

CHICAGO'S O'HARE MODERNIZATION PROGRAM

Federal Aviation Administration

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**U.S. Department of
Transportation**
Office of the Secretary
of Transportation
Office of Inspector General

Memorandum

Subject: **ACTION:** Report on Chicago's O'Hare
Modernization Program
Federal Aviation Administration
AV-2005-067

Date: July 21, 2005

From: Kenneth M. Mead
Inspector General

Reply to
Attn. of: JA-10

To: Federal Aviation Administrator

In response to a request from Representative Henry J. Hyde and former Senator Peter G. Fitzgerald, we examined the Federal Aviation Administration's (FAA) process for reviewing and approving the City of Chicago's (City) O'Hare Modernization Program (OMP). This report presents the results of our review of FAA's involvement in the City's OMP.

Specifically, we focused our review on FAA's (1) process for reviewing the financial viability of the OMP, and (2) actions to redesign the airspace to accommodate the OMP. We did not assess FAA's Environmental Impact Statement (EIS) of the OMP during this review, since there is a well-established Federal environmental review process governed by the National Environmental Policy Act and other applicable environmental laws. This review process involves the participation of several Federal agencies, state and local authorities, and the general public. Moreover, the Federal courts are available for those with legal standing (see the scope and methodology in Exhibit A).

We periodically met with FAA officials and provided the Agency a draft copy of this report for its review. Where appropriate, we have revised the report to reflect FAA's comments. FAA generally agreed with the report's recommendations.

INTRODUCTION

Delays and congestion have plagued O'Hare for more than 30 years, in spite of regulatory intervention. Controls on landing slots and schedules have temporarily brought some relief, but they do not accommodate demand and can stifle competition.

In 2001, the City developed the OMP—a proposal to build one new runway, relocate three existing runways, extend two others, and complete other infrastructure improvements designed to increase the efficiency and capacity of O'Hare. The OMP is estimated at \$6.6 billion¹ in 2001 dollars. In addition to the OMP, the O'Hare 20-year Master Plan also includes the Capital Improvement Program (ongoing maintenance projects such as resurfacing a runway at an estimated cost of \$4.1 billion) and the World Gateway Program (additional gates and terminals on the east side of O'Hare at an estimated cost of \$2.6 billion). The total estimated cost of the O'Hare 20-year Master Plan is \$13.3 billion. Exhibit B contains further information on O'Hare's 20-year Master Plan.

The City plans to implement the OMP in two phases over an 8-year period. Phase 1 and Phase 2 are scheduled to be completed by 2009 and 2013, respectively. The City is planning on receiving a sizable Federal investment for the OMP, with approximately \$2 billion coming from FAA-approved Passenger Facility Charges (PFCs, \$1.45 billion) and Airport Improvement Program grants (AIP, \$594 million). Exhibit C provides further information on the OMP funding streams and approval process. The City's and FAA's models have projected that the OMP will provide significant benefits in reducing delays and increasing capacity at O'Hare. According to these models, delays will be reduced from an average of 19.2 minutes per flight in 2004 to an average of 5.0 minutes per flight in 2013, while expanding airfield capacity from an average of 2,712 flights per day in 2004 to an average of 3,169 flights per day (peak month average daily flights²) in 2013.

RESULTS IN BRIEF

There is no question that capacity constraints exist at O'Hare and that these constraints affect the efficiency of the entire National Airspace System. The OMP is designed to address O'Hare's capacity constraints. But the complexity and magnitude of the OMP cannot be overstated, as it is one of the largest and most costly reconfigurations of an airport in the United States. In terms of national

¹ The \$6.6 billion cost estimate for the OMP includes the cost of all airfield projects (design and construction), land acquisition, noise mitigation, and other ancillary costs associated with the OMP.

² In modeling the OMP, FAA used the "peak month average daily flights." This number is the average daily flights during the peak month of the year (the month with the most flights).

infrastructure projects, the OMP may be second only to Boston's Central Artery/Ted Williams Tunnel project (the "Big Dig"), which is estimated to cost \$14.6 billion when completed. We identified two areas where FAA will need to focus greater attention: (1) verifying that the OMP's costs, schedule, and sources of funding are realistic, reasonable, and credible and that any known or reasonably anticipated risks that could affect the Phase 1 and Phase 2 project milestones are fully disclosed and considered; and (2) redesigning airspace necessary to realize the benefits of OMP airfield improvements in reducing flight delays and increasing capacity.

We are making a series of recommendations to FAA regarding the performance of its due diligence when reviewing the OMP financial plan prior to approving any PFC or AIP grants and with respect to the airspace redesign changes that are key to realizing the benefits represented in the OMP. One of these recommendations pertains to the appointment of one senior FAA official with overall responsibility for airspace redesign to direct the planning, resources, budget, schedule, and implementation of airspace changes necessary to support the OMP.

- ***OMP Costs, Schedule, and Sources of Funding Must Be Verified as Realistic, Reasonable, and Credible.*** The City has submitted to FAA a Request for a Letter of Intent (LOI) to provide multi-year funding (\$30 million each year for 10 years) of AIP discretionary grants for OMP Phase 1 projects. As part of the LOI, the City submitted a summary of the estimated capital costs for the entire OMP, including more specific costs for Phase 1 projects, a preliminary implementation schedule for all OMP airfield projects, and a financial plan identifying the sources of funds and expected cash flows needed to complete the Phase 1 projects.

FAA's policy requires a review of the financial plan for Phase 1 before approving PFC or AIP funds. As part of its review, FAA should consider not only the stability of the financial plan for Phase 1, but also the reasonableness of the overall OMP financial plan, which includes Phase 2. This is critical because most of the benefits of the OMP are contingent upon completing both Phase 1 and Phase 2. The airlines' approval of Phase 1 is conditional on the City receiving the \$300 million in Federal funds, and the airlines have yet to approve Phase 2. FAA must also ensure that the benefits and costs represented for both Phase 1 and Phase 2 are fully disclosed and considered.

Since the announcement of the OMP in 2001, the City has advertised the OMP as a two-phased, multi-year program with an estimated price tag of \$6.6 billion in 2001 dollars. Projections made in 2001 dollars are not likely to be the actual cost of the OMP. We have seen cost estimates prepared by the City ranging from \$7.1 billion to \$8 billion. FAA, in its review of the LOI, must ensure that the statement of costs is credible and includes escalations for any anticipated

schedule delays and rising labor or materials costs. For example, the cost of iron and steel has increased nearly 48 percent between 2001 and June 2005.

The City estimated that Phase 2 will cost \$2.5 billion, but detailed project specifications and cost estimates will not be completed until after 2006, when the City completes the final design of Phase 2. FAA will need to evaluate the risk to cost estimates due to changes in project scope, final engineering changes, labor and material cost increases, and other factors and then will need to disclose their potential effect on the cost of the OMP. FAA must ensure the financial plan and the accompanying schedule are realistic and take into account any risks to cost due to potential schedule slippage (e.g., a delay in FAA's approval of the OMP or winter weather delaying construction). This is apart from ongoing lawsuits and the threat of other legal action to delay or prevent the OMP from being completed.

In its OMP financial plan, the City is making assumptions about the amount of money it will receive from two major funding sources that require congressional or other Federal approval, which the City has not yet received.

- First, the City is requesting an unprecedented amount of AIP discretionary funds for Phase 1—\$300 million or \$30 million each year for 10 years. It is not known at this time whether FAA or Congress will approve this level of AIP discretionary funding given that FAA's budget request of \$3 billion in AIP funding for fiscal year (FY) 2006 is \$472 million less than in FY 2005. Furthermore, there will be competing interests for AIP discretionary grants in the near future as other airports begin planning large modernization programs. For example, in February 2005, as part of its \$3 billion expansion program, Washington-Dulles International Airport requested \$208 million in discretionary AIP grant funds to build a fourth runway.³ The Los Angeles International Airport is planning an approximately \$11 billion modernization plan, for which we understand the Airport may request a significant AIP discretionary grant.
- Second, the City is assuming Congress will authorize an increase in the PFC maximum charge from \$4.50 to \$6.00 by 2011. If the increase is not authorized, the City will be overstating its PFC collections by nearly \$241 million for the 4-year period from 2011 through 2014.

FAA needs to ensure the City has adequately disclosed how it plans to cover any funding shortfall from AIP discretionary grants or PFCs, including who will pay what amounts and when. Additional OMP costs or reductions in AIP

³ The total cost of the fourth runway is estimated at \$356 million. Of that, Dulles Airport is requesting \$207.8 million in AIP discretionary funds (58 percent of the total project costs), along with \$34.3 million in PFCs (9.6 percent of the total cost).

discretionary grants or PFCs will require the City to issue additional bonds to address the funding gap. For example, if the City's request for the entire \$300 million in AIP discretionary grants for Phase 1 is not approved, the City plans to issue additional bonds to cover the shortfall. According to the City, an additional \$300 million bond issuance would require estimated debt service payments of approximately \$24 million annually. These payments would ultimately be passed on to the airlines through increases in aircraft landing and terminal use fees. The airlines would in turn attempt to pass on these costs to the consumer. FAA will need to consider the impact of any funding shortfall from AIP discretionary grants or PFCs and the corresponding effect of fee increases on the airlines' cost per enplaned passenger before making the appropriate disclosures.

The Majority-In-Interest airlines⁴ have agreed to Phase 1, but their approval is contingent upon the City receiving \$300 million in AIP discretionary grants for the Phase 1 airfield projects. The Majority-In-Interest airlines are still negotiating with the City for approval of Phase 2, including the funding sources. FAA must exercise due diligence when reviewing the City's request for an LOI to ensure that the sources of funding are sufficient to handle the costs of Phase 1 and Phase 2 projects and that the funds are not otherwise committed or encumbered for other programs in O'Hare's Master Plan. We are making this point because FAA has legal obligations to assure that the project costs not paid for with AIP grants or PFC revenue will in fact be covered by non-Federal funds (such as airport-issued bonds) before approving the LOI for Phase 1.

FAA needs to fully and thoroughly carry out its legal obligation for approving and authorizing PFC and AIP grants. Under the PFC statute, FAA is required to make several findings before approving a PFC, including one that the proposed PFC will result in no more revenue than is necessary for financing the specific project. In July 2004, the United States Court of Appeals for the District of Columbia Circuit reversed FAA's approval of the City of Chicago's \$221 million PFC application for the preparation of the EIS at O'Hare, concluding that FAA had not fulfilled its legal obligation to analyze the cost.

The Court stated that, "FAA cannot simply declare its 'expertise' [in estimating costs]; it must exercise that expertise and demonstrate sufficiently that it has done so." Given that there could be future legal challenges to FAA's decisions on the O'Hare modernization project, it is important for FAA to

⁴ Majority-In-Interest is defined in the O'Hare Airport Use Agreement. During a fiscal year, the Majority-In-Interest is either (a) any five or more airline parties that together paid 60 percent or more of the preceding fiscal year's airport fees and charges or (b) any majority of airline parties that together paid 50 percent or more of the preceding fiscal year's airport fees and charges.

exercise due diligence in reviewing the City's request for an LOI, including the OMP financial plan, and any PFC applications the City submits to fund the OMP's design and construction projects. The Court's decision underscores the need for FAA to take corrective action and exercise due diligence in reviewing the financial plan.

In our opinion, now is the time for FAA to raise its level of review for projects the size and scope of the OMP. The City has provided the necessary information to allow the FAA to carefully scrutinize all aspects of and assumptions made in the OMP financial plan. Now, it is the responsibility of the FAA, like any prudent investor, to analyze the validity and reasonableness of the City's plan.

- ***Airspace Changes Must Be Implemented To Achieve and Sustain the Benefits of the OMP, but FAA Has Had Problems Making the Transition From Planning to Implementation.*** The planned benefits (reduction in delays and increase in operations) of the OMP airfield changes and other infrastructure changes are contingent upon FAA completing substantial changes to the airspace. In other words, for the public investment to yield the benefits as advertised, airspace changes must be implemented with the OMP airfield changes or else FAA may have to re-implement administrative controls to manage congestion at O'Hare.

By implementing *both* the OMP and the required airspace changes as opposed to doing nothing (not implementing the OMP and not making changes to airspace):

- In 2009 after the completion of Phase 1, the average daily delay per flight is forecasted to decrease from 15.9 minutes to 10.3 minutes and then to 5.0 minutes after the completion of Phase 2 in 2013.
- In 2009, the forecasted number of daily flight operations (arrivals and departures) increases from 2,750 to 2,987 and then to 3,169 in 2013.

Airspace changes are needed not only within a 40-mile radius of O'Hare but in other parts of the Great Lakes region: over 300 miles east to Cleveland, Ohio, and 400 miles northwest to Minneapolis, Minnesota.

Airspace changes required to support the OMP include designing new air traffic control sectors and routes, acquiring new radio frequencies, and purchasing and deploying radar and communication equipment. FAA needs to synchronize airspace changes with airfield improvements, sequence them in an order that maximizes the benefits from the airfield projects, and commit the necessary funding levels to support the airspace changes. The key now is

moving from planning to implementation, with implementation being the vulnerable point in FAA's past efforts to redesign airspace.

Our prior work⁵ has demonstrated that FAA has substantial difficulty moving from the planning stages of airspace redesign to execution due to (1) unreliable cost and schedules for the vast majority of airspace projects because FAA does not clearly identify what is needed to shift from project design to project implementation, (2) delays of 3 years or more in projects due in part to changes in project scope, and (3) lack of coordination between the designers of the airspace and the implementers of the changes. The problem in the case of O'Hare is that if FAA's airspace changes are not implemented in synchrony with the OMP airfield changes, the benefits of investing in the OMP will be greatly overstated.

With respect to the airspace redesign necessary for the OMP, FAA has established the Chicago Area Modernization Program Office to coordinate Agency efforts. This is an important step, but airspace changes not under the Program Office's jurisdiction, *outside of Chicago airspace* (east to Cleveland and northwest to Minneapolis), also need to be made to sustain expected downstream capacity increases and reductions in delays. These changes are critical and need to be in place by 2013.

The current cap on flight arrivals at O'Hare is set to expire in October 2005. FAA has proposed extending the cap on flight arrivals until 2008. According to FAA, the proposed extension to the cap on flight arrivals at O'Hare will gradually be relaxed as Phase 1 projects are completed and will be lifted entirely in 2008. However, if required airspace changes are not fully implemented, then O'Hare will not receive the long-term benefits of reducing delays and increasing capacity (or the benefits represented in the OMP Draft EIS) from an average of 19.2 minutes per flight in 2004 to an average of 5.0 minutes per flight in 2013, while expanding airfield capacity from an average of 2,712 flights per day in 2004 to 3,169 flights per day (peak month average) in 2013. If this is not achieved, FAA may have to continue to implement administrative controls to manage congestion at O'Hare. Our work has identified specific actions that FAA should take to ensure the planned airspace changes for the OMP are implemented.

AGENCY COMMENTS

On April 29, 2005, we provided FAA with a draft of this report. FAA provided us with a written response, and on May 26, 2005, the Deputy Associate

⁵ OIG Report Number AV-2005-059, "Airspace Redesign Efforts Are Critical To Enhance Capacity but Need Major Improvements," May 13, 2005. OIG reports can be found on our website: www.oig.dot.gov.

Administrator for Airports and other Agency officials met with us to discuss FAA's comments and our recommendations. After this meeting, FAA provided us with additional comments clarifying its actions taken or planned to address our recommendations.

FAA disagreed with some conclusions in the report. As stated in its comments, FAA does not agree with the implication that the OMP proposal (and FAA's role in regard to the proposal) is analogous to the "Big Dig." Our reference to the Big Dig is to illustrate that the OMP, like the Big Dig, is a large transportation project that requires an increased level of oversight of project costs and schedule. FAA also disagreed with the report's characterization of the City's AIP funding request of \$300 million for the OMP as "unprecedented." Only Denver has received over \$300 million in AIP discretionary funding, and this was to build the new Denver airport. FAA provided \$340 million in discretionary AIP funding for the construction of multiple runways at a new airport in Denver. However, the \$340 million was not a single LOI. The \$340 million consisted of a \$250 million LOI in discretionary funding and about \$90 million in pre-LOI AIP discretionary funds. Thus, we are not aware of, nor did FAA provide support for, any other single airport sponsor's LOI request or planned LOI request for a single grant of \$300 million in AIP discretionary funds for an existing airport.

In addition, in its comments, FAA disagrees with the implication that it is not exercising due diligence in analyzing the reasonableness and credibility of project costs and sources of funding for airport development projects. In our draft report, we identified the need for increased oversight of the OMP given the size and scope of the project and the potential for cost or schedule overruns. In its comments, FAA stated that in the past it has hired financial experts from the private sector to review requests for Federal funding for large and complex airport development projects in Seattle and St. Louis. Also, FAA stated it will hire an airport financing consultant to help analyze the benefits and costs, schedule, and proposed financing for both phases of the OMP. This analysis will include four tasks: (1) establishing the current financial situation at O'Hare, (2) analyzing financial impacts under the proposed OMP Phase 1, (3) analyzing financial impacts under the full OMP, and (4) reviewing the benefit-cost analysis. The analysis of financial impacts will include a sensitivity analysis examining the impact of delays in construction schedules, cost increases, and deviations from the City's requested LOI amount or payment schedule.

We would like to point out the importance of doing this review in terms of FAA's due diligence to ensure the OMP's costs, schedule, and sources of funding are realistic, reasonable, and credible. The City's estimate of \$6.6 billion (2001 dollars) is not likely to be the final cost of the OMP due to increases in construction costs since 2001, potential schedule changes, and less precision in

Phase 2 costs compared to Phase 1 costs. Also, FAA has been admonished by a Federal court for its financial review in the past. In 2004, the United States Court of Appeals for the District of Columbia Circuit reversed FAA's approval of the City of Chicago's \$221 million PFC application for O'Hare, concluding that FAA had not fulfilled its legal obligation to analyze the cost.

FAA generally agreed with our recommendations. As stated previously, FAA intends to hire a financial consultant to help in its review of the OMP's benefits and costs, schedule, and financing. Also, FAA stated that it will appoint a senior official to serve as a focal point within FAA's Air Traffic Organization to coordinate the execution and timing of planned airspace changes associated with the OMP implementation. To fully meet the intent of our recommendation, we believe FAA needs to appoint an official to oversee the airspace redesign with the proper responsibility and authority to decide what needs to be done and when it needs to be done and then direct FAA units to do it. We recognize that this may require someone that can cut across bureaucratic lines, has authority over the entire project, and can speak directly to the Administrator or Deputy Administrator of FAA.

In light of the importance of the actions FAA must take to ensure the success of the OMP, we intend to review FAA's and its consultant's actions from time to time. FAA's full response can be found in the Appendix.

BACKGROUND

Severe capacity constraints at O'Hare affect the efficiency of the entire National Airspace System. In the past 3 years, the percentage of delayed flight arrivals at O'Hare increased from 19 percent in 2002 to 27.9 percent in 2004, and the percentage of delayed flight departures increased from 18.4 percent in 2002 to 28.2 percent in 2004. Aviation delays and congestion have been a significant problem at O'Hare for more than 30 years. In 1985, FAA established allocation procedures for slots at O'Hare, including use-or-lose provisions and permission to buy and sell slots in a secondary market. In 2000, Congress relaxed the slot rules and phased them out entirely in 2002.

Since that time, recurring delays and congestion have caused FAA to intervene with an array of administrative actions to mitigate O'Hare congestion and prevent disruptions from cascading throughout the aviation system. FAA intervened three times in 2004 to get the airlines to reduce flight schedules. Administrative responses are not a desirable long-term solution to capacity constraints at O'Hare because prolonged regulatory intervention can restrict demand and inhibit competition.

There have been alternative proposals to solving capacity constraints at O'Hare and relieving congestion at both O'Hare and Chicago's Midway Airport, such as building a new airport or expanding smaller nearby airports. Plans to build a third airport have been on the drawing board since the 1980s. At one time, the Lake Calumet area on the southeast side of Chicago was considered as a location for a third airport. It was demonstrated in a study to be the most expensive and environmentally damaging of the sites evaluated. Subsequently, the Illinois Legislature failed to support development of an airport at the site.

Since 1991, the most likely site for a third airport has been near Peotone, Illinois, about 35 miles from downtown Chicago. FAA so far has provided \$8 million in funding for the Master Plan and EIS of what would be called the South Suburban Airport. The need or location of a third airport is not within the scope of this review. However, the financial plan and airspace redesign for the OMP will have some impact on how much Federal funding is available for other airport projects in the Chicago area and whether FAA can make additional airspace changes to accommodate a third Chicago area airport.

The OMP will be implemented in two phases over an 8-year period. In Phase 1, scheduled to be completed by 2009 at a cost of \$4.1 billion (62 percent of the OMP costs), the City plans to construct one new runway, relocate one runway, extend an existing runway, and mitigate noise (at a cost of \$2.6 billion); it will also construct radar facilities, an automated people mover, and a west satellite concourse (at a cost of \$1.5 billion). Over 90 percent of the design for the new runway has been completed, and over 50 percent of the design has been completed for the runway relocation and extension. In Phase 2, scheduled to be completed by 2013, the City plans to relocate two runways, extend one runway, and construct a new western terminal building at a cost of \$2.5 billion (38 percent of the OMP costs). Planning-level cost estimates (which by definition are less precise than final design estimates) for Phase 2 have been completed, with the final design scheduled to begin in 2006 and be completed in 2011.

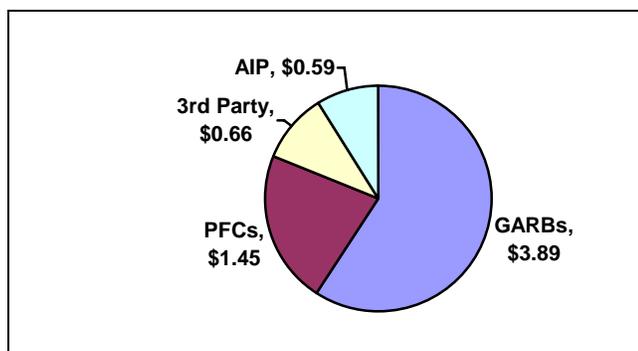
The Majority-In-Interest airlines—United Airlines, American Airlines, and 13 other airlines—are on the record as supporting the OMP and its phased implementation. They have agreed to Phase 1, but this approval is contingent upon the City receiving \$300 million in AIP discretionary grants for the Phase 1 airfield projects, which FAA must approve and Congress must appropriate.

The City is currently negotiating with the Majority-In-Interest airlines for approval of the OMP Phase 2, and it is not known at this time when or under what conditions the City will receive that approval. Phase 2 approval from the Majority-In-Interest airlines is contingent on the support of either United or American, the dominant carriers at O'Hare. Together, United (46 percent) and

American (32 percent) paid approximately 78 percent of O'Hare's airport fees and charges in FY 2003.

As shown in Figure 1, the City plans to fund the OMP through four sources: AIP funds, Federally authorized PFCs, General Airport Revenue Bonds (GARBs), and third-party financing.

Figure 1. Total OMP Funding Streams
(\$ in Billions)



Before the City can break ground on any of the OMP's runway projects, FAA must, by law, complete a review of the environmental impacts of the OMP. For the environmental review, FAA will produce two documents, an EIS and a Record of Decision. The EIS discloses and evaluates both the positive and negative effects, such as those on noise and air quality, of a project with potentially significant effects on the environment. A Record of Decision is FAA's official decision to provide environmental approval for a project to go forward, taking into consideration its environmental effects and any alternatives. FAA released its draft EIS in January 2005, held public hearings on it in February 2005, and plans to release a final EIS in July 2005, which will be followed by the release of its Record of Decision in September 2005.

FINDINGS AND RECOMMENDATIONS

The OMP, with a 2001 estimated price tag of \$6.6 billion, is one of the largest aviation infrastructure projects ever undertaken in the United States. It may be the most costly transportation project in the United States to date next to Boston's Central Artery/Ted Williams Tunnel project (the "Big Dig," which is estimated to cost \$14.6 billion when completed but was first estimated at \$2.6 billion). The City is projecting that approximately one-third of the OMP will be funded with FAA-approved PFCs and FAA-issued AIP grant funds. FAA will need to verify that the OMP's costs, schedule, and sources of funding are realistic, reasonable, and credible and that any known risks that could affect the cost and schedule of

the OMP are fully disclosed and considered. FAA must also implement the necessary airspace changes around O'Hare and outside the Chicago area to realize the capacity benefits (reduced delays and increased operations) of the airfield changes.

To Protect the Public's Investment in O'Hare, FAA Must Ensure That the OMP Financial Plan as Advertised Is Realistic, Reasonable, Credible, and Executable

Given the amount of taxpayer dollars at stake in the OMP, it is essential that FAA fulfill its statutory mandate to ensure, among other things, that the use of the PFC revenues is adequately justified. The Department has a statutory mandate to ensure that sufficient funding exists to complete a project before committing AIP discretionary funds to that project. Fulfilling these mandates will require FAA to proactively and aggressively analyze the reasonableness and validity of the OMP financial plan. We are making this point because FAA has the legal obligation to assure that the project costs not paid for with AIP grants or PFC revenue will in fact be covered by non-Federal funds (such as airport-issued bonds) before approving the LOI for Phase 1.

FAA needs to fully and thoroughly carry out its legal obligation for approving and authorizing PFC and AIP grants. Under the PFC statute, FAA is required to make several determinations before approving a PFC, including one that the proposed PFC will result in no more revenue than is necessary for financing the specific project.

In February 2003, FAA approved the City's application to use PFCs to fund a study on the environmental impacts of the OMP. At that time, FAA rendered a Final Agency Decision and approved a \$4.50 PFC to be used only for the portion of the Runway Formulation Project application involving work leading to the completion of the EIS. In total, FAA approved more than \$221 million in PFCs, half to be used for the environmental study and half for associated financing and interest costs. In July 2004, the United States Court of Appeals for the District of Columbia Circuit reversed FAA's approval of the City of Chicago's \$221 million PFC application for the preparation of the EIS at O'Hare, concluding that FAA had not fulfilled its legal obligation to analyze the cost.

The Court stated that, "FAA cannot simply declare its 'expertise' [in estimating costs]; it must exercise that expertise and demonstrate sufficiently that it has done so." Given that there could be future legal challenges to FAA's decisions on the O'Hare modernization project, it is important for FAA to exercise due diligence in reviewing the City's request for an LOI, including the OMP financial plan, and any PFC applications the City submits to fund the OMP's design and construction

projects. The Court's decision underscores the need for FAA to take corrective action and exercise due diligence in reviewing the financial plan.

Our review has highlighted a number of areas FAA must pay particular attention to so it can carry out its legal responsibilities for reviewing the OMP financial plan. Some of these are straightforward and common to the analysis of financial plans on any large infrastructure project. Other items have implications specific to the OMP. FAA will need to identify the interrelationships between cost, schedule, and funding and to assess the potential cascading effects of changes in any single component. The FAA should consider not only the stability of the financial plan for Phase 1, but also the reasonableness of the overall OMP financial plan because the full benefits of the project are reached only upon completing both phases of the OMP.

Current OMP Costs Estimates Are a Baseline, Which Will Need To Be Adjusted Upward. The City's estimate of \$6.6 billion for the entire OMP is in 2001 dollars. We have recently seen estimates for the OMP prepared by the City ranging from \$7.1 billion to \$8.0 billion when costs are stated in escalated dollars, (this excludes O'Hare's Capital Improvement Program estimated at \$4.1 billion and the World Gateway Program estimated at \$2.6 billion). Projections made in 2001 dollars are not likely to reflect the actual cost of the OMP, as the costs of labor and materials have increased since 2001, especially in the construction industry. For example, the cost of iron and steel has increased nearly 48 percent between 2001 and June 2005. These increases in cost are not reflected in the \$6.6 billion estimate. This is a matter FAA should review, and the Agency should ensure the costs of the OMP are stated in escalated dollars and reflect any known or reasonably expected increases in construction costs.

Cost Estimates for Phase 2 Are Less Precise and More at Risk for Increases. In 2001, the City estimated that Phase 2 projects would cost \$2.5 billion. The City does not plan to start final design for Phase 2 until 2006, with construction planned to begin in 2009. Planning-level cost estimates (which by definition are less precise than final design estimates) for Phase 2 have been completed, with the final design scheduled to begin in 2006 and be completed in 2011. Given that the estimate of \$2.5 billion is in 2001 dollars and final design has not been completed, the final cost of Phase 2 will likely be higher. FAA will need to evaluate the risk to cost estimates due to changes in project scope, final engineering changes, labor and material cost increases, and other factors and then disclose their potential effect on the cost of the OMP.

OMP Phase 1 Schedule Delays Could Increase the Cost of the OMP. The City planned that FAA would approve the OMP by mid-2004 so that construction could begin on Phase 1 projects. The City had also planned for the first new runway under Phase 1 to be operational by the start of 2007, with all of Phase 1 completed

by the start of 2009. Although these plans have been delayed by more than a year (until at least September 2005, when FAA is expected to issue its Record of Decision), the City still expects to meet the original milestone schedule. We believe that the Phase 1 schedule, while aggressive, can still be met assuming that FAA issues the Record of Decision in September 2005 and that construction begins immediately thereafter. We based this on our analysis of recent runway projects at other airports and on the assumption that construction is not further delayed by lawsuits or injunctions.

Further delays in the OMP construction schedule could occur as a result of a court order or injunction from ongoing and possible future lawsuits filed by groups opposed to the OMP. For example, there are two cemeteries that the City plans to relocate to complete the OMP, and the owners are suing the City to prevent the removal of these cemeteries. Under court order, the City in July 2003 agreed not to acquire the cemeteries unless and until FAA issues its Record of Decision. The FAA anticipates additional lawsuits as the environmental review progresses. As such, FAA must ensure that the schedule is realistic and takes into account any known risks that could affect the Phase 1 and Phase 2 project milestones.

A Substantial Part of the OMP Funding Must Be Approved by Congress or FAA. The City is planning on receiving a sizable Federal investment for the OMP, with approximately \$2 billion coming from FAA-approved PFCs (\$1.45 billion), AIP entitlement funds (\$66 million), and AIP discretionary grants (\$528 million). The City is assuming that Congress will raise the PFC maximum charge from \$4.50 per enplaned passenger to \$6.00 by 2011. If the increase is not authorized, the City will be overstating its PFC collections by nearly \$241 million for the 4-year period from 2011 through 2014.

The City is planning to receive an unprecedented \$528 million in AIP discretionary grants to complete the OMP (\$300 million for Phase 1 and \$228 million for Phase 2). In addition, the City plans to request another \$248 million in AIP discretionary grants to finance its Capital Improvement Program over the next 20 years. If all of the City's requests are granted, the AIP discretionary grants it receives for currently planned projects over the next 20 years would total \$776 million.

According to FAA, \$300 million is an unusually large request for AIP discretionary grants. As of September 2004, FAA had 30 LOIs with total payments of \$917 million in discretionary grants spread over the next 11 years. By law, FAA can only use 50 percent of AIP discretionary funds for LOIs. This issue is particularly important given that FAA's budget request of \$3 billion in AIP funding for FY 2006 is \$472 million (15.7 percent) less than in FY 2005. Therefore, it is unlikely the City can receive \$30 million each year for 10 years.

Furthermore, there will be competing interests for AIP discretionary grants in the near future as other airports begin planning large modernization programs. For example, as part of its \$3 billion expansion program, Washington-Dulles International Airport requested \$208 million in AIP discretionary grants for a new runway project in February 2005. In addition, the Los Angeles International Airport recently announced an \$11 billion modernization plan, for which we understand the airport may request a significant AIP discretionary grant.

FAA Needs To Ensure the City Has Adequately Disclosed How It Plans To Cover Any Funding Shortfalls and That the Funds Are Not Otherwise Encumbered. If any shortfalls in funding or increases in project costs materialize, the City has indicated it plans to make up the funding/cost difference by issuing additional bonds. For example, if the City's request for the entire \$300 million in AIP discretionary grants for Phase 1 is not approved, the City plans to issue additional bonds to cover the shortfall but only after approval by the Majority-In-Interest airlines. According to the City, an additional \$300 million bond issuance would require debt service payments of approximately \$24 million annually, payments that would ultimately be passed on to the airlines through increases in aircraft landing and terminal use fees. The airlines would in turn attempt to pass on these costs to the consumer.

FAA will need to consider the impact of any funding shortfall from AIP discretionary grants or PFCs and the corresponding effect of fee increases on the airlines' cost per enplaned passenger before making the appropriate disclosures. FAA must also ensure that the sources of funding are enough to handle the expected cash flow needed to pay for Phase 1 and Phase 2 projects and that the funds are not otherwise committed or encumbered currently or in the future for other programs in O'Hare's Master Plan.

Both Phase 1 and Phase 2 Must Be Completed To Get the Full Benefit of the OMP. The Majority-In-Interest airlines have agreed to the Phase 1 business plan. However, their final approval is contingent on the City receiving \$300 million in AIP discretionary grants for the OMP. If the AIP funds are not granted, the City will have to renegotiate approval of Phase 1 with the airlines.

The Majority-In-Interest airlines are still in negotiations with the City for approval of Phase 2, including the funding sources. Majority-In-Interest rights allow dominant carriers to delay—or cancel—Phase 2 projects. Given the uncertain economic outlook of the airline industry, there is no guarantee that all of the projects planned for Phase 2 will be approved. If Phase 2 is not completed as planned, the full benefit of the OMP in reducing the average time of delay (down to an average of 5 minutes per flight by 2013) and increasing capacity (an average daily increase of 419 departures and arrivals combined) will not be realized.

The current cap on flight arrivals at O'Hare is set to expire in October 2005. FAA has proposed extending the cap on flight arrivals until 2008. According to FAA, the proposed extension to the cap on flight arrivals at O'Hare will gradually be relaxed as Phase 1 projects are completed and will be lifted entirely in 2008. However, if Phase 2 is not completed as planned, the lifting of the cap on flight arrivals may be short-lived because Phase 1 infrastructure improvements alone will not provide the necessary airfield capacity to handle the estimated 1.5 percent increase each year in flight operations forecasted by FAA. Accordingly, if Phase 2 is not completed, FAA may have to re-implement administrative controls that could again limit demand and inhibit competition at O'Hare.

Airspace Changes Must Be Implemented To Achieve and Sustain the Benefits of the OMP, but FAA Has Had Difficulty Making the Transition From Planning to Implementation

FAA and Mitre⁶ analyses show that building new runways by themselves will have minimal impact on the congestion and delay problems at O'Hare. Airspace changes in and around the Chicago area are critical to relieving congestion at O'Hare and realizing the full benefits of the OMP, although the analysis has not been completed to finalize the costs and resource requirements in making these airspace changes.

Reductions in Delays and Increases in Capacity at O'Hare Depend on Both the OMP Airfield Changes and Airspace Redesign. FAA and the City used simulation modeling to assess operational delay and travel times associated with implementing all the necessary redesign plans. Figure 2 and Figure 3 show the difference between implementing the OMP and required airspace changes and doing nothing.

⁶ The Mitre Corporation functions as FAA's Federally funded research and development center.

Figure 2. Average Minutes of Delay per Flight: With and Without OMP

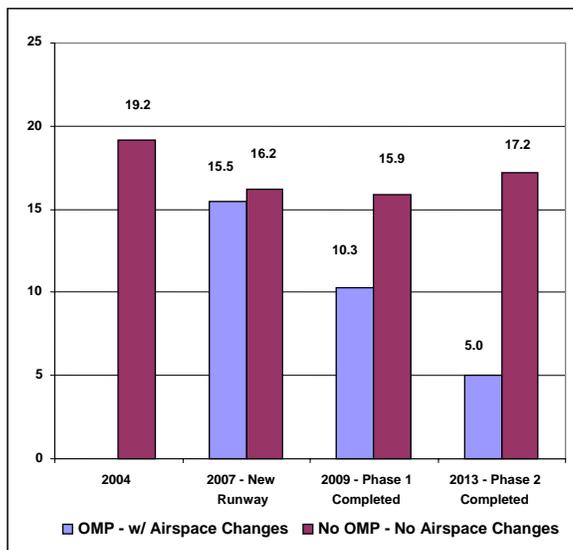
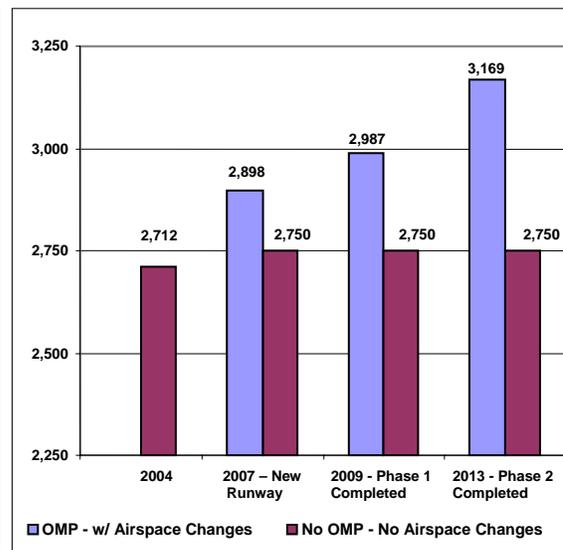


Figure 3. Average Daily Flight Operations: With and Without OMP



Source: Total Airspace and Airport Modeler for 2007 – 2013 data. FAA's Aviation System Performance Metrics and Air Traffic Activity Data System for 2004 data.

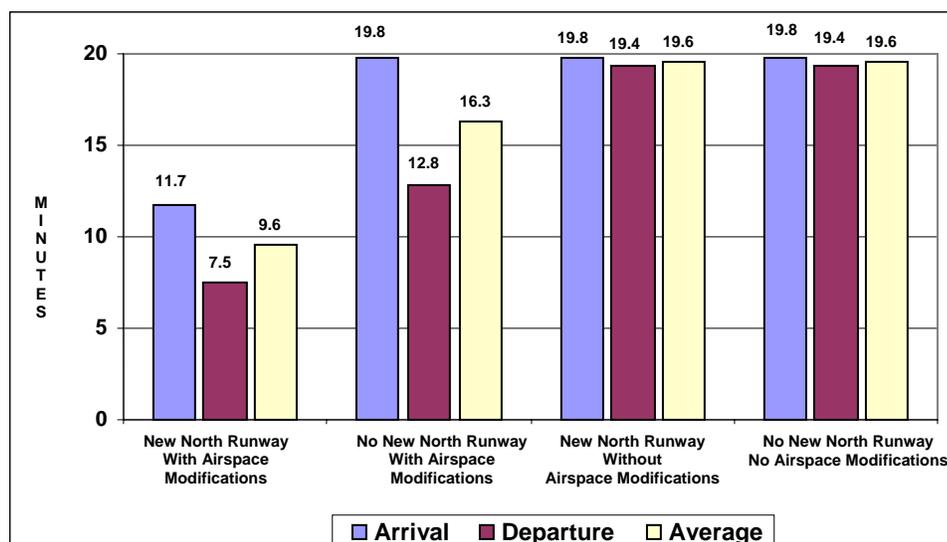
Note: 2004 figures include the effect of flight caps effective as of November 1, 2004.

- The average forecasted delay per flight decreases from 15.9 minutes to 10.3 minutes at the completion of Phase 1 in 2009 and to 5.0 minutes at the completion of Phase 2 in 2013.
- The forecasted daily flight operations (arrivals and departures) increase from 2,750 to 2,987 in 2009 and to 3,169 in 2013 (peak month average daily flights).

To further demonstrate the need for both airfield and airspace changes, Mitre conducted a study that showed how increasing capacity and reducing delays at O'Hare depend on both the OMP airfield changes and airspace redesign in and around the airport. Mitre concluded that without the proposed first new runway, arrival delays will continue to be excessive; and without the proposed airspace changes, the benefits of the proposed first new runway will be very limited.

As shown in Figure 4, in 2007 the greatest reduction in delays occurs with the Phase 1 new north runway operational and the associated airspace redesign completed.

Figure 4. Average Minutes of Delay: New North Runway Versus No Action Option With and Without Airspace Changes, 2007



Source: FAA's presentation of data from the Mitre Corporation

- A combination of airfield and airspace changes provides for more than a 50 percent reduction in the average minutes of delay per flight from 19.6 to 9.6 minutes.⁷
- Airspace changes alone provide little relief in the average minutes of delay per flight—16.3 minutes—when compared to “do nothing” at an average delay of 19.6 minutes per flight.
- Runway changes alone provide no relief in the average minutes of delay per flight—19.6 minutes—when compared to “do nothing,” also at an average delay of 19.6 minutes per flight.

FAA has completed the majority of planning for the airspace redesign necessary to accommodate Phase 1. FAA has identified the airspace changes needed in the Chicago Air Route Traffic Control Center and the Chicago Terminal Radar Approach Control facility airspace from 10 to 200 miles out from O'Hare. FAA plans to add four new sectors,⁸ four new routes, and the accompanying air traffic control procedures. FAA has also identified the equipment and resources needed to support these airspace changes—the key now is moving from planning to

⁷ Mitre's delay minutes are slightly different from FAA's delay minutes in Figure 2 because Mitre used more limited operational conditions in its model. Mitre's calculations of delay are based on: (1) flights occurring in good weather conditions with only two to three heavily used runway operating configurations versus the five primary runway configurations used by FAA, and (2) daytime-only flight schedules versus full-day flight schedules used by FAA.

⁸ FAA divides airspace into sections called “sectors.” Air traffic controllers are assigned certain sectors of airspace in which to monitor planes.

implementation, with implementation being the vulnerable point in FAA's efforts to redesign airspace. To achieve maximum operational benefits, airspace changes are needed in other en route facilities in other cities, specifically Cleveland, Indianapolis, and Minneapolis. These efforts are being pursued under a separate initiative known as National Airspace Redesign. FAA has not yet finalized the cost and resource requirements for making these airspace changes.

FAA's Airspace Redesign Efforts Often Face Significant Delays When Making the Transition From Planning to Implementation. A strong, direct, and unambiguous link connects the benefits of the airfield investments to the redesign of airspace at O'Hare and surrounding areas. Our work on FAA's National Airspace Redesign efforts shows FAA has significant problems in making the transition from planning to implementation. It is important that these problems do not recur at O'Hare. If FAA's airspace changes are not implemented in synchrony with the OMP airfield changes, the benefits of investing in the OMP will be greatly overstated. Specifically, our work found that:

- Cost and schedules for the vast majority of airspace projects are not reliable because they do not clearly identify what is needed to shift a project from the design phase to implementation. FAA could not—nor could we—determine the cost in FY 2004 of implementing 42 active projects we reviewed.
- Projects have been delayed 3 years or more because of changes in scope, environmental issues, or problems in developing new procedures for more precise arrival and departure routes. For example, the San Francisco Bay to Los Angeles Basin Redesign project (focused on high-altitude routes in the region and navigating airspace managed jointly by FAA and the Department of Defense) slipped from a 2003 target date to 2008 due to problems developing new procedures, problems acquiring equipment, and changes to project scope.
- Project efforts are not effectively coordinated among FAA stakeholders or linked to FAA's budget process. Coordination is ineffective between the designers of the airspace and the implementers of the changes. For example, 19 of the 42 approved projects in FY 2004 had unresolved resource or equipment issues.

The establishment of the Chicago Area Modernization Program Office to coordinate Agency efforts is an important step. However, airspace changes also need to be made *outside of Chicago airspace* (over 300 miles east and over 400 miles northwest) to sustain expected downstream capacity increases and reductions in delays. These changes are critical and need to be in place by 2013.

Implementing the Airspace Changes To Accommodate the OMP Is a Complex Effort That Has Significant, Yet Not Fully Defined, Resource Implications for FAA. To get the benefits of Phase 1 and reduce the average minutes of delays per flight by almost 50 percent, FAA *must modify* the airspace in the Great Lakes region, including airspace around Chicago; South Bend, Indiana; and Milwaukee, Wisconsin. To do so, FAA needs to add four new sectors and four new departure routes, acquire additional radio frequencies, purchase and deploy radar and communication equipment, and train air traffic controllers assigned to the new sectors. Although FAA has identified the necessary costs and resources for the airspace changes needed to accommodate Phase 1, the key now is moving from planning to implementation.

Also, to implement the Phase 1 airspace redesign, the Chicago Air Route Traffic Control Center will divest some current airspace to Terminal Radar Approach Control facilities in South Bend and Milwaukee. According to FAA, additional internal adjustments of the Chicago Air Route Traffic Control Center's airspace are also required. Although such airspace exchanges are relatively straightforward from a conceptual perspective, FAA has had difficulty managing them in the past.

To ensure that proposed airspace changes move forward, the Chicago Area Modernization Program office needs to finalize and submit to FAA's Air Traffic Organization its proposal for approval and funding the airspace changes needed to support the Phase 1 projects. In turn, the Air Traffic Organization needs to approve the proposal and commit to the necessary funding levels for the Phase 1 airspace redesign changes. Once approved, airspace design activities need to be prioritized and key milestones and target completion dates established so that they coincide with the OMP runway project milestones and target completion dates.

To get all the associated benefits from the OMP as currently envisioned, FAA also needs to complete the OMP airspace redesign for the Chicago area by *adding sectors* to O'Hare airspace. As many as five additional sectors need to be established to the west and north of O'Hare by 2013. Maximizing the full benefits of the OMP will reduce arrival and departure delays to an average of 5 minutes per flight, while at the same time increasing daily arrivals and departures by an average of 15 percent (or an average daily total of 419 arrivals and departures combined).

The exact extent of the airspace redesign may ultimately change from the current plan of five new sectors due to advancements in technology or other factors affecting management of airspace. The work to date on this effort is still in the conceptual stage, and FAA needs to conduct technical analyses to determine the feasibility of implementing this airspace redesign in terms of the availability of frequencies, staff, and equipment.

We note that a number of airspace changes need to be made outside of Chicago airspace that are important to sustain the expected benefits of the OMP. When new departure routes are added to O'Hare, the airspace around Cleveland and Indianapolis will have to be modified to allow these Air Route Traffic Control Centers to accept increased departures from O'Hare. These efforts are outside the scope of the Chicago Area Modernization Program Office. According to Mitre, proposed sector and routing changes in the Cleveland and Indianapolis Centers will sustain the benefits of the Chicago area redesign projects. FAA plans to add two new sectors to the Cleveland Center and three new sectors to the Indianapolis Center.

FAA has not yet finalized the costs and resource requirements for making these airspace changes. FAA needs to identify the resources that will support the airspace changes (i.e., additional radio frequencies, communication equipment, and staffing levels).

RECOMMENDATIONS

Prior to approving the City's request for \$640 million in PFCs and \$300 million in AIP discretionary grants for Phase 1 or any PFC or AIP grants for Phase 2, the Federal Aviation Administrator needs to ensure that the public's investment in the project is protected by reviewing the OMP financial plan and determining that:

1. The benefits and costs represented in OMP Phase 1 and Phase 2 are fully disclosed and considered and that the costs are realistic, reasonable, credible, executable, and stated in escalated dollars reflecting any projected increase in the cost of labor and materials.
2. The schedule is realistic and takes into account any known risks that could affect Phase 1 and Phase 2 project costs and milestones.
3. Funding sources—AIP, PFC, third-party financing, and bonds—are fully disclosed, can handle the expected cash flow needed to pay for Phase 1 and Phase 2 projects, and are not otherwise committed or encumbered for the O'Hare Capital Improvement Program or World Gateway Program.

FAA also needs to develop an overall airspace redesign implementation plan, with incremental phasing of the proposed changes that is carefully synchronized with the proposed OMP airfield changes. Specifically, the Federal Aviation Administrator needs to:

4. Appoint one senior official with overall responsibility for airspace redesign who can direct the planning, resources, budget, schedule, and implementation of airspace changes necessary to support the OMP.

5. Develop a schedule that synchronizes implementation of airspace changes with airfield changes and send to Congress a budget linked to this schedule that identifies the timing and cost of all the necessary equipment and other resources needed to complete the OMP airspace changes, including the airspace changes outside the Chicago area that further enhance the OMP.
6. Prioritize its airspace changes with the OMP airfield improvements and sequence them in an order that maximizes the benefits from the airfield projects.

AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

We sent a draft copy of this report to FAA on April 29, 2005. On May 20, 2005, FAA provided us with its formal written response. On May 26, 2005, we met with the Deputy Associate Administrator for Airports and other Agency officials to discuss FAA's comments and response to our recommendations. After this meeting, FAA provided us with additional comments clarifying its actions taken or planned to address our recommendations.

While FAA disagreed with some conclusions in the report, the Agency agreed with our recommendations and if FAA conducts its planned actions in the manner it has stated in its written comments, its actions will be responsive to our recommendations. In light of the importance of the actions FAA must take to ensure the success of the OMP, we intend to review FAA's and its consultant's actions from time to time. FAA's full response can be found in the Appendix. FAA's response to the draft report recommendations is summarized below.

Recommendations 1, 2, and 3. In order to accomplish the recommended analysis, FAA will hire an airport financing consultant to help analyze the benefits and costs, schedule, and proposed financing for both phases of the OMP. This analysis will include four tasks: (1) establishing the current financial situation at O'Hare, (2) analyzing financial impacts under the proposed OMP Phase 1, (3) analyzing financial impacts under the full OMP, and (4) reviewing the benefit-cost analysis. The analysis of financial impacts will include a sensitivity analysis examining the impact of delays in construction schedules, cost increases, and deviations from the City's requested LOI amount or payment schedule. Should the OMP ultimately be approved by the FAA in its Record of Decision, FAA expects to reach a decision on the LOI for OMP Phase 1 shortly after completion of the Record of Decision planned for September 2005. FAA stated that it plans to document its findings about the recommendations at that time.

We would like to point out the importance of doing this review in terms of FAA's due diligence to ensure the OMP's costs, schedule, and sources of funding are realistic, reasonable, and credible. The City's estimate of \$6.6 billion (2001 dollars) is not likely to be the final cost of the OMP due to increases in construction costs since 2001, potential schedule changes, and less precision in Phase 2 costs compared to Phase 1 costs. Also, FAA has been admonished by a Federal court for its financial review in the past. In 2004, the United States Court of Appeals for the District of Columbia Circuit reversed FAA's approval of the City of Chicago's \$221 million PFC application for O'Hare, concluding that FAA had not fulfilled its legal obligation to analyze the cost.

Recommendations 4, 5, and 6. FAA stated that development of an airspace redesign implementation plan to address the recommendation is underway. Also, FAA stated it will designate a focal point within the FAA Air Traffic Organization to coordinate the execution and timing of planned airspace changes associated with OMP implementation. To fully meet the intent of our recommendation, we believe FAA needs to appoint an official to oversee the airspace redesign with the proper responsibility and authority to decide what needs to be done and when it needs to be done and then direct FAA units to do it. We recognize that this may require someone who can cut across bureaucratic lines, has authority over the entire project, and can speak directly to the Administrator or Deputy Administrator of FAA.

FAA provided additional responses to our recommendations in a document that was attached to its May 20, 2005 written comments containing its suggested text changes to the draft report. Due to the length of the document, it is not included in this report. We did incorporate FAA's text changes as deemed necessary. In the document, FAA stated that it is currently developing a detailed schedule to ensure that airspace redesign efforts are timed, budgeted, and funded in synchrony with the City's OMP construction schedule. Also, FAA stated that costs associated with airspace changes beyond Chicago are being developed in concert with the OMP requirements. In addition, FAA stated that the necessary airspace changes have been prioritized to provide the most benefit to the phased OMP airfield construction.

While these actions are responsive to our recommendations, we are requesting that FAA provide us with: (1) an estimated target date for developing an airspace redesign implementation plan, (2) an estimated target for when an official will be appointed to oversee airspace redesign implementation for the OMP and what level of authority and responsibility the official will be given in the organization, (3) an estimated target date for when the airspace changes schedule and associated budget will be finalized, and (4) support that the airspace changes have been prioritized to provide the most benefit to the phased OMP airfield construction.

In addition to its response on our report recommendations, FAA also made general comments about its view of our report conclusions. FAA stated it disagreed with the (1) comparative reference of the OMP proposal to the Big Dig; (2) characterization of the City’s AIP funding request for the OMP as “unprecedented”; and (3) assertion that FAA does not have an adequate process for assessment of cost, schedule, and sources of funding for airport development projects.

- Comparative Reference of the OMP Proposal to the Big Dig. As FAA stated in its comments, “FAA does not agree with the implication that the OMP proposal (and FAA’s role in regard to the proposal) is analogous to the ‘Big Dig’ ” and further requested that the reference to the Big Dig be deleted from the report. Our reference to the Big Dig is to illustrate that the OMP, like the Big Dig, is a large transportation infrastructure project that will have a substantial public investment that FAA must protect through an increased level of oversight of project costs and schedule. We also point out that the OMP is one of the first projects of its kind for an existing airport in terms of cost, magnitude, and complexity and that the \$6.6 billion price tag that is being advertised today is not likely to be the actual cost of the OMP. Therefore, FAA’s role in regards to the OMP should be to provide a higher level of scrutiny over the project’s costs, schedule, and sources of funding.
- Characterization of the City’s AIP Funding Request for the OMP Is “unprecedented.” In our report, we stated that the City is requesting an unprecedented amount of AIP discretionary funds for Phase 1—\$300 million or \$30 million each year for 10 years. The City is requesting this \$300 million from FAA through a single LOI. In its comments, FAA indicated that while \$300 million in discretionary funds is large, it is not out of line with AIP funding commitments made to other large airport development projects (e.g., Detroit, Denver, and St. Louis). Only Denver has received over \$300 million in AIP discretionary funding, and this was to build the new Denver airport. FAA provided \$340 million in discretionary AIP funding for the construction of multiple runways at a new airport in Denver. However, the \$340 million was not a single LOI. The \$340 million consisted of a \$250 million LOI in discretionary funding and about \$90 million in pre-LOI AIP discretionary funds. Thus, we are not aware of, nor did FAA provide support for (see Attachment 2 to FAA’s June 15, 2005 written comments in the Appendix in this report), any other single airport sponsor’s LOI request or planned LOI request for a single grant of \$300 million in AIP discretionary funds for an existing airport. We are also not aware of any single airport sponsor’s multiple LOI requests for more than \$528 million in AIP discretionary funds, which represents the City’s total planned LOI requests for AIP discretionary funds for

Phase 1 and Phase 2. Therefore, we continue to believe the City's LOI request is unprecedented.

- Assertion That FAA Does Not Have an Adequate Process for Assessment of Cost, Schedule, and Sources of Funding for Airport Development Projects. In its comments, FAA disagrees with the implication that it is not exercising due diligence in analysis of the reasonableness and credibility of project costs and sources of funding. In our draft report, we identified the need for increased oversight of the OMP given the size and scope of the project and the potential for cost or schedule overruns. In its comments to our draft report, FAA provided us with additional information on this issue, including its use of private sector financial consultants to review large and complex airport development projects in the past and its plan to use a financial consultant to review the benefits and costs of the OMP. FAA's plan to conduct a financial review of the OMP with a financial consultant appears to be adequate if the reviews are conducted as stated in its written comments.

ACTIONS REQUIRED

In accordance with Department of Transportation Order 8000.1C, we would appreciate receiving target dates for planned actions to be taken for Recommendations 4 and 5 and evidence of actions taken for Recommendation 6 within 30 calendar days. You may provide alternative courses of action that you believe would resolve the issues presented in this report.

We appreciate the courtesies and cooperation of FAA representatives during this review. If you have any questions concerning this report, please call me at (202) 366-1959 or David A. Dobbs, Assistant Inspector General for Aviation and Special Program Audits, at (202) 366-0500.

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cc: The Secretary
Deputy Secretary
Chief of Staff
FAA Deputy Administrator
FAA Chief of Staff
Anthony Williams, ABU-100
Martin Gertel, M-1

EXHIBIT A. SCOPE AND METHODOLOGY

The audit was conducted from March 2004 to April 2005. We conducted our review in accordance with Generally Accepted Government Auditing Standards prescribed by the Comptroller General of the United States.

We initiated our review in response to the request from Representative Henry J. Hyde and former Senator Peter G. Fitzgerald to examine FAA's process for reviewing and approving the City's OMP. In their request, Representative Hyde and Senator Fitzgerald expressed concerns about (a) whether FAA's process for reviewing the OMP was fair, open, and transparent to all interested parties; (b) the financial viability of the OMP; (c) technical issues involving the airspace around O'Hare; and (d) whether specific guidelines were being met for system and master planning at O'Hare.

On June 16, 2004, we met with Senator Fitzgerald and his staff and agreed to focus our review on the status of FAA's work on the OMP EIS; FAA's process for verifying the reasonableness and credibility of the OMP costs, schedule and sources of funding; and FAA's actions taken and needed for completing substantial changes to the airspace to accommodate the OMP.

We did not assess the EIS process during this review, since there is a well-established Federal environmental review process that involves the collaboration and coordination of several Federal agencies, state and local authorities, and public-interest groups representing communities surrounding O'Hare.

To obtain information on all aspects of FAA's involvement with the system and master planning at O'Hare, we held extensive discussions with officials at FAA's Chicago Area Modernization Program Office, the office responsible for overseeing FAA's role in the O'Hare Modernization Program. Over the course of our review, we met on several occasions with FAA's staff responsible for (1) conducting the environmental review of the OMP, (2) reviewing O'Hare's Master Plan and Airport Layout Plan, (3) overseeing the work on the Total Airport and Airspace Modeler (TAAM) computer model, and (4) budgeting and managing airspace redesign for O'Hare. We also reviewed the City's Airport Layout Plan, Master Plan, and airspace redesign budget and plans and viewed computer simulation modeling of the TAAM for the OMP. We also met with the FAA Great Lakes Regional Administrator and officials from the region's Airports Division and Flight Procedures Office. We toured the airport to view where proposed OMP development would take place. We also visited the surrounding neighborhoods to view the land the City plans to acquire to support the OMP.

In reviewing the financial viability of the OMP, we held extensive discussions with City officials, including the Executive Director and key staff of the O'Hare Modernization Program and the City's OMP consultant. We reviewed O'Hare's Master Plan, financial statements for the years ended December 31, 2002 and 2003, the OMP Financial Plan as submitted in the City's Request for a LOI for AIP discretionary funds, supplemental documentation provided by the City in support of the LOI, and GARB prospectuses. We also met with the staff from FAA's Airports Financial Assistance Division and the Financial Analysis and Passenger Facility Charge Branch. We reviewed relevant laws and regulations related to PFC and AIP funding for airport development.

To understand the technical issues involving airspace changes in and around O'Hare, we met with officials in the Air Traffic Organization, including the Vice President of Transition, the Director of System Operations and Safety, the Director of Spectrum Management, and key staff. We also met with FAA officials in the Chicago Air Traffic Route Control Center, the Chicago Terminal Radar Approach Control facility, and the O'Hare Control Tower. We reviewed FAA's airspace redesign plans, including the *FAA Flight Plan*, the *Operational Evolution Plan*, and the *Great Lakes Region National Airspace Redesign Integrated Design Plan*. We also reviewed the results of the TAAM computer model for the OMP and additional documentation provided by Mitre regarding airspace changes necessary to support the OMP. We did not assess the validity of the information in the City's, FAA's, and Mitre's computer modeling for the airspace redesign, including the TAAM.

We also met with the mayors of surrounding communities, groups opposed to the OMP, law firms representing persons opposed to the OMP, and representatives of businesses in favor of the OMP.

EXHIBIT B. PROGRAM COMPONENTS OF O'HARE'S MASTER PLAN

O'Hare's Master Plan outlines projects and funding sources over the next 20 years that will allow the airport to meet future demand. The Plan represents all that *could* be built at O'Hare and not what *must* be built. The Plan gives the airport and the airlines flexibility to determine which projects move forward and when, based on market demand and the approval of the airlines servicing O'Hare.



The Airport Capital Improvement Programs funds are essentially repair and replacement programs, usually consisting of short-term (5-year) maintenance improvements and long-term maintenance improvements. Resurfacing an existing runway is an example of a maintenance improvement under the Capital Improvement Program. O'Hare's Capital Improvement Program, estimated to cost more than \$4 billion projected over 20 years, will be implemented with or without the World Gateway Program and the O'Hare Modernization Program or any other future airport development project. O'Hare's annual operation and maintenance expenditures, such as snow removal and regularly scheduled escalator and elevator maintenance, are not part of O'Hare's Capital Improvement Program.

The World Gateway Program, estimated to cost more than \$2.6 billion in 1999 dollars, would allow the airport to build additional gate capacity through construction of two new terminals—Terminal 6 and Terminal 4. To accommodate traffic at the new terminals, Concourse K will be extended, new taxiways will be constructed, and existing taxiways will be reconfigured. Terminal 6 will have space for 18 aircraft, and Terminal 4 for 13. In December 2000, the City began work on the development of the Program, but work was suspended in September 2002 because of changes in the industry and economy. Market demand will guide the World Gateway Program's future development.

EXHIBIT C. OMP FUNDING STREAMS AND APPROVAL PROCESS

The City plans to fund the OMP through five sources as are shown here:

General Airport Revenue Bonds (59 percent)	Passenger Facility Charges (22 percent)	Third-Party Financing (10 percent)	AIP Discretionary Funds (8 percent)	AIP Entitlement Funds (1 percent)
\$3.894 Billion	\$1.452 Billion	\$660 Million	\$528 Million	\$66 Million

Financing includes GARBs, PFCs, third-party financing, and AIP entitlement and discretionary funds.

- GARBs are bonds backed by the revenues generated by the airport, such as airline rates and charges. The City must get approval from O'Hare's Majority-In-Interest airlines to issue GARBs.
- PFCs are imposed on air travelers to help finance eligible airport-related projects, such as new runways. An airport sponsor can collect a PFC of up to \$4.50 per passenger flight segment with an \$18 limit on a round-trip ticket.

The City must consult with the airlines servicing O'Hare when requesting a PFC and must get approval and authorization from FAA to collect and use PFCs. Only Congress can authorize an increase in PFCs above the current \$4.50 per passenger flight segment.

- Under third-party financing, the debt service on bonds issued to pay for the western terminal facility proposed in the OMP would be paid by revenues generated by the terminal. The City must get approval from O'Hare's Majority-In-Interest airlines to seek third-party financing for the western terminal facility if it affects the airlines' rates and charges.
- AIP entitlement funds are allocated to primary airports, cargo service airports, and states based on statutory provisions and are calculated using specific formulas. AIP discretionary funds are the funds that remain after entitlements are allocated. FAA approves and authorizes the use of AIP discretionary funds.



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

Memorandum

Subject: **INFORMATION**: FAA's Response to the Office
of Inspector General's Draft Report: Chicago's
O'Hare Modernization

Date:

MAY 20 2005

From: Assistant Administrator for Financial Services and
Chief Financial Officer

Reply to
Attn. of:

To: Assistant Inspector General for Aviation and
Special Programs Audits

This memorandum is provided in response to the subject report. The FAA has reviewed the draft OIG document. The paragraphs below contain an overview of some substantive issues addressed in our comments, as well as a synopsis of our response specifically regarding the recommendations contained in the draft report. Additionally, we have attached an edited copy of the draft report that conveys, in detail, all FAA comments and suggested changes to the text of the report.

In general, we concur with the recommendations outlined in the draft report (see below). However, we believe that there are some substantive issues that must be highlighted and resolved in order to ensure the information contained in the report is accurate and to clarify the scope of the report's recommendations. The following paragraphs summarize some of the key issues that the FAA believes warrant further discussion.

Comparative reference of the O'Hare Modernization Program (OMP) proposal to Boston's Central Artery/Ted Williams Tunnel project (also known as the "Big Dig" project): The OIG draws a comparison in its draft report between the OMP proposal and the "Big Dig." The FAA does not agree with the implication that the OMP proposal (and FAA's role in regard to the proposal) is analogous to the "Big Dig." First, the FAA's share of Phase 1 of the overall OMP would be less than percent of the projected Phase 1 project cost, with the vast majority of the project cost and risk to be borne by the local airport sponsor and private investors (via general airport revenue bonds). The Federal share of the "Big Dig" project was significantly higher. Secondly, the OMP proposes a phased project implementation, with each phase producing independent benefits. The "Big Dig" could not be separated into discrete phases with associated independent benefits. Lastly, as complex as the OMP proposal may be, it still represents essentially a surface paving and reconfiguration project. As such, it is far simpler and less uncertain than the "Big Dig," which involved tunneling underwater and constructing bridge structures in water. The FAA suggests that the comparative reference of the OMP proposal to the "Big Dig" project be taken out of the draft OIG report.

Characterization of the City of Chicago’s Airport Improvement Program (AIP) funding request for the OMP as “unprecedented”: The FAA considers this representation to be inaccurate for the following reasons. First, while the AIP Letter of Intent (LOI) request from the airport sponsor for \$300 million in discretionary funds is large, it is not out of line with AIP funding commitments made toward other large airport development projects (Detroit, Denver, and St. Louis being examples). Secondly, when considered on a “per runway” basis, the OMP Phase 1 proposal, and the \$300 million LOI request, is on a par with the FAA’s normal planning target of \$100 million discretionary dollars per runway for LOIs at large hub airports. Specifically, on a per runway basis, the OMP proposal and associated LOI request ranks below such locations as Seattle, St. Louis, and Atlanta. Third, on a percentage basis, the requested FAA participation in funding the OMP proposal (approximately 10 percent of the project cost) is among the lowest of any LOI request for runways at large hub airports.

Assertion that FAA does not have an adequate process for assessment of cost, schedule, and sources of funding for airport development projects: The FAA disagrees with the implication in the OIG report that the Agency is not exercising due diligence in analysis of the reasonableness and credibility of project costs, funding sources, etc. The LOI process includes a requirement for airport sponsors to submit a project financing template and analysis of alternate payment streams. These submissions are reviewed by FAA staff and determinations are made by the Agency concerning reasonableness of project costs and financial feasibility. Additionally, for larger, more complex projects and LOI requests, the FAA obtains assistance in its analysis from outside (private sector) airport finance experts. The OIG report suggests that it is time for the FAA to “raise the standard” regarding its review of LOI requests for large airport development proposals. In fact, the FAA believes it has done just that on relatively recent large projects such as Seattle and St. Louis. The FAA agrees that the OMP deserves additional scrutiny and is applying that higher level of diligence to the OMP proposal and its associated LOI request. In summary, the FAA believes that the level of scrutiny applied to analysis of project cost and funding plans by FAA staff (and, when warranted, outside experts supporting FAA’s work) is adequate to assure appropriate LOI program management, proper utilization of AIP discretionary dollars, and compliance with all statutory requirements applicable to the FAA’s management of allocated AIP funds.

Differentiation between FAA’s statutory responsibilities regarding assessment of costs and benefits for OMP Phase 1 vs. OMP Phase 2: The AIP funding statute governing LOIs requires the FAA to assess the benefits and costs of the project proposed for LOI funding and to evaluate the system impacts of the project proposed for LOI funding (49 USC 47110(e)(2)(C); 49 USC 47115(d)(1).(2)). In addition, the statutory requirement for a determination that the sponsor has sufficient funds to finance the non-Federal share of a project is limited to the specific project for which funding is sought (49 USC 47106(a)(3)). Since the City of Chicago is seeking AIP funding at this time for only Phase 1 in its pending LOI application submitted to FAA, the law requires that FAA make the benefit-cost evaluation and system capacity determinations for Phase 1 on a stand-alone basis. In addition, the costs and benefits of OMP Phase 2 are, at this time, less defined than the costs and benefits associated with Phase 1. For these reasons, the FAA does not intend to evaluate the benefits or costs of Phase 2 to the same

level of detail as will be done for Phase 1. The analysis of Phase 2 benefits, costs, and financial feasibility in the level of detail required by the AIP funding statute, to support a commitment of AIP funds, will be made by FAA when the City of Chicago makes application for LOI funding for Phase 2.

As stated above, a complete and detailed presentation of the FAA's comments and suggested changes regarding the draft OIG report is contained in the attached copy of the draft report.

Concerning the specific recommendations contained in the draft OIG report, the FAA offers the following:

Recommendation concerning the need for FAA to ensure that the public's investment in the project is protected by reviewing the OMP financial plan and determining that:

- 1. The benefits and costs for OMP Phase 1 and Phase 2 are fully disclosed, considered, and determined to be reasonable.***
- 2. The schedule is realistic and considers known risks.***
- 3. Funding sources are fully disclosed and can be expected to pay for OMP Phase 1 and Phase 2.***

FAA Response: The FAA agrees with this recommendation for OMP Phase 1 and, to the extent that benefits, cost, schedule, and financing can be analyzed at this point in time for Phase 2, the FAA will assess Phase 2 within the context of a sensitivity analysis covering a range of reasonable assumptions.

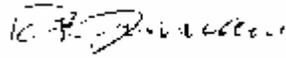
Recommendation that FAA needs to develop an overall airspace redesign implementation plan that is synchronized with the proposed OMP airfield changes, specifically including:

- 4. Appointment of one senior official with overall responsibility for management of airspace redesign.***
- 5. Development of an implementation schedule that synchronizes airspace changes with anticipated airfield changes.***
- 6. Prioritization of airspace changes to maximize operational benefits as the OMP is implemented.***

FAA Response: The FAA agrees with this recommendation. Development of an implementation plan to address the recommendation is well underway, and designation of a focal point within FAA's Air Traffic Organization, to coordinate the execution and timing of planned airspace changes associated with OMP implementation, will be undertaken.

The FAA appreciates the opportunity to comment on the OIG's draft report before a final report is developed. FAA representatives are available to discuss the comments and

suggested changes to the draft report that are contained in this memorandum and its attachment. Should you have comments or need additional information, please contact Mr. Barry Cooper, Manager, Chicago Area Modernization Program Office, at 847-294-7812.



Ramesh K. Punwani

Attachment



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

Memorandum

Subject: **INFORMATION**: Additional Information form
FAA in Regard to the OIG's Draft Report:
Chicago's O' Hare Modernization Program

Date: JUN 15 2005

From: Assistant Administrator for Financial Services and
Chief Financial Officer

Reply to
Attn. of:

To: Assistant Inspector General for Aviation and
Special Programs Audits

On May 20, the FAA submitted to your office its comments on the subject draft report. Following your office's review of those comments, further discussions between FAA and the OIG took place during the week of May 23. On June 2, as a result of those further discussions, FAA forwarded to you, via e-mail, additional information including some suggested revised wording for various paragraphs contained in the draft report. A representative of the OIG subsequently contacted FAA on June 8, requesting that the information submitted to you by FAA via e-mail on June 2, be formally transmitted to you in memorandum form. The purpose of this memorandum is to formally retransmit FAA's June 2 comments regarding the draft OIG report.

Accordingly, please find attached FAA's additional input on the draft OIG report. Attachment 1 contains suggested verbiage for inclusion in the final report. Attachments 2 and 3 contain spreadsheets that provide information concerning Federal funding commitments to other recent new runway projects.

Should you have questions concerning the attached information, please contact Mr. Anthony Williams, Budget Policy Division, at 202-267-9000.

Ramesh K. Punwani

Attachments

Appendix. Agency Comments

June 10, 2005

ATTACHMENT 1

FAA RESPONSES TO SPECIFIC COMPONENTS OF DRAFT OIG REPORT,
“CHICAGO’S O’HARE MODERNIZATION PROGRAM”
PROJECT NO. 04B3006B000

Page 5 of draft OIG report, second paragraph (middle of page), regarding the Federal court remand of FAA’s PFC decision. FAA offers the following alternative verbiage:

FAA needs to fulfill its legal obligation for approving and authorizing PFC and AIP grants. The PFC statute requires the FAA to make several findings before approving a PFC, including a finding that the proposed PFC will result in revenue that is not more than is necessary for financing the specific project. The AIP statute has similar requirements, including one that project costs be reasonable in amount in order for them to be allowable. In a 2004 ruling, the United States Court of Appeals for the District of Columbia Circuit⁹ reviewed a prior PFC decision to fund the O’Hare OMP EIS, and concluded that the administrative record did not demonstrate that the FAA had fulfilled its legal obligation to analyze the costs proposed to be financed with PFCs. Considering the controversy surrounding this project and the likelihood of further litigation, it is essential for the FAA to exercise due diligence in reviewing the City’s LOI, including the OMP financial plan, and any PFC applications the City submits to fund the OMP’s design and construction projects, and to assure that the City provides sufficient documentation to support any statutory required findings by FAA.

Pages 18 and 19 of draft OIG report, in response to Recommendations 1, 2, and 3, FAA offers the following verbiage:

The FAA agrees with these recommendations for Phase 1 and to a limited extent for Phase 2. Since the City is seeking AIP funding for only Phase 1 in the pending LOI application, the law requires that we make the BCA evaluations and system capacity determinations for Phase 1 on a stand-alone basis. The AIP funding statute governing LOIs requires the FAA to assess the benefits and costs of the project proposed for LOI funding and to evaluate the system impacts of the project proposed for LOI funding (49 USC 47110(e)(2)(C); 47115(d)(1),(2)). In addition the statutory requirement for a determination that the sponsor has sufficient funds to finance the non-Federal share of a project is limited to the specific project for which funding is sought (49 USC 47106(a)(3)). , As discussed in our comments on other portions of the draft, timing, costs and benefits of phase 2 are more uncertain at this time. For these reasons, FAA does not plan on evaluating the benefits or costs of Phase 2 in the same level of detail as we use for Phase 1. The analysis of Phase 2 benefits, costs and financial feasibility in the level

⁹ *Village of Bensenville v. FAA*, 376 F.3d 1114 (D.C. Cir. 2004).

of detail required by the AIP funding statute to support a commitment of AIP funds will be made when and if the City applies for LOI funding for Phase 2.

In order to accomplish the recommended analysis, the FAA will hire an airport financing consultant to help analyze the benefits and costs, schedule, and proposed financing for both phases of the OMP. This analysis will include four tasks including: establishing the current financial situation at O'Hare; analyzing financial impacts under the proposed OMP – Phase 1; analyzing financial impacts under the full OMP; and a review of the benefit cost analysis. The analysis of financial impacts will include a sensitivity analysis examining the impact of the following: delays in construction schedules; cost increases; and deviations from the City's requested LOI amount or payment schedule. In this context, should the OMP ultimately be approved by the FAA via an Environmental Impact Statement Record of Decision (EIS ROD), FAA expects to reach a decision on the LOI for the Phase 1 OMP shortly after completion of the EIS ROD. The FAA expects to document its findings in regard to the recommendations at that time.

ATTACHMENT 2
AIP Participation for Large Runway Projects

Year	Length (yrs)	Location	State	Hub	Description	Disc (\$M)	Ent (\$M)	Total Federal (\$M)	Total Project Cost (\$M) [OEP Reporting]	Fed Rate (all AIP funds)	Fed Rate (disc. Only)
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LOIs for Single Runway Programs

2002	3	Denver *	CO	Large	New Runway	99	33	132	180	73%	55%
2004	8	Boston	MA	Large	New Runway	58	33	91	138	66%	42%
2000	10	Houston	TX	Large	New Runway	100	93	193	298	65%	34%
2001	10	Cincinnati	KY	Large	New Runway	100	32	132	233	57%	43%
1999	11	Miami	FL	Large	New Runway	69	35	101	215	47%	32%
1999	10	Orlando	FL	Large	New Runway	36	38	74	203	36%	18%
2000	14	Cleveland	OH	Med	New Runway	100	48	148	458	32%	22%
2001	13	Seattle (w/ 2 amendments)*	WA	Large	New Runway	181	94	301	1,054	29%	17%
2003	10	St Louis (w/ amendment)*	MO	Med	New Runway	170	46	216	1,100	20%	15%
1999	12	Minneapolis	MN	Large	New Runway	95	0	95	563	17%	17%
1997	10	Atlanta (2 LOIs)	GA	Large	New Runway	179	0	179	1,350	13%	13%
Total (11 locations)						1,187		1,662			
Average LOI approval						108		151			

LOIs for Multiple Runway Programs

1990	10	Denver (with Pre-LOI grants)*	CO	Large	New Airport (5 runways)	340	104	444	4,269	10%	8%
1990	18	Detroit	MI	Large	2 New Runways	204	96	300	?		
2005	10	Chicago O'Hare (proposed)*	IL	Large	2 Runways & runway extension	305	56	360	2,880	13%	11%

* Includes AIP funding outside the LOI

ATTACHMENT 3
Total AIP funding at locations receiving LOIs

Location	Total AIP (2001-2004)			LOI payments (2001-2004)			AIP less LOI payments (2001-2004)		
	Ent (\$M)	Disc (\$M)	Total Federal (\$M)	Ent(\$M)	Disc (\$M)	Total Federal (\$M)	Ent (\$M)	Disc (\$M)	Total Federal (\$M)
Houston	90	81	170	36	42	78	54	39	92
Miami	58	37	95	28	18	46	30	20	50
Orlando	38	94	132	6	25	30	32	70	102
Cleveland	15	78	93	10	46	56	5	33	37
Seattle	30	156	186	26	58	84	5	98	102
St Louis	28	151	180	18	68	86	11	83	93
Minneapolis	27	123	150	0	42	42	27	81	108
Atlanta	39	179	218	0	61	61	39	118	157
Detroit	32	84	116	21	49	70	11	35	47

Notes:

All locations received LOI payments each of the 4 years (FY 01 - FY 04)

FY 01- FY 04 represent increased AIP levels due to AIR-21 legislation