operations
    - Instrument Flight Rules – 56 operations
  - Annual capacity is estimated at 205,000 operations
  - Capacity rule of thumb: FAA recommends that airports plan for runway capacity improvements between 60 and 75 percent ASV
  - Conclusion: Capacity adequate through 2026; 34 percent
  - Early second runway would have benefits, but not indicated within the planning period
• Runway length is adequate

### FAA Design Standards

- **Design standards are FAA’s safety setbacks and surfaces**
- **Runway 11/29 - ARC C-III Design Standards (B737)**
  - Runway Safety Area width – (most restrictive surface): 500’
  - Object Free Area width: 800’
  - RSA/OFA beyond threshold: 1,000’
- **Runway 7/25 - ARC B-I (aircraft less than 12,500 lbs) Design Standard (Kingair B100)**
  - Runway Safety Area width: 120’
  - Object Free Area width: 250’
  - RSA/OFA beyond threshold: 240’
- **Design Standard inadequacies**
  - Vehicle service road (OFA)
  - Electrical vault (OFA)
  - Firing range buildings (RPZ)
FAR Part 77

- Standards for determining obstructions to navigable airspace
- FAA decides if any penetration is a Hazard to Air Navigation, and associated remedy
- Minor obstacles at MSO
- Alternatives process will evaluate and recommend improvements

Terminal Requirements

- Aircraft gates
  - Currently 5
  - Future 7 to 10
- Terminal Size
  - Future 250,000 to 300,000 square feet
Status of Other Services

- Aerial Photo - complete
- Utility Sample Survey – draft complete
- Environmental Compliance Assessment – draft complete
  - Voluntary effort by MSO
  - MSO is compliant with all state and federal permits and regulations
  - Areas of improvement include:
    - Storm Water Pollution Prevention Plan – training and prevention
    - Spill Prevention – record keeping, training and inspections
    - Miscellaneous – administrative tasks such as container labeling and asbestos management

Next Steps

- Master Plan Update
  - Obtain Forecast Approval
  - Complete Facility Requirements
  - Start Alternatives Process
    - Conduct SRC Meeting Four (of five)
    - Conduct Public Outreach Meeting One (of two)
  - Start Nonaviation Development Planning
  - Complete ALP Drawings
- Other Services
  - Conduct Pavement Condition Survey
  - Potentially: Full Utility Survey
The Airport and the CH2M HILL Team thank you for participating!
### Summary of Peak Demand

<table>
<thead>
<tr>
<th></th>
<th>Total Aircraft Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual</td>
<td>66,596 56,859 61,395 68,908</td>
</tr>
<tr>
<td>Peak Month</td>
<td>5,729 4,891 5,286 5,950</td>
</tr>
<tr>
<td>Peak Month Average Day (PMAD)</td>
<td>183 158 171 192</td>
</tr>
<tr>
<td>PMAD Peak Hour</td>
<td>15 14 15 18</td>
</tr>
</tbody>
</table>

- Based on data from 2002-2006, on average, the peak occurs in July and represents 9.3 percent of annual passenger aircraft operations.
- PMAD passenger aircraft operations in 2006 were estimated using data on scheduled operations during the week of July 16-22, 2006. For the forecast years, PMAD aircraft operations were calculated by dividing the number of passenger aircraft operations projected for the peak month by 31 days.
- Based on 2006 data, 16.7 percent of PMAD operations take place during the peak hour, which occurs from 4:15 p.m. to 5:14 p.m.
### Question 1

During the past 12 months, how many times have you flown FROM the following airports?

- Missoula International, 4.5
- Spokane International, 0.66
- Jackson Hole, 0
- Bozeman, 0.09
- Billings, 0.2
- Glacier Park International, 0

### Notes:
- Wet conditions calculated by adding 15% to dry conditions
- Largest flap setting
- Aircraft manufacturer's data
- Maximum landing weight used
- Runway elevation 3205.2 feet MSL
Question 2

Please rank the TOP THREE reasons why you choose an airport (in order)

- Proximity: 37%
- Cost of Airfare: 28%
- Frequency/Time of Flights: 19%
- Specific Airline: 8%
- Terminal Convenience/Service Level: 8%
- Cost of Parking: 0%

Questions 3 & 4

• What is your most frequent purpose of travel
  – Leisure: 48 percent
  – Business: 52 percent

• Average number of people (besides yourself) who come to the airport when you are:
  – Picked up: one person
  – Dropped off: one person
Question 5

On a scale of 1 to 10 (with 10 being the best), please rate Missoula International Airport in the following categories:

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Ease of Use</td>
<td>8</td>
</tr>
<tr>
<td>Customer Service</td>
<td>8</td>
</tr>
<tr>
<td>Flight Availability</td>
<td>5</td>
</tr>
<tr>
<td>Parking Availability</td>
<td>8</td>
</tr>
<tr>
<td>Rental Car Availability</td>
<td>NA</td>
</tr>
<tr>
<td>Security Process</td>
<td>8</td>
</tr>
<tr>
<td>Waiting/Lobby Area</td>
<td>8</td>
</tr>
<tr>
<td>Airport Access Roads</td>
<td>8</td>
</tr>
</tbody>
</table>

Question 6

- Missoula is my
  - Primary residence: 99.50 percent
  - Secondary residence: .50 percent
Question 7

Please select your zip code in Missoula:

- 59801: 16%
- 59802: 15%
- 59803: 28%
- 59804: 9%
- 59806: 1%
- 59807: 0.50%
- 59808: 16%
- 59812: 0%

Other: 14%

Questions 8 & 9

- Gender
  - Female: 44 percent
  - Male: 56 percent

- How MSO can be improved:
  1. Missoula needs to attract a low cost carrier to bring in more service and competition to our market.
     - Additional Comments include:
       - More flight availability
       - More non-stop destinations
       - More competitive pricing of fares
       - Improve the security process
       - Complaints on length of time for Bag Claim
Study Resource Committee (SRC)
Meeting Four

Cris Jensen, Airport Director
Greg Phillips, Deputy Director, Project Manager
Missoula County Airport Authority (MCAA)

June 3, 2008

Introduction – Key Staff

- MCAA
  - Cris Jensen – Airport Director
  - Greg Phillips – Airport Deputy Director, Project Manager
- CH2M HILL Team
  - John van Woensel – Master Plan Project Manager
  - Jon Erion – Deputy Project Manager
  - Bob Massarelli – Land Development
Today’s Meeting Agenda

• Schedule
• Forecast Result - Revised & Updated
• Demand Capacity Recap
• Airfield Facility Requirements Identified
• Terminal Facility Requirements Identified
• Nonaviation Development – Market Analysis
• Other Services Update
• Next Steps

MISSOULA INTERNATIONAL AIRPORT Master Plan Update & Other Services

Schedule & Process – Progress to Date

Concept Planning

Master Plan Update

Other Services

Deliverables

Inventory
Forecast
Demand Capacity
Alternatives

DEC
JAN
completed

Gross Requirements → Constraints and Range of Options → Preliminary Concepts → Final Concept Plan

ALP
updated 20-year outlook
  – New base year – 2007 (vs. 2006)
  – New end year – 2028 (vs. 2026)

Enplanement Forecast
  – Base year - 283,478 in 2007 (vs. 275,125 in 2006)
  – 473,518 in 2028 – (vs. 457,730 in 2026)

Average annual enplanement growth rate
  – 2007-2013 – 2.7% (vs. 3.1% from 2006-2011)
  – 2013-2018 – 2.5% (same from 2011-2016)
  – 2018-2028 – 2.3% (vs. 2.4% from 2016-2026)

Airline service – addressing changes
Forecast Results - Operations

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GA</td>
<td>32,260</td>
<td>39,297</td>
<td>42,082</td>
<td>47,774</td>
</tr>
<tr>
<td>Passenger</td>
<td>14,041</td>
<td>16,072</td>
<td>17,833</td>
<td>21,709</td>
</tr>
<tr>
<td>Air Taxi</td>
<td>4,997</td>
<td>5,443</td>
<td>5,829</td>
<td>6,617</td>
</tr>
<tr>
<td>Cargo</td>
<td>1,245</td>
<td>1,142</td>
<td>1,149</td>
<td>1,151</td>
</tr>
<tr>
<td>Military</td>
<td>601</td>
<td>601</td>
<td>601</td>
<td>601</td>
</tr>
</tbody>
</table>

Demand Capacity/Requirements - Recap

- Runway Capacity
  - Hourly Capacity
    - Visual Flight Rules – 63 operations
    - Instrument Flight Rules – 56 operations
  - Annual capacity is estimated at 205,000 operations
  - FAA recommends airports plan for runway capacity improvements between 60 and 75 percent ASV
  - Conclusion: Capacity adequate through 2028; 38 percent
  - Early second runway would have benefits, but not indicated within the planning period
Runway Length

- Runway length is still adequate

FAA Design Standards Recap

- Design standards are FAA’s safety setbacks and surfaces
- Runway 11/29 - ARC C-III Design Standards (B737)
  - Runway Safety Area width – (most restrictive surface): 500’
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- Design Standard inadequacies
  - Airport mostly compliant:
    - Vehicle service road (OFA)
    - Firing range buildings (RPZ)
FAR Part 77 Recap

- Standards for determining obstructions to navigable airspace
- FAA decides if any penetration is a Hazard to Air Navigation, and associated remedy
- Minor obstacles at MSO
- Alternatives process will evaluate and recommend improvements

Airfield Facility Requirements

- GA
  - Apron area expansion
  - Replacement and additional hangars
  - Potential for 3rd FBO
- Lower minimums on Runway 11 end
- Taxiway enhancements
Terminal Facility Requirements

<table>
<thead>
<tr>
<th>GATES</th>
<th>Existing</th>
<th>2018</th>
<th>2028</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Gates</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Additional RON Parking</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total Departure Lounge Area (SF)</td>
<td>8,617</td>
<td>11,500</td>
<td>12,600</td>
</tr>
</tbody>
</table>

| AIRLINE SPACE | | | |
| Ticketing/Check-in Positions | 25 | 25 | 29 |
| Ticket Counter – length (linear feet) | 119 | 140 | 160 |

| CONCESSIONS (SF) | | | |
| Secure Concessions (square feet): | | | |
| Food/Beverage | 472 | 2,100 | 2,600 |
| News/Gift/Retail | 619 | 1,100 | 1,400 |
| Non-Secure Concessions (square feet): | | | |
| Food/Beverage | 4,547 | 2,100 | 2,600 |
| News/Gift/Retail | 1,025 | 1,100 | 1,400 |

| Rental Car Lease Area (square feet) | 1,464 | 1,600 | 1,600 |
| Ground Transportation Services (square feet) | 0 | 200 | 200 |

| PUBLIC SPACE (square feet) | | | |
| Ticket Lobby | 6,289 | 7,000 | 8,000 |
| Public Seating/Waiting Area | 3,342 | 3,200 | 3,600 |
| RAC Queue Area | 762 | 1,200 | 1,200 |
| Restrooms – Terminal Locations | 1,315 | 1,900 | 2,100 |
| Restrooms – Secure Locations | 538 | 1,800 | 1,800 |
| Secure Circulation | 7,189 | 11,600 | 13,200 |
| Security Screening Lanes | 3 | 3 | 3 |
| Checkpoint/search/queue area | 3,222 | 3,800 | 3,800 |
| Other Public Circulation | 22,292 | 17,900 | 19,700 |

| OTHER AREAS (square feet) | | | |
| Information Counter | 83 | 100 | 100 |
| Airport Administration/Operations | 6,326 | 6,600 | 6,600 |
| TSA Offices | 2,038 | 2,500 | 2,500 |
| Non-Public Circulation | 3,485 | 3,600 | 3,900 |

| TOTAL TERMINAL GROSS AREA (square feet) | 114,590 | 138,900 | 152,100 |

| Gross Terminal Area per gate: | 22,900 | 19,800 | 19,000 |

Prepared By: Hirsh Associates

Largest Terminal Deficiencies Identified

- **Airline baggage area**
  - Deficiency inflated by possible addition of in-line baggage screening
- **Checked baggage screening and ticket lobby**
  - EDS equipment location constrains cross-circulation
  - Require additional EDS units for peak period
- **Baggage claim**
  - Undersized during peak
  - Off-load area too narrow to accommodate bag trains
- **Concessions**
  - Lack in secure-side concessions
  - Total combined concessions is adequate
### Nonaviation Development – Market Analysis

<table>
<thead>
<tr>
<th>5-DIG NAICS</th>
<th>MANUFACTURING INDUSTRY</th>
<th>TOTAL SCORE</th>
<th>RANK</th>
<th>INDUSTRY CLUSTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>32541</td>
<td>Pharmaceutical and Medicine Manufacturing</td>
<td>17.12</td>
<td>1</td>
<td>Pharma/Bio</td>
</tr>
<tr>
<td>33911</td>
<td>Medical Equipment and Supplies Manufacturing</td>
<td>16.02</td>
<td>2</td>
<td>Pharma/Bio</td>
</tr>
<tr>
<td>33912</td>
<td>Material Handling Equipment Manufacturing</td>
<td>15.90</td>
<td>3</td>
<td>General Machinery, Equipment and Components</td>
</tr>
<tr>
<td>33392</td>
<td>Ready-Mix Concrete Manufacturing</td>
<td>15.03</td>
<td>4</td>
<td>Non-Metallic Minerals</td>
</tr>
<tr>
<td>33231</td>
<td>33231 Plate Work and Fabricated Structural Product Manufacturing</td>
<td>14.96</td>
<td>5</td>
<td>Metals forming and fabrication</td>
</tr>
<tr>
<td>32221</td>
<td>32221 Pipe Manufacturing</td>
<td>14.95</td>
<td>6</td>
<td>Steel Products Manufacturing</td>
</tr>
<tr>
<td>33232</td>
<td>Commercial and Service Industry Manufacturing</td>
<td>14.83</td>
<td>7</td>
<td>General Machinery, Equipment and Components</td>
</tr>
<tr>
<td>33233</td>
<td>Other Non-Metallic Product Manufacturing</td>
<td>14.70</td>
<td>8</td>
<td>Non-Metallic Minerals</td>
</tr>
<tr>
<td>32121</td>
<td>Other Non-Metallic Product Manufacturing</td>
<td>13.88</td>
<td>9</td>
<td>Metals forming and fabrication</td>
</tr>
<tr>
<td>32122</td>
<td>Architectural and Engineering Wood Products Manufacturing</td>
<td>13.90</td>
<td>10</td>
<td>Agricultural and Forestry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5-DIG NAICS</th>
<th>NON-MANUFACTURING INDUSTRIES</th>
<th>TOTAL SCORE</th>
<th>RANK</th>
<th>INDUSTRY CLUSTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>51419</td>
<td>Environmental Consulting Services</td>
<td>14.94</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>51491</td>
<td>Other Information Services</td>
<td>12.85</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>52121</td>
<td>Offices of Mental Health Practitioners (except Physicians)</td>
<td>12.19</td>
<td>3</td>
<td>Non-Medical</td>
</tr>
<tr>
<td>54121</td>
<td>Research and Development in the Social Sciences and Humanities</td>
<td>12.34</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>54131</td>
<td>Other Scientific and Technical Consulting Services</td>
<td>12.24</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>54141</td>
<td>Computer Systems Design and Related Services</td>
<td>12.22</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>54121</td>
<td>Office of Physical, Occupational and Speech Therapists, and Audiologists</td>
<td>12.12</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>54131</td>
<td>Other Specialized Design Services</td>
<td>12.05</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>54141</td>
<td>Office of Planning</td>
<td>11.95</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>54141</td>
<td>Facilities Support Services</td>
<td>11.22</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

### Status of Other Services

- **Aerial Photo** - complete *(New)*
- **Environmental Compliance Assessment** – complete *(New)*
- **Sample Utility Survey** – complete
- **Landside Access Study** – complete *(New)*
- **Nonaviation development study**
  - Part One - Market analysis complete
  - Part Two - Nonaviation development plan ongoing
- **Terminal Area Plan**
  - Demand Capacity and Facility Requirements complete
  - Alternatives ongoing
Next Steps

• Master Plan Update
  – Complete Alternatives Analysis
  – Complete Nonaviation Development Planning
  – Complete final Public Outreach and SRC Meetings
  – Complete ALP Drawings
• Other Services
  – Conduct Pavement Condition Survey
• Community Outreach
  – Meeting one of two tonight; 6-8 p.m.
  – Open to all members of the public

The Airport and the CH2M HILL Team thank you for participating!
Study Resource Committee (SRC)
Meeting Five

Cris Jensen, Airport Director
Greg Phillips, Airport Deputy Director, Project Manager
Missoula County Airport Authority (MCAA)

October 29, 2008

Introduction – Key Staff

• MCAA
  – Cris Jensen – Airport Director
  – Greg Phillips – Airport Deputy Director, Project Manager

• CH2M HILL Team
  – John van Woensel – Master Plan Project Manager
  – Jon Erion – Deputy Project Manager
  – Cheryl DeGroot – Aviation Planner
Today’s Meeting Agenda

- Schedule
- Recap- Nonaviation Market Analysis
- Nonaviation Conceptual Development Location and Layout
- Recap- Terminal Facility Requirements
- Terminal Alternatives
- Recap- Airfield Facility Requirements
- Airfield Alternatives
- Pavement Condition Evaluation Results
- Landside Access Study Preferred Layout
- Schedule Update
- Next Steps

Schedule & Process – Progress to Date

**Concept Planning**

- Gross Requirements
- Constraints and Range of Options
- Preliminary Concepts
- Final Concept Plan

**Master Plan Update**

- Inventory
- Forecast
- Demand Capacity
- Alternatives
- ALP
Status of Master Plan Update

- Previously completed:
  - Aviation Forecast
  - Airfield Demand Capacity and Facility Requirements
  - Terminal Demand Capacity and Facility Requirements

- Completed since last meeting:
  - Terminal Alternatives
draft
  - Airfield Alternatives
draft

Status of Other Services

- Previously completed:
  - Long-term Concept Sketch Plan
  - Aerial Photo
  - Environmental Compliance Assessment
  - Sample Utility Survey

- Completed since last meeting:
  - Landside Access Study
completed
  - Nonaviation Development Study
draft
  - Pavement Condition Evaluation
draft
Nonaviation Development Plan

- Steps include:
  - Identification of land not likely to be needed for aviation development
  - Target Industry Analysis
  - Conceptual layout development

Nonaviation Development – Market Analysis Recap

<table>
<thead>
<tr>
<th>MANUFACTURING INDUSTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceutical and Medicine Manufacturing</td>
</tr>
<tr>
<td>Medical Equipment and Supplies Manufacturing</td>
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<tr>
<td>Material Handling Equipment Manufacturing</td>
</tr>
<tr>
<td>Ready-Mix Concrete Manufacturing</td>
</tr>
<tr>
<td>Plate Work and Fabricated Structural Product Manufacturing</td>
</tr>
<tr>
<td>Tire Manufacturing</td>
</tr>
<tr>
<td>Commercial and Service Industry Machinery Manufacturing</td>
</tr>
<tr>
<td>Other Concrete Product Manufacturing</td>
</tr>
<tr>
<td>Ornamental and Architectural Metal Products Manufacturing</td>
</tr>
<tr>
<td>Veneer, Plywood, and Engineered Wood Product Manufacturing</td>
</tr>
</tbody>
</table>
Nonaviation Development – Market Analysis Recap

- **Non-Manufacturing Industries**
  - Environmental Consulting Services
  - Other Information Services
  - Offices of Mental Health Practitioners (except Physicians)
  - Research and Development in the Social Sciences and Humanities
  - Other Scientific and Technical Consulting Services
  - Computer Systems Design and Related Services
  - Offices of Physical, Occupational and Speech Therapists, and Audiologists
  - Other Specialized Design Services
  - Offices of Dentists
  - Facilities Support Services

Nonaviation Development

- Development expected over long-term
- Access improvements needed first
- Utility improvements needed
- East and west access options were considered
Nonaviation Conceptual Layout – Alt 1

Nonaviation Conceptual Layout – Alt 3
**Nonaviation Development Conclusion**

- Alternatives 1 and 3 both viable
- Approximately 625 acres available for development
- Requires FAA land release and NEPA approvals prior to development
- Including plan on ALP results in increased ability to respond
- Next steps: marketing plan and coordination to include future potential land use in regional planning

**Terminal Facility Requirements Recap**

- **Gates**
  - Eight gates total projected need within the planning period
- **Airline baggage area**
  - Deficiency exacerbated by possible addition of in-line baggage screening
- **Checked baggage screening and ticket lobby**
  - EDS equipment location constrains cross-circulation
  - Require additional EDS units for peak period
- **Baggage claim**
  - Undersized during peak
  - Off-load area too narrow to accommodate bag trains
- **Concessions**
  - Lack in secure-side concessions
  - Total combined concessions is adequate
Terminal Alternatives

- **Purpose:**
  - Long-range planning: reserve all options
  - Identify possible new terminal locations
- **MCAA Focus**
  - Maintain or enhance high level of customer service
  - Optimize air service by maintaining low operating costs (Low CPE)

Terminal Locations Evaluated

- Existing location
- Midfield
- Reserved for Aviation Development
Terminal Alternatives Evaluated

- Four terminal alternatives and one phasing option considered:

Alternative 1

Alternative 1A

Alternative 2

Alternative 3
Terminal Alternatives Evaluated

Alternative 1(-)
(Phasing Option)

Potential Industry Scenarios

<table>
<thead>
<tr>
<th>Growth Phase</th>
<th>Potential Industry Scenarios</th>
<th>Positive/Shortfall of Phasing Options</th>
<th>What Alternatives Work, Related Decisions Then Implement</th>
<th>What Alternatives Do Not Work, and Why Not?</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Growth</td>
<td>New Entrants</td>
<td></td>
<td>Alternative 1:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Capacity shortfall in gates, baggage handling area, online operations area, holding area, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Significant disruption of airline operations during construction</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alternative 1A: Capacity shortfall in gates, baggage handling area, online operations area, holding area, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Significant disruption of airline operations during construction</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alternative 2:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Provides some long-term flexibility</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Uses existing terminal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>More disruptive than Alternative 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alternative 3:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Provides some long-term flexibility</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Uses existing terminal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>More disruptive than Alternative 3</td>
<td></td>
</tr>
</tbody>
</table>

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services
## Potential Industry Scenarios

### Growth Rates

<table>
<thead>
<tr>
<th>Growth Rates</th>
<th>Potential Industry Scenarios (BUS/ALL)</th>
<th>Facility Shortfalls</th>
<th>What Alternatives Work Well with the Scenarios Then Implement</th>
<th>What Alternatives Do Not Work with the Scenarios Do Not Implement</th>
</tr>
</thead>
</table>
| Medium       | Smaller Aircraft                      |                     | Alternative 1: Enhanced security measures, improved efficiency. | Alternative 3:
|              |                                       |                     | ○ Enhanced security measures
|              |                                       |                     | ○ Improved efficiency
|              |                                       |                     | ○ Cannot be implemented in phases |
|              |                                       |                     | Alternative 2: Upgraded baggage handling system, improved efficiency. | Alternative 3: Enhanced security measures
|              |                                       |                     | ○ Upgraded baggage handling system
|              |                                       |                     | ○ Improved efficiency

### Organic Growth

<table>
<thead>
<tr>
<th>Growth Rates</th>
<th>Potential Industry Scenarios (BUS/ALL)</th>
<th>Facility Shortfalls</th>
<th>What Alternatives Work Well with the Scenarios Then Implement</th>
<th>What Alternatives Do Not Work with the Scenarios Do Not Implement</th>
</tr>
</thead>
</table>
|              |                                       |                     | ○ Enhanced security measures
|              |                                       |                     | ○ Improved efficiency

Alternative 1: Enhanced security measures, improved efficiency.
Alternative 2: Upgraded baggage handling system, improved efficiency.
Alternative 3: Enhanced security measures.
Preferred Terminal Development

- A single answer is bound to be wrong
- Industry will undergo unforeseen changes
  - Airline entrance, exit, or consolidation
  - Smaller or larger aircraft
- Best plan = reserve all options to allow MCAA to respond to actual future demand

Terminal Decision – Path Forward
Terminal Conclusion

- Alternative 2 is not best
- Invest in existing building for near-term years
- Alternatives 1 and 1A provide flexibility to react to long-term unknowns
- Alternative 1(-) is a phasing alternative
- First step – Building conditions analysis
- All long-term options remain available

Airfield Future Requirements Recap

- General Aviation
  - Apron area expansion – Approximately double
  - Potential for 3rd FBO
  - Replacement and additional hangars
  - Helipad landing and refueling area
- Fuel farm expansion
  - Approximate 45 percent increase in fuel storage
Airfield Future Requirements Recap

- Navigational aids
  - Lower minimums on Runway 11
  - Precision approach on Runway 29

- Taxiway enhancements
  - FAA Engineering Brief (EB) 75 consistency
    - Guidance to be incorporated into FAA Advisory Circulars
    - EB-75 identifies taxiway “hot spots”
  - Increased safety and operability

Design & EB 75 Taxiway Inconsistencies

- Purpose: Operationally efficient, enhance safety, circulation, and capacity
Alternatives Evaluation

- Purpose: Establish future property uses
- Identifies options, evaluates, and selects a preferred alternative
- Preferred facilities serve as the basis for the ALP

Potential GA Development
Potential GA Development

GA Expansion/Potential Third FBO

- **Alternatives:**
  - Short-term: FBOs expand in current location
  - Long-term: Third FBO south of Runway 11/29, near 29 end
    - VOR relocation
Fuel Farm Expansion

- Fuel farm alternatives
  - Expand in current location
  - Expand near Taxiway G
- Recommendation - Expand in current location
  - Space available
  - Low environmental impact
  - Operationally more efficient for operators
  - Infrastructure in place
  - Lowest impact to future aviation development
  - No existing or future LOS issues

NAVAIDs Enhancement

- GPS-based instrument approach alternatives:
  - LNAV/VNAV
  - LPV
- Recommendations
  - Runway 11
    - Recommend supplement ILS with LPV with lighting to maintain minimums
  - Runway 29
    - Recommend lower minimums with LPV with lighting
    - Initial terrain review next slide
- LPV with lighting provides:
  - Visibility – ½ mile
  - Height above threshold – 200 feet
NAVAID Enhancements

- Runway 29 approaches:
  - ILS vs. LPV

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

ILS approach surface penetrations

LPV no surface penetrations

Taxiway Enhancements

- Taxiway Enhancements
  - Address EB-75 inconsistencies
  - High-speed exits a safety enhancement for tanker operations (Category B aircraft)
    - Optimal placement based on percent utilization and Tower feedback
      - 100 percent of Category B aircraft accommodated at 4,500 feet (dry runways)
      - Nearly 100 percent of Category C aircraft accommodated at 6,500 feet (dry runways)
Taxiway Enhancement Recommendations

Pavement Condition Evaluation
Pavement Condition Evaluation

Short-Term (0-5 years) Capital Improvements Program

Medium-Term (6-10 years) Capital Improvements Program
Status of Master Plan Update Services

- Previously completed:
  - Aviation Forecast
  - Airfield Demand Capacity and Facility Requirements
  - Terminal Demand Capacity and Facility Requirements

- Completed since last meeting:
  - Terminal Alternatives
  - Airfield Alternatives
Status of Other Services

- Previously completed:
  - Long-term Concept Sketch Plan
  - Aerial Photo
  - Environmental Compliance Assessment
  - Sample Utility Survey

- Completed since last meeting:
  - Landside Access Study
  - Nonaviation Development Study
  - Pavement Condition Evaluation

Next Steps

- Master Plan Update
  - Respond to MCAA and SRC comments & input
  - Complete ALP drawings
  - FAA review and approval
  - Complete printed document

- Community Outreach Meeting
  - Last meeting tonight; 6-8 p.m.
  - Open to all members of the public

- Delivery of final Master Plan and Other Services document to Airport and SRC members
The Airport and the CH2M HILL Team thank you for participating!

Schedule & Process
## Terminal Facility Requirements Recap

<table>
<thead>
<tr>
<th></th>
<th>Existing</th>
<th>2018</th>
<th>2028</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DATES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Gates</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Additional RON Parking</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total Departure Lounge Area (SF)</td>
<td>8,617</td>
<td>11,500</td>
<td>12,600</td>
</tr>
<tr>
<td><strong>AIRLINE SPACE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ticketing/Check-in Positions</td>
<td>29</td>
<td>25</td>
<td>29</td>
</tr>
<tr>
<td>Ticket Counter – length (linear feet)</td>
<td>110</td>
<td>140</td>
<td>160</td>
</tr>
<tr>
<td><strong>CONCESSIONS [SF]</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secure Concessions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food/Beverage</td>
<td>472</td>
<td>2,100</td>
<td>2,600</td>
</tr>
<tr>
<td>News/Gift/Retail</td>
<td>619</td>
<td>1,100</td>
<td>1,400</td>
</tr>
<tr>
<td>Non-Secure Concessions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food/Beverage</td>
<td>4,547</td>
<td>2,100</td>
<td>2,600</td>
</tr>
<tr>
<td>News/Gift/Retail</td>
<td>1,025</td>
<td>1,100</td>
<td>1,400</td>
</tr>
<tr>
<td>Retail Use Lease Area</td>
<td>1,604</td>
<td>1,600</td>
<td>1,600</td>
</tr>
<tr>
<td>Ground Transportation Services (square feet)</td>
<td>0</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td><strong>PUBLIC SPACE [square feet]</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ticket Lobby</td>
<td>5,280</td>
<td>7,000</td>
<td>8,000</td>
</tr>
<tr>
<td>Public Seating/Waiting Area</td>
<td>3,342</td>
<td>3,200</td>
<td>3,600</td>
</tr>
<tr>
<td>RAC Queue Area</td>
<td>762</td>
<td>1,200</td>
<td>1,200</td>
</tr>
<tr>
<td>Restrooms – Terminal Locations</td>
<td>1,315</td>
<td>1,900</td>
<td>2,100</td>
</tr>
<tr>
<td>Restrooms – Secure Locations</td>
<td>538</td>
<td>1,800</td>
<td>1,800</td>
</tr>
<tr>
<td>Secure Circulation</td>
<td>7,489</td>
<td>11,600</td>
<td>13,200</td>
</tr>
<tr>
<td>Security Screening Lanes</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Checkpoint/search/queue area</td>
<td>3,223</td>
<td>3,800</td>
<td>3,800</td>
</tr>
<tr>
<td>Other Public Circulation</td>
<td>22,292</td>
<td>17,900</td>
<td>19,700</td>
</tr>
<tr>
<td><strong>OTHER AREAS [square feet]</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Counter</td>
<td>83</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Airport Administration/Operations</td>
<td>6,326</td>
<td>6,600</td>
<td>6,600</td>
</tr>
<tr>
<td>TSA Offices</td>
<td>2,038</td>
<td>2,500</td>
<td>2,500</td>
</tr>
<tr>
<td>Non-Public Circulation</td>
<td>3,485</td>
<td>3,600</td>
<td>3,900</td>
</tr>
<tr>
<td><strong>TOTAL TERMINAL GROSS AREA [square feet]</strong></td>
<td>114,590</td>
<td>138,900</td>
<td>152,100</td>
</tr>
<tr>
<td>Gross Terminal Area per gate</td>
<td>22,900</td>
<td>18,800</td>
<td>19,000</td>
</tr>
</tbody>
</table>

Prepared By: Hirsh Associates
Terminal Alternatives Evaluated

- **Alternative 1(-)**
  - “Phasing alternative” includes minimal improvements to existing terminal
- **Alternative 1**
  - Minimal expansion of existing terminal – limiting factor is number of gates
  - Two level expansion of the terminal extending approximately 80 feet deep into the existing apron
- **Alternative 1A**
  - Expansion of existing terminal to accommodate more gates (6)
  - Two level expansion of the terminal extending approximately 110 feet deep into the existing apron
- **Alternative 2**
  - Addition to the terminal to accommodate recent new terminal addition
- **Alternative 3**
  - Full new replacement terminal
MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services
Public Outreach
Meeting One of Two
June 3, 2008

Meeting Layout

[Diagram showing a layout with stations numbered 1 to 7, coat/kitchen, and cookie/refreshment areas.]
About the Airport Master Plan

Introduction

• Master Plan Update: 20-year roadmap
• Updated every 5-10 years
• Federal Aviation Administration-guided process
• Key players:
  – MCAA – Owner and study sponsor
  – FAA – Approving agency
  – CH2M HILL – Consultant
• Projected completion date – March 2009
Purpose of the Study

• Key questions to be answered:
  – Is a new runway needed by 2028?
  – Where will the next terminal expansion go?
  – Where should GA expand?
  – How do we expand terminal parking in the near term?
  – What area is available for nonaviation development?

STATION 2

Missoula International Airport

Today
Chamber of Commerce Survey Results

- Survey of Chamber Members – 204 responses
- Top reasons for choosing an airport
  - Airport location
  - Pricing and availability/Flight frequency
- Purpose of trip
  - 52 percent business travel
  - 48 percent leisure travel
- MSO rated well for all services, except flight availability
- MSO needs more air service and competition

Airlines Serving MSO Today

Source: Missoula International Airport Authority.
Exhibits

• Aerial, with the following items highlighted:
  – Proposed new tower location
  – Recent terminal expansion
  – Runway rehabilitation
  – Relocated localizer and glideslope
  – Existing FBO locations
  – Existing rental car facilities
  – to orient the visitors

• Existing ALP – Separate slide
• Terminal ALP – Separate slide
### Future Terminal Area ALP

#### How MSO Compares

<table>
<thead>
<tr>
<th>Rank</th>
<th>ST</th>
<th>Airport Name</th>
<th>2006 Boardings</th>
<th>% Change (05 to 06)</th>
</tr>
</thead>
<tbody>
<tr>
<td>133</td>
<td>MT</td>
<td>Billings Logan International</td>
<td>403,646</td>
<td>-0.19%</td>
</tr>
<tr>
<td>143</td>
<td>MT</td>
<td>Gallatin Field</td>
<td>318,115</td>
<td>-5.47%</td>
</tr>
<tr>
<td>155</td>
<td>MT</td>
<td>Missoula International</td>
<td>276,170</td>
<td>1.72%</td>
</tr>
<tr>
<td>151</td>
<td>MT</td>
<td>Capital City</td>
<td>286,358</td>
<td>-8.86%</td>
</tr>
<tr>
<td>185</td>
<td>MT</td>
<td>Glacier Park International</td>
<td>175,157</td>
<td>-9.01%</td>
</tr>
<tr>
<td>222</td>
<td>MT</td>
<td>Helena Regional</td>
<td>87,958</td>
<td>-5.63%</td>
</tr>
<tr>
<td>283</td>
<td>MT</td>
<td>Bert Mooney</td>
<td>37,635</td>
<td>-11.97%</td>
</tr>
<tr>
<td>478</td>
<td>MT</td>
<td>Sidney-Richland Municipal</td>
<td>4,771</td>
<td>-64.60%</td>
</tr>
<tr>
<td>496</td>
<td>MT</td>
<td>Yellowstone</td>
<td>4,031</td>
<td>-7.80%</td>
</tr>
</tbody>
</table>

Forecasting Factors

- Factors Considered include:
  - Employment
  - Population
  - Population growth
  - Per Capita Income
  - Income growth
  - Unemployment
  - Other miscellaneous factors – Assumes Bitterroot Resort will be constructed

<table>
<thead>
<tr>
<th>Sector</th>
<th>Employment 2006</th>
<th>Change, 2006-2016</th>
<th>Change, 2016-2026</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
<td>52.76</td>
<td>22.92%</td>
<td>21.62%</td>
</tr>
<tr>
<td>Government</td>
<td>21.02</td>
<td>18.22%</td>
<td>17.59%</td>
</tr>
<tr>
<td>Retail</td>
<td>17.13</td>
<td>20.72%</td>
<td>18.91%</td>
</tr>
<tr>
<td>Construction</td>
<td>10.58</td>
<td>12.76%</td>
<td>9.14%</td>
</tr>
<tr>
<td>FIRE</td>
<td>9.91</td>
<td>17.05%</td>
<td>16.38%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>7.01</td>
<td>-0.43%</td>
<td>-3.44%</td>
</tr>
<tr>
<td>Trans, Info, Util</td>
<td>6.94</td>
<td>8.65%</td>
<td>8.36%</td>
</tr>
<tr>
<td>Farm</td>
<td>5.75</td>
<td>14.61%</td>
<td>10.77%</td>
</tr>
<tr>
<td>Wholesale</td>
<td>3.66</td>
<td>27.60%</td>
<td>24.63%</td>
</tr>
<tr>
<td>Forestry &amp; Fishing</td>
<td>2.53</td>
<td>31.23%</td>
<td>30.72%</td>
</tr>
<tr>
<td>Mining</td>
<td>0.74</td>
<td>62.16%</td>
<td>50.00%</td>
</tr>
</tbody>
</table>

Employment is in thousands of jobs

Source: NPA Data Services, Inc.
Forecasting Factors (continued)

<table>
<thead>
<tr>
<th></th>
<th>Missoula Service Area</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population Growth (2006-2016)</td>
<td>15.30%</td>
<td>15.63%</td>
</tr>
<tr>
<td>Per Capita Income</td>
<td>$28,062</td>
<td>$21,650</td>
</tr>
<tr>
<td>Income Growth (2006-2016)</td>
<td>13.74%</td>
<td>10.61%</td>
</tr>
<tr>
<td>Regional Unemployment (2006)</td>
<td>2.90%</td>
<td>4.82%</td>
</tr>
</tbody>
</table>

Source: Forecast
Prepared by: CH2M HILL, 2008

Population Growth Rates Compared

Missoula, MT Population

Historic & Projected Aircraft Fleet Mix

- Narrow Body Jet
- Regional Jet
- Turboprop

**Historical & Forecast Enplaned Passengers**

- **Historical and Forecast Enplanements (In Thousands)**
- **Market Share (High)**
- **Regression (Base)**
- **Trendline (Low)**
- **FAA TAF 12-07**

### Year 2007-2028

<table>
<thead>
<tr>
<th>Year</th>
<th>Total (Base)</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>283,478</td>
<td>2.7%</td>
</tr>
<tr>
<td>2013</td>
<td>333,067</td>
<td>2.5%</td>
</tr>
<tr>
<td>2018</td>
<td>376,561</td>
<td>2.3%</td>
</tr>
<tr>
<td>2028</td>
<td>473,518</td>
<td></td>
</tr>
</tbody>
</table>

### Forecast Aircraft Operations

- **General Aviation**: 48 percent total growth
- **Passenger Aircraft**: 25 percent total growth
- **Air Taxi**: 55 percent total growth
- **Cargo**: Year 2007-2028:
  - 2007: 1,245
  - 2009: 1,142
  - 2011: 1,149
  - 2013: 1,151
  - 2015: 601
  - 2017: 601
  - 2019: 601
  - 2021: 601
  - 2023: 601
  - 2025: 601
  - 2027: 601
  - 2029: 601
- **Military**: Year 2007-2028:
  - 2007: 601
  - 2009: 601
  - 2011: 601
  - 2013: 601
  - 2015: 601
  - 2017: 601
  - 2019: 601
  - 2021: 601
  - 2023: 601
  - 2025: 601
  - 2027: 601
  - 2029: 601
Future Airport Needs

Airfield Requirements

• Runway Length: Is today’s length adequate?
  – YES, existing lengths of 9,501 and 4,612 is adequate
  – GA/Regional Jet Runway – Approximately 6,500
  – Air Carrier – Minimum approximately 9,500 feet

• FAA Design Standards: Does existing airfield meet federal standards?
  – YES
  – Runway 11/29 (Group III)
    • Runway to taxiway separation is 400’
    • Taxiway to taxiway separation is 152’
  – Runway 7/25 (Group I) taxiway to taxiway separation is 69’

• Airfield Capacity: Is a new runway needed?
  – NO, not within the 20-year planning period
  – Previously considered parallel runway location still reasonable (post-2028)
### Terminal Requirements

<table>
<thead>
<tr>
<th>GATES</th>
<th>Existing</th>
<th>2018</th>
<th>2028</th>
</tr>
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<table>
<thead>
<tr>
<th>AIRLINE SPACE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ticketing/Check-in Positions:</td>
<td></td>
</tr>
<tr>
<td>Ticket Counter - length (linear feet)</td>
<td>119</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONCESSIONS (SF)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure Concessions (square feet):</td>
<td></td>
</tr>
<tr>
<td>Food/Beverage</td>
<td>472</td>
</tr>
<tr>
<td>News/Gift/Retail</td>
<td>619</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GA Requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FBO expansion (current FBOs)</td>
<td></td>
</tr>
<tr>
<td>- Hangars</td>
<td></td>
</tr>
<tr>
<td>- Apron area</td>
<td></td>
</tr>
<tr>
<td>T-Hangar replacement &amp; growth</td>
<td></td>
</tr>
<tr>
<td>Potential for a 3rd FBO exists</td>
<td></td>
</tr>
</tbody>
</table>
STATION 5

Master Plan
Decisions Made to Date

GA Development – Short Term
Master Plan Decisions Made to Date (continued)

- Perimeter gate enhancements and system upgrades
  - Safety enhancement equipment installed around airport and terminal
- Deicing location
  - Designated spot west of terminal apron
- Crosswind Runway 7/25 Conclusion: Maintain crosswind as-is
  - Not a lot of opportunity to move & improve existing runway
  - Plays a small but important role
  - Other crosswind configurations possible, but yield little benefit
Next Steps and Opportunity for Public Input

Options to be Evaluated

• Terminal growth
  – Expand existing building vs. replacement building
  – If replacement, where and when?
• GA 2028 expansion
• Taxiway enhancements
• Other
Thank You for your Participation

- Special thank you to:
  - The community members who display interest in the future of Missoula International Airport
  - The Missoula Area Chamber of Commerce
  - Study Resource Committee Members
Public Outreach
Meeting Two of Two

Cris Jensen, Airport Director
Greg Phillips, Airport Deputy Director, Project Manager
Missoula County Airport Authority (MCAA)

October 29, 2008

What is a Master Plan?

- Long-term, 20 year horizon
- A plan is just a plan:
  - Projects will only be pursued if justified by demand
  - Subject to environmental and financial justification
- Updated every 5-10 years
- FAA approves forecast and ALP
Forecast Results, the next 20 years

- Enplanement Forecast
  - Base year - 283,478 in 2007 (vs. 275,125 in 2006)
  - 473,518 in 2028 – (vs. 457,730 in 2026)
- Average annual enplanement growth rate
  - 2007-2013 – 2.7% (vs. 3.1% from 2006-2011)
  - 2013-2018 – 2.5% (same from 2011-2016)
  - 2018-2028 – 2.3% (vs. 2.4% from 2016-2026)
Forecast Results - Enplanements

Historical and Forecast Enplanements (In Thousands)

- Market Share (High)
- "Regression (Base)"
- Trendline (Low)
- FAA TAF 12-07

Forecast Results - Operations

General Aviation
48 percent total growth

Passenger Aircraft
55 percent total growth

Air Taxi

Cargo

Military

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2013</th>
<th>2018</th>
<th>2028</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA</td>
<td>32,290</td>
<td>39,297</td>
<td>42,082</td>
<td>47,774</td>
</tr>
<tr>
<td>Passenger</td>
<td>14,041</td>
<td>16,072</td>
<td>17,833</td>
<td>21,709</td>
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<tr>
<td>Air Taxi</td>
<td>4,997</td>
<td>5,443</td>
<td>5,829</td>
<td>6,617</td>
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<tr>
<td>Cargo</td>
<td>1,245</td>
<td>1,142</td>
<td>1,149</td>
<td>1,151</td>
</tr>
<tr>
<td>Military</td>
<td>601</td>
<td>601</td>
<td>601</td>
<td>601</td>
</tr>
</tbody>
</table>
**Demand Capacity/Requirements**

- Runway Capacity
  - Hourly Capacity
    - Visual Flight Rules – 63 operations
    - Instrument Flight Rules – 56 operations
  - Annual capacity is estimated at 205,000 operations
  - Conclusion: Airport would be at 38 percent (adequate through 2028)
  - Early second runway would have benefits, but not indicated within the planning period

**Airfield Facility Requirements**

- GA
  - Apron area expansion
  - Replacement and additional hangars
  - Potential for 3rd FBO
- Additional approaches to Runway 11/29
- Taxiway enhancements
Terminal Facility Requirements Recap

- Gates
  - Eight gates total
- Airline baggage area
  - Deficiency exacerbated by possible addition of in-line baggage screening
- Checked baggage screening and ticket lobby
  - EDS equipment location constrains cross-circulation
  - Require additional EDS units for peak period
- Baggage claim
  - Undersized during peak
  - Off-load area too narrow to accommodate bag trains
- Concessions
  - Lack in secure-side concessions
  - Total combined concessions is adequate

Alternatives Evaluation

- Purpose: Establish future property uses
- Identifies options, evaluates, and selects a preferred alternative
- Preferred facilities serve as the basis for the ALP
Potential GA Development

MISSOULA INTERNATIONAL AIRPORT Master Plan Update & Other Services

LEGEND
- Existing Facility
- Future Facilities
- Long-term GA Development
- Short-term GA Development
- Future Runway

Potential GA Development

MISSOULA INTERNATIONAL AIRPORT Master Plan Update & Other Services
NAVAIDs Enhancement

- GPS-based instrument approach alternatives:
  - LNAV/VNAV
  - LPV

- Recommendations
  - Runway 11
    - Recommend supplement ILS with LPV with lighting to maintain minimums
  - Runway 29
    - Recommend lower minimums with LPV with lighting
    - Initial terrain review next slide

- LPV with lighting provides:
  - Visibility – ½ mile
  - Height above threshold – 200 feet

NAVAID Enhancements

- Runway 29 approaches:
  - ILS vs. LPV
Taxiway Enhancement Recommendations

Terminal Alternatives

- **Purpose:**
  - Long-range planning: reserve all options
  - Identify possible new terminal locations
- **MCAA Focus**
  - Maintain or enhance high level of customer service
  - Optimize air service by maintaining low operating costs (Low CPE)
Terminal Alternatives Evaluated

- Four terminal alternatives and one phasing option considered:

Alternative 1

Alternative 1A

Alternative 2

Alternative 3
Preferred Terminal Development

- A single answer is bound to be wrong
- Industry will undergo unforeseen changes
  - Airline entrance, exit, or consolidation
  - Smaller or larger aircraft
- Best plan = reserve all options to allow MCAA to respond to *actual* future demand

Terminal Decision – Path Forward

Now  →  +/− 2012  →  > 2018

- Conduct building assessments
- Big investment
- Small investment
- Update planning
- Organic to moderate growth
- Implement 1 or 1A
- Strong growths
- Implement 2 or 2A
- Review GA, terminal, navigation, access, and other airport decisions
- Policy assessment
- Financial assessment
- Plan and design
- Environment at Approval

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services
Terminal Conclusion

- Alternative 2 is not best
- Invest in existing building for near-term years
- Alternatives 1 and 1A provide flexibility to react to long-term unknowns
- Alternative 1(-) is a phasing alternative
- First step – Building conditions analysis
- All long-term options remain available

Nonaviation Development – Market Analysis

<table>
<thead>
<tr>
<th>MANUFACTURING INDUSTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceutical and Medicine Manufacturing</td>
</tr>
<tr>
<td>Medical Equipment and Supplies Manufacturing</td>
</tr>
<tr>
<td>Material Handling Equipment Manufacturing</td>
</tr>
<tr>
<td>Ready-Mix Concrete Manufacturing</td>
</tr>
<tr>
<td>Plate Work and Fabricated Structural Product Manufacturing</td>
</tr>
<tr>
<td>Tire Manufacturing</td>
</tr>
<tr>
<td>Commercial and Service Industry Machinery Manufacturing</td>
</tr>
<tr>
<td>Other Concrete Product Manufacturing</td>
</tr>
<tr>
<td>Ornamental and Architectural Metal Products Manufacturing</td>
</tr>
<tr>
<td>Veneer, Plywood, and Engineered Wood Product Manufacturing</td>
</tr>
</tbody>
</table>
Nonaviation Development – Market Analysis

**NON-MANUFACTURING INDUSTRIES**

- Environmental Consulting Services
- Other Information Services
- Offices of Mental Health Practitioners (except Physicians)
- Research and Development in the Social Sciences and Humanities
- Other Scientific and Technical Consulting Services
- Computer Systems Design and Related Services
- Offices of Physical, Occupational and Speech Therapists, and Audiologists
- Other Specialized Design Services
- Offices of Dentists
- Facilities Support Services

Nonaviation Development

- Development expected over long-term
- Access improvements needed first
- Utility improvements needed
- East and west access options were considered
Nonaviation Conceptual Layout – Alt 1

Nonaviation Development Conclusion

- Alternatives 1 and 3 both viable
- Approximately 625 acres available for development
- Requires FAA land release and NEPA approvals prior to development
- Including plan on ALP results in increased ability to respond
- Next steps: marketing plan and coordination to include future potential land use in regional planning
Next Steps

• Master Plan Update
  – Respond to MCAA, SRC, and public comments & input
  – Complete ALP drawings
  – FAA review and approval
  – Complete printed document

• Delivery of final Master Plan and Other Services document to Airport and SRC members

The Airport and the CH2M HILL Team thank you for participating!