



Stakeholder Briefing
July 10, 2007



MidAmerica St. Louis Airport

MASTER PLAN UPDATE

Introductions

- Master Plan Update Consultant Team
 - Ricondo & Associates
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Agenda

- Process Overview
- Planning Activity Levels
- Major Activity Centers
 - Airfield
 - Passenger Terminal
 - Air Cargo
 - General Aviation
- Ground Access
- Support & Other Infrastructure
- Other Aeronautical
- Non-Aeronautical

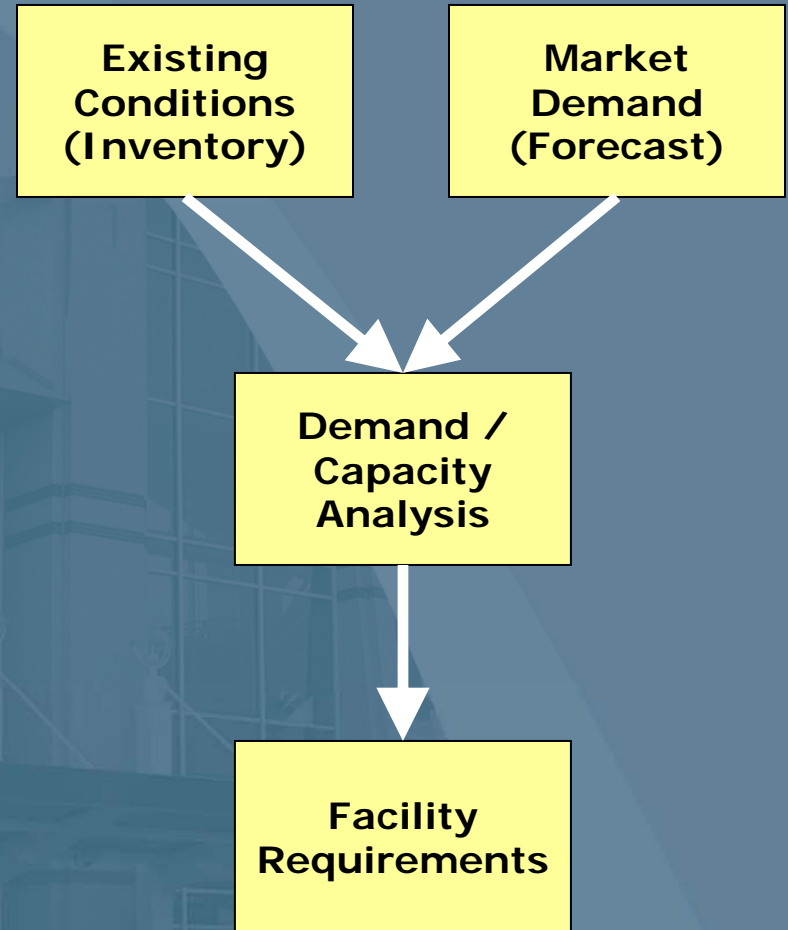


Process Overview



Process Overview

- Estimate Existing Capacity
- Define Future Demand Loading
- Identify Future Demand / Capacity Gap
- Specify Future Facility Requirements



Planning Activity Levels (PALs)



PAL Development

- Market Demand Analysis
 - Baseline Demand Forecast
 - Alternative Demand Scenarios
- Planning Activity Levels (PALs)
 - 2015 and 2030 Activity Levels
 - PALs Represent Incremental Activity Increases
 - Six PALs selected – 2 Baseline; 4 Scenarios
 - Intended as Time-Independent Activity Thresholds





PAL Forecast Basis

Table 4.1-1

Planning Activity Level – Forecast Basis

	Commercial Passenger Forecast		Cargo Forecast		General Aviation Forecast		Military Forecast	
	Scenario	Target Year	Scenario	Target Year	Scenario	Target Year	Scenario	Target Year
PAL 1	Baseline	2015	Baseline	2015	Baseline	2015	FAA TAF	All Years
PAL 2	Baseline	2030	Baseline	2030	Baseline	2030	FAA TAF	All Years
PAL 3	Scenario E	2015	Scenario C	2015	Scenario A	2015	FAA TAF	All Years
PAL 4	Scenario B	2030	Scenario F	2030	Scenario B	2030	FAA TAF	All Years
PAL 5	Scenario F	2030	Scenario G	2030	Scenario A	2030	FAA TAF	All Years
PAL 6	Scenario E	2030	Scenario G	2030	Scenario B	2030	FAA TAF	All Years

Source: Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.



Peak Period Assumptions

- Peak Month
 - 10% of Annual Activity for: Passengers, General Aviation & Military
 - Cargo Demand Evenly Distributed
- Peak Month Average Operating Day
 - Generally 20 Days per Month
 - Reduced for Commercial Operations at Lower Activity Levels
 - General Aviation Activity Distributed Over 31 Days



Peak Period Assumptions

- Peak Hour
 - Passenger Activity
 - 95% Load Factor
 - Average Aircraft Seat Size
 - Flight Schedule Assumptions
 - Cargo Activity
 - High Processing Times
 - 50% of Peak Month Average Operating Day
 - General Aviation and Military Activity
 - 25% of Average Operating Day – Touch and Go Concentration



Planning Activity Levels

Table 4.1-2a

Demand Level Forecasts

	Existing - 2006	PAL 1	PAL 2	PAL 3	PAL 4	PAL 5	PAL 6
ENPLANED PASSENGERS							
Annual	35,386	53,499	110,070	148,920	265,532	335,790	455,729
Peak Month	4,439	5,350	11,007	14,892	26,553	33,579	45,573
Average Day	535	428	570	1,045	1,625	1,957	2,470
Peak Hour	143	150	150	203	354	310	423
COMMERCIAL PASSENGER AIRCRAFT OPERATIONS							
Annual	548	951	1,957	3,913	5,997	8,674	11,482
Peak Month	55	95	196	391	600	867	1,148
Average Day	5	6	10	20	30	44	58
Peak Hour	2	2	2	4	6	7	9
ALL-CARGO OPERATIONS							
Annual	-	312	1,092	1,768	2,704	3,692	3,692
Peak Month	-	26	91	147	225	308	308
Average Day	-	1	4	7	11	15	15
Peak Hour	-	1	2	4	5	7	7

Source: Ricondo & Associates, Inc.

Prepared by: Ricondo & Associates, Inc.





Planning Activity Levels

Table 4.1-2b

Demand Level Forecasts

GENERAL AVIATION OPERATIONS

SAFB Related

Annual	9,920	8,098	9,684	8,098	9,684	9,684	9,684
Peak Month	992	810	968	810	968	968	968
Average Day	50	26	31	26	31	31	31
Peak Hour	7	7	8	7	8	8	8

MidAmerica Related

Annual	765	2,506	7,709	7,063	15,418	23,030	23,030
Peak Month	77	251	771	706	1,542	2,303	2,303
Average Day	4	8	25	23	50	74	74
Peak Hour	1	2	6	6	12	19	19

MILITARY OPERATIONS

Annual	19,875	30,467	30,467	30,467	30,467	30,467	30,467
Peak Month	1,988	3,047	3,047	3,047	3,047	3,047	3,047
Average Day	99	98	98	98	98	98	98
Peak Hour	25	25	25	25	25	25	25

Source: Ricondo & Associates, Inc.

Prepared by: Ricondo & Associates, Inc.



Major Activity Centers



Airfield

- Capacity
 - Two Parallel Independent Instrument Runways
 - Theoretical Annual Service Volume = 305,000 Operations
 - Aircraft Design Group V Standards
 - 10,000-ft Runway Length
- Demand
 - Largest Aircraft = B747 (Group V)
 - Maximum Runway Length Requirement – Unlikely to Exceed 10,000-ft



Airfield Demand / Capacity

Table 4.2-8

Annual Demand vs. Average Annual Aircraft Delay

PAL Scenario	Year	ASV ^{1/}	Total Aircraft Operations	Delay Ratio	Average Aircraft Delay
Existing	2007	305,000	38,521	0.1	-
PAL 1	2015	305,000	42,334	0.1	-
PAL 2	2030	305,000	50,909	0.2	0.1
PAL 3	2015	305,000	51,310	0.2	0.1
PAL 4	2030	305,000	64,270	0.2	0.1
PAL 5	2030	305,000	75,546	0.2	0.1
PAL 6	2030	305,000	78,355	0.3	0.2

Note:

1/ Fluctuations in hourly and daily demand in future years may result in small fluctuations in ASV not depicted here.

Source: Ricondo & Associates, Inc. derived from FAA Advisory Circular 150/5060-5, Airport Capacity and Delay.
 Prepared by: Ricondo & Associates, Inc.



Passenger Terminal

- Capacity
 - Two Primary Gates
 - 46,485-sf Gross Terminal Area
 - Curbfront = 288 Vehicles per Hour
 - Parking = 570 spaces





Gate Demand

Table 4.3-1

Terminal Gate Demand, Capacity and Requirements

	2006	PAL 1	PAL 2	PAL 3	PAL 4	PAL 5	PAL 6
Existing Gates	2	2	2	2	2	2	2
Annual Enplaned Passengers	25,513	53,499	110,070	148,920	265,532	335,790	455,729
Enplanements Per Existing Gate	12,757	26,750	55,035	74,460	132,766	167,895	227,865
PMAOD Departures	3	3	4	10	14	19	24
Target Turns Per Gate	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Gates Required for Average Turns Target	1.0	1.0	1.0	1.7	2.3	3.2	4.0
Gates Required for Average Turns Target (Rounded)	1	1	1	2	2	3	4

Source: Ricondo and Associates, Inc.,
 Prepared by: Ricondo and Associates, Inc.



Terminal Functional Areas

- Detailed Functional Area Analysis
- Minor Adjustments to Outbound Baggage and Concessions in PAL 1 and PAL 2
- Expansion Required for PALs 3 – 6
 - PAL 3 = Additional 8,600-sf (Roughly 20%)
 - PAL 6 = Additional 54,000-sf (Roughly Doubles Terminal Gross Area)



Terminal Curbfront

**Table 4.3-5
Curbfront Space Requirements**

Year	Peak Hour Enplanements	Peak Hour Passengers	Peak Hour Vehicle Trips	Peak Hour Vehicles at Curb	Peak Hour Curb Capacity (Vehicles)	Additional Curbfront Requirements
PAL 1	150	300	300	75	288	(213)
PAL 2	150	300	300	75	288	(213)
PAL 3	203	406	406	101	288	(187)
PAL 4	354	708	708	177	288	(111)
PAL 5	310	619	619	155	288	(133)
PAL 6	423	847	847	212	288	(76)

Sources: Ricondo and Associates, Inc.

Prepared By: Ricondo & Associates, Inc.



Public Parking

Table 4.3-6

Public Parking Requirements

Year	Annual Enplanements	Parking Spaces Per Annual Enplanement ^{1/}	Public Parking Requirement ^{2/}	Current Parking Capacity	Additional Parking Space Requirements ^{2/}
PAL 1	53,499	0.0050	308	570	(262)
PAL 2	110,070	0.0050	633	570	63
PAL 3	148,920	0.0050	856	570	286
PAL 4	265,532	0.0033	1,008	570	438
PAL 5	335,790	0.0033	1,274	570	704
PAL 6	455,729	0.0033	1,729	570	1,159

Notes:

1/ 0.005 based on parking survey data; 0.0033 from FAA AC 5360-13

2/ Amounts indicated in parentheses are surplus facilities. Highlighted areas represent the need for additional facilities.

Sources: **Ricondo and Associates, Inc.**

Prepared By: **Ricondo & Associates, Inc.**



Air Cargo

- Capacity
 - Air Cargo Building = 50,000-sf
 - Air Cargo Apron = 275,400-sf



Air Cargo Building

Table 4.4-3

Air Cargo Building Requirements

Year	Total Forecast Cargo Growth (tons)	Total Recommended Space Based on Industry Planning Factor of 1.5 Tons of Cargo Processed per Square Foot (square feet)	Existing Air Cargo Space (square feet)	Additional Air Cargo Space Requirement (square feet) ^{1/}
2006	0	0	50,000	(50,000)
PAL 1	38,610	25,740	50,000	(24,260)
PAL 2	135,135	90,090	50,000	40,090
PAL 3	218,790	145,860	50,000	95,860
PAL 4	334,620	223,080	50,000	173,080
PAL 5	456,885	304,590	50,000	254,590
PAL 6	456,885	304,590	50,000	254,590

Note:

1/ Amounts indicated in parentheses are surplus facilities.

Source: **Ricondo & Associates, Inc.**

Prepared by: **Ricondo & Associates, Inc.**



Air Cargo Apron

Table 4.4-2

Cargo Apron Requirements

Activity Level	Freighter Operations, Average Day Peak Period	Total All-Cargo Carriers Apron Requirement (square feet)	Existing Space (square feet)	Additional Apron Requirement (square feet) ^{1/}
2006	0	0	275,400	(275,400)
PAL 1	1	99,960	275,400	(175,440)
PAL 2	2	199,920	275,400	(75,480)
PAL 3	4	399,840	275,400	124,440
PAL 4	5	499,800	275,400	224,400
PAL 5	7	699,720	275,400	424,320
PAL 6	7	699,720	275,400	424,320

Note:

1/ Amounts indicated in parentheses are surplus facilities.

Sources: Ricondo & Associates, Inc.

Prepared by: Ricondo & Associates, Inc.



General Aviation

- Capacity
 - General Aviation Apron = 547,200-sf
 - FBO / Pilot Service Facilities
 - 15 Apron Tie-Down Positions



General Aviation Apron

Table 4.5-5

Total General Aviation Aircraft Apron Requirements

Year	Itinerant Aircraft Area Requirement (square feet)	Based Aircraft Area Requirement (square feet)	Total GA Apron Area Requirement (square feet)	Additional GA Apron Requirement (square feet) ^{1/}
2006 ^{2/}	0	0	0	(547,200)
PAL 1	5,445	24,060	29,505	(517,695)
PAL 2	5,445	76,190	81,635	(465,565)
PAL 3	5,445	68,170	73,615	(473,585)
PAL 4	16,335	152,380	168,715	(378,485)
PAL 5	21,780	228,570	250,350	(296,850)
PAL 6	21,780	228,570	250,350	(296,850)

Note:

1/ Amounts indicated in parentheses are surplus facilities.

2/ The Illinois State Police aircraft is stored in a hangar

Source: Ricondo & Associates, Inc., 2007

Prepared by: Ricondo & Associates, Inc.



General Aviation Hangar

Table 4.5-6

Hangar Requirements

Year	Single Engine Aircraft ^{1/}		Multi Engine Aircraft ^{2/}		Jet Aircraft ^{3/}		Total Hangar Requirement	
	Number of Aircraft	Square Feet	Number of Aircraft	Square Feet	Number of Aircraft	Square Feet	Number of Aircraft	Square Feet
2006	0	0	0	0	0	0	0	0
PAL 1	1	2,700	1	5,100	0	0	2	9,750
PAL 2	4	10,800	2	10,200	2	26,800	8	59,750
PAL 3	4	10,800	2	10,200	1	13,400	7	43,000
PAL 4	8	21,600	4	20,400	4	53,600	16	119,500
PAL 5	12	32,400	6	30,600	5	67,000	23	162,500
PAL 6	12	32,400	6	30,600	5	67,000	23	162,500

Note:

- 1/ It is assumed that 25% of the single-engine based aircraft would be stored in a hangar.
- 2/ It is assumed that 100% of the multi-engine based aircraft would be stored in a hangar.
- 3/ It is assumed that 100% of the jet engine based aircraft would be stored in a hangar.

Sources: Aircraft Characteristics Manuals from Various Aircraft Manufacturers, Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.



Ground Access



Ground Access - Assumptions

- 100% passengers arriving to Airport via private vehicles (no transit)
- 1 passenger per vehicle
- 1% background growth rate given by East-West Gateway Council of Governments



Ground Access – Level of Service

<u>LOS</u>	<u>Description</u>	<u>Traffic Loading % of Roadway Capacity</u>
A	Free flowing traffic	< 50 %
B	Low-density stable traffic	51% - 70%
C	Medium density stable traffic flow	71%-80%
D	High density stable traffic flow	81%-90%
E	Unstable flow at or near capacity levels	91%-100%
F	Breakdown of traffic flow	> 100%

- Existing LOS A for all roadways. Existing LOS B for intersection of I-64 ramp terminals and Illinois Route 4



Trip Distributions

- 80% of passengers and trucks will arrive via Illinois Route 4 to the north of MidAmerica St. Louis Airport and the I-64 interchange.
- 20% will arrive via Illinois Route 4 to the south of MidAmerica St. Louis Airport.



Impact Analysis

- All roadways with the exception of Illinois Route 4 north of MidAmerica St. Louis Airport will operate at LOS A or B in all PALs.
- Illinois Route 4 will reach capacity and begin to breakdown in PAL 6.
- The interchange of I-64 and Illinois Route 4 will reach capacity and begin to breakdown in PAL 2, 3, 4, 5, and 6.



Ground Access Improvements

- Expand Illinois Route 4 to a full 4 lane cross sections north of MidAmerica St. Louis Airport.
- Additional Lanes and Signalization of intersections of ramp terminals of I-64 with Illinois Route 4.



Support & Other Infrastructure



Fuel Farm

- Capacity
 - Jet A = 250,000-gals
 - AvGas = 12,000-gals
- Demand
 - Average 6 Days of Storage
 - Jet A Demand Exceeds Capacity at PAL 3 Activity
 - AvGas Capacity Meets PAL 6 Demand
- Requirement
 - 550,000-gals Additional Jet A Storage by PAL 6



Other Support Facilities

- Aircraft Rescue & Fire Fighting Facilities (ARFF) – Sufficient for All PALs
- Maintenance Facilities & Equipment
 - Airfield Maintenance Equipment And Facilities Will Be Sufficient For All PALs
 - Additional Aircraft Service Equipment May Be Required as Activity Increases
 - Additional Staging Area May Be Required
 - Maintenance Facilities Are Expected to Be Sufficient



Other Infrastructure

- Sufficient Utility Capacity Available To Accommodate Demand At All PALs
- Structural Fire Suppression System May Require Improvements To Accommodate Increased Demand



Other Aeronautical



Other Aeronautical

- Maintenance, Repair, Overhaul (MRO)
- Manufacturing & Fit-Out
- Siting Decision Driven By:
 - Geography
 - Specialized Labor Force
 - Capacity
- Light vs. Heavy Maintenance
- Commercial, Government, General Aviation



Other Aeronautical

- Benchmark Capacity Requirements
- Commercial MRO / North America
 - 2005 – Roughly 4-6 Million SF of Hangar Space
 - 2030 – Roughly 7-10 Million SF of Hangar Space
- For Comparison, a 10% Share Would Require:
 - 2005 – 400,000-sf of Hangar Space
 - 2030 – 700,000-sf of Hangar Space



Non-Aeronautical



Non-Aeronautical

- Development of Non-Aviation Related, Compatible Land Uses in Suitable Areas
- Requirements:
 - Ground Access
 - IL 158
 - I-64
 - MetroLink
 - Utility Infrastructure
 - Stormwater Management



Questions?

