CHICAGO AIRPORT SYSTEM

Richard M. Daley
Mayor

Rosemarie S. Andolino
Executive Director

Request for Letter of Intent

Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding

March 1, 2009

City of Chicago
Richard M. Daley, Mayor

O'Hare Modernization Program

Rosemarie S. Andolino
Executive Director

P.O. Box 66848
10510 West Zemke Road
Chicago, Illinois 60666

(773) 462-7300
(773) 462-8552 (FAX)

http://www.oharemodernization.org

March 1, 2009

Mr. James Keefer, Manager
Federal Aviation Administration
Chicago Airports District Office, CHI-ADO-600
2300 E. Devon Avenue
Des Plaines, Illinois 60018

Re: Request for Letter of Intent AIP Funding, Chicago O'Hare International Airport

Dear Mr. Keefer:

The City of Chicago continues to move forward with implementation of the O'Hare Modernization Program (OMP). Last year saw completion of two of the initial runway projects, and the remainder of OMP Phase 1 is under construction. Design activities for the remainder of the OMP's airfield, a collection of projects referred to as the OMP Completion Phase, are now beginning. This application respectfully requests the Federal Aviation Administration (FAA) provide Letter-of-Intent (LOI) Airport Improvement Program (AIP) grant funding for the OMP Completion Phase projects.

The attached document describes in detail this funding request. We believe this federal funding support is warranted, given the significant benefits this program provides to the national airspace system. An enclosed benefit-cost analysis reviews the economic justifications for these projects and documents the sizable return on investment that is expected to result from such projects.

The City of Chicago has proven its ability to successfully implement major airport improvements through its work on the OMP thus far, and we look forward to continuing that success, with the help of the FAA, in completing the program.

O'Hare Modernization Program
Richard M. Daley, Mayor

We stand ready to review the details of this application with you and your staff. Thank you in advance for considering this funding request.

Sincerely,

Rosemarie S. Andolino
Acting Commissioner
Department of Aviation

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Request for Letter of Intent

Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding

March 1, 2009

I. Executive Summary

I. Executive Summary

The O'Hare Modernization Program (OMP) is a multi-year plan to reduce aircraft delay and enhance the capacity of the Airport. Construction began in 2005 and, to date, a new runway, an extension of an existing runway, and a new Airport Traffic Control Tower (ATCT) have been completed and are in use. Construction continues on the remaining element of OMP Phase 1, Runway 10C-28C.

The City is now preparing to begin the next phase of the OMP, OMP Completion Phase. The OMP Completion Phase includes construction of two runways, a runway extension, a western terminal including western ground access and people mover, and a Completion Phase noise program. The World Gateway Program (WGP), a separate capital development program included on the approved Airport Layout Plan (ALP), included taxiway improvement projects which are also necessary for the operation of the OMP Completion Phase runways[1]. This grant application is for funding for the OMP Completion Phase runway projects and WGP taxiway improvement projects (LOI Projects).

1.1 Description of the OMP

Implementation of the OMP will reduce delays and enhance capacity by modernizing the airfield configuration. O'Hare's existing layout of converging runways will be reconfigured into a predominantly parallel runway system typical of modern, large-hub airports. These parallel runways will allow operation of a combination of arrival and departure runways at the Airport, providing balanced and flexible capacity in all weather conditions.

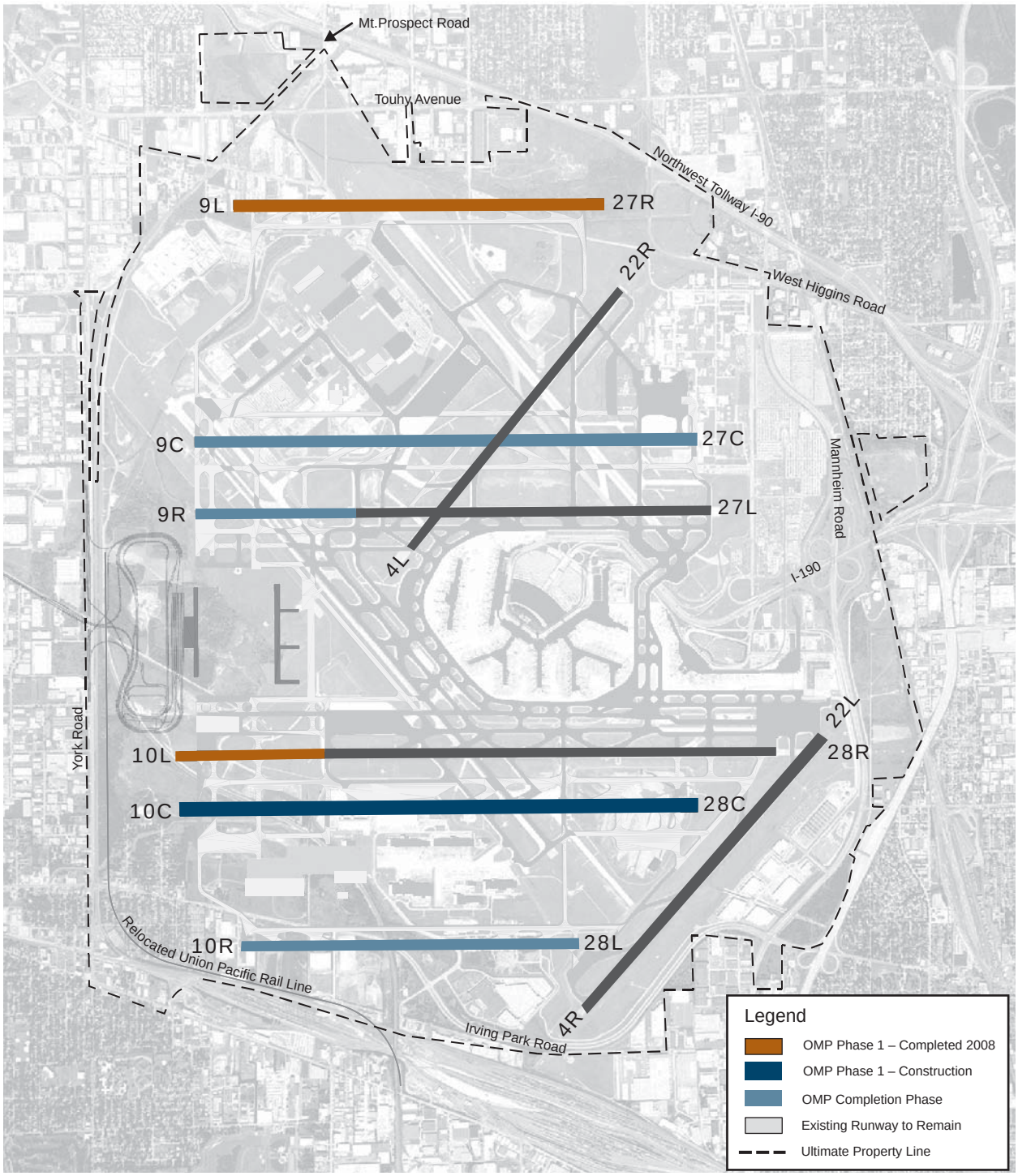
1.2 LOI Projects

The City is requesting LOI funding for the following projects:

- OMP Completion Phase Airfield
  - Runway 9C-27C
  - Runway 10R-28L
  - Extension of Runway 9R-27L - Include projects associated with the Extension of Runway 9R-27L and the Runway 27L threshold relocation (to solve existing Runway Safety Area deficiencies).
- WGP taxiway improvements

The OMP airfield projects are shown in **Exhibit I-1**.

[1] WGP taxiway improvements include Taxiway LL, a component proposed as an airfield improvement before the City proposed the OMP. Originally characterized as an extension of Taxiway N, the project was subsequently identified in the overall Master Plan and on the ALP approved by the FAA on September 30, 2005. The associated cost estimate for constructing Taxiway LL was outside the scope of the cost estimate for the OMP, but the cost of taxiway LL was included in the overall cost estimate associated with the Master Plan.



Source: O'Hare Airport Layout Plan (Sept. 2005)
Prepared by: Ricondo & Associates, Inc.

Exhibit I-1

north

O'Hare Modernization Program
Runway Configuration

1.3 Benefit Cost Analysis

A Benefit-Cost Analysis demonstrates whether the present value of a project's benefits exceed the present value of its costs by calculating the ratio of the discounted benefits divided by the discounted costs. The FAA does not use the benefit-cost ratio for ranking projects to assess how AIP discretionary grants are to be allocated. The primary purpose of this BCA is to present the Net Present Value, assessing the ongoing value of the investment over time, and benefit-cost ratio of the Proposed Action, which consists of the LOI Projects and the OMP Completion Phase noise program. The results are shown in **Table I-1**.

Table I-1

Benefit-Cost Ratio and Net Present Value (2008 dollars) Aircraft and Passenger Local Travel Time Benefits Only

	Present Value Benefits (billions)	Present Value Costs (billions)	Net Present Value (billions) [1]	Benefit-Cost Ratio
Proposed Action	$4.0	$2.4	$1.6	1.68

Note:
1 Total may not add due to rounding.

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

Various sensitivity analyses are also presented to show the benefit-cost if project benefits, costs, or timing differ from those assumed in the primary analysis. In accordance with FAA guidance, this analysis and the sensitivity analyses do not attempt to quantify or consider all benefits associated with the project. They illustrate that the aircraft travel time savings alone are sufficient to produce benefits that in all cases exceed project costs. Thus, the benefit-cost ratios and NPVs presented here are based on underestimated benefits and would be expected to be higher under a full accounting of project benefits. The values are presented in **Table I-2** and tabular information detailing the calculation of the BCR and NPV are included in **Appendix F**.

Table I-2

Benefit-Cost Ratios and Net Present Values (2008 dollars) - Sensitivity Analyses
Aircraft and Passenger Local Travel Time Benefits Only

Sensitivity Analysis	Evaluation End Year	Present Value Benefits (billions)	Present Value Costs (billions)	Net Present Value[1] (billions)	Benefit-Cost Ratio
Increase capital costs by 25 percent	2034	$4.0	$2.9	$1.1	1.37
Decrease benefits by 25 percent	2034	$3.0	$2.4	$0.6	1.26
Increase capital costs by 25% and decrease benefits by 25%	2034	$3.0	$2.9	$0.07	1.03
Constrained passengers growth at operations limit	2034	$3.9	$2.4	$1.6	1.66
Delay construction schedule by 5 years	2039	$4.1	$1.7	$2.4	2.45
2002 TAF as Base for Constrained Forecast	2034	$6.5	$2.4	$4.2	2.77

Note:
1 Totals may not add due to rounding.

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

The City is seeking an LOI for $500 million in AIP discretionary funds for the LOI Projects. **Table I-3** presents the LOI Project expenditures in 2008 dollars and **Table I-4** presents the proposed LOI reimbursement schedule.

Table I-3

Cash Flows for LOI Projects (2008 dollars)

Calendar Year	LOI Projects Expenditures (millions)[1]
2008	3.3
2009	68.4
2010	432.6
2011	898.9
2012	780.4
2013	341.8
2014	121.8
Total [2]	$2,647.1

Notes:
1 Expenditures are shown in calendar years as originally planned by the City in 2008 dollars. The timing of expenditures is subject to change.
2 Total may not add due to rounding.

Source: OMP Program Management Office.
Prepared by: Ricondo & Associates, Inc.

Table I-4

Proposed LOI Reimbursement Schedule

Federal Fiscal Year	Proposed LOI Reimbursement ($ millions)
2010	50.0
2011	50.0
2012	50.0
2013	50.0
2014	50.0
2015	50.0
2016	50.0
2017	50.0
2018	50.0
2019	50.0
Total	$500.0

Source: City of Chicago, Department of Aviation.
Prepared by: Ricondo & Associates, Inc.

Request for Letter of Intent

Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding

March 1, 2009

II. Introduction

II. Introduction

The OMP is a multi-year plan to reduce aircraft delay and enhance the capacity of the Airport. The first phase of the OMP, OMP Phase 1, began construction in 2005. To date, a new runway, an extension of an existing runway, and a new Airport Traffic Control Tower (ATCT) have been completed as part of OMP Phase 1 and are now in use. Construction continues on the remaining element of OMP Phase 1, Runway 10C-28C. The City is now preparing to begin the next phase of the OMP, OMP Completion Phase. The OMP Completion Phase includes construction of two runways, a runway extension, a western terminal including western ground access and people mover, and a Completion Phase noise program. The World Gateway Program (WGP), a separate capital development program included on the approved Airport Layout Plan (ALP), included taxiway improvement projects which are also necessary for the operation of the OMP Completion Phase runways. This grant application is for funding for the "LOI Projects" comprised of the OMP Completion Phase runway projects and WGP taxiway improvement projects.

The following runway projects are included as part of the full OMP airfield development, along with the associated proposed supporting airfield infrastructure:

OMP Phase 1 – Completed in 2008

- New Runway 9L-27R
- Extension of Future Runway 10L-28R (Existing Runway 10-28)

OMP Phase 1 – Under Construction

- Future Runway 10C-28C (Relocation of Existing Runway 18-36)

OMP Completion Phase Airfield Projects

- Extension of Runway 9R-27L (Previously Runway 9L-27R); includes the relocation of the Runway 27L threshold
- Future Runway 9C-27C (Relocation of Existing Runway 14L-32R)
- Future Runway 10R-28L (Relocation of Existing Runway 14R-32L)

On November 21, 2005, the FAA issued an LOI (AGL-06-01) for OMP Phase 1 for $337.2 million to be paid over 15 years. The $337.2 million consisted of $300 million of discretionary funds and $37.2 million of entitlement funds. The current status of the LOI disbursement is described in Section V of this application.

Consistent with statutory requirements for the use of LOI grants, the OMP will enhance system-wide airport capacity. The FEIS defines the purpose and need of the OMP as follows:

- Address the projected needs of the Chicago region by reducing delays at O'Hare, and thereby enhancing capacity of the National Airspace System.
- Ensure that existing and future terminal facilities and supporting infrastructure (access, landside, and related ancillary facilities) can efficiently accommodate airport users. (EIS 2-22)

Additional benefits of the OMP include:

- Providing flexible opportunities for increasing terminal and landside capacity
- Creating opportunities for enhanced competition among air carriers
- Enhancing the ability of the Airport to accommodate new large aircraft (NLA)

- Mitigating noise impacts.

In addition, the extension of Runway 9R-27L in OMP Completion Phase also includes relocation of the Runway 27L threshold to provide a full-length Runway Safety Area (RSA) on that runway.

2.1 Background

Aircraft delay historically has been a major issue at the Airport. The City and others have undertaken many studies over the past two decades aimed at identifying solutions to the increasing delay problem. These studies, such as the *1991* and *2002 Delay Task Force Studies*, and the *Capacity Needs in the National Airspace System 2007-2025*, have been conducted to investigate opportunities for runway development to mitigate escalating delays. While these studies concluded that several options were available to mitigate existing delays, few options studied prior to the OMP provided long-term capacity growth consistent with projected future demand.

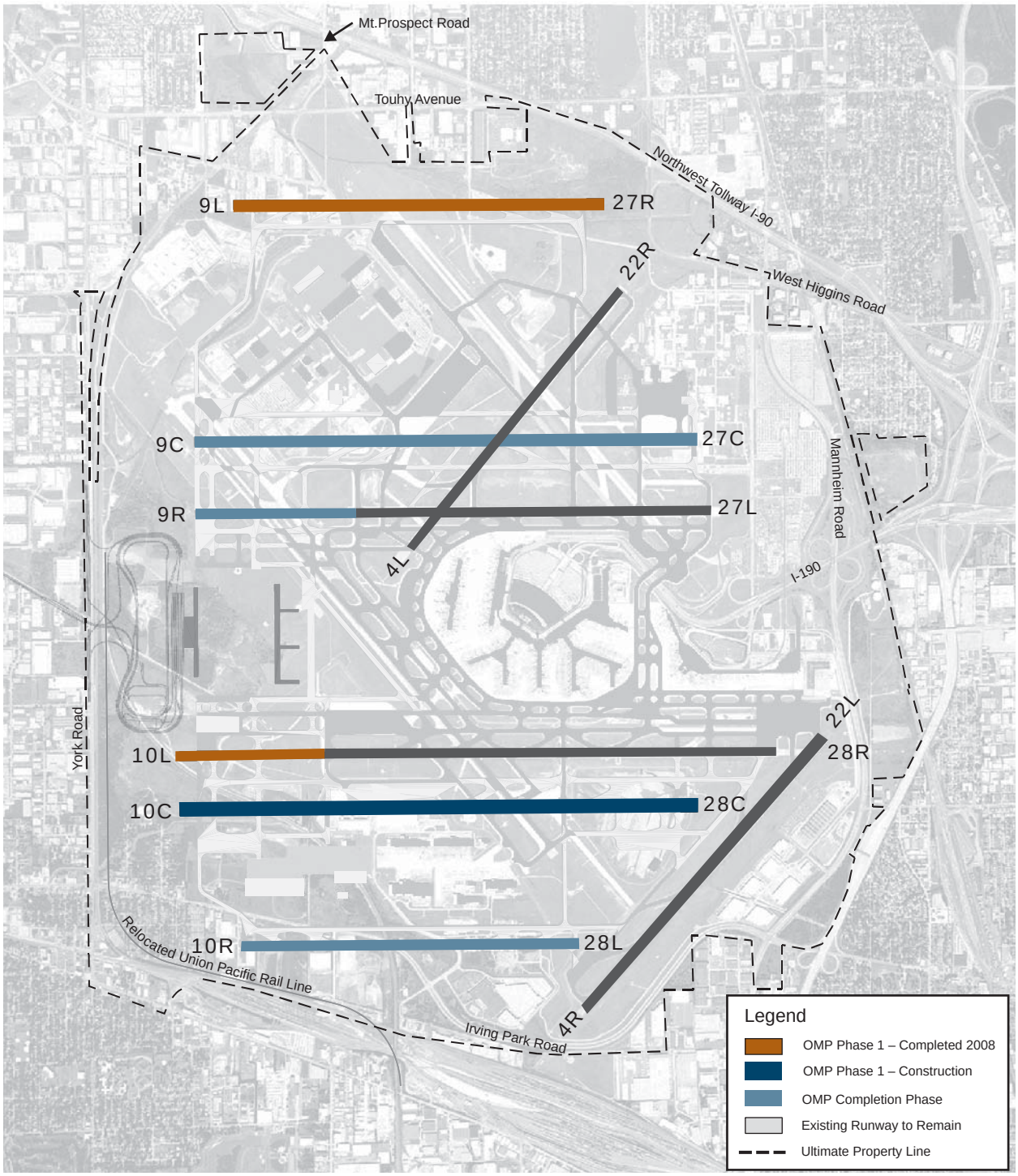
In response to the national interest in airport capacity and delay in Chicago, the U.S. Senate Committee on Commerce, Science and Transportation held a field hearing in Chicago on June 15, 2001, on *Air Traffic Congestion and Capacity in the Chicago, Illinois Region and Its Effects on the National Air Traffic System*. Testimony was provided by proponents of O'Hare expansion, proponents of a third airport in the Peotone area, and opponents of O'Hare expansion. Although the Senate Committee did not take specific actions, it made clear its desire that local and state officials act soon on the issue of aviation capacity in Chicago or face the possibility of federal intervention.

In response to the Committee's challenge, the City presented its OMP proposal for the future of O'Hare on June 29, 2001. The OMP proposal provided for the addition of one new runway, relocation of three runways, and extension of two existing runways, resulting in an airfield configuration with six runways in the east-west direction shown in **Exhibit II-1**. As in the exhibit, this document identifies the proposed runways by their proposed ultimate designations. Additional development is also proposed as part of the OMP, including constructing new taxiways, relocating certain buildings, constructing new Airport Traffic Control Towers, developing new terminal facilities on the west side of the Airport, and providing the associated ground transportation access for these western facilities.

Subsequent to the City's proposal of the OMP, the State of Illinois held hearings on the City's proposed plan in the communities surrounding O'Hare. In December 2001, the City and the State agreed on the future OMP proposed development concept. On May 31, 2003, the Illinois General Assembly approved the O'Hare Modernization Act (Illinois Public Act 93-0450) and the Governor signed it into law on August 6, 2003. The O'Hare Modernization Act was intended to expedite and facilitate the OMP.

The OMP has business, community, and airline support. Airline support for the OMP has been reflected in a letter included in **Appendix B**.

The projects included in this LOI request were subject of federal review as part of the EIS for the O'Hare Modernization Program and ALP approval. The EIS Record of Decision and ALP approval were received in September 2005.



Source: O'Hare Airport Layout Plan (Sept. 2005)
Prepared by: Ricondo & Associates, Inc.

Exhibit II-1

north

O'Hare Modernization Program
Runway Configuration

2.2 Outline of Application

In FAA Order 5100.38C and its amended requirements in Program Guidance Letter 07-03, the FAA outlined major criteria that it will use to evaluate LOI applications, including a proposed project's (1) capacity or delay impact on airport and overall system capacity, (2) benefits and costs, and (3) financing and timing. These sections that follow in this LOI request discuss these criteria in depth.

- *Section III:* System Role. The section illustrates the importance of the Airport's role in the NAS. Historical and forecast aviation activity and current airfield limitations at the Airport are identified.
- *Section IV*: The O'Hare Modernization Program. This section summarizes the OMP purpose and need and expected impact at the Airport was well as system capacity benefits. Descriptions of the OMP and LOI Projects, cost estimates, and implementation schedule are provided.
- *Section V*: Benefit-Cost Analysis (BCA). This section summarizes the BCA methodology and results. The BCA was performed in accordance with the procedures outlined in the FAA's Benefit-Cost Analysis Guidance document, December 15, 1999 (the BCA Guidance).
- *Section VI*: Financial Plan. The LOI request must demonstrate a sound financial representation of the relevant capital development program. The financial plan will place the request for LOI funds in the context of the total cost of the project and highlight the local financial commitment.

The Record of Decision on the EIS and ALP approval were received in September 2005 prior to the OMP Phase 1 LOI award.

Supporting documentation is provided in the following appendices:

- *Appendix A*: LOI for AIP funding AGL-06-01.
- *Appendix B*: Airline Support. Letter to the Editor of the Chicago Tribune Nov. 24, 2008 from United Airlines and American Airlines.
- *Appendix C*: Memo describing the creation of the constrained enplanement forecast.
- *Appendix D*: Gate Operating Limits.
- *Appendix E*: Results from EIS simulation analysis used in the BCA.
- *Appendix F*: BCA Tables
- *Appendix G*: Financial tables required by FAA Program Guidance Letter 07-03.
- Reference Document DVD
  - *FAA's Analysis and Review of Chicago's Application of Letter of Intent AGL 06-01 (A&R)*
  - *Final Environmental Impact Statement (EIS)*
  - *FAA Record of Decision (ROD)*
  - *O'Hare Master Plan (Master Plan)*
  - *O'Hare International Airport Airport Layout Plan (ALP)*
  - *Bureau of Transportation Statistics Tables*
  - *Economic Studies*
  - *FAA Final Agency Decision for PFC 06-19-C-00-ORD (FAD 06-19)*
  - *FAA Final Agency Decision for PFC 08-21-C-00-ORD (FAD 08-21)*

Request for Letter of Intent

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March 1, 2009

III. System Role

III. System Role

III. System Role

The following sections discuss the specific nature of airline operations at the Airport and historical, current, and forecast aviation activity.

3.1 Role of the Airport

The Airport, located approximately 18 miles northwest of downtown Chicago, has been the primary commercial airport serving the Chicago Region[2] since 1962. The current airfield configuration consists of seven main runways that are configured in three sets of parallel runways (three east-west runways, two northwest-southeast runways, and two northeast-southwest runways), and a single north/south runway (Runway 18/36) that is currently closed to operations.

Based on statistics from Airports Council International (ACI), the Airport ranked second worldwide in total operations and total passengers in 2007[3] (see **Exhibit III-1A**). Year-to-date November 2008 data from ACI, the most recent data available, illustrates the Airport maintained it's ranking amongst airports worldwide in both total operations and total passengers (see **Exhibit III-1B**). The Airport has been ranked first worldwide in total operations in 40 of the last 46 years and first worldwide in total passengers in 36 of the last 46 years. By Federal Aviation Administration classification, the Airport is a "large hub" as it accounts for at least one percent of total U.S. enplaned passengers.

As the world's second busiest airport (behind Atlanta's Hartsfield Jackson), O'Hare has a strong international presence, with 131 international daily departures. Based on Official Airline Guide data for December 2008, O'Hare was ranked the fourth busiest U.S. international gateway (Miami International Airport, John F. Kennedy International Airport, and Los Angeles International Airport provide more international daily departures).

The Airport is an integral component of the NAS as evidenced by its high level of aviation activity. Based on preliminary City statistics for calendar year 2008, O'Hare had 881,566 total aircraft operations.

3.1.1 Transportation Hub

The Chicago Region's large population and economic base provide strong demand for local origin-destination (O&D) traffic at the Airport. The Chicago Region's strong economic base, centered on the nation's third-largest city, provides a significant O&D market of business and leisure travelers. The number of large businesses and organizations in the Chicago Region creates a significant demand for air transportation. In 2007, domestic O&D passengers accounted for 45.8 percent of enplaned passengers.

This O&D traffic base, coupled with Chicago's location near the center of the United States along heavily traveled east/west air routes, makes it a natural location for airline hubbing operations. O'Hare currently serves as a network hub for two large domestic airlines, United and American. As noted in the *January 2004 FAA Order Limiting Scheduled Operations*, O'Hare's location makes it "a logical connecting point for significant passenger flows across the United States."

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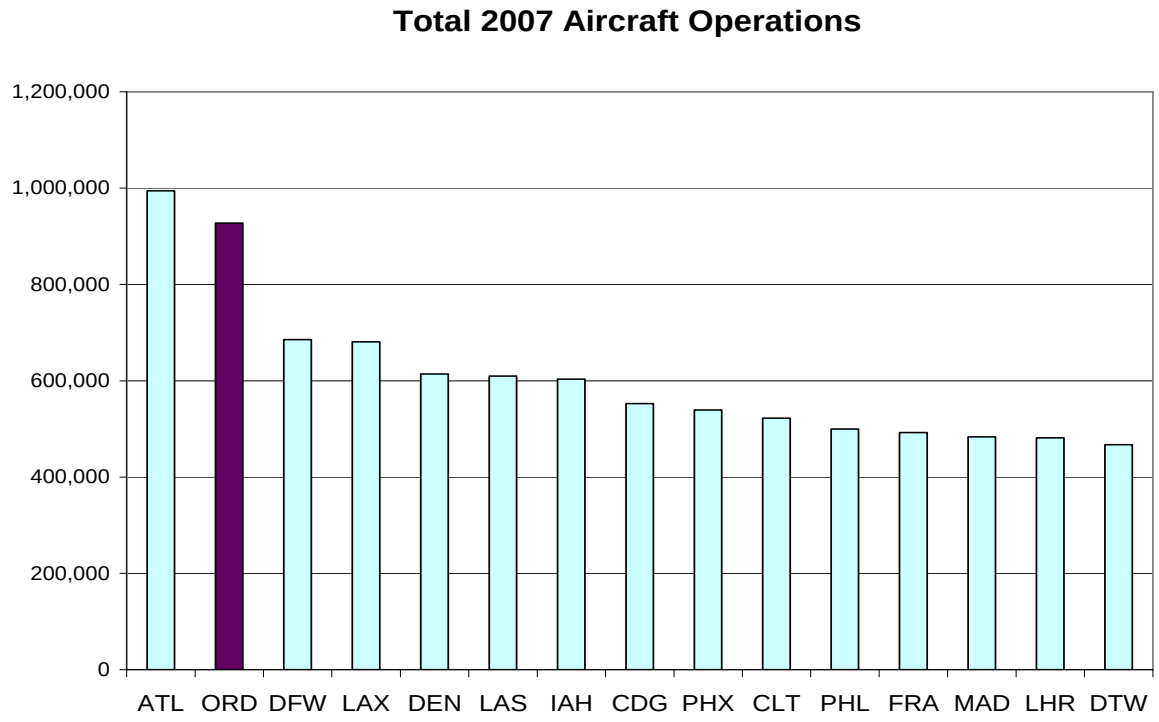
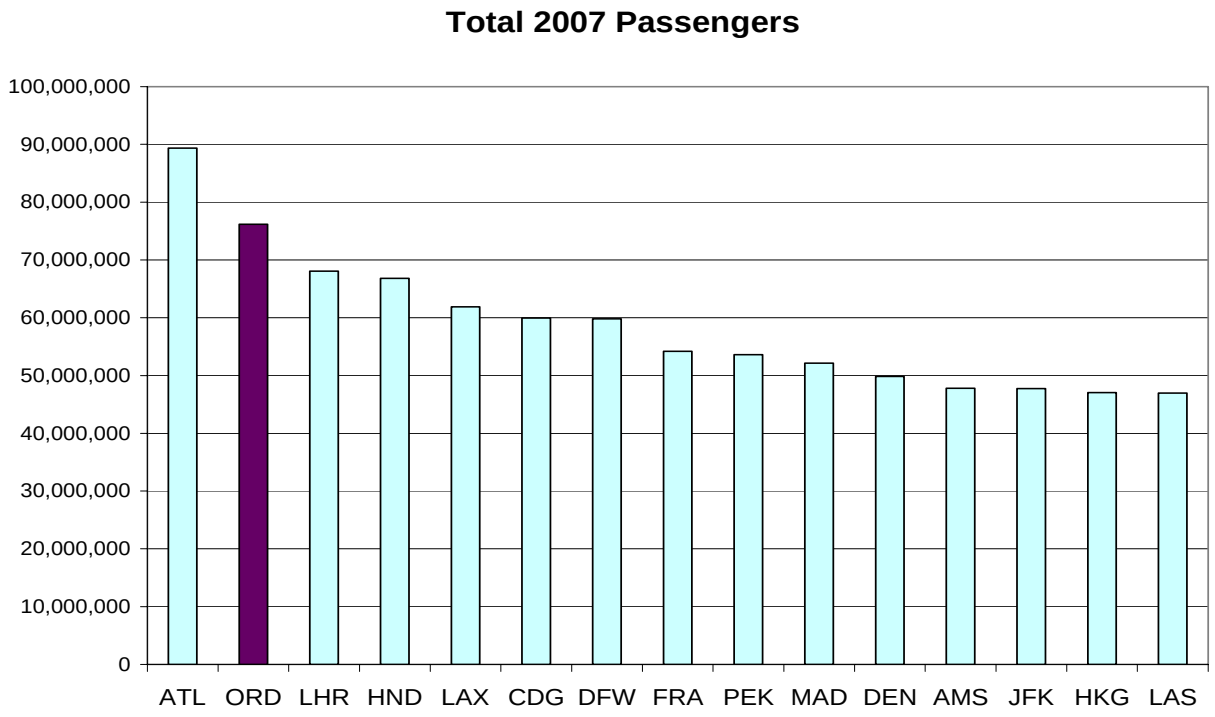
[2] Defined as the 13-county Chicago-Gary-Kenosha Consolidated Metropolitan Statistical Area (CMSA), which consists of the adjoining MSAs of Chicago, Gary, Kankakee, and Kenosha MSAs, which are adjoining.

[3] 2008 annual statistics were unavailable at the time of publishing.

Exhibit III-1A

Top 15 Worldwide Ranking of Activity - 2007

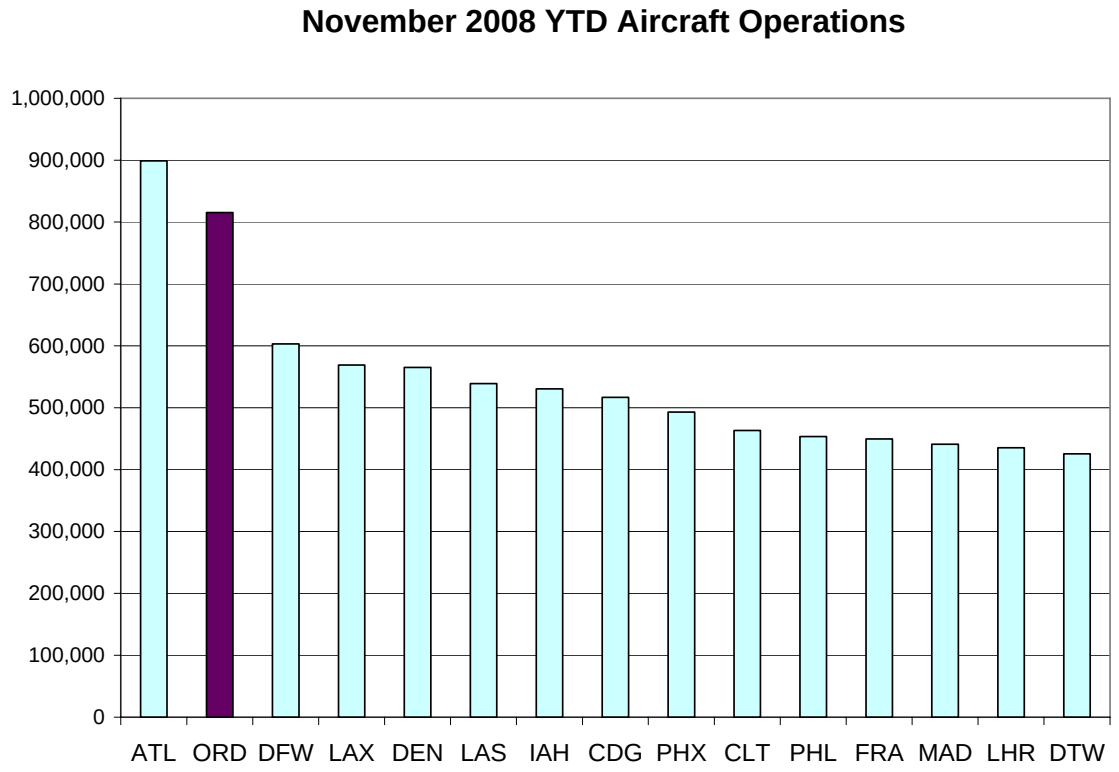


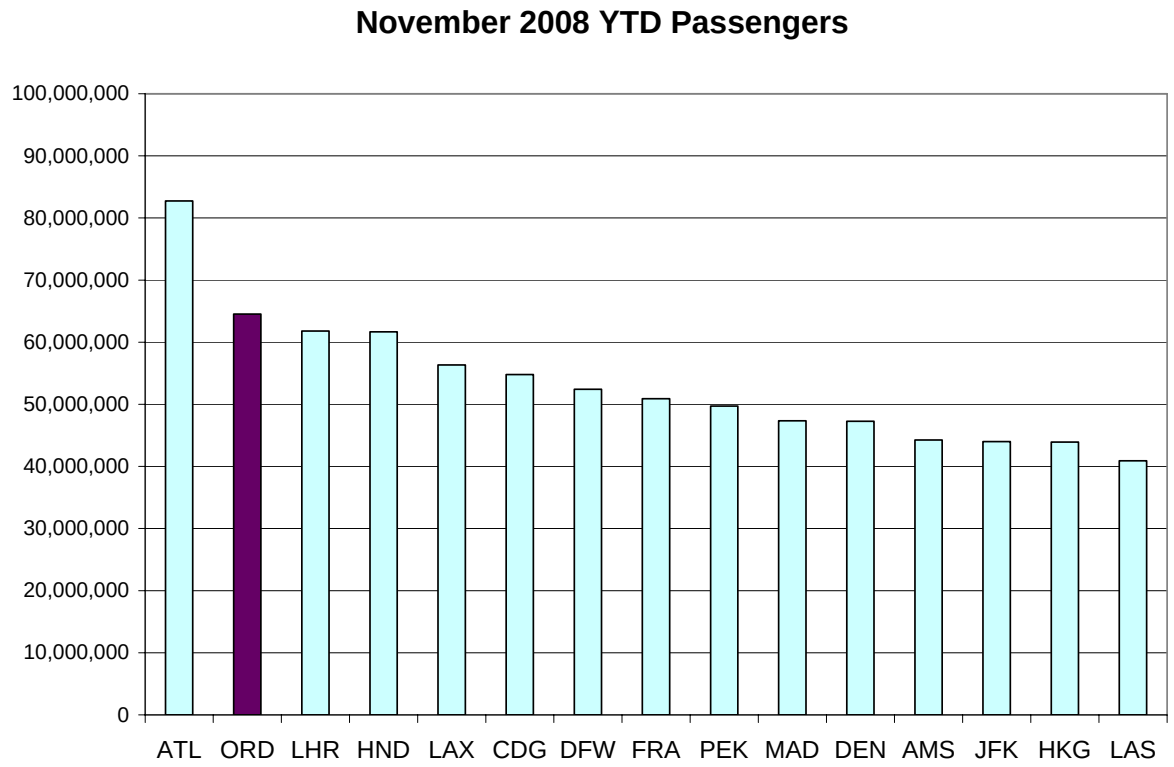


Source: Airports Council International.
Prepared by: Ricondo & Associates, Inc.

Exhibit III-1B

Top 15 Worldwide Ranking of Activity – November 2008 Year-To-Date





Source: Airports Council International.
Prepared by: Ricondo & Associates, Inc.

The Airport serves as an important O&D and connection market for United Airlines and American Airlines. For United, O'Hare is the largest hub, in terms of capacity, within its route network. In 2008, the Airport accounted for 18.2 percent of United's total scheduled seats, higher than any other airport in its network. For American, O'Hare is the second largest hub within its network, following Dallas/Fort Worth International Airport. The Airport accounted for 10.9 percent of American's total scheduled seats in 2008. The scheduled seat share for United and American combined is 82.7 percent of total scheduled seats at O'Hare for 2008.

3.1.2 Economic Benefit

The Airport is an important part of the NAS, and it significantly contributes to both regional and national economic growth. A July 2001 study by Booz•Allen & Hamilton, *Economic Impact of Chicago's Airports*, cites O'Hare's substantial economic benefit to the region in 2000:

- Contributed 400,000 to 480,000 jobs to the Greater Chicago Region.[4] The Airport generated between 15 and 20 percent of the employment in its immediate vicinity.
- Included 30,000 airline personnel based at O'Hare; 130,000 persons employed by the Airport and its tenants; 170,000 persons employed in tourism and visitor services; and 100,000 to 180,000 persons employed in access-sensitive businesses (such as corporate headquarters, research and development facilities, manufacturing) whose locations require proximity to an airport. The proximity itself promotes further business.
- Contributed $34 billion to $41 billion in annual economic activity to the Greater Chicago Region.

Subsequent to the study prepared by Booz Allen & Hamilton, several other organizations analyzed the job creation and economic generating benefits of the OMP. These studies varied in the methodologies utilized and the size of the study area, but each study found the economic benefits of the OMP to be substantial. These other sources for such economic data include:

- *FAA EIS, Section 5.5 Secondary (Included) Impacts, 2005*
- *Airline Traffic and Urban Economic Development,* Jan Brueckner, Department of Economic and Institute of Government and Public Affairs, University of Illinois at Urbana-Champaign, August 2002.
- *West O'Hare Corridor Economic Development Study,* DuPage County Department of Economic Development and Planning, October 2006.

3.1.3 Air Service

The Airport has had a strong and stable base of air carriers. In 2008, the Airport had scheduled passenger service provided by 23 U.S. flag air carriers, scheduled and nonscheduled service by 29 foreign flag carriers, and non-scheduled service by 5 airlines, as shown in **Table III-1**. In addition, 30 all-cargo carriers provided cargo service at the Airport. Of the nation's 17 major passenger air carriers, 14 serve the Airport.

[4] In the Booz•Allen report, the Greater Chicago Region comprises five economic regions around O'Hare: Chicago Downtown; O'Hare Vicinity Area, including the Northern and Western Suburbs and first set of townships in Lake and Kane counties; Midway Vicinity, including the suburbs centered around Midway Airport; Northern Outer Suburbs, including the first set of townships along the lake shore north of Chicago, McHenry, Lake, Kane, and DuPage counties; Southern Suburbs, including Will County, and a portion of Cook County not already included in the Chicago Downtown or Midway Vicinity.

Table III-1

Airlines Serving O'Hare – 2008

Scheduled U.S. Carriers (23)	Foreign Flag Carriers (29)	Other/Nonscheduled Carriers (5)	All-Cargo Carriers (30)
Air Wisconsin (US Airways Express)	Aer Lingus	Gold Transportation	Aerounion
Alaska	Aeromexico	Miami Air	Air China
American	Air Canada	Pace	Air New Zealand
American Eagle	Air France	Ryan International	Air Trans international (BAX Global)
Atlantic Southeast (Delta Connection)	Air India	U.S.A. 3000	Airborne Express
Chautauqua	Air Jamaica		ANA & JP Express
Comair (Delta Connection)	Air One		Atlas Air
Continental	Alitalia		Cargoitalia
Continental Express	All Nippon Airways		Cargolux
Delta	Asiana		Cathay Pacific
Freedom (Delta Connection)	Austrian		China Airlines
Go Jet (United Express)	British Airways		China Cargo
JetBlue	British Midland		China Eastern
Mesa	Cayman Airways		China Southern
Northwest	Cross/Swiss		DHL Airways
Pinnacle (NW Airlink)	Iberia		EVA Airways
Republic (US Airways Express)	Japan		Evergreen
Shuttle America (Delta Connection & United Express)	Jazz Air		Federal Express
SkyWest (United Express)	KLM Royal Dutch		Kalitta
Spirit	Korean		Korean Air Cargo
Trans State (United Express)	LACSA		Lufthansa Cargo
United	LOT Polish		Martin Air Holland
US Airways	Lufthansa		Nippon
	Mexicana		Polar
	Royal Jordanian		Qantas
	Scadinavian		Shanghai Cargo
	Taca International		Singapore Cargo
	Turkish		Southern Air
	Virgin Atlantic		United Parcel Service
			World

Source: City of Chicago, Department of Aviation.
Prepared by: Ricondo & Associates, Inc.

In December 2008, nonstop service was provided to 129 domestic cities with a total of 6,740 weekly departing flights.[4] **Exhibit III-2** illustrates these nonstop domestic markets. Each of the Airport's top 25 domestic O&D markets was served with nonstop service. As shown on **Table III-2**, the New York market was provided with the most service with 419 weekly nonstop departing flights during this period. During the same period, nonstop service was provided to 51 international cities with a total of 880 weekly departing flights, as shown on **Table III-3** and illustrated in **Exhibit III-3.** Outside of North America, the London market was provided with the most service with 69 weekly nonstop departing flights during this period. This December 2008 time period is reflective of current market service and traffic levels at the Airport.

3.2 Aviation Activity

3.2.1 Historical Growth

Table III-4 presents aircraft operations at the Airport between 1995 and 2008. Until 2004, the Airport's activity was relatively steady, much of this due to the High Density Rule. The High Density Rule had been the means by which the FAA managed congestion and delays at O'Hare by limiting the number of aircraft operations allowed at the Airport. For example, starting in 2000, total aircraft operations at the Airport increased 0.3 percent in 2001, 1.2 percent in 2002, 0.6 percent in 2003, and 6.7 percent in 2004. The 2004 peak in total operations at the Airport followed the completion of the phase-out of the High Density Rule in July 1, 2002. In 2004, the FAA reimposed limits on the number of aircraft operations allowed at the Airport given the corresponding increases in congestion and delays.

The most recent FAA limits on aircraft operations expired in October 2008 in anticipation of the commissioning of the first new runway at O'Hare on November 20, 2008, as part of OMP Phase 1. From 2007 to 2008, aircraft operations decreased 4.9 percent as most airlines cut capacity due to the rapid acceleration in fuel prices and a slowing national economy. Between 2000 and 2004 aircraft operations increased at an average annual rate of 2.2 percent, which compares with an average rate of -2.1 percent for the United States as a whole. Between 2004 and 2007, aircraft operations decreased at an average annual rate of 2.2 percent which compares with an average declining rate of 1.1 percent for the United States as a whole.

Table III-5 presents historical enplanements (domestic and international) for the Airport from 1995 through 2008. As shown, enplanements at the Airport increased from approximately 32.9 million enplanements in 1995 to just over 34.0 million in 2008. This increase represents a compounded annual growth rate of 0.3 percent during this period. Due in large part to labor troubles at United, enplanements decreased 0.7 percent in 2000 from 1999 levels. Enplanements at the Airport decreased 6.7 percent in 2001 from 2000 levels, and an additional 1.2 percent in 2002 due primarily to the events of September 11, 2001 and the national economic slowdown. These three years of decreasing activity caused enplanements to decline from about 35.9 million in 1999 to 32.9 million in 2002.

[4] Source: *Official Airline Guide* - December 13, 2008 through December 19, 2008.

Source: *Official Airline Guide, Inc.,* (December 13 - 19, 2008).
Prepared by: Ricondo & Associates, Inc.

Exhibit III-2

north

S://Graphics Library/Misc Maps/non-stop domestic flights.ai

Chicago-O'Hare's Nonstop Domestic Markets

Table III-2

Top 25 Domestic Nonstop Passenger Markets

Rank	Market	Scheduled Weekly Nonstop Departing Flights[1]
1	New York/Newark	419
2	Washington	269
3	Minneapolis/St. Paul	184
4	Dallas/Ft. Worth	180
5	Atlanta	149
6	Detroit	141
7	St. Louis	137
8	Philadelphia	136
9	Boston	130
10	Cincinnati	129
11	Los Angeles	126
12	Charlotte	125
13	Cleveland	110
14	Indianapolis	106
15	Houston	105
16	San Francisco	102
17	Columbus	100
18	Denver	98
19	Phoenix	92
20	Des Moines	90
21	Madison	86
22t	Seattle	85
22t	Cedar Rapids/Iowa City	85
24t	Kansas City	82
24t	Las Vegas	82
24t	Nashville	82
	Other Markets	3,310
	Total	6,740

Note:
1 For the week of December 13 - 19, 2008.

Source: Official Airline Guides, Inc.
Prepared by: Ricondo & Associates, Inc.

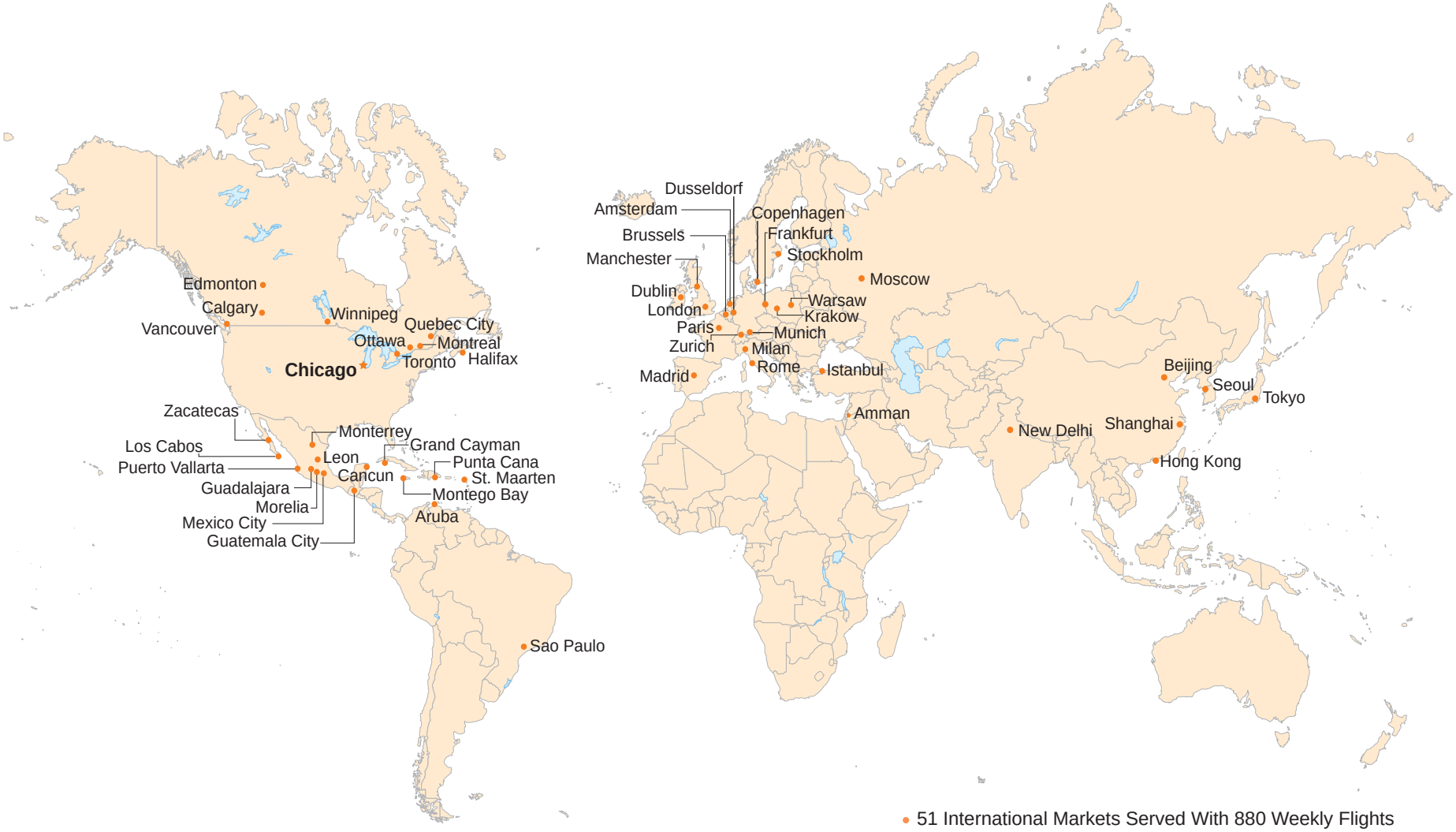
Table III-3

Top International Nonstop Passenger Markets

Rank	City	Country	Scheduled Weekly Nonstop Departing Flights[1]
1	Toronto	Canada	139
2	Montreal	Canada	89
3	London	United Kingdom	69
4	Ottawa	Canada	54
5	Mexico City	Mexico	38
6	Frankfurt	Germany	35
7	Winnipeg	Canada	34
8	Cancun	Mexico	30
9	Tokyo	Japan	28
10	Calgary	Canada	27
11t	Vancouver	Canada	21
11t	Edmonton	Canada	21
13t	Paris	France	19
13t	Guadalajara	Mexico	19
15	Puerto Vallarta	Mexico	16
16t	Shanghai	China	14
16t	Dublin	Ireland	14
16t	Munich	Germany	14
16t	Amsterdam	Netherlands	14
20	Morelia	Mexico	13
21	Manchester	United Kingdom	12
22	Seoul	Korea	10
23	Los Cabos	Mexico	9
24	Montego Bay	Jamaica	8
25t	Beijing	China	7
25t	Brussels	Belgium	7
25t	Delhi	India	7
25t	Halifax	Canada	7
25t	Hong Kong	China	7
25t	Madrid	Spain	7
25t	Milan	Italy	7
25t	Monterrey	Mexico	7
25t	Quebec City	Canada	7
25t	Sao Paulo	Brazil	7
25t	Warsaw	Poland	7
25t	Zurich	Switzerland	7
	Other Markets		49
	Total		880

Note:
1 For the week of December 13 - 19, 2008.

Source: Official Airline Guides Inc.,.
Prepared by: Ricondo & Associates, Inc.



Source: *Official Airline Guide, Inc.*, (December 15 - 19, 2008).
Prepared by: Ricondo & Associates, Inc.

Exhibit III-3

north

Chicago-O'Hare's Nonstop International Markets

S://Graphics Library/Misc Maps/non-stop international flights2.ai

Table III-4

Historical Aircraft Operations (1995-2008)

Year	Total Aircraft Operations[1]
1995	900,279
1996	909,593
1997	883,761
1998	896,110
1999	896,228
2000	908,989
2001	911,917
2002	922,817
2003	928,691
2004	992,427
2005	972,248
2006	958,643
2007	926,973
2008 [2]	881,566

Notes:
1 Includes general aviation, helicopter, and other miscellaneous operations.
2 2008 aircraft operations are preliminary data and subject to change.

Source: City of Chicago, Department of Aviation.
Prepared by: Ricondo & Associates, Inc

Table III-5

Historical Enplanements (1995-2008)

Year	Enplanements
1995	32,861,460
1996	34,067,885
1997	34,774,114
1998	35,758,810
1999	35,946,964
2000	35,700,525
2001	33,310,203
2002	32,918,936
2003	34,406,667
2004	37,464,632
2005	37,970,886
2006	37,784,336
2007	37,779,576
2008 [1]	34,024,964

Note:
1 2008 enplanements are preliminary data and subject to change.

Source: City of Chicago, Department of Aviation.
Prepared by: Ricondo & Associates, Inc.

By 2004, demand returned and enplanements exceeded pre-September 11, 2001, levels reaching 37.5 million, an 8.9 percent increase over 2003 enplanements. To respond to this growth in enplanements and corresponding growth in, the FAA and the major airlines serving the Airport (United and American) agreed in early 2004 to voluntarily limit scheduled domestic and Canadian arrivals at the Airport as a temporary measure to reduce aircraft delays. The FAA later issued an order implementing the voluntary flight reductions; that order was later amended to reduce further the number of operations, to include other carriers, and to extend its duration. Ultimately, the FAA issued the now October 2008-expired rule to limit aircraft operations at the Airport to mitigate congestion and delays.

From 2004, enplanements increased 1.4 percent to peak at approximately 38.0 million in 2005. Enplanements remained flat at 37.8 million in 2006 and 2007, a decrease of 0.5 percent from 2005. For O'Hare's two main airlines, United decreased 2.4 million seats in 2005 from 2004 levels and decreased an additional 1.0 million seats in 2006 from 2005 levels. Departing seats for American decreased 1.0 million seats in 2005 and 2006. As mentioned earlier, due to the rapid acceleration in fuel prices and a slowing national economy many of the major airlines reduced capacity at the Airport as at most airports across the nation. As a result, 2008 enplanements decreased 9.9 percent from 2007.

United and its regional affiliates had a combined 46.1 percent share of Airport enplaned passengers in 2008. United mainline operations provide nonstop service from the Airport to 51 domestic markets and 14 international markets. United's affiliates that operate as United Express; Chautauqua Airlines, GoJet Airlines, Mesa Airlines, Shuttle America, SkyWest Airlines, and Trans States Airlines provide nonstop service to 75 domestic markets and 8 international markets from the Airport.

American and its subsidiary American Eagle had a combined 36.6 percent share of Airport enplaned passengers in 2008. American mainline operations provide nonstop service to 41 domestic markets and 12 international markets. American Eagle provides nonstop service to 58 domestic markets and 3 international markets.

In 2008 American, United, and their affiliates reduced seat capacity at the Airport. American and its regional affiliates decreased seats 6.2 percent in 2008 to approximately 16.8 million compared with 17.9 million available in 2007. During that same period, United along with its regional affiliates decreased seats 7.0 percent to approximately 21.0 million available in 2008 down from 22.6 million in 2007.

3.2.2 Forecast Growth

Future aviation demand at the Airport is based on forecasts developed by the FAA including projected total enplaned passengers and operations from the 2005 O'Hare Environmental Impact Statement, which is based on the 2002 Terminal Area Forecast (TAF), and the 2008 TAF, the most recent forecast produced by the FAA. **Table III-6** presents a comparison of these two forecasts.

The activity listed in the table is in calendar years (CY), the year ending December 31. Although the FAA prepares its TAFs using data based on the Federal Fiscal Year (FY), 12 months ending September 30, it was converted to a calendar year basis for the EIS and Phase 1 BCA. For the same comparative purposes, the 2008 TAF projections were also converted from fiscal year to calendar year for this BCA. The calendar year figures for the 2008 TAF are the summation of two components: April through December activity in the preceding fiscal year period; and January through March activity in the succeeding fiscal year period.

Table III-6

O'Hare International Airport EIS Forecast & 2008 FAA Terminal Area Forecasts (Calendar Year)

	Total Enplanements		Total Operations	
Calendar Year	EIS [1/]	2008 TAF [2/]	EIS [1/]	2008 TAF [2/]
2002	31,710,512	-	922,787	-
2003	32,609,000	-	960,500	-
2004	33,633,730	-	976,544	-
2005	34,696,477	-	992,855	-
2006	35,798,962	-	1,009,439	-
2007	36,943,000	-	1,026,300	-
2008	38,027,251	34,133,225	1,041,635	883,427
2009	39,149,000	32,152,853	1,057,200	828,608
2010	40,280,622	32,289,079	1,072,706	825,659
2011	41,450,619	33,058,401	1,088,438	838,443
2012	42,660,538	34,468,473	1,104,402	866,996
2013	43,912,000	35,840,005	1,120,600	895,522
2014	45,119,418	37,145,601	1,134,910	922,645
2015	46,367,491	38,289,326	1,149,402	946,654
2016	47,657,820	39,350,607	1,164,080	969,176
2017	48,992,074	40,492,701	1,178,945	993,766
2018	50,372,000	41,585,837	1,194,000	1,017,468
Compounded Annual Growth Rate				
2008 - 2009	2.9%	(5.8%)	1.5%	(6.2%)
2009 - 2010	2.9%	0.4%	1.5%	(0.4%)
2009 - 2015	2.9%	3.0%	1.4%	2.2%
2009 - 2018	2.8%	2.9%	1.4%	2.3%

Notes:

1 Represents FAA 2002 TAF projections converted to calendar years by Leigh Fisher Associates [Third Party Consultant] and Ricondo & Associates, Inc.

2 Represents FAA TAF projections converted to calendar years by Ricondo & Associates, Inc.

Source: FAA, O'Hare Modernization Draft Environmental Impact Statement, January 2005; 2002 & 2008 Terminal Area Forecasts
Prepared by: Ricondo & Associates, Inc., February 2009

In terms of absolute numbers, the 2008 TAF projects fewer aircraft operations and enplaned passengers than the EIS forecast throughout the forecast period. However, growth rates as indicated by the 2008 TAF beyond 2009 are comparable with or higher than the EIS forecast.

As shown in Table III-6, aircraft operations at the Airport in the EIS forecast are projected to increase from 1,057,200 in 2009 to 1,194,000 in 2018, at a compound average annual growth rate of 1.4 percent over the 9-year period. The number of enplanements projected by the EIS forecast increases from about 39.1 million in 2009 to 50.4 million in 2018, a 2.8 percent compound annual growth rate over the same 9-year period. The more recent 2008 TAF estimates airport operations will increase from 828,608 in 2009 to 1,017,468 in 2018. The number of enplaned passengers projected by the 2008 TAF increases from approximately 32.2 million in 2009 to 41.6 million in 2018, a 2.9 percent compound annual growth rate over the 9-year period.

Although the 2008 TAF calls for continued growth, the airline industry has faced significant challenges over recent years, including record high fuel prices, weakening economic conditions, and a weakening dollar. These significant challenges have caused several smaller carriers to declare

bankruptcy or cease passenger operations; larger major carriers have deferred deliveries of new aircraft and trimmed growth plans to sustain profitability. The result has been fewer enplaned passengers and operations than previously anticipated in the EIS Forecast. Worldwide economic conditions continue to stress the airline industry.

Air transportation demand is strongly influenced by the demographic and economic characteristics of an airport's O&D passenger market, those passengers beginning or ending their trips at the airport. As a result, the strength of the City's underlying economic base remains an important element of passenger demand. The Chicago Region has an economic base that will generate increased demand for air travel at the Airport during the forecast period.

3.2.3 FAA Caps on Operations at O'Hare

In early 2004 FAA issued an order implementing voluntary flight reductions by United and American effective no later than March 4, 2004. On April 21, 2004, FAA issued an amendment to the previous order requiring additional flight reductions by June 10, 2004. While the initial order focused on flight reductions by United and American. On August 18, 2004 FAA issued a comprehensive order limiting scheduled domestic and Canadian arrivals at the Airport effective November 1, 2004. Under this comprehensive order, scheduled domestic and Canadian arrivals at the Airport were limited to 88 per hour between 7:00 a.m. and 7:59 p.m. (and to 50 in any half hour) and to 98 scheduled arrivals between 8:00 p.m. and 8:59 p.m. This order was scheduled to expire on April 30, 2005, and was extended on three separate occasions by FAA to permit completion of a formal rule-making process on this subject.

The FAA adopted these regulations for the Airport to reduce persistent flight delays from over scheduling. As stated by the FAA in its final rule, the regulation was intended to be an interim measure only, and the FAA anticipated that the rule would yield to longer term solutions to traffic congestion at the Airport. Such solutions include plans by the City to modernize the Airport and reduce levels of delay, both in the mid term and long term.

On October 29, 2006, the FAA implemented a formal flight reduction rule at the Airport (with similar limitations in the number of total operations as were included in the previous order) which expired on October 31, 2008. The expiration date coincided with the originally scheduled opening date of Runway 9L-27R.

The FAA's TAF is based in part on historical trends; therefore, the 2008 O'Hare TAF projections are affected by such a constrained past. As the FAA states, "…if the airport historically functions under constrained conditions, the FAA forecast may reflect those constrains since they are embedded in historical data." (*Terminal Area Forecast Summary, Fiscal Years 2007-2025,* FAA, page 3).

Request for Letter of Intent

Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding

March 1, 2009

IV. The O'Hare Modernization Program

IV. The O'Hare Modernization Program

This section presents (1) an overview of the OMP, including the program's purpose and benefits; (2) a description of proposed improvements; (3) its estimated capital costs and implementation schedule; (4) an identification of the OMP Completion Phase development for the LOI projects that constitute this LOI request, and (5) the delay reduction associated with the OMP.

4.1 Purpose and Benefits of the OMP

The OMP's purpose is to reduce current and projected delays at O'Hare and throughout the NAS and add incremental capacity for the Airport to accommodate demand. The OMP includes a reconfiguration of the airfield into a modern parallel runway system that will allow the Airport to operate more efficiently. O'Hare delays are a consequence of the Airport's converging runway configuration, which does not provide balanced capacity in varying conditions that call for Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) or between arrivals and departures. Currently, these limitations significantly impact the national system even in good weather during peak periods of the day, as recognized by the *January 2004 FAA Order* and the *August 2004 FAA Order* limiting scheduled operations during peak operating hours.

Consistent with statutory requirements for the use of LOI funds, the OMP will enhance system-wide airport capacity. The EIS defines the purpose and need of the proposed OMP development:

- Address the projected needs of the Chicago region by reducing delays at O'Hare, and thereby enhancing capacity of the NAS.
- Ensure that existing and future terminal facilities and supporting infrastructure (access, landside, and related ancillary facilities) can efficiently accommodate airport users.

Additional benefits of the OMP include:

- Providing flexible opportunities for increasing terminal and landside capacity;
- Creating opportunities for enhanced competition among air carriers;
- Enhancing the ability of the Airport to accommodate NLA; and
- Mitigating noise impacts.

4.2 Description of the OMP

Implementation of the OMP will reduce delays and enhance capacity by modernizing the airfield configuration. O'Hare's existing layout of converging runways will be reconfigured into a predominantly parallel runway system typical of modern, large-hub airports. These parallel runways will allow operation of a combination of arrival and departure runways at the Airport, providing balanced and flexible capacity in all weather conditions.

The OMP is being implemented in phases as a multi-year process entailing the reconfiguration of the runway layout; relocation of other existing facilities; construction of a new western terminal complex including supporting roadway and parking facilities; noise mitigation; and land acquisition. The major components of the OMP are described below, along with its supporting, or "enabling" projects. For example, various improvements are being implemented to relocate and expand existing utilities and infrastructure, including stormwater collection and detention, water supply lines, electrical systems, sanitary sewer systems, vehicle service roads, and perimeter fencing.

The runway projects of OMP Phase 1 and the OMP Completion Phase first shown in Exhibit II-1 (Section) are described here in Section 4.2.1 and Sections 4.2.2, respectively.

The Proposed Action includes those projects necessary to achieve the overall objective and generate the benefits that are calculated in the Benefit Cost Analysis (BCA) included in this application. The Proposed Action includes the LOI Projects in addition to the OMP Completion Phase Noise program.

4.2.1 OMP Phase 1

4.2.1.1 New Runway 9L-27R - Completed

New Runway 9L-27R, including associated taxiways and other supporting development, was commissioned November 20, 2008. This runway allows a third stream of arrivals in west flow, poor weather conditions and some west flow, good weather conditions. Before this new runway was constructed, this third stream was not available at O'Hare. The most significant impact of this runway is the reduction of aircraft delay during IMC conditions[5]. Constructing this runway depended on relocating and reconfiguring various facilities, roads, and waterways, and acquiring land near the northwest quadrant of the Airport. These enabling projects were associated with Runway 9L-27R:

- Acquisition of approximately 135 acres of land near the northwest quadrant of Airport property (existing facilities in this area have been demolished).
- Relocation of a portion of Willow-Higgins Creek and associated culvert development.
- Relocation of a major water main crossing the alignment of the proposed runway.
- Expansion of the northern stormwater detention facilities.
- Development of a new Airport Traffic Control Tower (ATCT) in the north airfield.
- Realignment of an Airport service/employee access roadway along Mt. Prospect Road, and relocation of the access point's guard post and security facilities.

4.2.1.2 Extension of Future Runway 10L-28R (Existing Runway 10-28) - Completed

Construction of a proposed 2,859-foot westward extension to existing Runway 10-28 (to be renamed Runway 10L-28R), associated taxiways, and other support facilities was completed 56 days ahead of schedule on September 25, 2008. The runway extension increased the available runway length to 13,000 feet. The Runway will be the longest at the Airport after existing Runway 14R-32L is shortened and ultimately decommissioned as part of the OMP. The relocation of navigational aids and runway approach light systems were the major enabling projects completed as part of this runway extension.

4.2.1.3 Future Runway 10C-28C (Relocation of Existing Runway 18-36)

Future Runway 10C-28C, associated taxiways, and required support facilities are under construction as part of OMP Phase 1. The following are the associated enabling projects required to construct this runway:

- Relocation of a segment of the Union Pacific Railroad line in the southwest corner of the Airport.
- Acquisition of 298 acres of land near the southwest quadrant of Airport property.
- Relocation of St. Johannes Cemetery.
- Reconfiguration of the South Detention Basin. Additional stormwater capacity will also be

[5] Instrument Meteorological Conditions (IMC) occur when the cloud ceiling is less than 3,000 feet above ground level and the visibility is less than 3 statue miles.

constructed in the existing detention basin west of Runway 14R-32L.

- Relocation of certain cargo facilities located in the south airfield.
- Rerouting of the Bensenville Ditch.

4.2.2 OMP Completion Phase

4.2.2.1 Extension of Runway 9R-27L (Previously Runway 9L-27R)

OMP Completion Phase includes a 3,594-foot westward extension of existing Runway 9L-27R (future Runway 9R-27L), including associated taxiways and other supporting airfield development. This extension will provide an ultimate runway length of 11,260 feet; and by relocating the Runway 27L threshold, it will provide a full-length Runway Safety Area (RSA) on that runway end.

4.2.2.2 Future Runway 9C-27C (Relocation of Existing Runway 14L-32R)

OMP Completion Phase includes the construction of future Runway 9C-27C with associated taxiways and other supporting airfield development. During this phase of construction, several facilities must be relocated. After the proposed Runway 9C-27C is commissioned, it is planned that Runway 14L-32R will be decommissioned. Associated enabling projects include:

- Relocation of maintenance facilities located in the northwest area of the Airport.
- Relocation of military/general aviation area facilities.
- Construction of a tunnel for the service road located in the northwest area of the Airport.
- Creation of new detention pond capacity.
- Relocation of the very high frequency omni-directional range/tactical air navigation facility.

4.2.2.3 Future Runway 10R-28L (Relocation of Existing Runway 14R-32L)

The OMP Completion Phase entails constructing the southernmost runway, future Runway 10R-28L, associated taxiways, and other supporting airfield development. Upon commissioning of the runway, it is planned that Runway 14R-32L will be decommissioned and partially converted to a taxiway. This development includes these associated projects:

- Construction of service road tunnels below proposed airfield pavement within the south airfield.
- Relocation of Irving Park Road.
- Construction of a south ATCT. The ultimate location and characteristics of this facility will be subject to ATCT line-of-sight requirements and will be established in coordination with the FAA.

4.2.2.4 Proposed West Terminal Complex & On-Airport Circulation

Two structures are collectively referred to as the West Terminal Complex: The West Terminal Building/Concourse and the West Satellite Concourse. The proposed West Terminal Building/Concourse comprise developing passenger terminal facilities and additional aircraft gate capacity to the west of Existing Runway 14R-32Ldeveloped as demand for gates dictates. This project also comprises the supporting ground access/landside facilities. An automated people mover (APM) station serving the West Terminal Building/Concourse is also planned, which will provide access to the proposed West Satellite Concourse and the existing terminal facilities. A planning study began in February 2009 to refine the terminal campus as defined in the Master Plan and shown on the Airport Layout Plan approved by the FAA on September 30, 2005.

4.2.3 Noise Mitigation

The City, in accordance with criteria established by the O'Hare Noise Compatibility Commission, plans to continue providing sound insulation of eligible schools and single-family, owner-occupied homes. As in previous noise mitigation program, sound insulation may include installation of heating and air conditioning systems, replacement of windows and exterior doors with sound insulating windows and doors, addition of insulation to exterior walls and ceilings, and addition of baffling devices to exterior vents. A noise mitigation program is on going for OMP Phase 1 and a continuation of that program exists with OMP Completion Phase.

4.3 Capital Costs and Implementation Schedule

The estimated capital cost of the Proposed Action is approximately $2.75 billion in 2008 dollars. This amount includes Runways 9C-27C, 10R-28L, the extension of Runway 9R-27L, WGP taxiway improvements, and OMP Completion Phase noise program. The costs are listed by component in the **Table IV-1**. The project costs are estimates provided by the Program Management Office, the same management for OMP Phase 1. Detailed cost estimates are included in **Appendix G** of this application, and the costs will continue to be refined as the design effort continues.

Table IV-1

Proposed Action Project Costs (in 2008 dollars)

Project	Cost (in thousands)
Runway 9C-27C	$1,469,688
Runway 10R-28L	$578,061
Runway 9R-27L Extension	$357,188
WGP Taxiway Improvements	$242,175
OMP Completion Phase Noise Program	$104,697
Total	$2,751,810

Source: Program Management Office, Feb. 2009.
Prepared by: Ricondo & Associates, Inc.

4.4 Proposed LOI Projects

The City is requesting LOI funding at this time for these LOI Projects:

- Runway 9C-27C - Associated runway enabling projects, generally including associated taxiway systems, navigational aids installation and upgrade, site utilities construction, and existing facilities relocation.
- Runway 10R-28L - Associated runway enabling projects, generally including associated taxiway systems, navigational aids installation and upgrade, site utilities construction, a new South Airport Traffic Control Tower, and existing facilities relocation.
- Extension of Runway 9R-27L - Associated runway enabling projects, generally including associated taxiway systems, navigational aids installation and upgrade, site utilities construction, and existing facilities relocation. Costs include projects associated with the Extension of Runway 9R-27L and the Runway 27L threshold relocation.
- WGP taxiway improvements - Associated enabling projects, generally including existing facilities relocation.

The OMP Completion Phase noise program that is part of the BCA included in this application is not, however, part of the LOI Projects for which the City is seeking AIP funding. Neither are the remaining components of the OMP Completion Phase, the western terminal complex and on-airport circulation, which the City intends to pursue as Airport activity necessitates.

The status of the OMP Phase 1 projects and the preliminary implementation schedule for the LOI Projects are listed in **Table IV-2** below.

Table IV-2

Preliminary Implementation Schedule

Major Airfield Projects	Commissioning Date	First Full Year of Operation
OMP Phase 1:		
Runway 9L-27R	Nov. 20, 2008	2009
Runway 10L-28R Extension	Sept. 25, 2008	2009
Runway 10C-28C	Nov. 2012	2013
OMP Completion Phase:		
Runway 9R-27L Extension	Nov. 2014	2015
Runway 9C-27C	Oct. 2014	2015
Runway 10R-28L	July 2013	2015
World Gateway Taxiway Improvements:	Dec. 2012	2013

Source: OMP Program Management Office, Feb 2009.
Prepared by: Ricondo & Associates, Inc.

4.5 OMP Delay Reduction

Even under the 2008 FAA TAF that forecasts growth at lower levels than anticipated in the 2005 EIS, the projected levels of activity are above those at which the Airport has suffered long-standing chronic delays. As witnessed in the on-going efforts by the FAA to reduce delays at the Airport, O'Hare has experienced major delays for many years, and without improvements to increase runway capacity, higher levels of delay can be expected in trying to accommodate the forecast demand.

The City, as owner and operator of O'Hare, proposed the OMP in order to modernize the Airport and provide improved service to local and connecting passengers, shippers, and airlines. As O'Hare is a major contributor to delays throughout the National Airspace System, these improvements will equally contribute to improved performance of its role in the national air transportation system.

The OMP was created by the City to solve O'Hare's chronic problems. The OMP's importance for reducing delays and the City's commitment are attested to in these related legal documents and government actions:

> Virtually all involved parties, from the competent committee in Congress, to the FAA, to the State of Illinois, to the City of Chicago, have made a compelling case that the OMP addresses a serious problem with national— indeed international— consequences. O'Hare is a vital transportation link for the Midwest region, for North America, and for the world. *St. John's United Church of Christ* v. *City of Chicago*, 502 F.3d 616, 634 (7th Cir. 2007).

The State of Illinois, by law, established the urgent need for the OMP:

> The reliability and efficiency of the State and national air transportation systems significantly depend on the efficiency of the Chicago O'Hare International Airport. O'Hare has an essential role in air transportation for the State of Illinois. The reliability and efficiency of air transportation for residents and businesses in Illinois and other States depend on efficient air traffic operation at O'Hare. . . . O'Hare cannot efficiently perform its role in the State and national air transportation systems unless it is reconfigured with multiple parallel runways. . . The O'Hare Modernization Program will enhance the economic welfare of the State of Illinois and its residents by creating thousands of jobs and business opportunities. . . . O'Hare provides, and will continue to provide, unique air transportation functions that cannot be replaced by any other airport in Illinois." 620 ILCS 65/5(1)-(4).

Although City was required by law to submit the ALP showing the OMP to the FAA for regulatory review and approval, the project is the City's project.

> The City designed the ALP . . . The City submitted the plan to the FAA to retain O'Hare's eligibility for federal funding. Before the FAA, the City fought for approval of its plan. The City will provide the lion's share of the funding for the modernization project . . ." *Village of Bensenville* v. *FAA*, 457 F.3d 52, 65 (D.C.Cir. 2006).
>
> "Chicago designed the plan for the project; it submitted that plan to the FAA and fought for its approval. . . . Chicago is committed to completing the project . . ." St. John's United Church of Christ v. FAA, 520 F.3d 460, 463 (D.C.Cir. 2008).

Delay is a function of airport congestion and capacity. Capacity constraints exist at O'Hare, and these constraints adversely affect the efficiency of air transportation for the City, the State of Illinois, and the NAS. Increasing capacity at O'Hare will reduce current and anticipated congestion, thereby reducing delay.

As demonstrated by the thorough analysis in the Environmental Impact Statement for the OMP, the OMP reconfiguration that depends on completing the projects in this application will allow approximately 220,000 additional operations at O'Hare at 5.8 minutes of average annual delay. Based on the EIS analysis, approximately 130,000 of those additional operations are attributable to the Completion Phase projects covered by this application. Based on the EIS analysis, O'Hare will be able to accommodate an increase of 23 percent in traffic over the existing airfield with a reduction of 66 percent in average annual delays. The EIS analysis shows that the OMP produces the lowest average annual delay for future O'Hare operations of all the alternatives proposed for consideration. See the Record of Decision (ROD) pages 31-33 and discussion of EIS analysis of alternatives below.

These delay reduction findings are based on completion of all the airfield projects included in OMP Phase 1 and this application. Those findings also assume that the additional gates that are shown on the approved ALP will also be constructed. The City believes that delay reduction benefits shown in the EIS will occur with or without the additional gates because airlines will continue to provide capacity to handle passenger demand as it develops. To the extent that the capacity of contact gates at the Airport proves insufficient to accommodate all of the operations that airlines schedule, passengers will be accommodated at aircraft parking positions that are not in direct contact with the terminal, so-called "hard stand" positions, until gates can be built to catch up to passenger levels. Such passenger handling facilities are used today at the Airport and have been used at the Airport for many years. All of O'Hare's international arrivals were handled through hardstand facilities for

several years while new international gates were developed. Other airports commonly use such facilities. Therefore, the delay reduction and capacity levels described in the EIS are valid even if gate development lags behind airfield development.

As explained in more detail in Section 5.2, the BCA assumes that existing contact gates at the Airport could constrain total operations at the Airport, thereby limiting the calculated benefits of the airfield projects. This constraint is required in the BCA process as a conservative limit on calculating benefits. Even with that assumed constraint, the airfield projects in this Application have a favorable benefit/cost ratio exceeding 1.0. If the City's assumption, based on experience at the Airport and at airports elsewhere, is correct and airline operations grow to meet passenger demand regardless of the availability of contact gates, the delay would increase and the benefits of these airfield projects would be significantly larger and the corresponding benefit/cost ratio equally more favorable.

The FAA selected the City's proposed OMP as its preferred alternative for reconfiguration of O'Hare, consistent with its statutory authorities, including its mandate to support airport development necessary to provide a safe, efficient and integrated system of public-use airports. 49 U.S.C. § 47101(a)(7). As the FAA Interim Administrator said, "[I]t's imperative that Chicago continue full steam ahead with its modernization program. I can't underscore that enough. The modernization program is the answer to growing capacity and heading delays and congestion off at the pass." Speech by Robert A. Sturgell, June 16, 2008 (available at www.faa.gov/news/-speeches/news_story.cfm?newsId=10239).

The OMP (and therefore the specific projects included in this Application) is eligible for AIP funding because it is an additional facility that increases the safety, usefulness, and usability of the Airport. The projects which are the subject of this Application complete the airfield portion of the overall development program

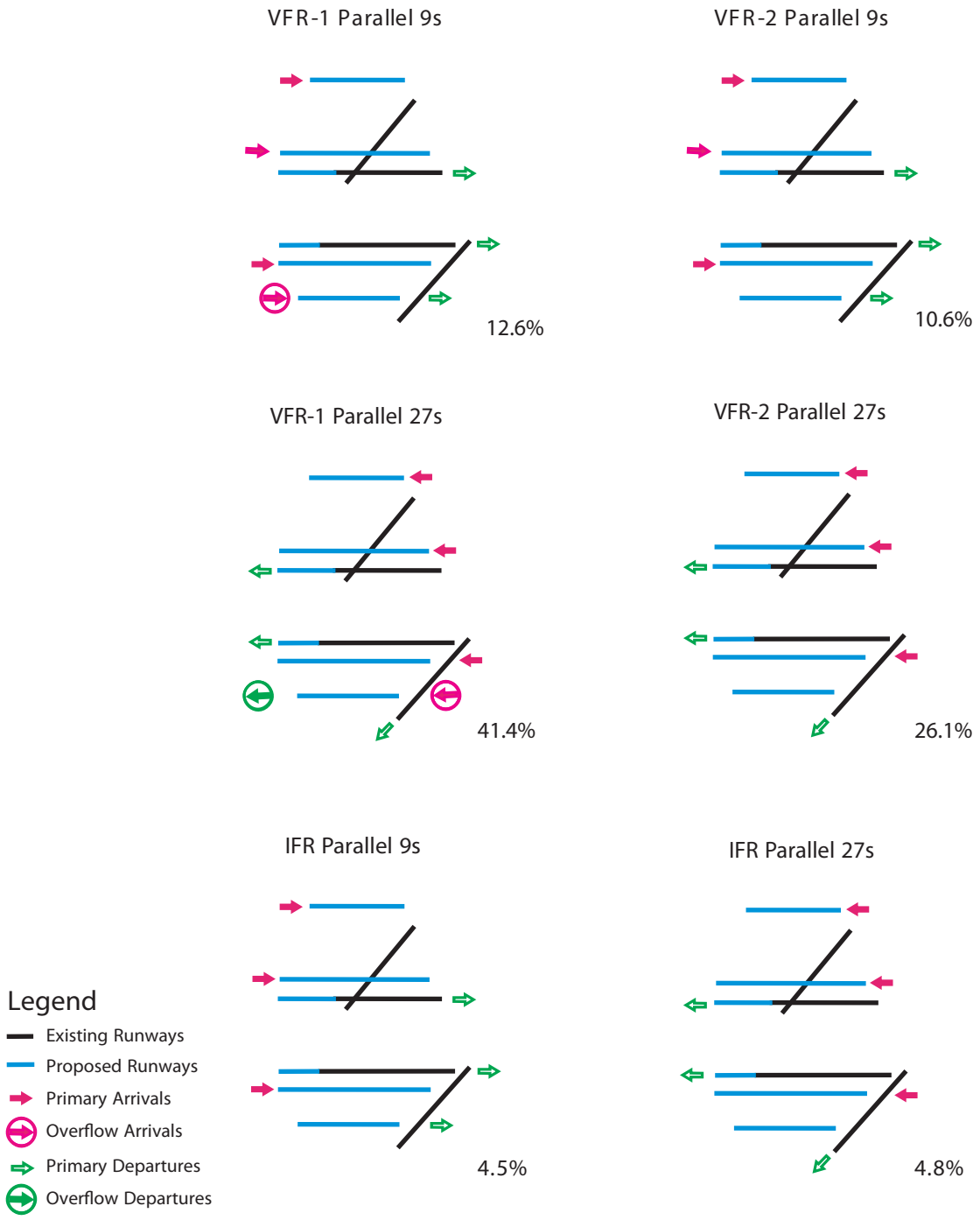
The benefits of the OMP result from six parallel east-west runways with sufficient separations to allow multiple independent arrival streams in both good and bad weather. This configuration allows the airport to function on an east-west flow basis. The parallel runway configuration eliminates most runway intersections so runway dependencies are reduced and delays are reduced. This delay-reducing benefit increases the capacity of the Airport and in turn, carries over to the national air transportation system.

Each runway is a necessary part of that overall airfield redesign. **Exhibit IV-1** shows the operating configurations for the full OMP.

Each of the elements to be developed plays a specific role in the overall development program and is justified on the basis of their contributions to reducing delay.

> *Runway 9C-27C.* This runway is one of the six parallel runways that will allow the Airport to function on an east-west flow basis, thereby enhancing capacity of the Airport and the national air transportation system and reducing delay by eliminating most runway intersections. It will be one of four arrival runways used for simultaneous quadruple arrivals. It will provide sufficient landing distance for all aircraft operating at the Airport. This runway also provides Aircraft Design Group (ADG) VI capabilities on the north airfield. Most of the ADG-VI traffic simulated for the EIS, primarily international arrivals, arrived and departed over navigational fixes served by runways on the north airfield. Providing ADG-VI capability on the north airfield with Runway 9C-27C provides more efficient airfield and airspace operations. The OMP is designed to balance the north and south airfields. Without Runway 9C-27C, the departure capability of the north airfield would be substantially less. Balancing the airfield is necessary to achieve the OMP's benefits of

enhancing the capacity of the airport and the national air transportation system and delay reduction.



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

Exhibit IV-1

OMP Operating Configurations and EIS Percent Utilization

Runway 9R-27L Extension. This existing runway is one of the six parallel runways that will allow the Airport to function on an east-west flow basis, thereby enhancing the capacity of the Airport and the national air transportation system and reducing delay by eliminating most runway intersections. This runway provides departure capability for all operations simulated for the EIS. As a result of this extension, departures from this runway will be able to depart from an intersection allowing aircraft arriving on Runway 9L-27R or Runway 9C-27C to taxi behind 9R-27L departures, minimizing runway crossings for those operations. With the runway extension, the threshold on the east end of the runway (27L end) will be relocated which will allow for compliance with Runway Safety Area standards not currently accommodated by the existing airfield.

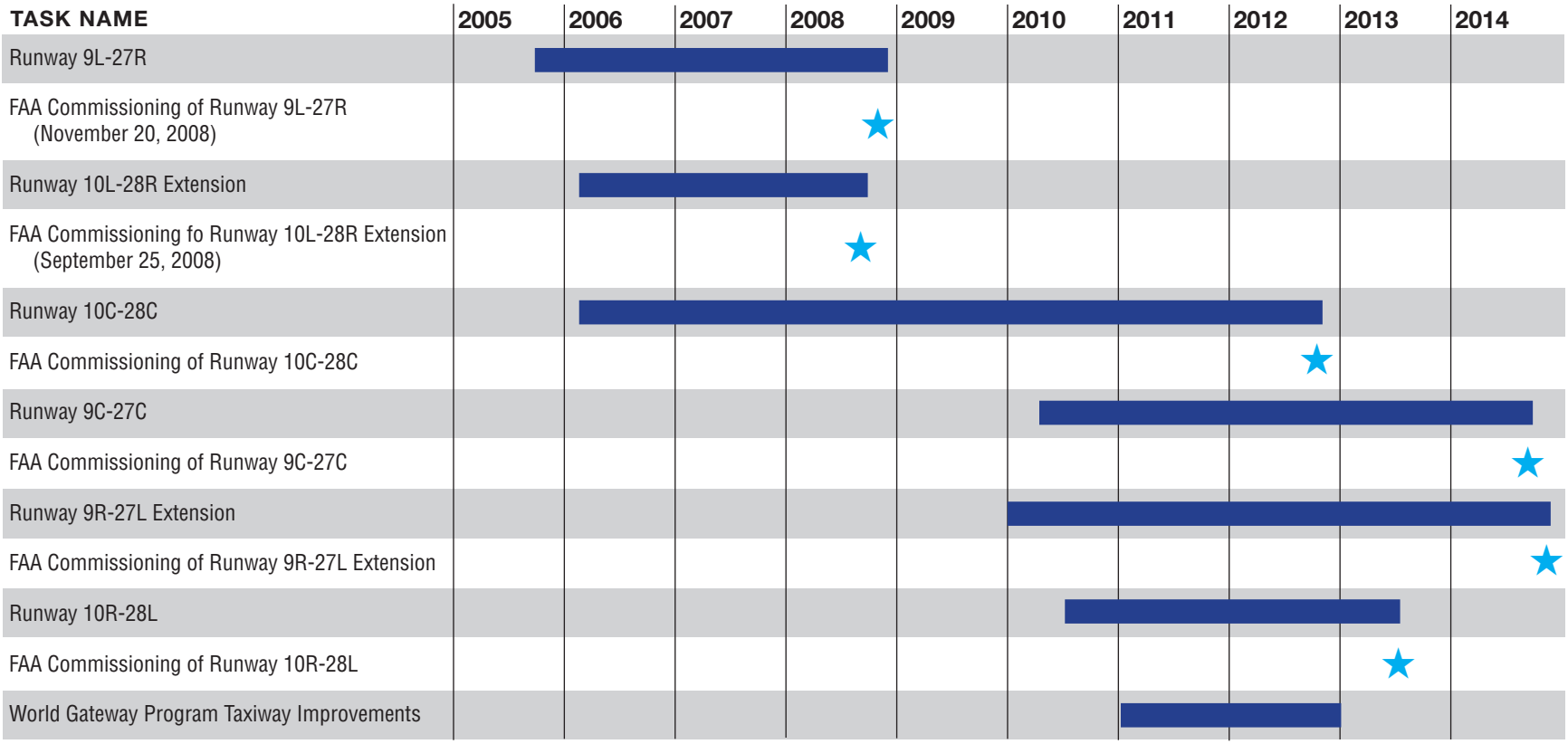
Runway 10R-28L. This runway is one of the six parallel runways that allow the Airport to function on an east-west flow basis, thereby enhancing the capacity of the Airport and the national air transportation system and reducing delay. It is located with sufficient spacing from the next-closest runway to provide independent arrival capacity under FAA standards. The EIS evaluated an alternative that included all of the OMP runways except Runway 10R-28L – Alternative D. The TAAM simulation results in the EIS estimated average annual delay in 2018 at 10.5 minutes per operation for Alternative D. The delay reduction achieved without this runway is considerably less than the delay reduction achieved with the full OMP, including this runway. See ROD 28; EIS E-72. Only with this runway can O'Hare provide four independent arrival streams in good weather, with the resulting benefits to enhancement of capacity of the Airport and the national air transportation system and delay reduction. Only this runway provides the potential, should the technology and procedures be approved by the FAA, of immediately implementing four independent arrival streams during all weather conditions. As a result, this runway preserves the potential to produce even greater enhancement of capacity of the Airport and national air transportation system and delay reduction benefits than the EIS and ROD estimated for the total OMP. See EIS 3-58.

WGP Taxiway Improvements. This taxiway provides operational flexibility in a congested part of the airfield. It allows multiple departure queues for Runways 28R and 28C, thereby relieving congestion of departing aircraft. This taxiway allows taxiway flows in both directions north of Runway 10L-28R at all times, thereby providing ground controllers with flexibility to move aircraft without delay or conflict through this congested area. By improving the efficiency of the Airport, this project enhances the capacity of the airport and the national air transportation system.

If the projects included in this application are not built and the OMP is not completed, the result would be that existing inefficiencies (e.g., aircraft and passenger delay) at O'Hare and in the NAS would continue to occur, and would increase. According to Bureau of Transportation Statistics data, O'Hare is among the most delayed airports in the United States for both on-time arrival and on-time departure performance. For 2008, O'Hare ranked 30th out of 32 major airports in on-time arrival performance, and 32nd out of 32 major airports in on-time departure performance (the 32nd airport is the one with the worst delay). For calendar year 2007, O'Hare ranked 29th out of 32 major airports in arrival performance, and 32nd out of 32 major airports in departure performance. This recent experience is consistent with the long-term experience of severe arrival and departure delays at O'Hare spanning many years. (Bureau of Transportation Statistics, Rankings of Major Airport On-Time Arrival and Departure Performance, Tables 4 and 6). This poor performance occurs even when the FAA has imposed "Congestion and Delay Reduction" rules at O'Hare (14 CFR Part 93, Subpart B, §§ 93.21 – 93.32) (Congestion Rules). Copies of the BTS report pages are included in the reference DVD. Delays at O'Hare adversely affect local, regional and national air transportation systems.

This data is recent evidence of historical inefficiencies at O'Hare, as shown by the FAA's data on historical aircraft delay at O'Hare in the EIS. "By November 2003, O'Hare had the worst on-time performance of any major airport" (70 FR 15521 (March 25, 2005) (reprinted at EIS A-196)). The EIS provides detailed data on "Historical Delay at O'Hare." (EIS A-35 – A45).

"Delays at O'Hare have a direct impact on the entire NAS, in part because approximately 51 percent of the total passengers traveling through O'Hare currently connect to and from other airports. . . . In light of the significant role that O'Hare plays for connecting traffic, this level of delay clearly impacts many other airports and propagates further delays and inefficiencies throughout the NAS." EIS 2-23. These inefficiencies identified in the EIS exist and would continue to exist if the airfield projects included in this Application are not pursued.



Source: City of Chicago, Department of Aviation
Prepared by: Ricondo & Associates, Inc.

Exhibit IV-2

★ *Denotes Commissioning Dates*

Schedule of Major Construction and Commissioning Events

Z://ORD Fiancial/LOI/Exhibits/LOI Exhibit Pack.pdf

Request for Letter of Intent

Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding

March 1, 2009

V. Benefit-Cost Analysis Summary

V. Benefit-Cost Analysis Summary

In 1994, the FAA implemented its Policy Regarding Revision of Selection Criteria for Discretionary Airport Improvement Program Grant Awards and Policy for Letter of Intent Approvals under the Airport Improvement Program. The law providing for AIP grants requires the FAA to "consider the benefit and cost of the project." 49 USC 47115(d)(1)(B)

A Benefit-Cost Analysis demonstrates whether the present value of its benefits exceeds the present value of its costs by calculating the ratio of the discounted benefits divided by the discounted costs. The FAA does not use the benefit-cost ratio for ranking projects to assess how AIP discretionary grants are to be allocated. The primary purpose of this BCA is to present the Net Present Value, assessing the ongoing value of the investment over time, and benefit-cost ratio of the Proposed Action, which consists of the LOI Projects and the OMP Completion Phase noise program.

Various sensitivity analyses are also presented to show the benefit-cost if project benefits, costs, or timing differ from those assumed in the primary analysis. In accordance with FAA guidance, this analysis and the sensitivity analyses do not attempt to quantify or consider all benefits associated with the project. They illustrate that the aircraft travel time savings alone are sufficient to produce benefits that in all cases exceed project costs. Thus, the benefit-cost ratios and NPVs presented here are based on underestimated benefits and would be expected to be higher under a full accounting of project benefits. To facilitate review of this material, this document divides the discussion into these six sections:

- BCA Methodology
- Aviation Activity Forecasts
- Project Costs
- Project Benefits
- Benefit-Cost Comparison
- Non-Quantified Benefits

5.1 BCA Methodology

The following assumptions and methodology used to prepare the BCA are in accordance with the FAA's *Benefit-Cost Analysis Guidance* dated December 15, 1999 (the *BCA Guidance*); the *Economic Values for Evaluation of FAA Investment and Regulatory Decisions, A Guide*, dated October 2007; and FAA-APO-03-1, *Treatment of Values of Passenger Time in Economic Analysis*, dated March 2003 (the *APO Bulletin*). The methodology for the BCA process is outlined in the *BCA Guidance* and generally consists of the following ten steps:

- *Establish the Objectives*: As stated by the EIS, the proposed federal action, which is the subject of the EIS, encompasses the following purposes:
  - Address the projected needs of the Chicago region by reducing delays at O'Hare, and thereby enhancing the capacity of the NAS.
  - Ensure that existing and future terminal facilities and supporting infrastructure (access, landside, and related ancillary facilities) can efficiently accommodate airport users.

  Proposed Action projects are the final step for implementing the OMP airfield.
- *Formulate Assumptions:* Assumptions about future conditions at the Airport must be clearly explained and documented because they form the framework against which the alternatives

are to be evaluated. Additional discussion of the forecasts is provided in Section 5.2 of this document.

- *Identify the Base Case:* The Base Case is a reference point from which incremental benefits and costs can be quantified. OMP Phase 1 airfield is the initial step in implementation of the OMP. Two of the three runway elements have been completed and the final element, Runway 10C-28C is under construction. OMP Phase 1 airfield is the base case for this analysis. The Airport's ongoing Capital Improvement Program (CIP), which would occur regardless of the proposed LOI Projects' implementation, is included in the Base Case.
- *Identify and Screen Alternatives*: As part of the EIS analysis, alternatives to the proposed plan were developed, analyzed, and considered. As stated in the EIS, "Given the clear superiority of Alternative C (City's OMP) in terms of the average annual delay reduction, the FAA has identified Alternative C, the Sponsor's proposed O'Hare Modernization Program, as the Preferred Alternative. This identification of Alternative C as the Preferred Alternative fully satisfies all of the FAA's environmental obligations associated with consideration of the proposed OMP." Given this previous assessment of alternatives, the City believes that the OMP is the best development option and, therefore, alternatives are not again analyzed in this BCA.
- *Define Evaluation Period*: Consistent with the BCA Guidance, the evaluation period assumed for this BCA is 20 years after the completion of construction. The LOI Projects will be complete at the end of 2014. Therefore, the BCA evaluation period ends in 2034.
- *Determine Costs:* Costs must be identified, quantified, and evaluated in total dollar amounts and for each year of a project's life. Typical costs include initial investments, such as planning and construction of the main project as well as any enabling projects, and recurring investments, such as operation and maintenance (O&M) costs. LOI Project costs are discussed in Section 5.3 of this document.
- *Determine Benefits:* Typical benefits include reduced delays, the ability to accommodate more efficient aircraft and/or larger aircraft, safer and more secure air travel, and reduced environmental impacts.

There are several different ways to prepare a BCA. The Phase 1 BCA used two distinct methodologies -- one using a delay savings-based analysis and the other using the FAA-supplied consumer surplus methodology. The latter, which was appropriate for Phase 1 for valuing the additional capacity, produced a higher BC ratio than an analysis based on delay savings, although both methods satisfied the FAA's pass/fail test of having a positive ratio -- a ratio exceeding 1.0. The delay savings methodology produces lower benefit cost ratios because it takes into account fewer benefits.

The BCA for the Completion Phase included in this document uses the delay savings methodology, which is appropriate now because some of the Phase 1 projects have improved airport capacity. However, to the extent that the City is correct that gate capacity imposes no practical limit on operations (see Section 5.2 for further discussion), valuation of the additional capacity provided by the Completion Phase airfield would produce a higher ratio than the analysis relied on in this application.

For purposes of this BCA, only local delay savings in travel times for aircraft and passengers are considered in detail. A simplified quantification of system-wide delay savings resulting from O'Hare's role as a major transportation hub is also presented. Other benefits of the LOI Projects, including greater schedule predictability, ability to accommodate larger aircraft, and

safety improvements are not considered in this analysis because monetary quantification of these other benefits is complex, although these benefits are real and valuable. This approach underestimates the overall benefits of the project and has the effect of reducing the benefit-cost ratio. The specific project benefits, including those that have not been quantified, are shown in **Table V-1**.

Table V-1

Inventory of Benefits Quantified and Not Quantified in the BCA

Typical Benefit	Benefits Quantified in BCA	Benefits Not Quantified in BCA
• Reduced aircraft, passenger, and cargo delay during normal airport operations	x	
• Greater schedule predictability including (1) aircraft operator able to make more efficient use of equipment and personnel and (2) passenger able to take later flight and arrive at destination on time		x
• Improved efficiency of traffic flows (reduced vectoring and taxiing distances)	x	
• Airport's ability to accommodate faster, larger, and/or more efficient aircraft		x
• Bringing pre-existing infrastructure into compliance with FAA safety and security standards		x
• Safety improvements		X
• Salvage value of projects included in LOI projects		
• Reduced downstream delay		X

Source (Typical Benefits): FAA, *BCA Guidance;* (Assessed Benefits): Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

- *Compare Benefits and Costs:* Most airport investments require resources at the outset of a project in return for an annual flow of benefits over the long-term future. Because the costs are incurred up front, and the benefits are returned over a longer time period, an analysis recognizing the time value of money must be conducted to appropriately compare the benefits and costs of alternatives to inform ultimately select the preferred alternative for development. In the BCA, discounted benefits and costs are used to accurately compare project scenarios by their NPVs and benefit-cost ratios. Section 5.5 presents the comparison of benefits and costs.
- *Conduct Sensitivity Analysis:* Sensitivity analyses are conducted to assess the ability of the project to meet the BCA requirements under alternative assumptions regarding cost and schedule.

5.2 Aviation Activity Forecasts

The 2002 TAF was used as the basis for the OMP EIS analysis. The 2002 TAF, which presents aircraft operations and enplaned passengers by user category at the Airport through the year 2020, was prepared by FAA assuming the absence of any constraints to growth in activity at the Airport.

The 2008 TAF is the most current FAA forecast available and is the forecast used for this BCA. The operations and enplanements are lower in the 2008 TAF than comparable years in the 2002 TAF. For example, the operations and enplaned passengers projected for 2015 decreased 16.2 percent and 17.1 percent, respectively, from the 2002 TAF to the 2008 TAF. The analysis period for the BCA extends through 2034, nine years beyond period covered in the 2008 TAF. For the purpose of this BCA, the FAA has provided an extrapolation of the forecast through 2034, the end of the 20-year analysis period.

A constrained forecast was developed for use in the BCA based on the availability of contact terminal gate facilities at the Airport. Since new terminal facilities are not currently under construction, even though they are provided for in the OMP, the analysis conservatively assumes that operations would stop growing when the capacity of the existing gates and some modest amount of remote hardstanding was reached. Based on gate assignment modeling of the future schedules of activity, The FAA defined this limit as approximately 1,150,000 annual operations. **Appendix D** reviews the simulation modeling schedules used in the EIS to confirm this limit.

The City believes that gate capacity is not a constraint on operations at the Airport and that additional passenger handling capacity would be developed even in the absence of new terminals by the reconfiguration of existing terminals and more extensive use of hardstand operations. Hardstand operations are common at airports, are currently used at O'Hare, and were used extensively at O'Hare for several years for international service. While the City does not think that hardstand service is ideal, it is confident that airlines would use hardstands to serve demand for any period during which terminal capacity is developed to catch up to demand. This benefit-cost analysis, however, assumes that the absence of new terminals constrains operations. As a result, the benefits included in this analysis are less than they would be if the City's assumption were used because the number of operations, and therefore the benefits of delay reduction, are less. If the City is correct in assuming that operations would continue to grow even if terminal capacity does not grow, delay would increase and the benefits of delay reduction would increase without an increase in project cost. The resulting benefit-cost ratio would be more positive – higher – than shown in this analysis. This analysis assumes that no new terminals are constructed at the time the airfield projects included in this Application are constructed.

The constrained forecast assumes that load factors and aircraft seat sizes would respond to the constrained operational capacity and allow enplanements to continue to grow beyond this point, but at a rate lower than the 2008 TAF. The memo in **Appendix C** presents the methodology used to develop the constrained enplanement forecast. A sensitivity BCA was performed to determine the influence of the assumptions made in the constrained enplanement forecast. When passenger growth was stopped at the same time that operations were capped, the impact on the BCR was a decrease was 0.02. Therefore, the assumptions included in the constrained enplanement forecast have minimal influence on the BCR.

Table V-2 presents the operations and enplanements in the EIS forecast, 2008 TAF, and constrained forecast. The annual information in Table IV-2 is shown on a calendar year basis.

Table V-2

O'Hare International Airport EIS Forecast, 2008 FAA Terminal Area Forecasts (Calendar Year), and Constrained Forecast

	Total Operations			Total Enplanements		
Calendar Year	EIS	2008 TAF	Constrained	EIS	2008 TAF	Constrained
2002	922,787			31,710,512		
2003	960,500			32,609,000		
2004	976,544			33,633,730		
2005	992,855			34,696,477		
2006	1,009,439			35,798,962		
2007	1,026,300			36,943,000		
2008	1,041,635	883,427	883,427	38,027,251	34,133,225	34,133,225
2009	1,057,200	828,608	828,608	39,149,000	32,152,853	32,152,853
2010	1,072,706	825,659	825,659	40,280,622	32,289,079	32,289,079
2011	1,088,438	838,443	838,443	41,450,619	33,058,401	33,058,401
2012	1,104,402	866,996	866,996	42,660,538	34,468,473	34,468,473
2013	1,120,600	895,522	895,522	43,912,000	35,840,005	35,840,005
2014	1,134,910	922,645	922,645	45,119,418	37,145,601	37,145,601
2015	1,149,402	946,654	946,654	46,367,491	38,289,326	38,289,326
2016	1,164,080	969,176	969,176	47,657,820	39,350,607	39,350,607
2017	1,178,945	993,766	993,766	48,992,074	40,492,701	40,492,701
2018	1,194,000	1,017,468	1,017,468	50,372,000	41,585,837	41,585,837
2019		1,041,116	1,041,116		42,712,939	42,712,939
2020		1,064,593	1,064,593		43,861,043	43,861,043
2021		1,088,058	1,088,058		45,008,108	45,008,108
2022		1,112,451	1,112,451		46,183,656	46,183,656
2023		1,136,833	1,136,833		47,368,715	47,368,715
2024		1,161,700	1,150,000		48,590,782	48,565,452
2025		1,182,375	1,150,000		49,644,509	49,197,081
2026		1,191,552	1,150,000		50,196,506	49,832,577
2027		1,212,884	1,150,000		51,251,470	50,471,940
2028		1,234,216	1,150,000		52,306,433	51,115,169
2029		1,255,548	1,150,000		53,361,397	51,762,265
2030		1,276,879	1,150,000		54,416,361	52,413,227
2031		1,298,211	1,150,000		55,471,325	53,068,056
2032		1,319,543	1,150,000		56,526,289	53,726,752
2033		1,340,875	1,150,000		57,581,252	54,389,314
2034		1,362,206	1,150,000		58,636,216	55,055,743

Sources: (Forecast): FAA, O'Hare Modernization Environmental Impact Statement, Sept. 2005; (Extrapolation): Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Exhibit V-1 and **Exhibit V-2** graphically depict the EIS forecast, 2008 TAF, and constrained forecast of annual operations and annual enplanements, respectively. The decrease in forecast activity between the EIS forecast and the 2008 TAF is readily apparent, as is the impact of the assumed gate capacity constraints.

5.3 Project Costs

To provide the basis for the BCA and NPV calculations, costs associated with the project must be quantified to the extent possible. Quantifiable costs to be considered should consist of capital investment and incremental O&M costs. Only those costs that are attributable to a project being undertaken are to be considered. In other words, costs that would be incurred regardless of whether or not a project is undertaken should not be considered.

Table V-3 lists project elements and their capital investment costs. Included in these costs are necessary supporting facilities (taxiways, lighting, utilities, etc.), planning, design, program administration, construction, and contingency. Table IV-3 presents these costs in 2008 constant dollars. The capital investment costs of the Proposed Action is estimated to be approximately $2.75 billion in 2008 constant dollars.

In addition to capital investment costs, estimated incremental O&M costs are included for the evaluation period. Incremental O&M costs for additional runway pavement were estimated at the unit rate for budgeted 2009 Airfield Area O&M expenses. The annual incremental O&M costs for LOI Projects are shown in **Table V-4** in 2008 dollars.

5.4 Project Benefits

Because the OMP, and OMP Completion Phase Airfield in particular, consists largely of airfield capacity improvements in the form of new, relocated, and/or extended runways, aircraft operational delay savings constitute the primary benefits to be considered. Delay savings can be measured as time saved as a result of avoided delay (i.e., the difference in travel time between any scenario and the Base Case), and can be applied to aircraft operations as well as passengers.

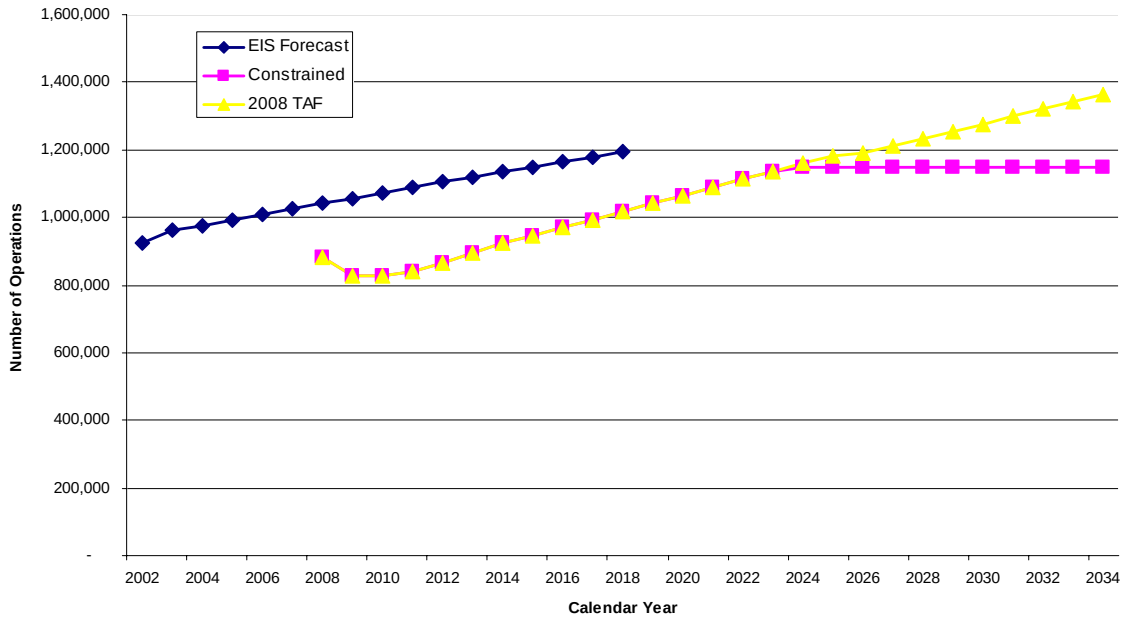
5.4.1 Simulation Modeling

In the analyses undertaken as part of OMP planning and the EIS, operational delay and travel times were assessed for the OMP Phase 1 and the OMP Total Airfield[6]. These assessments were undertaken using the *Total Airspace and Airport Modeler* (TAAM), developed by Preston Aviation Solutions, a Boeing Company. TAAM is a fast-time gate-to-gate simulator of airport and airspace operations that facilitates decision-making, planning, and analysis. TAAM has been used in the United States for airfield and airspace assessments by the FAA, the National Airspace Redesign team, American Airlines, Continental Airlines, Delta Air Lines, and Boeing Air Traffic Management, among others.

[6] OMP Total Airfield refers to the overall airfield configuration at the end of the OMP Completion Phase. The OMP Completion Phase includes the extension of Runway 9R-27L, new Runway 9C-27C, and new Runway 10R-28L.

Exhibit V-1

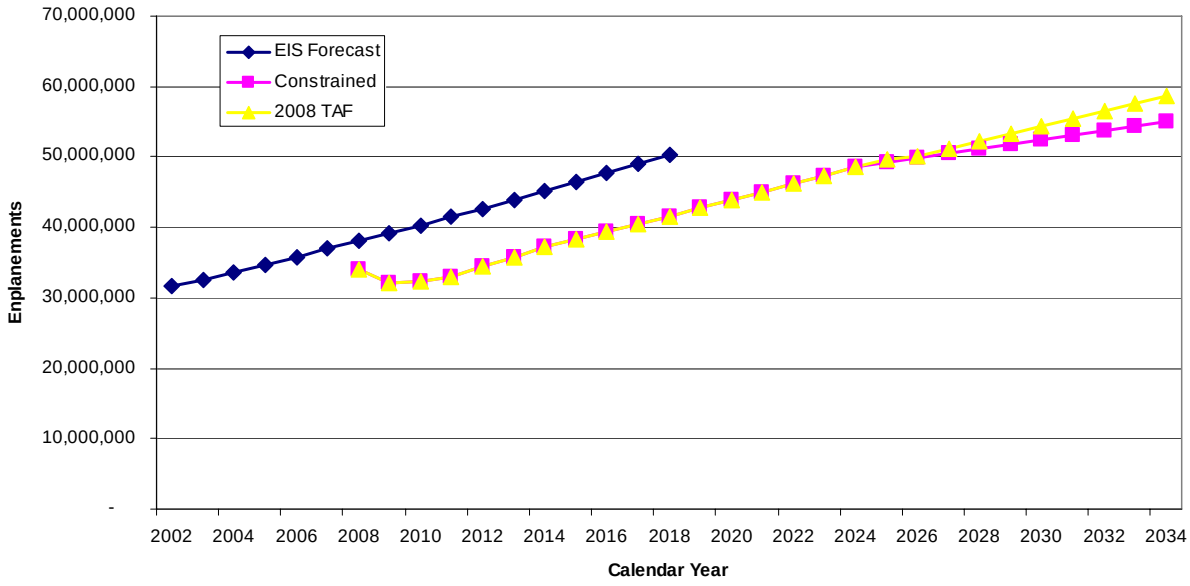
FAA Terminal Area Forecast Comparisons for O'Hare International Airport – Total Operations



Source: FAA, 2002 and 2009.
Prepared by: Ricondo & Associates, Inc.

Exhibit V-2

FAA Terminal Area Forecast Comparisons for O'Hare International Airport – Enplaned Passengers



Source: FAA, 2002 and 2009; Ricondo & Associates, Inc., Feb. 2009.
Prepared by: Ricondo & Associates, Inc.

Table V-3

Project Capital Costs (in thousands of 2008 dollars)

	Total	2008	2009	2010	2011	2012	2013	2014
Runway 9C-27C	$1,469,688	$818	$40,135	$312,298	$512,290	$288,528	$222,391	$93,229
Runway 9R Extension[1]	$357,188	$818	$11,011	$35,159	$64,240	$171,768	$66,594	$22,013
Runway 10R-28L	$578,061	$818	$15,954	$79,156	$239,034	$169,330	$67,193	$6,576
Subtotal Airfield	$2,404,937	$2,454	$67,101	$426,612	$815,564	$629,626	$341,762	$121,818
OMP Completion Phase Noise Program	$104,697				$27,024	$28,705	$25,757	$23,212
World Gateway Taxiway Improvements	$242,175	$818	$1,273	$5,993	$83,286	$183,306		
Total Capital Cost	$2,751,810	$3,272	$68,373	$432,605	$925,874	$809,137	$367,519	$145,030

Note:
[1] Includes Runway 27L threshold relocation

Sources: OMP Program Management Office, Feb. 2009.
Prepared by: Ricondo & Associates, Inc.

Table V-4

Incremental Project Recurring Operation and Maintenance Costs (in thousands of 2008 dollars)

Calendar Year	Incremental O&M Cost [1]
2007	$0
2008	0
2009	0
2010	0
2011	0
2012	0
2013	7,500
2014	11,400
2015	24,300
2016	24,300
2017	24,300
2018	24,300
2019	24,300
2020	24,300
2021	24,300
2022	24,300
2023	24,300
2024	24,300
2025	24,300
2026	24,300
2027	24,300
2028	24,300
2029	24,300
2030	24,300
2031	24,300
2032	24,300
2033	24,300
2034	24,300
Total	$505,700

Note:
1 Rounded to nearest $100,000.

Source: Ricondo & Associates, Inc. , Feb. 2009.
Prepared by: Ricondo & Associates, Inc.

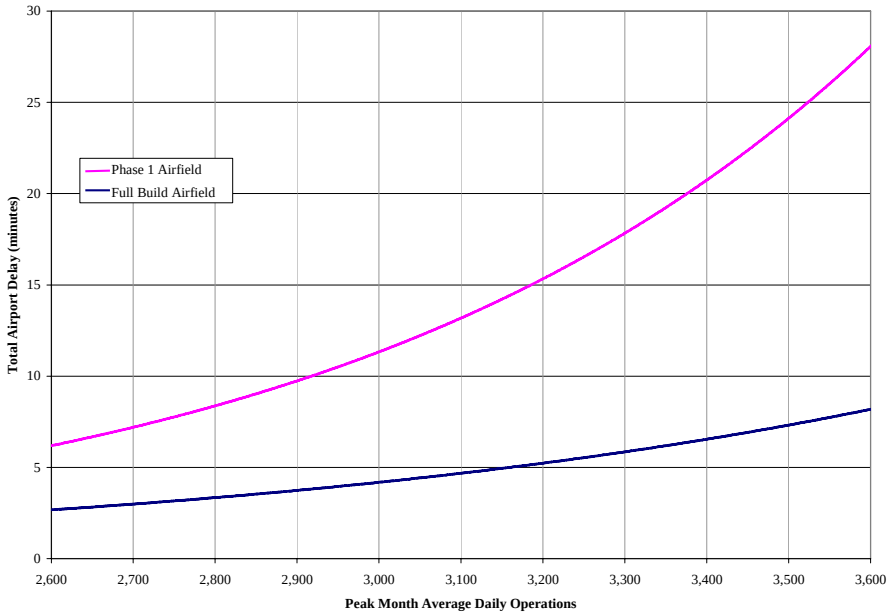
The FAA and its EIS consultant, known as the third party contractor (TPC), actively involved in the TAAM simulation analysis of the OMP. As documented in the EIS:

> "An unprecedented series of TAAM simulation analyses were conducted by the City of Chicago's Consultant Team (CCT) with direction, oversight, review and approval by the FAA and the TPC. The FAA and TPC participated in an intensive, nine-month review process during the simulation effort. The objective of this process was to ensure that TAAM input assumptions, modeling methodologies, and output data conformed to the industry best practices in modeling and accurately reflected air traffic control rules and procedures. In total, FAA invested over 2,000 hours reviewing assumptions, draft results, animations, and final results. The FAA review was conducted by an Air Traffic Work Group, which consisted of FAA Management and National Air Traffic Controller Association (NATCA) representatives from O'Hare Tower, the Chicago Terminal Radar Approach Control Facility (TRACON), and the Chicago Center (ZAU); FAA Airports Division; and the FAA's TPC." [7]

The results of the TAAM modeling for the unconstrained forecasts are presented for the OMP Phase 1 and OMP Total Airfield on **Exhibit V-5**. The simulation analysis performed in support of the EIS modeled airfield and airspace operations at various levels of demand consistent with specific EIS forecast years. The results of these modeling efforts remain valid for the specific levels of activity modeled. However, the years in which those levels are reached has changed as a result of the new forecasts of activity in the current TAF. As a result, the analysis originally representative of activity in 2007, 2009, and 2013 is, under the 2008 TAF, representative of the years 2018, 2020, and 2022, respectively. The BCA recognizes and uses the revised timing of these results, and therefore the years in which particular levels of delay-reduction benefit will be realized.

Exhibit V-5

Total Airport Delay (in minutes)



Source: EIS TAAM Simulations, 2004.
Prepared by: Ricondo & Associates, Inc.

[7] Source: FAA, *O'Hare Modernization Draft Environmental Impact Statement*, January 2005.

As shown on Exhibit IV-5, the simulation modeling showed that delays increase exponentially under the OMP Phase 1 as demand approaches capacity. Theoretically, delays can continue to increase to unrealistically high levels as demand exceeds capacity for more and more hours of the day. However, these excessively high levels of delay may not be experienced, as the airlines and passengers may change their behavior to avoid these delays. In response to increasing delays, airlines might increase average aircraft size to accommodate forecast demand, shift connecting passenger traffic through other hub airports, re-schedule flights, or take other actions.

The FAA in its *BCA Guidance* recognizes the limitations on delay growth, and suggests the need to modify demand growth when delays exceed 15 minutes per operation and that demand should be capped at approximately 20 minutes of delay per operation.

As previously discussed, the FAA requested that this BCA consider a constrained forecast of activity based on the assumption that new terminal capacity will not be constructed at the same time as the airfield projects included in this application. Based on an analysis of existing gate facility capabilities, it was estimated that total operations would be constrained at approximately 1,150,000 annual operations, or 3,151 annual average day operations, approximately 6 percent more operations than the 2,968 peak number of daily operations actually handled by the Airport July 1, 2004 as reported by FAA in its OPSNET database. Using the demand-delay relationships defined through the EIS simulation modeling efforts and depicted in Exhibit IV-5, the capped operations result in average aircraft delays at the Airport under the OMP Phase 1 Airfield of approximately 14.2 minutes per aircraft, which is lower than the 15 minutes per aircraft threshold outlined in the *BCA Guidance*. This same constrained forecast would be used to assess the delay benefits under the OMP Total Airfield. While the OMP Total Airfield is capable of accommodating the unconstrained forecast activity, as demonstrated by the FAA's simulations illustrated in Exhibit IV-5, the constrained forecast provides a conservative estimate of benefits based on the conservative assumption that gate capacity will limit demand.

5.4.2 Simulation Results

As discussed earlier, simulation modeling using TAAM was performed to provide quantitative information on the performance of the OMP-Total Airfield Projects relative to the OMP Phase 1 Airfield. The simulations results used in this BCA are based on those originally prepared for the FAA EIS analysis. The methodologies and assumptions used in the simulation modeling have been documented in numerous data packages developed and published by the FAA in support of the EIS process.

Delay and travel time statistical results from the simulation analyses are presented in **Table V-5** for the OMP Phase 1 Airfield, and OMP-Total Airfield. Delay, as presented in the table, is the difference between unimpeded travel time and total travel time. Travel time is the time from gate departure at the origin airport to gate arrival at the destination airport. **Exhibit V-6, Exhibit V-7,** and **Exhibit V-8** graphically present average delay per operation, average unimpeded travel time per operation, and average travel time per operation, for the OMP Phase 1 Airfield and the OMP Total - Airfield.

Delay was calculated for each year in the BCA analysis by using the delay exponential equations developed from the EIS simulations. Exhibit IV-6 shows the average delay per operation for the constrained forecast.

Table V-5

Simulation Modeling Results (in minutes)

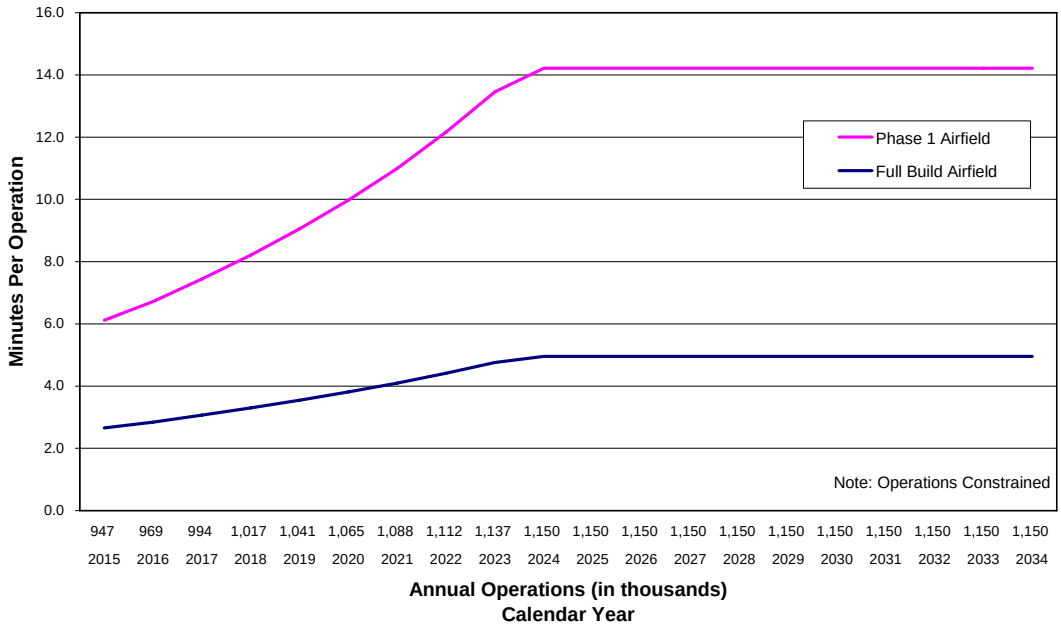
Scenario	Annual Operations	Average Total Travel Time per Operation	Average Unimpeded Travel Time	Average Delay per Operation [1]
OMP Phase 1 Airfield				
	1,026,300	141.2	131.3	9.9
	1,057,200	146.6	135.8	10.8
	1,120,600	155.6	140.8	14.8
OMP Full Build Airfield				
	1,057,200	142.7	138.4	4.3
	1,120,600	148.3	143.0	5.2
	1,194,000	154.8	148.7	6.1

Note:
1 Totals may not add due to rounding.

Source: FAA EIS, 2005.
Prepared by: Ricondo & Associates, Inc.

Exhibit V-6

Average Delay per Operation (in minutes) – Constrained Forecast

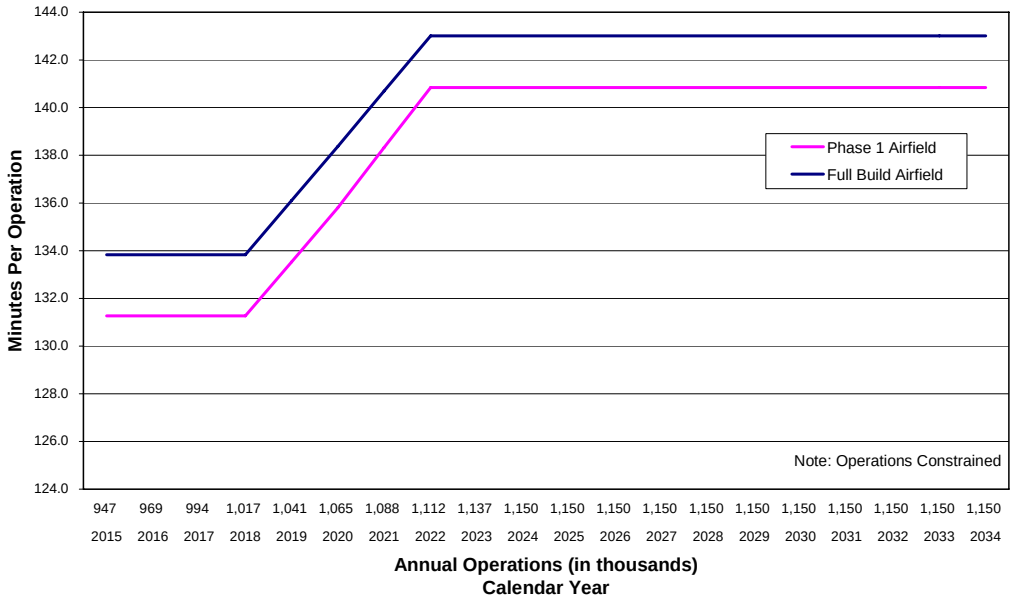


Calendar year of occurrence based on 2008 TAF.

Source: EIS TAAM Simulations, 2004; Ricondo & Associates, Inc., February 2009.
Prepared by: Ricondo & Associates, Inc.

Exhibit V-7

Average Unimpeded Travel Time (in minutes) per Operation – Constrained Forecast

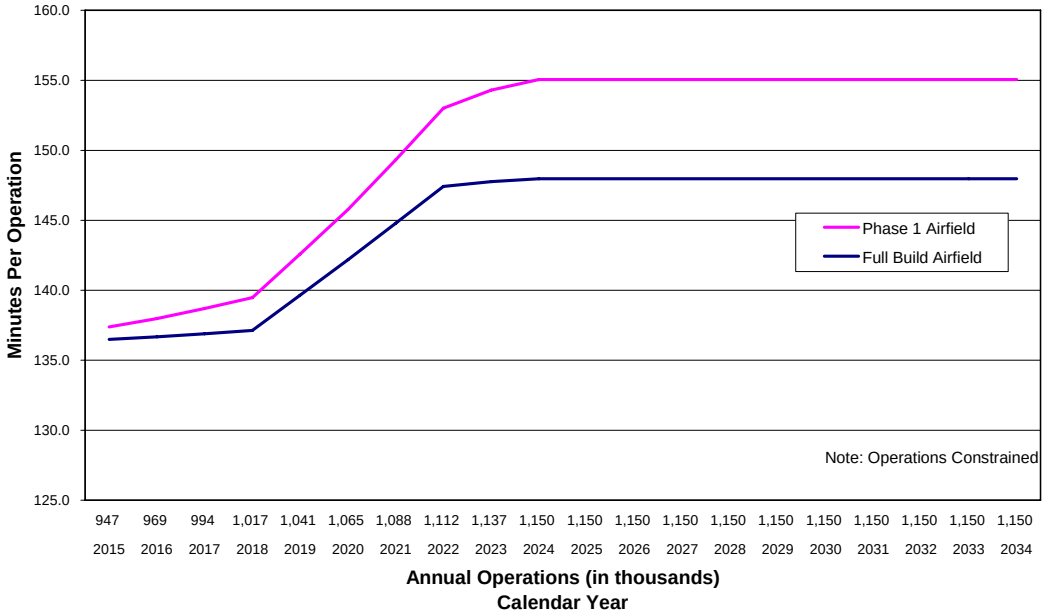


Calendar year of occurrence based on 2008 TAF.

Source: EIS TAAM Simulations, 2004; Ricondo & Associates, Inc., February 2009.
Prepared by: Ricondo & Associates, Inc.

Exhibit V-8

Average Travel Time (in minutes) per Operation – Constrained Forecast



Notes: Calendar year of occurrence based on 2008 TAF.
Travel time benefits illustrated are based on the constrained forecast and do not consider benefits associated with growth in demand beyond 1,150,000 annual operations.

Source: EIS TAAM Simulations, 2004; Ricondo & Associates, Inc., February 2009.
Prepared by: Ricondo & Associates, Inc.

Unimpeded travel time was determined by matching the EIS simulated demand levels to the closest calendar year in the constrained forecast. Exhibit IV-7 shows the average unimpeded travel time for the constrained forecast. For periods before and after the simulated demand levels, the unimpeded travel time from the lowest and highest simulated demand level respectively was held constant. The difference between the OMP Phase 1 and OMP Total Airfield unimpeded travel time accounts for the increase in taxi times associated with the expansion of the airfield.

As shown, the differences in average delay between OMP Phase 1 Airfield and OMP Total Airfield are greater than the differences between the average travel times in any given year. This results because the proposed plan increases unimpeded travel times due in part to the increase in taxi distance associated with the new runways. Therefore, this BCA uses the differences in total travel times to calculate benefits in order to ensure that these benefits are understated.

The EIS simulation data used to determine the constrained forecast travel times are shown in tabular form in **Appendix X**.

5.5 Benefit - Cost Comparison

The comparison of benefits and costs involves the calculation of NPVs and benefit-cost ratios (BCRs) based on recognition of the time value of money in discounting the benefits and costs. Additionally, time savings must be converted into monetary values based on appropriate assumptions regarding the value of passenger time and aircraft operating costs.

As noted previously, this BCA considers only delay savings in travel times for aircraft and passengers. Table V-1 summarizes other benefits not considered in this BCA, which if considered, would further increase the value of the economic benefits attributed to the project(s). The analyses performed in this section provide the benefit-cost comparison for the Proposed Action projects. The following points outline relevant assumptions associated with the quantification of these benefits and **Table V-6** summarizes the assumptions.

- *Base Year.* Project benefits were evaluated using 2008 as the base year because the most recent OMP cost estimates are in 2008 dollars. Project benefits and costs are stated in 2008 dollars in the year of accrual/expenditure, and benefits and costs are discounted 7 percent per year in accordance with the *BCA Guidance* to calculate present value.
- *Aircraft Operating Costs.* Variable aircraft operating costs consist of costs for crew, fuel and oil, taxes, and maintenance. Each aircraft model has a unique operating cost. These costs are provided on U.S. Department of Transportation Form 41.[8] To develop an aggregate variable aircraft operating cost for O'Hare, a weighted average of the operating costs for aircraft types in the fleet mix serving O'Hare in each of the simulation years was calculated. Values for years not simulated were linearly interpolated or extrapolated.

[8] The time period for data used was 12 months ending September 30, 2008.

Table V-6

Assumptions for Quantified Project Benefits

	Aircraft Variable Operating Cost (in 2008 dollars)	
Fleet Mix in Constrained Schedule	Cost per Hour	Cost per Minute
2007	3,952	65.86
2009	3,936	65.60
2013	3,859	64.32
Value of Passenger Time (in 2000 dollars not escalated)	$32.10	$0.54

Discount Rate	7 percent
Salvage Value	$0
Sunk Costs	$3 million
Evaluation Period	20 years after construction completion

	Evaluation Period	
OMP-Full Build Airfield Projects	Start Year	End Year
Future Runway 9C-27C	2015	2034
Runway 9R Extension	2015	2034
Runway 10R-28L	2015	2034

Sources: (Aircraft Operating Cost): U.S. DOT, *Form 41*, fourth quarter of calendar year 2007 through third quarter of 2008; (Value of Passenger Time): FAA-APO-03-1, *Treatment of Values of Passenger Time in Economic Analysis*, March 2003 and percentages of business and leisure travelers, Landrum & Brown, *In-Flight Survey*, 1997; (Discount Rate): FAA, *BCA Guidance*, December 15, 1999.
Prepared by: Ricondo & Associates, Inc.

- *Passenger Value of Time.* As set forth in the BCA Guidance, a blended rate accounting for the value of O'Hare's personal and business travelers' time may be used. The value of passenger time is set forth in the APO Bulletin, and the specified value is $40.10 per hour for business travelers and $23.30 for personal travelers.[9] Results of the In-Flight Air Survey in 1997 by Landrum & Brown indicated that business travel was the main purpose of the trip 52.4 percent of the time and personal travel 47.6 percent of the time. Based on this passenger distribution, the weighted average passenger cost for O'Hare is $32.10 per hour or $0.54 per minute.

[9] The *APO Bulletin* provides passenger value of time in 2000 dollars and states that the values may not be adjusted for inflation.

- *Downstream Delay Benefits.* Because delays at a particular airport can propagate throughout the NAS, downstream delay savings should also be considered as a benefit as permitted by the BCA Guidance.[10] However, an effective methodology for quantifying these delay benefits is not readily available, and, while various methods are discussed in academic literature and research, none have been proven accurate in all applications and endorsed by FAA for use in BCA. For the purposes of this BCA, a simplified methodology developed by Massachusetts Institute of Technology's Lincoln Laboratory is presented for consideration, but is not included in the baseline analysis. This study suggests that downstream delay can reach 80 percent of the local delay levels.
- *Salvage Value*. As set forth in the BCA Guidance, salvage value of the project may be considered. Salvage value can vary significantly depending on the conceptual methodology used to define it. If defined as a residual value, the cost can be calculated as the originally project cost, less the cost to bring the project back to "new" condition at the end of the analysis period. Under this definition, several components of a project could be considered in the salvage value including land costs, facility relocation costs, and earthwork and drainage improvements. These costs are significant components of the OMP CP Airfield, but to provide a conservative analysis, salvage value is not considered in the BCA.
- *Sunk Costs.* As set forth in the BCA Guidance, sunk costs of the project should be excluded from the BCA. Through 2008, approximately $3 million has been spent on airfield planning and design for the LOI Projects. Therefore, this amount is considered a sunk cost in the BCA.
- *Evaluation Period*. The evaluation period is the time period over which project benefits and costs are calculated. As recommended in the BCA Guidance, the evaluation period extends for 20 years after completion of construction.

5.5.1 Project Analysis

Based on the information presented in Table V-5, and information on costs and travel time benefits presented in prior sections of this document, the benefit-cost ratio and NPV were derived for the Proposed Action projects. These values are presented in **Table V-7**. **Appendix F** presents tabular information detailing the calculation of the BCR and NPV.

[10] In the *BCA Guidance*, FAA states "Simulation modeling of delay at the study airport does not capture the effect of 'follow-on' delays e.g., delays that results at other airports as a result of delays originating due to congestion at the subject airport. Whereas FAA attempts to consider systemwide delay impacts in its capacity analyses, it has been unable to develop a robust simulation methodology for measuring these impacts … However, in the case of projects with major average delay reductions (5 minutes or more), the analyst may attempt to quantify follow-on effects. FAA will consider follow-on delay reduction estimates developed from any methodology that is well documented. An example of a potentially usable methodology is one developed by Lincoln Laboratory."

Table V-7

Benefit-Cost Ratio and Net Present Value (2008 dollars) Aircraft and Passenger Local Travel Time Benefits Only

	Present Value Benefits (billions)	Present Value Costs (billions)	Net Present Value (billions) [1]	Benefit-Cost Ratio
Proposed Action	$4.0	$2.4	$1.6	1.68

Note:
1 Total may not add due to rounding.

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

5.5.2 Sensitivity Analyses

Because of the risks involved in infrastructure development and the number of assumptions regarding future conditions that occur in benefit-cost analysis, the analysis should be evaluated for its sensitivity to certain basic parameters to confirm its economic viability. For this BCA, the following sensitivity analyses were conducted. These assumptions were used only to demonstrate the continued economic justification for the Proposed Action under varying cost and benefit assumptions and are not anticipated changes to the analysis assumptions.

- Increase capital investment cost 25 percent
- Decrease benefits savings 25 percent
- Increase capital cost investment 25 percent and decrease benefit savings 25 percent
- Delay construction schedule by 5 years
- Constrain passenger growth at gate constraint.
- 2002 TAF as base for constrained operations

The results of these sensitivity analyses are shown in **Table V-8**.

Table V-8

Benefit-Cost Ratios and Net Present Values (2008 dollars) - Sensitivity Analyses
Aircraft and Passenger Local Travel Time Benefits Only

Sensitivity Analysis	Evaluation End Year	Present Value Benefits (billions)	Present Value Costs (billions)	Net Present Value[1] (billions)	Benefit-Cost Ratio
Increase capital costs by 25 percent	2034	$4.0	$2.9	$1.1	1.37
Decrease benefits by 25 percent	2034	$3.0	$2.4	$0.6	1.26
Increase capital costs by 25% and decrease benefits by 25%	2034	$3.0	$2.9	$0.07	1.03
Constrained passengers growth at operations limit	2034	$3.9	$2.4	$1.6	1.66
Delay construction schedule by 5 years	2039	$4.1	$1.7	$2.4	2.45
2002 TAF as Base for Constrained Forecast	2034	$6.5	$2.4	$4.2	2.77

Note:
1 Totals may not add due to rounding.

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

These sensitivity analyses show Proposed Action benefit-cost ratio over a wide range of variations in its basic variables. In all cases, the BCR exceeds 1.0, and the NPV is larger than the FAA threshold.

This analysis does not attempt to quantify or consider all benefits associated with the benefit-cost ratios and NPVs presented here are based on underestimated benefits and would be expected to be higher if a full accounting of project benefits were performed.

5.5.3 Non-Quantified Benefits

In addition to the local delay savings in travel times for aircraft and passengers quantified in the BCA, other significant non-quantified benefits of the OMP Completion Phase exist. The following benefits will also be provided by the OMP Completion Phase.

- Greater schedule predictability including (1) aircraft operator able to make more efficient use of equipment and personnel and (2) passenger able to take later flight and arrive at destination on time
- Airport's ability to accommodate faster, larger, and/or more efficient aircraft
- Bringing pre-existing infrastructure into compliance with FAA safety and security standards. The provision of a full safety area for Runway 9L-27R is a significant example of this benefit.
- Safety improvements
- Reduced downstream delay. Studies have estimated that downstream delay can total 80 percent or more of the delay experienced locally, which would equal approximately $3.2 billion in Present Value Benefits in the base case analysis.

Request for Letter of Intent

Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding

March 1, 2009

VI. Financial Plan

VI. Financial Plan

VI. Financial Plan

This section presents (1) the status of OMP Phase 1 LOI for AIP funds, (2) the Proposed Action funding plan, (3) Proposed Action funding sources, (4) OMP financial feasibility, (5) LOI funding at other airports, (6) proposed cash flows for LOI projects, (7) LOI benefits, and (8) financial tables.

6.1 OMP Phase 1

6.1.1 OMP Phase 1 AIP LOI Grant AGL-06-01

The City received an AIP LOI for $337.2 million, including $300 million in AIP LOI discretionary grants and $37.2 million in AIP entitlements for the OMP Phase 1 Airfield Projects.

On an annual basis, the City applies for grant disbursement under the LOI for OMP Phase 1 airfield projects, consistent with the payment schedule issued by the FAA and shown in **Table VI-1**. The actions taken by the City and the FAA regarding the LOI grant schedule for the OMP Phase 1 Airfield projects are as follows:

- First Installment
  - On September 25, 2006, the FAA approved the City's application for the first in this planned series of grants and extended a grant offer for an installment of $29,300,000 of the federal funds referred to in the LOI. The City accepted the grant offer on September 26, 2006 and the FAA disbursed the funds on October 18, 2006.
- Second Installment
  - On August 27, 2007, the FAA approved the City's application for the second in this planned series of grants and extended a grant offer for an installment of $28,400,000 of the federal funds referred to in the LOI. The City accepted the grant offer on August 28, 2007 and the FAA disbursed the funds on September 18, 2007. The City then immediately applied the funds to the project.
- Third Installment
  - On May 6, 2008 the City applied for the third grant in the series contemplated by the LOI. The application was for $26,500,000 and the FAA approved the application in two increments. The first amount for $24,820,437 was approved by the FAA on June 3, 2008. The City accepted the grant offer on June 10th and received the funds on August 26, 2008. The second installment for $1,679,563 was approved by the FAA on September 8, 2008. The city accepted and received the second installment of the grant. The incremental approvals total the full amount of the third installment of $26,500,000. The city has applied the funds to the project.
- Fourth Installment
  - The funds for the 2009 grant were applied for on January 27, 2009. On February 18, 2009 the FAA approved a partial installment of the grant for $22,110,037. The City accepted the grant on February 23, 2009 and will apply the funds to the project upon receiving the grant.

Table VI-1

AIP LOI Grant No. AGL-06-01 Schedule

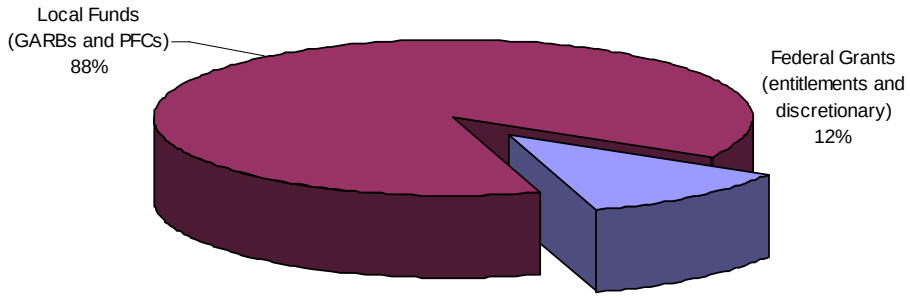
Year	Project	Entitlement	Discretionary	Annual Total
2006	Runway 9L-27R Construction	$9,300,000	$20,000,000	$29,300,000
2007	Runway 9L-27R Construction	8,400,000	20,000,000	28,400,000
2008	Runway 9L-27R Construction	6,500,000	20,000,000	26,500,000
2009	Runway 9L-27R Construction	6,500,000	20,000,000	26,500,000
2010	Runway 9L-27R Construction	6,500,000	7,800,000	14,300,000
2010	Runway 10L Extension Construction		12,200,000	12,200,000
2011	Runway 10L Extension Construction		20,000,000	20,000,000
2012	Runway 10L Extension Construction		17,800,000	17,800,000
2012	Runway 10C-28C Construction		2,200,000	2,200,000
2013	Runway 10C-28C Construction		20,000,000	20,000,000
2014	Runway 10C-28C Construction		20,000,000	20,000,000
2015	Runway 10C-28C Construction		20,000,000	20,000,000
2016	Runway 10C-28C Construction		20,000,000	20,000,000
2017	Runway 10C-28C Construction		20,000,000	20,000,000
2018	Runway 10C-28C Construction		20,000,000	20,000,000
2019	Runway 10C-28C Construction		20,000,000	20,000,000
2020	Runway 10C-28C Construction		20,000,000	20,000,000
	Total	$37,200,000	$300,000,000	$337,200,000
Total By Component				
	Runway 9L-27R Construction	$37,200,000	$87,800,000	$125,000,000
	Runway 10L Extension Construction	$0	$50,000,000	$50,000,000
	Runway 10C-28C Construction	$0	$162,200,000	$162,200,000
	Total	$37,200,000	$300,000,000	$337,200,000

Source: FAA,; City of Chicago department of Aviation.
Prepared by: Ricondo & Associates

As shown on **Exhibit VI-1**, approximately 88 percent of funding sources for OMP Phase 1 (including the Noise Program) are local funds including GARBs, pay-as-you-go PFCs, and PFC double-barrel bonds. The airlines serving the Airport have formally granted MII approvals for the issuance of GARBs and double barrel PFC bonds as part of the financing plan. Funding sources for the remaining 12 percent are assumed in the financing plan to be a combination of AIP entitlement and discretionary grants. The financing plan required a minimum $300 million LOI commitment by the FAA as a condition to the airline funding commitment. In addition, the City committed as part of this LOI request approximately $37.2 million in entitlement grants to fund a portion of the construction of the OMP Phase 1 Airfield Projects. As part of the plan of finance, the City has actually committed approximately $55 million in entitlement grants, approximately $17.8 million more than what was included in the LOI.

Exhibit VI-1

OMP Phase 1 Airfield Projects Local Funds and Federal Grants [1]



Note:

1 Includes Noise Program.

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

6.1.2 OMP Phase 1 Additional Federal Funds

Between 2006 and 2007 the City received $26 million in discretionary grants for noise mitigation programs and expects to apply for additional grants for noise mitigation. That amount is shown in the tables in this Chapter. Subsequent to those grants, the City received further grants for noise mitigation related to the OMP totaling $36 million.

The FAA has announced that more than $42 million of the cost of the new FAA North Airport Traffic Control Tower will be paid by the FAA under a separate agreement. These federal funds are in addition to AIP entitlement grants and discretionary grants expected under the OMP Phase 1 LOI and for noise mitigation.

6.2 Proposed Action

The estimated cost of the Proposed Action is approximately $2.75 billion in 2008 dollars. This includes construction, design, contingency and program administration costs for Runways 9C-27C, 10R-28L, and the extension of Runway 9R-27L, OMP Completion Phase noise program, and World Gateway Program taxiway improvements. Of the $2.75 billion, the LOI Projects consist of approximately $2.65 billion[11].

Funding sources for the LOI Projects include federal grants-in-aid under the AIP, PFCs (pay-as-you-go and leveraged), and General Airport Revenue Bonds (GARBs). **Table VI-2** lists the funding sources for the Proposed Action projects. The actual amount of funding available from these sources will depend on a number of factors, including future levels of aviation activity and federal reauthorizations.

[11] The financial tables in the Appendix G show the LOI Projects

Table VI-2

Proposed Action Sources of Funds (in 2008 dollars) [1]

Sources of Funds ($ millions)				
		FAA AIP Grants		
PFCs (PAYG and Bond Funds)	GARBs	Entitlement [4]	Discretionary	Total
$1,001	$1,251.0	N/A	$500.0	$2,751.8

Notes:

1 Includes OMP Completion Phase Noise Program

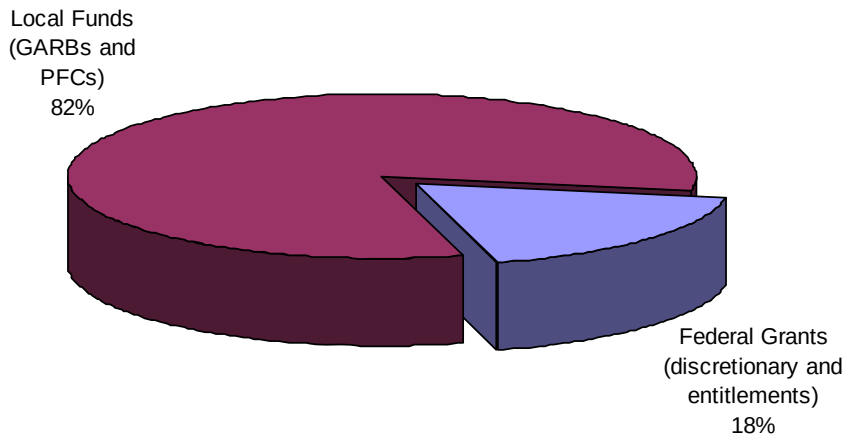
2 Assumes entitlements are forfeited due to increase in PFC collection. Should entitlements remain available, they will be use for airfield preservation.

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

As shown on **Exhibit VI-2**, approximately 82 percent of funding sources for the Proposed Action are local funds including GARBs, pay-as-you-go PFCs, and PFC bonds. Funding sources for the remaining 18 percent are assumed in the financing plan to be AIP discretionary grants totaling $500 million.

Exhibit VI-2

LOI Projects Local Funds and Federal Grants [1]



Note:

1 Includes Noise Program.

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

6.3 Sources of OMP Airfield Projects Funding

6.3.1 FAA Airport Improvement Program Grants

The Airport and Airway Improvement Act of 1982 authorizes funding for the AIP from the Airport and Airway Trust Fund for airport development, airport planning, and noise compatibility planning and programs. The Airport and Airway Trust Fund is funded through several aviation user taxes on airfares, air freight, and aviation gasoline. On December 12, 2003, President Bush signed into law

FAA reauthorization legislation known as Vision 100 – Century of Flight Authorization Act of 2003. Under the reauthorization, the AIP was extended four federal fiscal years to September 30, 2007. The funding levels for AIP investment are $3.4 billion in the first year, increasing by $100 million per year in each subsequent year. The AIP has continued through a series of short-term FAA legislative extensions while congress attempts to pass the FAA Reauthorization Act. The most recent of which is the FAA Extension Act signed in September 2008. This bill provides, among other things, an annualized amount of $3.9 billion in contract authority for the Airport Improvement Program. The FAA Reauthorization Act (H.R. 915) was reintroduced to members of the U.S. House of Representatives Subcommittee on Aviation on February 11, 2009. As of February 19, 2009, the bill has not been reintroduced in the Senate. H.R. 951 continues the annualized $3.9 billion for the AIP in 2009, with an annual $100 million increase through 2012.

The City is seeking an LOI for $500 million in AIP discretionary funds for the LOI Projects[12]. Discussion about LOI grants at other airports follows in Section 6.5.

6.3.2 Passenger Facility Charges

The PFC program is authorized by 49 USC §40117, originally enacted in 1990 and amended in 2000. It authorizes the FAA to allow airports to impose fees on passengers to finance airport development projects and planning, as defined in the law. The fee may be imposed at the levels of $1, $2, $3, $4, or $4.50 per eligible enplaned passenger. "No contract or agreement between an air carrier or foreign air carrier and a public agency may impair the authority of the public agency to impose a PFC or impair use of the PFC revenue." § 40117(f). The Use Agreements authorize the City to pay for capital expenditures from PFCs without airline approval. Use Agreement § 8.01(a)(iv). PFC revenues may be used on a pay-as-you-go basis or leveraged to support the issuance of PFC-backed bonds. PFC Bonds can be issued either as stand-alone or double-barrel bonds, which are backed by both a pledge of PFCs and general airport revenues. The City has outstanding approximately $725.7 million of First and Second Lien PFC stand-alone bonds and approximately $500 million of double-barrel bonds. The City plans to issue either additional stand-alone and double-barrel PFC bonds in the future to finance project costs.

On September 1, 1993, the City imposed a PFC of $3.00 per enplaned passenger, which was increased to $4.50 per enplaned passenger on April 1, 2001. As of September 30, 2008 the City had authority to impose approximately $4.5 billion in PFCs and use approximately $4.5 billion in PFC revenues at the Airport. Consistent with requirements, PFC funds are used to support projects that (1) preserve or enhance the capacity, safety, or security of the NAS; (2) reduce noise or mitigate noise effects; or (3) furnish opportunities for enhanced competition between or among air carriers.

The City has received approval to impose and use $177.6 million of PFC's for the design for OMP Completion Phase airfield projects. The City intends to file future PFC applications for the construction of OMP Completion Phase airfield projects.

The City is prepared to contribute $1.005 billion of PFC funds towards the OMP Completion Phase. The current economic conditions and recent passenger decreases at the Airport could result in a PFC capacity projection for the Airport that could potentially be less than the $1.005 billion commitment. In that event, the outstanding amount will be funded from other local sources, most likely with revenue bonds. Alternatively, there are also several other potential changes in assumptions that could result in a higher PFC capacity, including: an increase in the PFC level beyond the projected amount, a reduction in the required debt service coverage assumptions for PFC-backed bonds,

[12] The City's plan of finance for OMP Completion Phase does not include entitlement grants as a source of funding because it is assumed that with an increase in the PFC collection level, entitlements will not be available. This is consistent with the pending FAA Reauthorization bill.

decreases in the assumed bond interest rates, and increases in enplanement activity. Any change or combination of such changes would impact the PFC capacity at the Airport.

The law imposes no limit on the duration of PFC collections, or on the final year in which authorized PFCs are expected to expire. The FAD for PFC application 06-19-C-00-ORD lists 24 airports authorized to collect PFCs beyond 2024, including Bentonville, Arkansas (2040), Miami, Florida (2037), Chicago Midway (2038), Detroit, Michigan (2032), Raleigh-Durham, North Carolina (2032), Harrisburg, Pennsylvania (2034), Dallas/Ft. Worth, Texas (2034), and Clarksburg, West Virginia (2054). FAD 06-19 67-68. The FAA estimates the current O'Hare PFC collection expiration date to be May 1, 2026.

6.3.3 General Airport Revenue Bonds

6.3.3.1 Nature of GARBs

GARBs are bonds issued by the City and secured solely by airport revenues. They are a traditional method of financing airport development. They are limited obligations of the City "and neither the faith and credit nor the taxing power of the State of Illinois, the City or any other political subdivision of the State of Illinois will be pledged to the payment of the principal of or interest on" any GARBs[13]. (2008 Official Statement 5). As of January 1, 2008, the City had approximately $4.3 billion of GARBs outstanding, with maturities extending to 2038. The City issued GARBs totaling $779,915,000 in January, 2008, of which $530 million are secured by both airport revenues and passenger facility charges (see below).

6.3.3.2 Use Agreements and GARBs

The Use Agreements give airlines that have signed them (Airline Parties) control over the issuance of certain GARBs. If the City intends to charge the Airline Parties for GARB debt service during the term of the Use Agreement, the Airline Parties have certain approval rights. The Use Agreements terminate on May 11, 2018. GARBs issued now with all of their debt service payable after that date are not subject to Airline Party approval. The Airline Parties have no rights under the Use Agreements, or otherwise, to approve or control capital development at the airport. Their right is limited to approval of certain GARBs.

The City is currently in discussions with airlines about a plan of finance for the LOI Projects. The City intends to use GARBs to fund a substantial share of LOI Project costs, supplemented by AIP, PFC, and third party financing. The City may implement a funding plan that does not require airline approval, based on the issuance of GARBs on which principal and interest are paid after the Use Agreements terminate in 2018.

GARBs are routinely sold by airports nationwide that do not have long-term airline agreements. A long-term airline agreement is not required for the sale of GARBs. Existing GARBs already successfully issued by the City have large amounts of principal and interest scheduled to be paid in the years after the Use Agreements terminate. These GARBs have maturities extending far beyond May 11, 2018. Some maturities of Series 2005C and 2005D bonds are 2035; Series 2006B and 2006D bonds, 2037; Series 2008A bonds, 2034, Series 2008C bonds, 2023 and Series 2008D bonds, 2038. The bond market and the investors in the bonds were fully aware that the Use Agreements would terminate long before the GARBs mature. By buying these bonds they accepted the credit of

[13] In addition to GARBs, the City has issued bonds secured in whole or in part by PFCs, and special facility revenue bonds secured solely by amounts received from specific private parties under special facility financing agreements. Special facility revenue bonds, which are not secured by general airport revenues, are commonly used to finance facilities such as cargo buildings, hangars, and terminal buildings that are used by designated carriers, and are secured solely by payments made by those carriers.

O'Hare based on their assessment of the airport's future creditworthiness, rather than on the airlines commitments under the Use Agreement. (2008 Official Statement 38-39)

6.3.3.3 GARB Interest Rates

To date, the City's GARBs for OMP have been issued at the interest rates shown in **Table VI-3**.

Table VI-3

GARB Interest Rates

Bond Series	Actual Terms of Sale
2003 ABC	5.789%
2003 DEF	5.099%
2004 A-H	4.861%
2005 ABCD	4.703%
2006 ABCD	4.778%
2008 ABCD	4.604%

Note: No bonds were issued in 2007

Source: Fullerton & Friar, 2008.
Prepared by: Ricondo & Associates, Inc.

These actual rates are lower than the interest rate assumptions in the financing plan in the O'Hare Master Plan, which assumed GARB interest rates of 6 percent (except for 2003, which was 5.50 percent). Master Plan Appendix D, p. D-1. These Master Plan assumptions were used by the FAA's contractor, John F. Brown Company, in its June 27, 2005 independent analysis of the financial feasibility of OMP Phase 1. A&R Attachment A, p. 6. The FAA concluded: "The Financial Assistance Division of APP also reviewed the City's financing plan and, in conjunction with the John F. Brown Study, has determined . . . that the Phase 1 OMP is financially feasible." A&R, p. 7.

When the City and Airline Parties agreed on OMP Phase 1 funding, the City projected the annual GARB debt service cost, based on assumed interest rates taking into consideration: (1) then-current actual interest rates, (2) the possibility of fluctuations in interest costs given the period of time over which the bonds would be issued, and (3) the assumption that a combination of fixed rate and variable rate bonds would be issued to fund the projects. The City assumed that 85 percent of the bonds would be issued at a fixed rate of 6.25 percent and that 15 percent of the bonds would be issued at a variable rate of 4 percent, resulting in a 5.91 percent blended rate assumption for the interest cost of the OMP Phase1 debt. All but approximately $400 million of the planned OMP Phase 1 GARBs have been issued, all of them at a true interest cost lower than the 5.91 percent blended rate assumed in the projection. The City estimates that the total debt service savings to the overall cost of the OMP resulting from these savings on interest payments over the life of the GARBs exceeds $500 million.[14]

[14] Based on the "Revenue Bond Index" published weekly by the Bond Buyer, the average rate on fixed rate 30 year tax-exempt revenue bonds over the last 20 years was 5.88 percent, with a peak on the first day of that period of 7.98 percent (September 8, 1988). The average for the last ten years was 5.23 percent, with a peak of 6.35 percent on January 20, 2000. The lowest interest rate for both periods was 4.38 percent on March 15, 2007. The rates on the City's O'Hare bonds over the same period have approximated the rates in the Bond Buyer index. The sales of OMP bonds to date for Phase 1 have resulted in savings when compared to the Master Plan assumptions due to having been sold at rates consistently below rates assumed in the Master Plan. Those interest cost savings on bonds already sold are not dependent on future interest rates. While the data

6.3.3.4 GARB Ratings

GARBs are independently rated by three rating agencies, which publish their opinions on the creditworthiness of the bonds. OMP Phase 1 2008 GARBs received positive ratings by Moody's, S&P and Fitch, which assigned "Aaa," "AAA" and "AAA," respectively, to the 2008 GARBs on the understanding that bond insurance would cover the bonds. The three agencies also assigned underlying ratings of "A1," "A-" and "A," respectively, to each series of the 2008 bonds. An "underlying rating" refers to the creditworthiness of the GARBs, and therefore the airport, in the absence of bond insurance.

6.4 OMP Financial Feasibility

6.4.1 Project completion sources of funds

The City plans to pay for the projects included in this Application from the same sources used to finance OMP Phase 1. Aside from this LOI application, the City also plans to seek FAA approval to impose additional PFCs for runway construction. The PFC application is scheduled for filing this year. The applications for OMP Completion Phase construction will be similar in form and content to the applications approved for OMP Phase 1 runway costs in the LOI and FAD 06-19. Although the City is negotiating with O'Hare airlines on a funding agreement, as described above, the City has access to the GARB market in amounts sufficient to pay for the these projects without airline approval.

6.4.2 Financial Feasibility

In 2001, the City estimated OMP total cost at $6.6 billion (in 2001 dollars), defining the OMP for that purpose as the aggregate of the airfield projects, western terminal complex, people mover, and such program-wide requirements as wetlands and noise mitigation and land acquisition. This original estimate, escalated over time, was first verified, and then used by the FAA in the EIS as a reasonable estimate of the cost of the OMP.[15] After reviewing and adjusting this amount, the FAA estimated OMP cost at $7.52 billion in 2004 dollars (EIS Table 1-11).

Using this $7.52 billion estimate in review of the City's LOI Application for OMP Phase 1 Airfield Projects, the FAA determined that the OMP is financially feasible. It consulted John. F. Brown Company, a recognized airport finance expert. Brown also performed several sensitivity tests, including a 12-month delay in delivery of the program and an increase in costs by 15 percent, which did not change the FAA's determination of financial feasibility.

The FAA's estimate would be $8.46 billion in 2007 dollars. The City currently estimates total OMP cost at $8.38 billion in 2007 dollars. The estimate includes actual costs for OMP Phase 1 work already performed or under contract (the current working estimate) and an updated estimate to complete the OMP using the same cost estimating process that has proved reliable for OMP Phase 1. Expressing both the City and the FAA's estimates in 2007 dollars, the City's estimate is $110 million less than the FAA's. The FAA found the OMP financially feasible in 2005, and it is still financially feasible today.

The FAA and their experts have significant experience in understanding the escalation of costs over time as large capital programs are implemented, and the relation of these escalated costs to costs in

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generally supports the interest rate assumption in the Master Plan, the City makes no representation as to future interest rates on OMP bonds.

[15] See Crawford, Murphy & Tilly, Analysis of the 2004 O'Hare Master Plan Cost Estimated for the O'Hare Modernization Environmental Impact Statement.

the broader economy. These conditions were part of expectations at the time of the feasibility determination. There is no reason to believe the construction cost escalation experienced since the FAA determined the program to be financially feasible has outpaced general inflationary forces to a level that would materially affect the FAA's original determination.

6.4.3 Additional factors affecting financial feasibility

As shown above, OMP costs are still estimated to be within the cost estimates assumed in the positive findings of financial viability by the FAA in 2005. Financial feasibility is also affected by reductions in the amounts to be paid by airlines and other airport users compared to their original expectations. To date, unexpected amounts from the FAA have been committed, reducing the financial cost to airlines and other airport users by that amount, including the FAA's assumption of substantial cost for the north airport traffic control tower, and grants for noise mitigation. The City believes that it is reasonable to expect additional grants for noise mitigation. The City intends to seek further FAA support for air traffic control facilities and equipment. The FAA has made no commitment to such additional funding.

The City has repeatedly sold GARBs at interest rates substantially below the rates assumed in the Master Plan and A&R financial feasibility analyses, most recently in early 2008. See Table F-2.1. The total reduced interest cost to be paid by the airlines and other O'Hare users on bonds sold to date is conservatively estimated at $500 million.

These unanticipated amounts make the OMP more affordable to airlines and airport users. The City believes that additional similar amounts of federal funding may be available as the program is developed.

6.5 AIP LOI Discretionary Grants at Other Airports

The City received an amount of $300 million of discretionary LOI grant funding for the OMP Phase 1 airfield projects which included two runways and a runway extension. The grant distribution was $125 million for each runway and $50 million for the runway extension. Upon review of historical LOI awards, 13 of 15 runway projects received greater than 20 percent federal participation. The LOI Projects included in this application total $2.75 billion and 20 percent of the total project is $550.4 million. With this in mind, the City is requesting LOI funding in the amount of $500.0 million. As discussed in Section 3, the OMP provides significant delay reduction at O'Hare and reduces delay and increases the efficiency of the NAS. Three specific examples of Airports who received federal funding well in excess of 20 percent are listed below:

- Lambert- St. Louis International –
  - *Federal Participation:* $145.0 million in LOI discretionary funds, $226.4 in total federal participation representing 23.0 percent of total project costs.
  - *Project:* New parallel Runway 11-29 (9,001 x 150 feet) and associated infrastructure and improvements.
- Washington Dulles International
  - *Federal Participation:* $150.0 million in LOI discretionary funds, $200.2 in total federal participation representing 51.3 percent of total project costs.
  - *Project:* Future Runway 1L/19R (9,400 x 150 feet) and associated taxiway system and associated runway enabling projects, including environmental impact statement, wetland and stream mitigation, navigational aid installation, and site utilities construction, Phase 1.

- Seattle- Tacoma International - $184.6 million
  - *Federal Participation:* $184.6 million in LOI discretionary funds, $301.3 in total federal participation representing 26.7 percent of total project costs.
  - *Project:* New Parallel Runway 11-29 (8,500 x 150 feet) and related facilities including lighting, signage, relocation of navigational aids, taxiways, land acquisition, and wetland mitigation.

The projects above are similar to the OMP in runway construction but differ in the complexity and scope of a multiple runway and extension construction project such as the OMP. The additional requested LOI discretionary funding allocation per runway construction project is justified for the Airport given its importance to the National Airspace System and the complexity of the project.

6.6 Proposed Cash Flows for LOI Projects

Table VI-4 and **Table VI-5** show the estimated cash flow needs for the LOI Projects (runway projects only) during construction as originally planned by the City in 2008 dollars and the requested flow of funds from the FAA under the LOI for a 10-year timeframe, respectively. The timing of expenditures is subject to change. The funding needs of the LOI Projects during construction are far greater than the requested funding commitment from the FAA. As permitted, future federal funds will be used to reimburse past expenditures.

Table VI-4

Cash Flows for LOI Projects (2008 dollars)

Calendar Year	LOI Projects Expenditures (millions)[1]
2008	3.3
2009	68.4
2010	432.6
2011	898.9
2012	780.4
2013	341.8
2014	121.8
Total [2]	$2,647.1

Notes:

1 Expenditures are shown in calendar years as originally planned by the City in 2008 dollars. The timing of expenditures is subject to change.

2 Total may not add due to rounding.

Source: OMP Program Management Office.
Prepared by: Ricondo & Associates, Inc.

Table VI-5

Proposed LOI Reimbursement Schedule

Federal Fiscal Year	Proposed LOI Reimbursement ($ millions)
2010	50.0
2011	50.0
2012	50.0
2013	50.0
2014	50.0
2015	50.0
2016	50.0
2017	50.0
2018	50.0
2019	50.0
Total	$500.0

Source: City of Chicago, Department of Aviation.
Prepared by: Ricondo & Associates, Inc.

6.7 LOI Benefits

Approval of this LOI request will advance FAA's policy goals and assist the City in minimizing the amount of debt necessary to fund the OMP.

6.7.1 Policy Goals

A favorable decision by the FAA on this LOI request will advance three important FAA policy goals. First, the completion of the project will reduce delays and enhance the capacity of the Airport and the NAS. Second, LOI Projects will receive significant local commitment with approximately 82 percent local funding. Third, completion of the project will allow compliance with FAA's Runway Safety Area standards by the FAA's nationwide target date of 2015.

6.7.2 Financial Implications

If an LOI request is not approved, an alternative method for funding the LOI Projects would be to issue additional GARBs to finance the construction costs previously identified as being funded with an LOI grant. Estimated debt service payments resulting from an additional $500 million GARB issuance would be, approximately, an additional $44.8 million annually to the bonds that will be issued. An additional $44.8 million in annual debt service would increase the landing fee at the Airport, imposing a financial burden on the air carriers providing service to the Airport. An LOI commitment will assist the City in moving forward with project construction based on the funding conditions in the agreement.

6.8 Financial Tables

According to the *Program Guidance Letter amending FAA Order 5100.38C* dated November 20, 2006, the FAA will determine the Sponsor's financial commitment in the analysis of the Airport's financial plan through 2019, the last year of the proposed LOI reimbursement schedule. **Appendix G** contains the FAA tables required by PGL 07-03. The tables depict the annual cash flows for the Proposed Action which includes the LOI Projects in addition to the OMP Completion

Phase noise program. The other capital plans shown in the Appendix G tables include the remaining cash flows for OMP Phase 1 and the City's 5-year Capital Improvement Program as of July 2008. The City is in the process of updating the 5-year CIP. The updated CIP can be provided at the FAA's request.

Appendix G also includes tables listing project costs for elements of the four LOI Projects. These costs are based on the same procedures and prepared by the same program management staff as cost estimates used for OMP Phase 1. The City has received bids or has commitments on more than 75 percent of the runway components of the current working estimate. As discussed in section 6.4.4, the current working estimate for OMP Phase 1 has proved reliable thus far. Therefore, it is reasonable to assume the LOI Project costs are reasonable. The costs included in this application are consistent with the costs included in the PFC application for OMP Completion Phase design approved by the FAA on February 26, 2009.

Request for Letter of Intent

Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding

March 1, 2009

Appendices

Appendices

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Appendix B	Airline Support. Letter to the Editor of the Chicago Tribune Nov. 24, 2008 from United Airlines and American Airlines
Appendix C	Memo describing the creation of the constrained enplanement forecast
Appendix D	Gate Operating Limits
Appendix E	Results from EIS simulation analysis used in the BCA
Appendix F	BCA Tables
Appendix G	Financial tables required by FAA Program Guidance Letter 07-03

Reference Document DVD

FAA's Analysis and Review of Chicago's Application of Letter of Intent AGL 06-01 (A&R)

Final Environmental Impact Statement (EIS)

FAA Record of Decision (ROD)

O'Hare Master Plan (Master Plan)

O'Hare International Airport Airport Layout Plan (ALP)

Bureau of Transportation Statistics Tables

Economic Studies

FAA Final Agency Decision for PFC 06-19-C-00-ORD (FAD 06-19)

FAA Final Agency Decision for PFC 08-21-C-00-ORD (FAD 08-21)

Request for Letter of Intent

Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding

March 1, 2009

Appendix A

Appendix A

U.S. Department
of Transportation
**Federal Aviation
Administration**

Great Lakes Region
Illinois, Indiana, Michigan,
Minnesota, North Dakota,
Ohio, South Dakota,
Wisconsin

2300 East Devon Avenue
Des Plaines, Illinois 60018

November 21, 2005

Mr. John A. Roberson, Commissioner
Department of Aviation
Chicago O'Hare International Airport
P.O. Box 66142
Chicago, Illinois 60666

Rosemarie S. Andolino, Executive Director
O'Hare Modernization Program
8755 W. Higgins Road, Suite 700
Chicago, Illinois 60631

Chicago O'Hare International Airport
Letter of Intent No. AGL-06-01

I am pleased to inform you that in response to the City of Chicago's request for assistance under the Airport Improvement Program (AIP), as authorized by Title 49, United States Code, your request for a Letter of Intent (LOI) for the Chicago O'Hare International Airport has been approved.

Enclosed are the original and one copy of LOI No. AGL-06-01 for Chicago O'Hare International Airport (ORD) as issued by authority of the Administrator of the Federal Aviation Administration (FAA) on behalf of the United States of America.

The enclosed LOI No. AGL-06-01 sets forth the maximum Federal share of project costs included within the LOI project description and a schedule of payments over fifteen years commencing in fiscal year 2006. The terms of this LOI may be adjusted as outlined in the LOI if project progress, or FAA's obligation authority, is less than expected.

We look forward to continuing our working relationship toward the successful completion of this major system capacity enhancement project. Our office will work closely with you to answer any questions that you may have and to administer the funding provisions of the LOI. The FAA's analysis supporting this LOI together with attachments consisting of FAA memoranda, consultants' reports, and responses to comments may be accessed on the web at http://www.agl.faa.gov/OMP/LOI/LOI.htm.

Sincerely,

Philip M. Smithmeyer, Manager
Chicago Airports District Office

Enclosure

LETTER OF INTENT AGL-06-01
Chicago O'Hare International Airport
Chicago, Illinois

The Federal Aviation Administration (FAA) hereby announces its intention, effective this date, in accordance with the provisions of section 47110(e) of title 49, United States Code (Act), to obligate funds from current and future budget authority to issue grants to pay the City of Chicago (City) for the United States share of allowable costs at the Chicago O'Hare International Airport for the project described as follows:

> O'Hare Modernization Program – Phase 1 including new future Runway 9L-27R; extension of future Runway 10L-28R (existing Runway 9R-27L); future Runway 10C-28C; and associated runway enabling projects, including associated taxiway systems, navigation aids installation and upgrade, site utilities construction, and existing facilities relocation

as more fully described in the Sponsor's application for a Letter of Intent, dated February 15, 2005.

The maximum United States obligation pursuant to this Letter of Intent for the Project described above shall be an amount not to exceed $337,200,000.

Upon application by the City and in compliance with grant requirements, the FAA shall issue grants from current or future budget authority, as funds become available, according to the following schedule:

	Federal Funds		
Fiscal Year	Apportionment	Discretionary	Total
2006	$ 9,300,000	$ 20,000,000	$ 29,300,000
2007	$ 8,400,000	$ 20,000,000	$ 28,400,000
2008	$ 6,500,000	$ 20,000,000	$ 26,500,000
2009	$ 6,500,000	$ 20,000,000	$ 26,500,000
2010	$ 6,500,000	$ 20,000,000	$ 26,500,000
2011	$ 0	$ 20,000,000	$20,000,000
2012	$ 0	$ 20,000,000	$ 20,000,000
2013	$ 0	$ 20,000,000	$ 20,000,000
2014	$ 0	$ 20,000,000	$ 20,000,000
2015	$ 0	$ 20,000,000	$ 20,000,000
2016	$ 0	$ 20,000,000	$ 20,000,000
2017	$ 0	$ 20,000,000	$ 20,000,000
2018	$ 0	$ 20,000,000	$ 20,000,000
2019	$ 0	$ 20,000,000	$ 20,000,000
2020	$ 0	$ 20,000,000	$ 20,000,000
Total:	$37,200,000	$300,000,000	$337,200,000

It is expressly understood by the FAA and the City that the amounts set forth above under "apportionment" are estimated, and that the actual apportionment amounts will vary with the actual levels of passenger enplanements, total program level for the Airport Improvement Program and with any revision of the existing statutory formula for calculating such apportionments. Should the amount actually apportioned to the City in any fiscal year be less than the amount estimated above for such fiscal year, the amount listed above under "discretionary" for such fiscal year shall not be increased to supplement the lesser amount actually apportioned to the City. If, in any fiscal year, funds apportioned to a sponsor are greater than those listed in this Letter of Intent, the FAA, at its option, may adjust the payment schedule to increase the amount listed for apportionments with a corresponding reduction in the amount listed for discretionary funds.

The announcement of this intention shall not be deemed an obligation of the United States Government under section 1501 of Title 31, United States Code, nor shall this Letter of Intent be deemed an administrative commitment for funding. This Letter of Intent shall be regarded as an intention to obligate funds from current and future budget authority. No obligation or administrative commitment may be made pursuant to this Letter of Intent except as funds are provided in authorization and appropriation acts.

The FAA may, from time to time, following consultation with the City, amend this Letter of Intent to adjust the payment schedule or the maximum United States obligation specified above, or both. Such adjustment may be made by the Federal Aviation Administration Administrator when occasioned by changes in the actual allowable costs of the Project, in the actual time required to complete the Project, in actual or estimated future obligating authority, or otherwise, when determined at the Administrator's discretion to be in the best interests of the United States.

The FAA will give full consideration to the aggregate amount of future obligations and the payments scheduled under all outstanding Letters of Intent in formulating its annual budget requests. A statutory restriction on total obligating authority in a future fiscal year, however, may necessitate a reduction in funds to be apportioned for that year, pursuant to section 47115(g) of the Act, or in discretionary funds available for obligation under section 47115 of the Act, or both. This may result in a concurrent reduction in a payment scheduled under this Letter of Intent. In such event, the ratio of the discretionary fund component of a scheduled payment, as reduced, to such component prior to reduction, shall be not less than the ratio of discretionary funds newly available for obligation in the fiscal year in which such reduction occurs, to the total discretionary funds made available for obligation in the fiscal year in which this Letter of Intent was executed.

If, in any given year and for whatever reason (including such reasons as inability of sponsor to make sufficient progress for the project or a lapse in obligating authority under chapter 471 of the Act), a payment is deferred in whole or in part, any later reimbursement for the deferred amounts will be subject to negotiation between the parties, subject again to the availability of funds and statutory authority. No

amendment to this Letter of Intent shall impair the City's eligibility for future reimbursement of the United States share of allowable Project costs pursuant to section 47110(e) of the Act, as funds become available.

The City should understand that, having proceeded with the Project without the aid of funds under the Act, in order to receive reimbursement as specified in the schedule set forth above, it must comply with all statutory and administrative requirements that would be applicable to the Project were the Project carried out with funds made available under the Act. Failure to comply with all such requirements, or failure to proceed with the Project in a timely manner, may lead to revocation of this Letter of Intent.

Further, in the event of default on the part of the City, or any other action by the City which threatens the Federal investment in the Project, the FAA will pursue all remedies available in law or equity, including but not limited to the withholding of future financial assistance (provided that applicable hearing requirements are complied with) and termination or suspension of all or part of the violated grant agreement.

UNITED STATES OF AMERICA
FEDERAL AVIATION ADMINISTRATION

Manager, Chicago Airports District Office

NOVEMBER 21, 2005
Date

Request for Letter of Intent

Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding

March 1, 2009

Appendix B

Appendix B

Chicago Tribune

November 24, 2008

O'Hare expansion

The Tribune's headline "Airlines: Stop O'Hare expansion; As a new runway opens, 6 top airlines break with City Hall and call further construction 'ill-conceived' and 'premature'" (Page 1, Nov. 20) is inaccurate and the article is misleading. The airlines have never told the city to "stop O'Hare expansion."

Additionally the airlines are not "breaking with City Hall."

The article is misleading because it takes out of context portions of a letter that was sent to federal officials last June regarding an application to use passenger facilities charges for planning purposes.

United Airlines and American Airlines have for years supported the runway project at O'Hare, and though in June we may have disagreed with the size of the city's Passenger Facility Charge application, we remain committed to working with the city to enhance and improve this world-class airport.

The article says the airlines have called for halting the next phase of the expansion project, which is not true.

The airlines have had very positive discussions with the city about the O'Hare Modernization Program and these talks continue. In the current economic environment, capital resources are scarce for all, and as we have discussed with the city, we need to make sure there is a sound business case as we make all investment decisions.

United Airlines and American Airlines are extremely pleased with the opening of the new runway at Chicago O'Hare on Thursday.

This is a momentous event for the City of Chicago and the airlines serving O'Hare and, importantly, for all our customers.

We congratulate the city on this great achievement.

-- Ajay Singh, vice president, Corporate Real Estate, United Airlines

-- Laura Einspanier, vice president, Corporate Real Estate, American Airlines

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Appendix C

Appendix C

MEMORANDUM VIA-E-MAIL
Ricondo & Associates, Inc.

Date: February 13, 2009

To: Doug Trezise
Kristina Woodward

From: Malcolm Klein

Subject: CONSTRAINED ACTIVITY – O'HARE INTERNATIONAL AIRPORT

Table 3-3 provides constrained activity projections for O'Hare International Airport (ORD) for use in the upcoming BCA. Several points regarding these projections are discussed below:

1. The FAA prepared their most recent Terminal Area Forecast (TAF) for ORD in December 2008 (the 2008 TAF). These published forecasts were for federal fiscal years (FFY) 2008 through 2025, where the federal fiscal year ends September 30. The FAA subsequently extrapolated these forecasts to FFY 2035 for our use.
2. The 2008 TAF for total enplanements and operations were converted from FFY to calendar years (CY) 2008 through 2034 on a pro rata basis (e.g., CY 2008 = FFY 2008 x 75% + FFY 2009 x 25%).
3. Total operations are considered constrained at ORD when they reach 1,150,000 levels. As shown in Table 3.3, this constraint occurs in CY 2024 and held constant through CY 2034.
4. The FAA also provided detailed assumptions regarding unconstrained average seat and passenger load factors included in the 2008 TAF for ORD broken out by domestic air carriers, international air carriers, and commuters. To project ORD enplanements under the constrained scenario, the following changes to the FAA's assumed average seat and load factors during the constrained years were as follows:
    a. The annual increase in average seats for domestic air carriers was changed from 0.50 seats to 1.25 seats and the load factor peaked at 83.0 percent in 2034 compared to 81.2 percent in the 2008 TAF.
    b. The annual increase in average seats for international air carriers was changed from 0.25 seats to 0.50 seats and the load factor peaked at 80.0 percent in 2034 compared to 76.3 percent in the 2008 TAF.
    c. The annual increase in average seats for commuters was changed from 0.50 seats to 1.00 seats and the load factor peaked at 75.0 percent in 2034 compared to 71.1 percent in the 2008 TAF.

5. The relationship of "enplanements = departures x average seats x load factor" was applied to the changed assumptions to provide projections of enplanements for ORD under the constrained scenario. As shown in Table 3-3, total enplanements are projected to increase from 47.4 million in 2023 (the year prior to the constraint) to 55.1 million in 2034. This increase represents a compounded annual growth rate of 1.3 percent during this period, compared to 2.2 percent under the unconstrained scenario.

Table 3-3

Unconstrained and Constrained Forecasts - O'Hare International Airport

	UNCONSTRAINED		CONSTRAINED	
	Operations	Enplanements	Operations	Enplanements
2008	883,427	34,133,225	883,427	34,133,225
2009	828,608	32,152,853	828,608	32,152,853
2010	825,659	32,289,079	825,659	32,289,079
2011	838,443	33,058,401	838,443	33,058,401
2012	866,996	34,468,473	866,996	34,468,473
2013	895,522	35,840,005	895,522	35,840,005
2014	922,645	37,145,601	922,645	37,145,601
2015	946,654	38,289,326	946,654	38,289,326
2016	969,176	39,350,607	969,176	39,350,607
2017	993,766	40,492,701	993,766	40,492,701
2018	1,017,468	41,585,837	1,017,468	41,585,837
2019	1,041,116	42,712,939	1,041,116	42,712,939
2020	1,064,593	43,861,043	1,064,593	43,861,043
2021	1,088,058	45,008,108	1,088,058	45,008,108
2022	1,112,451	46,183,656	1,112,451	46,183,656
2023	1,136,833	47,368,715	1,136,833	47,368,715
2024	1,161,700	48,590,782	1,150,000	48,565,452
2025	1,187,169	49,855,260	1,150,000	49,197,081
2026	1,211,618	51,091,652	1,150,000	49,832,577
2027	1,236,546	52,351,526	1,150,000	50,471,940
2028	1,261,850	53,609,482	1,150,000	51,115,169
2029	1,288,122	54,903,910	1,150,000	51,762,265
2030	1,314,715	56,222,074	1,150,000	52,413,227
2031	1,340,985	57,536,647	1,150,000	53,068,056
2032	1,367,546	58,874,217	1,150,000	53,726,752
2033	1,393,587	60,201,294	1,150,000	54,389,314
2034	1,419,809	61,551,051	1,150,000	55,055,743
CAGR				
23 - 34	1.9%	2.2%	0.1%	1.3%

Sources: FAA Terminal Area Forecasts; Ricondo & Associates, Inc.

Prepared by: Ricondo & Associates, Inc., February 2009

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Appendix D

Appendix D

Appendix D – Gate Operating Limits

During the EIS process, FAA established that 1,150,000 annual operations could be supported by the existing terminal gate facilities at the Airport. While the City believes that the number of gates at the Airport will not limit operations, and that carriers will reconfigure existing gates and/or utilize hardstand facilities if gate needs exceed current availability, for the purposes of utilizing conservative assumptions for the determination of benefits, a capping of operations due to gate limitations was included in the BCA.

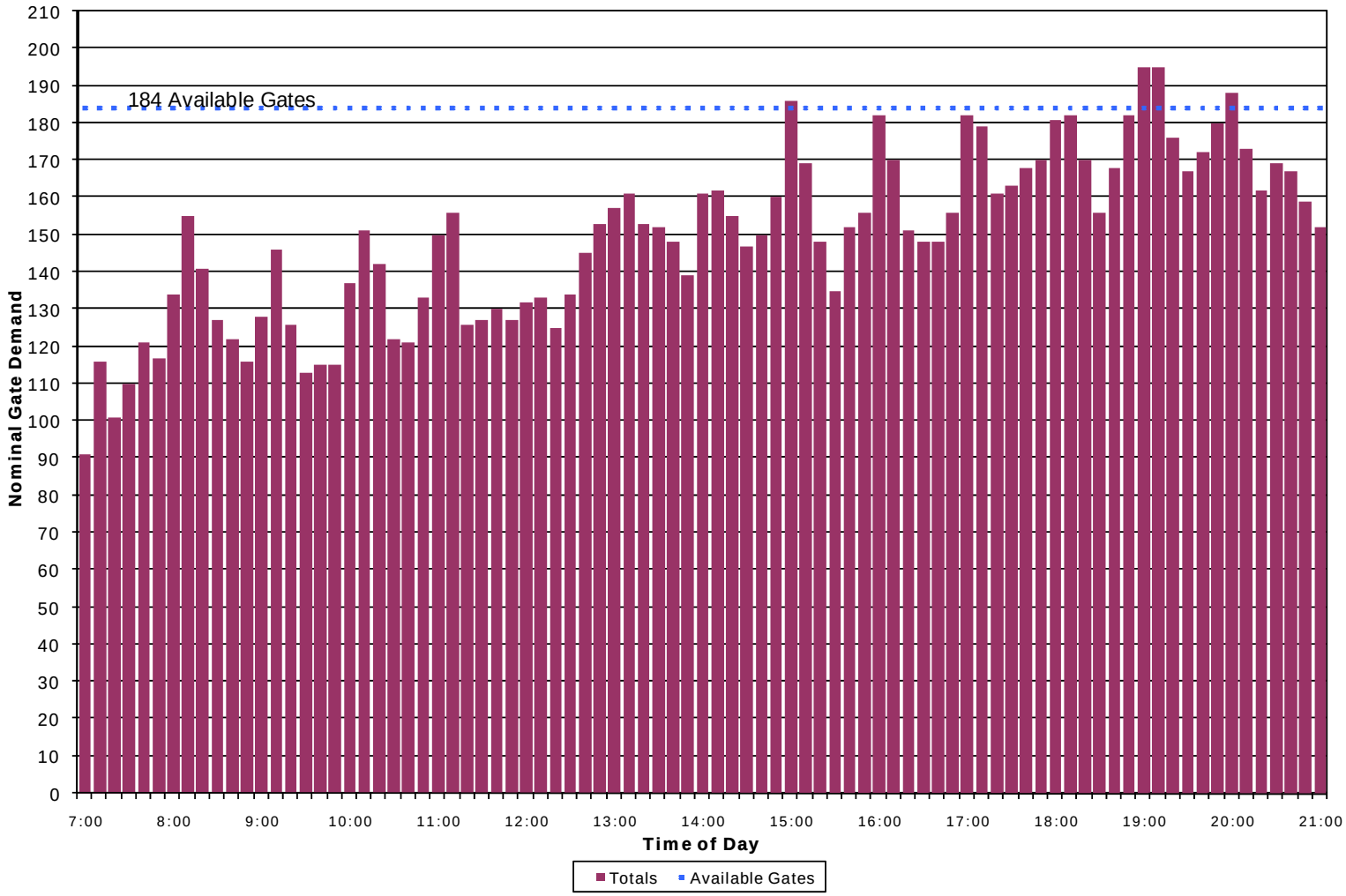
In order to assess the appropriateness of the level established by the FAA, the 2013 schedule utilized in the EIS simulation modeling was reviewed. The 2013 PMAD schedule included 3,169 daily operations, which equates to an annual demand of 1,120,600 aircraft movements. Utilizing this schedule, a running total of aircraft on the ground was developed based on ten minute intervals, and presented in comparison to current gates. The number of gates at the Airport fluctuates significantly as carrier's modify existing facilities and/or double park commuter aircraft to accommodate changes in service patterns. Documented existing gate counts range from 184 utilized in the simulation modeling, to 189 contact gates and 20 hardstand positions identified in the O'Hare Master Plan and EIS. **Exhibit D-1** presents the resulting gate demand profile in relation to a conservative accounting of 184 total gates at the Airport.

As shown, demand exceeds the current gate capacity in only four ten minute periods of the day, with peak gate requirements occurring in the late afternoon/early evening hours. Perhaps more importantly, the analysis demonstrates significant gate available during other periods during the day, suggesting the ability to accommodate traffic beyond that modeled.

Based on this analysis, it would appear that the existing facilities could accommodate more than the 1,120,600 annual operations represented by the schedule. Aside from the peak hours in the late afternoon, the analysis suggests significant gate availability. As such, the 1,150,000 annual operations established by the FAA as the limiting capacity of the terminal gate facilities seems reasonable, and is utilized as a conservative assumption in the BCA.

Exhibit D-1

3,169 Peak Month Average Day Operations with Existing Gates Aircraft on the Ground (10-minute period)



Source: EIS 2013 PMAD Schedule, 2004; Ricondo & Associates, Inc., 2009
Prepared by: Ricondo & Associates, Inc.

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Appendix E

Appendix E

Table 1

Peak Month Average Day (PMAD) Conversion to Average Annual Day (ADD)

This table contains the peak month average day (PMAD) delays and travel times averaged over each experiment's multi-run

		Average Delay per Phase of Operation (minutes)					Average Delay per All Airport Operations (minutes)	Average Unimpeded Travel Times (minutes)						Average Time in Operational Phase (minutes)					
								Arrivals			Departures			Arrivals			Departures		
	Experiment	ORD Departure gate delay at ORD	ORD Arrival predeparture ground delay at origin	ORD Arrival ground delay at ORD	ORD Departure ground delay at ORD	ORD Arrival sequencing and vectoring air delay	Total Airport Delay	Airborne	Ground	Total	Airborne	Ground	Total	Airborne	Ground	Total	Airborne	Ground	Total
PMAD	90	1.2	8.7	1.0	4.4	2.3	8.7	123.3	12.0	135.3	117.9	10.5	128.4	125.6	21.6	147.1	117.9	16.1	134.0
	91	2.1	8.8	1.6	10.4	4.5	13.7	123.4	11.2	134.6	117.7	12.3	130.0	127.9	21.5	149.4	117.7	24.8	142.5
	92	0.6	3.6	0.3	2.9	2.2	4.8	122.3	11.6	134.0	117.9	9.7	127.6	124.6	15.5	140.1	117.9	13.2	131.1
	93	6.4	21.3	0.5	14.8	8.3	25.6	123.2	11.4	134.6	118.0	12.3	130.3	131.5	33.2	164.7	118.0	33.5	151.5
	94	1.6	75.0	0.4	13.0	49.7	69.8	122.7	15.1	137.8	117.5	13.2	130.7	172.4	90.5	262.9	117.5	27.7	145.3
	Annualized	1.1	8.8	0.5	4.6	4.8	9.9	122.6	11.8	134.4	117.8	10.3	128.1	127.4	21.1	148.5	117.8	16.0	133.8
AAD	90	1.2	8.3	0.9	4.2	2.2	8.4	123.3	12.0	135.3	117.9	10.5	128.4	125.5	21.2	146.6	117.9	15.8	133.7
	91	2.0	8.4	1.5	10.0	4.3	13.1	123.4	11.2	134.6	117.7	12.3	130.0	127.7	21.1	148.8	117.7	24.3	142.0
	92	0.6	3.4	0.3	2.8	2.1	4.6	122.3	11.6	134.0	117.9	9.7	127.6	124.5	15.4	139.8	117.9	13.1	130.9
	93	6.1	20.4	0.5	14.2	7.9	24.6	123.2	11.4	134.6	118.0	12.3	130.3	131.2	32.3	163.5	118.0	32.6	150.6
	94	1.5	72.0	0.4	12.4	47.7	67.0	122.7	15.1	137.8	117.5	13.2	130.7	170.4	87.5	257.9	117.5	27.2	144.7
	Annualized	1.1	8.5	0.5	4.4	4.6	9.5	122.6	11.8	134.4	117.8	10.3	128.1	127.2	20.8	148.0	117.8	15.7	133.6

Source: OMP EIS TAAM Simulation Output Files
Prepared by: Ricondo & Associates, Inc.

Table 2

Peak Month Average Day (PMAD) Conversion to Average Annual Day (ADD)

This table contains the peak month average day (PMAD) delays and travel times averaged over each experiment's multi-run

		Average Delay per Phase of Operation (minutes)					Average Delay per All Airport Operations (minutes)	Average Unimpeded Travel Times (minutes)						Average Time in Operational Phase (minutes)					
								Arrivals			Departures			Arrivals			Departures		
	Experiment	ORD Departure gate delay at ORD	ORD Arrival predeparture ground delay at origin	ORD Arrival ground delay at ORD	ORD Departure ground delay at ORD	ORD Arrival sequencing and vectoring air delay	Total Airport Delay	Airborne	Ground	Total	Airborne	Ground	Total	Airborne	Ground	Total	Airborne	Ground	Total
PMAD	38	0.7	9.3	1.0	5.4	2.6	9.4	127.9	11.8	139.6	122.4	10.7	133.1	130.4	22.0	152.5	122.4	16.8	139.2
	39	0.9	9.5	1.2	10.1	5.7	13.7	128.0	11.1	139.1	122.5	12.5	134.9	133.7	21.9	155.5	122.5	23.4	145.9
	41	0.5	3.9	0.4	3.2	2.4	5.2	126.9	11.5	138.4	122.4	9.8	132.2	129.3	15.7	145.0	122.4	13.5	135.9
	42	6.1	26.1	0.6	16.5	11.1	30.2	127.9	11.2	139.1	122.7	12.5	135.2	138.9	37.9	176.8	122.7	35.1	157.7
	43	1.5	82.0	0.4	16.0	51.7	75.8	127.3	14.8	142.2	122.2	13.4	135.6	179.1	97.2	276.3	122.2	30.9	153.1
	Annualized	0.9	9.7	0.5	5.2	5.2	10.8	127.2	11.6	138.8	122.4	10.4	132.8	132.4	21.9	154.3	122.4	16.4	138.8
AAD	38	0.6	8.9	0.9	5.2	2.5	9.1	127.9	11.8	139.6	122.4	10.7	133.1	130.3	21.6	151.9	122.4	16.6	138.9
	39	0.9	9.2	1.1	9.7	5.5	13.2	128.0	11.1	139.1	122.5	12.5	134.9	133.5	21.4	154.9	122.5	23.0	145.5
	41	0.5	3.7	0.4	3.1	2.3	5.0	126.9	11.5	138.4	122.4	9.8	132.2	129.2	15.5	144.8	122.4	13.4	135.7
	42	5.9	25.0	0.6	15.8	10.6	28.9	127.9	11.2	139.1	122.7	12.5	135.2	138.5	36.8	175.3	122.7	34.1	156.8
	43	1.4	78.7	0.4	15.3	49.6	72.7	127.3	14.8	142.2	122.2	13.4	135.6	177.0	93.9	270.9	122.2	30.2	152.4
	Annualized	0.8	9.3	0.5	5.0	5.0	10.3	127.2	11.6	138.8	122.4	10.4	132.8	132.2	21.5	153.7	122.4	16.2	138.5

Source: OMP EIS TAAM Simulation Output Files
Prepared by: Ricondo & Associates, Inc.

Table 3

Peak Month Average Day (PMAD) Conversion to Average Annual Day (ADD)

This table contains the peak month average day (PMAD) delays and travel times averaged over each experiment's multi-run

		Average Delay per Phase of Operation (minutes)					Average Delay per All Airport Operations (minutes)	Average Unimpeded Travel Times (minutes)						Average Time in Operational Phase (minutes)					
								Arrivals			Departures			Arrivals			Departures		
	Experiment	ORD Departure gate delay at ORD	ORD Arrival predeparture ground delay at origin	ORD Arrival ground delay at ORD	ORD Departure ground delay at ORD	ORD Arrival sequencing and vectoring air delay	Total Airport Delay	Airborne	Ground	Total	Airborne	Ground	Total	Airborne	Ground	Total	Airborne	Ground	Total
PMAD	95	1.2	12.2	2.4	7.9	6.8	15.3	133.1	11.9	145.1	126.8	10.8	137.7	139.9	26.6	166.5	126.8	19.9	146.8
	96	1.7	12.5	1.4	14.7	15.0	22.6	133.2	11.4	144.6	126.6	13.6	140.2	148.2	25.3	173.5	126.6	29.9	156.5
	97	0.7	4.4	0.5	4.5	2.8	6.5	132.1	11.6	143.8	126.9	9.9	136.8	135.0	16.5	151.5	126.9	15.1	141.9
	98	5.3	39.6	0.6	23.3	23.6	46.2	132.8	12.1	144.9	127.2	13.3	140.4	156.4	52.2	208.6	127.2	41.9	169.1
	99	4.8	103.3	0.4	18.1	65.2	95.8	132.6	15.0	147.6	126.9	13.7	140.5	197.7	118.7	316.4	126.9	36.5	163.4
	Annualized	1.2	12.4	0.9	7.1	8.0	14.8	132.4	11.8	144.3	126.8	10.6	137.4	140.4	25.1	165.5	126.8	19.0	145.8
AAD	95	1.1	11.7	2.3	7.6	6.5	14.6	133.1	11.9	145.1	126.8	10.8	137.7	139.6	26.0	165.6	126.8	19.6	146.4
	96	1.6	12.0	1.3	14.1	14.4	21.7	133.2	11.4	144.6	126.6	13.6	140.2	147.6	24.7	172.3	126.6	29.3	155.8
	97	0.7	4.3	0.4	4.3	2.7	6.2	132.1	11.6	143.8	126.9	9.9	136.8	134.8	16.3	151.2	126.9	14.9	141.7
	98	5.1	38.0	0.6	22.4	22.7	44.3	132.8	12.1	144.9	127.2	13.3	140.4	155.4	50.6	206.1	127.2	40.7	167.9
	99	4.6	99.1	0.4	17.4	62.5	92.0	132.6	15.0	147.6	126.9	13.7	140.5	195.1	114.5	309.6	126.9	35.6	162.4
	Annualized	1.2	11.9	0.8	6.9	7.6	14.2	132.4	11.8	144.3	126.8	10.6	137.4	140.1	24.6	164.6	126.8	18.6	145.5

Source: OMP EIS TAAM Simulation Output Files
Prepared by: Ricondo & Associates, Inc.

Table 4

Peak Month Average Day (PMAD) Conversion to Average Annual Day (ADD)

This table contains the peak month average day (PMAD) delays and travel times averaged over each experiment's multi-run

		Average Delay per Phase of Operation (minutes)					Average Delay per All Airport Operations (minutes)	Average Unimpeded Travel Times (minutes)						Average Time in Operational Phase (minutes)					
								Arrivals			Departures			Arrivals			Departures		
	Experiment	ORD Departure gate delay at ORD	ORD Arrival predeparture ground delay at origin	ORD Arrival ground delay at ORD	ORD Departure ground delay at ORD	ORD Arrival sequencing and vectoring air delay	Total Airport Delay	Airborne	Ground	Total	Airborne	Ground	Total	Airborne	Ground	Total	Airborne	Ground	Total
PMAD	84	0.7	0.0	0.3	2.8	2.8	3.3	127.9	14.3	142.2	122.6	10.9	133.5	130.6	14.7	145.3	122.6	14.4	137.0
	85	0.6	0.0	0.3	2.4	3.7	3.5	128.2	14.3	142.6	122.6	11.1	133.7	132.0	14.7	146.6	122.6	14.1	136.7
	86	0.6	0.1	0.6	2.9	3.5	3.8	127.5	15.4	142.9	122.8	11.0	133.8	131.0	16.1	147.1	122.8	14.5	137.3
	87	0.6	0.1	0.7	2.2	3.9	3.7	128.0	16.1	144.0	122.5	10.9	133.3	131.9	16.8	148.7	122.5	13.6	136.0
	88	0.4	9.4	0.4	5.7	7.8	11.9	127.9	13.8	141.6	121.7	11.4	133.1	135.7	23.6	159.3	121.7	17.5	139.2
	89	0.6	9.2	0.5	4.7	4.1	9.5	128.8	16.6	145.4	122.4	11.6	134.0	132.9	26.3	159.1	122.4	16.9	139.3
	Annualized	0.6	0.9	0.5	2.8	3.8	4.3	127.8	15.3	143.1	122.6	11.0	133.6	131.6	16.8	148.3	122.6	14.4	137.0
AAD	84	0.6	0.0	0.3	2.7	2.6	3.2	127.9	14.3	142.2	122.6	10.9	133.5	130.5	14.7	145.1	122.6	14.2	136.8
	85	0.6	0.0	0.3	2.3	3.6	3.4	128.2	14.3	142.6	122.6	11.1	133.7	131.8	14.7	146.5	122.6	14.0	136.5
	86	0.5	0.1	0.5	2.8	3.4	3.6	127.5	15.4	142.9	122.8	11.0	133.8	130.9	16.0	146.9	122.8	14.3	137.1
	87	0.5	0.1	0.7	2.1	3.7	3.5	128.0	16.1	144.0	122.5	10.9	133.3	131.7	16.8	148.5	122.5	13.5	135.9
	88	0.4	9.1	0.4	5.4	7.5	11.4	127.9	13.8	141.6	121.7	11.4	133.1	135.4	23.2	158.6	121.7	17.3	139.0
	89	0.5	8.8	0.5	4.5	3.9	9.2	128.8	16.6	145.4	122.4	11.6	134.0	132.7	25.9	158.6	122.4	16.6	139.1
	Annualized	0.5	0.9	0.5	2.7	3.6	4.1	127.8	15.3	143.1	122.6	11.0	133.6	131.4	16.7	148.1	122.6	14.3	136.9

Source: OMP EIS TAAM Simulation Output Files
Prepared by: Ricondo & Associates, Inc.

Table 5

Peak Month Average Day (PMAD) Conversion to Average Annual Day (ADD)

This table contains the peak month average day (PMAD) delays and travel times averaged over each experiment's multi-run

		Average Delay per Phase of Operation (minutes)					Average Delay per All Airport Operations (minutes)	Average Unimpeded Travel Times (minutes)						Average Time in Operational Phase (minutes)					
								Arrivals			Departures			Arrivals			Departures		
	Experiment	ORD Departure gate delay at ORD	ORD Arrival predeparture ground delay at origin	ORD Arrival ground delay at ORD	ORD Departure ground delay at ORD	ORD Arrival sequencing and vectoring air delay	Total Airport Delay	Airborne	Ground	Total	Airborne	Ground	Total	Airborne	Ground	Total	Airborne	Ground	Total
PMAD	44	0.5	0.0	0.3	3.5	3.0	3.7	133.1	14.4	147.5	127.2	11.0	138.2	136.1	14.7	150.8	127.2	15.0	142.2
	45	0.5	0.0	0.4	2.9	4.7	4.2	133.4	14.3	147.7	127.2	11.2	138.4	138.1	14.7	152.8	127.2	14.5	141.7
	46	0.5	0.1	0.5	3.2	3.9	4.1	132.7	15.2	147.8	127.2	10.8	138.1	136.6	15.8	152.4	127.2	14.5	141.7
	47	0.5	0.1	0.6	2.5	4.9	4.2	133.1	15.4	148.5	127.0	10.6	137.5	138.0	16.0	154.0	127.0	13.5	140.5
	48	0.4	11.9	0.4	7.9	13.8	17.2	133.1	13.8	146.9	126.8	11.7	138.4	146.9	26.1	173.0	126.8	19.9	146.7
	49	0.4	15.0	0.7	7.8	8.1	16.0	133.5	16.6	150.2	126.7	11.6	138.2	141.6	32.3	174.0	126.7	19.8	146.5
	Annualized	0.5	1.3	0.5	3.4	4.8	5.2	133.0	15.0	148.0	127.1	10.9	138.0	137.7	16.9	154.6	127.1	14.8	141.9
AAD	44	0.5	0.0	0.3	3.3	2.9	3.5	133.1	14.4	147.5	127.2	11.0	138.2	136.0	14.7	150.7	127.2	14.8	142.0
	45	0.4	0.0	0.4	2.8	4.5	4.0	133.4	14.3	147.7	127.2	11.2	138.4	137.9	14.7	152.6	127.2	14.4	141.5
	46	0.4	0.1	0.5	3.1	3.7	3.9	132.7	15.2	147.8	127.2	10.8	138.1	136.4	15.8	152.2	127.2	14.3	141.6
	47	0.5	0.1	0.5	2.4	4.7	4.1	133.1	15.4	148.5	127.0	10.6	137.5	137.8	16.0	153.8	127.0	13.4	140.4
	48	0.3	11.5	0.4	7.6	13.2	16.5	133.1	13.8	146.9	126.8	11.7	138.4	146.3	25.6	171.9	126.8	19.6	146.4
	49	0.4	14.4	0.7	7.5	7.8	15.4	133.5	16.6	150.2	126.7	11.6	138.2	141.3	31.7	173.0	126.7	19.5	146.1
	Annualized	0.5	1.3	0.5	3.3	4.6	5.0	133.0	15.0	148.0	127.1	10.9	138.0	137.6	16.8	154.3	127.1	14.6	141.7

Source: OMP EIS TAAM Simulation Output Files
Prepared by: Ricondo & Associates, Inc.

Request for Letter of Intent

Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding

March 1, 2009

Appendix F

Appendix F

Table F-1

Project Cash Flow Schedule (in 2008 dollars)

OMP Completion Phase Airfield	Base Year FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	Period Total
Runway 9C-27C	$817,974	$40,134,867	$312,297,610	$512,289,697	$288,528,157	$222,390,828	$93,229,054	$1,469,688,187
Runway 9R Extension	$817,974	$11,011,358	$35,159,241	$64,240,025	$171,767,659	$52,177,904	$22,013,398	$357,187,559
Runway 10R-28L	$817,974	$15,954,344	$79,155,597	$239,034,494	$169,330,142	$67,193,130	$6,575,519	$578,061,200
Total OMP Completion Phase Airfield	$2,453,922	$67,100,569	$426,612,448	$815,564,215	$629,625,957	$341,761,862	$121,817,971	$2,404,936,946
World Gateway Program Taxiway Improvement	$817,974	$1,272,772	$5,992,635	$83,285,982	$150,805,951			$242,175,314
Total LOI Projects	$3,271,896	$68,373,341	$432,605,083	$898,850,198	$780,431,909	$341,761,862	$121,817,971	$2,647,112,260
OMP Completion Phase Noise Program	$0	$0	$0	$27,023,919	$28,704,636	$25,757,175	$23,211,591	$104,697,321
Total Proposed Action	$3,271,896	$68,373,341	$432,605,083	$925,874,117	$809,136,545	$367,519,037	$145,029,562	$2,751,809,581

Source: OMP Project Management Office, Feb. 2009

Prepared by: Ricondo & Associates, Inc.

Table F-2

Incremental O&M Expense (in millions of 2008 dollars)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total Completion Phase Airfield	0.0	0.0	0.0	0.0	0.0	7.5	11.4	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2032	2032
Incremental O&M Impact by Proposed Runway																											
Runway 9C-27C	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$1.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2	$14.2
Runway 9R-27L Extension	$0.0	$0.0	$0.0	$0.0	$0.0	$1.6	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1	$3.1
Runway 10R-28L	$0.0	$0.0	$0.0	$0.0	$0.0	$5.9	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1	$7.1
Total	$0.0	$0.0	$0.0	$0.0	$0.0	$7.5	$11.4	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3	$24.3

Source: City of Chicago Projected Rates Model, Feb. 2009.

Prepared by: Ricondo & Associates, Inc.

Table F-3

Average Travel Times per Operation

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Activity																				
Constrained Total Aircraft Operations (thousands)	946.7	969.2	993.8	1,017.5	1,041.1	1,064.6	1,088.1	1,112.5	1,136.8	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0
Passenger Airline and All-Cargo Ops (thousands)	925.2	947.2	971.2	994.4	1,017.5	1,040.5	1,063.4	1,087.2	1,111.1	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0
Estimated Peak Month Average Day Operations	2,675	2,739	2,808	2,875	2,942	3,008	3,075	3,143	3,212	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250
Average Annual Day Operations	2,594	2,655	2,723	2,788	2,852	2,917	2,981	3,048	3,115	3,151	3,151	3,151	3,151	3,151	3,151	3,151	3,151	3,151	3,151	3,151
EIS Phase 1 Travel Times (In minutes):																				
Average Travel Time per Operation																				
Unimpeded Travel Time	131.3	131.3	131.3	131.3	133.5	135.8	138.3	140.8	140.8	140.8	140.8	140.8	140.8	140.8	140.8	140.8	140.8	140.8	140.8	140.8
Delay	6.1	6.7	7.4	8.2	9.1	10.0	11.0	12.2	13.5	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
Total Travel Time In Operational Phase	137.4	138.0	138.7	139.5	142.6	145.8	149.3	153.0	154.3	155.1	155.1	155.1	155.1	155.1	155.1	155.1	155.1	155.1	155.1	155.1
Full Build Travel Times (In minutes):																				
Average Travel Time per Operation																				
Unimpeded Travel Time	133.8	133.8	133.8	133.8	136.1	138.4	140.7	143.0	143.0	143.0	143.0	143.0	143.0	143.0	143.0	143.0	143.0	143.0	143.0	143.0
Delay	2.7	2.8	3.1	3.3	3.5	3.8	4.1	4.4	4.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Travel Time	136.5	136.7	136.9	137.1	139.6	142.2	144.8	147.4	147.8	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0
Travel Time Savings	0.9	1.3	1.8	2.3	2.9	3.6	4.5	5.6	6.5	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1

Sources: Area Forecast, FAA 2009, and Ricondo & Associates, Inc. 2009; Travel & Delay Time- EIS Simulations, 2004, Ricondo & Associates, Inc., 2009

Prepared by: Ricondo & Associates, Inc.

Table F-4

Project Benefits

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
ANNUAL OPERATIONS																				
Total Aircraft Operations (thousands)	946.7	969.2	993.8	1,017.5	1,041.1	1,064.6	1,088.1	1,112.5	1,136.8	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0
Estimated Passenger Airline and All-Cargo Operations (thousands)	925.2	947.2	971.2	994.4	1,017.5	1,040.5	1,063.4	1,087.2	1,111.1	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0
AIRCRAFT TRAVEL TIME (MINUTES) PER OPERATION																				
Base Case: EIS Phase 1	137.4	138.0	138.7	139.5	142.6	145.8	149.3	153.0	154.3	155.1	155.1	155.1	155.1	155.1	155.1	155.1	155.1	155.1	155.1	155.1
With Proposed Action	136.5	136.7	136.9	137.1	139.6	142.2	144.8	147.4	147.8	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0
Difference in Travel Time per Operation between scenarios (minutes)	0.9	1.3	1.8	2.3	2.9	3.6	4.5	5.6	6.5	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
AIRCRAFT DELAY BENEFITS																				
Total Incremental Aircraft Travel Time Minutes (millions)	0.83	1.24	1.75	2.33	2.99	3.74	4.82	6.07	7.26	8.16	8.16	8.16	8.16	8.16	8.16	8.16	8.16	8.16	8.16	8.16
Average Aircraft Operating Savings per Minute	$65.86	$65.86	$65.86	$65.86	$65.73	$65.60	$64.96	$64.32	$64.32	$64.32	$64.32	$64.32	$64.32	$64.32	$64.32	$64.32	$64.32	$64.32	$64.32	$64.32
Total Aircraft Savings (millions)	$54.7	$81.5	$115.4	$153.3	$196.4	$245.5	$313.2	$390.7	$467.1	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8
PASSENGER DELAY BENEFITS																				
Total Passengers (millions)	76.6	78.7	81.0	83.2	85.4	87.7	90.0	92.4	94.7	97.1	98.4	99.7	100.9	102.2	103.5	104.8	106.1	107.5	108.8	110.1
Total Incremental Passenger Travel Time Minutes (millions)	68.8	102.8	146.1	194.7	250.9	315.5	408.1	516.1	619.3	689.2	698.1	707.2	716.2	725.4	734.5	743.8	753.1	762.4	771.8	781.3
Passenger Delay Savings per Minute	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54	$0.54
Total Passenger Delay Savings (millions)	$36.8	$55.0	$78.2	$104.1	$134.2	$168.8	$218.3	$276.1	$331.3	$368.7	$373.5	$378.3	$383.2	$388.1	$393.0	$397.9	$402.9	$407.9	$412.9	$418.0
Total Passenger Delay Downstream Savings (millions)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
PROJECT BENEFITS																				
Total Incremental Aircraft Delay Savings (millions)	$54.7	$81.5	$115.4	$153.3	$196.4	$245.5	$313.2	$390.7	$467.1	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8	$524.8
Total Passenger Delay Savings (millions)	36.8	55.0	78.2	104.1	134.2	168.8	218.3	276.1	331.3	368.7	373.5	378.3	383.2	388.1	393.0	397.9	402.9	407.9	412.9	418.0
Total Passenger Delay Downstream Savings (millions)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Savings (millions)	$91.5	$136.5	$193.6	$257.4	$330.7	$414.3	$531.5	$666.8	$798.5	$893.5	$898.3	$903.1	$908.0	$912.9	$917.8	$922.7	$927.7	$932.7	$937.7	$942.8

Sources: Area Forecast, FAA 2009, and Ricondo & Associates, Inc. 2009; Travel & Delay Time- EIS Simulations, 2004, Ricondo & Associates, Inc., 2009. Aircraft Operating Cost - U.S. DOT, Form 41, fourth quarter of calendar year 2007 through third quarter of 2008; Value of Passenger Time - FAA-APO-03-1, Treatment of Values of Passenger Time in Economic Analysis, March 2003 and percentages of business and leisure travelers, Landrum & Brown, In-Flight Survey, 1997; Discount Rate - FAA, BCA Guidance, December 15, 1999.

Prepared by: Ricondo & Associates, Inc.

Table F-5

Benefit Cost Ratio
OMP Completion Phase Airfield (million of 2008 dollars)

	Benefits				Costs			Present Value			
Year	Aircraft Delay Savings	Passenger Delay Savings	Downstream Passenger Delay Savings	Total Project Benefits	Project Construction Costs	Incremental O&M Expenses	Total Project Costs	Discount Rate Factor	Total Project Benefits	Total Project Costs	Annual Net Present Value (Benefits-Costs)
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	68.4	0.0	68.4	1.0700	0.0	63.9	(63.9)
2010	0.0	0.0	0.0	0.0	432.6	0.0	432.6	1.1449	0.0	377.9	(377.9)
2011	0.0	0.0	0.0	0.0	925.9	0.0	925.9	1.2250	0.0	755.8	(755.8)
2012	0.0	0.0	0.0	0.0	809.1	0.0	809.1	1.3108	0.0	617.3	(617.3)
2013	0.0	0.0	0.0	0.0	367.5	7.5	375.0	1.4026	0.0	267.4	(267.4)
2014	0.0	0.0	0.0	0.0	145.0	11.4	156.4	1.5007	0.0	104.2	(104.2)
2015	54.7	36.8	0.0	91.5	0.0	24.3	24.3	1.6058	57.0	15.2	41.8
2016	81.5	55.0	0.0	136.5	0.0	24.3	24.3	1.7182	79.5	14.2	65.3
2017	115.4	78.2	0.0	193.6	0.0	24.3	24.3	1.8385	105.3	13.2	92.1
2018	153.3	104.1	0.0	257.4	0.0	24.3	24.3	1.9672	130.9	12.4	118.5
2019	196.4	134.2	0.0	330.7	0.0	24.3	24.3	2.1049	157.1	11.6	145.5
2020	245.5	168.8	0.0	414.3	0.0	24.3	24.3	2.2522	184.0	10.8	173.1
2021	313.2	218.3	0.0	531.5	0.0	24.3	24.3	2.4098	220.5	10.1	210.4
2022	390.7	276.1	0.0	666.8	0.0	24.3	24.3	2.5785	258.6	9.4	249.1
2023	467.1	331.3	0.0	798.5	0.0	24.3	24.3	2.7590	289.4	8.8	280.6
2024	524.8	368.7	0.0	893.5	0.0	24.3	24.3	2.9522	302.7	8.2	294.4
2025	524.8	373.5	0.0	898.3	0.0	24.3	24.3	3.1588	284.4	7.7	276.7
2026	524.8	378.3	0.0	903.1	0.0	24.3	24.3	3.3799	267.2	7.2	260.0
2027	524.8	383.2	0.0	908.0	0.0	24.3	24.3	3.6165	251.1	6.7	244.3
2028	524.8	388.1	0.0	912.9	0.0	24.3	24.3	3.8697	235.9	6.3	229.6
2029	524.8	393.0	0.0	917.8	0.0	24.3	24.3	4.1406	221.7	5.9	215.8
2030	524.8	397.9	0.0	922.7	0.0	24.3	24.3	4.4304	208.3	5.5	202.8
2031	524.8	402.9	0.0	927.7	0.0	24.3	24.3	4.7405	195.7	5.1	190.6
2032	524.8	407.9	0.0	932.7	0.0	24.3	24.3	5.0724	183.9	4.8	179.1
2033	524.8	412.9	0.0	937.7	0.0	24.3	24.3	5.4274	172.8	4.5	168.3
2034	524.8	418.0	0.0	942.8	0.0	24.3	24.3	5.8074	162.3	4.2	158.1
Total	$7,790.5	$5,727.3	$0.0	$13,517.7	$2,748.5	$505.8	$3,254.3		$3,968.0	$2,358.3	$1,609.7
Present Value											
									$3,968.0	$2,358.3	$1,609.7

Benefit-Cost Ratio:	**1.68**

2008 project costs are a sunk costs and not included in the BCA analysis.

Table F-6

Benefit Cost Ratio
OMP Completion Phase Airfield (million of 2008 dollars) Passengers held constant at constrained demand level
Increased Costs 25%

	Benefits				Costs			Present Value			
Year	Aircraft Delay Savings	Passenger Delay Savings	Downstream Passenger Delay Savings	Total Project Benefits	Project Construction Costs	Incremental O&M Expenses	Total Project Costs	Discount Rate Factor	Total Project Benefits	Total Project Costs	Annual Net Present Value (Benefits-Costs)
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	85.5	0.0	85.5	1.0700	0.0	79.9	(79.9)
2010	0.0	0.0	0.0	0.0	540.8	0.0	540.8	1.1449	0.0	472.3	(472.3)
2011	0.0	0.0	0.0	0.0	1,157.3	0.0	1,157.3	1.2250	0.0	944.7	(944.7)
2012	0.0	0.0	0.0	0.0	1,011.4	0.0	1,011.4	1.3108	0.0	771.6	(771.6)
2013	0.0	0.0	0.0	0.0	459.4	7.5	466.9	1.4026	0.0	332.9	(332.9)
2014	0.0	0.0	0.0	0.0	181.3	11.4	192.7	1.5007	0.0	128.4	(128.4)
2015	54.7	36.8	0.0	91.5	0.0	24.3	24.3	1.6058	57.0	15.2	41.8
2016	81.5	55.0	0.0	136.5	0.0	24.3	24.3	1.7182	79.5	14.2	65.3
2017	115.4	78.2	0.0	193.6	0.0	24.3	24.3	1.8385	105.3	13.2	92.1
2018	153.3	104.1	0.0	257.4	0.0	24.3	24.3	1.9672	130.9	12.4	118.5
2019	196.4	134.2	0.0	330.7	0.0	24.3	24.3	2.1049	157.1	11.6	145.5
2020	245.5	168.8	0.0	414.3	0.0	24.3	24.3	2.2522	184.0	10.8	173.1
2021	313.2	218.3	0.0	531.5	0.0	24.3	24.3	2.4098	220.5	10.1	210.4
2022	390.7	276.1	0.0	666.8	0.0	24.3	24.3	2.5785	258.6	9.4	249.1
2023	467.1	331.3	0.0	798.5	0.0	24.3	24.3	2.7590	289.4	8.8	280.6
2024	524.8	368.7	0.0	893.5	0.0	24.3	24.3	2.9522	302.7	8.2	294.4
2025	524.8	373.5	0.0	898.3	0.0	24.3	24.3	3.1588	284.4	7.7	276.7
2026	524.8	378.3	0.0	903.1	0.0	24.3	24.3	3.3799	267.2	7.2	260.0
2027	524.8	383.2	0.0	908.0	0.0	24.3	24.3	3.6165	251.1	6.7	244.3
2028	524.8	388.1	0.0	912.9	0.0	24.3	24.3	3.8697	235.9	6.3	229.6
2029	524.8	393.0	0.0	917.8	0.0	24.3	24.3	4.1406	221.7	5.9	215.8
2030	524.8	397.9	0.0	922.7	0.0	24.3	24.3	4.4304	208.3	5.5	202.8
2031	524.8	402.9	0.0	927.7	0.0	24.3	24.3	4.7405	195.7	5.1	190.6
2032	524.8	407.9	0.0	932.7	0.0	24.3	24.3	5.0724	183.9	4.8	179.1
2033	524.8	412.9	0.0	937.7	0.0	24.3	24.3	5.4274	172.8	4.5	168.3
2034	524.8	418.0	0.0	942.8	0.0	24.3	24.3	5.8074	162.3	4.2	158.1
Total	$7,790.5	$5,727.3	$0.0	$13,517.7	$3,435.7	$505.8	$3,941.5		$3,968.0	$2,901.7	$1,066.3
Present Value											
Plus: Salvage Value									$3,968.0	$2,901.7	$1,066.3

Benefit-Cost Ratio:	**1.37**

2008 project costs are considered a sunk costs and not included in the BCA analysis.

Table F-7

Benefit Cost Ratio
OMP Completion Phase Airfield (million of 2008 dollars) Passengers held constant at constrained demand level
Decreased Benefits 25%

	Benefits				Costs			Present Value			
Year	Aircraft Delay Savings	Passenger Delay Savings	Downstream Passenger Delay Savings	Total Project Benefits	Project Construction Costs	Incremental O&M Expenses	Total Project Costs	Discount Rate Factor	Total Project Benefits	Total Project Costs	Annual Net Present Value (Benefits-Costs)
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	68.4	0.0	68.4	1.0700	0.0	63.9	(63.9)
2010	0.0	0.0	0.0	0.0	432.6	0.0	432.6	1.1449	0.0	377.9	(377.9)
2011	0.0	0.0	0.0	0.0	925.9	0.0	925.9	1.2250	0.0	755.8	(755.8)
2012	0.0	0.0	0.0	0.0	809.1	0.0	809.1	1.3108	0.0	617.3	(617.3)
2013	0.0	0.0	0.0	0.0	367.5	7.5	375.0	1.4026	0.0	267.4	(267.4)
2014	0.0	0.0	0.0	0.0	145.0	11.4	156.4	1.5007	0.0	104.2	(104.2)
2015	41.0	27.6	0.0	68.6	0.0	24.3	24.3	1.6058	42.7	15.2	27.6
2016	61.1	41.3	0.0	102.4	0.0	24.3	24.3	1.7182	59.6	14.2	45.4
2017	86.6	58.6	0.0	145.2	0.0	24.3	24.3	1.8385	79.0	13.2	65.7
2018	115.0	78.1	0.0	193.1	0.0	24.3	24.3	1.9672	98.1	12.4	85.8
2019	147.3	100.7	0.0	248.0	0.0	24.3	24.3	2.1049	117.8	11.6	106.3
2020	184.1	126.6	0.0	310.7	0.0	24.3	24.3	2.2522	138.0	10.8	127.2
2021	234.9	163.7	0.0	398.6	0.0	24.3	24.3	2.4098	165.4	10.1	155.3
2022	293.0	207.1	0.0	500.1	0.0	24.3	24.3	2.5785	193.9	9.4	184.5
2023	350.3	248.5	0.0	598.8	0.0	24.3	24.3	2.7590	217.0	8.8	208.2
2024	393.6	276.5	0.0	670.1	0.0	24.3	24.3	2.9522	227.0	8.2	218.7
2025	393.6	280.1	0.0	673.7	0.0	24.3	24.3	3.1588	213.3	7.7	205.6
2026	393.6	283.7	0.0	677.3	0.0	24.3	24.3	3.3799	200.4	7.2	193.2
2027	393.6	287.4	0.0	681.0	0.0	24.3	24.3	3.6165	188.3	6.7	181.6
2028	393.6	291.0	0.0	684.6	0.0	24.3	24.3	3.8697	176.9	6.3	170.6
2029	393.6	294.7	0.0	688.3	0.0	24.3	24.3	4.1406	166.2	5.9	160.4
2030	393.6	298.4	0.0	692.0	0.0	24.3	24.3	4.4304	156.2	5.5	150.7
2031	393.6	302.2	0.0	695.8	0.0	24.3	24.3	4.7405	146.8	5.1	141.6
2032	393.6	305.9	0.0	699.5	0.0	24.3	24.3	5.0724	137.9	4.8	133.1
2033	393.6	309.7	0.0	703.3	0.0	24.3	24.3	5.4274	129.6	4.5	125.1
2034	393.6	313.5	0.0	707.1	0.0	24.3	24.3	5.8074	121.8	4.2	117.6
Total	$5,842.8	$4,295.4	$0.0	$10,138.3	$2,748.5	$505.8	$3,254.3		$2,976.0	$2,358.3	$617.7
Present Value											
Plus: Salvage Value									$2,976.0	$2,358.3	$617.7

Benefit-Cost Ratio:	**1.26**

2008 project costs are considered a sunk costs and not included in the BCA analysis.

Table F-8

Benefit Cost Ratio
OMP Completion Phase Airfield (million of 2008 dollars) Passengers held constant at constrained demand level
Increased Costs 25%, Decreased Benefits 25%

	Benefits				Costs			Present Value			
Year	Aircraft Delay Savings	Passenger Delay Savings	Downstream Passenger Delay Savings	Total Project Benefits	Project Construction Costs	Incremental O&M Expenses	Total Project Costs	Discount Rate Factor	Total Project Benefits	Total Project Costs	Annual Net Present Value (Benefits-Costs)
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	85.5	0.0	85.5	1.0700	0.0	79.9	(79.9)
2010	0.0	0.0	0.0	0.0	540.8	0.0	540.8	1.1449	0.0	472.3	(472.3)
2011	0.0	0.0	0.0	0.0	1,157.3	0.0	1,157.3	1.2250	0.0	944.7	(944.7)
2012	0.0	0.0	0.0	0.0	1,011.4	0.0	1,011.4	1.3108	0.0	771.6	(771.6)
2013	0.0	0.0	0.0	0.0	459.4	7.5	466.9	1.4026	0.0	332.9	(332.9)
2014	0.0	0.0	0.0	0.0	181.3	11.4	192.7	1.5007	0.0	128.4	(128.4)
2015	41.0	27.6	0.0	68.6	0.0	24.3	24.3	1.6058	42.7	15.2	27.6
2016	61.1	41.3	0.0	102.4	0.0	24.3	24.3	1.7182	59.6	14.2	45.4
2017	86.6	58.6	0.0	145.2	0.0	24.3	24.3	1.8385	79.0	13.2	65.7
2018	115.0	78.1	0.0	193.1	0.0	24.3	24.3	1.9672	98.1	12.4	85.8
2019	147.3	100.7	0.0	248.0	0.0	24.3	24.3	2.1049	117.8	11.6	106.3
2020	184.1	126.6	0.0	310.7	0.0	24.3	24.3	2.2522	138.0	10.8	127.2
2021	234.9	163.7	0.0	398.6	0.0	24.3	24.3	2.4098	165.4	10.1	155.3
2022	293.0	207.1	0.0	500.1	0.0	24.3	24.3	2.5785	193.9	9.4	184.5
2023	350.3	248.5	0.0	598.8	0.0	24.3	24.3	2.7590	217.0	8.8	208.2
2024	393.6	276.5	0.0	670.1	0.0	24.3	24.3	2.9522	227.0	8.2	218.7
2025	393.6	280.1	0.0	673.7	0.0	24.3	24.3	3.1588	213.3	7.7	205.6
2026	393.6	283.7	0.0	677.3	0.0	24.3	24.3	3.3799	200.4	7.2	193.2
2027	393.6	287.4	0.0	681.0	0.0	24.3	24.3	3.6165	188.3	6.7	181.6
2028	393.6	291.0	0.0	684.6	0.0	24.3	24.3	3.8697	176.9	6.3	170.6
2029	393.6	294.7	0.0	688.3	0.0	24.3	24.3	4.1406	166.2	5.9	160.4
2030	393.6	298.4	0.0	692.0	0.0	24.3	24.3	4.4304	156.2	5.5	150.7
2031	393.6	302.2	0.0	695.8	0.0	24.3	24.3	4.7405	146.8	5.1	141.6
2032	393.6	305.9	0.0	699.5	0.0	24.3	24.3	5.0724	137.9	4.8	133.1
2033	393.6	309.7	0.0	703.3	0.0	24.3	24.3	5.4274	129.6	4.5	125.1
2034	393.6	313.5	0.0	707.1	0.0	24.3	24.3	5.8074	121.8	4.2	117.6
Total	$5,842.8	$4,295.4	$0.0	$10,138.3	$3,435.7	$505.8	$3,941.5		$2,976.0	$2,901.7	$74.3
Present Value											
Plus: Salvage Value									$2,976.0	$2,901.7	$74.3

Benefit-Cost Ratio:	**1.03**

2008 project costs are considered a sunk costs and not included in the BCA analysis.

Table F-9

Benefit Cost Ratio
OMP Completion Phase Airfield (million of 2008 dollars)
Constrained Passengers

	Benefits				Costs			Present Value			
Year	Aircraft Delay Savings	Passenger Delay Savings	Downstream Passenger Delay Savings	Total Project Benefits	Project Construction Costs	Incremental O&M Expenses	Total Project Costs	Discount Rate Factor	Total Project Benefits	Total Project Costs	Annual Net Present Value (Benefits-Costs)
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	68.4	0.0	68.4	1.0700	0.0	63.9	(63.9)
2010	0.0	0.0	0.0	0.0	432.6	0.0	432.6	1.1449	0.0	377.9	(377.9)
2011	0.0	0.0	0.0	0.0	925.9	0.0	925.9	1.2250	0.0	755.8	(755.8)
2012	0.0	0.0	0.0	0.0	809.1	0.0	809.1	1.3108	0.0	617.3	(617.3)
2013	0.0	0.0	0.0	0.0	367.5	7.5	375.0	1.4026	0.0	267.4	(267.4)
2014	0.0	0.0	0.0	0.0	145.0	11.4	156.4	1.5007	0.0	104.2	(104.2)
2015	54.7	36.8	0.0	91.5	0.0	24.3	24.3	1.6058	57.0	15.2	41.8
2016	81.5	55.0	0.0	136.5	0.0	24.3	24.3	1.7182	79.5	14.2	65.3
2017	115.4	78.2	0.0	193.6	0.0	24.3	24.3	1.8385	105.3	13.2	92.1
2018	153.3	104.1	0.0	257.4	0.0	24.3	24.3	1.9672	130.9	12.4	118.5
2019	196.4	134.2	0.0	330.7	0.0	24.3	24.3	2.1049	157.1	11.6	145.5
2020	245.5	168.8	0.0	414.3	0.0	24.3	24.3	2.2522	184.0	10.8	173.1
2021	313.2	218.3	0.0	531.5	0.0	24.3	24.3	2.4098	220.5	10.1	210.4
2022	390.7	276.1	0.0	666.8	0.0	24.3	24.3	2.5785	258.6	9.4	249.1
2023	467.1	331.3	0.0	798.5	0.0	24.3	24.3	2.7590	289.4	8.8	280.6
2024	524.8	368.7	0.0	893.5	0.0	24.3	24.3	2.9522	302.7	8.2	294.4
2025	524.8	368.7	0.0	893.5	0.0	24.3	24.3	3.1588	282.9	7.7	275.1
2026	524.8	368.7	0.0	893.5	0.0	24.3	24.3	3.3799	264.4	7.2	257.1
2027	524.8	368.7	0.0	893.5	0.0	24.3	24.3	3.6165	247.1	6.7	240.3
2028	524.8	368.7	0.0	893.5	0.0	24.3	24.3	3.8697	230.9	6.3	224.6
2029	524.8	368.7	0.0	893.5	0.0	24.3	24.3	4.1406	215.8	5.9	209.9
2030	524.8	368.7	0.0	893.5	0.0	24.3	24.3	4.4304	201.7	5.5	196.2
2031	524.8	368.7	0.0	893.5	0.0	24.3	24.3	4.7405	188.5	5.1	183.3
2032	524.8	368.7	0.0	893.5	0.0	24.3	24.3	5.0724	176.1	4.8	171.3
2033	524.8	368.7	0.0	893.5	0.0	24.3	24.3	5.4274	164.6	4.5	160.1
2034	524.8	368.7	0.0	893.5	0.0	24.3	24.3	5.8074	153.9	4.2	149.7
Total	$7,790.5	$5,458.7	$0.0	$13,249.1	$2,748.5	$505.8	$3,254.3		$3,910.6	$2,358.3	$1,552.3
Present Value											
Plus: Salvage Value									$3,910.6	$2,358.3	$1,552.3

Benefit-Cost Ratio:	**1.66**

2008 project costs are considered a sunk costs and not included in the BCA analysis.

Benefit Cost Ratio
OMP Completion Phase Airfield (million of 2008 dollars) Passengers held constant at constrained demand level
Project Delayed 5 Years

	Benefits				Costs			Present Value			
Year	Aircraft Delay Savings	Passenger Delay Savings	Downstream Passenger Delay Savings	Total Project Benefits	Project Construction Costs	Incremental O&M Expenses	Total Project Costs	Discount Rate Factor	Total Project Benefits	Total Project Costs	Annual Net Present Value (Benefits-Costs)
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0700	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1449	0.0	0.0	0.0
2011	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2250	0.0	0.0	0.0
2012	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3108	0.0	0.0	0.0
2013	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4026	0.0	0.0	0.0
2014	0.0	0.0	0.0	0.0	68.4	0.0	68.4	1.5007	0.0	45.6	(45.6)
2015	0.0	0.0	0.0	0.0	432.6	0.0	432.6	1.6058	0.0	269.4	(269.4)
2016	0.0	0.0	0.0	0.0	925.9	0.0	925.9	1.7182	0.0	538.9	(538.9)
2017	0.0	0.0	0.0	0.0	809.1	0.0	809.1	1.8385	0.0	440.1	(440.1)
2018	0.0	0.0	0.0	0.0	367.5	7.5	375.0	1.9672	0.0	190.6	(190.6)
2019	0.0	0.0	0.0	0.0	145.0	11.4	156.4	2.1049	0.0	74.3	(74.3)
2020	245.5	168.8	0.0	414.3	0.0	24.3	24.3	2.2522	184.0	10.8	173.1
2021	313.2	218.3	0.0	531.5	0.0	24.3	24.3	2.4098	220.5	10.1	210.4
2022	390.7	276.1	0.0	666.8	0.0	24.3	24.3	2.5785	258.6	9.4	249.1
2023	467.1	331.3	0.0	798.5	0.0	24.3	24.3	2.7590	289.4	8.8	280.6
2024	524.8	368.7	0.0	893.5	0.0	24.3	24.3	2.9522	302.7	8.2	294.4
2025	524.8	373.5	0.0	898.3	0.0	24.3	24.3	3.1588	284.4	7.7	276.7
2026	524.8	378.3	0.0	903.1	0.0	24.3	24.3	3.3799	267.2	7.2	260.0
2027	524.8	383.2	0.0	908.0	0.0	24.3	24.3	3.6165	251.1	6.7	244.3
2028	524.8	388.1	0.0	912.9	0.0	24.3	24.3	3.8697	235.9	6.3	229.6
2029	524.8	393.0	0.0	917.8	0.0	24.3	24.3	4.1406	221.7	5.9	215.8
2030	524.8	397.9	0.0	922.7	0.0	24.3	24.3	4.4304	208.3	5.5	202.8
2031	524.8	402.9	0.0	927.7	0.0	24.3	24.3	4.7405	195.7	5.1	190.6
2032	524.8	407.9	0.0	932.7	0.0	24.3	24.3	5.0724	183.9	4.8	179.1
2033	524.8	412.9	0.0	937.7	0.0	24.3	24.3	5.4274	172.8	4.5	168.3
2034	524.8	417.9	0.0	942.7	0.0	24.3	24.3	5.8074	162.3	4.2	158.1
2035	524.8	422.9	0.0	947.7	0.0	24.3	24.3	6.2139	152.5	3.9	148.6
2036	524.8	427.9	0.0	952.7	0.0	24.3	24.3	6.6488	143.3	3.7	139.6
2037	524.8	432.9	0.0	957.7	0.0	24.3	24.3	7.1143	134.6	3.4	131.2
2038	524.8	437.9	0.0	962.7	0.0	24.3	24.3	7.6123	126.5	3.2	123.3
2039	524.8	442.9	0.0	967.7	0.0	24.3	24.3	8.1451	118.8	3.0	115.8
Total	$9,813.0	$7,483.4	$0.0	$17,296.4	$2,748.5	$505.8	$3,254.3		$4,113.9	$1,681.4	$2,432.5
Present Value											
Plus: Salvage Value									$4,113.9	$1,681.4	$2,432.5

Benefit-Cost Ratio:	**2.45**

2008 project costs are considered a sunk costs and not included in the BCA analysis.

Benefit Cost Ratio
OMP Completion Phase Airfield (million of 2008 dollars)
EIS Forecast

	Benefits				Costs			Present Value			
Year	Aircraft Delay Savings	Passenger Delay Savings	Downstream Passenger Delay Savings	Total Project Benefits	Project Construction Costs	Incremental O&M Expenses	Total Project Costs	Discount Rate Factor	Total Project Benefits	Total Project Costs	Annual Net Present Value (Benefits-Costs)
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	68.4	0.0	68.4	1.0700	0.0	63.9	(63.9)
2010	0.0	0.0	0.0	0.0	432.6	0.0	432.6	1.1449	0.0	377.9	(377.9)
2011	0.0	0.0	0.0	0.0	925.9	0.0	925.9	1.2250	0.0	755.8	(755.8)
2012	0.0	0.0	0.0	0.0	809.1	0.0	809.1	1.3108	0.0	617.3	(617.3)
2013	0.0	0.0	0.0	0.0	367.5	7.5	375.0	1.4026	0.0	267.4	(267.4)
2014	0.0	0.0	0.0	0.0	145.0	11.4	156.4	1.5007	0.0	104.2	(104.2)
2015	524.8	352.0	0.0	876.8	0.0	24.3	24.3	1.6058	546.0	15.2	530.9
2016	524.8	358.2	0.0	883.0	0.0	24.3	24.3	1.7182	513.9	14.2	499.7
2017	524.8	365.3	0.0	890.0	0.0	24.3	24.3	1.8385	484.1	13.2	470.9
2018	524.8	372.5	0.0	897.3	0.0	24.3	24.3	1.9672	456.1	12.4	443.7
2019	524.8	379.6	0.0	904.3	0.0	24.3	24.3	2.1049	429.6	11.6	418.1
2020	524.8	386.8	0.0	911.6	0.0	24.3	24.3	2.2522	404.7	10.8	393.9
2021	524.8	393.3	0.0	918.1	0.0	24.3	24.3	2.4098	381.0	10.1	370.9
2022	524.8	400.0	0.0	924.8	0.0	24.3	24.3	2.5785	358.7	9.4	349.2
2023	524.8	406.8	0.0	931.6	0.0	24.3	24.3	2.7590	337.7	8.8	328.8
2024	524.8	413.7	0.0	938.5	0.0	24.3	24.3	2.9522	317.9	8.2	309.7
2025	524.8	420.0	0.0	944.7	0.0	24.3	24.3	3.1588	299.1	7.7	291.4
2026	524.8	426.3	0.0	951.0	0.0	24.3	24.3	3.3799	281.4	7.2	274.2
2027	524.8	432.6	0.0	957.4	0.0	24.3	24.3	3.6165	264.7	6.7	258.0
2028	524.8	439.1	0.0	963.9	0.0	24.3	24.3	3.8697	249.1	6.3	242.8
2029	524.8	445.6	0.0	970.4	0.0	24.3	24.3	4.1406	234.4	5.9	228.5
2030	524.8	452.1	0.0	976.9	0.0	24.3	24.3	4.4304	220.5	5.5	215.0
2031	524.8	458.6	0.0	983.4	0.0	24.3	24.3	4.7405	207.4	5.1	202.3
2032	524.8	465.1	0.0	989.9	0.0	24.3	24.3	5.0724	195.2	4.8	190.4
2033	524.8	471.6	0.0	996.4	0.0	24.3	24.3	5.4274	183.6	4.5	179.1
2034	524.8	478.1	0.0	1,002.9	0.0	24.3	24.3	5.8074	172.7	4.2	168.5
Total	$10,495.7	$8,317.3	$0.0	$18,813.0	$2,748.5	$505.8	$3,254.3		$6,537.8	$2,358.3	$4,179.5
Present Value											
Plus: Salvage Value									$6,537.8	$2,358.3	$4,179.5

Benefit-Cost Ratio:	**2.77**

2008 project costs are considered a sunk costs and not included in the BCA analysis.

Request for Letter of Intent

Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding

March 1, 2009

Appendix G

Appendix G

Appendix G. LOI Application Financial Tables

Sponsors requesting Letters of Intent (LOIs) are required to submit the information shown, in substantially the same format as this template. Sponsors are strongly encouraged to use this template, as it may help to expedite the review and approval process. Regardless, Sponsors should review the instructions contained in Appendix 29 carefully, because those instructions contain specific parameters for what to include on certain key lines of this template.

Airport Sponsor Information

1. O'Hare International Airport
2. ORD
3. Chicago, Illinois
4. Large Hub
5. City of Chicago
6. 2/27/2009

Capital Costs and Annual Cashflow Requirements - Proposed Action

		Totals	as %	FFY-2008	FFY-2009	FFY-2010	FFY-2011	FFY-2012	FFY-2013	FFY-2014	FFY-2015	FFY-2016	FFY-2017	FFY-2018	FFY-2019
7.	Professional Services	$0	0.0%												
8.	Land Acquisition	0	0.0%												
9.	Runway 9C-27C	1,739,784,000	53.1%	817,974	42,141,610	344,308,115	593,039,361	350,707,778	283,833,314	124,935,849					
10.	Runway 10R-28L	681,942,410	20.8%	817,974	16,752,061	87,269,045	276,712,306	205,821,846	85,757,353	8,811,825					
11.	Runway 9R-27L Extension	430,387,241	13.1%	817,974	11,561,926	38,763,064	74,365,859	208,784,662	66,593,697	29,500,059					
12.	Runway - World Gateway Taxiway Improvement	288,480,776	8.8%	745,189	1,409,196	6,606,880	96,413,935	183,305,576							
13.	Noise Mitigation Program	136,661,060	4.2%			2,674,575	35,093,089	36,764,410	38,519,297	23,609,689					
14.	Infrastructure	0	0.0%												
	Summary	**$3,277,255,487**	**100.0%**	**$3,199,111**	**$71,864,794**	**$479,621,679**	**$1,075,624,549**	**$985,384,273**	**$474,703,661**	**$186,857,421**					
	Cumulative Needs			$3,199,111	$75,063,904	$554,685,583	$1,630,310,133	$2,615,694,405	$3,090,398,066	$3,277,255,487					

Capital Funding Sources - Proposed Action

		Totals	as %	FFY-2008	FFY-2009	FFY-2010	FFY-2011	FFY-2012	FFY-2013	FFY-2014	FFY-2015	FFY-2016	FFY-2017	FFY-2018	FFY-2019
	Federal and State Grants														
15.	Entitlements - Grants Awarded	$0	0.0%												
16.	Entitlements - Future Grants	0	0.0%												
17.	Discretionary - LOI Request	500,000,000	15.3%			$50,000,000	$50,000,000	$50,000,000	$50,000,000	$50,000,000	$50,000,000	$50,000,000	$50,000,000	$50,000,000	50,000,000
18.	Discretionary - Other - Awarded	0	0.0%												
19.	Discretionary - Other - Future Grants	0	0.0%												
20.	Discretionary - Noise - Awarded	0	0.0%												
21.	Discretionary - Noise - Future Grants	0	0.0%												
22.	State Apportionment - Grants Awarded	0	0.0%												
23.	State Apportionment - Future Grants	0	0.0%												
24.	Other Federal (non-AIP) - Grants Awarded	0	0.0%												
25.	Other Federal (non-AIP) - Future Grants	0	0.0%												
26.	State - Grants Awarded	0	0.0%												
27.	State - Future Grants	0	0.0%												
	Subtotal - Federal/State Grants	**$500,000,000**	**15.3%**	**$0**	**$0**	**$50,000,000**	**$50,000,000**	**$50,000,000**	**$50,000,000**	**$50,000,000**	**$50,000,000**	**$50,000,000**	**$50,000,000**	**$50,000,000**	**$50,000,000**
	Passenger Facility Charges														
28.	PFCs - $3.00 Application Approved	$0	0.0%												
29.	PFCs - $3.00 Application Submitted	0	0.0%												
30.	PFCs - $3.00 Future Application(s)	0	0.0%												
31.	PFCs - $4.50 Application Approved	0	0.0%												
32.	PFCs - $4.50 Application Submitted	0	0.0%												
33.	PFCs - $4.50 Future Application(s)	46,068,049	1.4%		46,068,049										
34.	PFCs - Future Level	954,760,711	29.1%			81,815,010	76,225,650	485,158,969	174,919,790	136,641,292					
	Subtotal - PFCs	**$1,000,828,760**	**30.5%**	**$0**	**$46,068,049**	**$81,815,010**	**$76,225,650**	**$485,158,969**	**$174,919,790**	**$136,641,292**	**$0**	**$0**	**$0**	**$0**	**$0**
	Debt														
35.	Revenue Bonds - MII Approved	$0	0.0%												
36.	Revenue Bonds - MII pending	0	0.0%												
37.	General Obligation - Authority in Place	0	0.0%												
38.	General Obligation - Future GARBs	1,776,426,727	54.2%	3,199,111	25,796,745	347,806,669	949,398,899	450,225,304	0	0	0				
39.	Other Debt - Authority in Place	0	0.0%												
40.	Other Debt - Interim Funding	0	0.0%	0					249,783,871	216,129	-50,000,000	-50,000,000	-50,000,000	-50,000,000	-50,000,000
	Subtotal - Debt	**$1,776,426,727**	**54.2%**	**$3,199,111**	**$25,796,745**	**$347,806,669**	**$949,398,899**	**$450,225,304**	**$249,783,871**	**$216,129**	**-$50,000,000**	**-$50,000,000**	**-$50,000,000**	**-$50,000,000**	**-$50,000,000**
41.	Airport Funds	$0	0.0%												
42.	Tenant or Third-Party Funds	$0	0.0%												
			0.0%												
	Total - All Funding Sources	**$3,277,255,487**	**100.0%**	**$3,199,111**	**$71,864,794**	**$479,621,679**	**$1,075,624,549**	**$985,384,273**	**$474,703,661**	**$186,857,421**	**$0**	**$0**	**$0**	**$0**	**$0**
	Cumulative Sources			$3,199,111	$75,063,904	$554,685,583	$1,630,310,133	$2,615,694,405	$3,090,398,066	$3,277,255,487	$0	$0	$0	$0	$0

Unmet Funding Needs	Totals	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	$0	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Capital Costs and Annual Cashflow Requirements - Other Capital Plans

		Totals	as %	FFY-2008	FFY-2009	FFY-2010	FFY-2011	FFY-2012	FFY-2013	FFY-2014	FFY-2015	FFY-2016	FFY-2017	FFY-2018	FFY-2019
43.	OMP Remaing Phase 1	$1,800,520,116	59.1%	$456,957,775	$561,856,117	$492,330,530	$202,359,033	$87,016,661							
44.	Airfield	474,857,414	15.6%	151,754,097	94,091,873	68,461,360	80,435,714	80,114,370							
45.	Terminal	263,594,801	8.7%	177,076,338	25,410,440	27,323,632	22,689,526	11,094,865							
46.	Noise Mitigation	95,184,983	3.1%	35,617,060	28,642,923	25,000,000	5,925,000								
47.	Safety and Security	64,553,472	2.1%	17,299,935	15,273,322	22,566,002	6,224,531	3,189,682							
48.	Parking and Roadway	327,748,242	10.8%	28,305,924	25,820,579	77,071,876	98,407,964	98,141,899							
49.	Other [1/]	6,462,148	0.2%	1,719,948	4,742,200										
50.	Implementation	118,471,887	3.9%	23,293,194	14,395,880	25,625,000	26,906,250	28,251,563							
51.	Planning other projects	1,056,395	0.0%	946,395		110,000									
52.	H&R	95,971,250	3.2%	13,360,490	31,001,119	24,607,551	23,545,375	3,456,715							
	Summary	**$3,248,420,708**	**106.7%**	**$906,331,156**	**$801,234,453**	**$763,095,951**	**$466,493,393**	**$311,265,755**							
	Cumulative Needs			$906,331,156	$1,707,565,609	$2,470,661,560	$2,937,154,953	$3,248,420,708							

Capital Funding Sources - Other Capital Plans 0

		Totals	as %	FFY-2008	FFY-2009	FFY-2010	FFY-2011	FFY-2012	FFY-2013	FFY-2014	FFY-2015	FFY-2016	FFY-2017	FFY-2018	FFY-2019
	Federal and State Grants														
53.	Entitlements - Grants Awarded	$19,500,000	0.6%	6,500,000	6,500,000	6,500,000									
54.	Entitlements - Future Grants	0	0.0%												
55.	Discretionary - LOI Request[2/]	260,000,000	8.5%	112,885,000	37,391,000	87,609,000	22,115,000								
56.	Discretionary - Other - Awarded[3/]	32,030,745	1.1%	23,030,745	9,000,000										
57.	Discretionary - Other - Future Grants	0	0.0%												
58.	Discretionary - Noise - Awarded	0	0.0%												
59.	Discretionary - Noise - Future Grants	0	0.0%												
60.	State Apportionment - Grants Awarded	0	0.0%												
61.	State Apportionment - Future Grants	0	0.0%												
62.	Other Federal (non-AIP) - Grants Awarded[4/]	68,610,828	2.3%	68,541,821	69,007										
63.	Other Federal (non-AIP) - Future Grants	0	0.0%												
64.	State - Grants Awarded	0	0.0%												
65.	State - Future Grants	0	0.0%												
	Subtotal - Federal/State Grants	**$380,141,573**	**12.5%**	**$210,957,566**	**$52,960,007**	**$94,109,000**	**$22,115,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
			0.0%												
	Passenger Facility Charges		0.0%												
66.	PFCs - $3.00 Application Approved	$0	0.0%												
67.	PFCs - $3.00 Application Submitted	0	0.0%												
68.	PFCs - $3.00 Future Application(s)	0	0.0%												
69.	PFCs - $4.50 Application Approved	871,715,062	28.6%	636,652,399	142,161,154	92,901,509									
70.	PFCs - $4.50 Application Submitted	0	0.0%												
71.	PFCs - $4.50 Future Application(s)	29,870,000	1.0%			29,870,000									
72.	PFCs - Future Level	111,412,958	3.7%				57,162,500	54,250,458							
	Subtotal - PFCs	**$1,012,998,020**	**33.3%**	**$636,652,399**	**$142,161,154**	**$122,771,509**	**$57,162,500**	**$54,250,458**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
	Debt														
73.	Revenue Bonds - MII Approved	$395,552,689	13.0%	$245,150,404	$150,402,285										
74.	Revenue Bonds - MII pending	0	0.0%												
75.	General Obligation - Authority in Place[5/]	216,227,084	7.1%	176,952,606	36,390,728	1,733,750	1,150,000								
76.	General Obligation - Future GARBs	1,040,478,054	34.2%	88,037,903	165,375,993	291,168,162	304,307,360	191,588,636							
77.	Other Debt - Authority in Place	0	0.0%												
78.	Other Debt - Authority Pending	0	0.0%												
	Subtotal - Debt	**$1,652,257,827**	**54.3%**	**$510,140,913**	**$352,169,006**	**$292,901,912**	**$305,457,360**	**$191,588,636**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
79.	Airport Funds	$0	0.0%												
80.	Tenant or Third-Party Funds	0	0.0%												
	Total - All Funding Sources	**$3,045,397,420**	**100.0%**	**$1,357,750,878**	**$547,290,167**	**$509,782,421**	**$384,734,860**	**$245,839,094**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
	Cumulative Sources			$1,357,750,878	$1,905,041,045	$2,414,823,466	$2,799,558,326	$3,045,397,420	$0	$0	$0	$0	$0	$0	$0

Unmet Funding Needs [6/]	Totals	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	$203,023,288	**-$451,419,722**	**$253,944,286**	**$253,313,530**	**$81,758,533**	**$65,426,661**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Notes:

[1/] Includes Western Terminal Planning.
[2/] Reflects use of proceeds from borrowing in anticipation of future repayment from AIP Discretionary LOI grants
[3/] Consists of AIP and MPEA Grants
[4/] TSA Grants
[5/] Commerical Paper
[6/] Unmet funding needs for CIP projects are projects that have been approved but are not yet funded

*Cost reflect the City's 5-year Capital Improvement Program as of July 2008. The City is in the process of updating the 5-year CIP

Appendix G. LOI Application Financial Tables
Data Entry Sheet #2

Airport Sponsor Information

O'Hare International Airport
ORD
Chicago, Illinois
Large Hub
City of Chicago
2/27/2009

Alternative Disbursement Proposal(s)

OFFICIAL REQUEST	Totals	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Discretionary - LOI disbursement schedule	$500,000,000	$0	$0	$0	$0	$50,000,000	$50,000,000	$50,000,000	$50,000,000	$50,000,000	$50,000,000	$50,000,000	$50,000,000	$50,000,000	$50,000,000
ALTERNATIVE A															
Discretionary - LOI disbursement schedule						$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Change (if any) in LOI Discretionary funding															
Impact on costs and/or other funding sources															
ALTERNATIVE B															
Discretionary - LOI disbursement schedule						$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Change (if any) in LOI Discretionary funding															
Impact on costs and/or other funding sources															
ALTERNATIVE C															
Discretionary - LOI disbursement schedule						$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Change (if any) in LOI Discretionary funding															
Impact on costs and/or other funding sources															
ALTERNATIVE D															
Discretionary - LOI disbursement schedule	$0														
Change (if any) in LOI Discretionary funding	0														
Impact on costs and/or other funding sources		[insert explanation]													

Appendix G. LOI Application Financial Tables
Data Entry Sheet #3

Airport Sponsor Information

O'Hare International Airport
ORD
Chicago, Illinois
Large Hub
City of Chicago
2/27/2009

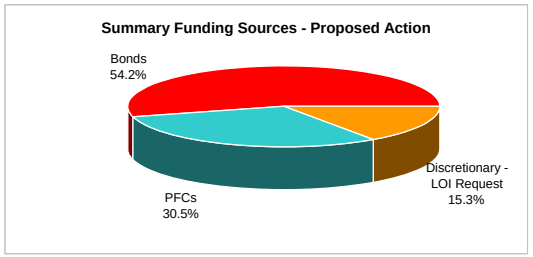
Individual Project Components

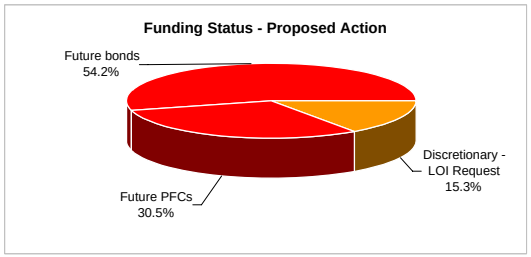
	Cost	Part of Proposed Action? Y/N	Include in BCA? Y/N	Justification for Requested Exclusior	LOI Project	Proposed Action	Overall Capital Plan	Airfield	
Runway 9C-27C	$1,739,784,000	Y	Y		$1,739,784,000	$1,739,784,000	$1,739,784,000	$1,739,784,000	
Runway 9R Extension	$430,387,241	Y	Y		$430,387,241	$430,387,241	$430,387,241	$430,387,241	
Runway 10R-28L	$681,942,410	Y	Y		$681,942,410	$681,942,410	$681,942,410	$681,942,410	
World Gateway Taxiway Improvements	288,480,776	Y	Y		$288,480,776	$288,480,776	$288,480,776	$288,480,776	
Noise Mitigation Program	136,661,060	**N**	Y		$136,661,060	$0	$136,661,060	$136,661,060	
					$0	$0	$0		
					$0	$0	$0		
					$0	$0	$0		
					$0	$0	$0		
					$0	$0	$0		
					$0	$0	$0		
					$0	$0	$0		
					$0	$0	$0		
					$0	$0	$0		
					$0	$0	$0		
Summary	**$3,277,255,487**				**$3,277,255,487**	**$3,140,594,427**	**$3,277,255,487**	**$3,277,255,487**	**$0**

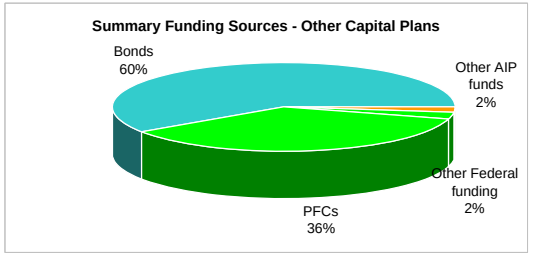
Appendix G. LOI Application Financial Tables

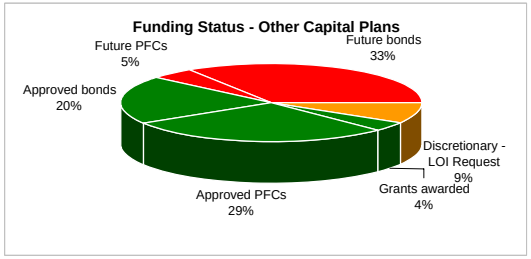
Airport Sponsor Information

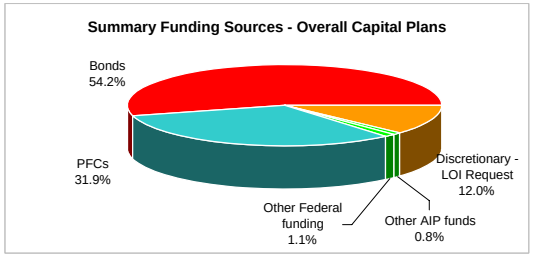
1. O'Hare International Airport
2. ORD
3. Chicago, Illinois
4. Large Hub
5. City of Chicago
6. 2/27/2009

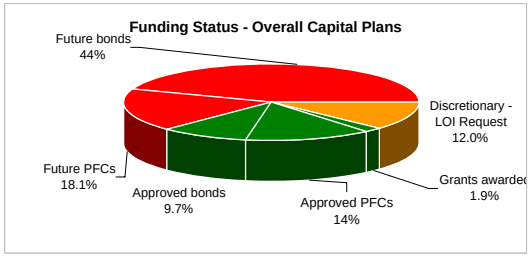












Completion Phase Summary of Cost Program Administration Revised Cash Flow
(All Costs Shown in 2008 $'s)

Completion Phase Component	Construction Cost	Design Cost	Soft Cost	Project Contingencies	Total Project Budget
Runway 9R Extension	$ 242,589,624	$ 20,959,744	$ 44,432,744	$ 48,759,112	$ 357,187,559
Runway 9C-27C	$ 976,486,387	$ 84,368,424	$ 178,853,360	$ 228,183,394	$ 1,469,688,187
Runway 10R-28L	$ 392,864,754	$ 33,943,515	$ 71,955,406	$ 78,572,951	$ 578,061,200
Taxiway LL	$ 166,569,106	$ 14,391,571	$ 30,508,817	$ 30,399,352	$ 242,175,314
TOTAL	**$ 1,778,509,872**	**$ 153,663,253**	**$ 325,750,326**	**$ 385,914,809**	**$ 2,647,112,259**

Breakout of Program Admin to establish Revised Soft Cost Spread Less $3,274,000 (2008 Projection):

Original	% Breakout	3.274 breakdown
$ 44,879,080	13.63%	$ 446,337
$ 180,649,982	54.88%	$ 1,796,622
$ 72,855,730	22.13%	$ 724,574
$ 30,815,285	9.36%	$ 306,468
$ 329,200,076	100.00%	$ 3,274,000

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Runway 9R Extension	$ 242,589,624	$ 20,959,744	$ 44,879,080	$ 48,759,112	$ 357,187,559
Runway 9C-27C	$ 976,486,387	$ 84,368,424	$ 180,649,982	$ 228,183,394	$ 1,469,688,187
Runway 10R-28L	$ 392,864,754	$ 33,943,515	$ 72,679,980	$ 78,572,951	$ 578,061,200
Taxiway LL	$ 166,569,106	$ 14,391,571	$ 30,815,285	$ 30,399,352	$ 242,175,314
TOTAL	**$ 1,778,509,872**	**$ 153,663,253**	**$ 329,024,326**	**$ 385,914,809**	**$ 2,647,112,260**

Completion Phase Summary of Cost Program Administration Revised Cash Flow
(All Costs Shown in 2008 $'s)

Project Description	Construction Cost	Design Cost	Soft Cost	Project Contingencies	Total Project Budget
Runway 9R-27L Extension & Assoc. Taxiways	$ 89,339,482	$ 7,718,931	$ 16,527,804	$ 13,400,922	$ 126,987,140
Facilities Infrastructure	$ 24,025,740	$ 2,075,824	$ 4,444,762	$ 8,409,009	$ 38,955,335
Detention Basin Capacity Increase [1]	$ 15,750,000	$ 1,360,800	$ 2,913,750	$ 3,150,000	$ 23,174,550
Fuel System Piping [2]	$ 88,000,000	$ 7,603,200	$ 16,280,000	$ 17,600,000	$ 129,483,200
Rental Car Facility Relocations [3]	$ 11,043,000	$ 954,115	$ 2,042,955	$ 3,312,900	$ 17,352,970
Rental Car Parking Relocation (Flat Pavement Parking) [3]	$ 14,431,402	$ 1,246,873	$ 2,669,809	$ 2,886,280	$ 21,234,365
TOTAL	**$ 242,589,624**	**$ 20,959,744**	**$ 44,879,080**	**$ 48,759,112**	**$ 357,187,559**

NOTES

1 - Detension Basin Capacity Increase is a Deferred Projects from Phase 1.
2 - The Fuel System Piping project was not included in Estimate F. At the time Estimate F was prepared, the fuel piping relocation was part of another project that was later cancelled.
3 - Rental Car Facility & Parking Relocations are identified in Ricondo Exhibit 1 . The estimate assumes replacement in kind (i.e. surface lot) of 3144 spaces and existing facilities. This estimate does **NOT** include any land purchase or major infrastructure improvements.

Completion Phase Summary of Cost Program Administration Revised Cash Flow
(All Costs Shown in 2008 $'s)

Project Description	Construction Cost	Design Cost	Soft Cost	Project Contingencies	Total Project Budget
Building Demo for RW 9C-27C & Assoc. Taxiways	$ 5,513,928	$ 476,403	$ 1,020,077	$ 1,102,786	$ 8,113,194
Facility Relocations	$ 291,871,695	$ 25,217,714	$ 53,996,264	$ 87,561,509	$ 458,647,182
Runway 9C-27C & Assoc. Taxiways	$ 318,455,483	$ 27,514,554	$ 58,914,264	$ 47,768,322	$ 452,652,623
Facilities Infrastructure	$ 33,234,665	$ 2,871,475	$ 6,148,413	$ 11,632,133	$ 53,886,686
New Pavement 14R-32L & Assoc. Taxiways	$ 47,837,489	$ 4,133,159	$ 8,849,935	$ 7,175,623	$ 67,996,206
Facilities Infrastructure	$ 59,909,532	$ 5,176,184	$ 11,083,263	$ 20,968,336	$ 97,137,315
NAF High Speed Taxiways [1]	$ 4,647,681	$ 401,560	$ 859,821	$ 929,536	$ 6,838,598
NALCV [2]	$ 6,274,580	$ 542,124	$ 1,160,797	$ 2,196,103	$ 10,173,603
West Side Service Road & Tunnel Under 14R-32L [3]	$ 88,308,424	$ 7,629,848	$ 16,337,058	$ 17,661,685	$ 129,937,015
Mt. Prospect Rd Under T/W WK [4]	$ 16,511,501	$ 1,426,594	$ 3,054,628	$ 3,302,300	$ 24,295,022
Reconstruction of T/W 'U' or Suitable Alternative	$ 15,243,086	$ 1,317,003	$ 2,819,971	$ 4,572,926	$ 23,952,985
ATS Station Relocation and Track Extension [5]	$ 55,764,705	$ 4,818,071	$ 10,316,470	$ 16,729,412	$ 87,628,657
Parking Relocations - East of Mannheim [6]	$ 16,413,619	$ 1,418,137	$ 3,036,520	$ 3,282,724	$ 24,150,999
Runway 9C-27C RPZ Impacted Facilities Demolition & Relocation [7]	$ 16,500,000	$ 1,425,600	$ 3,052,500	$ 3,300,000	$ 24,278,100
TOTAL	**$ 976,486,387**	**$ 84,368,424**	**$ 180,649,982**	**$ 228,183,394**	**$ 1,469,688,187**

NOTES

1 - NAF High Speed Taxiways is a Deferred Project from Phase 1.
2 - NALCV included from Estimate F - Airfield Facilities.
3 - West Side Service Road & Tunnel Under 14R-32L included from Estimate F - Phase 1 West Satellite.
4 - Mt. Prospect Rd Under T/W WK included from Estimate F - Phase 1A.
5 - ATS has been priced based on moving station outside the OFA.
6 - Parking Relocations equate to approximately 2652 spaces (including 48 accessible spaces). Estimate assumes surface lot replacement with no property acquisition or major infrastructure replacement.
7 - Ricondo Project Definition Document for 27C RPZ - Exhibit 1 identifies impacted projects as follows: 1) Salt Dome Remove & Relocate; 2) Lot E Parking Exit Plaza Relocation; 3) Facility Power Substation 6 Remove & Relocate; 4) Unknown Structures Remove/Relocate

Completion Phase Summary of Cost Program Administration Revised Cash Flow
(All Costs Shown in 2008 $'s)

Project Description	Construction Cost	Design Cost	Soft Cost	Project Contingencies	Total Project Budget
Bensenville Ditch Extension & Wetlands Filling	$ 17,760,083	$ 1,534,471	$ 3,285,615	$ 3,552,017	$ 26,132,187
Irving Park Road Relocation	$ 18,072,417	$ 1,561,457	$ 3,343,397	$ 3,614,483	$ 26,591,754
Runway 10R-28L East Site Preparation	$ 73,842,225	$ 6,379,968	$ 13,660,812	$ 14,768,445	$ 108,651,450
Runway 10R-28L Mass Grading - East	$ 17,653,821	$ 1,525,290	$ 3,265,957	$ 3,530,764	$ 25,975,832
Runway 10R-28L Mass Grading - West	$ 37,788,238	$ 3,264,904	$ 6,990,824	$ 7,557,648	$ 55,601,613
South Airfield Traffic Control Tower (SATCT)	$ 44,525,333	$ 3,846,989	$ 8,237,187	$ 8,905,067	$ 65,514,575
ASR-9 Facility and LLWAS	$ 5,565,667	$ 480,874	$ 1,029,648	$ 1,113,133	$ 8,189,322
Runway 10R-28L Paving & Electrical	$ 55,873,850	$ 4,827,501	$ 10,336,662	$ 11,174,770	$ 82,212,783
Runway 10R-28L NAVAIDS & FOTS	$ 24,078,583	$ 2,080,390	$ 4,454,538	$ 4,815,717	$ 35,429,228
Utilities - ComEd & FAA from Phase 1 [1]	$ 8,667,219	$ 748,848	$ 1,603,436	*$ 1,733,444*	$ 12,752,946
10L High Speed Taxiways [1]	$ 9,679,234	$ 836,286	$ 1,790,658	$ 1,935,847	$ 14,242,026
T/W 45 & R/W 14R Storm Sewer Systems 2A & 3A [1]	$ 35,914,861	$ 3,103,044	$ 6,644,249	$ 7,182,972	$ 52,845,126
Bensenville Ditch - ALP Alignment [1]	$ 43,443,222	$ 3,753,494	$ 8,036,996	$ 8,688,644	$ 63,922,357
TOTAL	**$ 392,864,754**	**$ 33,943,515**	**$ 72,679,980**	**$ 78,572,951**	**$ 578,061,200**

Note (*) The contingency for the Deferred Projects on 10R-28L includes a slightly higher than 20% due to extra amount on T/W 45 & R/W 14R Storm Sewer (see PSM 6130-114)

NOTES

1 - Utilities - ComEd & FAA; 10L High Speed Taxiways; TW 45 & Storm Systems 2A/3A; and Bensenville Ditch ALP Alignment are Deferred Projects from Phase 1.

Completion Phase Summary of Cost Program Administration Revised Cash Flow
(All Costs Shown in 2008 $'s)

Project Description	Construction Cost	Design Cost	Soft Cost	Project Contingencies	Total Project Budget
Taxiway LL & Taxiway M Relocation	$ 86,838,198	$ 7,502,820	$ 16,065,067	$ 17,367,640	$ 127,773,724
Relocation of Lockheed Maintenance Facility	$ 2,680,191	$ 231,569	$ 495,835	$ 804,057	$ 4,211,653
Relocation of Glycol Facility	$ 3,350,239	$ 289,461	$ 619,794	$ 502,536	$ 4,762,030
Relocation of Truck Fuel Stand	$ 3,350,239	$ 289,461	$ 619,794	$ 1,172,584	$ 5,432,078
Relocation of AAL GSE Facility	$ 3,350,239	$ 289,461	$ 619,794	$ 502,536	$ 4,762,030
Super Fuel Satellite	$ 67,000,000	$ 5,788,800	$ 12,395,000	$ 10,050,000	$ 95,233,800
TOTAL	**$ 166,569,106**	**$ 14,391,571**	**$ 30,815,285**	**$ 30,399,352**	**$ 242,175,314**

NOTES

1 - All projects associated with Taxiway LL were not included in Estimate F.

Chicago O'Hare International Airport