

Technical Data

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***Iowa Air Service Study***

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**Prepared for:  
The Iowa Airlink Commission**

January 10, 1991

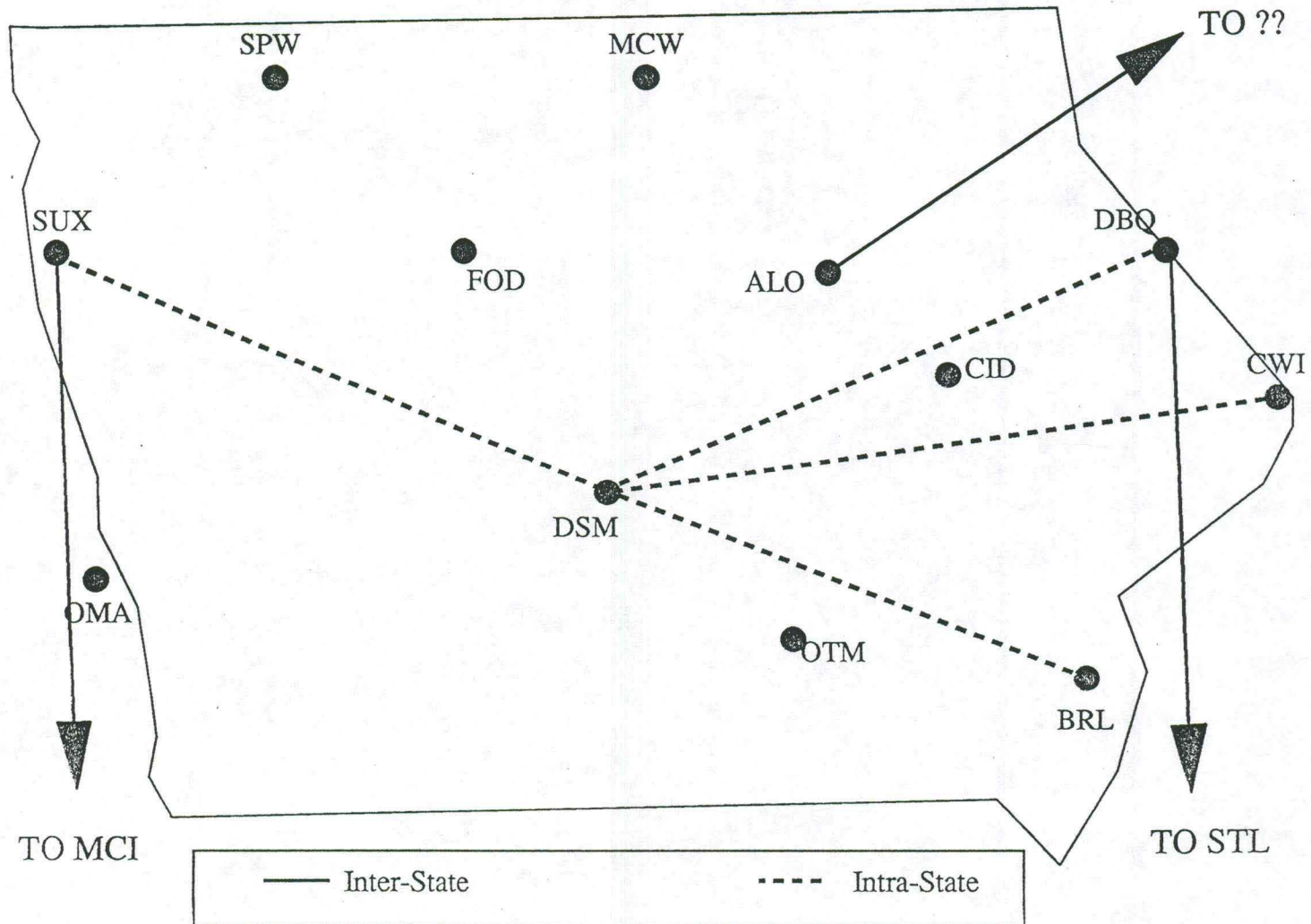


**APOGEE RESEARCH, INC.**

*Global Aviation Associates*

*University of Iowa*

# SCENARIO "1" ROUTE OPTIONS

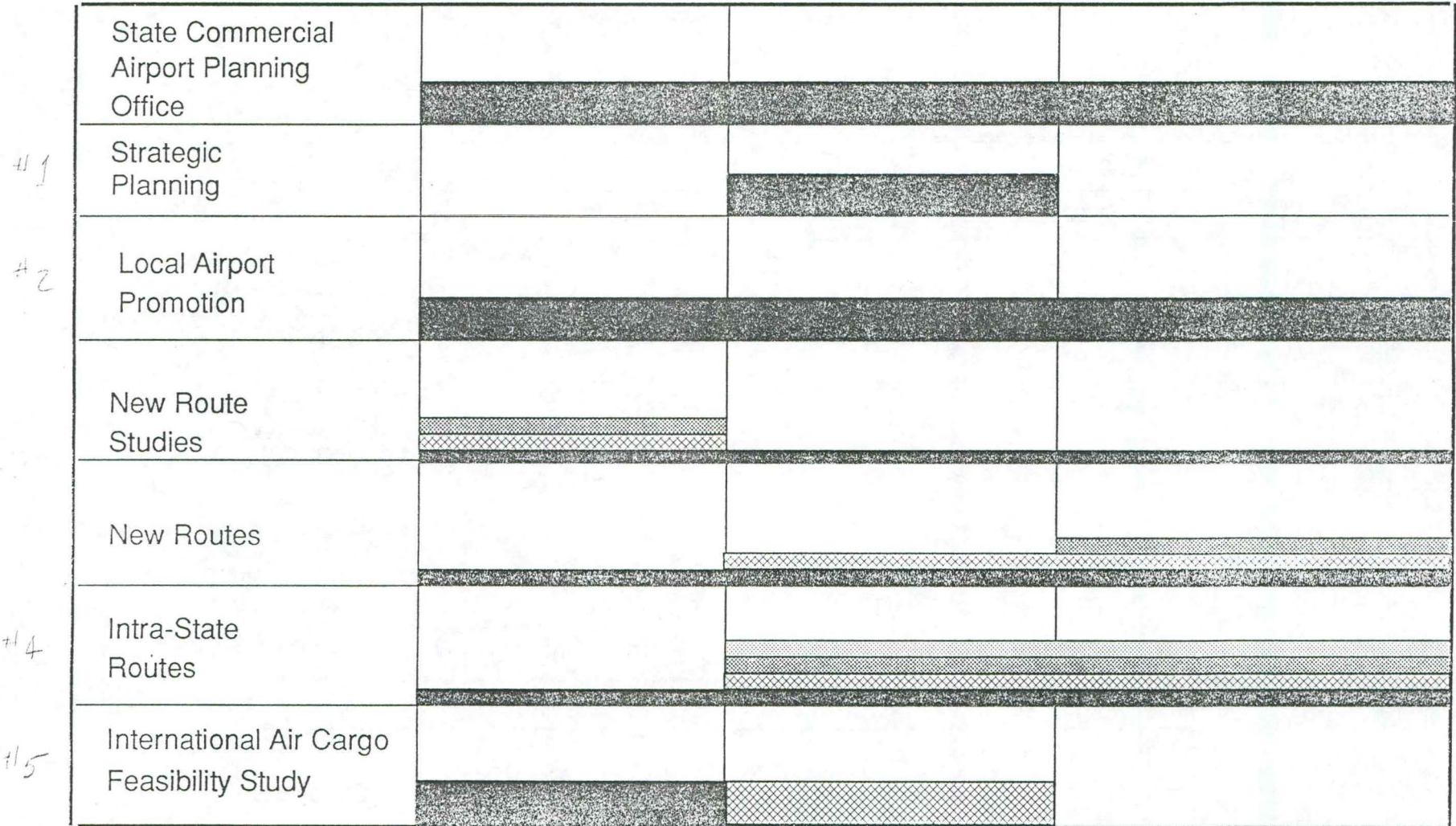


# SCENARIO 1: AIR SERVICE DEVELOPMENT PLAN

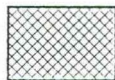
Year 1

Year 2

Year 3



Key:



Program 1   Program 2   Program 3   Program 4

**SUMMARY COST SCHEDULE:  
PROPOSED AIR SERVICE DEVELOPMENT PLAN**

PROGRAM	YEAR 1	YEAR 2	YEAR 3	TOTAL
1. State Commercial Airport Planning Office				
- Office/Operations	\$120,000	\$160,000	\$160,000	\$440,000
- State Strategic Planning		50,000		50,000
2. Matching Grants for Local Airport Promotion	220,000	220,000	220,000	660,000
3. Matching Grants for New Routes				
-Proposals	45,000	15,000	15,000	75,000
-Subsidies	118,000	155,000	160,000	535,000
4. Intra-State Routes	183,072	148,746	114,420	870,000
5. International Air Cargo Feasibility Study	100,000	100,000		200,000
<b>SUBTOTAL</b>	<b>\$786,072</b>	<b>\$848,756</b>	<b>\$669,420</b>	<b>\$2,830,000</b>
<b>20% CONTINGENCY</b>	<b>157,214</b>	<b>169,751</b>	<b>133,884</b>	<b>566,000</b>
<b>TOTAL COSTS</b>	<b>\$943,286</b>	<b>\$1,018,507</b>	<b>\$803,304</b>	<b>\$3,396,000</b>

**STATE COMMERCIAL PLANNING OFFICE  
COST SUMMARY**

	<b>YEAR 1</b>	<b>YEAR 2</b>	<b>YEAR 3</b>	<b>TOTAL</b>
<i>STAFF</i>				
ADMINISTRATOR				
Salary & Benefits	65,000	67,000	70,000	\$202,000
ANALYST				
Salary & Benefits	13,000	28,000	30,000	\$71,000
CLERICAL	5,000	10,000	10,000	\$25,000
OFFICE OVERHEAD	25,000	30,000	30,000	\$85,000
TRAVEL	10,000	20,000	20,000	\$50,000
<b>TOTAL</b>	<b>\$118,000</b>	<b>\$155,000</b>	<b>\$160,000</b>	<b>\$433,000</b>

**NEW HUB ROUTE ANALYSIS**

**ASSUMPTIONS:**

12 Weekly Roundtrips  
 Service linked to hubbing carrier's operation

		<i>ALO-MCI</i>		<i>DBQ-STL</i>		<i>SUX-MCI</i>	
Yearly Projected Route Cost		(\$195,000.00)		(\$85,233.00)		(\$25,000.00)	
		State	Local	State	Local	State	Local
<b>Study</b>	<i>60/40</i>	\$15,000.00	\$10,000.00	\$15,000.00	\$10,000.00	\$15,000.00	\$10,000.00
<b>Year 1</b>	<i>80/20</i>	\$156,000.00	\$39,000.00	\$68,186.40	\$17,046.60	\$20,000.00	\$5,000.00
<b>Year 2</b>	<i>65/35</i>	\$126,750.00	\$68,250.00	\$55,401.45	\$29,831.55	\$16,250.00	\$8,750.00
<b>Year 3</b>	<i>50/50</i>	\$97,500.00	\$97,500.00	\$42,616.50	\$42,616.50	\$12,500.00	\$12,500.00
<b>State Gurantee:</b>		<b>Maximum</b>		<b>Minimum</b>			
		\$100,000		\$25,000			

**ROUTE ANALYSIS SUX-MCI**

Aircraft activity assumptions	
Average daily utilization	6
Average daily departures	4
Average stage length (mi.)	231
O&D Fare (Excluding Taxes)	\$200
Fuel price assumption	\$1.10
Load Factor Assumption	42.00%
Configuration assumption	19

	Daily	Monthly	Yearly
Average daily aircraft miles		924	
Effective Load Factor		42%	
Average yield	\$0.87		
ASMs	17,556	438,900	5,266,800
RPMS	7,374	184,338	2,212,056

Operating cost profile for 19 seat aircraft

Average operating costs for J-31, EMB-110, Metro III year 1989 (except for fuel price)

**Direct operating costs**

Flying operations	Unit driver	Unit cost	Daily cost	Monthly
Crew salaries and expense	blk hour	\$115	\$690	\$17,250
Fuel, oil, and taxes (90.8 per hour)	blk hour	\$100	\$599	\$14,982
Insurance	blk hour	\$14	\$81	\$2,031
<b>Total</b>		<b>\$228</b>	<b>\$1,371</b>	<b>\$34,263</b>
Maintenance				
Direct Expenses				
Airframe	blk hour	\$48	\$288	\$7,200
Engine	blk hour	\$90	\$540	\$13,500
Subtotal direct	blk hour	\$138	\$828	\$20,700
Maintenance burden	blk hour	\$35	\$210	\$5,250
<b>Subtotal</b>		<b>\$173</b>	<b>\$1,038</b>	<b>\$25,950</b>
Depreciation and rentals	blk hour	\$95	\$570	\$14,250
<b>Total direct operating costs</b>	<b>blk hour</b>	<b>\$496</b>	<b>\$2,979</b>	<b>\$74,463</b>

**Indirect operating costs**

	Unit driver	Unit cost	Daily cost	Monthly cost
Aircraft and traffic servicing	departure	\$150	\$600	\$15,000
Passenger servicing	departure	\$125	\$500	\$12,500
Aircraft control/flight dispatch	departure	\$20	\$80	\$2,000
MIS and related admin	departure	\$25	\$100	\$2,500
CRS expense	passenger	\$2.50	\$80	\$1,995
Credit card discounts	% of rev	1.26%	\$64	\$1,600
Interrupted trip expense	% of rev	0.51%	\$26	\$648
Commission expense	% of rev	5.00%	\$254	\$6,350
Terminal and related facilities	% of DOCs	4.20%	\$125	\$3,127
General and administrative	% of DOCs	7.50%	\$223	\$5,585
<b>Total indirect operating expense</b>			<b>\$2,052</b>	<b>\$51,305</b>

<b>Total operating expense</b>			<b>\$5,031</b>	<b>\$125,768</b>
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**ROUTE ANALYSIS SUX-MCI**

**DEMAND FORECAST FOR SUX-MCI**

Points beyond only generate partial revenue

67%

Demand Components

Forecast First Year Demand

<b>O &amp; D Demand for SUX-MCI</b>			<b>1,500</b>
1989 Top 10 O and D Markets	1989 O& D Passengers	% Expected	
Phoenix	21980	10%	2,198
Minneapolis	12300	0%	0
Denver	8820	0%	0
Chicago O' Hare	8170	5%	409
Los Angeles	7530	10%	753
Las Vegas	6420	5%	321
San Diego	5820	10%	582
St. Louis	5510	3%	165
Ontario	4740	10%	474
Seattle	4650	5%	233
<b>Subtotal, Top Markets</b>	85940		<b>5,134</b>
Other Destinations			4,000
<b>Subtotal, Other</b>			<b>9,134</b>
<b>TOTAL DEMAND</b>			<b>10,634</b>
Potential Revenues			1,523,996
Total Operating Expenses			1,509,217
<b>Net Operating Income (Loss)</b>			<b>\$14,780</b>



**ROUTE ANALYSIS DBQ-STL**

Aircraft activity assumptions	
Average daily utilization	6
Average daily departures	4
Average stage length (mi.)	253
O&D Fare (Excluding Taxes)	\$250
Fuel price assumption	\$1.10
Load Factor Assumption	42.00%
Configuration assumption	19

	Daily	Monthly	Yearly
Average daily aircraft miles		1012	
Effective Load Factor		42%	
Average yield		\$0.99	
ASMs	19,228	480,700	5,768,400
RPMs	8,076	201,894	2,422,728

Operating cost profile for 19 seat aircraft

Average operating costs for J-31, EMB-110, Metro III year 1989 (except for fuel price)

Direct operating costs				
	Unit driver	Unit cost	Daily cost	Monthly
<b>Flying operations</b>				
Crew salaries and expense	blk hour	\$115	\$690	\$17,250
Fuel, oil, and taxes (90.8 per hour)	blk hour	\$100	\$599	\$14,982
Insurance	blk hour	\$14	\$81	\$2,031
<b>Total</b>		<b>\$228</b>	<b>\$1,371</b>	<b>\$34,263</b>
<b>Maintenance</b>				
<b>Direct Expenses</b>				
Airframe	blk hour	\$48	\$288	\$7,200
Engine	blk hour	\$90	\$540	\$13,500
Subtotal direct	blk hour	\$138	\$828	\$20,700
Maintenance burden	blk hour	\$35	\$210	\$5,250
<b>Subtotal</b>		<b>\$173</b>	<b>\$1,038</b>	<b>\$25,950</b>
Depreciation and rentals	blk hour	\$95	\$570	\$14,250
<b>Total direct operating costs</b>	<b>blk hour</b>	<b>\$496</b>	<b>\$2,979</b>	<b>\$74,463</b>

Indirect operating costs				
	Unit driver	Unit cost	Daily cost	Monthly cost
Aircraft and traffic servicing	departure	\$150	\$600	\$15,000
Passenger servicing	departure	\$125	\$500	\$12,500
Aircraft control/flight dispatch	departure	\$20	\$80	\$2,000
MIS and related admin	departure	\$25	\$100	\$2,500
CRS expense	passenger	\$2.50	\$80	\$1,995
Credit card discounts	% of rev	1.26%	\$60	\$1,488
Interrupted trip expense	% of rev	0.51%	\$24	\$602
Commission expense	% of rev	5.00%	\$236	\$5,903
Terminal and related facilities	% of DOCs	4.20%	\$125	\$3,127
General and administrative	% of DOCs	7.50%	\$223	\$5,585
<b>Total indirect operating expense</b>			<b>\$2,028</b>	<b>\$50,700</b>

<b>Total operating expense</b>			<b>\$5,007</b>	<b>\$125,163</b>
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**ROUTE ANALYSIS DBQ-STL**

**DEMAND FORECAST FOR DBQ-STL**

Points beyond only generate partial revenue

67%

Demand Components			Forecast First Year Demand
<b>O &amp; D Demand for DBQ-STL</b>			<b>1,000</b>
1989 Top 10 O and D Markets	1989 O & D Passengers	% Expected	
Chicago O'Hare	7230	0%	0
Dallas-Ft Worth	1860	50%	930
New York- LGA	1860	20%	372
Phoenix	1640	30%	492
Detroit	1510	5%	76
Los Angeles	1430	30%	429
Las Vegas	1250	30%	375
Atlanta	1220	40%	488
Newark	1220	20%	244
San Diego	1200	30%	360
<b>Subtotal, Top Markets</b>	20420		<b>3,766</b>
Other Destinations	5% of Total Mkt.		3,200
<b>Subtotal, Other</b>			<b>6,966</b>
<b>TOTAL DEMAND</b>			<b>7,966</b>
Potential Revenues			1,416,721
Total Operating Expenses			1,501,954
<b>Net Operating Income (Loss)</b>			<b>(\$85,233)</b>

**ROUTE ANALYSIS ALO-MCI**

Aircraft activity assumptions	
Average daily utilization	6
Average daily departures	4
Average stage length (mi.)	256
O&D Fare (Excluding Taxes)	\$200
Fuel price assumption	\$1.10
Load Factor Assumption	42.00%
Configuration assumption	19

	Daily	Monthly	Yearly
Average daily aircraft miles		1024	
Effective Load Factor		42%	
Average yield	\$0.78		
ASMs	19,456	486,400	5,836,800
RPMs	8,172	204,288	2,451,456

Operating cost profile for 19 seat aircraft

Average operating costs for J-31, EMB-110, Metro III year 1989 (except for fuel price)

Direct operating costs				
	Unit driver	Unit cost	Daily cost	Monthly
Flying operations				
Crew salaries and expense	blk hour	\$115	\$690	\$17,250
Fuel, oil, and taxes (90.8 per hour)	blk hour	\$100	\$599	\$14,982
Insurance	blk hour	\$14	\$81	\$2,031
<b>Total</b>		<b>\$228</b>	<b>\$1,371</b>	<b>\$34,263</b>
Maintenance				
Direct Expenses				
Airframe	blk hour	\$48	\$288	\$7,200
Engine	blk hour	\$90	\$540	\$13,500
Subtotal direct	blk hour	\$138	\$828	\$20,700
Maintenance burden	blk hour	\$35	\$210	\$5,250
<b>Subtotal</b>		<b>\$173</b>	<b>\$1,038</b>	<b>\$25,950</b>
Depreciation and rentals	blk hour	\$95	\$570	\$14,250
<b>Total direct operating costs</b>	<b>blk hour</b>	<b>\$496</b>	<b>\$2,979</b>	<b>\$74,463</b>

Indirect operating costs				
	Unit driver	Unit cost	Daily cost	Monthly cost
Aircraft and traffic servicing	departure	\$150	\$600	\$15,000
Passenger servicing	departure	\$125	\$500	\$12,500
Aircraft control/flight dispatch	departure	\$20	\$80	\$2,000
MIS and related admin	departure	\$25	\$100	\$2,500
CRS expense	passenger	\$2.50	\$80	\$1,995
Credit card discounts	% of rev	1.26%	\$55	\$1,363
Interrupted trip expense	% of rev	0.51%	\$22	\$552
Commission expense	% of rev	5.00%	\$216	\$5,411
Terminal and related facilities	% of DOCs	4.20%	\$125	\$3,127
General and administrative	% of DOCs	7.50%	\$223	\$5,585
<b>Total indirect operating expense</b>			<b>\$2,001</b>	<b>\$50,033</b>

<b>Total operating expense</b>			<b>\$4,980</b>	<b>\$124,496</b>
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**ROUTE ANALYSIS ALO-MCI**

**DEMAND FORECAST FOR ALO-MCI**

Points beyond only generate partial revenue		67%	
Demand Components			Forecast First Year Demand
<b>O &amp; D Demand for ALO-MCI</b>			<b>1,000</b>
1989 Top 10 O and D Markets	1989 O & D Passengers	% Expected	
Chicago O'Hare	6740	0%	0
Minneapolis	5480	0%	0
Phoenix	4700	10%	470
Detroit	2910	0%	0
Dallas	2360	5%	118
Denver	2310	5%	116
Boston	2150	3%	65
Washington National	2120	3%	64
New York	2070	3%	62
Los Angeles	2030	15%	305
<b>Subtotal, Top Markets</b>	32870		<b>1,198</b>
Other Destinations	5% of Total Mkt.		7,000
<b>Subtotal, Other</b>			<b>8,198</b>
<b>TOTAL DEMAND</b>			<b>9,198</b>
Potential Revenues			1,298,559
Total Operating Expenses			1,493,954
<b>Net Operating Income (Loss)</b>			<b>(\$195,396)</b>

## INTRA-STATE ROUTE ANALYSIS

**ASSUMPTIONS:**

4 Dedicated Aircraft  
 4 Routes  
 2 daily Roundtrips  
 5 days a week

	Load Factor	Yearly Passengers	Monthly Operating Profit/Loss	Yearly Operating Profit/Loss
BRL-DSM	25%	2,080	(\$14,568.00)	(\$174,816.00)
CWI-DSM	25%	2,080	(\$14,568.00)	(\$174,816.00)
DBQ-DSM	50%	4,160	\$5,033.00	\$60,396.00
SUX-DSM	50%	4,160	\$5,033.00	\$60,396.00
<b>Total</b>		12,480	(\$19,070.00)	(\$228,840.00)

	STATE/LOCAL SPILT	STATE SHARE	LOCAL SHARE
Year 1	80/20	(\$183,072.00)	(\$45,768.00)
Year 2	65/35	(\$148,746.00)	(\$80,094.00)
Year 3	50/50	(\$114,420.00)	(\$114,420.00)

### INTRA-STATE ROUTE ANALYSIS

Aircraft activity assumptions	
Average daily utilization	6
Average daily departures	4
Average stage length (mi.)	150
Fare Excluding Taxes	\$125
Fuel price assumption (per gallon)	\$1.90
Load Factor Assumption	50%
Configuration assumption	8

	Daily	Monthly	Yearly
Average daily aircraft miles	600		
Effective Load Factor	50%		
Average yield	\$0.83		
ASMs	4,800	96,000	1,152,000
RPMs	2,400	48,000	576,000
Average revenue	\$2,000	\$40,000	\$480,000

Direct operating costs				
	Unit driver	Unit cost	Daily cost	Monthly
Flying operations				
Crew salaries and expense	blk hour	\$25	\$150	\$3,000
Fuel, oil, and taxes	blk hour	\$114	\$684	\$13,680
Insurance	daily	\$17	\$17	\$510
<b>Total</b>		<b>\$156</b>	<b>\$851</b>	<b>\$17,190</b>
Maintenance				
Direct Expenses				
Airframe	blk hour	\$10	\$60	\$1,200
Engine	blk hour	\$20	\$120	\$2,400
<b>Subtotal direct</b>	blk hour	<b>\$30</b>	<b>\$180</b>	<b>\$3,600</b>
Maintenance burden	blk hour	\$15	\$90	\$1,800
<b>Total</b>		<b>\$45</b>	<b>\$270</b>	<b>\$5,400</b>
Depreciation and rentals	blk hour	\$4	\$24	\$480
<b>Total direct operating costs</b>	blk hour	<b>\$205</b>	<b>\$1,145</b>	<b>\$23,070</b>

Indirect operating costs				
	Unit driver	Unit cost	Daily cost	Monthly cost
Aircraft and traffic servicing	departure	\$20	\$80	\$1,600
Passenger servicing	departure	\$15	\$60	\$1,200
Aircraft control/flt dispatch	departure	\$10	\$40	\$800
MIS and related admin	departure	\$15	\$60	\$1,200
CRS expense	passenger	\$2.50	\$40	\$800
Terminal and related facilities	% of DOCs	20.00%	\$229	\$4,580
General and administrative	% of DOCs	7.50%	\$86	\$1,718
<b>Total indirect operating expense</b>			<b>\$595</b>	<b>\$11,898</b>

<b>Total operating expense</b>		<b>\$1,740</b>	<b>\$34,968</b>
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Operating profit/loss		\$260	\$5,033
Operating margin		13.01%	12.58%

### INTRA-STATE ROUTE ANALYSIS

Aircraft activity assumptions	
Average daily utilization	6
Average daily departures	4
Average stage length (mi.)	150
Fare Excluding Taxes	\$125
Fuel price assumption (per gallon)	\$1.90
Load Factor Assumption	25%
Configuration assumption	8

	Daily	Monthly	Yearly
Average daily aircraft miles	600		
Effective Load Factor	25%		
Average yield	\$0.83		
ASMs	4,800	96,000	1,152,000
RPMs	1,200	24,000	288,000
Average revenue	\$1,000	\$20,000	\$240,000

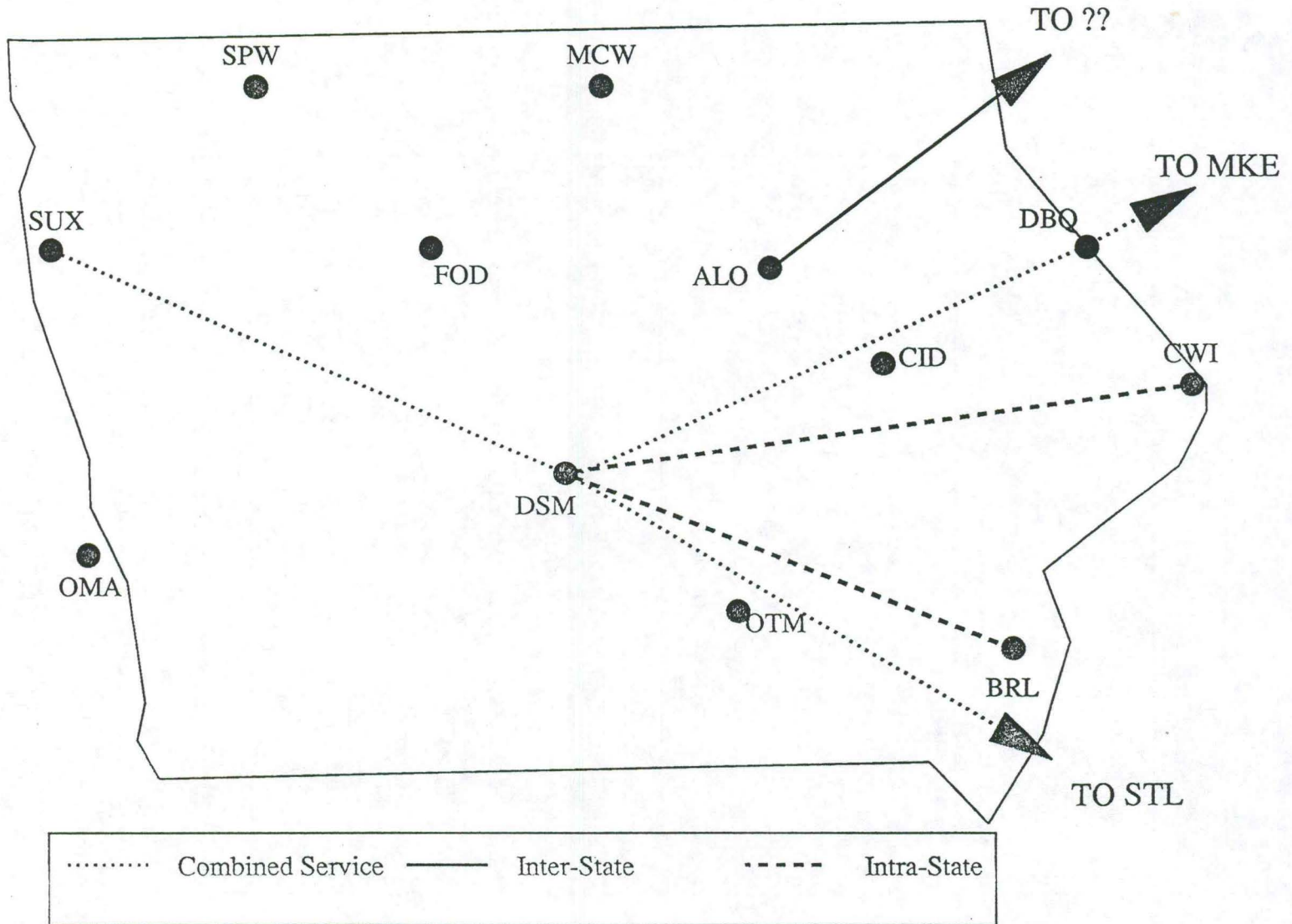
Direct operating costs				
	Unit driver	Unit cost	Daily cost	Monthly
Flying operations				
Crew salaries and expense	blk hour	\$25	\$150	\$3,000
Fuel, oil, and taxes	blk hour	\$114	\$684	\$13,680
Insurance	daily	\$17	\$17	\$510
<b>Total</b>		<b>\$156</b>	<b>\$851</b>	<b>\$17,190</b>
Maintenance				
Direct Expenses				
Airframe	blk hour	\$10	\$60	\$1,200
Engine	blk hour	\$20	\$120	\$2,400
Subtotal direct	blk hour	\$30	\$180	\$3,600
Maintenance burden	blk hour	\$15	\$90	\$1,800
<b>Total</b>		<b>\$45</b>	<b>\$270</b>	<b>\$5,400</b>
Depreciation and rentals	blk hour	\$4	\$24	\$480
<b>Total direct operating costs</b>	<b>blk hour</b>	<b>\$205</b>	<b>\$1,145</b>	<b>\$23,070</b>

Indirect operating costs				
	Unit driver	Unit cost	Daily cost	Monthly cost
Aircraft and traffic servicing	departure	\$20	\$80	\$1,600
Passenger servicing	departure	\$15	\$60	\$1,200
Aircraft control/flight dispatch	departure	\$10	\$40	\$800
MIS and related admin	departure	\$15	\$60	\$1,200
CRS expense	passenger	\$2.50	\$20	\$400
Terminal and related facilities	% of DOCs	20.00%	\$229	\$4,580
General and administrative	% of DOCs	7.50%	\$86	\$1,718
<b>Total indirect operating expense</b>			<b>\$575</b>	<b>\$11,498</b>

<b>Total operating expense</b>	<b>\$1,720</b>	<b>\$34,568</b>
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Operating profit/loss	(\$720)	(\$14,568)
Operating margin	-71.99%	-72.84%

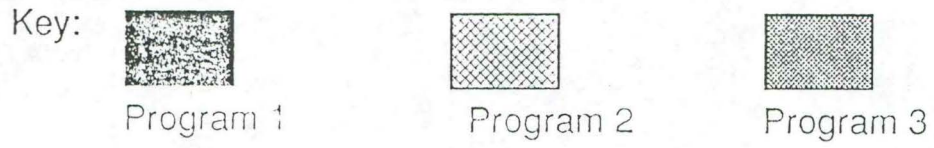
# SCENARIO "2" ROUTE OPTIONS





# SCENARIO 2: AIR SERVICE DEVELOPMENT PLAN

	Year 1	Year 2	Year 3
State Commercial Airport Planning Office			
Strategic Planning			
Local Airport Promotion			
New Route Studies			
New Routes			
Intra-State Routes			
International Air Cargo Feasibility Study			



## **TAG END ANALYSIS**

### **ASSUMPTIONS:**

2 Routes  
6 Roundtrips per week  
\$125 fare  
1.3 Hours of additional block time  
Only Direct Operating Costs need to be covered

2 Routes:  
SUX-DSM-(STL)  
(MKE)-DBQ-DSM

### **COST ANALYSIS PER ROUTE**

	<b>Daily</b>	<b>Monthly</b>	<b>Yearly</b>
Direct Operating Costs for aircraft per trip	\$645	\$16,134	\$4,840,200
Revenue with 6 daily passengers	\$750	\$18,750	\$5,625,000
<b>Operating Profit-Loss</b>	<b>\$105</b>	<b>\$2,616</b>	<b>\$784,800</b>

**INTRA-STATE ROUTE ANALYSIS**

<b>ASSUMPTIONS:</b>
4 Dedicated Aircraft
4 Routes
2 daily Roundtrips
5 days a week

City Pair	Load Factor	Yearly Passengers	Monthly Operating Profit/Loss	Annual Operating Profit/Loss
BRL-DSM	25%	2,080	(\$14,568.00)	(\$174,816.00)
CWI-DSM	25%	2,080	(\$14,568.00)	(\$174,816.00)
DBQ-DSM	0%	0	\$0.00	\$0.00
SUX-DSM	0%	0	\$0.00	\$0.00
<b>Total</b>		<b>4,160</b>	<b>(\$29,136.00)</b>	<b>(\$349,632.00)</b>

Period	STATE/LOCAL SPILT	STATE SHARE	LOCAL SHARE
Year 1	80/20	(\$279,705.60)	(\$69,926.40)
Year 2	65/35	(\$227,260.80)	(\$122,371.20)
Year 3	50/50	(\$174,816.00)	(\$174,816.00)