




MISSOULA
INTERNATIONAL
AIRPORT

JOHNSON BELL FIELD

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Appendix A

*SRC Presentations and Public Out-Reach
Information*

Appendix A1

Kickoff Meeting – September 25, 2007



MISSOULA INTERNATIONAL AIRPORT

Master Plan Update & Other Services

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?)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- **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?

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MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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



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MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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



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Master Plan Background (Why are updates needed?)

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

- 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




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Master Plan Update Process (What Is Involved?)

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

- 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




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Stakeholder Outreach (Who May Weigh In?)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- **Known Stakeholders**
 - City/County of Missoula
 - Missoula Chamber of Commerce
 - Airport Users - Passengers, Airlines, Cargo carriers, GA, U.S. Forest Service
 - FAA (Airports, Flight Procedures, Flight Standards, and Flight Services)
 - Regulatory Agencies
 - Elected Officials
 - General Public
 - Utilities
 - Others




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Stakeholder Outreach (How May They Weigh In?)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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



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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

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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Project Schedule (When Will Things Be Done?)

ID	Task Name	Start	End
1	Task 1 - PROJECT MANAGEMENT	Aug 2007	Apr 2009
2	Task 2 - PROJECT MEETINGS STAKEHOLDER AND PUBLIC MEE	Aug 2007	Apr 2009
3	Task 3 - AERIAL PHOTOGRAPHY	Aug 2007	Apr 2009
4	Task 4 - INVENTORY UPDATE	Aug 2007	Apr 2009
5	Task 5 - FORECAST OF AVIATION ACTIVITY	Aug 2007	Apr 2009
6	Stakeholder Meeting	Jan 2008	Jan 2008
7	Task 6 - DEMAND/CAPACITY AND FACILITY REQ'S	Jan 2008	Apr 2008
8	Stakeholder Meeting	Feb 2008	Feb 2008
9	Task 7 - ALTERNATIVES ANALYSIS	Apr 2008	Jul 2008
10	Stakeholder Meeting	May 2008	May 2008
11	Task 8 - AIRPORT LAYOUT PLAN DRAWINGS	Apr 2008	Jul 2008
12	Task 9 - ALP NARRATIVE	Apr 2008	Jul 2008
13	Task 10 - FINAL MASTER PLAN DOCUMENTS	Apr 2008	Jul 2008
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17	Task 14 - SAMPLE UTILITY SURVEY AND MAPPING PLAN	Apr 2008	Jul 2008
18	Task 15 - ENVIRONMENTAL COMPLIANCE AUDIT	Apr 2008	Jul 2008
19	Final Stakeholder Meeting	Apr 2009	Apr 2009

Terminal Concepts Decision Point (January 2008) GA Concepts Decision Point (April 2008)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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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

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Master Plan Update & Other Services






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Discussion

- **Your Priorities**
- **Questions**
- **Other Discussion**

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services





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Thank You!

- The CH2M HILL Team thanks you for the opportunity to assist you with the planning of the future for this airport.

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



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Appendix A2

Study Resource Committee Workshop – November 14, 2007



MISSOULA INTERNATIONAL AIRPORT

Master Plan Update & Other Services

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

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- **MCAA**
 - Cris Jensen – Airport Director
 - Greg Phillips – Airport Deputy Director
 - Cathy Tortorelli – Administrative Manager
 - Teri Norcross – Fiscal Manager
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 - 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

- 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

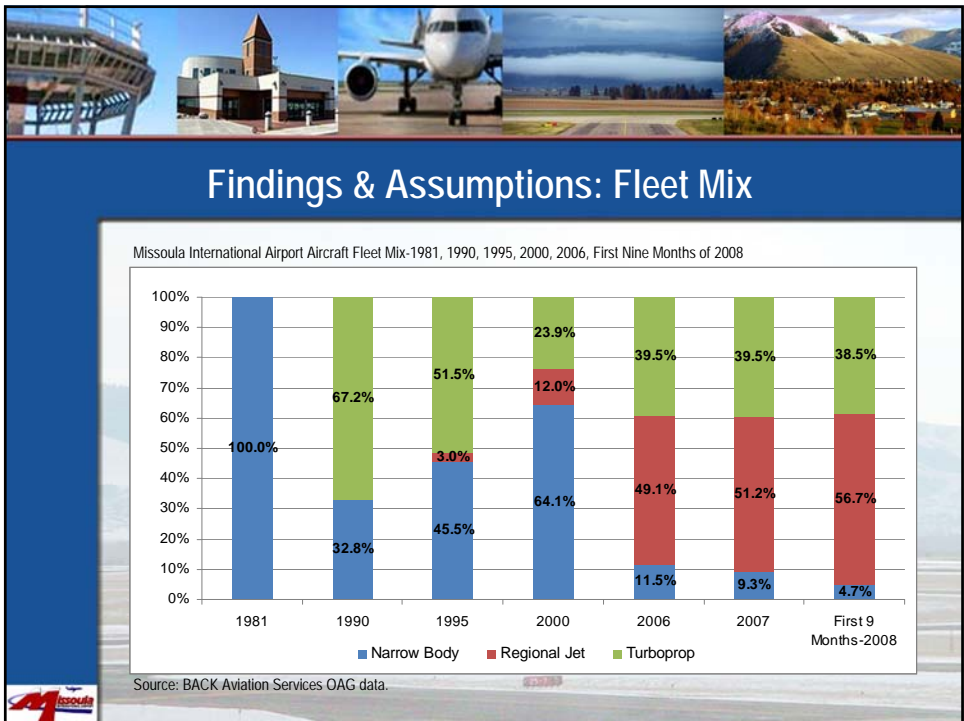
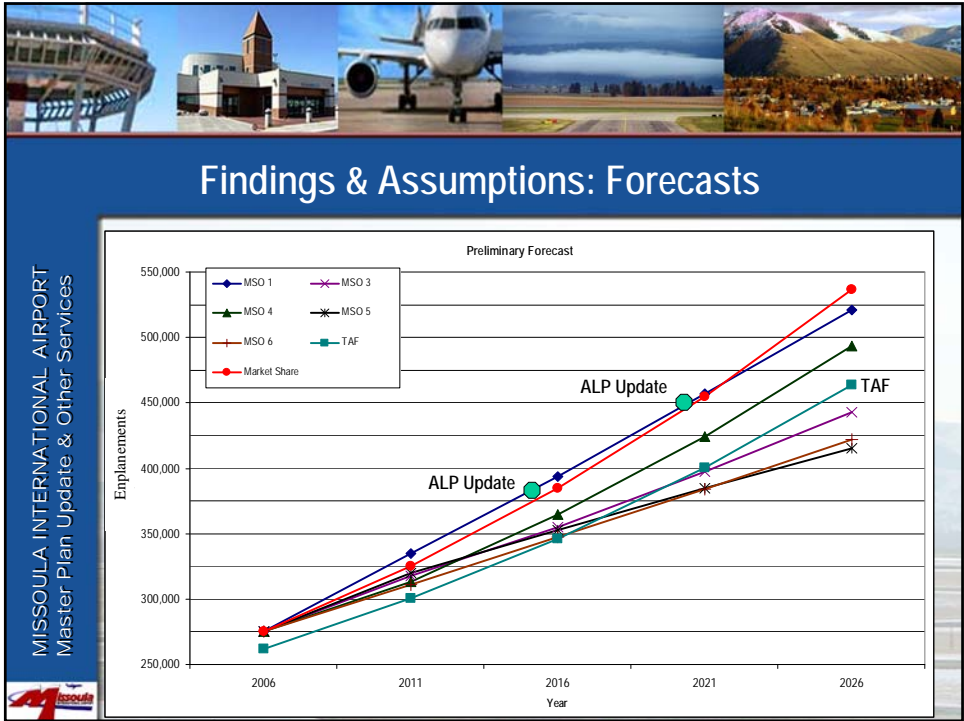
- Enplanement Forecast in progress

Forecast	MSO 1	MSO 3	MSO 4	MSO 5	MSO 6	TAF	Market Share
2006	275,125	275,125	275,125	275,125	275,125	261,727	275,125
2011	334,598	317,455	313,626	319,752	311,364	300,641	325,248
2016	393,981	354,947	364,624	353,052	347,166	346,364	384,722
2021	457,145	397,241	424,419	384,860	384,364	400,166	454,559

<u>Growth Rates</u>							
1981-2007	5.0%	5.0%	5.0%	5.0%	5.0%	4.1%	5.0%
2007-2026	3.1%	2.2%	2.8%	1.9%	2.0%	2.9%	3.3%

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services








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



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Master Plan Update & Other Services



MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

Findings & Assumptions: Design Standards

Design aircraft drives applicable FAA standards

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





MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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')






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

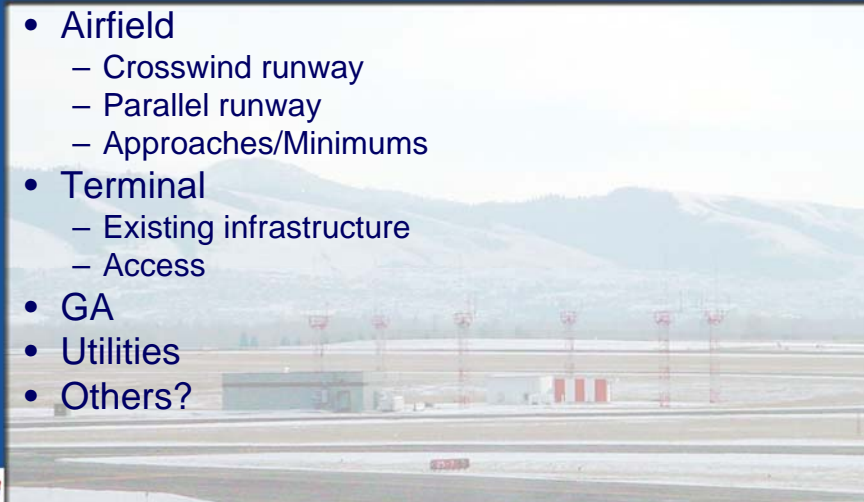
Priorities of Planning Options:

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

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Master Plan Update & Other Services

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



Concepts: Terminal and GA

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Master Plan Update & Other Services

- 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

MISSOURI INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

ID	Task Name	07	08	09	10	11	12	13	14	15	16	17	18	19	
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
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Terminal/GA Concepts Decision Point (January 2008)





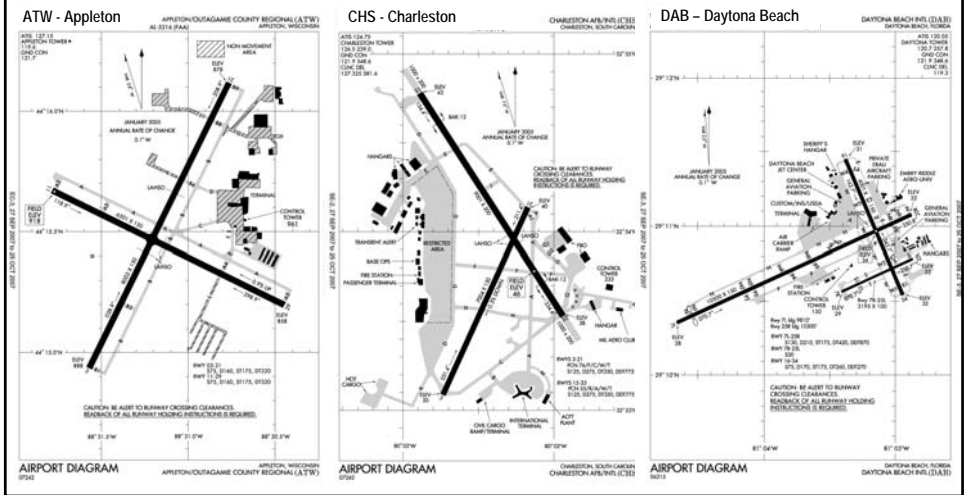
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MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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

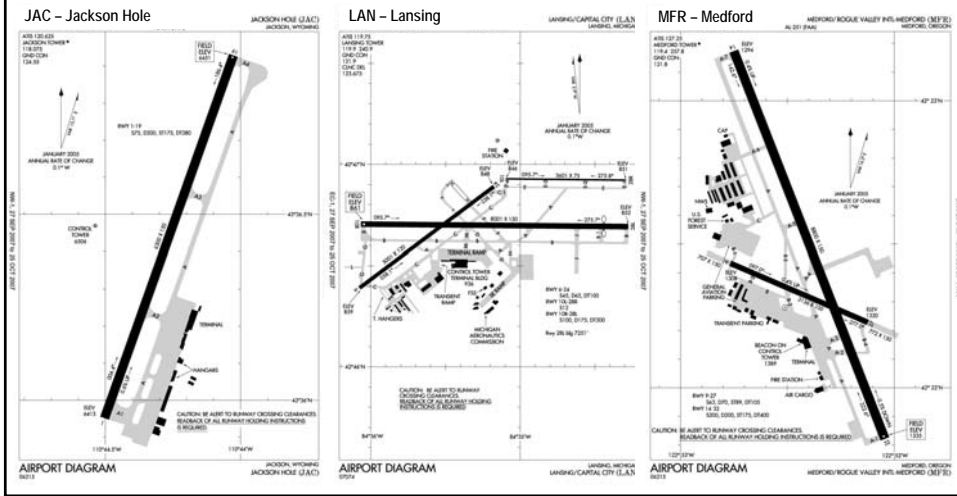


Comparable Airports

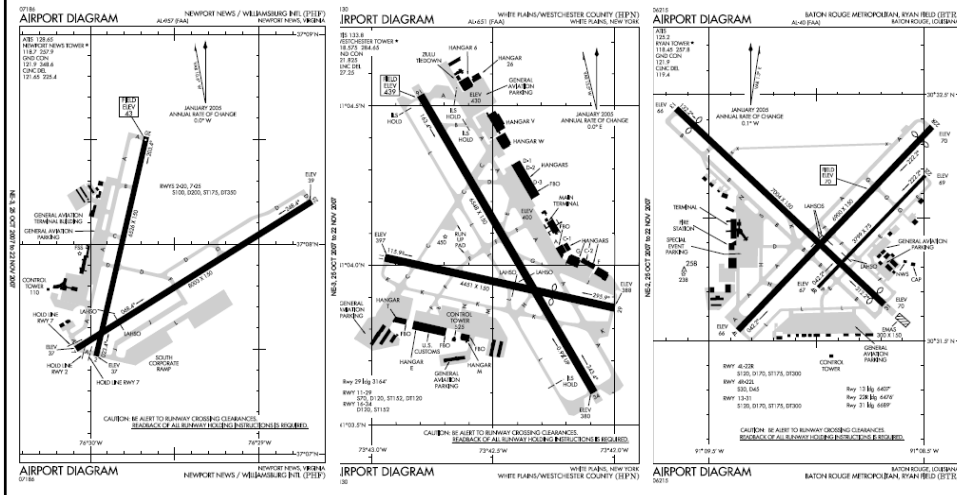




Comparable Airports



Comparable Airports



Appendix A3

Study Resource Committee Meeting One – November 14, 2007



MISSOULA INTERNATIONAL AIRPORT

Master Plan Update & Other Services

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?)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- MCAA/Client/Sponsor
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Introduction – Key Staff (Who Are These People?)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



- **MCAA**
 - Cris Jensen – Airport Director
 - Greg Philips – Airport Deputy Director, Project Manager
- **CH2M HILL & Sub Consultant Team**
 - John van Woensel – Project Manager & Master Plan Update Task Lead
 - Jon Erion – Deputy Project Manager
 - Cheryl McNall – Aviation Planner
 - Guy Geerdts – Client Services Manager & Senior Aviation Engineer/PM



Agenda (Why Are We In This Room?)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



- **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?
- **Early Indications:** Sneak Peak
- **Next Steps:** What are our immediate and future steps?



Master Plan Background (Why are updates needed?)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- 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
- Terminal expansion plan needed
- Long-term runway needs
 - Crosswind runway
 - Parallel runway



Master Plan Update Process (What Is Involved?)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- 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?)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



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



Stakeholder Outreach (How May They Weigh In?)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- **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?

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- 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
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Project Schedule (When Will Things Be Done?)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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Terminal Concepts Decision Point (January 2008) ←

GA Concepts Decision Point (April 2008) ←



MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services


Early Indications (Sneak Peak)




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Master Plan Update & Other Services

Early Indications



- 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
 - ALP

Findings & Assumptions: Forecasts

- **Enplanement Forecast in progress**

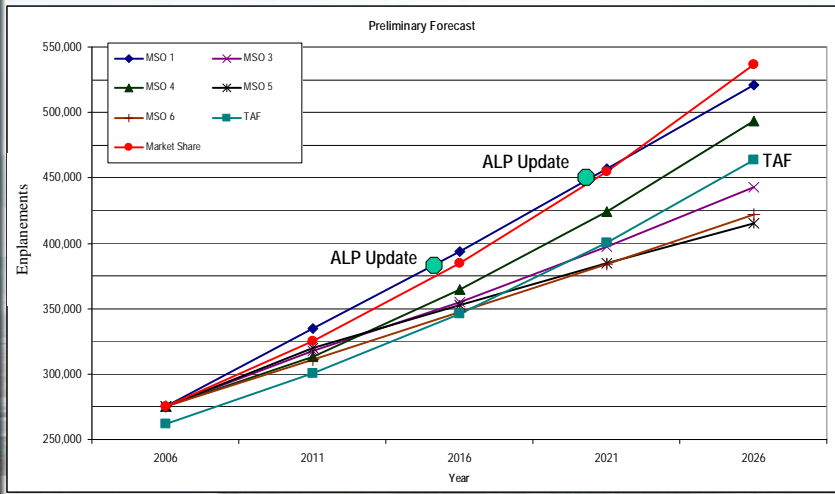
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2026	521,099	442,950	493,755	415,241	421,677	463,416	536,556
Growth Rates							
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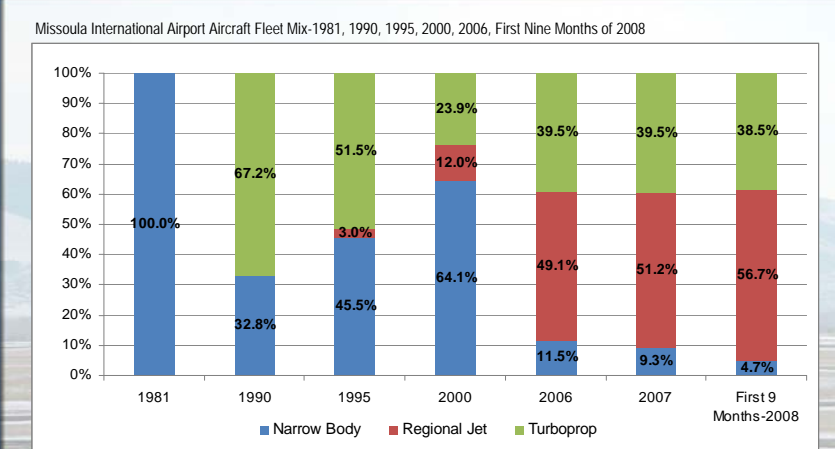
Findings & Assumptions: Forecasts

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Master Plan Update & Other Services



Findings & Assumptions: Fleet Mix

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Master Plan Update & Other Services





MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

Findings & Assumptions: Operations

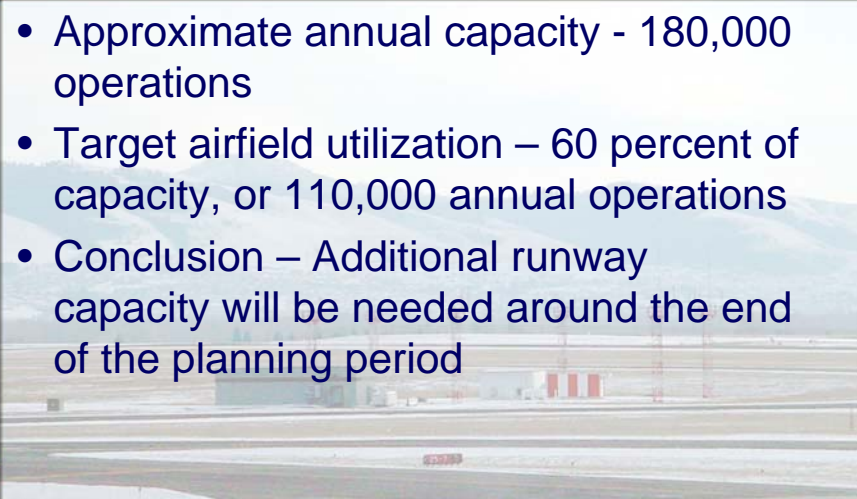
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MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

Findings & Assumptions: Airfield Capacity

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- 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





MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

Findings & Assumptions: Design Standards

Design aircraft drives applicable FAA standards

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





MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

Findings & Assumptions: Airfield Requirements

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Findings & Assumptions: Terminal

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

Key Terminal Requirements

- Number of Gates
 - Approximately 8-10
- Approximate Building Size
 - 400,000 sq. ft.



Findings & Assumptions: GA Requirements

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- Long Term Considerations:
 - Organic growth
 - Potential third FBO





Opportunities & Constraints

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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



Next Steps

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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





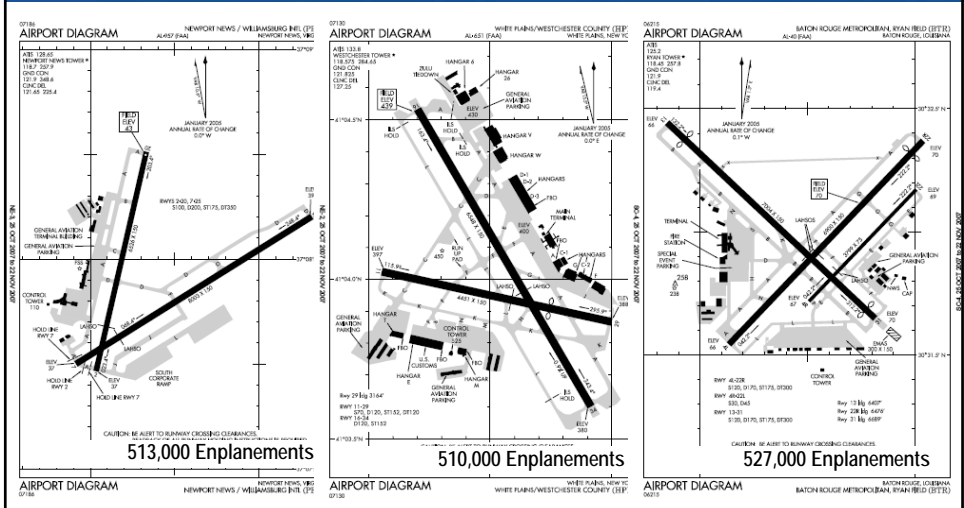
Thank You

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

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

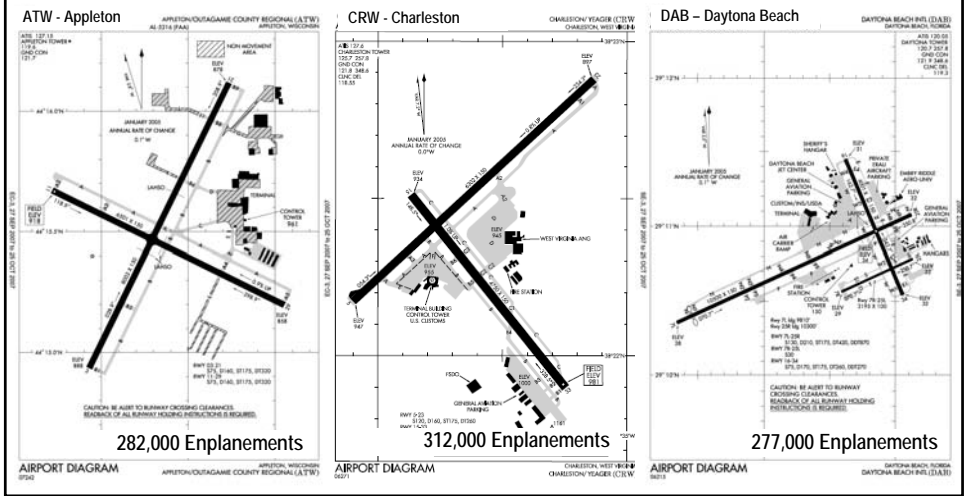


Comparable Airports (2026 activity)

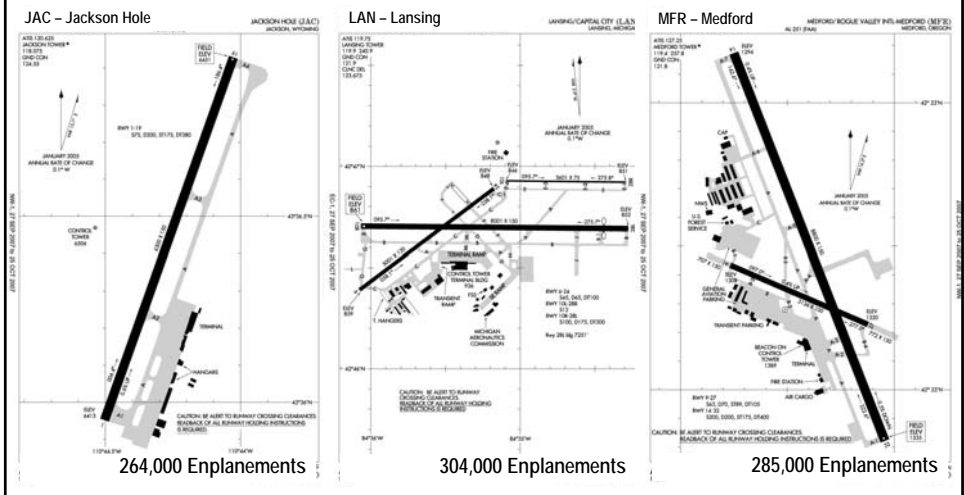




Comparable Airports (current activity level)



Comparable Airports (current activity levels)



Appendix A4

Study Resource Committee Meeting Two – December 18, 2007



MISSOULA INTERNATIONAL AIRPORT

Master Plan Update & Other Services

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



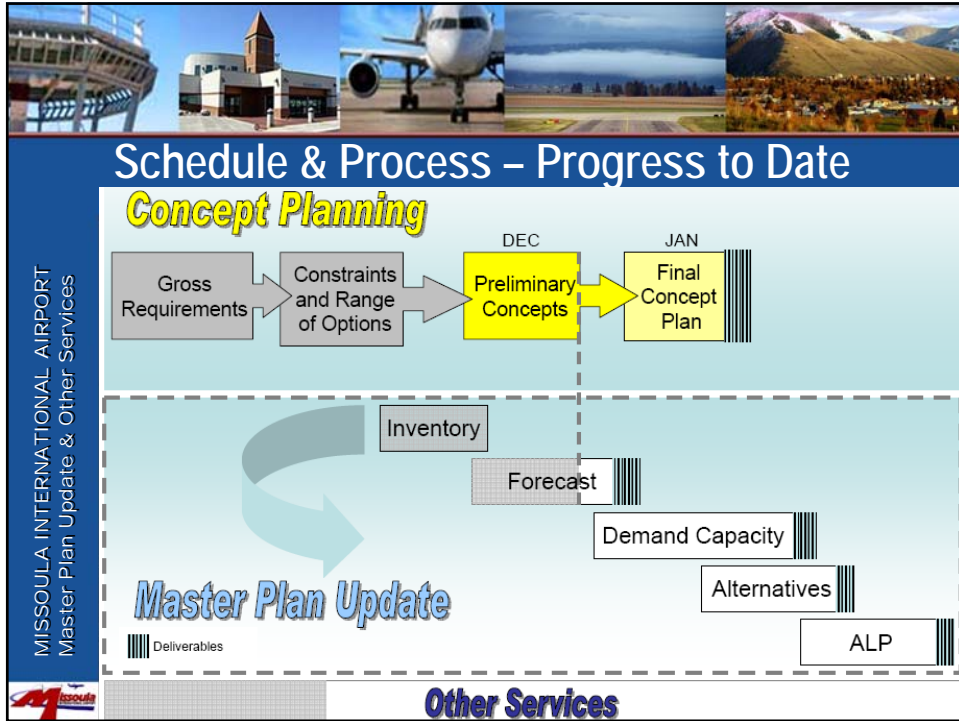
Introduction – Key Staff

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 - Cheryl DeGroot – Aviation Planner
 - Joel Hirsh – Terminal Planner
 - Guy Geerds – Senior Aviation Engineer & PM



2



-
- 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
- MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services
- 4



Purpose of this Meeting

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



- **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



5



Recap of Last Meeting

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



- **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



6



Recap of Last Meeting (continued)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- 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



7

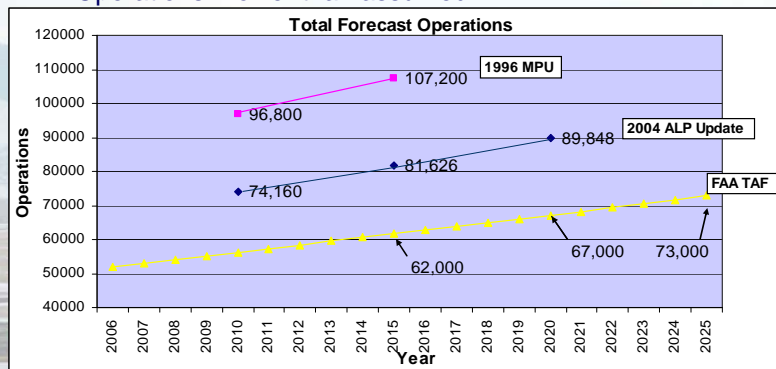


CLM1


Reality Checks

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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



8




Reality Checks & Assumptions

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

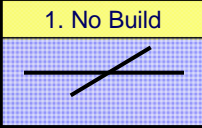
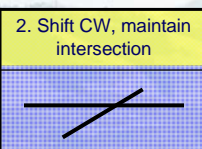
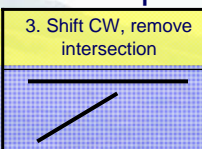
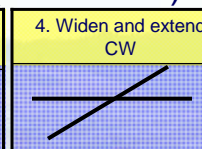
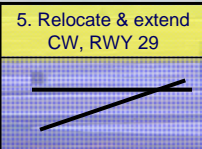
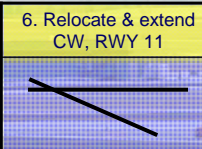
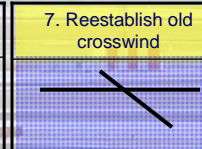
- Key Question: Is Forecast Inconsistent with Concept Planning?
 - No
- Implications
 - Airfield Capacity - Runway need post 2026
 - Terminal Size - 250,000 to 300,000 square feet
 - Passenger Gates - 7 to 10
- Long-term Concept Assumptions:
 - Wye Mullan Road Plan implemented
 - Utilities available south of runway
 - VOR will be gone before additional runway capacity is needed

9




Airfield Concepts Considered

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

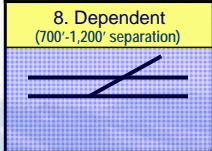
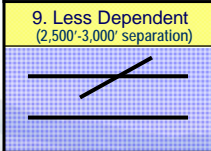
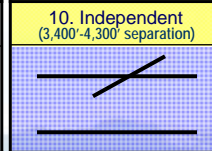
1. No Build		
		
<ul style="list-style-type: none"> • Crosswind Concepts (Post 2026) 		
2. Shift CW, maintain intersection	3. Shift CW, remove intersection	4. Widen and extend CW
		
5. Relocate & extend CW, RWY 29	6. Relocate & extend CW, RWY 11	7. Reestablish old crosswind
		

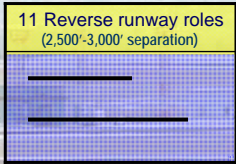
10




Airfield Concepts Considered

- Parallel Options, Maintain Crosswind

8. Dependent (700'-1,200' separation)	9. Less Dependent (2,500'-3,000' separation)	10. Independent (3,400'-4,300' separation)
		
- Eliminate Crosswind

11 Reverse runway roles (2,500'-3,000' separation)


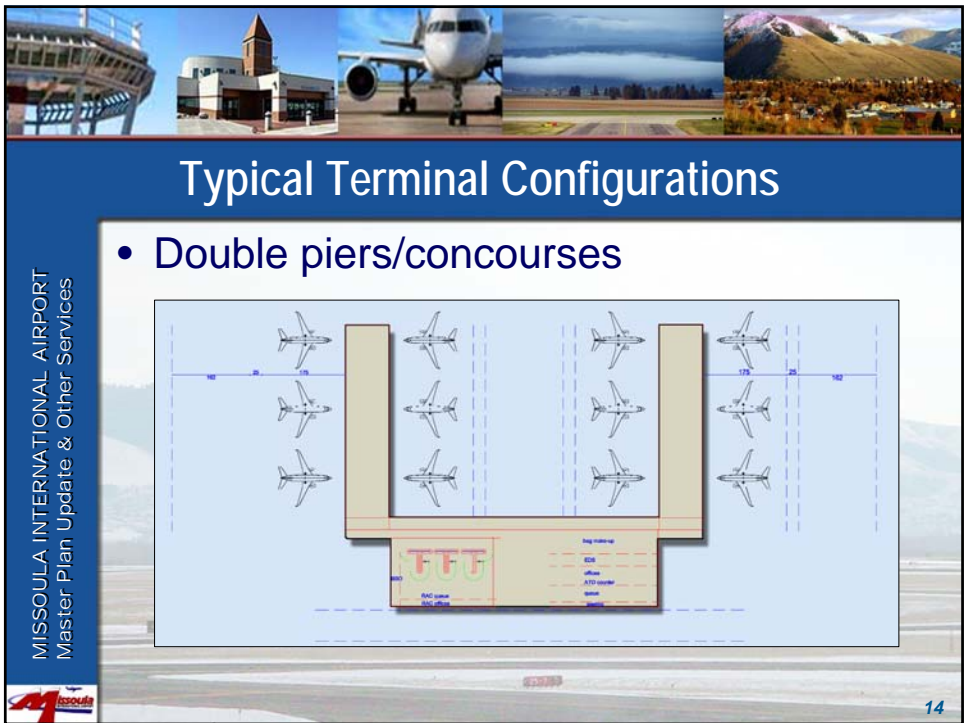
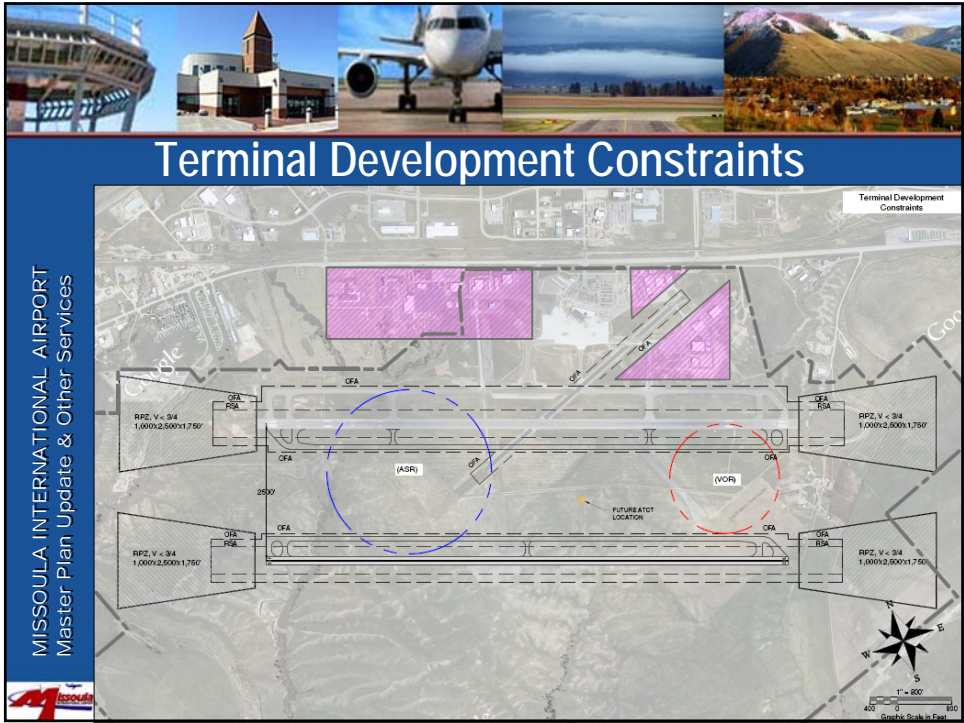
11



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

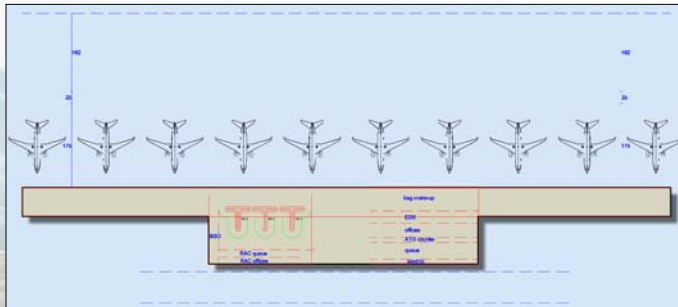
12





Typical Terminal Configurations

- Linear layout frontal gates



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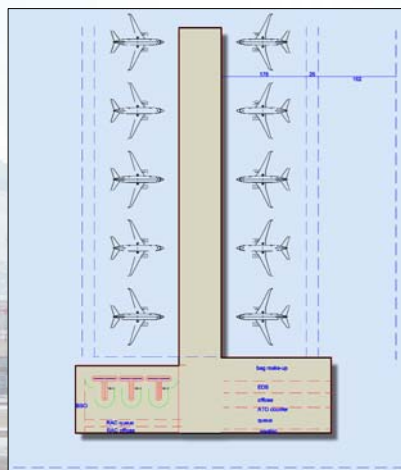


15



Typical Terminal Configurations


- Single pier



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Master Plan Update & Other Services



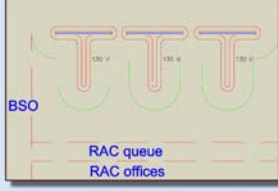
16




Typical Terminal Functional Areas


- ATO and claim


214



225






17




Gross GA Site Requirements

- FBO Expansion (current FBOs)
 - Hangars
 - Apron area
- T-Hangar Replacement & Growth
- Potential 3rd FBO

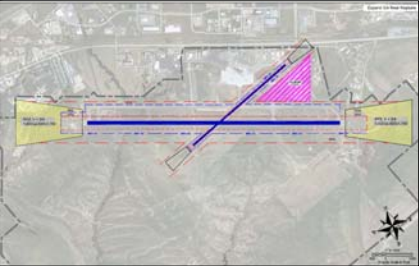



18




Full-range GA Sites Considered


1. Near Neptune




2. Near Minuteman



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Master Plan Update & Other Services




19

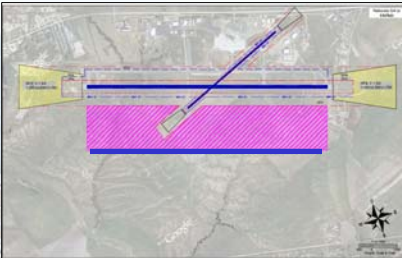


Full-range GA Sites Considered


3. Existing terminal
Location (relocate
terminal)



4. Midfield



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Master Plan Update & Other Services

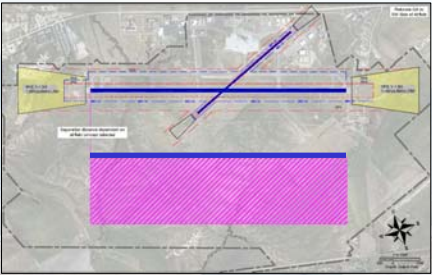


20



Full-range GA Sites Considered

5. South Airfield



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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
 - Landside access needed

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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)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



23



Schedule & Process – Progress to Date

Concept Planning

```


    graph LR
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      B --> C[Preliminary Concepts]
      C --> D[Final Concept Plan]
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        C
        D
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Master Plan Update

Other Services

Deliverables

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Master Plan Update & Other Services





MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



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

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Appendix A5

Study Resource Committee Meeting Three – February 13, 2008



MISSOULA INTERNATIONAL AIRPORT

Master Plan Update & Other Services

Study Resource Committee (SRC) Meeting Three

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

February 13, 2008



Introduction – Key Staff

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- **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
 - Guy Geerdts – Senior Aviation Engineer & PM






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

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



3



Schedule & Process – Progress to Date

Concept Planning

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DEC JAN

Master Plan Update


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      DC --> A[Alternatives]
      A --> ALP[ALP]
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▬ Deliverables

Other Services

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



4



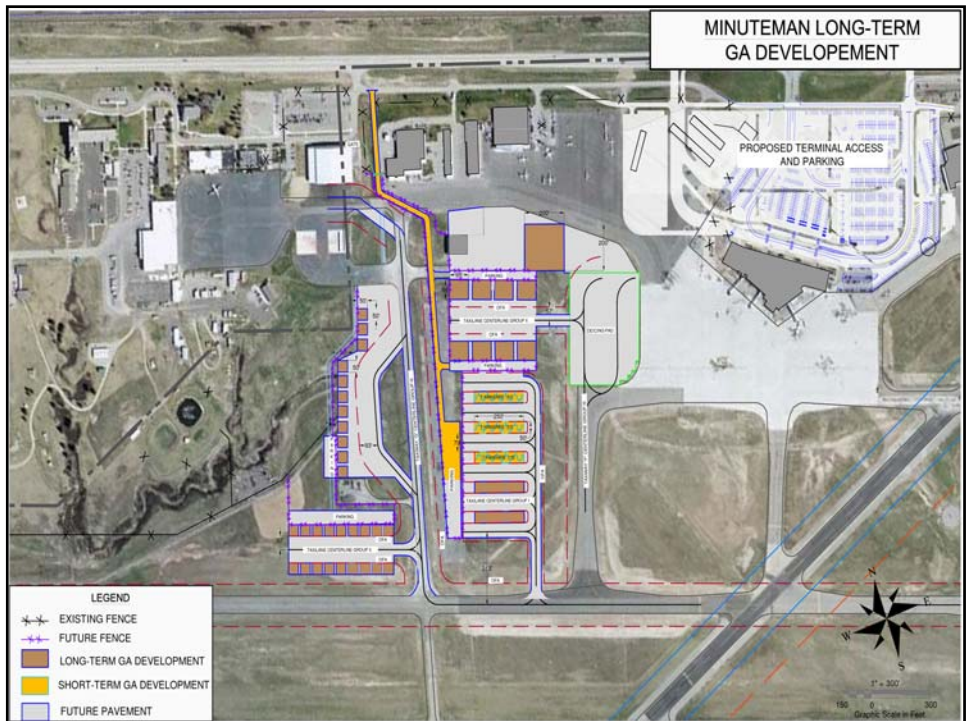
Sketch Plan Summary

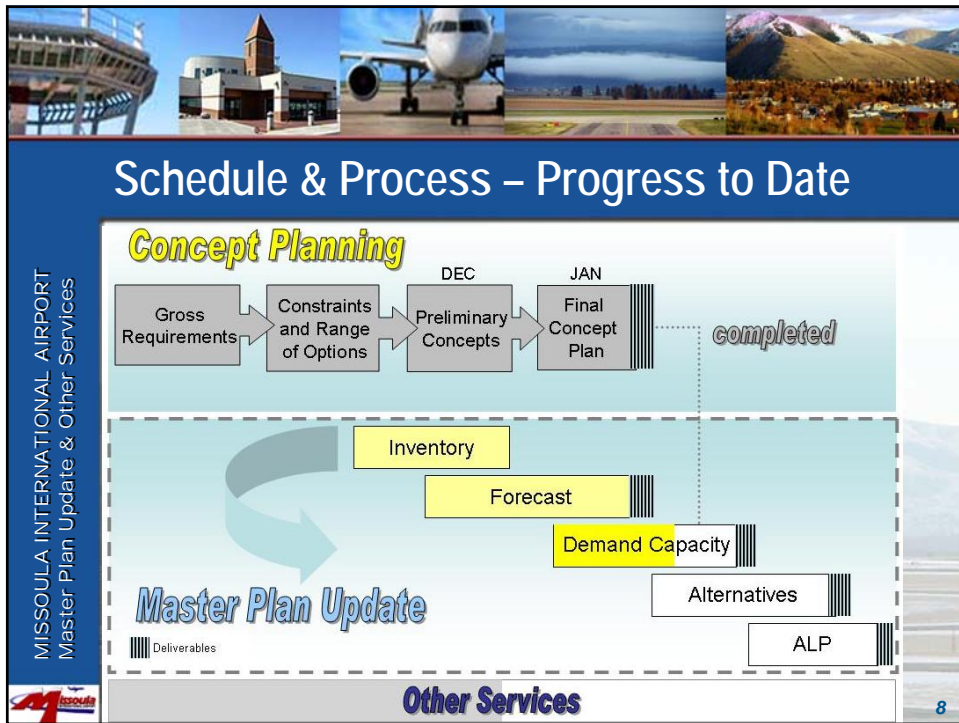
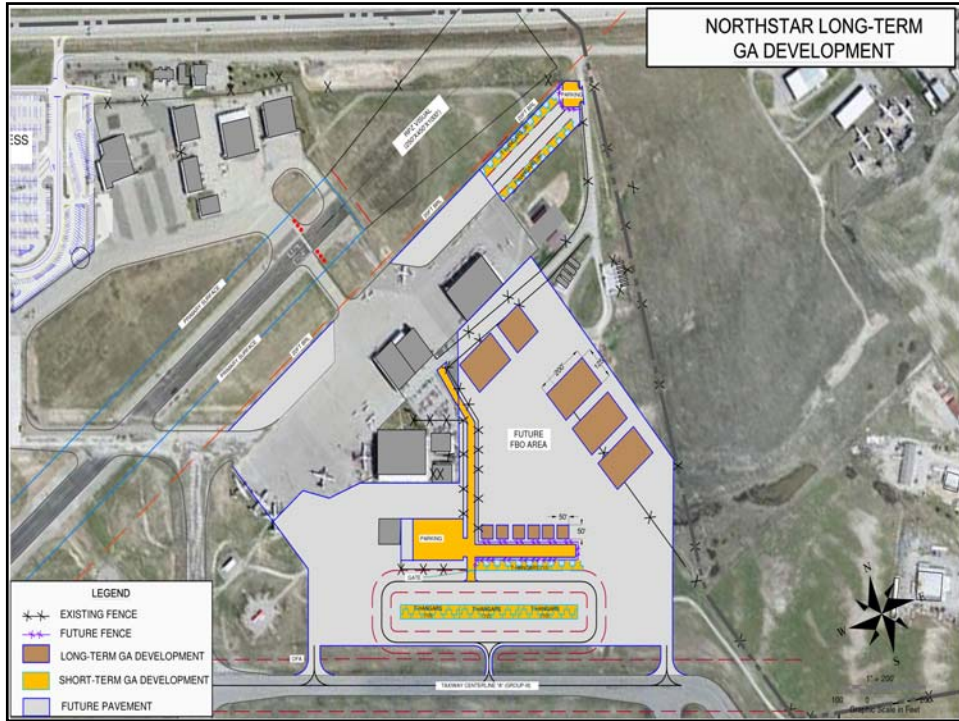
MISSOURI INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

- 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



5







Chamber of Commerce Survey

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

- 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)


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Chamber of Commerce Survey

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services


- 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


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Forecast Results

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services




- 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)

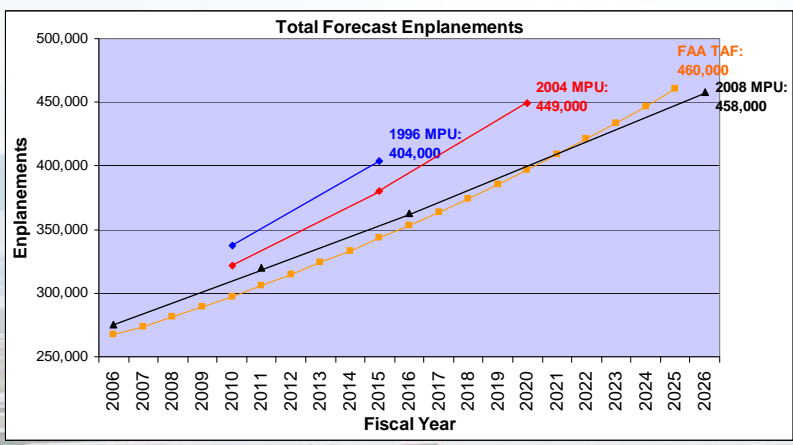
11



Forecast Results - Enplanements

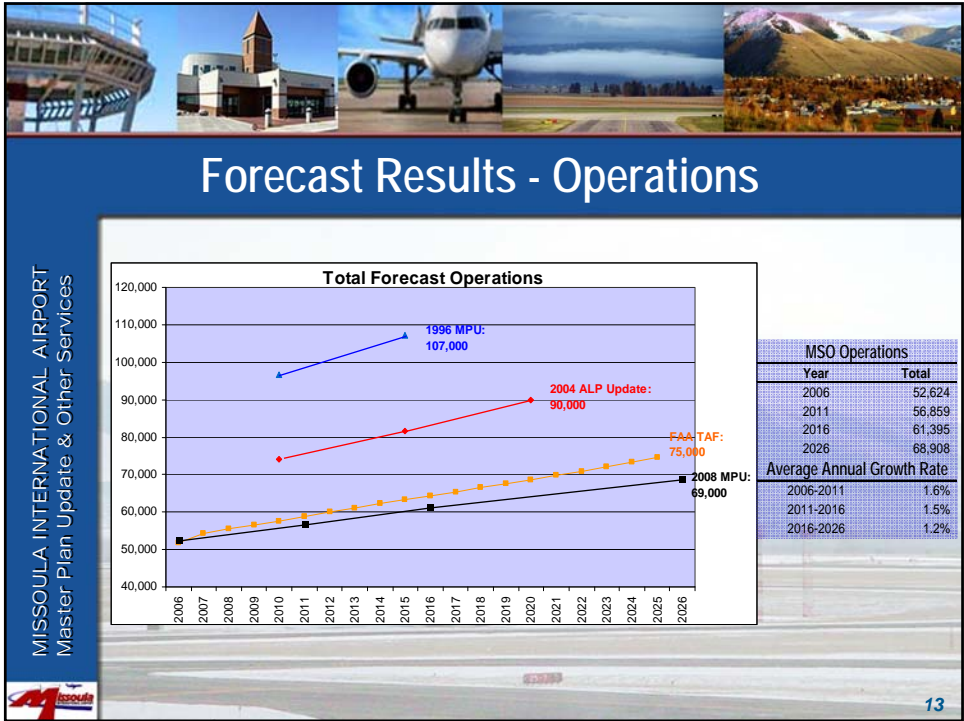
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Master Plan Update & Other Services





Fiscal Year	1996 MPU	2004 MPU	2008 MPU	FAA TAF
2006			275,125	
2007			283,000	
2008				
2009				
2010	330,000	330,000	300,000	
2011	340,000	340,000	310,000	
2012				
2013				
2014				
2015	404,000	380,000	340,000	
2016				
2017				
2018				
2019				
2020		449,000	390,000	
2021				
2022				
2023				
2024				
2025				460,000
2026			458,000	

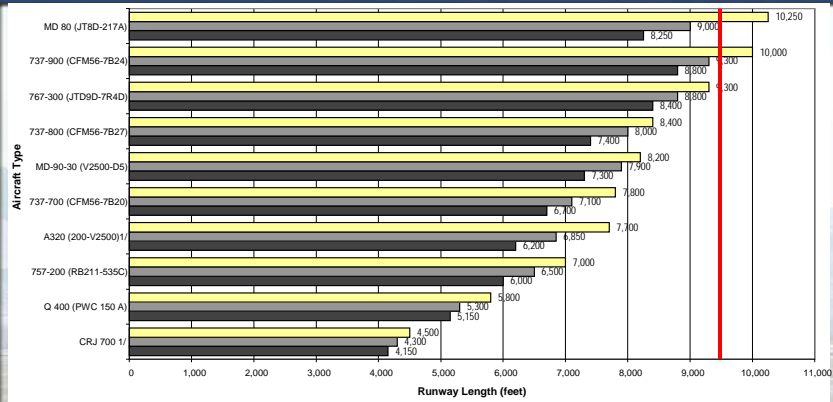
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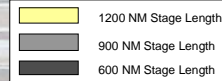
- ## Demand Capacity/Requirements
- Runway Capacity
 - Comparison of airport's ability to accommodate forecast demand
 - Identifies shortfalls to be remedied in the Alternatives Chapter
 - Hourly Capacity
 - Visual Flight Rules – 63 operations
 - Instrument Flight Rules – 56 operations
 - Annual capacity 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



- Runway length is adequate



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Master Plan Update & Other Services



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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)

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



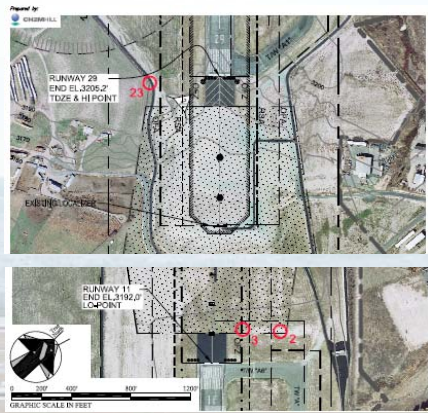
16



FAR Part 77

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- 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



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Terminal Requirements

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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



18



Status of Other Services

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & 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

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Next Steps

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



- 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

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MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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



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Schedule & Process

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

Concept Planning

```

    graph LR
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      B --> C[Preliminary Concepts]
      C --> D[Final Concept Plan]
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DEC JAN

Master Plan Update

```

    graph TD
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      F --> DC[Demand Capacity]
      DC --> A[Alternatives]
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Deliverables

Other Services

22



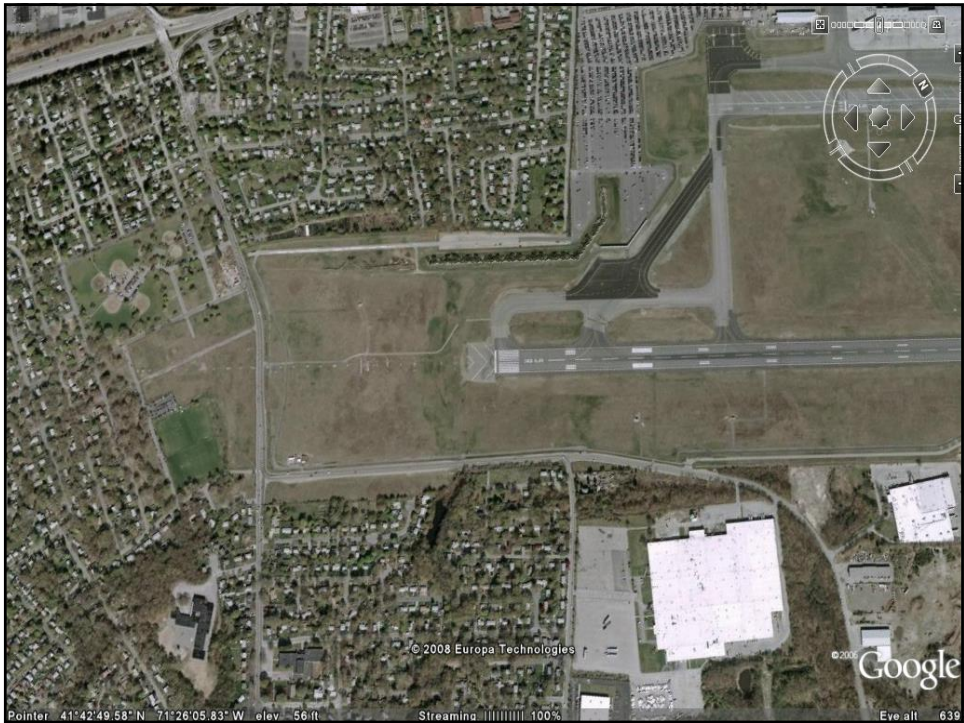
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Master Plan Update & Other Services

ADDITIONAL SLIDES






23







Summary of Peak Demand


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 Master Plan Update & Other Services

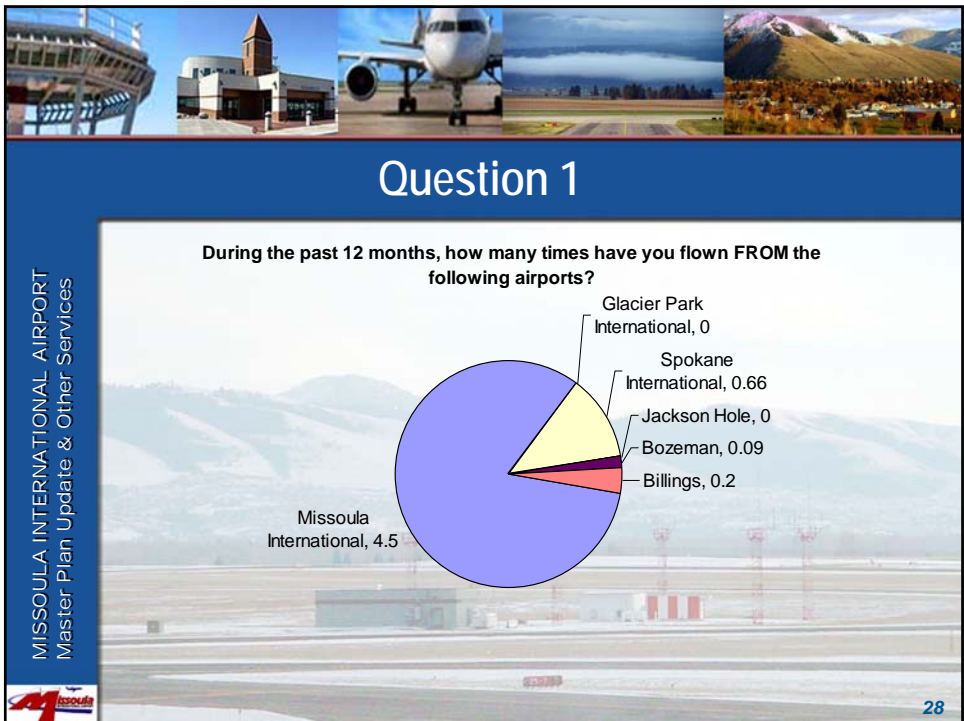
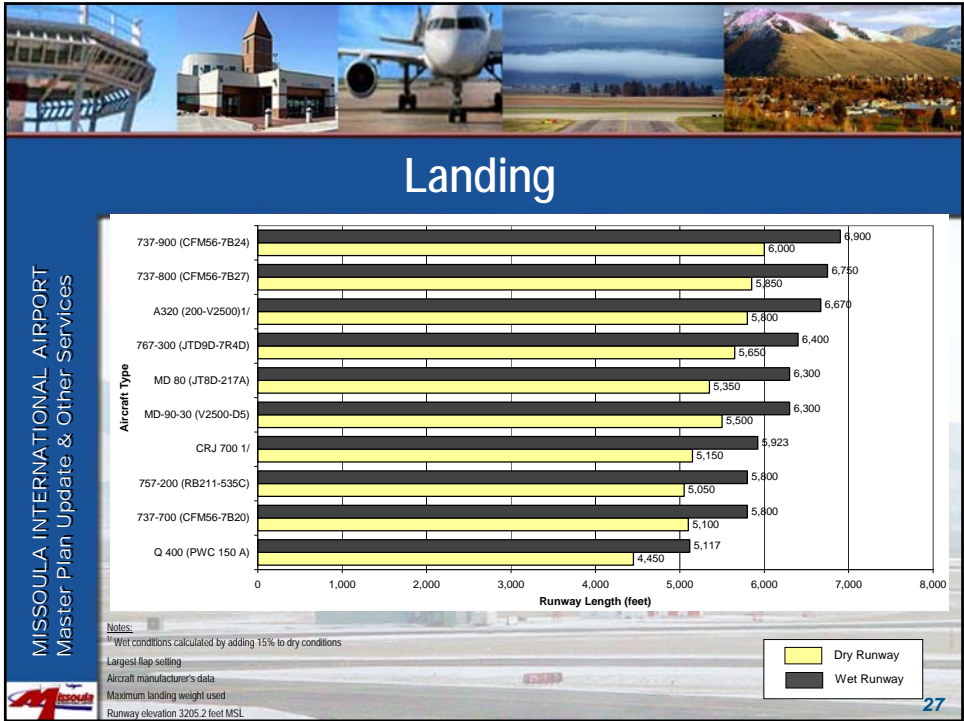
	Total Aircraft Operations			
Annual	66,596	56,859	61,395	68,908
Peak Month ¹	5,729	4,891	5,286	5,950
Peak Month Average Day (PMAD) ²	183	158	171	192
PMAD Peak Hour ³	15	14	15	18

¹ Based on data from 2002-2006, on average, the peak occurs in July and represents 9.3 percent of annual passenger aircraft operations.

² 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.

³ 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.


26





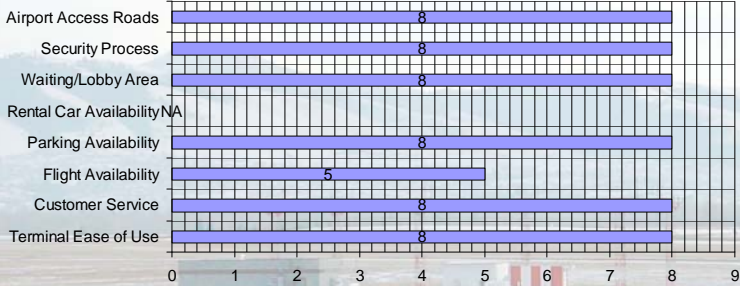
-
- Questions 3 & 4**
- What is your most frequent purpose of travel
 - Leisure: 48 percent
 - Business: 52 percent
 - Average number of people (besides yourself) who come to the airport when you are:
 - Picked up: one person
 - Dropped off: one person
- MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services
- 30



Question 5

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

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



Question 6

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

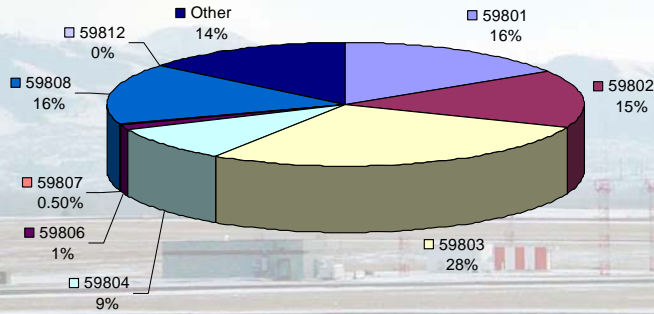
- Missoula is my
 - Primary residence: 99.50 percent
 - Secondary residence: .50 percent





Question 7

Please select your zip code in Missoula:



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



Appendix A6

Study Resource Committee Meeting Four – June 3, 2008



MISSOULA INTERNATIONAL AIRPORT

Master Plan Update & Other Services

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

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- 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



3



Schedule & Process – Progress to Date

Concept Planning

```

    graph LR
      A[Gross Requirements] --> B[Constraints and Range of Options]
      B --> C[Preliminary Concepts]
      C --> D[Final Concept Plan]
      D -.-> E[completed]
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      style E stroke-dasharray: 5 5
      
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DEC JAN

Master Plan Update

■ Deliverables

Other Services

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



4



Forecast Results – What's Changed?

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- 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

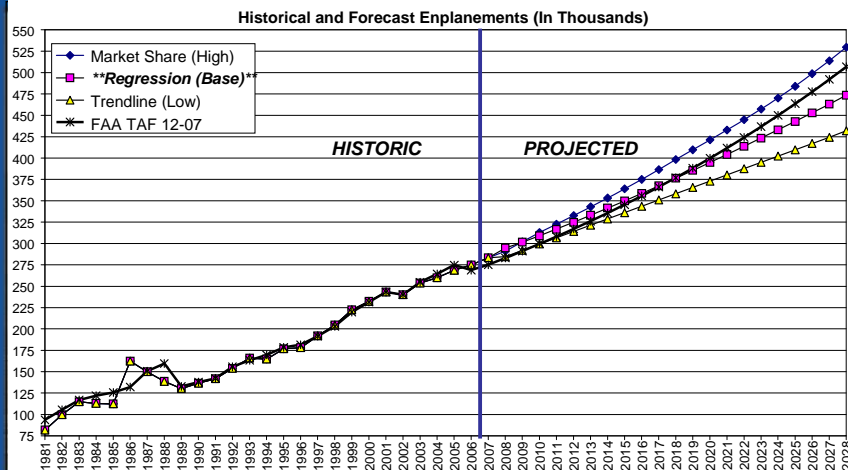


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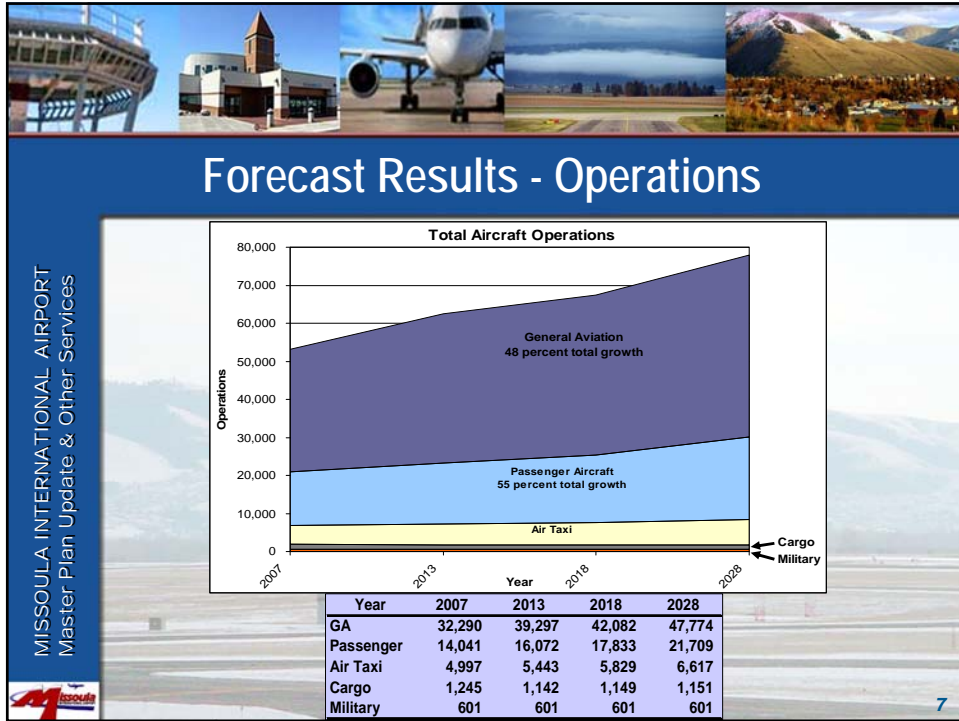


Forecast Results - Enplanements

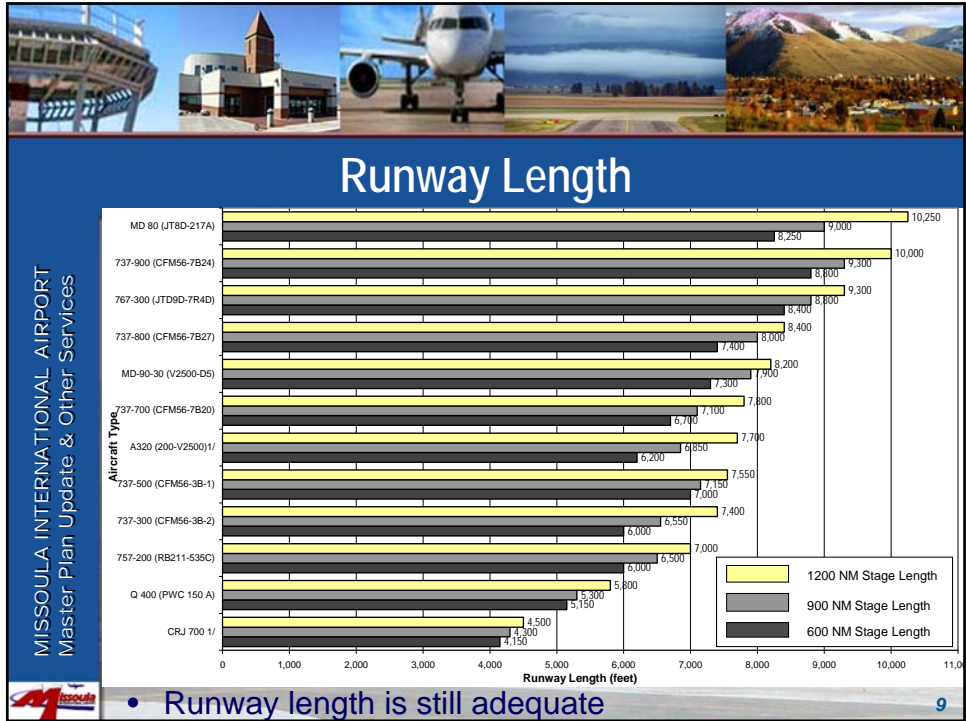
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6



-
- 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




-
- 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'
 - 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
 - Airport mostly compliant:
 - Vehicle service road (OFA)
 - Firing range buildings (RPZ)
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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

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Airfield Facility Requirements

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

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Terminal Facility Requirements

	Existing	2018	2028
GATES			
Total Gates	5	7	8
Additional RON Parking	0	2	2
Total Departure Lounge Area (SF)	8,617	11,500	12,600
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	5,280	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	7,489	11,600	13,200
Security Screening Lanes	2	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

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- 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

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5-DIG NAICS INDUSTRY	MANUFACTURING INDUSTRY	TOTAL SCORE	RANK	INDUSTRY CLUSTER
32541	Pharmaceutical and Medicine Manufacturing	17.12	1	Pharma/Bio
33911	Medical Equipment and Supplies Manufacturing	16.02	2	Pharma/Bio
33392	Material Handling Equipment Manufacturing	15.92	3	General Machinery, Equipment and Components
32732	Ready-Mix Concrete Manufacturing	15.03	4	Non-Metallic Minerals
33231	Plate Work and Fabricated Structural Product Manufacturing	14.96	5	Metals forming and fabrication
32621	Tire Manufacturing	14.85	6	Plastics & Rubber Manufacturing
33331	Commercial and Service Industry Machinery Manufacturing	14.83	7	General Machinery, Equipment and Components
32739	Other Concrete Product Manufacturing	14.70	8	Non-Metallic Minerals
33232	Ornamental and Architectural Metal Products Manufacturing	14.58	9	Metals forming and fabrication
32121	Veneer, Plywood, and Engineered Wood Product Manufacturing	13.93	10	Agricultural and Resources
5-DIG NAICS INDUSTRY	NON-MANUFACTURING INDUSTRIES	TOTAL SCORE	RANK	INDUSTRY CLUSTER
54162	Environmental Consulting Services	13.56	1	
51419	Other Information Services	12.80	2	
62133	Offices of Mental Health Practitioners (except Physicians)	12.79	3	Wholesalers
54172	Research and Development in the Social Sciences and Humanities	12.34	4	
54169	Other Scientific and Technical Consulting Services	12.26	5	
54151	Computer Systems Design and Related Services	12.23	6	
	Offices of Physical, Occupational and Speech Therapists, and			
62134	Audiologists	12.08	7	
54149	Other Specialized Design Services	12.05	8	
62121	Offices of Dentists	11.78	9	
56121	Facilities Support Services	11.72	10	

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Status of Other Services

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- 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

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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

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

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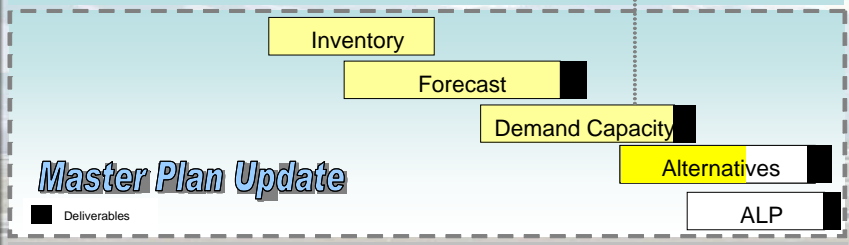
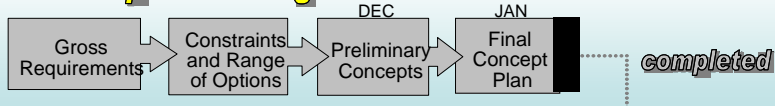
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Schedule & Process

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 Master Plan Update & Other Services

Concept Planning



Master Plan Update

Other Services



Appendix A7

Study Resource Committee Meeting Five – October 29, 2008



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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

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- 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

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- 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



3



Schedule & Process – Progress to Date

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Concept Planning


```

      graph LR
      A[Gross Requirements] --> B[Constraints and Range of Options]
      B --> C[Preliminary Concepts]
      C --> D[Final Concept Plan]
      
```

Master Plan Update

Deliverables

- Inventory
- Forecast
- Demand Capacity
- Alternatives
- ALP



Other Services

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Status of Master Plan Update

MISSOULA INTERNATIONAL AIRPORT
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- Previously completed:
 - complete Aviation Forecast
 - complete Airfield Demand Capacity and Facility Requirements
 - complete Terminal Demand Capacity and Facility Requirements
- Completed since last meeting:
 - draft Terminal Alternatives
 - draft Airfield Alternatives




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Status of Other Services

MISSOULA INTERNATIONAL AIRPORT
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- Previously completed:
 - complete Long-term Concept Sketch Plan
 - complete Aerial Photo
 - complete Environmental Compliance Assessment
 - complete Sample Utility Survey
- Completed since last meeting:
 - complete Landside Access Study
 - draft Nonaviation Development Study
 - draft Pavement Condition Evaluation




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Nonaviation Development Plan

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




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Nonaviation Development – Market Analysis Recap

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MANUFACTURING INDUSTRY
Pharmaceutical and Medicine Manufacturing
Medical Equipment and Supplies Manufacturing
Material Handling Equipment Manufacturing
Ready-Mix Concrete Manufacturing
Plate Work and Fabricated Structural Product Manufacturing
Tire Manufacturing
Commercial and Service Industry Machinery Manufacturing
Other Concrete Product Manufacturing
Ornamental and Architectural Metal Products Manufacturing
Veneer, Plywood, and Engineered Wood Product Manufacturing




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Nonaviation Development – Market Analysis Recap

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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



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Nonaviation Development

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- Development expected over long-term
- Access improvements needed first
- Utility improvements needed
- East and west access options were considered



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Nonavigation Conceptual Layout – Alt 1

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Nonavigation Conceptual Layout – Alt 3

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Nonaviation Development Conclusion

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- 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

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Terminal Facility Requirements Recap

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- 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

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Terminal Alternatives

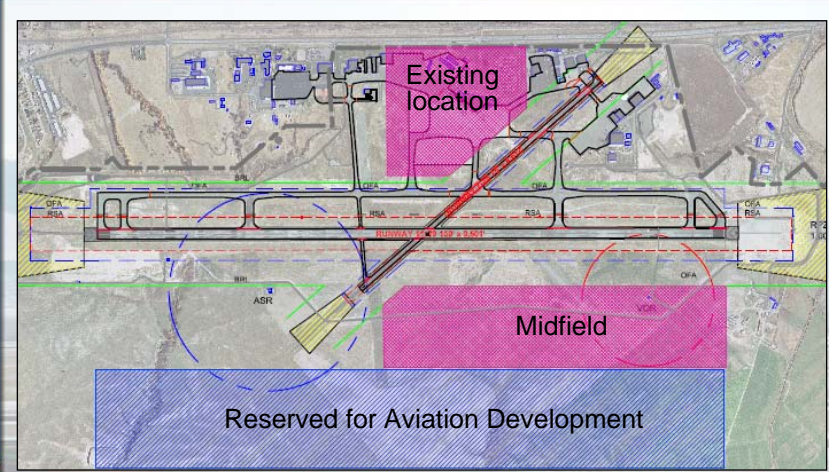
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- Purpose:
 - Long-range planning: reserve all options
 - Identify possible new terminal locations
- MCAA Focus
 - Maintain or enhance high level of customer service
 - Optimize air service by maintaining low operating costs (Low CPE)



Terminal Locations Evaluated

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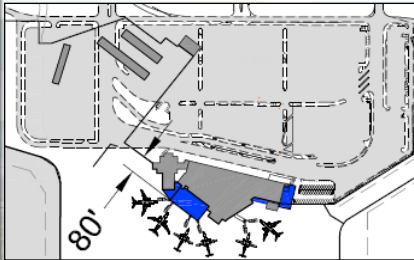


Terminal Alternatives Evaluated

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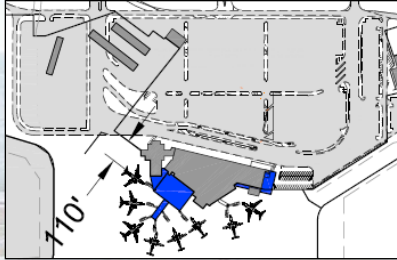
- Four terminal alternatives and one phasing option considered:

Alternative 1



80'


Alternative 1A




770'

LEGEND

- EXISTING TERMINAL
- PROPOSED TERMINAL

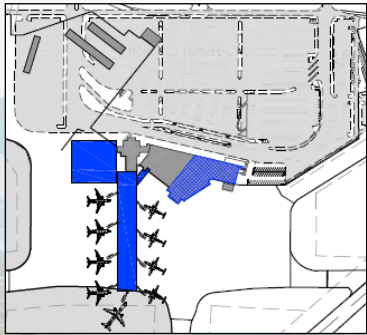

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Terminal Alternatives Evaluated

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Alternative 2





Alternative 3



LEGEND

- EXISTING TERMINAL
- UNUSED TERMINAL
- PROPOSED TERMINAL

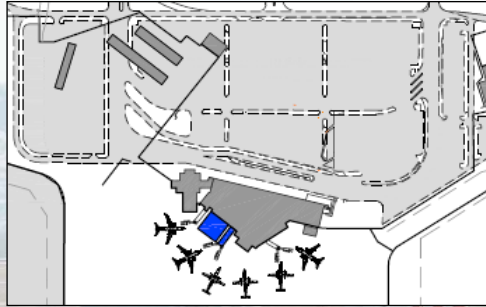

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Terminal Alternatives Evaluated

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Alternative 1(-) (Phasing Option)



LEGEND

EXISTING TERMINAL
 PROPOSED TERMINAL

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Potential Industry Scenarios

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Growth Rates IF:	Potential Industry Scenarios SUCH AS:	Facility Shortfalls EFFECT ON EXISTING FACILITIES:	What Alternatives Work with the Scenario THEN IMPLEMENT:	What Alternatives Do Not Work with the Scenario DO NOT IMPLEMENT:
High Growth	New Entrants	<ul style="list-style-type: none"> • Ticket counter • Ticket lobby • Baggage claim unit • Baggage offload • Airline operations area • Secure concessions • Hold rooms • Security 	<p>Alternative 3</p> <ul style="list-style-type: none"> • Provides most long-term flexibility • Better building layout than existing terminal • Highest level of customer service <p>Alternative 2</p> <ul style="list-style-type: none"> • Provides some long-term flexibility • Uses existing terminal • More disruptive than Alternative 3 	<p>Alternative 1</p> <ul style="list-style-type: none"> • Capacity shortfall in gates, baggage handling area, airline operations area, holding room, etc. • Significant disruption of airline operations during construction <p>Alternative 1A</p> <ul style="list-style-type: none"> • Capacity shortfall in gates, baggage handling area, airline operations area, holding room, etc. • Significant disruption of airline operations during construction

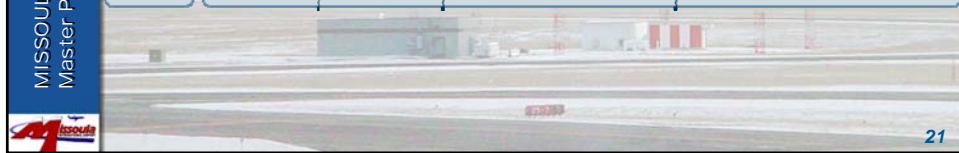
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Potential Industry Scenarios

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Growth Rates IF:	Potential Industry Scenarios SUCH AS:	Facility Shortfalls EFFECT ON EXISTING FACILITIES:	What Alternatives Work with the Scenario THEN IMPLEMENT:	What Alternatives Do Not Work with the Scenario DO NOT IMPLEMENT:
Moderate Growth	Smaller Aircraft	<ul style="list-style-type: none"> Number of gates Baggage claim units Baggage office Airline operations area Secure concessions 	<p>Alternative 1</p> <ul style="list-style-type: none"> Fulfills maximum expansion requirements Provides an increase in the number of gates No expansion potential beyond the six gates <p>Alternative 1A</p> <ul style="list-style-type: none"> Provides a small increase in passenger LOG Fulfills minimum expansion requirements, and Provides an increase in the number of gates to 2026 Implementation can be phased 	<p>Alternative 3</p> <ul style="list-style-type: none"> Creates excess space above demand, including gates Highest capital costs Cannot be implemented in phases <p>Alternative 2</p> <ul style="list-style-type: none"> Creates excess space above demand, including gates Highest capital costs Longest implementation time High O&M costs Baggage claim limited long-term High level of passenger disruption Reuse of current building


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Potential Industry Scenarios

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Growth Rates IF:	Potential Industry Scenarios SUCH AS:	Facility Shortfalls EFFECT ON EXISTING FACILITIES:	What Alternatives Work with the Scenario THEN IMPLEMENT:	What Alternatives Do Not Work with the Scenario DO NOT IMPLEMENT:
Organic Growth	Consolidation	<ul style="list-style-type: none"> Baggage claim units Baggage office Airline operations area Secure concessions 	<p>Alternative 1</p> <ul style="list-style-type: none"> Fulfills minimum expansion requirements Does not create uneasable terminal area 	<p>Alternative 3</p> <ul style="list-style-type: none"> Creates excess space above demand, including gates High capital costs Cannot be implemented in phases <p>Alternative 2</p> <ul style="list-style-type: none"> Creates excess space above demand, including gates High capital costs Longest implementation time High O&M costs Baggage claim limited in long term High level of passenger disruption Reuse of current building <p>Alternative 1A</p> <ul style="list-style-type: none"> Constructs excess gates above demand Significant disruption of airline operations during construction


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Potential Industry Scenarios

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Growth Rates IF:	Potential Industry Scenarios SUCH AS:	Facility Shortfalls EFFECT ON EXISTING FACILITIES:	What Alternatives Work with the Scenario THEN IMPLEMENT:	What Alternatives Do Not Work with the Scenario DO NOT IMPLEMENT:
	Larger Aircraft	<ul style="list-style-type: none"> • Ticket counter • Baggage claim units • Baggage offload • Airline operations area • Secure concessions • Hold rooms • Security 	Alternative 1 <ul style="list-style-type: none"> • Fulfills minimum expansion requirements • Provides an increase in the number of gates • No expansion potential beyond the six gates 	Alternative 3 <ul style="list-style-type: none"> • Creates excess space above demand, including gates • Highest capital costs • Cannot be implemented in phases Alternative 2 <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High capital costs • Longest implementation time • High O&M costs • Baggage claim limited in long term • High level of passenger disruption • Reuse of current building Alternative 1A <ul style="list-style-type: none"> • Constructs excess gates above demand • Significant disruption of airline operations during construction


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Potential Industry Scenarios

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Growth Rates IF:	Potential Industry Scenarios SUCH AS:	Facility Shortfalls EFFECT ON EXISTING FACILITIES:	What Alternatives Work with the Scenario THEN IMPLEMENT:	What Alternatives Do Not Work with the Scenario DO NOT IMPLEMENT:
No Growth/ Baseline	Loss of Carrier (assumed temporary) No Change/ Existing Conditions	<ul style="list-style-type: none"> • baggage claim units • Baggage offload • Airline operations area • Secure concessions 	Alternative 1 <ul style="list-style-type: none"> • Fulfills minimum expansion requirements • Does not create unusable terminal area 	Alternative 3 <ul style="list-style-type: none"> • Creates excess space above demand, including gates Alternative 2 <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High level of passenger disruption • Reuse of current building Alternative 1A <ul style="list-style-type: none"> • Constructs excess gates above demand • Significant disruption of airline operations during construction



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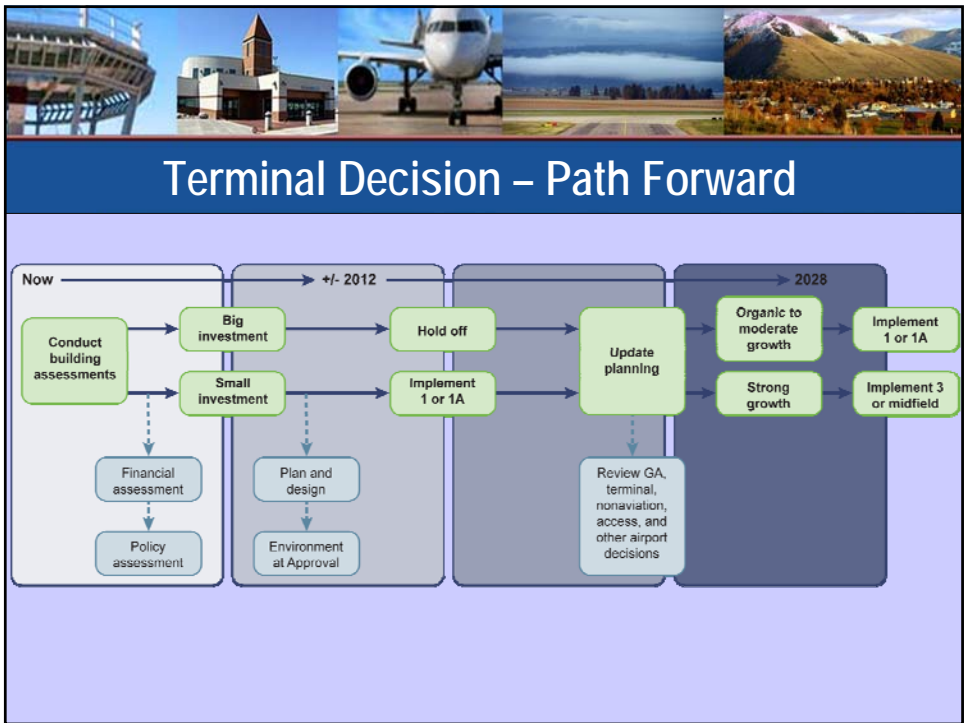



Preferred Terminal Development

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- 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


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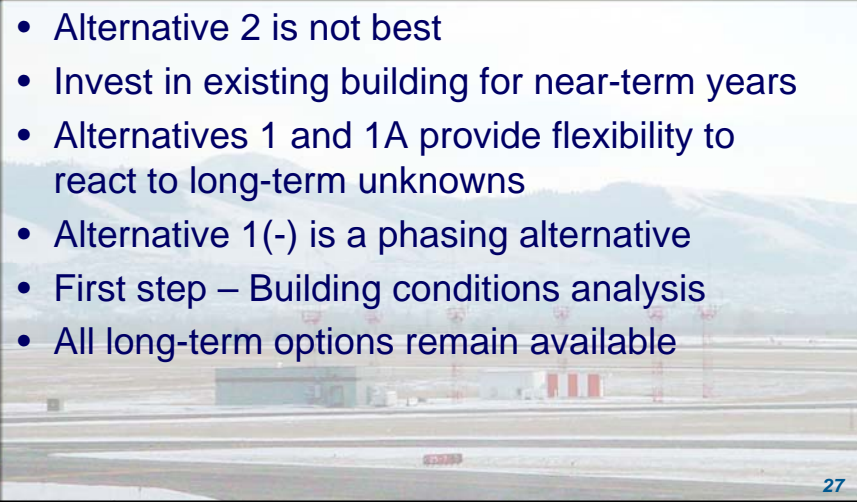





Terminal Conclusion

- 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

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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

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Airfield Future Requirements Recap

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- 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

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Design & EB 75 Taxiway Inconsistencies

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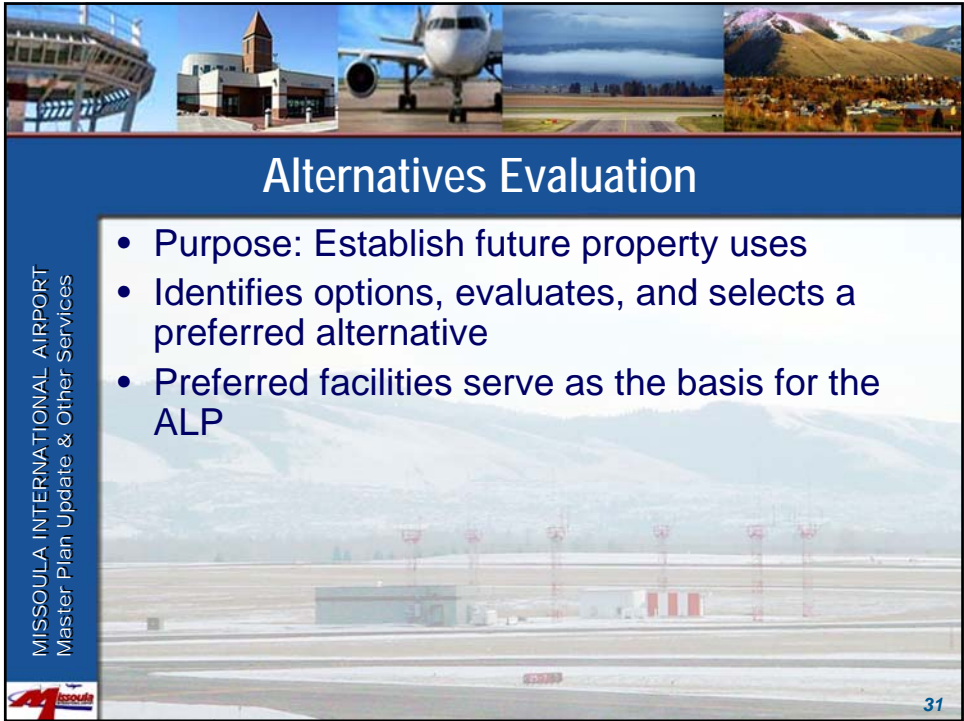


- Purpose: Operationally efficient, enhance safety, circulation, and capacity

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KEY	
—	Design Standard - Existing pavement
○	EB-75 Inconsistency - Existing pavement



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Alternatives Evaluation

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

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Potential GA Development

LEGEND

- EXISTING FENCE
- FUTURE FENCE
- LONG-TERM GA DEVELOPMENT
- SHORT-TERM GA DEVELOPMENT
- FUTURE PAVEMENT

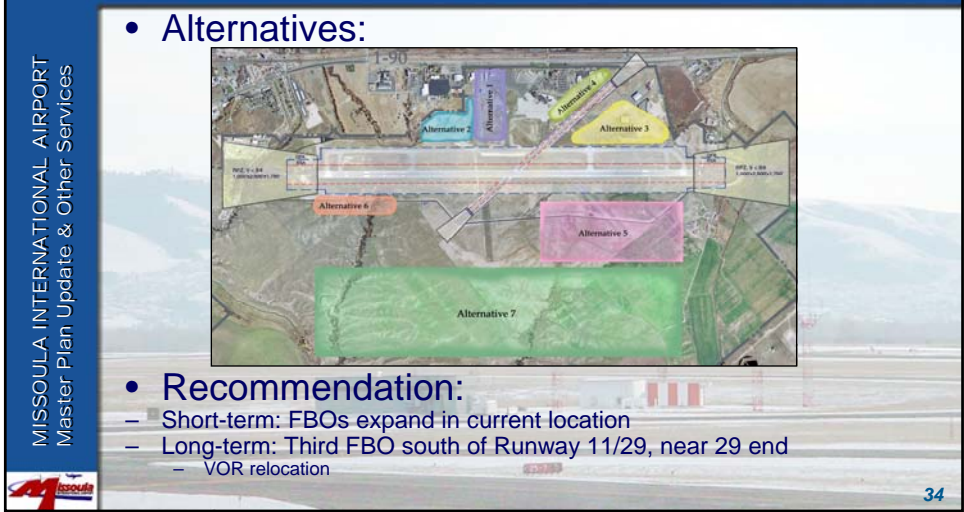
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Potential GA Development



GA Expansion/Potential Third FBO





Fuel Farm Expansion

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- 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



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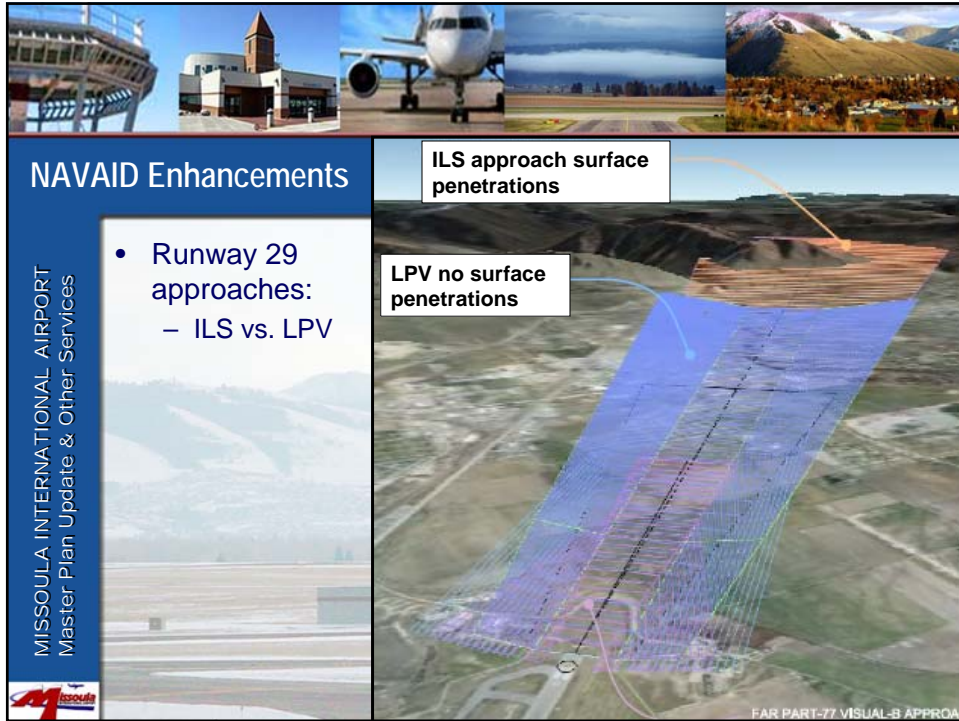
NAVAIDs Enhancement

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- 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



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NAVAID Enhancements

- Runway 29 approaches:
 - ILS vs. LPV

ILS approach surface penetrations

LPV no surface penetrations

FAR PART-77 VISUAL-B APPROACH

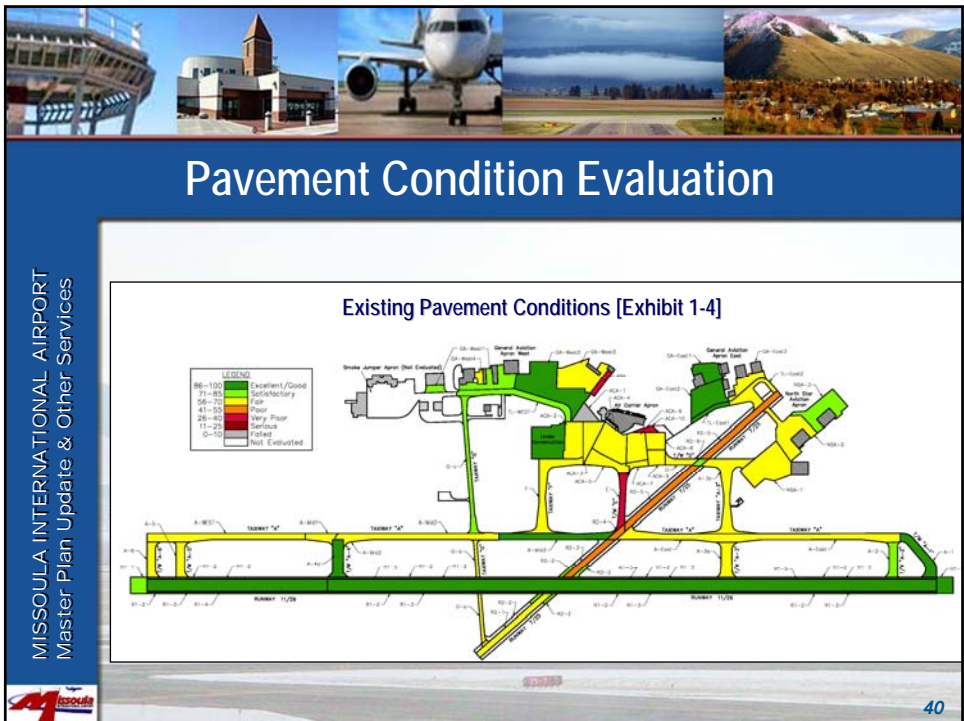
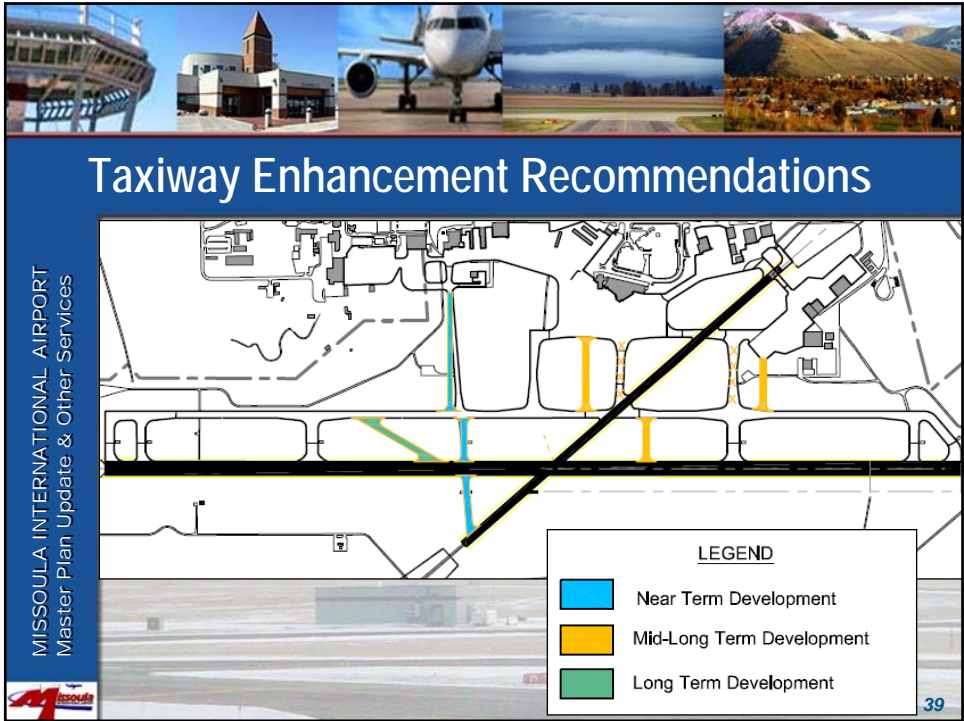


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Taxiway Enhancements

- 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)

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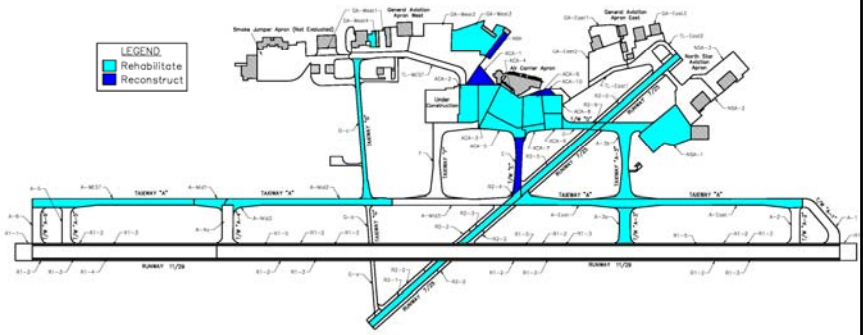




Pavement Condition Evaluation

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



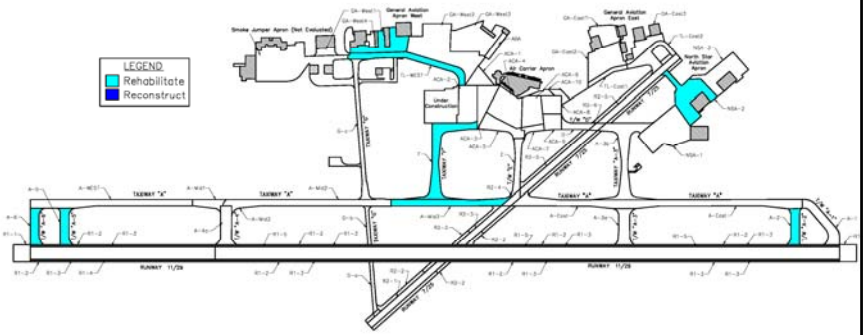
41



Pavement Condition Evaluation

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

Medium-Term (6-10 years) Capital Improvements Program

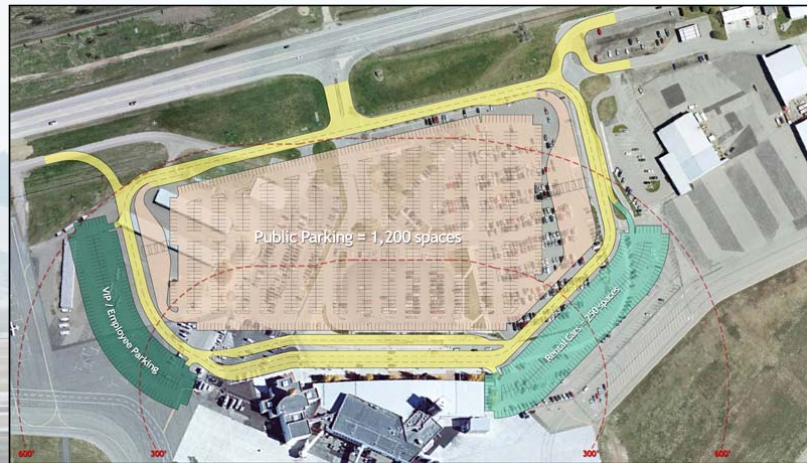


42



Landside Access Study – Preferred Layout

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



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Status of Master Plan Update Services

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- Previously completed:
 - complete Aviation Forecast
 - complete Airfield Demand Capacity and Facility Requirements
 - complete Terminal Demand Capacity and Facility Requirements
- Completed since last meeting:
 - draft Terminal Alternatives
 - draft Airfield Alternatives



44



Status of Other Services

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



- Previously completed:
 - complete Long-term Concept Sketch Plan
 - complete Aerial Photo
 - complete Environmental Compliance Assessment
 - complete Sample Utility Survey
- Completed since last meeting:
 - complete Landside Access Study
 - draft Nonaviation Development Study
 - draft Pavement Condition Evaluation

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Next Steps

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



- 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

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MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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



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Schedule & Process

Concept Planning

```

    graph LR
      A[Gross Requirements] --> B[Constraints and Range of Options]
      B --> C[Preliminary Concepts]
      C --> D[Final Concept Plan]
  
```

Master Plan Update

Deliverables

- Inventory
- Forecast
- Demand Capacity
- Alternatives
- ALP

Other Services

48



Terminal Facility Requirements Recap

	Existing	2018	2028
GATES			
Total Gates	5	7	8
Additional RON Parking	0	2	2
Total Departure Lounge Area (SF)	8,617	11,500	12,600
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	5,280	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	7,489	11,600	13,200
Security Screening Lanes	2	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

Terminal Alternatives Evaluated

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- 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

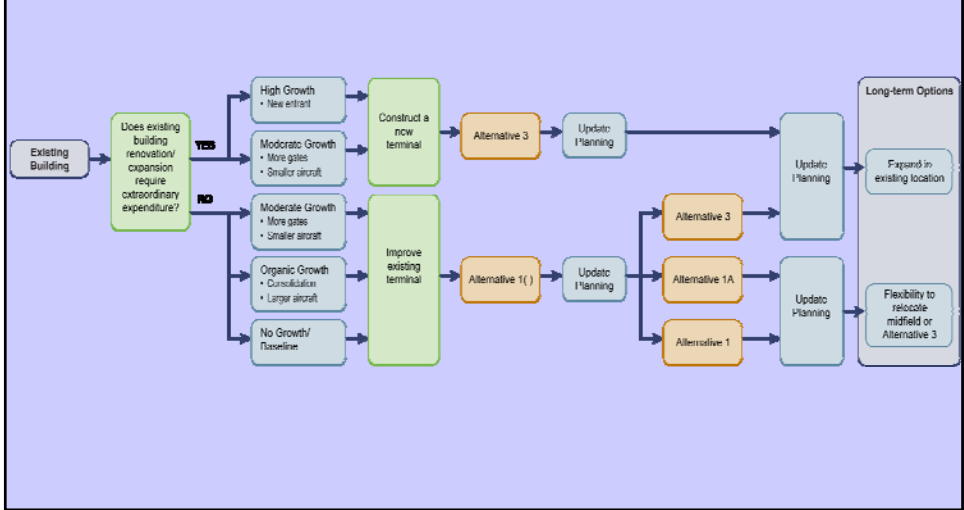
51

Potential Industry Scenarios and Alternatives

Demand Scenario	Projected Industry Scenario SUCH AS:	Existing Shortfalls IMPACT OR ECONOMY FACTORS	Which Alternatives Work with this Scenario THIS OR THESE:	Which Alternatives Do Not Work with this Scenario DO NOT WORK:
High Growth	New Entrants	<ul style="list-style-type: none"> • Ticket counter • Ticketability • Baggage claim units • Passenger offset • Arrive concourse area • Secure concourses • Retail space • Security 	<p>Alternative 3</p> <ul style="list-style-type: none"> • Provide good long term flexibility • Delay building until the existing terminal is beyond reach of customer option <p>Alternative 2</p> <ul style="list-style-type: none"> • Provide area for long term flexibility • Lower existing terminal • New structure than Alternative 3 	<p>Alternative 1</p> <ul style="list-style-type: none"> • Cannot provide for gates, baggage handling area, arrive concourse area, holding room, etc. • Significant disruption of air traffic operations during construction <p>Alternative 1A</p> <ul style="list-style-type: none"> • Cannot provide for gates, baggage handling area, arrive concourse area, holding room, etc. • Significant disruption of air traffic operations during construction
Moderate Growth	Smaller Aircraft	<ul style="list-style-type: none"> • Number of gates • Baggage claim units • Passenger offset • Arrive concourse area • Secure concourses 	<p>Alternative 1</p> <ul style="list-style-type: none"> • Little minimum expansion requirements • Possible to increase the number of gates • No expansion possible beyond the 4th gate <p>Alternative 1A</p> <ul style="list-style-type: none"> • Provide needed increase in passenger OAG • Fulfills minimum expansion requirements, and • Provides an increase in the number of gates to 2028 • Implementation can be phased 	<p>Alternative 3</p> <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High capital costs • Cannot be implemented in phases <p>Alternative 2</p> <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High capital costs • Longest implementation time • High OAG costs • Passenger claim limited in long term • High level of passenger disruption • Phase of current building
Organic Growth	Consolidation	<ul style="list-style-type: none"> • Baggage claim units • Arrive concourse area • Secure concourses 	<p>Alternative 1</p> <ul style="list-style-type: none"> • Fulfills minimum expansion requirements • Does not create unusable terminal area 	<p>Alternative 3</p> <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High capital costs • Cannot be implemented in phases <p>Alternative 2</p> <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High capital costs • Longest implementation time • High OAG costs • Passenger claim limited in long term • High level of passenger disruption • Phase of current building <p>Alternative 1A</p> <ul style="list-style-type: none"> • Creates excess space above demand • Significant disruption of air traffic operations during construction
	Larger Aircraft	<ul style="list-style-type: none"> • Ticket counter • Baggage claim units • Passenger offset • Arrive concourse area • Secure concourses • Retail space • Security 	<p>Alternative 1</p> <ul style="list-style-type: none"> • Fulfills minimum expansion requirements • Possible to increase the number of gates • No expansion possible beyond the 4th gates 	<p>Alternative 3</p> <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High capital costs • Cannot be implemented in phases <p>Alternative 2</p> <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High capital costs • Longest implementation time • High OAG costs • Passenger claim limited in long term • High level of passenger disruption • Phase of current building <p>Alternative 1A</p> <ul style="list-style-type: none"> • Creates excess space above demand • Significant disruption of air traffic operations during construction
No Demand/Decline	Loss of Carrier (Eventual/Temporary)	<ul style="list-style-type: none"> • Baggage claim units • Passenger offset • Arrive concourse area • Secure concourses 	<p>Alternative 1</p> <ul style="list-style-type: none"> • Fulfills minimum expansion requirements • Does not create unusable terminal area 	<p>Alternative 3</p> <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High level of passenger disruption • Phase of current building <p>Alternative 2</p> <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High level of passenger disruption • Phase of current building <p>Alternative 1A</p> <ul style="list-style-type: none"> • Creates excess space above demand • Significant disruption of air traffic operations during construction
	No Change/Existing Conditions	<ul style="list-style-type: none"> • Baggage claim units • Passenger offset • Arrive concourse area • Secure concourses 	<p>Alternative 1</p> <ul style="list-style-type: none"> • Fulfills minimum expansion requirements • Does not create unusable terminal area 	<p>Alternative 3</p> <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High level of passenger disruption • Phase of current building <p>Alternative 2</p> <ul style="list-style-type: none"> • Creates excess space above demand, including gates • High level of passenger disruption • Phase of current building <p>Alternative 1A</p> <ul style="list-style-type: none"> • Creates excess space above demand • Significant disruption of air traffic operations during construction



Terminal Decision Flowchart



Taxiway Utilization

Distance from Threshold to Exit	Wet Runways		Dry Runways	
	Right and Acute Angled Exits		Right Angled Exits	Acute Angled Exits
	0 ft	0	0	0
500 ft	0	0	0	
1,000 ft	0	0	0	
1,500 ft	0	0	0	
2,000 ft	0	1	1	
2,500 ft	1	10	10	
3,000 ft	10	30	40	
3,500 ft	41	81	82	
4,000 ft	80	98	98	
4,500 ft	97	100	100	
5,000 ft	100	100	100	
5,500 ft	100	100	100	
6,000 ft	100	100	100	
6,500 ft	100	100	100	
7,000 ft	100	100	100	
7,500 ft	100	100	100	
8,000 ft	100	100	100	
8,500 ft	100	100	100	
9,000 ft	100	100	100	

Distance from Threshold to Exit	Wet Runways		Dry Runways	
	Right and Acute Angled Exits		Right Angled Exits	Acute Angled Exits
	0 ft	0	0	0
500 ft	0	0	0	
1,000 ft	0	0	0	
1,500 ft	0	0	0	
2,000 ft	0	0	0	
2,500 ft	0	0	0	
3,000 ft	0	0	0	
3,500 ft	0	2	9	
4,000 ft	1	8	26	
4,500 ft	4	24	51	
5,000 ft	12	49	76	
5,500 ft	27	75	92	
6,000 ft	48	92	98	
6,500 ft	71	98	100	
7,000 ft	88	100	100	
7,500 ft	97	100	100	
8,000 ft	100	100	100	
8,500 ft	100	100	100	
9,000 ft	100	100	100	

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

Source: FAA AC 150/5300-13, Change 12, Airport Design
Prepared By: CH2M HILL, 2008
Category B - Small twin-engine - 12,500 lbs or less.

Source: FAA AC 150/5300-13, Change 12, Airport Design
Prepared By: CH2M HILL, 2008
Category C - Large Aircraft - 12,500 lbs to 300,000 lbs.

Appendix A8

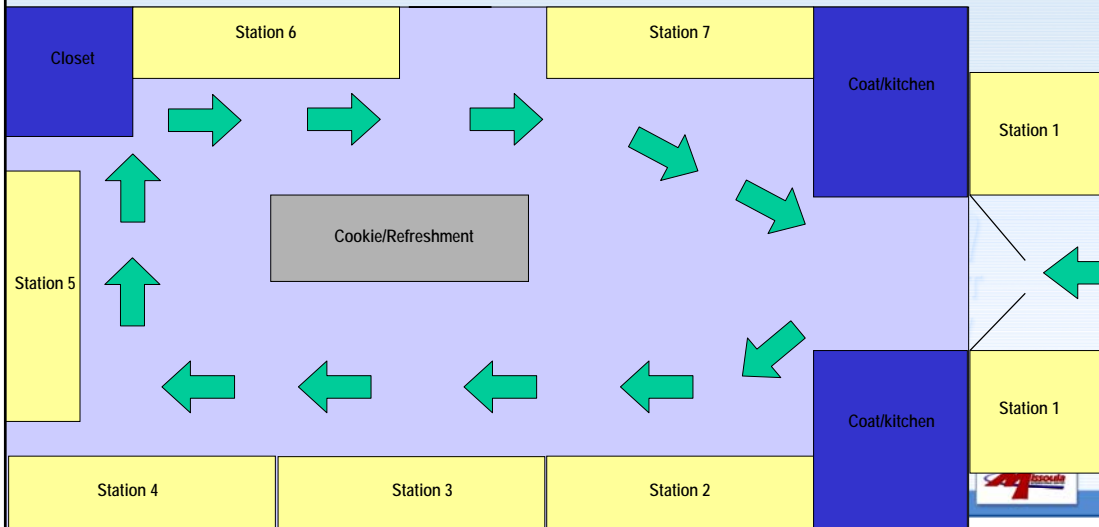
Public Outreach Meeting One of Two – June 3, 2008

MISSOULA INTERNATIONAL AIRPORT Master Plan Update & Other Services Public Outreach Meeting One of Two

June 3, 2008



Meeting Layout



STATION 1

About the Airport Master Plan



CH2MHILL

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

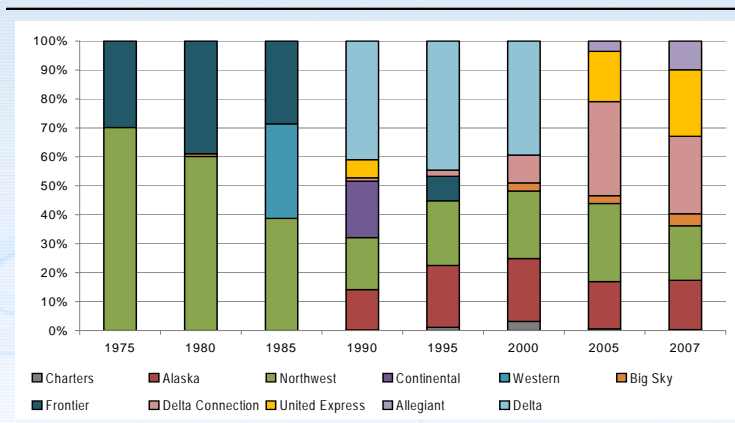


Chamber of Commerce Survey Results

- 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.
Prepared by: UCG Associates, Inc.

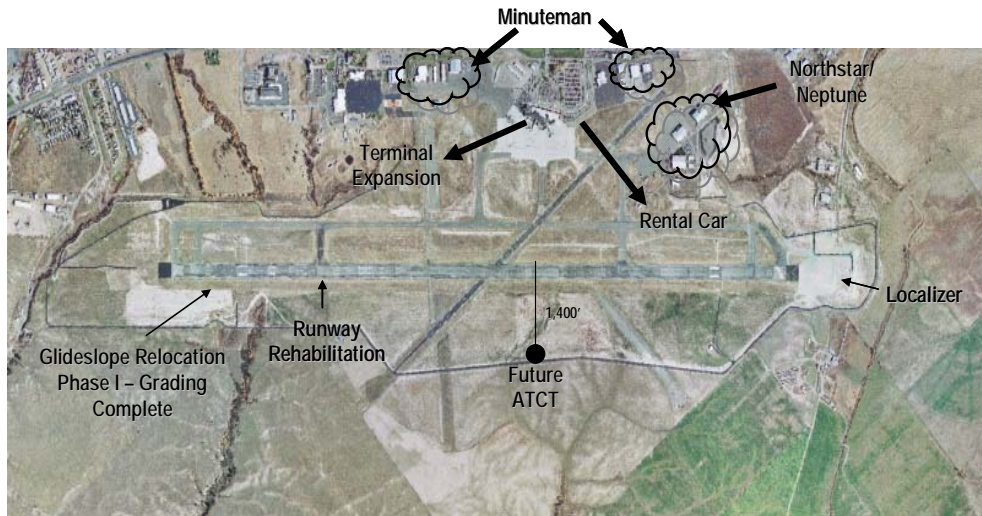


Exhibits

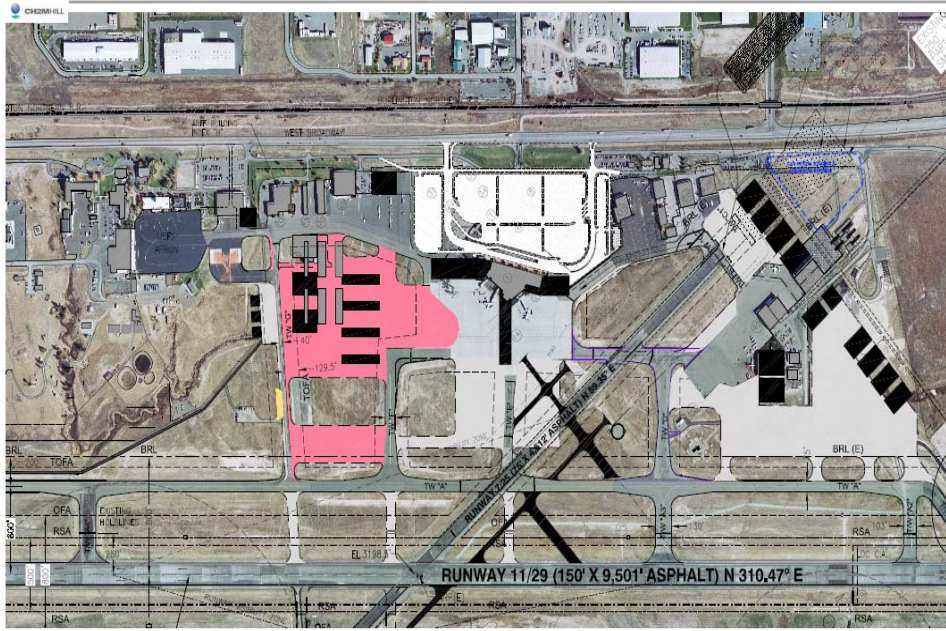
- Aerial, with the following items highlighted:
 - Proposed new tower location
 - Recent terminal expansion
 - Runway rehabilitation
 - Relocated localizer and glideslope
 - Existing FBO locations
 - Existing rental car facilities
- Existing ALP – Separate slide
- Terminal ALP – Separate slide



MSO Aerial



Future Terminal Area ALP



CH2MHILL

How MSO Compares...

Rank	ST	Airport Name	2006 Boardings	% Change (05 to 06)
71	ID	Boise Air Terminal/Gowen Field	1,656,677	4.76%
73	WA	Spokane International	1,605,069	1.35%
143	MT	Gallatin Field	318,115	-5.47%
151	MI	Capital City	286,358	-8.98%
155	MT	Missoula International	276,170	1.72%
156	WY	Jackson Hole	274,031	10.89%
158	FL	Daytona Beach International	262,503	-11.78%
185	MT	Glacier Park International	175,157	-9.01%
222	MT	Helena Regional	87,958	-5.63%
283	MT	Bert Mooney	37,635	-11.97%

Source: FAA Passenger boarding and all-cargo data.
Prepared by: CH2M HILL, 2008



Rank	ST	Airport Name	2006 Boardings	% Change (05 to 06)
133	MT	Billings Logan International	403,645	-0.19%
143	MT	Gallatin Field	318,115	-5.47%
155	MT	Missoula International	276,170	1.72%
185	MT	Glacier Park International	175,157	-9.01%
200	MT	Great Falls International	139,362	-11.15%
222	MT	Helena Regional	87,958	-5.63%
283	MT	Bert Mooney	37,635	-11.97%
478	MT	Sidney-Richland Municipal	4,771	-64.60%
496	MT	Yellowstone	4,031	-7.80%

Source: FAA Passenger boarding and all-cargo data.
Prepared by: CH2M HILL, 2008



STATION 3

Expected Future Air Traffic



CH2MHILL

Forecasting Factors

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

Employment by Generalized Sector and Projected Change, Air

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

Employment is in thousands of jobs

Source: NPA Data Services, Inc.

Prepared by: UCG Associates, Inc.

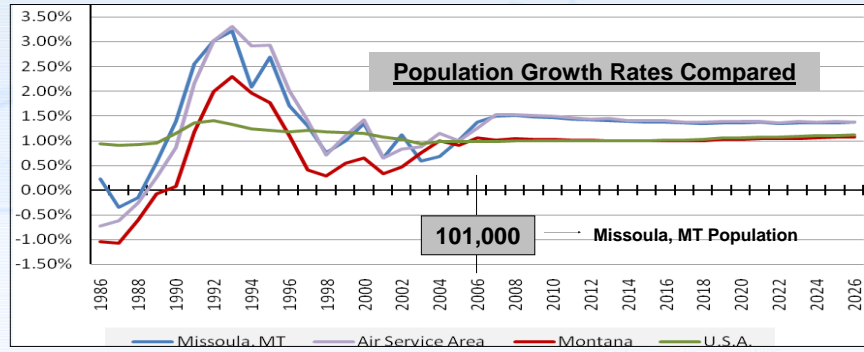


Forecasting Factors (continued)

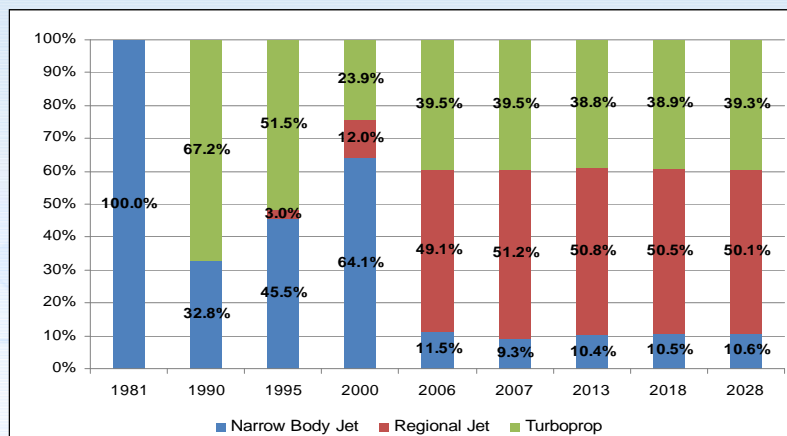
	Missoula	Service Area	U.S.
Population Growth (2006-2016)	15.30%	15.63%	10.36%
Per Capita Income	\$28,062	\$21,650	\$31,652
Income Growth (2006-2016)	13.74%	10.61%	17.87%
Regional Unemployment (2006)	2.90%	4.82%	4.60%

Source: Forecast

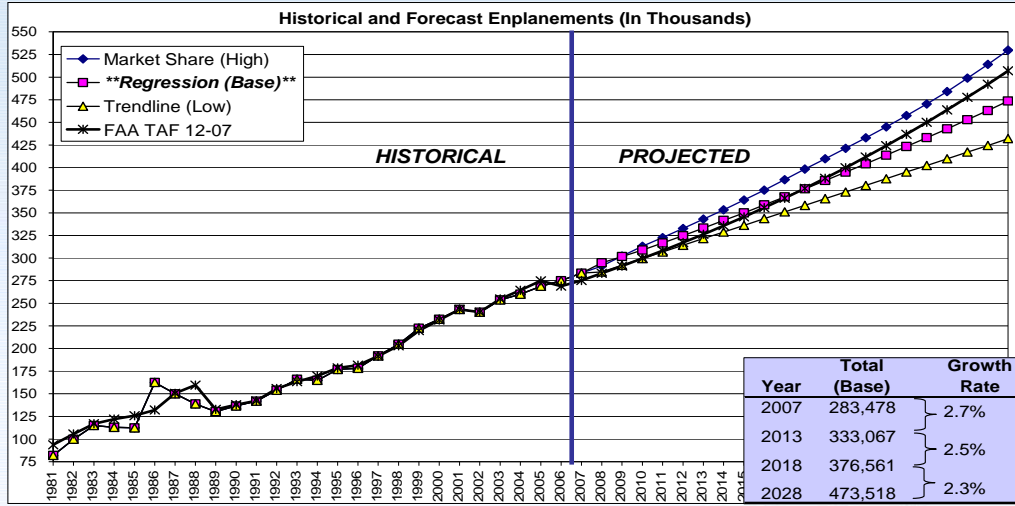
Prepared by: CH2M HILL, 2008



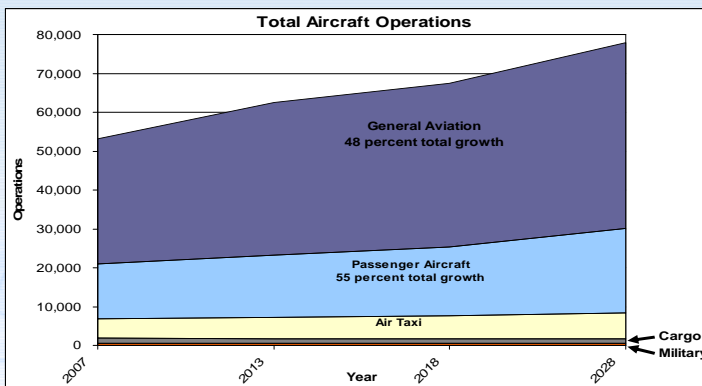
Historic & Projected Aircraft Fleet Mix



Historical & Forecast Enplaned Passengers



Forecast Aircraft Operations



Year	2007	2013	2018	2028
GA	32,290	39,297	42,082	47,774
Passenger	14,041	16,072	17,833	21,709
Air Taxi	4,997	5,443	5,829	6,617
Cargo	1,245	1,142	1,149	1,151
Military	601	601	601	601



STATION 4

Future Airport Needs



CH2MHILL

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

	Existing	2018	2028
GATES			
Total Gates	5	7	8
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Total Departure Lounge Area (SF)	8,617	11,500	12,600
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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			



GA Requirements

- FBO expansion (current FBOs)
 - Hangars
 - Apron area
- T-Hangar replacement & growth
- Potential for a 3rd FBO exists



STATION 5

Master Plan Decisions Made to Date



CH2MHILL

GA Development – Short Term



Airport Parking and Access Layout

Interim →



Long Term →



CH2MHILL

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



STATION 6

Next Steps and Opportunity for Public Input



CH2MHILL

Options to be Evaluated

- Terminal growth
 - Expand existing building vs. replacement building
 - If replacement, where and when?
- GA 2028 expansion
- Taxiway enhancements
- Other



STATION 7

Thank You!



CH2MHILL

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



Appendix A9

Public Outreach Meeting Two of Two – October 29, 2008



MISSOULA INTERNATIONAL AIRPORT

Master Plan Update & Other Services

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



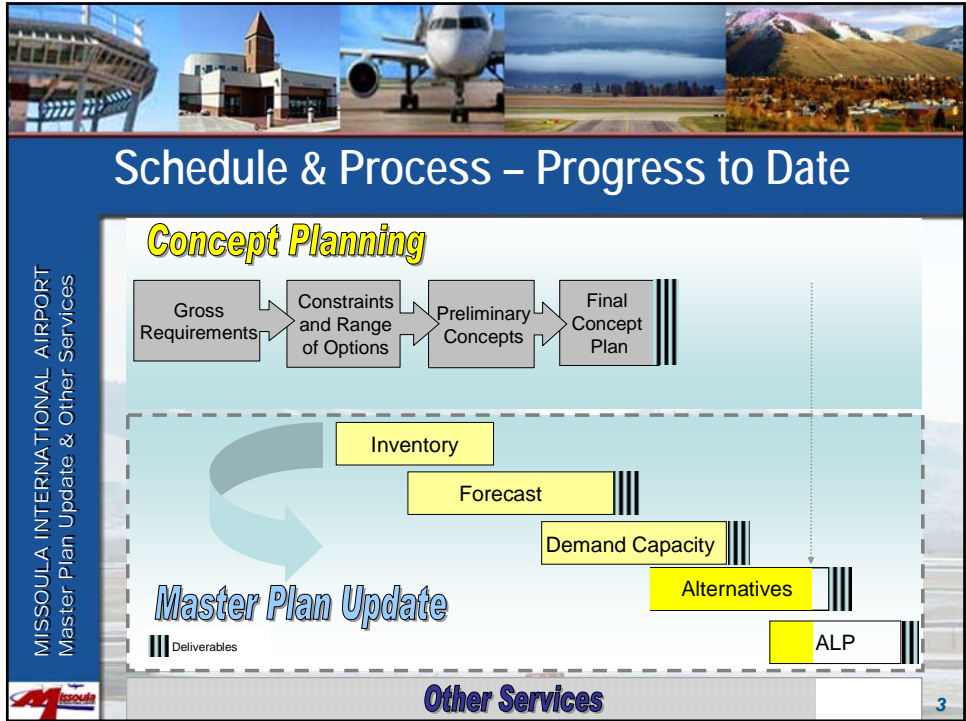
What is a Master Plan?

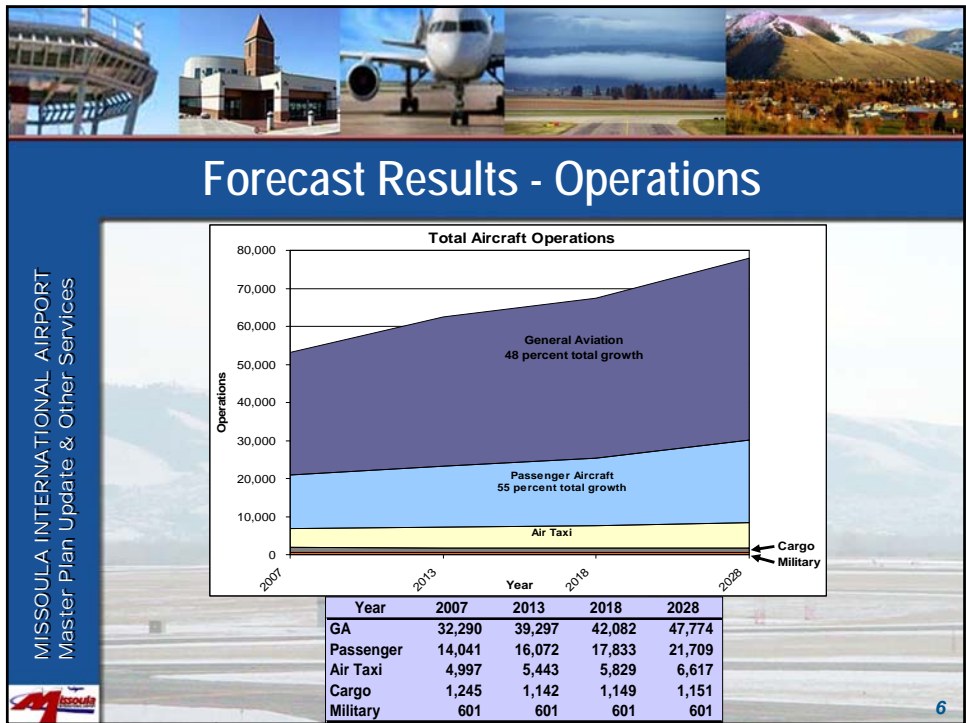
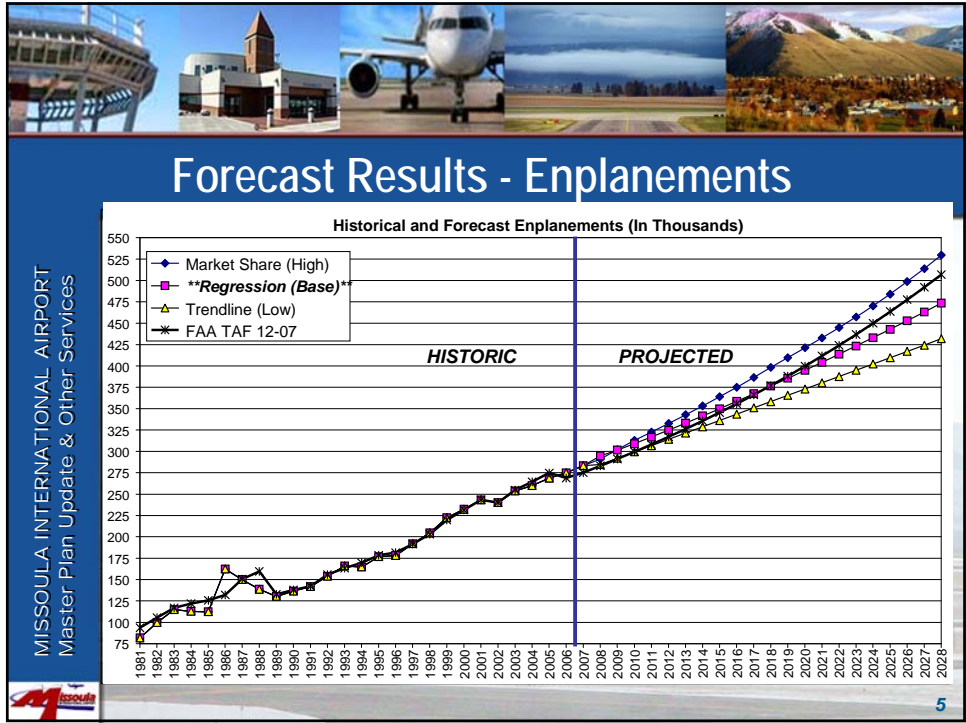
- Long-term, 20 year horizon
- A plan is just a plan:
 - Projects will only be pursued if justified by demand
 - Subject to environmental and financial justification
- Updated every 5-10 years
- FAA approves forecast and ALP

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



2







Demand Capacity/Requirements

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

- 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



7



Airfield Facility Requirements

MISSOULA INTERNATIONAL AIRPORT
 Master Plan Update & Other Services

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



8



Terminal Facility Requirements Recap

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

- 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



9



Alternatives Evaluation

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services

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

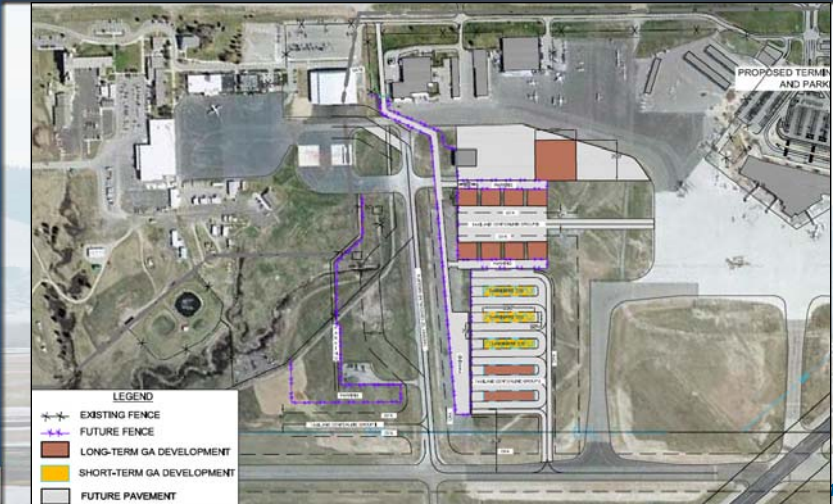


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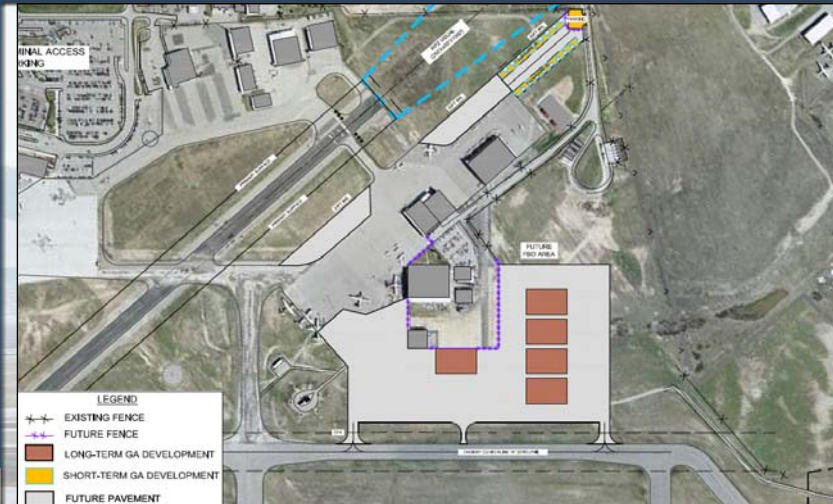
Potential GA Development


MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services



Potential GA Development


MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services






NAVAIDs Enhancement

MISSOULA INTERNATIONAL AIRPORT
Master Plan Update & Other Services




- 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

13

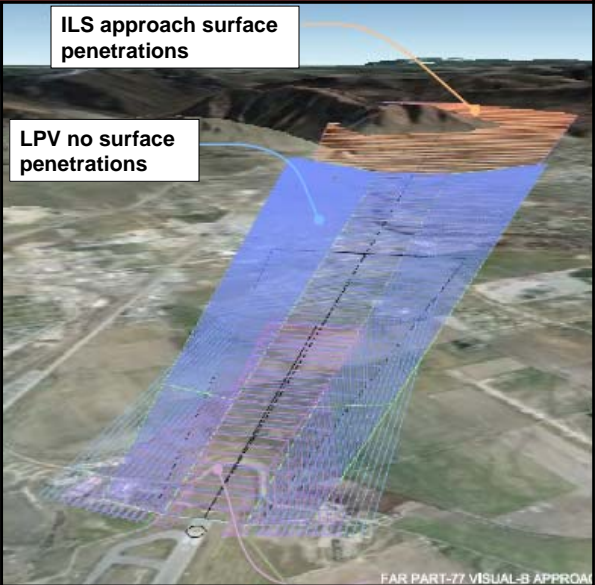


NAVAID Enhancements

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- Runway 29 approaches:
 - ILS vs. LPV



ILS approach surface penetrations

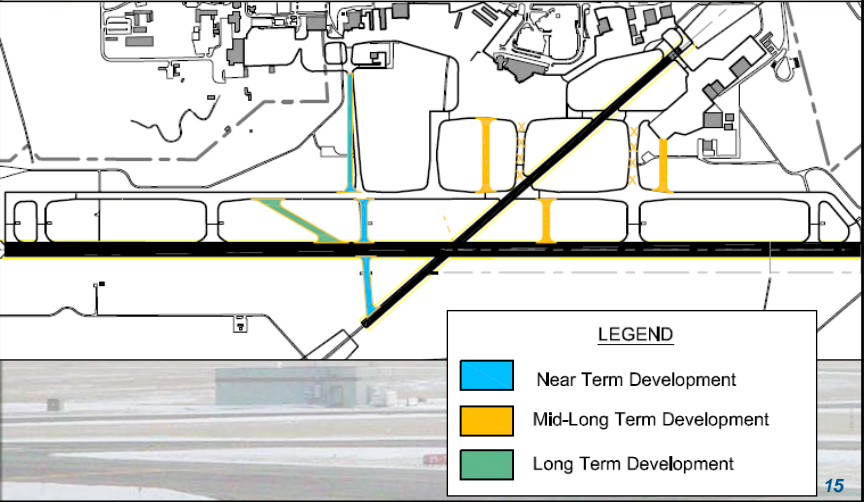
LPV no surface penetrations

FAR PART-77 VISUAL-B APPROACH




Taxiway Enhancement Recommendations

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LEGEND

	Near Term Development
	Mid-Long Term Development
	Long Term Development


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Terminal Alternatives

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- **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)


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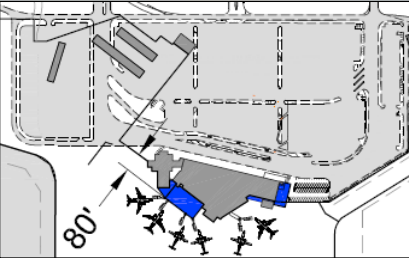


Terminal Alternatives Evaluated

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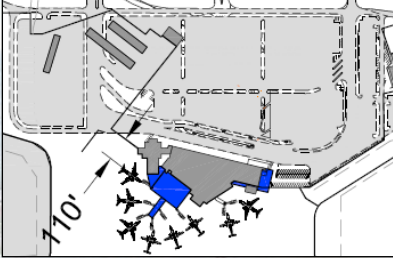
- Four terminal alternatives and one phasing option considered:

Alternative 1



80'


Alternative 1A




770'

LEGEND

- EXISTING TERMINAL
- PROPOSED TERMINAL

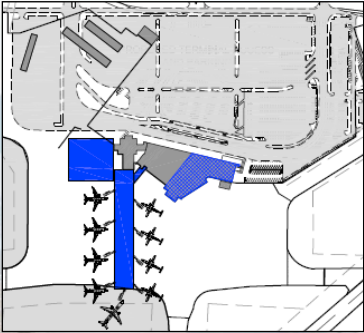

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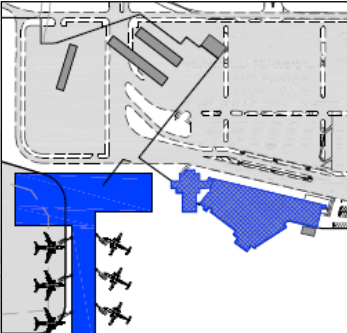
Terminal Alternatives Evaluated

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Alternative 2




Alternative 3



LEGEND

- EXISTING TERMINAL
- UNUSED TERMINAL
- PROPOSED TERMINAL


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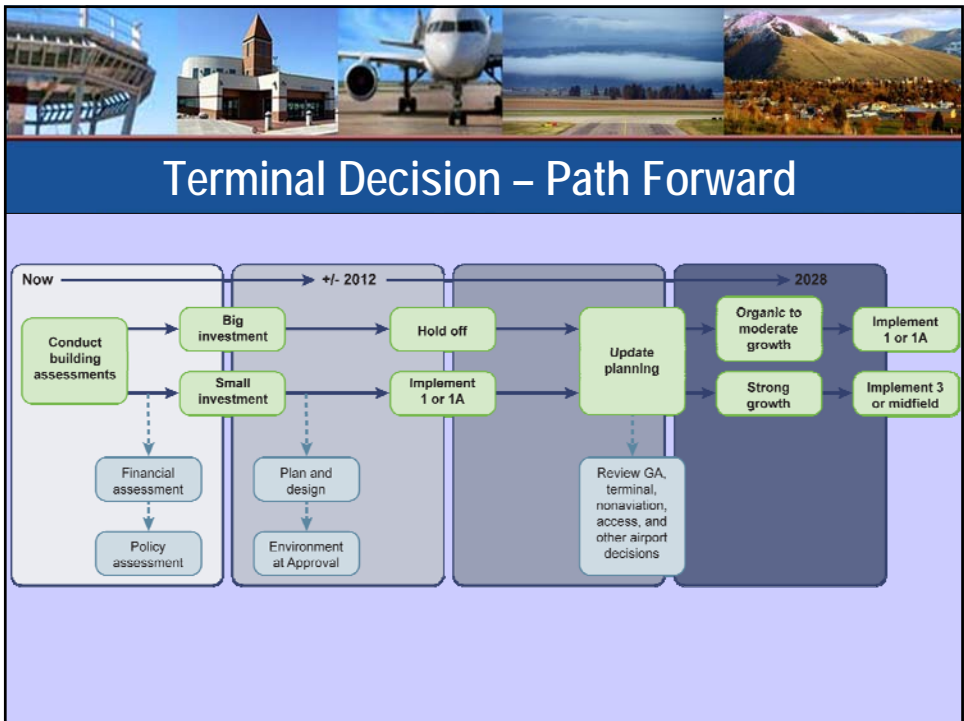
Preferred Terminal Development


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- 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





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Terminal Conclusion

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- 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

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Nonaviation Development – Market Analysis

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MANUFACTURING INDUSTRY
Pharmaceutical and Medicine Manufacturing
Medical Equipment and Supplies Manufacturing
Material Handling Equipment Manufacturing
Ready-Mix Concrete Manufacturing
Plate Work and Fabricated Structural Product Manufacturing
Tire Manufacturing
Commercial and Service Industry Machinery Manufacturing
Other Concrete Product Manufacturing
Ornamental and Architectural Metal Products Manufacturing
Veneer, Plywood, and Engineered Wood Product Manufacturing

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Nonaviation Development – Market Analysis

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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

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Nonaviation Development

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- Development expected over long-term
- Access improvements needed first
- Utility improvements needed
- East and west access options were considered

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Nonaviation Conceptual Layout – Alt 1



Nonaviation Development Conclusion

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- 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

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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

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

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