ATTACHMENT F-1

COST COMPONENTS OF REQUESTED PFC AMOUNTS

Basis for Requested PFC Amount for Design

This section explains the basis, and provides supporting information, for the PFC amount requested in this Application for Completion Phase design. The FAA's determination of the reasonableness of direct and indirect costs "should be based on similar work within other recent grants." Order 5100.38C ¶ 310a(2). There are two categories of Completion Phase design costs included in the amount requested in this Application: (i) the cost of preparation of construction-ready plans and specifications for each eligible runway project component, and (ii) the cost of design services common to all components. The proposed PFC amount for design of Completion Phase airfield components is based on the City's actual costs for similar work for Phase 1 airfield components. Completion Phase specific component and common design costs are based on Phase 1 work.

I. General Comparability of Phase 1 and Completion Phase

Although aggregate design work for Phase 1 and the Completion Phase is comparable, specific design assignments are unlikely to be sufficiently the same to allow one-to-one comparisons. Because of differences between specific projects and their site conditions, different packaging of components for bidding, and other variations, the best estimate available to the City is an estimate of the overall cost of Completion Phase design, based on the overall cost of Phase 1 design. **Table F-1.1** summarizes major components of the two OMP phases showing their general comparability[1] .

Table F-1.1

Comparison of Eligible Projects in Phase 1 and Completion Phase

Project Component	Phase 1	Completion Phase	Design Requirements
New Outboard Runway Including Related Taxiways	Runway 9L-27R	Runway 10R-28L	Both are 7,500 feet; different site preparation requirements for Runways 9L-27R and 10R-28L
New Center Runway Including Related Taxiways	Runway 10C-28C	Runway 9C-27C	Both are new Aircraft Design Group (ADG) VI runways inside active airfield; Runway 9C-27C is 4% longer than Runway 10C-28C (11,245 feet v. 10,800 feet)
Runway Extension Including Related Taxiways	Runway 10L	Runway 9R	Both extend existing runways inside active airfield; Runway 9R extension is 26% longer (3,600 feet v. 2,860 feet)

[1] Both phases include projects that are not eligible for PFC support, such as relocation of airline and fuel facilities. Those projects are excluded from Table F-1.1 and from all actual and estimated amounts in this Attachment F-1. The costs of design and construction of ineligible. Costs ineligible for PFC or AIP support have been, and will be, paid from other sources described in Attachment F-2.

Taxiways (separately designed from runways)	Runway 10L taxiways and crossovers,	Taxiway LL, Taxiway WK	Taxiway WK is longer and more complex than any comparable Phase 1 taxiway
New Airport Traffic Control Tower	New north tower	New south tower	Comparable towers performing similar ATC functions; south tower may have different FAA specifications
Infrastructure Relocation	JAWA water main, railroad, Willow-Higgins Creek, Mt. Prospect Road and Guard Post 1	Bensenville Ditch, Willow Creek, Irving Park Road	Completion Phase has more waterway crossings and relocation of state highway (Illinois 19); Phase 1 water main, guard post and railroad projects have no Completion Phase counterparts
Tunnels	Cargo tunnel extension	Tunnels under Taxiway WK; post office and south cargo access tunnels	More tunnels in Completion Phase
Roadways	Touhy Avenue intersection, north perimeter road, south service roads, interim cargo access road	Relocated Tank Farm Road, post office road, hangar road, south cargo access road	Substantial roadway projects in both phases; no exact counterparts
Runway Intersections and Closures	Runway 14L displaced threshold (twice), Runway 10 temporary displaced threshold, Runway 32L displaced threshold	Four runway intersections; runway closures	Separate phase drawings for displaced thresholds, runway closures; sequencing documents for runway conflicts; more documents in Completion Phase because of greater runway conflicts
ARFF	Renovate building for interim north ARFF	New north ARFF	Conversion of existing facility in Phase 1; new building in Completion Phase
Construction Packages	48	40-50	Comparable
Schedule	Normal timely design	Accelerated design to accommodate 2014 completion of construction	Difference will be about 18 months

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

II. Phase 1 Specific Component Design Costs

Tables F-1.4 and **F-1.5**[2] show Phase 1 actual costs for specific component design. Phase 1 design was divided into two parts: conceptual design (0%-30%), prepared by the Master Civil Engineer (MCE) (Table F-1.4), and the remainder (31%-100%) prepared by contractual design firms (Table F-1.5). For the Completion Phase, allocation of design between the MCE and contractual design firms will be different, with a larger portion of the work performed by the contractual design firms.[3]

Tables F-1.4 and F-1.5 show total actual Phase 1 design cost is $119.2 million, which is 8.64% of the expected $1.379 billion Phase 1 construction cost. This construction cost estimate is the Phase 1 current working estimate (CWE), which uses actual costs for completed construction and work under contract, and estimates of the cost of remaining Phase 1 work based on actual cost experience to date. Projects ineligible for AIP/PFC approval are excluded from both design and construction cost amounts.[4]

III. Completion Phase Specific Component Design Costs

The City expects Completion Phase costs for specific component designs to bear the same relationship to Completion Phase construction cost as those actual Phase 1 costs bear to Phase 1 construction cost – 8.64%. The current estimate of construction cost for AIP/PFC eligible Completion Phase components is $1.276 billion in 2007 dollars. The City therefore estimates that specific component design costs will be 8.64% of that amount -- $110.2 million in 2007 dollars. The City expects these amounts to be spent over a four-year period as follows: 2009 (25%), 2010 (50%), 2011 (23%) and 2012 (2%). Escalating $110.2 million to the years of expected expenditure at 5% per year, Completion Phase specific component design cost is expected to total $127.6 million. The City currently uses a 5% escalation factor based on the Chicago Construction Index published by the Engineering News Record. For purposes of calculating the cost of specific Completion Phase component designs, only the design cost is escalated. The construction cost on which design cost is based is held constant in 2007 dollars for this purpose.

Another approach to estimating Completion Phase specific component design costs is arithmetic escalation of actual Phase 1 design costs from the years of Phase 1 expenditure to the years of expected Completion Phase expenditure – $144.9 million. The City believes that an estimate based on the Phase 1 relationship between design and construction costs is likely to be closer to actual costs

[2] Tables F-1.4, et seq. appear at the end of Attachment F-1.

[3] Certain general specifications of airfield components were developed in the Master Plan for purposes of ALP submission and Environmental Impact Statement analysis. Those general specifications, which were sufficient for those purposes, are insufficiently specific to satisfy design requirements for construction. Although design of airfield components relies on the ALP, the design process costs included in this Application do not duplicate any part of the Master Plan work.

[4] The total Phase 1 CWE is $3.2 billion. In addition to $1.379 billion in construction costs for AIP/PFC eligible components, the CWE includes, among other things, costs for program-wide land acquisition and wetland mitigation, a portion of noise mitigation, construction of projects that are not AIP/PFC eligible, and program administration. Costs ineligible for PFC or AIP support have been, and will be, paid from other sources described in Attachment F-2.

and therefore uses the $127.6 million estimate in this Application. However, given the comparability of Phase 1 and the Completion Phase and the possible added complexity of Completion Phase designs, the City believes this estimate is conservative. The City may apply for an amendment of any FAA approval it may receive as a result of this Application if actual Completion Phase design costs exceed this conservative estimate.

The *Request for Qualifications for Lead Engineering Design Services Request for Western Terminal Planning Services, and the Target Market Program Request for Qualifications for Architectural and Engineering Design Services*, published on June 30, 2008 are attached. The response period ended on July 30, 2008 and the City received responses for all three RFQs. In addition to projects designed by the vendors selected through these two RFQs, projects also will be designed by existing task order vendors (e.g., Taxiway LL).

This work is eligible under 5100.38C ¶¶ 300b, 310a(4)(b), 310c, 310e, 1002.

IV. Completion Phase Common Design Costs

In addition to costs the City proposes to pay for specific component design services from PFC proceeds, the City proposes to use PFCs to pay for design services common to the entire Completion Phase design.

4.1 Construction Manager

Construction Manager (CM) common design services include assistance with capital cost estimating, specific scope of project cost estimates, life cycle cost analyses, construction phasing and scheduling, contracting strategy recommendations, bid packaging, construction material and labor market analysis, and construction logistics planning. The CM will develop an estimate of cost by work package for the construction and participate in the cost reconciliation process for each work package. Construction cost estimates are an essential part of the design process and feed back into that process to arrive at the most cost effective design for each component. The CM also will conduct design reviews focused on constructability, construction packaging, potential construction methodologies, practicality of design, use of materials and economy of installations, and schedule and budget risk mitigation. The CM will recommend construction packaging and general and special conditions that avoid construction-related conflicts or gaps, airport operational or labor relations issues, and promote safe, efficient, environmentally conscious construction. The CM will prepare recommendations regarding access, airfield perimeter relocations and other changes to the existing secure perimeter as required to facilitate construction consistent with strict security requirements. The CM will apply the *O'Hare Modernization Program Sustainable Design Manual* when conducting design reviews and will evaluate the extent to which sustainable design opportunities have been included and identify additional opportunities.

CM Completion Phase costs are based on Phase 1 costs. See Section V below. The following tables appear at the end of Attachment F-1: *CM Staff Hours, Rates and Total Cost (***Table F-1.6***); Description of CM Staff Functions* (**Table F-1.7**); *CM Staff Allocations* (**Table F-1.8**). This PFC request includes $3,492,500 for CM costs from Table F-1.6. This CM work is eligible under 5100.38C ¶¶ 300b, 310a(4)(b), 310c, 310e, 1002.

4.2 Master Civil Engineer

The Master Civil Engineer (MCE) will be responsible for design conditions assessment, specifying drainage and infrastructure requirements, design standards and criteria, and assistance in construction cost and life-cycle cost estimating. (The MCE also will participate in preparation of project definition documents as part of the specific component design process. Those specific component design costs are included in the amounts described above in Section C and are excluded from this amount for common design costs.)

MCE Completion Phase costs are based on Phase 1 costs. See Section V below. The following tables appear at the end of Attachment F-1: *MCE Staff Hours, Rates and Total Cost* (**Table F-1.9**); *Description of MCE Staff Functions* (**Table F-1.10**); *MCE Staff Allocations* (**Table F-1.11**). This PFC request includes $6,095,000 for MCE costs from Table F-1.9. This MCE work is eligible under 5100.38C ¶¶ 300b, 310a(4)(b), 310c, 310e, 1002.

4.3 Airfield and Environmental Technical Consulting Services

Ricondo & Associates, Inc. (R&A) produced the Master Plan and continues as the City's adviser on the function of the airfield as finally designed and for each construction phase. In Phase 1 design, R&A provided continuing services relating to the safety, efficiency and utility of airfield designs, consistency of designs with the approved airport layout plan and with FAA airfield design and safety standards, analysis of the effect on airfield efficiency and delay of alternative designs and phasing plans, and consistency of designs with environmental standards and mitigation set forth in the ROD. In Phase 1, Landrum & Brown also provided services with respect to consistency of designs with environmental standards and mitigation. Comparable services from both firms will be required to support Completion Phase design.

Completion Phase costs for R&A and L&B are based on Phase 1 costs for these functions. See Section V below. The following tables appear at the end of Attachment F-1; *Airfield and Environmental Technical Consulting Services Staff Hours, Rates and Total Cost* (**Table F-1.12**); *Description of Airfield and Environmental Technical Consulting Services Staff Functions* (**Table F-1.13**); *Airfield and Environmental Technical Consulting Services Staff Allocations* (**Table F-1.14**). These airfield and environmental technical consulting services to the City is eligible under 5100.38C ¶¶ 300b, 310a(4)(b), 310c, 310e, 1002.

4.4 Subsurface Investigations and Survey

Design, constructability determinations and cost estimates require data on actual subsurface site conditions, including soil conditions and utilities, among other things. Because of similarities between Phase 1 and the Completion Phase, the City expects a similar amount will be required. For Phase 1, the City spent $10,068,987 for this work. Escalating this amount from the mid-point of Phase 1 design to the mid-point of Completion Phase design (2006 to 2010) at 5% per year, the requested amount is $12,359,252. The cost of the work described in this paragraph is eligible under 5100.38C ¶¶ 310a(4)(b) and 310e.

4.5 FAA Design Review

For Phase 1, the City reimbursed the FAA for design review and studies related to the safety, utility and efficiency of the airfield. Based on Phase 1 experience, the City expects to reimburse the FAA for approximately $5,325,000 in Completion Phase design review costs, which is included in the PFC amount requested. The City expects that the FAA will provide its own estimate of these Completion

Phase reimbursements when it reviews this Application, and that the FAA's estimate will be substituted for the City's.

4.6 Professional Liability Insurance

This insurance provides professional liability insurance coverage and loss prevention/risk management advice and assistance to the various firms performing design services described in this Attachment. It provides coverage for substantially all claims which arise out of the performance of professional services by the design professional firms and is eligible under 5100.38C ¶311i. Claims covered by this insurance include, for example, claims based on defective design and negligent or inaccurate description of subsurface or site conditions or the conditions under which construction will be performed. The City has spent $6,291,920 to date on this item for Phase 1. To estimate comparable Completion Phase costs, the Phase 1 amount was escalated from the mid-point of Phase 1 design to the mid-point of Completion Phase design (2006 to 2010) at 5% – $7,647,868.

4.7 PMO Technical Consulting and Project Administration Services

The PMO will provide day-to-day technical consulting and project administration services, and will exercise quality assurance/quality control monitoring over design consultants. While the City will retain contractual authority and independent oversight, the PMO will review, validate and coordinate design work scopes, review deliverables and work products of design consultants for completeness and timeliness, and maintain standards for design review. The PMO's cost are based on Phase 1. See Section V below. The following tables are found at the end of Attachment F-1: *PMO Staff Hours, Rates and Total Cost* (**Table F-1.15**); *Description of PMO Staff Functions* (**Table F-1.16**); *PMO Staff Allocations* (**Table F-1.17**). This PFC request includes $7,961,500 for PMO costs from Table F-1.15. PMO design management is eligible under 5100.38C ¶¶ 300b, 310a(4)(b), 310c, 310e, 1002. The Program Management Office, as its name implies, also performs *program* administration tasks for the OMP in addition to the *project* administration tasks described in this paragraph. The tasks described here are separate from and in addition to those program administration tasks. In accordance with Order 5100.38C ¶ 310l, this Application includes no cost for the PMO's program administration tasks.

V. Estimates of Completion Phase Costs for CM, MCE, R&A/L&B and PMO

For Phase 1, the City did not allocate CM, MCE, R&A/L&B and PMO costs among design, construction and other services. Because all of their time under their respective contracts related solely to the OMP, there was no need for a system to track particular services on a design/construction basis. As a result, the City cannot use a simple escalation method for these costs because the portion attributable to design cannot be retroactively isolated. For the Completion Phase, these costs will be separately recorded to facilitate audit of PFC use.

Estimates of these Completion Phase design-related costs were developed by identifying specific tasks and the staff required to perform them, estimating the number of hours necessary for that work and applying the expected cost per hour for each staff position. Some uncertainty is unavoidable in estimating levels of effort because the effort required for later stages of design depends on design requirements that can only be identified with confidence in the early stages of design. These amounts are shown in Tables F-1.6, F-1.9, F-1.12, F-1.15, and F-1.18. Specific job descriptions for the work detailed in these three Tables appear in Tables F-1.7 F-1.10, F-1.13, F-1.16, and F-1.19.

As a guide and confirmation of these amounts, the City also estimated design costs using Phase 1 experience by a three-step process: (i) estimate total cost of each firm for the period of Completion Phase design based on 2007 Phase 1 actual costs, (ii) allocate these amounts between Phase 1 and the Completion Phase, and (iii) allocate Completion Phase costs among design and construction. These amounts are shown in Tables F-1.8, F-1.11, F-1.14, F.1-17, and F-1.20.

VI. Project Administration Costs

City employees must supervise and control all design contractors and the overall design process. All City staff providing these services are full-time employees of the OMP. The following functions are included: procurement, management, payment and audit of design contracts; legal services in negotiating and enforcing design contracts; and financial oversight of design contractors. For Phase 1 the City did not allocate its staff functions between construction and design. The amount requested is based on 2007 Phase 1 costs for the positions performing design-related administrative functions. The following tables appear at the end of Attachment F-1; *City of Chicago Staff Hours, Rates and Total Cost* (**Table F-1.18**); *Description City of Chicago Staff Functions* (**Table F-1.19**); *City of Chicago Staff Allocations* (**Table F-1.20**). These functions are eligible under 5100.38C ¶¶ 310c, 310g and 310j. Program administration costs that are ineligible under 5100.38C ¶ 310l are not included and will be paid from sources other than PFC and AIP identified in Attachment F-2. The amount requested is $2,511,420.

VII. Summary of Design Costs

The design costs described above are summarized **Tables F-1.2 and F-1.3**.

Table F-1.2

Requested PFC Amounts - Design Costs by Category

Category	Design Cost [1]
Specific Component Design	$127,618,433
Construction Manager	$3,492,500
Master Civil Engineer	$6,095,000
Technical/Environmental	$4,525,000
PMO Services	$7,961,500
City Project Administration	$2,511,420
Subsurface Investigations	$12,359,252
FAA Design Review	$5,325,000
Contractor Liability Insurance	$7,647,868
TOTAL	$177,535,973

Notes:

1 The amount of design costs requested is less than the amount stated in the public and air carrier notices. The notices were issued in April, 2008. The City has refined the estimated costs.

Source: OMP Program Management Office, June 2008.
Prepared By: Ricondo & Associates

Table F-1.3

Requested PFC Amounts - Design Costs by Component[1]

	Runway 9C-27C[2]	Runway 9R-27L Extension	Runway 10R-28L[3]	Taxiway LL	Total
Component Design	$65,956,347	$12,503,483	$41,106,841	$8,051,762	$127,618,433
Percent of Specific Component Design	51.68%	9.80%	32.21%	6.31%	100%
Estimated Allocation of Soft Costs[4]					
Construction Manager	$1,805,010	$342,180	$1,124,960	$220,350	$3,492,500
Master Civil Engineer	$3,150,046	$597,161	$1,963,245	$384,549	$6,095,000
Technical/Environmental	$2,338,631	$443,339	$1,457,536	$285,493	$4,525,000
PMO Services	$4,114,699	$780,032	$2,564,458	$502,311	$7,961,500
City Project Administration	$1,297,964	$246,058	$808,947	$158,452	$2,511,420
Subsurface Investigations	$6,387,566	$1,210,904	$3,981,006	$779,776	$12,359,252
FAA Design Review	$2,752,091	$521,720	$1,715,222	$335,967	$5,325,000
Contractor Liability Insurance	$3,952,606	$749,304	$2,463,435	$482,523	$7,647,868
Total	$91,754,960	$17,394,180	$57,185,650	$11,201,183	$177,535,973

Notes:

1 These estimated costs are approximate, based solely on assumed percentage allocations of construction costs for the four primary components to be designed as described in this Application. Actual design costs cannot be determined until the City determines how project elements will be grouped for design purposes and design contracts are signed and performed. The City cannot estimate construction costs more precisely until designs are substantially complete. Although the City has confidence in the overall cost of design as set forth in this Attachment F-1, allocations of that aggregate cost among components should be understood to be based strictly on estimated construction costs that cannot be refined until the designs are substantially complete.

2 Includes replacement ARFF facility, relocation of ground run-up facility, service and access roads, relocation of Willow Creek

3 Includes new South ATCT, service and access roads, relocation of Irving Park Road, and relocation of Bensenville Ditch.

4 Allocated costs reflect a distribution of soft costs by airfield project based on the percentage of specific design components. The allocation amongst airfield projects is an estimate and may not reflect actual allocation.

Source: OMP Program Management Office, October 2008.
Prepared By: Ricondo & Associates, Inc.

Basis for Requested PFC Amount for Western Terminal Area Planning

The western terminal area is approximately 195 acres, and is currently programmed to include up to 60 gates in a main terminal and a satellite concourse. Configurations containing a total of 60 gates will be planned. The plans will include alternatives for use of the western terminal complex for international gateway, domestic hub, and origin and destination service. This project includes planning for a new public entrance to the airport on the west side, roadway connections on the airport, and public and employee parking and related facilities. See Attachment B. A conceptual plan for the site is shown on the approved airport layout plan. This project does not include design of any facilities.

The proposed amount for western terminal area planning is based on an estimate of the hours required for each task and the estimated contractor costs per hour. See **Table F-1.21**. The amount requested is $4,742,200[5]. The *Request for Qualifications for Western Terminal Planning Services*, advertised on June 30, 2008, is attached.

This planning work is eligible under 5100.38C ¶¶ 403a(3).

[5] The amount of western terminal planning costs requested is less than the amount stated in the public and air carrier notices. The notices were issued in April, 2008. The City has refined the estimated costs.

ATTACHMENT F-1 TABLES

Table F-1.4

OMP Phase 1 – Final Design Costs (0% to 30%)

Work Authorization	Actual Costs
WA #1 General Management	$1,534,240
WA #2 General Management	$5,395,000
WA # 3 Task Order Management	$5,290,000
WA #4 Base Information	$1,600,626
WA #5 Design Standards	$933,310
WA #6 Drainage/Permitting	$3,173,488
WA #7 OMP Utility Master Plan	$734,901
WA #8 North Airfield Lighting Vault	$365,107
WA #9 JAWA Relocation	$460,912
WA #10 Willow-Higgins Creek Relocation	$637,576
WA #11 North Drainage Facilities	$951,034
WA #12 Mt. Prospect Road and Guard Post 1	$627,600
WA #13 On-Site/Off-Site Stormwater Detention	$198,292
WA #14 Perimeter Road Fencing	$163,395
WA #15 9L/27R Runway/Taxiways	$2,024,914
WA #20 Railroad Relocation	$817,068
WA #21 Airfield-Wide Signage	$124,774
WA #22 10L/28R Runway Extension/Taxiways	$994,531
WA #23 Bensenville Ditch	$421,429
WA #24 10L/28R South Drainage Facilities	$1,102,103
WA #25 South Airfield Lighting Vault	$361,018
WA #28 Oil/Water Separators	$213,740
WA #29 Road/Access Control	$403,650
WA #30 10C/28C Runways/Taxiways	$1,515,483
WA #31 Airfield-Wide FAA Facilities	$225,727
WA #38 Northwest Land Acquisition	$297,714
WA #39 Des Plaines Utility Infrastructure	$5,137
WA #40 Watershed Plan	$261,541
WA #41 OMP Design & Construction Packaging & Phasing	$1,057,846
WA #42 14L	$494,969
WA #43 Wetland Mitigation	$388,295
WA #44 Hydrologic Analysis of Crystal Creek Watershed	$81,940
WA #45 Runway 18 - 36	$49,746
WA #46 Displace Threshold for Runway 32L	$168,270
WA #47 Environmental Management	$99,583
WA #48 Bensenville Ditch Alt Alignment Phase I	$450,334
WA #49 Willow Creek Alternative Evaluation	$25,620
WA #50 Miscellaneous	$350,000
WA #51 University of Illinois Research	$394,310
WA #54 Building Relocation Cost Estimating	$122,208
WA #56 South Detention Geotechnical Exploration -Included in Item H	
Bowman Barrett & Assoc. Credit	-$147,610
Primera Credit	-$72,425
DB Sterlin Credit	-$16,181
Total Actual Cost of Phase 1 Conceptual Design (0% - 30%)	$34,281,215
Current Estimate of Phase 1 Eligible Construction Costs (5/13/08)	$1,379,381,887
Phase 1 Conceptual Design (30%) Cost as a % of Construction	**2.49%**

Note: The three credit adjustments were made to correct a labor over billing issue found during a subsequent audit.

Source: OMP Program Management Office, June 2008.
Prepared By: Ricondo & Associates

Table F-1.5

OMP Phase 1 – Final Design Costs (31% to 100%)

Work Package Description	Final Design CWE 5/13/08
North Airport Traffic Control Tower	$3,087,886
North Detention Basin Pump Station and Spillway	$1,198,458
Runway 9L-27R Site Preparation	$5,764,608
Runway 9L-27R Paving, Lighting and Signing	$3,534,772
Runway 9L-27R NAVAIDS	$2,014,775
LLWAS Expansion and Relocation	$207,852
NASR-9, RTR-P and RTR-Q Facilities and FOTS Loop	$847,781
North Airfield ARFF Facility	$157,172
Relocation of Mt Prospect Rd and Guard Post 1	$1,721,295
Touhy Avenue Intersection Improvements	$400,000
North Perimeter Road and Security Fencing	$803,560
Fence Removal and Misc. Work	$43,505
Bird Deterrent Wire	$55,935
Old Mt Prospect Road Bridge Demolition	$24,860
North Airfield Security Fencing	$26,880
NSMJAWA Water Main Relocation	$1,945,123
Displaced Threshold for Runway 14L	$1,545,667
Runway 10L Taxiways and Crossovers	$1,977,526
Runway 10L NAVAIDS	$630,488
Runway 10L-28R Extension Runway and Taxiway Paving/ Electrical	$1,884,917
Runway 10L Mass Grading, Central Basin and Pump Station	$7,368,222
Runway 10C-28C Central	$9,975,252
Cargo Tunnel and Taxiway 45	$116,715
Runway 10C-28C Cargo Tunnel Extension	$1,674,198
Runway 10C-28C Berms 5 and 6 and 10L Site Prep	$1,656,373
Cargo Area Site Preparation and Interim Ditch	$2,315,703
Runway 10C-28C West	$5,275,127
Runway 10C-28C Paving and Electrical East	$2,793,976
South RTRs R and S	$250,000
South Service Roads	$534,237
Runway 10C-28C Mass Grading (East) and South Basin and Pump Station	$10,308,658
Airfield Vaults and Associated Ductbanks	$4,315,904
South Basin Site Preparation	$1,664,607
Cargo Buildings Demolition	$180,649
Interim Rail and Cargo Access Road	$1,811,913
Demolition of Center Point and Prologis	$165,598
METRA and CP Yard Bridge Structures	$2,512,164
UPRR Relocation South of Irving Park Rd to Franklin Bridge	$1,136,841
UPRR Relocation North of Irving Park Rd	$672,136
RR Intersection Grade Separation	$2,300,635
Total Current Working Estimate (CWE) of Phase 1 Final Design (31%-100%)	$84,901,968
Current Estimate of Phase 1 Eligible Construction Costs (5/13/08)	$1,379,381,887
Phase 1 Final Design (31% - 100%) Cost as a % of Construction	**6.16%**

Source: OMP Program Management Office, June 2008.
Prepared By: Ricondo & Associates

Table F-1.6

Construction Manager Staff Hours, Rates, and Total Costs (Detailed Backup)

Position	2008	2009	2010	2011	2012	Total Man Hours	Average Hourly Billing Rate	Total Cost
Construction Manager	100	300	500	300	100	1,300	$240.00	$312,000
Deputy Construction Mgr	100	300	500	300	100	1,300	$190.00	$247,000
Lead Cost Estimator	200	1,000	2,000	800	300	4,300	$140.00	$602,000
Cost Estimator	800	1,800	4,000	1,200	600	8,400	$110.00	$924,000
Senior Scheduler	100	200	400	200	100	1,000	$130.00	$130,000
Site Manager	200	800	800	500	200	2,500	$175.00	$437,500
Utility Coordinator	0	200	500	200	200	1,100	$170.00	$187,000
Resident Engineer	300	700	1,000	700	350	3,050	$160.00	$488,000
Assistant Resident Engineer	0	300	400	300	0	1,000	$110.00	$110,000
Administrative Assistant	100	250	400	250	100	1,100	$50.00	$55,000
Total								$3,492,500

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.7

Description of Construction Manager Staff Functions

Construction Manager	Supervises other members of the Construction Management Team, participates on the OMP's Working Group for the Completion Phase, assists with development of logistics plans, and supports preparation of construction phasing plans
Deputy Construction Manager	Assists with development of logistics plans and provides professional advice on how to best interface construction activities with airfield operations. The individual assigned to this job has a long history with O'Hare construction
Cost Estimators	Provide construction cost estimates for the 30%, 60%, and 90% design submittals and participate in value engineering evaluations
Senior Scheduler	Evaluates design plans and advises design teams on realistic construction time requirements
Site Manager	Works with design teams on constructability issues and construction phasing plans, and advise regarding project interfaces with other projects and airfield operations.
Utility Coordinator	Reviews progress designs for utility relocations and related issues, and works with design teams and utility company representatives
Resident and Assistant Resident Engineers	Review design submittals and provide review comments on constructability and project phasing
Administrative Assistant	Provides administrative support to above staff

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.8

Construction Manager Staff Allocations

Year	Total Staff Costs	Phase 1% / CP% Split	Phase 1	CP	CP Design %	CP Construc-tion %	CP Design $	CP Construction $
2007	$22,000,938	100 / 0	$22,000,938	$ -				
2008	$26,832,919	99 / 1	$26,564,590	$268,329	100%	0%	$268,329	$ -
2009	$27,637,907	80 / 20	$22,110,325	$5,527,581	15%	85%	$829,137	$4,698,444
2010	$28,467,044	50 / 50	$14,233,522	$14,233,522	10%	90%	$1,423,352	$12,810,170
2011	$29,321,055	35 / 65	$10,262,369	$19,058,686	5%	95%	$952,934	$18,105,752
2012	$30,200,687	15 / 85	$4,530,103	$25,670,584	0%	100%	$ -	$25,670,584
2013	$20,000,000	0 / 100	$ -	$20,000,000	0%	100%	$ -	$20,000,000
2014	$10,000,000	0 / 100	$ -	$10,000,000	0%	100%	$ -	$10,000,000
Totals	$172,459,611		$77,700,909	$94,758,702			$3,473,753	$91,284,949

Note: CP = Completion Phase

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.9

Master Civil Engineer Staff Hours, Rates, and Total Costs (Detailed Backup)

Position	2008	2009	2010	2011	2012	Total Man Hours	Average Hourly Billing Rate	Total Cost
Airport Engineer	0	1,000	2,000	2,000	1,000	6,000	$130.00	$780,000
Utility Engineer	0	1,000	2,000	2,000	1,000	6,000	$120.00	$720,000
Electrical Engineer	0	1,000	2,000	2,000	1,000	6,000	$120.00	$720,000
Drainage Engineer	0	1,000	2,000	2,000	1,000	6,000	$120.00	$720,000
CADD Technician	0	1,000	2,000	2,000	1,000	6,000	$100.00	$600,000
Permitting	0	1,000	2,000	2,000	2,000	7,000	$110.00	$770,000
Engineering Management	0	1,000	2,000	2,000	2,000	7,000	$180.00	$1,260,000
Administrative Assistant	0	1,000	2,000	2,000	2,000	7,000	$75.00	$525,000
Total								$6,095,000

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.10

Description of Master Civil Engineer Staff Functions

Airport Engineers	Provide technical advice to PMO design managers, review design submittals to ensure compliance with FAA standards and good engineering practices, and prepare FAA 7460 applications for each construction work package and interface with FAA officials on 7460 responses
Utility Engineers	Prepare master utility plans, review design submittals to ensure design teams have adequately addressed utility requirements
Electrical Engineers	Support utility engineers with power distribution requirements, prepare conceptual drawings for new fiber optic transmission system (FOTS), coordinate with FAA and designers to ensure that the FOTS designs support overall communication systems on the airfield, and conduct design reviews of plan submittals
Drainage Engineers	Prepare conceptual design requirements for storm water management system, support preparation of project definition documents, and review progress design submittals
CADD Technicians	Prepare the graphics for project definition documents and utility master plans, and maintain OMP design files
Permitting	Identify required environmental and highway permits, assist design teams with preparation of the permits and coordinate applications and approvals with regulatory agencies
Engineering Management	Participate in OMP Working Group for the Completion Phase, supervise completion of project definition documents, and manage MCE's design review and permitting responsibilities. This category includes the MCE project manager and two senior airport engineers
Administrative Assistants	Provide administrative support to the staff identified above, process transmittals, track requests for information, and compile design review comments

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.11

Master Civil Engineer Staff Allocations

Year	Total Staff Costs	Phase 1% / CP 2% Split	Phase 1	CP	CP Design %	CP Construc-tion %	CP Design $[1]	CP Construc-tion $
2007	$ -		$8,410,352	$ -				
2008	$ -		$6,000,000	$1,000,000	100%	0%	$ -	$ -
2009	$ -		$3,000,000	$3,500,000	100%	0%	$ -	$ -
2010	$ -		$1,500,000	$3,500,000	100%	0%	$2,625,000	$ -
2011	$ -		$500,000	$2,500,000	100%	0%	$2,500,000	$ -
2012	$ -		$ -	$1,000,000	100%	0%	$1,000,000	$ -
2013	$ -		$ -	$ -	0%	0%	$ -	$ -
2014	$ -		$ -	$ -	0%	0%	$ -	$ -
Totals			$11,000,000	$11,500,000			$ 6,125,000	

Notes: [1] The MCE will be working on conceptual designs (Project Booklets) from 2008 thru 3/20/10. Those costs are excluded from this calculation since they are already included in the total design percentage (8.65%)

CP = Completion Phase

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.12

Airfield and Environmental Technical Consulting Services Staff Hours, Rates, and Total Costs (Detailed Backup)

Position	2008	2009	2010	2011	2012	Total Man Hours	Average Hourly Billing Rate	Total Cost
Officer	800	800	800	500	500	3,400	$286	$972,400
Director	800	800	800	500	500	3,400	$247	$839,800
Managing Consultant	1,000	1,000	1,000	500	500	4,000	$207	$828,000
Senior Consultant	1,000	1,000	1,000	500	500	4,000	$167	$668,000
Consultant	1,000	1,000	1,000	500	500	4,000	$133	$532,000
Technical Support	600	800	800	500	500	3,200	$107	$342,400
Admin Support	600	800	800	500	500	3,200	$107	$342,400
Total								$4,525,000

Source: Ricondo & Associates, Inc., June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.13

Description of Airfield and Environmental Technical Consulting Services Staff Functions

Director and Officer	Review and approve technical approach to assignments, review progress of assignments, approve analyses and coordinate staff, provide quality control, and manage day-to-day timelines of work schedule
Managing Consultant	Develops overall assignment approach, defines problem, develops analysis methodology and coordinated technical progress, leads analysis on major tasks in technical area of expertise, formulates preliminary conclusions, develops final report outline, reviews draft input and identifies staff required to accomplish assigned tasks
Senior Consultant	Collects original data and transforms to detail input data, performs analysis in accordance with plan, coordinates project completion, develops elements of approach and prepares complete draft sections of final reports
Technical Staff	Performs specific data collection and analysis, and prepares draft sections of final reports
Administrative Support	Assists in document production, document formatting and editing, provides clerical support to above positions

Source: Ricondo & Associates, Inc., June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.14

Airfield and Environmental Technical Consulting Services Staff Allocations

Year	Total Staff Costs	Phase 1% / CP% Split	Phase 1	CP	CP Design %	CP Construc -tion %	CP Design $	CP Construction $
2007	$3,416,373	100 / 0	$3,416,373	$ -				
2008	$3,724,589	90 / 10	$3,352,130	$372,459	100%	0%	$372,459	$ -
2009	$3,836,327	50 / 50	$1,918,163	$1,918,163	90%	10%	$1,726,347	$191,816
2010	$3,951,416	40 / 60	$1,580,567	$2,370,850	60%	40%	$1,422,510	$948,340
2011	$4,069,959	20 / 80	$813,992	$3,255,967	25%	75%	$813,992	$2,441,975
2012	$4,192,058	0 / 100	$ -	$4,192,058	5%	95%	$209,603	$3,982,455
2013	$4,317,819	0 / 100	$ -	$4,317,819	0%	100%	$ -	$4,317,819
2014	$4,447,354	0 / 100	$ -	$4,447,354	0%	100%	$ -	$4,447,354
Totals	$28,539,522		$7,664,852	$20,874,671			$4,544,911	$16,329,760

Note: CP = Completion Phase

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.15

Program Management Office Staff Hours, Rates, and Total Costs (Detailed Backup)

Position	2008	2009	2010	2011	2012	Total Man Hours	Average Hourly Billing Rate	Total Cost
Sr. Project Manager	200	1,600	2,000	2,000	1,000	6,800	$196.00	$1,332,800
Design Project Manager R/W 10R-28L	200	1,000	1,000	1,000	500	3,700	$172.00	$636,400
Design Project Manager R/W 9R Extension	200	1,000	500	500	500	2,700	$172.00	$464,400
Design Project Manager R/W 9C-27C	200	2,000	2,000	2,000	1,000	7,200	$172.00	$1,238,400
Scheduler	200	1,000	1,000	1,000	1,000	4,200	$130.00	$546,000
Cost Control	200	1,000	1,000	1,000	1,000	4,200	$125.00	$525,000
Document Control	200	1,000	1,000	1,000	1,000	4,200	$75.00	$315,000
Administrative Assistant	200	1,000	2,000	2,000	1,000	6,200	$75.00	$465,000
Systems Technician	200	1,000	1,000	1,000	500	3,700	$115.00	$425,500
Agreement Coordinator	200	1,000	1,000	1,000	500	3,700	$120.00	$444,000
Environmental Technician	200	1,000	1,000	500	500	3,200	$120.00	$384,000
General Management	500	1,000	1,000	1,000	1,000	4,500	$200.00	$900,000
Technical Services Support	200	500	500	500	200	1,900	$150.00	$285,000
Total								$7,961,500

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.16

Description of Program Management Office Staff Functions

Senior Project Manager	Oversees design coordination with OMP staff, DOA officials, FAA, Master Civil Engineer, utilities, and other designers; tracks design schedules, costs, and quality; provides technical guidance; and supervises design project managers
Design Project Manager	Directs coordination with design team, oversee schedules, costs, and quality; works with Master Civil Engineer on design reviews and with Construction Manager on cost estimates and construction phasing plans; and coordinates construction plans with other airport construction activity occurring at the same time. A separate design project manager is assigned to each runway component
Scheduler	Incorporates project design schedules and monthly updates into program master schedule, advises design project managers and senior project manager of schedule conflicts, and identifies critical path for project design and construction
Cost Control	Maintains reports detailing project budget and cost information for each designer, and participates in implementation of work breakdown structure (WBS)
Document Control	Maintains program files for each project and distributes plans and specifications to regulatory agencies for progress reviews
Administrative Assistants	Support design project managers with the daily administration of design projects, including processing correspondence, producing meeting minutes, and tracking requests for information
Systems Technician	Maintains and supports use of ProLog system for cost and progress reporting
Agreement Coordinator	Maintains inventory of agreements required for design and construction, works FAA on developing and managing FAA reimbursable agreements, and tracks third party agreements relating to design and construction
Environmental Coordinator	Identifies required environmental permits, tracks status of permit applications, coordinates with regulatory agencies, and maintains compliance data base to ensure that designs comply with permit requirements
General Management Staff	Supervises above staff positions, provides updates to OMP senior management to insure consistency with OMP policies and practices relating to design, assists with design problem resolution and technical support, and assesses design resource requirements
Technical Services Support Manager	Provides daily oversight of Master Civil Engineer

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.17

Program Management Office Staff Allocations

Year	Total Staff Costs	Phase 1% / CP% Split	Phase 1	CP	CP Design %	CP Construc -tion %	CP Design $	CP Construc- tion $
2007	$7,098,913	100 / 0	$7,098,913	$ -				
2008	$7,815,286	90 / 10	$7,033,757	$781,529	100%	0%	$781,529	$ -
2009	$8,049,745	70 / 30	$5,634,821	$2,414,923	80%	20%	$1,931,939	$482,985
2010	$8,291,237	50 / 50	$4,145,618	$4,145,618	50%	50%	$2,072,809	$2,072,809
2011	$8,539,974	30 / 70	$2,561,992	$5,977,982	40%	60%	$2,391,193	$3,586,789
2012	$8,796,173	15 / 85	$1,319,426	$7,476,747	10%	90%	$747,675	$6,729,073
2013	$7,000,000	0 / 100	$ -	$7,000,000	0%	100%	$ -	$7,000,000
2014	$5,000,000	0 / 100	$ -	$5,000,000	0%	100%	$ -	$5,000,000
Totals	$53,492,415		$20,695,615	$32,796,800			$7,925,144	$24,871,656

Note: CP = Completion Phase

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.18

City Staff Hours, Rates, and Total Costs (Detailed Backup)

Position	2008	2009	2010	2011	2012	Total Man Hours	Average Hourly Billing Rate	Total Cost
Executive Administration								
Executive Director	140	336	350	392	119	1,337	$146.99	$196,529
First Deputy Director	140	336	350	392	119	1,337	$121.68	$162,680
Finance Administration								
Accountant III	245	588	613	686	208	2,340	$46.08	$107,805
Staff Assistant	210	504	525	588	179	2,006	$40.67	$81,555
Coordinator of Special Projects	123	294	306	343	104	1,170	$54.73	$64,033
Project Administrator	88	210	219	245	74	836	$69.77	$58,305
Assistant Commissioner	88	210	219	245	74	836	$84.22	$70,373
Deputy Commissioner	88	210	219	245	74	836	$113.47	$94,822
Legal Procurement								
Staff Assistant	140	336	350	392	119	1,337	$52.79	$70,574
Coordinator of Special Projects (5)	700	1680	1750	1960	595	6,685	$50.87	$340,042
General Counsel	140	336	350	392	119	1,337	$113.47	$151,715
Attorney	140	336	350	392	119	1,337	$75.54	$100,991
Assistant Commissioner	140	336	350	392	119	1,337	$90.29	$120,714
Project Administrator (2)	280	672	700	784	238	2,674	$67.59	$180,737
Program and Construction Management								
Projects Administrator (7)	1041	2499	2603	2916	885	9,944	$72.64	$722,286
Deputy Commissioner	149	357	372	417	126	1,421	$113.47	$161,197
Total								$2,684,358

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.19

Description of City of Chicago Staff Functions

Position	Division	Description of Functions Related to Completion Phase Design5
Executive Director	Administration	Oversees and manages all OMP design work, including design work of the PMO, CM and Master Civil.
First Deputy Director	Administration	Under the direction of the Executive Director, oversees and manages all OMP design work, including design work of the PMO, CM and Master Civil.
Accountant III	Finance	Audits financial documents to ensure entries are accurate, appropriately allocated to accounts, comply with contract and funding guidelines, documents errors and reconciles accounts as needed
Staff Assistant	Finance & Legal/Procurement	Provides administrative support to managers in connection with supervision and oversign of design process; manages filing, storage and retrieval of records, files and other project data relating to design
Coordinator of Special Projects	Finance	Manages invoices and turn-around time processed by accountants; processes payments vouchers; researches and resolves issues relating to payments and prepares monthly variance reports on contractors; updates and troubleshoots all matters that may delay vendor payments
Coordinator of Special Projects	Legal/Procurement	Assists in preparation and processing of contracts and task orders; packages contract documents and submits to Department of Procurement Services; tracks status of contracts from procurement process to award; maintain current contract database; establishes and maintains relationship with contract vendors to ensure all required documents are submitted
Projects Administrator	Finance	Manages and directs the work flow of professional and paraprofessional staff engaged in direct payment voucher processing and provides technical assistance to ensure the timely processing of invoices for payment within departmental guidelines; coordinates (M/W/DBE) and EEO compliance activities of contractors, vendors and consultants; and maintains all associated compliance and reporting correspondence and documents.
Projects Administrator	Legal/Procurement	Prepares, process, and review contracts and task orders; packages all contract documents and submit same to Department of Procurement Services; coordinates contract process with Department of Procurement Services; attends meetings with the Law Department, Department of Procurement Services, PMO, CM, vendors, and other OMP personnel to resolve issues; coordinates compliance issues with DPS Compliance Department;
Projects Administrator	Program & Construction Management	Oversees the work of the PMO, CM and other contractors.
Assistant Commissioner	Finance	Manages and directs both City of Chicago and consultant staff in all aspects of financial management and payment processes;

[5] These descriptions of staff functions include only those functions that relate to Completion Phase design project administration. The functions described here are the same as, or similar to, functions routinely performed by the identified City staff for other elements of the OMP, including construction and general oversight of the program. These individuals also perform other functions related to OMP that are not described in this Table because they do not relate to design project administration. The allocations in table F-1.18 separate the level of effort and cost of Completion Phase design project administration from the rest of the work of these individual staff members.

		ensures that all contractors are paid accurately and proper documentation supports all payment vouchers; monitors MWD/BE compliance by OMP contractors and meets regularly to resolves any discrepancies and resolves any issue raised relative to fund allocations, payments and reporting
Assistant Commissioner	Legal/Procurement	Responsible for general oversight and management of staff in this division engaged in preparing, processing, and reviewing contracts and task orders; attends meetings with the Law Department, Department of Procurement Services, PMO, CM, vendors, FAA, and other OMP and City personnel to resolve legal issues; drafts, negotiates and reviews contracts and other types of legal documents related to design
Deputy Commissioner	Finance	Directs the work of the Finance Team of OMP; reviews and signs voucher payments to contractors; approves all budgets submitted by the PMO, CM, Master Civil and Quality Assurance teams and monitors their adherence; approves addendums and rate changes as warranted; reports to the First Deputy and Executive Director to relay program status relative to funding, payments, and MWD/BE compliance issues
Deputy Commissioner	Program & Construction Management	Directs the work of the Program & Construction Management team; manages all personnel engaged in project management, Master Civil and Quality Assurance Management Team members.
General Counsel	Legal/Procurement	Directs and reviews preparation of all contracts and other legal documents and manages staff engaged in all legal review activities
Attorney	Legal/Procurement	Prepares, processes, and reviews contracts; packages all contract documents and submit same to Department of Procurement Services; coordinates contract process with Department of Procurement Services; attends meetings with the Law Department, Department of Procurement Services, PMO, CM, vendors, and other OMP personnel to resolve issues

Source: City of Chicago OMP Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F-1.20

City of Chicago Staff Allocations

Year	Total Staff Costs	Phase 1% / CP% Split	Phase 1	CP	CP Design %	CP Construc -tion %	CP Design $	CP Construction $
2007	$1,806,346	100 / 0	$1,806,346	$ -				
2008	$2,473,094	90 / 10	$2,225,785	$247,309	100%	0%	$247,309	$ -
2009	$2,547,287	70 / 30	$1,783,100	$764,186	80%	20%	$611,349	$152,837
2010	$2,623,705	50 / 50	$1,311,853	$1,311,853	50%	50%	$655,926	$655,926
2011	$2,708,976	30 / 70	$812,693	$1,896,283	40%	60%	$758,513	$1,137,770
2012	$2,803,790	15 / 85	$420,568	$2,383,221	10%	90%	$238,322	$2,144,899
2013	$2,901,923	0 / 100	$ -	$2,901,923	0%	100%	$ -	$2,901,923
2014	$3,003,490	0 / 100	$ -	$3,003,490	0%	100%	$ -	$3,003,490
Totals	$20,868,610		$8,360,345	$32,796,800			$2,511,420	$9,996,845

Note: CP = Completion Phase

Source: OMP Program Management Office, June 2008.
Prepared by: Ricondo & Associates, Inc.

Table F1.21

Western Terminal Area Study Staff Hours, Rates, and Total Costs (Detailed Backup)

Personnel	Principal-In-Charge	Project Manager	Sr. Planner-Terminal	Sr. Planner-Landslide	Sr. Planner-APM	Sr. Planner-Airside	Planner III	Planner II	Planner I	CADD/Tech Support	Admin Support/WP	Total Hours Per Task	Total $ Per Task
Billing Rates	$275	$245	$235	$235	$235	$235	$200	$175	$125	$80	$75		
MANAGEMENT													**$597,600.00**
Project Management		2,080										2,080	$509,600
Quality Management	320											320	$88,000
PHASE I - DEVELOPMENT OF GOALS AND OBJECTIVES												0	**$295,480**
Site Inventory/Constraints (Facilities, Access, Utilities)			40	80	40	60	120	240	80	240	80	980	$152,900
Forecast Review/Derivative Forecasts			24	24	24	24	160	80			32	368	$70,960
Workshops/Charrettes			40	24	24	24	40	80	60	160	40	492	$71,620
PHASE II PROGRAMMING, STANDARDS AND ALTERNATIVE SCENARIOS													**$962,880**
Airside												0	$-
Gate Demand						60	80	24			40	204	$37,300
Airside Planning Standards						40			32	24	16	112	$16,520
Terminal												0	$-
Aircraft and Passenger Demand			60					80	40	32	8	220	$36,260
Terminal Space Programming			40					64	32	24	16	176	$27,720
Other Standards			80				160	120	80	120	80	640	$97,400
Landside												0	$-
Vehicle Demands			12		60		64	80	24	16	8	264	$48,600
Access, Staging, and Curb Requirements			8		24		48	24	16	8	12	140	$24,860
Parking Requirements			12		40		52	24	24	16	12	180	$32,000
Regional Connections			16		60		40	16	32	24	24	212	$36,380
Transit/Rail Connections			40	240	60		320	240	320	400	160	1,780	$269,900
APM Requirements			24		240		240	300	160	320	120	1,404	$217,140
Utility Requirements			24				80	60	12	40	24	240	$38,640
Develop Alternative Scenarios			24	24	24	24	40	80	160	120	80	576	$80,160
PHASE III CONCEPTS DEVELOPMENT													**$1,266,380**
Scenario Definition and Planning Requirements													$-
Quantitatively Define Alternative Scenarios			40	40	40	40	240	160	80	240	80	960	$148,800
Define Scenario Planning Requirements (Terminal, Terminal Support, Access)			60	24	24	40	160	80	160	160	60	768	$118,080
Concept Planning												0	$-
Concept Parameters			80	60	60	80	120	80	160	80	40	784	$139,800
Concept Development			260	200	180	180	160	240	320	400	240	2,260	$378,700
Concept Short Listing			40	24	24	40	60	40	80	40	24	412	$75,080
Concept Evaluation/Selection												0	$-
Criteria Development			40	24	24	40	48	32	60	16	24	308	$55,860
Cost Estimates (Planning Level)			40	16	24	40	80	120	160	16	24	520	$88,280
Operational Efficiency												0	$-
Terminal			60	8	8	8	80	80	40	24	8	316	$57,260
Airside			8	8	8	40	120	120	40	16	12	372	$67,220
Access			8	40	40	8	80	80	60	8	8	332	$61,300
Constructability/Impact on Operations			8	8	8	8	160	160	48	16	16	432	$76,000
PHASE IV INFRASTRUCTURE ASSESSMENT													**$178,160**
Power Assessment			16	16	16	16	40	24	24	24	24	200	$33,960
Water/Sewer Service			8	8	8	8	60	40	40	32	32	236	$36,480
Communications			8	8	8	8	40	16	16	24	24	152	$24,040
Gas			8	8	8	8	40	24	24	24	24	168	$26,440
Other Systems			16	16	16	16	60	80	80	40	40	364	$57,240
PHASE V ENABLING PROJECTS, PHASING AND ORDER OF MAGNITUDE COSTS													**$391,700**
Phasing/Implementation			24	40	24	60	40	8	8	24	40	268	$50,100
ROM Costs			16	12	12	24	60	480	400	32	32	1,068	$166,000
Program Budget			16	12	12	24	40	240	240	24	40	648	$99,960
Program Schedule			16	12	12	24	40	160	80	160	24	528	$75,640
OTHER SERVICES													**$1,050,000**
Airfield Simulation													$150,000

Landside Simulation													$150,000
Visualization Modeling/Renderings													$200,000
Supplemental Studies (Revenue Enhancement/New Technologies)													$350,000
Expenses													$200,000
Total Hours	464	2,080	1,216	976	1,152	944	3,172	3,776	3,192	2,944	1,568		
Total Cost	$127,600	$509,600	$285,760	$229,360	$270,720	$221,840	$634,400	$660,800	$399,000	$235,520	$117,600	21,484	**$4,742,200**

Source: City of Chicago OMP Office, June 2008.
Prepared By: Ricondo & Associates, Inc.

ATTACHMENT F-2

SOURCES OF OMP FUNDING

The Master Plan identifies the following sources of funding for OMP construction: (1) general airport revenue bonds (GARBs), (2) Airport Improvement Program (AIP) grants, (3) passenger facility charges (PFCs), and (4) third party financing. MP VII-28 – VII-29. Historically, the City has used all of these sources to pay for O'Hare improvements, as have airports throughout the United States. A fifth source, which was not identified in the Master Plan but which has become available, is direct FAA payment for a portion of the cost of airport traffic control facilities out of its facilities and equipment budget. None of these sources relies directly or indirectly on City or state taxes. The City intends to continue financing the OMP and other airport projects without recourse to local or state tax revenues.

I. General Airport Revenue Bonds (GARBs)

1.1 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[1]. OS 5. See Response to Public Comments #20. 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).

1.2 Use Agreements and GARBs

The Use Agreements give airlines who 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, they have certain approval rights. The Use Agreements terminate on May 18, 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 Use Agreements also allow the City to issue GARBs without Airline Party approval for specific types of projects. For example, GARBs may be issued without airline approval for capital projects "necessary to comply with any valid rule, regulation or order of any Federal or state agency (Use Agreement § 8.02(a)(i)(3)). The ROD is an FAA order.

The City is currently in discussions with airlines about a plan of finance for the Completion Phase projects. The City intends to use GARBs to fund a substantial share of Completion Phase 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.

[1] 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 terminal buildings that are used by designated carriers, and are secured solely by payments made by those carriers.

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 18, 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 O'Hare based on their assessment of the airport's future creditworthiness, rather than on the airlines commitments under the Use Agreement. OS 38-39

GARBs are routinely sold by airports nationwide that do not have long-term airline agreements. See Response to Public Comment #20.

1.3 GARB Interest Rates

To date, the City's GARBs for OMP have been issued at the following interest rates:

Table F-2.1

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% (except for 2003, which was 5.50%). 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 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% of the bonds would be issued at a fixed rate of 6.25% and that 15% of the bonds would be issued at a variable rate of 4%, resulting in a 5.91% blended rate assumption for the interest cost of the OMP-Phase1 debt. Almost all of the planned Phase 1 GARBs have been issued, all of them at a true interest cost lower than the 5.91% 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.[2]

1.4 GARB Ratings

GARBs are independently rated by three rating agencies, which publish their opinions on the creditworthiness of the bonds. Phase 1 GARBs have received recent positive ratings by Moody's, S&P and Fitch, who 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 insurance.

II. Federal Funding

2.1 Airport Improvement Program

The Airport Improvement Program (AIP) is authorized by Chapter 471 of Title 49 of the United States Code. AIP grants have been authorized by Congress since 1982. AIP's broad objective is to assist in the development of a nationwide system of public-use airports adequate to meet the current needs and the projected growth of civil aviation. It provides funding for airport planning and development projects at airports included in the National Plan of Integrated Airport Systems, which includes O'Hare. AIP grants are also authorized for noise compatibility planning and to carry out noise compatibility programs.

For large, multi-year projects, airports typically apply for a letter of intent under 49 USC 47110(e), under which the FAA states "an intention to obligate from future budget authority an amount . . . for an airport development project (including costs of formulating the project) . . ." On November 21, 2005, the FAA issued a letter of intent for OMP Phase 1 (LOI) for $337.2 million to be paid over 15 years. The City annually applies for an AIP grant. Each grant is a separate transaction. *Bensenville 2.*

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. 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. 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

[2] 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%, with a peak on the first day of that period of 7.98% (September 8, 1988). The average for the last ten years was 5.23%, with a peak of 6.35% on January 20, 2000. The lowest interest rate for both periods was 4.38% 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 generally supports the interest rate assumption in the Master Plan, the City makes no representation as to future interest rates on OMP bonds.

for $1,679,563 was approved by the FAA on September 8, 2008. The incremental approvals total the full amount of the third installment of $26,500,000. The city will apply the funds to the project.

The City intends to apply for a letter of intent for construction of the Completion Phase projects in the next year. The timing of the Completion Phase LOI application is coordinated with the timing of Completion Phase construction. The City will not be able to use Completion Phase AIP grants until it begins Completion Phase construction. The City believes that its second LOI application will satisfy the requirements of law.

> Having found OMP Phase 1 provides significant improvement at one of the nation's most important airports, the FAA can be expected to continue to fund the overall OMP, assuming that the City is able to comply with the statutory and regulatory guidance on LOI/AIP funding, and that funds remain available when those applications are filed. A&R, *FAA Response to DOT Office of Inspector General July 21, 2007 Report*, p. 5.

The City also has received a $26 million discretionary grant for noise mitigation programs and expects to apply for additional grants for noise mitigation. ROD 48. The ROD establishes the City's eligibility for AIP grants for noise mitigation projects. ROD 116. Such grants are in addition to the amounts described in the LOI.

2.2 Additional Federal Funds

On January 14, 2008, the FAA 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 LOI and for noise mitigation. The City expects that there may be additional opportunities to obtain federal funds for the OMP. The analysis of financial feasibility in the Master Plan and A&R did not take account of such additional funds.

2.3 Aggregate of Additional Funds

As described above, to date the City has realized two sources of funds for OMP costs that were not included in any previous analysis of OMP financial feasibility: $26 million AIP discretionary grant for noise mitigation, and $42 million assumption by the FAA of the cost of the north tower. The City plans to continue to apply for discretionary grants for noise mitigation, and seek additional federal support for OMP components.

III. 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).

The City currently has authority to impose and use about $5 billion in PFCs. On September 4, 2007 in the FAD, the FAA approved the City's application to impose and use more than $1 billion of PFCs for OMP runway construction and financing and $270 million of PFCs to reimburse costs of OMP land

acquisition. The City currently collects about $150,000,000 each year at the $4.50 PFC rate. The City estimates that the annual collection will rise to approximately $160 million after the OMP is completed.

PFCs may be used to pay debt service on bonds, the proceeds of which are then immediately available to pay or reimburse costs of airport development and planning. In January, 2008, the City issued $530 million of bonds secured both by airport revenues and PFCs.

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 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 67-68. The FAA estimates the current O'Hare PFC collection expiration date to be December 1, 2024, not including PFCs that may be allowed as a result of this Application.

IV. Third Party Financing

Private investors are a growing source of funds for transportation infrastructure development and improvement.

> Private financing is fast becoming one of the principal means of financing airport capital improvements in both developed and less developed countries. Typically, the airport operator signs a BOT (build, operate, and transfer) contract with a private group that undertakes to finance all or part of a development project against specified rights to its future revenues. This may involve just a single facility (e.g., a multistory automobile parking garage) or a complex (e.g., a new passenger terminal and supporting facilities) or, in a few instances, an entire airport[3].

Routine airport planning under FAA guidelines includes "projection of funding required from public agencies as well as the financial community or other private sources to implement the plan and revenue generated from improvements." Order 5100.38C ¶ 405k. The City's plan projects that funding for the western terminal complex will include investment by private sources, which may include airlines.

Similarly, the City can lease an existing airport facility to an investor, with an upfront payment available to fund airport projects. The City has significant experience in the privatization of major infrastructure assets. In January 2005, it closed on a long-term lease and concession giving a team of private operators the exclusive right to operate, manage, maintain, rehabilitate and toll the Chicago Skyway for 99 years, from which the City received an upfront payment of $1.83 billion. In December 2006, it closed on a long-term lease and concession for the downtown public parking system to a private operator, also for a term of 99 years, from which the City received an up-front payment of $563 million. The City is currently engaged in a solicitation for a long-term concession and lease of Chicago-Midway Airport.

[3] de Neufville and Odoni, *Airport Systems: Planning, Design and Management (2003),* p. 246. Dr. de Neufville, a professor at the Massachusetts Institute of Technology with decades of experience in airport system planning, is listed as a preparer of the EIS. EIS 8-93.

ATTACHMENT F-3

FINANCIAL VIABILITY

I. Sufficiency of revenues

"PFC revenues alone or with other funding sources such as Federal funds and state and local revenues must be sufficient to cover the costs of each project." Order 5500.1 ¶ 4-19. The PFC revenues, while sufficient, must not exceed the "amount necessary to finance the approve project." Id. 59 USC § 40117(d)(1). Order 5500.1 specifies financial information that must be provided. All of that information is provided in Attachment B for each project.

Attachment F-1 shows the method by which the costs of the design and planning projects were determined. The design estimates are based on actual recently-incurred costs. The FAA can reasonably determine that the Completion Phase design costs will be similar to Phase 1 costs, with appropriate escalation. The amounts are necessarily estimates. The City believes that these estimates have been conservatively made and that the actual cost of the projects may exceed the requested amount. If so, the City has available other funding sources to complete the work (see Attachment F-2), or may seek to amend the PFC approval to permit collection of additional PFCs to pay the added amount.

II. Project completion cost

Order 5500.1 states that the required financial information "also serves to assure that PFC funds will be invested in projects that can be completed given available financial resources." ¶ 4-19. Neither a benefit/cost analysis, nor a demonstration of financial feasibility of the OMP or any of its parts, is required by the statute, regulations or Order 5500.1. However, investment of PFC revenues in design of three runways and a taxiway is an additional investment in those projects. In 2007, the FAA approved PFC funding of land acquisition, including land required for those Completion Phase projects. The City shows here that those four projects "can be completed given available financial resources." Id.

The total cost of the three runway projects is estimated to be $1.9 billion. This amount includes items that were excluded from construction costs for purposes of estimating design costs because they are ineligible for PFC purposes. See Attachment F-1. However, constructing these four projects requires at least some of those costs and their total is included here.

III. Project completion sources of funds

The City plans to pay construction costs from the same sources used to finance Phase 1. See Attachment F-2. The City plans to apply for a letter of intent for the Completion Phase and, if the LOI is issued, for the grants described in it. The City also plans to seek FAA approval to impose additional PFCs for runway construction. Both applications are scheduled for filing within the next year. The applications for Completion Phase construction will be similar in form and content to the applications approved for Phase 1 runway costs in the LOI and FAD. The City is negotiating with O'Hare airlines on a funding agreement for the Completion Phase. However, the City has access to the GARB market in amounts sufficient to pay for the Completion Phase airfield projects without airline approval. See Attachment F-2.

IV. Financial viability

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. The $6.6 billion total also included a $300 million contingency item. Master Plan VII-23 (attached). 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[1]. After reviewing and adjusting this amount, the FAA estimated OMP cost at $7.52 billion in 2004 dollars (EIS Table 1-11).

The FAA's estimate would be $8.46 billion in 2007 dollars. See Table F-3.1.

Using its $7.52 billion estimate in review of the City's application for a Letter of Intent, 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. A&R Attachments A and B.

The City currently estimates total OMP cost at $8.35 billion in 2007 dollars. The estimate includes actual costs for 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 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 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.

V. Benefit-cost analysis

Although not directly material to a PFC application, OMP financial viability is further confirmed by reference to benefit-cost analysis. The total OMP airfield and the Total OMP continue to have benefit-cost ratios exceeding 1.0. See Attachment F-4.

VI. Additional factors affecting financial viability

As shown above, OMP costs are estimated to be within the range assumed in the positive findings of financial viability by the FAA in 2005. Financial viability is also affected by reductions in the amounts to be paid by airlines and other airport users compared to their original expectations. To date, $68 million in unexpected amounts from the FAA have been committed, reducing the financial cost to airlines and other airport users by that amount. These include $42 million which the FAA

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

will pay for the north airport traffic control tower, and $26 million for noise mitigation. The City has applied for, and believes that it is reasonable to expect, additional amounts for noise mitigation.

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 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 may be available as the program is developed.

ATTACHMENT F-4

COST-EFFECTIVENESS

I. Introduction

A formal benefit/cost analysis (BCA) is not required for PFC approval.

In general, the more costly a project is, the more substantial should be its benefits with regard to the desired PFC objective(s) it is intended to meet. However, unlike the AIP, there is no requirement for benefit-cost analysis (BCA) of PFC projects exceeding a certain cost threshold. Thus, informed opinion need not conclude that a project would pass a BCA. Rather, it need only conclude that the sum of aeronautical benefits would not be disproportionately less than project costs (Order 5500.1 ¶ 4-8).

The requirement in 49 USC § 46115(d)(1)(B) that the FAA "consider . . . the project benefit and cost" in making grants from the AIP discretionary fund does not apply to PFC review.

There is nothing in the statute or legislative history that suggests that Congress intended the FAA to employ a formal cost/benefit analysis or other test of general applicability in determining whether "adequate justification" for a specific project has been demonstrated (Southeast Queens Concerned Neighbors v. FAA, 229 F.3d 387, 394 (2d Cir. 2000)).

Order 5500.1 encourages inclusion of an existing BCA. Several BCAs, using different methods, were prepared for the City's application for a Letter of Intent (LOI) in 2005. The LOI application focused on OMP airfield Phase 1, for which the BCA showed a "robust" benefit-cost ratio (BCR) of 6.3, far above the FAA's benchmark 1.0. The City also provided the FAA with BCA for total Phase 1, including both airfield and other projects, all of the OMP's airfield, and all of the planning capital programs, including OMP and World Gateway. In each case, the City's BCAs showed BCRs exceeding 1.0. In each case, the BCRs are sufficiently large, that substantial increases in project costs would not reduce the BCRs below 1.0.

All of these analyses were highly conservative. Although they included all project costs, they limited the benefits to certain airfield congestion and delay benefits. Had a full accounting of benefits been included, the BCRs would have been still higher.

Although the LOI BCA was limited to Phase 1 airfield projects, it also included all of the land acquisition for the total OMP. Land costs were included because land is being acquired during the period of Phase 1 construction, and because costs for all of the program's land acquisition costs were included in Phase 1 expenses approved by the Majority-in-Interest airlines. The FAA's BCA determination for the LOI included costs for all of the OMP's land. As of May 28, 2008, 552 of 605 parcels in the southwest area of the airfield had been acquired or settled, and 47 were in condemnation proceedings.

The City's LOI analyses are described below. They demonstrate that "the project is cost-effective."

II. February 2005 BCA

The February 2005 BCA results are shown in **Table F-4.1**. Several sensitivity analyses, summarized in **Table F-4.2**, include (1) increasing capital investment costs by 25 percent, (2) delaying the construction schedule by 5 years, (3) decreasing benefits by 25 percent, and (4) combination of all three of those adjustments. For all of the analyses, the results exceed the FAA thresholds of a benefit-cost ratio of 1.0 and a positive net present value (NPV).

The February 2005 BCA and sensitivity analyses do not quantify or consider all benefits associated with the project. They show that aircraft travel time savings alone produce benefits that, in every case, exceed project costs. This analysis assumed that demand in the "With-Project" scenario would not be greater than that in the FAA's constrained "No-Action" scenario, meaning that no credit was taken for the additional capacity provided by the project. Thus, the BCRs and NPVs are based on underestimated benefits. They would be expected to be higher if a full accounting of project benefits were performed.

The February 2005 BCA included supplemental analysis showing (1) the economic justification for the overall OMP airfield program, and (2) that the benefits provided by the airfield projects alone outweigh the costs associated with both airfield and non-airfield elements of the entire Airport Master Plan. Many non-airfield elements of the OMP and Master Plan, including passenger handling facilities, will produce additional benefits that were not quantified in the BCAs in Tables F-4.1 and F-4.2.

Each of the following February 2005 supplemental analyses is described below, with the resulting BCRs and NPVs shown in **Table F-4.3**:

Master Plan Phase 1: This analysis included benefits and costs for all OMP-Phase 1 elements shown in the EIS, including the airfield, West Satellite Concourse, and other facilities from the World Gateway Program. Only airfield operational travel time benefits were included in this analysis. Other benefits of Master Plan Phase 1, including improved terminal efficiency, were not included. Including these additional benefits would increase the BCRs and NPVs.

OMP Total Airfield: This analysis included benefits and costs for total OMP Airfield Projects, both Phase 1 and Phase 2. Decommissioning of Runways 14L-32R and 14R-32L was also included.

Total Master Plan: This analysis included all OMP projects (airfield, terminal, and enabling) and all WGP projects to evaluate the ability of the benefits generated by the airfield projects to outweigh the overall costs of the Master Plan. Only airfield operational travel time benefits were included in this analysis. However, the unconstrained forecast of passenger activity was used to provide a surrogate measure of the costs incurred by the additional passengers that are unable to use the Airport under the Base Case. Under this methodology, each of these additional passengers would incur a benefit equal to the benefit of the passengers already using the Airport, approximately $4 each, a factor derived from the value of passenger time provide in Economic Values for FAA Investment and Regulatory Decisions, A Guide, by GRA, Inc., one of the FAA's independent BCA consultants. The benefit represents the average delay savings per passenger. Other benefits of the Master Plan, such as improved ground circulation, parking and terminal efficiency, are listed in **Table F-4.4**, but they were not quantified and were not included in this analysis. These additional benefits would increase the BCRs and NPVs.

III. Supplemental BCA – September 2005

The February 2005 BCA was based primarily on delay reduction benefits (measured as changes in total aircraft travel time) anticipated to be produced by the project. It assumed that the Base Case and the OMP Scenarios (Scenario Cases) would realize the Environmental Impact Statement (EIS) constrained forecast's level of operations. The FAA asked the City to provide a Supplemental BCA, relaxing the assumption that aircraft operations in the Scenario Cases were capped consistent with the Base Case.

While the February 2005 BCA provided a worst-case scenario of the estimation of project benefits by including only aircraft travel time savings, the methodology provided by FAA for the supplemental analysis included a mechanism to quantify the benefits associated with the increased traffic and passengers that can be processed by the airport as a result of the capacity increase attributed to the project. This methodology utilized sound, common economic principles in analyzing the benefits of the program. It relied on the principle that consumers make travel decisions based on the value they receive for the price they are expected to pay. **Table F-4.5** summarizes the results this Supplemental BCA.

This Supplemental BCA also included a benefit-cost analysis of the Total Master Plan. Appendix F of the Supplemental BCA describes the detailed assumptions of the consumer surplus-based method that produced a BCR of 2.02.

These supplemental analyses demonstrate that the overall OMP airfield program is economically justified, and that the delay benefits of the airfield program alone outweigh its costs, and even outweigh the total cost of the OMP and the total Master Plan. In each case – even applying extremely conservative methods – the BCR and NPV exceed FAA thresholds. Aircraft travel time savings alone are sufficient to produce benefits exceeding project costs. The February 2005 analysis shows BCAs and NPVs based on underestimated benefits. They would be expected to be higher if a full accounting of project benefits were performed.

IV. OMP cost increases will not affect the determination that the project is economically justified

These two sets of analyses provide a basis for assessing the potential effect of cost increases on the economic justification of the OMP. For Phase 1, both the February 2005 and the Supplemental BCAs provide such data. The February 2005 BCA includes an analysis that assumed a 25 percent increase in capital costs. With this increase in capital costs, the resulting Benefit Cost Ratio was 1.69 (above the 1.0 threshold).

The Supplemental BCA, relying on the FAA's methodology, showed OMP Phase 1 Airfield has a BCR of 6.3. Even if the present value of capital costs were doubled or even tripled (or the present value of benefits were reduced by half or more), Phase 1 would still produce a BCR greater than 1.0.

The February 2005 BCA also looked at the total of both Phases of the OMP. That analysis for the OMP Total Airfield showed a 2.01 BCR. Thus, the present value of costs of the total OMP in that analysis could be increased by more than 90 percent and still produce a BCR above 1.0 without accounting for substantial benefits in addition to airfield delay reduction benefits. The February 2005 BCA also analyzed the Total Master Plan, including capital costs for the World Gateway Program (including taxiway LL), all of OMP's airfield projects, and OMP's terminal projects. The

resulting BCR was 1.04. In this very conservative analysis, capital costs of terminal and landside projects were included, but benefits resulting from them were not fully counted. As a result, with benefits significantly understated while all costs were included, the BCR is conservatively low, but still above the FAA's benchmark 1.0. Including terminal and landside project benefits in the numerator of the BCR fraction for which capital costs were included in the denominator would significantly increase the BCR.

The Supplemental BCA also analyzed the Total Master Plan and concluded that the airfield benefits outweighed the costs by slightly more than two to one. This Supplemental BCA also did not account for all benefits produced by the projects. Including those benefits would produce a BCR greater than 2.0, more than double the FAA's benchmark of 1.0. With the Supplemental BCA's conservative analysis of the Total Master Plan, the present value of costs could double (or present value of benefits could be halved), and the BCR would still be greater than 1.0.

V. Effect of rise in fuel prices

As the cost of aircraft fuel rises, the magnitude of the delay reduction benefit increases. The BCA methodology determines benefits through a formula that sums aircraft operating costs per minute, adjusted for local factors such as fleet mix. Saving minutes saves fuel and increases project benefits. In 2005, when the OMP Phase 1 BCA was prepared, the cost per minute used for the analysis was approximately $30. Today it is significantly higher.

There are many other factors included in a BCA. The increase in benefits resulting from fuel prices will be partially offset by an increase in costs attributable to the same cause.

The City will prepare a formal BCA when it applies for a Completion Phase LOI in the next year. However, it is reasonable to conclude that the value of the benefits of the project has at least kept pace with the escalation of project costs.

TABLES F-4.1 – F-4.5

Table F-4.1

Benefit-Cost Ratio and Net Present Value (2001 dollars) – OMP-Phase 1 Airfield Projects
Aircraft Travel Time Benefits Only

Project	Present Value Benefits (billions)	Present Value Costs (billions)	Net Present Value (billions)	Benefit-Cost Ratio
OMP-Phase 1 Airfield Projects	$4.1	$1.9	$2.2	2.13

Sources (Costs): Ricondo & Associates, Inc. and O'Hare Partners, based on cost estimate analyses from TOK LLC, and AOR.
Source (Benefits, NPV, Benefit-Cost Ratio): Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Table F-4.2

Benefit-Cost Ratio and Net Present Value (2001 dollars) – Sensitivity Analyses
Aircraft Travel Time Benefits Only

Projects	Evaluation Period End Year	Present Value Benefits (billions)	Present Value Costs (billions)	Net Present Value[1] (billions)	Benefit-Cost Ratio
Increase capital costs by 25 percent	2028	$4.1	$2.4	$1.7	1.69
Delay construction schedule by 5 years	2033	$2.9	$1.4	$1.5	2.13
Decrease benefits by 25 percent	2028	$3.1	$1.9	$1.2	1.61
All of the above	2033	$2.2	$1.7	$0.4	1.27

Notes: [1]Totals may not add due to rounding.

Sources (Costs): Ricondo & Associates, Inc. and O'Hare Partners, based on cost estimate analyses from TOK LLC, and AOR.
Source (Benefits, NPV, Benefit-Cost Ratio): Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Table F-4.3

Benefit-Cost Ratios and Net Present Values (2001 dollars) – Supplemental Analyses
Aircraft Travel Time Benefits Only

Projects	Evaluation End Year	Present Value Benefits (billions)	Present Value Costs (billions)	Net Present Value [2] (billions)	Benefit-Cost Ratio
Master Plan Phase 1 [1]	2028	$4.1	$2.6	$1.5	1.56
OMP Total Airfield	2032	$5.7	$2.9	$2.9	2.01
Total Master Plan	2032	$6.4	$6.2	$0.2	1.04

Notes: [1] WGP costs converted from 1999 dollars to 2001 dollars using the Gross Domestic Product Price Inflator in accordance with the *BCA Guidance*.
[2] Totals may not add due to rounding.

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

Table F-4.4

Inventory of Benefits Quantified and Not Quantified in the BCA

Project Type	Typical Benefit	Benefits Quantified in BCA	Benefits Not Quantified in BCA
Airside Capacity	• 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
Airport Terminal Building Capacity	• Reduced aircraft, passenger, cargo, and meter/greeter delay (attributable to more gates and faster passenger transfers to connecting flights)		x
	• Improved passenger schedule predictability (ability to allow less time for potential delays at airport terminal building)		x
	• More efficient traffic flows (shortened pedestrian traffic distances)		x
	• Improved passenger comfort		x
	• Lower airport terminal building operating and maintenance costs		x
Landside Access	• Reduced passenger, cargo, and airport and airline employee delay in getting to airport		x
	• Improved schedule predictability (ability to leave later for airport and arrive on time for check in)		x
	• Lower operating and maintenance costs		x
	• Improved safety		x

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

Table F-5.5

Summary of Results from Supplemental Benefit Cost Analyses

Scenario	Present Value Benefits (billions)	Present Value Costs (billions)	Net Present Value (billions)	Benefit-Cost Ratio
OMP Phase 1 Airfield	$12.4	$1.9	$10.4	6.3
Master Plan Phase I	$12.4	$2.7	$ 9.7	4.6

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

ATTACHMENT F-5

RELEVANCE OF INCORPORATED DOCUMENTS

The City incorporates certain documents in this application, including the EIS, ROD, A&R and the FAD. The relevance of these documents to this Application and the City's reasons for incorporating them in their entirety in this Application are explained in here.

This Application is one of a series of actions described in the Master Plan, the EIS, the ROD, the LOI A&R, FAD and decisions of the courts to develop the OMP. The projects that are the subject of this Application are components of the overall program whose history is set forth in extensive detail in those documents and the administrative records that contain the materials before FAA when it decided in the ROD that the OMP satisfies federal requirements for ALP approval and other federal actions. The projects for which PFC use approval is sought in this application are necessary preparatory work for projects that FAA has already analyzed and on which FAA has already ruled. The Court of Appeals noted that the FAA "appears to have acted with great care in conducting its analyses for the EIS and ROD." Bensenville1at 58.

The City's justification for these remaining runway projects and the western area facilities is identical to the justifications that FAA previously approved and has stated in FAA's own words. Each statutory requirement for PFC approval is substantially the same as findings and determinations that the FAA has already made in the ROD, the LOI and the FAD and actions described in those documents. The City submits these prior FAA approvals, and the support for them, because they contain (i) thorough descriptions of the projects, (ii) analysis of project benefits, (iii) FAA's reasons for selecting the OMP, which includes these proposed PFC projects, as the FAA's "preferred alternative" and the analysis and reasons for that selection, (iv) analysis and detailed responses to comments and several stages of FAA project and project financing review, and (v) analysis of the benefits and costs of the projects. The City submits the entire record to ensure that the record for this Application contains all information that is relevant, or may be deemed relevant, as this application is processed and, if this proposed PFC is approved and a petition for review is filed, as that decision is reviewed by the Court of Appeals.

The EIS, ROD and the LOI Analysis and Review specifically state that they are part of the decision-making process for subsequent PFC actions by FAA. The FAD is direct precedent for the FAA action requested in the Application.

I. (EIS)

The purpose of preparing an EIS is to investigate, analyze, and disclose the potential impacts of proposed Federal actions and their reasonable alternatives. The EIS serves to document and disclose to agency decision-makers as well as the public the environmental consequences of the proposed action and reasonable alternatives. It aids the FAA in making informed decisions and taking actions that protect and may enhance the environment. The FAA is the agency responsible for approval of the proposed Federal actions. The FAA is also responsible for assuring that the proposed project is consistent with safety, utility, and efficiency of the airport and that the proposed project and associated approach and departure procedures are consistent with safe and efficient utilization of the navigable airspace. The Federal actions associated with the proposed development are:

- Eligibility for Federal funding under the Airport Improvement Program (AIP) and to impose and expend passenger facility charges (PFCs) (EIS 1-2)

II. (ROD)

3. PROPOSED FEDERAL ACTIONS AND APPROVALS Section 1.1 of the Final EIS identifies the FAA actions to support the proposed development project. The necessary FAA actions, determinations, and approvals are summarized below:

- Determinations . . . under 49 USC 40117, as implemented by 14 CFR 158.25(c), to impose and expend passenger facility charges (PFCs) for the proposed project."

(ROD 9)

"Under the authority delegated to me by the Administrator of the FAA, I find that the project in the ROD is reasonably supported. I, therefore, direct that action be taken to carry out the following agency actions discussed in Section 3 of this ROD, including: . . . Eligibility for . . . PFC, including the following elements:

- Site Preparation
- Runway, Taxiway, and Runway Safety Area Construction

(ROD 116)

III. (LOI)

FAA's review of the financing plan included a comprehensive analysis of the City's PFC status and funding potential. On that basis, the FAA determined that the City's PFC funding estimates were supportable and realistic as noted further below. (LOI A&R 18)

IV. (FAD)

The land acquisition project included in the FAD "is a necessary component of an overall development program that makes a significant contribution to reducing current or anticipated congestion" and "a necessary component of an overall program that makes a significant contribution to increasing competition between or among air carriers at ORD." FAD 11. The projects in the current Application are components of the same overall development program. The FAD's findings and the analysis supporting them are directly relevant to similar findings and analysis required for the current Application.