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THE CITY OF CHICAGO'S SECOND ATTEMPT TO JUSTIFY THE O'HARE MODERNIZATION PROGRAM FAILS THE FAA BENEFIT-COST REQUIREMENTS

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1.0 EXECUTIVE SUMMARY

Federal law prohibits FAA from awarding a discretionary AIP grant or associated LOI (Letter of Intent) unless the economic benefits exceed the economic costs. Chicago has previously submitted a Benefit-Cost Study in February 2005 asserting that the delay savings benefits of Chicago's proposed Phase I project at O'Hare Airport are in excess of the economic costs of Phase I. Similarly, Chicago in its February 2005 Benefit-Cost Study claimed that the delay savings benefits of Chicago's proposed Total Master Plan project at O'Hare Airport are in excess of the economic costs of the economic costs of the Total Master Plan.

Campbell-Hill prepared a detailed analysis of the Chicago February 2005 Benefit-Cost Study in a report submitted to FAA on June 6, 2005 Chicago O'Hare Modernization Program Fails To Meet The FAA Tests For Benefit-Cost Justification as supplemented with additional supporting materials to FAA on July 21, 2005. The June 6th Campbell-Hill report and the July 21st supplemental materials demonstrated conclusively that the economic benefits of Phase I are far less than the costs of Phase I (less than a penny of benefit for every dollar of cost) and that the economic benefits of Total Master Plan are far less than the costs of Total Master Plan (less than 27 cents of benefit for every dollar of cost).

On October 7, 2005 the FAA released a heretofore undisclosed new Benefit-Cost Study filed by the City of Chicago on September 27, 2005. Campbell-Hill has had a brief opportunity to examine this new Chicago Benefit-Cost Study. On the basis of the analysis set forth below, Campbell-Hill finds that the economic benefits for Phase I now claimed in the September 27, 2005 Chicago Benefit-Cost Study are also far less than the economic costs of Phase I (again less than a penny on the dollar) and that the benefits of the Total Master Plan presented in the Chicago Benefit-Cost Study are less than 20 cents for every dollar of cost).

- The FAA must evaluate the financial feasibility or cost effectiveness (benefit-cost relationship) of the Total Master Plan and all elements of the OMP that are integrally related to the entire project. Failing this level of assessment, the FAA must evaluate the Phase I Master Plan and not simply OMP-Phase I Airfield. The City's LOI request deals only with OMP-Phase I **Airfield** which is a device it contrived to strip away major Master Plan costs that are essential to the Phase I runway program. The

FAA cannot judge the wisdom and cost effectiveness of OMP-Phase I Airfield separately from the rest of the terminal and other infrastructure necessary to handle more operations and passengers, any more than it could judge a runway project separate from its associated taxiways.

- Because the City's second BCA study is fatally flawed in its methodology, and fails the FAA's benefit-cost requirements, the FAA must reject the City's $300 million AIP and LOI requests.

1.1 Overview

- The City's second attempt to demonstrate a positive benefit-cost relationship for the OMP fails the FAA threshold requirements for federal funding by a wide margin. This finding is entirely consistent with, and supportive of, Campbell-Hill's findings in its June 6, 2005 BCA report.

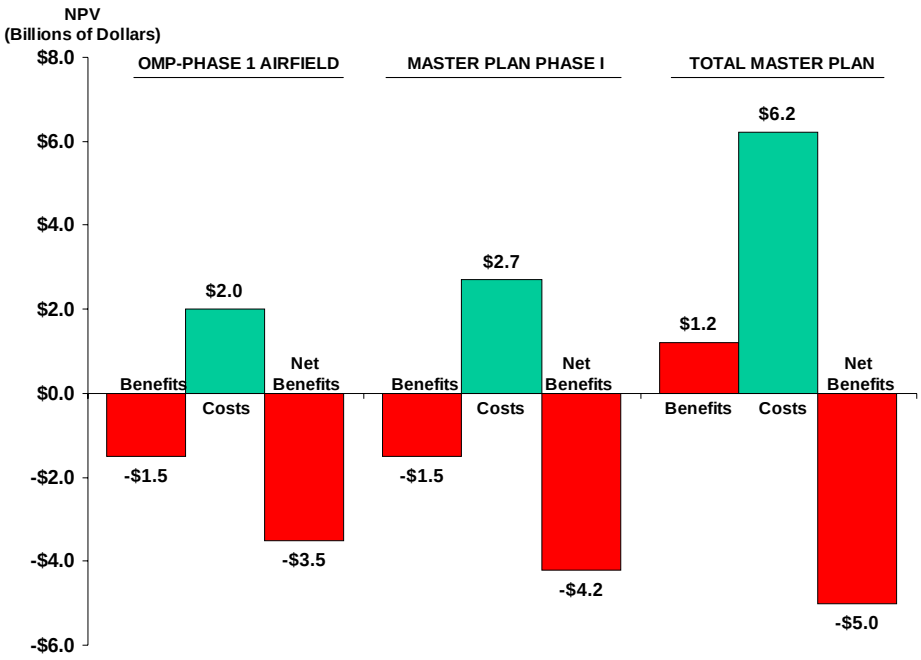
Table 1
Summary Results—Benefit-Cost Ratios
(Based on 2002 TAF)

			Campbell-Hill First Study (June/05)[3]	
	City Report[1]	Campbell-Hill[2] Adjusted Results Using the City's Costs	Delay-Based Adjustment Model	Campbell-Hill BCA Model
OMP-Phase I Airfield	6.3	-0.78	-1.06	-0.29
Master Plan Phase I	4.6	-0.57	-0.78	-0.19
Total Master Plan	2.02	0.19	0.27	0.13

1/ City of Chicago, Supplemental Benefit-Cost Analysis, pages 2 and 85, September 27, 2005.
2/ Sometimes referred to as "C-H".
3/Campbell-Hill, Chicago O'Hare Modernization Program Fails to Meet the FAA Tests for Benefit-Cost Justification, pages 46 and 56, June 6, 2005.

Campbell-Hill's adjusted results (using the City's costs which are much too low) show that the benefits are dramatically less than the costs for all of the OMP scenarios, so the benefits minus the costs (in net present value terms) result in large disbenefits (negative benefits).

Chart 1
Net Benefits of OMP Scenarios
(Based on 2002 TAF and City Costs)



In its September 27, 2005 Benefit-Cost Study, Chicago claims that the economic benefits of Phase I are $12.4 billion vs $2.0 in costs for a benefit-cost ratio of 6.3. The following is a summary of Chicago's errors in its September 27, 2005 Benefit-Cost Study:

- Consumer benefits from OMP can only be justified based on a net reduction in the average "full price of travel" (combining airfare and the value of passenger time) that can be directly attributable to the investments in Phase I and the Total Master Plan. The City claims erroneous time savings, completely ignores all project costs, and does not even consider other time increases directly attributable to the OMP, that would obliterate any theoretical delay savings.

- The City's methodology fails to follow the principles of consumer surplus prescribed in the FAA BCA Guidance and it does not even follow the FAA's requirements in its new methodology to justify its illogical results.

- In any forecast year that does not experience time savings, there can be no consumer benefits (even without any inclusion or consideration of any offsetting higher cost of Phase I or time of travel increases). The City acknowledges that the Phase I airfield will reach "constrained" delay levels in 2015 at which point passengers **will have zero benefits,** and, yet, these same passengers are the source of 68% of the City's benefits. This necessary correction alone eliminates $8.3 billion of the City's claimed benefits.

- The concept of Consumer Surplus demonstrates that project-related capacity expansion which allows for additional flights and passengers will attract (i.e. stimulate) new passengers and flight operations **only** if there are price reductions. Price reductions will occur only if there are cost reductions. However, the City artificially reverses this relationship and simply **assumes** without any evidentiary support that fares will arbitrarily fall in order to create an increase in passengers (over the Base Case). Yet the forecast on which the City relies explicitly ignores fares and the price of air travel as a factor.

- The City bases its passenger benefits on phantom fare reductions that are unrelated to its own estimates of airline cost savings. The claimed benefits are entirely unrelated to any alleged delay savings, the purported sole purpose of the project. The elimination of unjustified and unsupported claimed fare reductions reduces the OMP-Phase I Airfield benefits by 11.1 billion, from $12.4 billion to only $1.3 billion..

- The benefits claimed by the City that are related to time savings are also erroneous and completely manufactured. The City's alleged decrease in passenger trip time (and associated "benefit") is primarily due to changes in average flight distance that have nothing to do with, and are totally unrelated to, the OMP projects. Moreover,

those assumed flight delay savings ignore the reality that whatever miniscule delay savings might occur, will be offset by increased aircraft taxi time for all O'Hare flights. In reality, OMP-Phase I Airfield will have at best miniscule time savings for only two of the forecast years and therefore cannot have consumer benefits for most of the period.

- Even to the extent there are minimal time savings for a few years,, there would be net cost **increases**, not net cost savings, to airlines because of the increased costs associated with the OMP project costs. The project thus would create fare increases in all of the forecast years and not price reductions for Phase I. The City's predicted enormous fare reductions, are totally unreasonable and unsupportable.

- Basing benefits on a legitimate comparison of travel times between the Base Case and Scenario airfields corrects for the major flaws of the City's calculations by basing benefits solely on project-related time and cost changes. The net impact of correctly measuring the project's true time impacts on the full price of travel results in negative benefits estimated at -$1.5 billion, confirming Campbell-Hill's earlier study results. Campbell-Hill's analysis reveals the impact of high costs and the net increases in trip time from the OMP-Phase I Airfield.

- The City ignores FAA requirements to fully consider the project's impact on other passenger time factors such as access/egress and terminal facilitation that will certainly increase and likely overwhelm even the City's overstated time savings, particularly as the City has excluded all costs related to these areas.

- By basing price changes on traffic growth rather the other way around, the City ignores the very real likelihood that OMP-Phase I Airfield will reduce traffic at O'Hare due to fare and price increases, particularly for the highly price-sensitive connecting market. Downward pressure on traffic levels will only increase the price effect of the project costs, creating the "death spiral" effect described in previous Campbell-Hill reports.

- The City's trip time and delay analyses are replete with errors and nonsensical results which serve to bias the results in its favor.

- The City's trip time and delay analyses are replete with errors and nonsensical results that serve to bias the results in its favor. Campbell-Hill has previously demonstrated that the OMP's claimed delay savings are over-stated and, if corrected, would only decrease the project benefits however measured.

Beyond the glaring errors in Chicago's benefit-cost claims as to Phase I there are several other observations that demonstrate the failings of Chicago's claims and the accuracy of Campbell-Hill's analysis.

- The City's September 27, 2005 Benefit-Cost Study failed to analyze the Total Master Plan and Chicago provides no indication that this scenario was ever thoroughly examined in its study. The FAA must judge the wisdom and financial viability of the entire plan and not simply an incremental stand-alone piece of it. Yet, the City addresses Total Master Plan with only a one-page sheet tacked on to its report as the last page (p.85). As discussed below, this spreadsheet makes no sense and is erroneous.

- Most importantly, the City's new methodology acknowledged what Campbell-Hill and the FAA's own forecasts and simulation models had demonstrated — *i.e.*, that delays under the build scenarios (such as Phase I and Total Master Plan) will return to existing levels. Whether OMP is built or not, O'Hare will require shortly a blended solution to deal with airfield congestion. With Phase I the blended alternative will be required immediately, which is one of the reasons the FAA rejected Phase I (Alternative B) as an alternative to the full OMP.

- The City and the FAA have conceded the accuracy or validity of Campbell-Hill's analysis of the City's first Benefit-Cost analysis.[1] Neither has issued a single criticism.

- Indeed, in the FAA's rejection of the City's initial BCA and its decision to require the City to prepare an entirely new BCA shifting to a consumer surplus approach for estimating benefits, the City has accepted many key underlying principles of Campbell-Hill's first critique.[2]

1.2 The City's Analysis Of Reduced Costs To The Passenger (Full Price of Travel) Is Based Upon Erroneous Assumptions And Is Fatally Flawed

1.2.1 OMP-Phase I Airfield

- The City's methodology is based on a faulty application of the FAA's BCA Guidance[3] and produces highly erroneous results. The City has calculated expected benefits from OMP-Phase I Airfield of $12.4 billion. Correcting errors in the City's study significantly reduces or eliminates the alleged benefits, resulting in OMP-Phase I Airfield producing costs which exceed benefits.

  - Eliminating the City's claimed benefits during the post-2014 period when there are no delay savings reduces the claimed benefits by $8.3 billion.

  - Correcting for the City's unexplained and unsupported phantom fare reduction reduces the claimed benefits further to $1.3 billion, not $12.4 billion.

[1] Campbell-Hill, Chicago's O'Hare Modernization Program Fails to Meet the FAA Tests for Benefit-Cost Justification, June 6, 2005

[2] Campbell-Hill, Chicago's O'Hare Modernization Program Fails to Meet the FAA Tests for Benefit-Cost Justification, June 6, 2005.

[3] FAA, FAA Airport Benefit-Cost Analysis Guidance, December 1999 (also referred to in this report as the FAA's BCA Guidance).

- Correcting the City's analysis by using actual time and cost savings eliminates all benefits and in fact, produces negative benefits of $-1.5 billion.

- In order to have benefits from OMP using a consumer surplus model, the average "full price of travel" (combining airfare and the value of passenger time) per passenger must fall. But, the decline in this fare price must result from time and cost reductions that are a direct result of OMP, and must incorporate all project costs and any other changes to passenger trip time.

- In computing the benefits under the revised BCA, the City ignores all project costs and bases its benefits on non-existent time savings having no relationship to OMP. Moreover, the City ignores other time increases (such as increased taxi times and access/egress times and terminal facilitation times) that would obliterate any theoretical delay savings. The City's limited time savings are in any event less than 5 minutes for most years (using the City's own flawed time comparisons), and would be either non-existent or negative if real world time factors are considered such as increase taxi times, increased access/egress time and terminal facilitation time.

- The City simply assumes, without any supporting evidence, that the airlines will reduce fares sufficient to generate the added traffic needed to utilize the additional O'Hare capacity.[4] However, the FAA BCA Guidance and the GRA methodology require that any fare reductions must be attributable to actual airline cost reductions or must otherwise be justified. The City does neither and merely assumes that phantom fare reductions will occur. The arbitrary illogic and lack of empirical support for the City's methodology is revealed by the fact that the City's annual benefits uniformly increase throughout the forecast period even during periods in which there are no additional time savings and during the period when ORD is as constrained as it is in the Base Case.

[4] This assumption is an absolute requirement for consumer surplus as applied by the City. Otherwise there can be no positive benefits.

- The City's justification for these phantom fare reductions has no empirical basis. Its limited reference to a national downward trend in airline yields is wholly insufficient to support its pivotal assumption and, moreover, it ignores significant extraneous factors (unrelated to airport capacity) that have caused that decline in national fares. Actually, yields at O'Hare have declined to a greater extent than yields nationally, while the massive substitution of small RJ aircraft at O'Hare has caused actual seats per departure to decline at O'Hare since the late 1990's. There is no constraint on **seat capacity** at O'Hare, and therefore passenger volumes can increase significantly (in the absence of OMP) if the airlines merely schedule larger planes.(As the City's BCA states: " In response to increasing delays, airlines might increase average aircraft size to accommodate forecast demand…")[5] Consequently, there is no pent-up or unmet passenger demand at O'Hare and passenger yields have declined more in recent years than the national average, and are, in fact, currently lower than the national average.

- The City's use of the TAF-based forecasts to estimate the effect of fare changes on passenger demand is erroneous. The FAA's own consultant acknowledges that these forecasts explicitly ignore fare effects.

- The City reduced the average trip distance for additional flights in the build (scenario) cases which has the effect of crediting Phase I with travel time savings that are unrelated to airport delay factors but are created solely by flying shorter average trips. This change in flight schedule has nothing to do with airport delay, but it biases the results in favor of the build scenarios. When the City's analysis added flights for the Phase I scenario it increased short haul flights disproportionally (e.g. Cleveland-O'Hare vs. Los Angeles-O'Hare) so the average flight distance (and flight time) is less than the no build case. For proper comparison the trip length should be held constant between the Base Case and Phase I.

[5] City of Chicago, Supplemental Benefit-Cost Analysis, page 15, September 27, 2005.

- The City's travel time analysis shows trip times increasing significantly under the base case (no build) **after** the point in time when operations are constrained and held constant. In contrast, the travel times for OMP-Phase I Airfield used by the City stop increasing, when operations are constrained. This erroneous assumption makes no sense and it biases the results in favor of the build scenarios.

- Failure to include the adverse impact of Phase I on increasing other relevant travel time factors (access/egress and intra-airport transfers) explicitly ignores the FAA's BCA Guidance and contradicts the concept that passenger demand reacts to total travel time rather than just minutes of delay. Campbell-Hill estimates that average access/egress time and terminal facilitation time per one-way passenger will increase by a minimum of 4 to 6 minutes for OMP Phase I from 2013 through 2028. As shown in Exhibit 19, these times are greater for Master Plan Phase I and for Total Master Plan.

- The City has not incorporated any access/egress cost or trip time analysis which must accompany a forecast of ever-increasing local passenger demand. Otherwise the City must include the infrastructure costs to handle the added traffic volumes on the access system. The City simply ignored it – no increased trip times and no OMP costs to cure it. Likewise, the FAA in its DEIS and FEIS ignored the access/egress requirements, especially under conditions of unconstrained demand. One can only reason that the FAA did not want to impose significant added costs on the OMP justification, or it did not want to incorporate major additions/changes to the existing access/egress system into its environmental impact analysis.

1.2.2 Master Plan Phase I

- The City failed to include the additional Master Plan costs that must be considered if the new OMP-Phase I passenger forecast is used.

- The additional project costs would reduce the adjusted benefits (which are not calculated in this study) and would create larger disbenefits.

1.2.3 Total Master Plan

- The City should have considered the Total Master Plan scenario rather than attempt to shift the majority of benefits into OMP-Phase I Airfield, while leaving the costs for other master plan projects.

- The City failed to analyze the Total Master Plan and it provided no indication that this scenario was ever considered in its study. In fact, the results provided in Appendix F are clearly erroneous and not based on any separate analysis. The benefits are the same as Phase I and its computations are wrong.

- The City's own uncorrected results show that the final phase of OMP fails all benefit-cost tests. Its stated benefit-cost ratio of 2.02 for the Total Master Plan means that the City is claiming it will receive only **six cents of benefits per dollar of cost** for the Master Plan beyond Phase I (Phase 2 of the project). But even this claim is wrong.

- The Total Master Plan cannot be justified on a benefit-cost basis. Using Campbell-Hill's adjusted methodology (i.e., correctly basing traffic stimulation on relative travel times and including OMP project costs), the net benefits for Total Master Plan total just $1.2 billion, approximately the same as the original results ($1.1 billion) produced by Campbell-Hill using its Delay-Based Adjustment Model (June 6, 2005 Campbell-Hill report) that incorporated many of the factors used in the FAA BCA Guidance methodology. This $1.2 billion in net benefits for the Total Master Plan is dwarfed by the $6.2 billion NPV cost of the Total Master Plan.

1.3 The City's Analysis Ignores Critical Requirements Mandated By the FAA's Airport Benefit-Cost Analysis Guidance

- In support of the City's efforts to produce a credible benefit-cost analysis the FAA itself prepared a "here's how to do it" paper for the City to follow, based on a consumer surplus model. The FAA secretly prepared a new version of its 2002 Terminal Area Forecast and apparently wrote or re-wrote sections of the City's BCA (based on recently received documents still under review). Nevertheless, the City's new BCA is inconsistent with FAA's published specifications for benefit-cost analysis.

- The City ignored many requirements in the FAA's BCA Guidance for performing consumer surplus analysis in support of airport expansion. It did not develop the O'Hare-specific data required to calibrate or exercise the model; it did not structure the demand and delay analysis correctly, thereby biasing the results in its favor; it changed flight schedules inappropriately in the OMP build scenarios thereby creating false benefits; and it made many other self-serving and inexplicable errors in its latest modeling effort.

- The City misinterpreted completely the FAA's recommendations for using consumer surplus analysis for benefit estimation. The whole purpose is to guard against overstating benefits, yet the City has used its version of the concept to triple the benefits that it generated in its first report (dated February 2005).

- The City did not perform simulation runs specifically tailored to consumer surplus analysis that is required by the FAA's BCA Guidance.

- The City ignored completely the impact of ever-increasing access/egress and terminal facilitation times (and costs) on passenger traffic.

- The City ignored the significant infrastructure costs of the project violating the FAA's BCA Guidance which requires the City to include the costs of the OMP Airfield and

other necessary infrastructure costs (i.e., necessary associates ingress and egress facilities and terminal facilities) as part of the benefit-cost analysis and consumer surplus calculations. This is a critical flaw in the City's study.

1.4 Conclusion

- The FAA must evaluate the financial feasibility or cost effectiveness (benefit-cost relationship) of the Total Master Plan and all elements of the OMP that are integrally related to the entire project. Failing this level of assessment, the FAA must evaluate the Phase I Master Plan and not simply OMP-Phase I Airfield. The City's LOI request deals only with OMP-Phase I Airfield which is a device it contrived to strip away major Master Plan costs that are essential to the Phase I runway program. The FAA cannot judge the wisdom and cost effectiveness of OMP-Phase I Airfield separately from the rest of the terminal and other infrastructure necessary to handle more operations and passengers, any more than it could judge a runway project separate from its associated taxiways.

- Since the City's second BCA study is fatally flawed in its methodology, and fails the FAA's benefit-cost requirements, the FAA must reject the City's $300 million LOI request.

2.0 INTRODUCTION

Federal law prohibits FAA from awarding a discretionary AIP grant or associated LOI (Letter of Intent) unless the economic benefits exceed the economic costs. Chicago has previously submitted a Benefit-Cost Study in February 2005 asserting that the delay savings benefits of Chicago's proposed Phase I project at O'Hare Airport are in excess of the economic costs of Phase I. Similarly, Chicago in its February 2005 Benefit-Cost Study claimed that the delay savings benefits of Chicago's proposed Total OMP project at O'Hare Airport are in excess of the economic costs of the Total Master Plan.

Campbell-Hill previously issued a report on June 6, 2005 addressing the conceptual and analytical errors in the City of Chicago's February 2005 Benefit-Cost Analysis. In this report[6] Campbell-Hill demonstrated conclusively and consistently that the benefit-cost ratio to be expected from the O'Hare development alternative preferred by the City and the FAA is significantly less than 1.0, and in many of the scenarios evaluated the ratio is negative. That is, in all cases the expected benefits are significantly less than the costs, and in many instances the benefits are negative because the added aircraft taxi times (permanent change) will exceed the brief period of delay benefits.

On July 21, 2005 Campbell-Hill presented its benefit-cost analysis and findings to the FAA and its principals answered many questions of interest and clarification posed by the FAA staff. Since that time neither the City of Chicago nor the FAA has challenged a single aspect of any research, analysis or critique contained in the Campbell-Hill report. That report remains unchallenged and uncontroverted.

The Campbell-Hill report of June 6, 2005 exposed the serious errors in the City's contrived analysis and flawed methodology. For instance, the analysis clearly demonstrated the fallacy and illogical nature of the City's assumption that it could project benefits for both the "build" and "no build" cases as if O'Hare's operations would be capped at 974,000 annual operations[7] forever. The fact is that if runway capacity is added, operations will increase to the point were maximum acceptable delay is reached, just as it is in the base case ("no build"). Both scenarios – build and no build – would experience the same average delay soon after OMP-Phase

[6] Campbell-Hill, Chicago's O'Hare Modernization Program Fails to Meet the FAA Tests for Benefit-Cost Justification, June 6, 2005.

[7] Approximately the current level of flight activity.

I Airfield and the Total Master Plan are complete. The only difference is the number of passengers and flight operations handled at O'Hare. Any delay savings would be short lived.

Neither the FAA nor the City dispute Campbell-Hill's findings and conclusions. They both realize that our analysis is valid and that the City's February 2005 Benefit-Cost Study cannot be accepted as justification for federal funding.

In order to try to overcome the Achilles heel presented to the FAA by the City's faulty analysis, the FAA directed the City to redo its benefit-cost analysis. In fact, the FAA hired GRA to prepare a suggested approach for the City to use, based on the concept of consumer surplus in economic theory and the City has now used a completely different theory for estimating benefits based on consumer surplus. Equally significant in its support for the City's efforts, the FAA secretly prepared a new Terminal Area Forecast (constrained version of the FAA's 2002 Terminal Area Forecast).[8] Only in the most recent September 27, 2005 City of Chicago Benefit-Cost Analysis Study (which was not made public until October 7th) has the existence of the GRA paper on consumer surplus, and the new FAA O'Hare forecast been revealed.

In the brief time available Campbell-Hill has assessed the City's new Benefit-Cost Study and its flawed methodology and fallacious assumptions. The benefits from the "build" scenarios are significantly less than the costs, and in some instances they are negative. Campbell-Hill's fundamental conclusions are the same for the City's second attempt to demonstrate positive benefit-cost relationships as it found for the City's first study report (February 2005); namely, that OMP Phase I, Master Plan Phase I and the Total Master Plan fail the government's required benefit-cost test by wide margins.

Furthermore, despite its many errors and omissions the City's new Benefit-Cost Analysis incorporates some key elements from Campbell-Hill's June 2005 study (see Table 2 below).

[8] In addition, the City prepared a constrained version of the 2004 TAF in this analysis.

Table 2
Examples of the City's Agreement With Previous Campbell-Hill Analysis

City Statements Agreeing With Previous Campbell-Hill Analysis	Page of City's September 2005 BCA
"In response to increasing delays, airlines might increase average aircraft size to accommodate forecast demand, shift connecting passenger traffic through other hub airports."	15
"The Federal Aviation Administration (FAA) subsequently requested that the City provide a supplemental BCA that relaxed the assumption that aircraft operations in the Scenario Cases were capped consistent with the Base Case"	1
"For the purposes of this supplemental analysis, it is assumed that demand would be constrained following the implementation of Phase I if the OMP were not completed, and the FAA has developed a constrained forecast of activity for this situation."	3
The new constrained 2002 TAF increases aircraft size and load factor more rapidly when constrained.	80

The remainder of this report is presented in four sections and the accompanying exhibits.

3.0 CONSUMER SURPLUS ANALYSIS PRODUCES ADVERSE RESULTS FOR THE OMP

3.1 The Concept of Consumer Surplus

The economic theory of consumer surplus holds that if a consumer pays less for a good or service than he is willing to pay, then he gains a benefit. The difference between the two prices (what he is willing to pay and what he actually pays) is called "consumer surplus."

In a market composed of many consumers, each with his own limit on price willingness, the total consumer surplus at a stated (actual) price is the aggregate of each individual buyer's consumer surplus. To deal with aggregate markets, economic theory has developed mathematical representations that approximate total consumer surplus.

Campbell-Hill does not disagree that measuring changes to consumer surplus is a reasonable method for estimating potential benefits (or disbenefits) for the City's proposed OMP – Phase I, or the Total Master Plan. In fact, the use of consumer surplus to measure benefits agrees with several key ingredients of Campbell-Hill's critique[9] of the City's first BCA report.

However, the problem now is that the City has misapplied the requirements for consumer surplus analysis, including those specified by the FAA in its BCA Guidance.[10] The City has not measured the difference in price that passengers are willing to pay. Rather, it has estimated, assuming a constant single-market elasticity coefficient, what the difference in fare would be between two traffic forecasts, neither of which was produced by any reference to fares, fare trends, or price elasticity. The difference in the two passenger forecasts was determined by the impact of constrained and unconstrained aircraft operations at O'Hare, and not by passenger fare differences.

As GRA correctly observes, the incremental capacity projected at O'Hare will be fully utilized only if it produced "seat capacity" at a lower price and a lower price will occur only if there are demonstrated cost savings or cost efficiencies that will support such reduced fares. Not one scintilla of evidence was submitted to support any such cost decrease nor any fare reduction based on such cost reductions. Indeed, rather than cost decreases, OMP-Phase I Airfield and Total Master Plan will result in increased costs for the airlines for most of the forecast period.

[9] See Campbell-Hill, Chicago's O'Hare Modernization Program Fails to Meet the FAA Tests for Benefit-Cost Justification, June 6, 2005.
[10] See FAA, FAA Airport Benefit Cost Analysis Guidance, Appendix C.

The City's report turns the consumer surplus model on its head and attempts to use an inverted form of consumer surplus[11] by first establishing a predetermined passenger increase (i.e., the constrained 2002 TAF for Base Case and Phase I wholly unrelated to fare differentials) and then computing the amount that the average airline fare **must** fall in order to achieve that predetermined passenger level — in this case the passenger forecasts under the build scenario. The City derived the alleged price/fare decrease by simply using a mechanical application of an assumed hypothetical price elasticity factor to its predetermined passenger increase—which is nothing more than an arbitrary mechanical computation without empirical support or foundation.

The City has failed to justify the enormous fare reductions generated by its methodology and assumptions. There can be no fare decreases unless there are real cost decreases and the City failed to demonstrate by any empirical evidence that costs at O'Hare will decrease. Neither Chicago nor the FAA have presented any evidence that the amount or degree of actual cost savings needed to generate the extremely large fare reductions claimed in the new Chicago Benefit-Cost Study will occur. Indeed the evidence from the FAA directed TAAM modeling directly contradicts any significant cost-based fare reductions. That modeling shows that project-related cost savings are either non-existent in many years or far smaller than the fare reduction claims that Chicago claims are based on these delay reductions.

An additional reason Chicago cannot support its claim of dramatically reduced fares being caused by Phase I is because the substantial costs of OMP will result in dramatic cost increases which would be passed along to the consumer in fares. The net effect of the project on fares must incorporate all time and cost changes as explicitly dictated by the FAA's BCA Guidance. A reasonable analysis of the project scenario would show that time savings are short-lived and minimal, and that project costs prevent any fare reductions. Campbell-Hill's analysis shows that adjusting the City's analysis to account for the true time and cost impacts reduces its claimed benefits to insignificant, and in some scenarios, negative levels.

[11] It solves for fare change rather than demand (passengers).

3.2 The City Has Turned the FAA's Intent With Respect to Use of Consumer Surplus On Its Head. Instead of Using Consumer Surplus to Prevent the Over-Estimation of Delay Benefits[12] as FAA's Guidelines Require, The City Has Done Just the Opposite And Uses Consumer Surplus to Exaggerate Benefits

The concept of induced demand and consumer surplus as described in the FAA BCA Guidance is based on the following elements:

- An airport project that reduces delays will reduce passenger and aircraft trip times based on the project's net effect on: (1) aircraft delays (2) other aircraft travel time elements (e.g., taxi time), (3) non-aircraft travel time elements (airport access/egress, intra-airport connecting and processing times and costs).

- Any aircraft operating cost savings based on net trip time savings will translate into fare reductions. However, these savings must be offset by any project costs that are borne by the airlines (and passengers through increased fares) including project operating and financial costs.

- The "full price of travel"[13] experienced by passengers consists of (1) the "money fare"[5] and (2) the "value of passenger time."[5] The money fare is the actual cash value of the airline ticket bought by the passenger. The value of passenger time recognizes that passengers place a monetary value on their time. It is calculated by multiplying the average value of time (per minute) by total travel minutes. Any net change in the full price of travel will also affect passenger demand.

- Any reduction in the full price of travel will increase passenger demand (traffic). However, this induced demand will diminish delay time benefits due to increased operations. In a competitive market, the average full price of travel will increase to a point where traffic demand equals the supply of airline services ("equilibrium point"). This equilibrium demand includes both passengers that **would have traveled without** the reduction in the full price of travel ("existing" passengers) and "induced"

[12] See FAA, FAA Airport Benefit-Cost Analysis Guidance, Appendix C.
[13] These are terms used in the City's report.

passengers (passengers that would only travel to O'Hare if the full-price of travel is decreased). The consumer surplus is calculated from both groups of passengers.

- The following quotations illustrate the FAA's intended application of the consumer surplus concept…

  ". . .an investment that lowers average delay at an airport will induce some potential customers who formerly avoided the airport to use it. However, these additional users will place new demands on the facility and may to some extent erode the per operation delay savings to pre-existing airport users."[14]

  "These new users will also benefit from the project but, at the same time, they will impose demands on the airport's capacity that will necessarily reduce the net benefits of the project to current users."[15]

- It is clear that the intention of the FAA BCA Guidance with respect to use of the consumer surplus methodology is not to create new benefits, as the City has done, but rather to avoid over-estimating project benefits and avoid making an error that "could become severe."[16] (emphasis supplied)

3.3 The City Has Completely Misinterpreted "Consumer Surplus" in a Methodology That Ignores the FAA's BCA Guidance

The City's new BCA has completely misinterpreted the concept of consumer surplus by expanding its original[17], and now forsaken benefits, while at the same time creating a methodology that ignores the procedures prescribed by the FAA. Even in the application of its own methodology, the City has made significant errors in its assumptions and methods that create "phantom" benefits that are unrelated to air travel economics.

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[14] FAA, FAA Airport Benefit-Cost Analysis Guidance, page 41, December 1999.
[15] FAA, FAA Airport Benefit-Cost Analysis Guidance, page C-1, December 1999.
[16] FAA, FAA Airport Benefit-Cost Analysis Guidance, page C-3, December 1999.
[17] City of Chicago, Request for Letter of Intent to Provide a Multi-Year Commitment of Airport Improvement Program Grant-in-Aid Funding, February 2005.

As described above, it is clear that the intention of a "consumer surplus" methodology is to recognize that in competitive airline markets, passenger demand is determined by the full cost of travel experienced by passengers and that the total effect of a proposed airport project on those costs should be measured and incorporated in the methodology. Rather than follow the FAA's own guidelines, the FAA (through its consultant) has created a new methodology based on the notion that airfare reductions are determined by passenger demand changes derived from forecasts that **were not based on any cost analysis and** explicitly exclude the influence of fare changes on demand. In other words, in the City's concocted model, hypothetical demand levels drive fare changes without regard to actual savings by the airlines which determine actual fare changes.

As clearly described in the Appendix C of the FAA BCA Guidance, (and as applied in its Table C-1 example), the use of demand elasticity is intended to determine the equilibrium point where estimated trip cost savings produce a reasonable "induced" level of passenger demand. The FAA BCA Guidance methodology measures the impact of incremental passenger increases on the full cost of travel savings arising from the project. It offsets any delay benefits with additional airline costs due to the project costs, as well as any increases in passenger travel time due to greater access/egress or terminal facilitation times and costs. The City did not follow this prescription.

The City used an assumed demand elasticity merely as a mathematical tool to calculate hypothetical trip cost savings based on the FAA forecasts; but the FAA forecasts are not based upon any consideration or analysis of passenger fare differentials or fare trends. The City's approach is not supported in the FAA's BCA Guidance, and was created by GRA for the City to use in this case. In fact, the City has not based its estimates on any tangible empirically demonstrated market effects of Phase I on travel time, operating costs, and passenger demand as required in the FAA's suggested approach. Rather:

- the City calculates the "theoretical" trip cost savings necessary to achieve a forecast that, in fact, ignores fare and travel time factors as inputs to its own process;

- the City asserts that airlines will gratuitously drop fares to levels that achieve these passenger trip cost savings without regard to their actual cost or time savings, presumably to achieve the FAA required hypothetical, unsupported fare reduction;[18]

- the City asserts that these fare decreases are reasonable based solely on a historical drop in **national** airline yields without establishing any connection between the historical decline and airport expansion in general, or how this might relate to ORD yield trends in a market which the FAA has consistently argued is "unique" (in defense of its FEIS methods), and without regard to the fact that new aircraft and technology have driven national fares down generally. In fact, fares have gone down faster at O'Hare than the national average (4.3% per year vs. 3.6% per year) from 1995 to 2004.

- the City ignores the effect of Phase I costs on fares while underestimating the impact on non-delay travel time, particularly higher aircraft taxi times that are unrelated to delay and are occasioned by the longer taxi distances.

The City's BCA provides no empirical evidence from the Chicago market, or indeed anywhere, to support the notion that increased capacity must inexorably drive airfares down. Such a result will occur ONLY if the actual cost of serving O'Hare will significantly decrease. But, in fact, even taking into account alleged delay savings (which are exaggerated) the enormous cost of the added capacity (OMP) will diminish or destroy the short-lived time savings of Phase I.

The intended effect of the consumer surplus method is described in the FAA's BCA Guidance, Appendix C,

"consideration of induced demand leads to an **overall reduction in benefits** relative to what would have been measured were induced demand not considered. This result will

[18] The City has provided no evidence that United, American or any other MII carrier will lower fares by 3 to 36 times their expected delay savings, while at the same time paying for the cost of OMP-Phase I Airfield.

occur in situations where delay is highly sensitive to increased traffic in both the base and investment cases." (p. C-11, emphasis added).

A key rationale for measuring benefits using induced demand is to avoid overstating benefits. By increasing benefits over their original (February 2005) estimates, the effect of the City's contrived methodology for estimating consumer surplus (benefits) does the opposite of what the FAA's BCA Guidance intends. The City's original BCA over-estimated delay saving benefits by ignoring the effect of increased traffic on net travel savings, precisely the "error" for which the "consumer surplus" methodology is intended to correct.[19] However, the City has misused the concept to greatly expand its original benefit estimates rather than reduce them as shown below:

Table 3
The City's Supplemental BCA Increases Net Benefits And It Should Not

	Present Value Benefits (billions)	Benefit-Cost Ratio
OMP-Phase I Airfield		
February 2005	$4.10	2.13
September 2005	$12.40	6.30
Percent Increase	202%	196%
Total Master Plan		
February 2005	$6.40	1.04
September 2005	$12.56	2.02
Percent Increase	96%	94%

As shown in Table 3, the net present value of claimed benefits and the benefit/cost ratio for the OMP-Phase I Airfield have more than tripled from the first to the second study. Claimed benefits also increased for the Total Master Plan, although it should be noted that the results presented in Appendix F are completely fictitious (see Section 5) and appear to be based on some minor variation on the OMP-Phase I Airfield results.

[19] The City's original BCA estimated benefits using the base case "constrained" passenger levels that yield the maximum level of travel time savings for OMP. This ignores the effect of increased passenger levels on declining delay savings.

4.0 THE CITY HAS MISAPPLIED THE FAA's AIRPORT BENEFIT-COST ANALYSIS GUIDANCE AND OVERESTIMATED OMP-PHASE I AIRFIELD BENEFITS

4.1 The City's Calculated OMP-Phase I Airfield Benefits Are Eliminated With Several Simple and Logical Corrections

The City's methodology and results are based on a faulty application of the FAA's newly created methodology[20] that is itself inconsistent with the FAA's BCA Guidelines. As stated in Section 3.0, the resulting benefits calculated in the City's new BCA increase substantially over its original estimate, to $12.4 billion despite the FAA's expectation that they should decline. Analysis of the City's results reveal the fundamental flaws in its assumptions and several simple corrections to the City's methodology substantially reduce or eliminate the benefits:

- The pattern of benefits conflicts with the time savings claimed by the City; in particular 67 percent of the NPV benefits occur after 2014 when the City admits there will be no delay savings.

- Fare reductions account for 89 percent of total benefits although the analysis in Section 4.2 shows that fare reductions cannot be expected in any of the forecast years.

- Only 18 percent of the claimed benefits have any basis in time savings with the remainder dependent on phantom fare reductions that are unjustified by the City, and which increase over the forecast period.

- The limited time-based benefits do not match with actual travel time savings and occur in years when the project increases travel time.

- The FAA's own standards for creating consumer benefits require that an airport project must lower the "full price of travel" to the passenger through decreased delay and total travel time and reduced fares. The OMP-Phase I Airfield will increase

[20] See GRA report, City of Chicago, Supplemental Benefit-Cost Analysis, September 27, 2005, Appendix C.

travel time for all but two of the forecast years and project costs will require airlines to raise ORD fares in those and every other year. The project will result in higher prices to existing passengers and can generate no new traffic at ORD.

- The City's results contain numerous inconsistencies and irrational results including (1) relying on "phantom" fare reductions that account for 82 percent of total benefits and yet bear no relation to any cost or time changes and ignore project costs passed on to airlines (contrary to FAA methods), and (2) the assignment of 67 percent of the benefits to the period when the City admits there are no travel time benefits and no increase in operations. Eliminating the City's phantom fare reductions and limiting benefits to years with actual delay savings making (and no other necessary adjustments) reduces the City's benefits by 90 percent. **(Campbell-Hill Corrected Benefits = $1.3 billion by excluding phantom fare benefits and post-2014 benefits)**

- A fundamental flaw of the City's methodology is that fare reductions are calculated **from** the independently-derived passenger growth rather than passenger growth being calculated **from** and supported by fare reductions that can realistically be associated with the project. The correct method (per FAA's BCA Guidance) would have been to accurately represent the project's impact on travel time, fares and the full price of travel, but the City created false time savings, ignored the impact of project costs on fares, and failed to consider that actual prices drive the market not some arbitrary forecast.

- The City creates fictitious time savings that are unrelated to the project and mask the fact (admitted in the City's original BCA) that the very limited delay savings are mostly offset by higher taxi time for all flights and should create higher travel times for most of the forecast period. The City's assumed decrease in passenger trip time is used to infer price savings, but it is mostly due to changes in average flight distance. This is totally unrelated to the OMP projects and cannot be used to suggest a price benefit for the project. For example, the City's predicts a $1.62 decrease in the full

price of travel in 2007 assuming 1.8 minutes of trip savings. The City's original BCA acknowledged that the project would actually add 1.1 minutes to the existing flights or a $1.00 price increase for existing passengers. The shift from a negative to a positive benefit ($193 million worth) is entirely created by modeling "new" flights averaging 57 minutes less in flight time than the Base Case flight schedule. These claimed flight time reductions are not due to Phase I but are simply because Chicago has used shorter trip distances (*e.g.,* Cleveland to Chicago) for its claims in Phase I and compared them to longer trip distances in the Base Case (*e.g.,* Los Angeles to Chicago).

- By limiting benefits to project-related time and cost impacts as mandated by the FAA's BCA Guidance, the lack of travel time savings and fare reductions is apparent and negative benefits result. **(Campbell-Hill Corrected Benefits (Negative) = -$1.5 billion including true travel time comparisons, OMP costs and cost-based traffic growth)**

- The City failed to consider the impact of OMP project costs on the ability to achieve its claimed fare reductions, or the likelihood that fare increases based on actual cost changes will reduce traffic at ORD.

- The City ignores FAA requirements to fully consider the project's impact on other passenger time factors such as access/egress and terminal facilitation that will certainly increase and likely overwhelm the time savings, particularly as the City has excluded all costs related to these elements.

The application of general economic principles and simple corrections to the City's assumptions eliminates all benefits of Phase I as shown below.

4.2 OMP-Phase I Airfield Does Not Meet the Requirements for Consumer Surplus Benefits

The FAA concept of consumer surplus from the BCA Guidance requires two things to occur for consumer surplus benefits to exist[21]:

1) Total trip time must decrease, net of all project impacts

2) The "full price of travel" must decrease, net of all project impacts

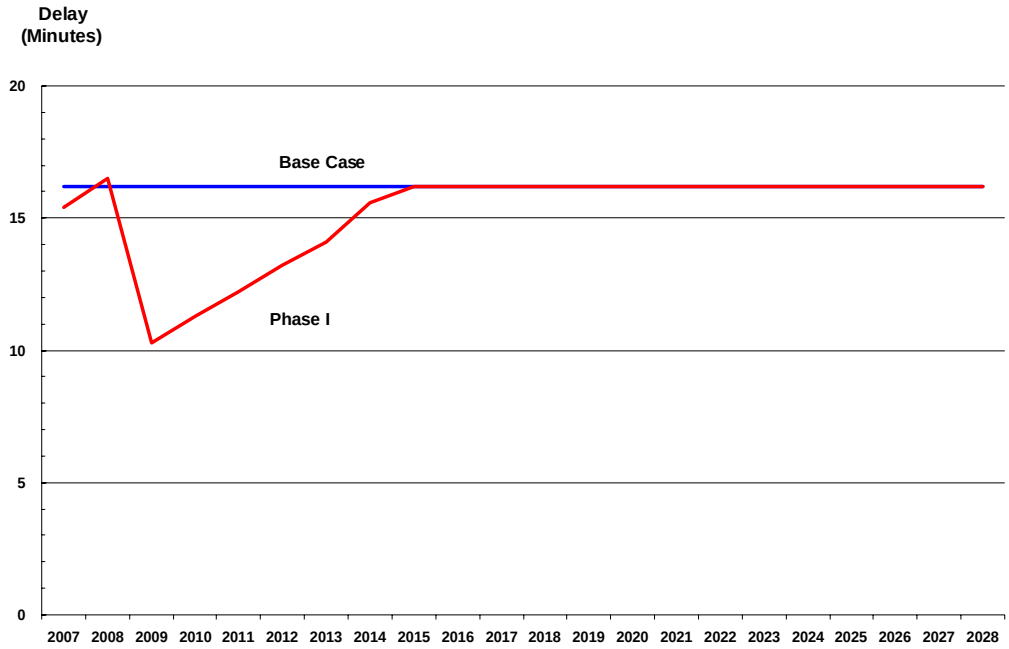
As shown below, for the vast majority of the years considered in this analysis OMP-Phase I Airfield will not produce consumer surplus benefits because total travel time and the "full price of travel" will not decrease using the City's own assumptions. In order to have lower fares and a reduction in the "full price of travel", total trip time must decrease.

4.2.1 Total Trip Time Will Not Decrease for Most Years

The two elements that factor into the changes in total trip time are delays and taxi times. Despite the fact that one of the City's objectives is to…"address the projected needs of the Chicago region by reducing delays at O'Hare"[22] OMP-Phase I Airfield would have lower delays than the Base Case for only 7 years. (See Chart 2 below)[23]

[21] FAA, FAA Airport Benefit-Cost Analysis Guidance, Appendix C, December 1999.
[22] City of Chicago, Supplemental Benefit-Cost Analysis, page 3, September 27, 2005.
[23] The delay reduction analysis in this section is based on Chicago's use of the 2002 TAF. Had the 2003 or 2004 TAF been used there would be a much smaller period of delay savings for Phase One (and for the total OMP).

Chart 2
OMP-Phase I Airfield Would Have Lower Delays for Only 7 Out of 22 Years

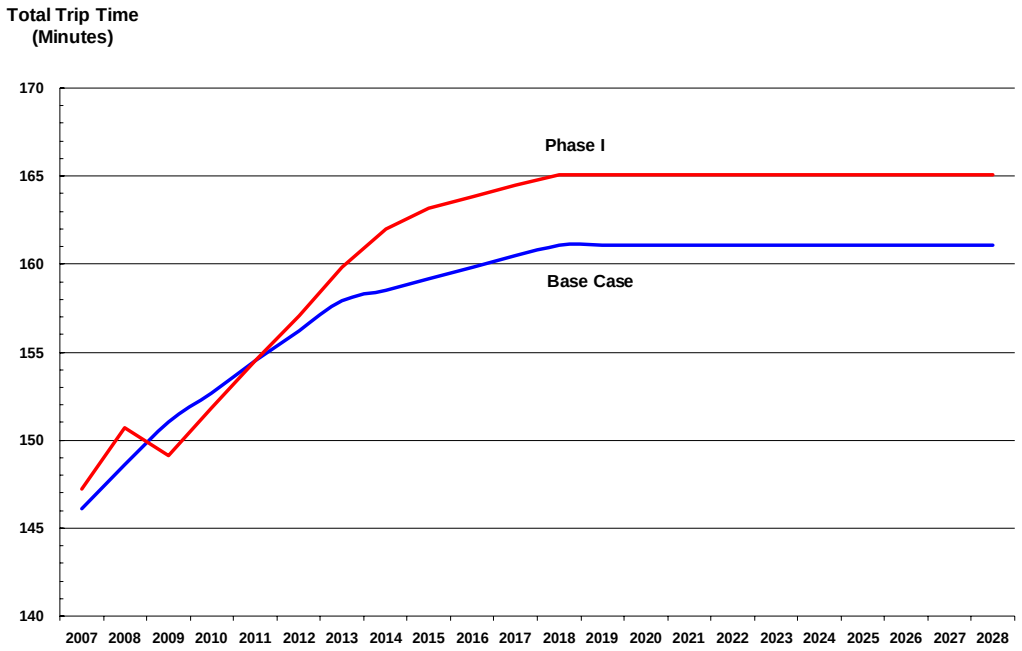


Source: Exhibit 5

Delay is not the only element that increases passenger and airline total trip time. Additional taxi-time from building OMP-Phase I Airfield increases total trip time and would offset any delay savings. Chart 3 below illustrates that when both delay and taxi time are considered OMP-Phase I Airfield would have a travel time advantage for only 2 out of 22 years.[24]

[24] These net travel time savings are based solely on the project's effect on average taxi time and eliminates variations in travel time that are unrelated to the project (e.g., average flight distance of flights added with the project).

Chart 3
OMP-Phase I Airfield Would Have A Total Trip Time Advantage for Only 2 Years Out of 22 Years



Source: Exhibit 11

4.2.2 The Passenger Full Price of Travel Will Decrease In Only 1 Year

The ultimate source of project benefits must be a reduction in the full price of travel experienced by passengers. Without travel time savings, there can be no price savings to passengers. If there are time savings, the price impact must be based solely on those savings and must also consider the effect of project costs.

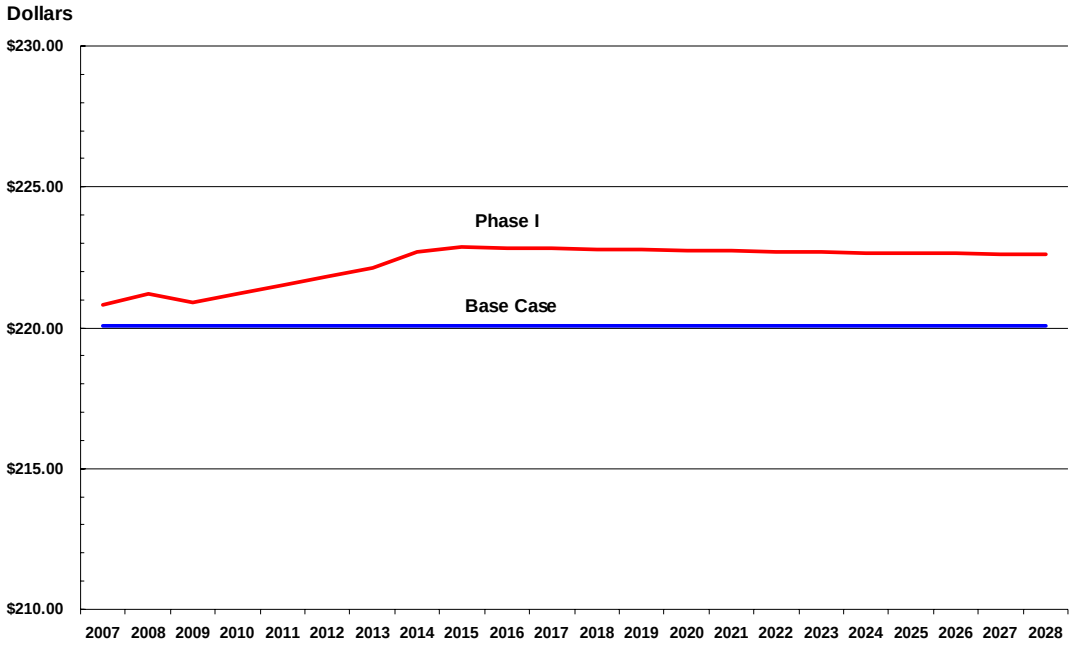
There are two elements to the full price of travel. The first element is the money fare. This is the actual amount paid by the passenger. It would decrease only if:

a. Airline cost savings from a reduction in total trip time outweighed any increase in airport costs paid by the airlines as a result of building the OMP-Phase I Airfield.

b. The net cost savings are passed on to passengers in the form of a fare reduction.

As shown in Chart 4 below, the cost savings do not overcome the additional costs of OMP-Phase I Airfield in any of the forecast years. If OMP-Phase I Airfield is built the money fare would always be higher than if it is not built. The City has based its entire theory on generating "induced traffic", but it cannot justify any fare reductions.

Chart 4
If OMP-Phase I Airfield Is Built The Money Fare Would Be Higher For All Years



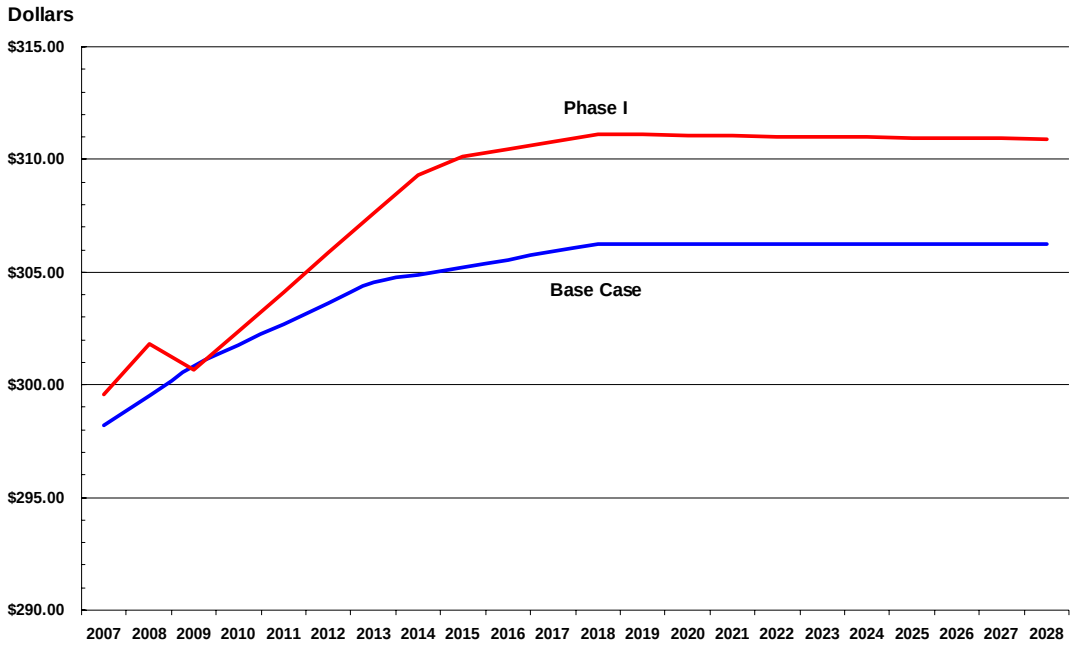
Source: Exhibit 11

The second element in the full price of travel is the passenger value of time. This utilizes the idea that passengers assign a monetary value to their time and that time savings could possibly offset fare increases (or be added to fare reductions if they exist). Unfortunately, the limited time savings produce marginal value reductions at best and are more than offset by increased travel time for most of the forecast period. Even the limited savings will be easily eliminated by increased time for access/egress or other passenger time factors that were entirely ignored by the FAA and the City.

As shown in Chart 5 the total price of travel would be higher than the Base Case total travel time for every year except for the year OMP-Phase I Airfield opens (2009).

Since this is the case, there are clearly negative benefits for building OMP-Phase I Airfield.

Chart 5
The Full Price of Travel Would Be Lower for Only 1 Out of 22 Years



Source: Exhibit 11

4.3 The City's Methodology Claims Enormous Benefits Despite The Project's Miniscule Time Savings and Likely Fare Increases

The City's methodology generates enormous benefits in the face of the evidence in Section 4.2 showing the OMP-Phase I Airfield as having very limited delay reductions. Considering all the relevant factors the project will cause fare and price increases and thereby must create negative benefits. The fundamental flaws in the City's benefit calculations are:

- The benefits are primarily based on fare reductions that are driven by passenger forecasts that do not consider fare impacts or the project's effect on travel time and costs.

- The benefits are entirely unrelated to any delay or total travel time savings that must occur in order to have any benefits at all.

- The majority of claimed benefits occur after the OMP-Phase I Airfield admittedly reaches full capacity and operations must be "constrained", leading to no delay benefits relative to the Base Case and no possible benefits.

- The enormous alleged consumer benefits are based mostly on "phantom fare reductions". But the fallacy of these benefits is that these claimed hypothetical fare reductions dwarf any actual cost savings based on FAA's own TAAMs delay models. The phantom fare benefits are totally unrelated to the project's purported purpose- delay savings. These benefits **increase** as delay savings diminish and continue to increase for 14 more years when there are no delay savings. Further they fail to properly consider OMP project costs.

- The fare reductions are manufactured and are totally unjustified, particularly as airlines will experience increased costs of operation with the project (most particularly the allocated costs of the project itself) and will have no ability to attract, much less retain, the price-sensitive connecting passengers that account for most of their benefits.

- Elimination of the phantom fare benefits greatly diminishes the City's benefits.

- The relatively small level of benefits that do relate to time-savings are also manufactured using false time savings that have nothing to do with the project itself.

- The legitimate impact of the project on passenger travel time and costs will create negative benefits by eliminating these false time savings.

- The City totally ignores other project impacts on passenger travel time that will increase access/egress and terminal facilitation times and likely eliminate the limited delay savings without consideration of any of the above factors.

The following sections describe in detail the problems with the City's benefit estimates and show that by making simple corrections, the claimed benefits of over $12 billion become negative benefits (disbenefits).

4.4 The City Creates Benefits Unrelated to Time and Cost Savings That Are Generated Solely From Forecasts

4.4.1 The City's Methodology Is Based Entirely on the Net Increase in "Induced" Passengers In Its Forecasts

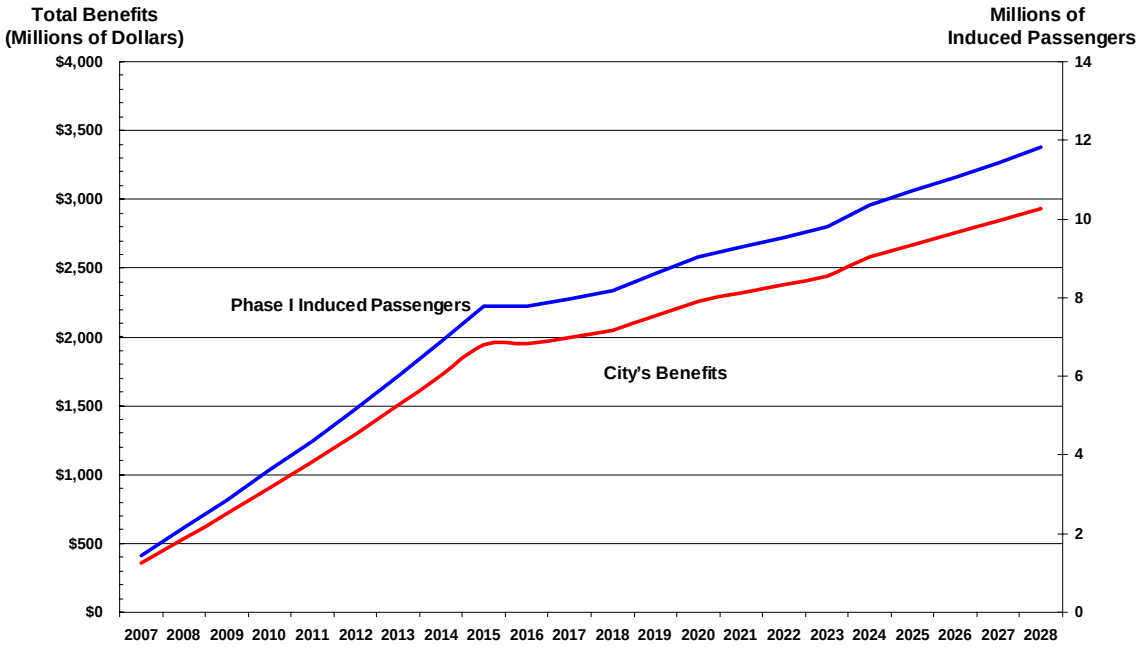
As described in Section 3.0, the City's methodology does not conform with the FAA's BCA Guidance that directly calculates benefits using actual time and cost changes. Instead, it is based on a new methodology that relies solely on three inputs for every forecast year:

1. Base Case Full Price of Travel
2. Base Case Passengers
3. Scenario Case Passengers

Rather than examine actual cost effects, the City's methodology calculates a foreordained reduction in the "Full Price of Travel" for each year of the scenario forecast. The amount of each year's price reduction is determined solely by the level of "induced" passengers (i.e., increased traffic attracted by price reductions) that is contained in the Scenario Case forecast. Note that the time and cost changes associated with the project are totally ignored in this calculation under the assumption that the difference in the passenger forecasts fully captures these changes. As previously noted, both forecasts specifically exclude the effect of fares on demand and cannot be used to predict fares.

The correlation of the claimed benefits and forecast passenger growth is very close as shown in Chart 6, despite the fact that the only legitimate justification for benefits (delay reduction) ends after 2014.

Chart 6
Induced Passengers Are Highly Correlated with the City's Total Benefits



Source: Exhibit 1 and Exhibit 4

4.4.2 The City's Passenger Forecasts Are Completely Inappropriate for This Application and They Are Wrongly Applied In Any Event

The TAF-based forecasts used by the City are completely inappropriate for computing consumer benefits that could result from fare changes and induced demand. Fares and fare trends are specifically not incorporated as variables in the FAA's TAF forecast models. Thus, one cannot link these forecasts to each other as the City has done erroneously using a price elasticity coefficient. It did this calculation to produce/infer fare change as either the resultant impact, or as the cause of differences in demand forecasts. This is fallacious. It is economic theory wrongly applied.

The City has not measured the difference in price that passengers are willing to pay. Rather, it has estimated, at a constant single-market elasticity coefficient, what the difference in fare would be between two traffic forecasts, neither of which was produced by any reference to fares, fare trends, or price elasticity. The City's model calculates consumer surplus by

superimposing a passenger demand curve with a single elasticity (-1.18) on a capped level of passenger traffic (in both the base and the scenario cases). The imposition of the caps rests on forecasts that fail to account for cost changes and which explicitly exclude the influence of fare changes on demand. Hence, this new methodology presumes that the low elasticity demand curve drives fare changes without regard to actual savings by the airlines.

FAA/GRA acknowledges that the TAF forecasts explicitly "do not directly take into account price elasticities or expected changes in the full price of travel."[25] FAA/GRA also state that "Ideally, the ... analysis would be developed in an integrated way. ... and reflect consumers' reactions to the average expected delay and money price levels ... in the future."[26] The City's forecast approach is inconsistent with this standard, and net differences in passenger traffic for the Base Case and Phase I scenarios cannot possibly be used to determine fare changes. To do so would assume that no factors other than passenger cost would account for differences in demand. Such an inference is absurd.

Campbell-Hill's assessment is particularly valid for the "constrained" portions of the forecasts that include all of the analysis period for the Base Case scenario and for 2015-2028 in OMP-Phase I Airfield. The City's methods used to "constrain" the forecasts are totally unrelated to fares or travel times, but are solely based on average delay and not on any particular market theory. It is not credible that the City should use the inverse of this "constraint" as a basis to estimate fare reductions.

The newly created, and unexplained, constrained forecasts for OMP-Phase I Airfield are particularly troublesome in the following context. If the Base Case traffic and operations are truly reduced by the average full price of travel and not just by delays, then the "constrained" passenger levels should have incorporated other factors besides delay (e.g., increased taxi time and passenger access/egress times and OMP project costs).

Based on the City's own model results used in its original BCA (February 2005), OMP-Phase I Airfield will add 4 minutes to the unimpeded travel time, due to increased aircraft taxi time. If total travel time (rather than just delay time) had been used to constrain traffic, the OMP-Phase I Airfield would not have been constrained at 15 to 17 minutes of delay, but rather at 11 to 13 minutes of delay including the 4 minute taxi time penalty. OMP-Phase I traffic should

[25] City of Chicago, Supplemental Benefit-Cost Analysis, page 74, September 2005.
[26] City of Chicago, Supplemental Benefit-Cost Analysis, page 74, September 2005.

therefore be constrained at levels much less than what is contained in the FAA's new forecast, perhaps at levels **lower than the Base Case**. The estimated delay value for Phase I in 2009 is 10.3 minutes (to which an additional 4 minutes of taxi time would need to be added). Assuming that any one of these factors adds 1 to 2 minutes of extra travel time, the OMP-Phase I Airfield would be constrained in 2009 or very soon thereafter, and certainly well before the 2015-16 period used in the City's analysis.

The importance of forecast assumptions is highlighted by the City's own sensitivity results. On page 20 of its new Benefit-Cost Analysis the City highlights how sensitive its model is to small changes in the forecast values under the build scenarios. If the OMP-Phase I Airfield Scenario Forecast growth rate decreases by only one-half of one percent per year the benefit cost ratio drops from 6.3 to less than 1.0.

Furthermore, if United fails or significantly reduces its O'Hare hub operation Campbell-Hill's analysis in Section 5.0 and Appendix E of its April 6 Report entitled, A Critical Assessment of the Draft Environmental Impact Statement for the O'Hare Modernization Program (OMP), shows that enplanements at O'Hare would not surpass 2003 levels until 2021. Therefore, it is obvious that no portion of the OMP would be needed and that the benefit-cost ratio would be well below 1.0 in the event that United fails or significantly downsizes its O'Hare operation.

4.5 Benefit Calculations Do Not Correlate With Delay Impacts

The only role that actual time savings (or increases) play in the City's calculations is to calculate the scenario passenger value of time (based on faulty time comparisons) that are then subtracted from the claimed full price of travel to yield the money fare. As discussed in Section 4.2, project-related benefits require travel time savings and reductions in the full price of travel for any year for which benefits are claimed. Without regard to whether the City claims benefits for years with no savings, the patterns of benefits should reflect two key truths:

- There can be no benefits in any year with no delay savings.

- Average benefits per passenger should be at a maximum level when the project opens and should diminish as operations increase and delays increase.

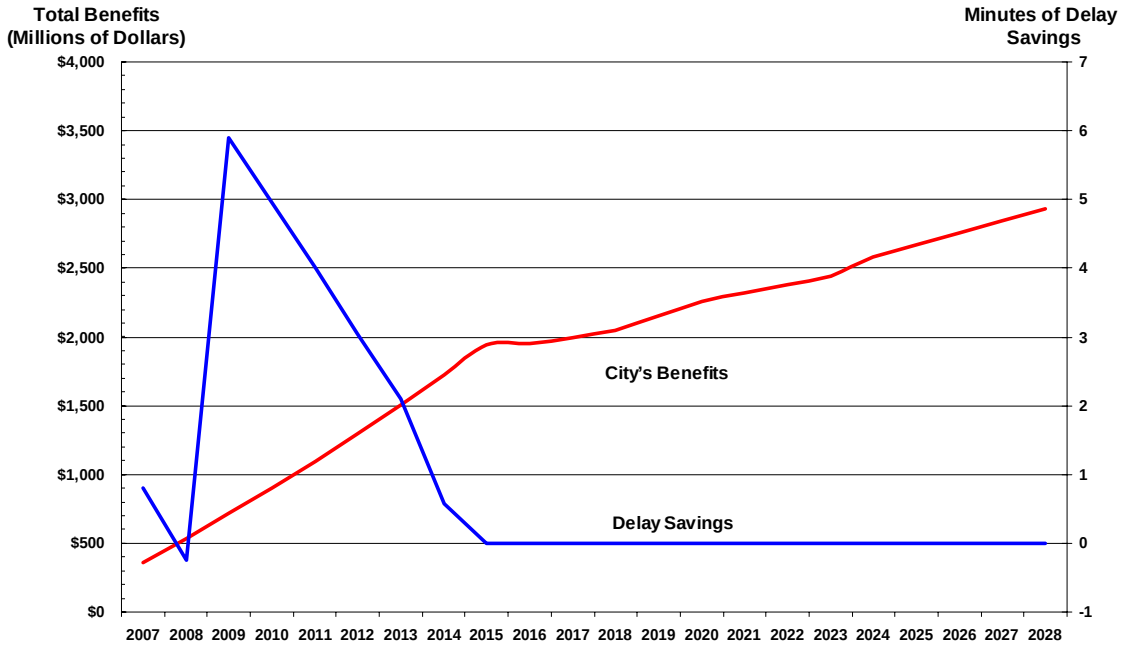
A key element of the FAA's benefit-cost methodology, and the City's revised BCA results, is that the growth in flight operations will eliminate all delay savings under the OMP Phase I scenario. The City acknowledges this by freezing the Phase I total travel time at 158.6 minutes from 2015 onward, indicating that operations must be constrained by the "maximum" delay level.[27] At that point, passengers should experience the exact same travel time with or without OMP Phase I, and from that point onward there can be no travel time reduction and no trip cost

At stated previously, there can be **no consumer benefits** in years where the Phase I scenario provides **no travel time improvements** for existing passengers. Eliminating benefits for Base Case existing passengers for the period when both the Base Case and OMP-Phase I Airfield are constrained (at maximum allowable delay) **reduces the City's claimed benefits by over $8.3 billion alone.**

The erroneous nature of the City's methodology is furthermore shown by the fact that not only are benefits imputed for passengers from 2015 to 2028 (after delay savings are zero), but total benefits increase uniformly after 2009 when the Phase I airfield is complete and it is admitted to be its lowest delay level (see Chart 7). Increasing benefits continue after the airfield is at full capacity. This occurs when there is no increase in operations, no increase in capacity, no change to total trip time; and therefore, no possible explanation for increasing benefits. These dramatic increases in benefits attributed to passengers over the period from 2009-2028 are wholly without empirical foundation- they are made from "whole cloth".

[27] The City sets the year for constraining Phase I operations at 2016, although there is only a nominal difference in passengers between 2015 and 2016 and no difference in travel time, i.e., no difference in delays. In reality, the Phase I Airfield is constrained in 2015 at which point there should be zero benefits attributed to Base Case passengers

Chart 7
City's Claimed Total Benefits For Passengers With Phase I



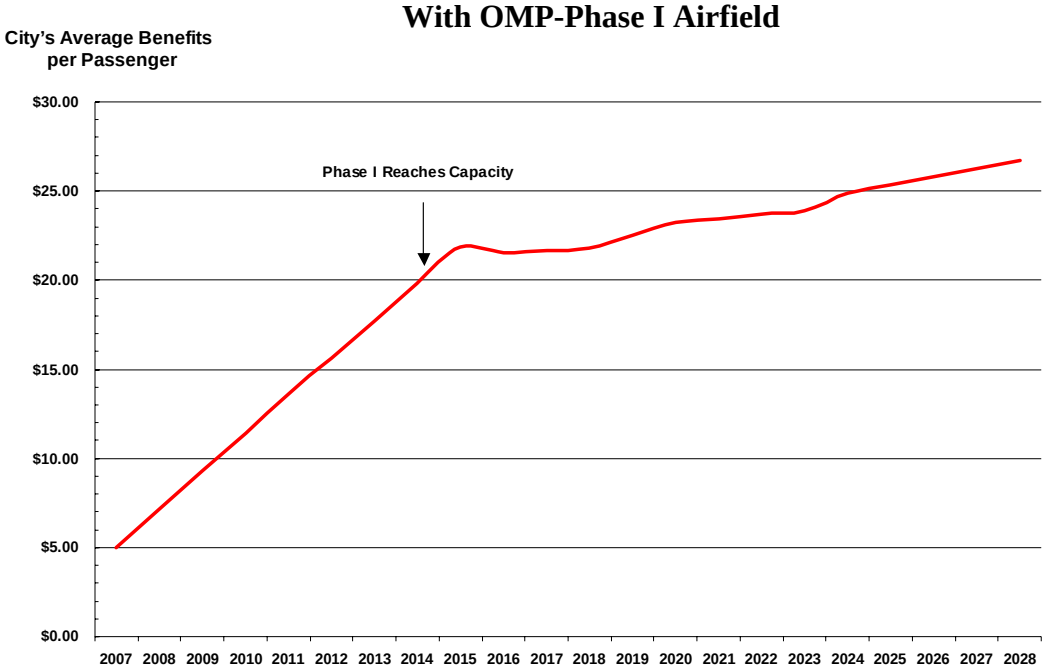
Source: Exhibit 1 and Exhibit 5

4.6 The Pattern of Benefit Increases Conflict

The City's enormous growth in passenger benefits cannot be reasonably explained by the growth in the City's forecast. This forecast has passengers increasing only 10 percent from 2009 to 2014, and 25 percent from 2014 to 2028.[28] The high growth in benefits results from a significant increase in **average** benefits per passenger. This occurs during a forecast period when the City admits that delay levels are increasing (2009 to 2015). These increases are counter-intuitive and simply can't be justified (Chart 8).

[28] In fact, this growth in the constrained Base Case forecast occurs without any capacity increases at all and it could not be a source of project benefits.

Chart 8
City's Claimed Average Benefits Per Passenger
With OMP-Phase I Airfield

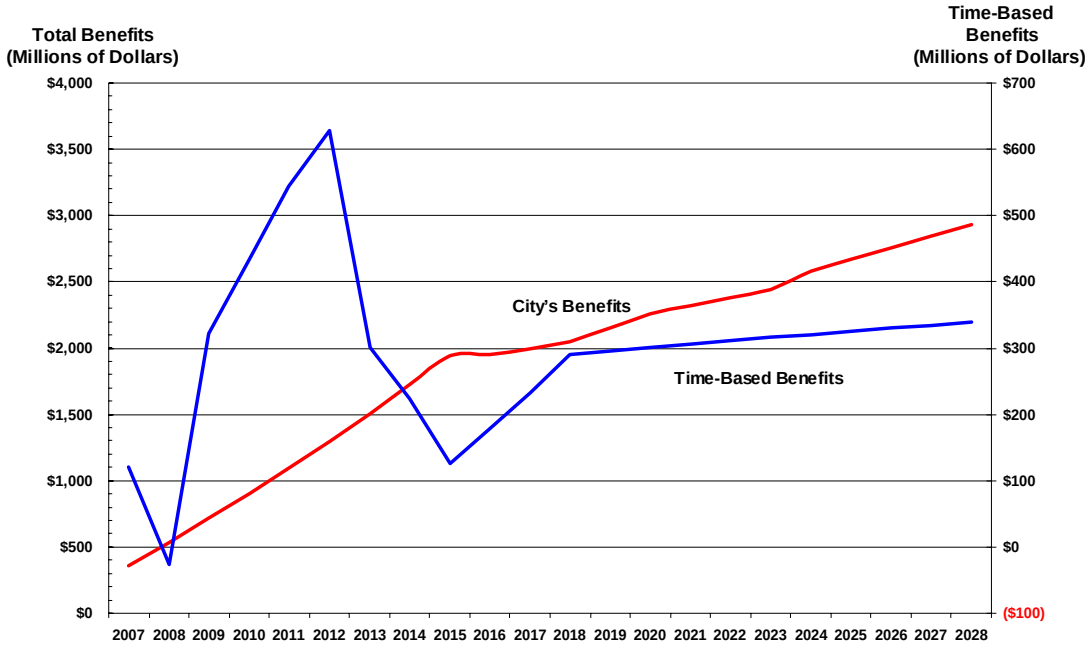


Source: Exhibit 1

The irrationality of the results is simply shown by comparing total benefits to the benefits that result based on claimed time benefits[29] (that are also overstated). As shown in Chart 9, total benefits increase after 2009 despite a decrease in the benefits due to time savings. (The increase in both total and time-related benefits after 2014 are unjustified as discussed above.)

[29] Time-related benefits combine (1) aircraft cost savings and (2) passenger value of time savings, both of which depend on a reduction in total travel time. The City has miscalculated these benefits as shown in Section 4.x.

Chart 9
City's Delay-Based Benefits Are Not Correlated With Its Total Benefits



Source: Exhibit 1

4.7 Phantom Fare Reductions

As discussed by the City in its September 27, 2005 BCA, the majority of the reduction in the full price of travel arises because of an assumed decrease in money fare.[30] Under the new FAA methodology, provided by GRA in the City's report, the money fare should decrease only if airlines reduced fares due to cost savings.[31] However, the City's results oriented model bases its fare reductions solely on what is needed to generate the forecast new traffic and has absolutely no relationship to time or cost savings. This creates phantom fare reductions that have no basis in economic theory or the real world.

[30] City of Chicago, Supplemental Benefit-Cost Analysis, page 21, September 2005.
[31] See City of Chicago, Supplemental Benefit-Cost Analysis, page 67, September 2005.

The fallacy of the City's assumed fare reductions is shown by comparing them to the actual aircraft cost savings on which they should be based. This comparison is based on the following calculations:

- The City's model calculates the OMP-Phase I Airfield "full price of travel" based solely on the Base Case "full price of travel" and the difference between the Base Case and OMP-Phase I Airfield passenger forecasts.[32]

- The required reduction in the airline money fare is then calculated by subtracting the value of passenger time savings[33] from the calculated decline in the full price of travel.[34]

- Aircraft cost savings are calculated by multiplying trip time savings (where appropriate) by the average aircraft operating cost per minute.

- The difference between the required reduction in money fare and the aircraft cost savings can be described as "fare reductions unrelated to cost savings".

When these calculations are performed (see Chart 10 below), it shows that a huge portion of the fare reductions have nothing to do with cost savings, even ignoring OMP costs to the airlines that must be considered. The excessive hypothetical fare decreases estimated by the City are unsubstantiated and are entirely unrelated to any passenger time savings or aircraft cost savings. The remaining fare reduction apart from the much smaller cost savings is unexplained. It simply assumes the airlines would reduce average fares far beyond any amount that could be justified by their cost savings.

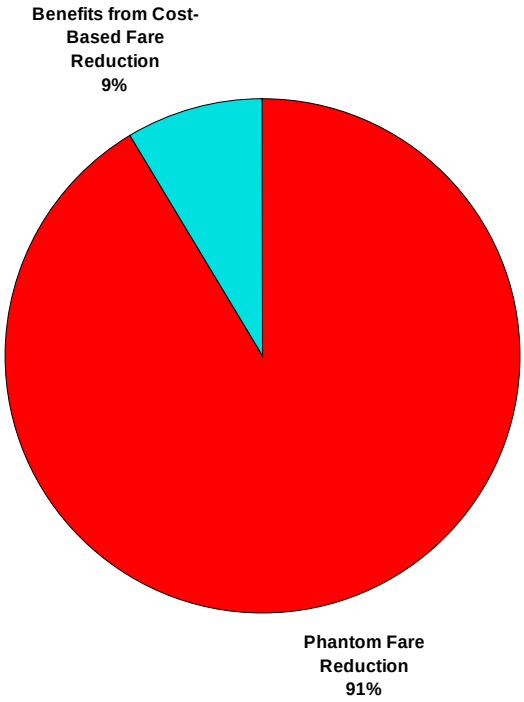
---

[32] The simple economic theory is that additional passengers will be induced due to a decline in the average full price of travel. The necessary price reduction is a calculated result that compares the existing price to the amount of additional traffic needed to achieve the passengers in the scenario forecast. Time and cost conditions of the OMP-Phase I Airfield have no bearing on this calculation and are not contained in the model (see City report, Table C-1).

[33] Computed by multiplying the reduction in average travel time by the passenger value of time ($0.535 per minute, according to the City's assumptions).

[34] See City of Chicago, Supplemental Benefit-Cost Analysis, Table V-7, page 23, September 2005.

Chart 10
Over 90% of the City's Decrease In Money Fare Is Unrelated To Airline Cost Savings



Source: Exhibit 1

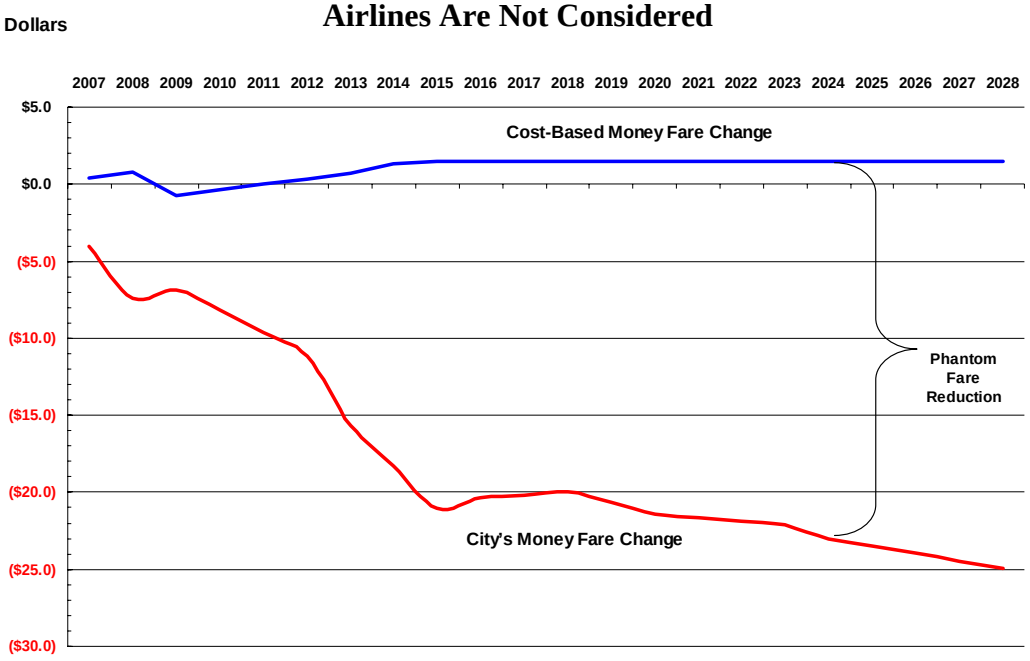
The unjustified "phantom fare reduction" would surely be at a maximum level in 2009 since delay savings are at their highest in that year. In contradiction of economic theory, the phantom fare reduction **increases** after 2009 despite a severe decline in delay savings.[35] Between 2009 and 2015, time-based cost savings (combining both the value of passenger time savings and aircraft cost savings) drop from $4.19 per passenger to $1.40 per passenger, and yet the City's phantom fare reduction nearly quadruples from $5.14 to $20.48 per passenger (to achieve the mandated decrease in the full price of travel). Once constrained in 2015, the phantom fare increases another 15% to $23.64 in 2028 with absolutely no logical basis.[36]

[35] The FAA's BCA Guidance methodology includes the following steps: (1) calculate the net trip cost reduction for the Base Case traffic based on both delay savings and project costs; (2) calculate the amount of traffic "stimulated" from the Base Case level assuming this initial cost reduction; (3) re-calculate the decrease in the initial net trip cost reduction at this higher level of traffic (i.e., including stimulation) and the resulting change (decrease) to traffic stimulation; and (4) continue the process to estimate an equilibrium point. By this theory, the net trip cost reduction must be at its greatest level when the trip time savings are the greatest, and that occurs at the lowest traffic level (Year 1 of any OMP project).

[36] See Exhibit 1

As shown in Section 4.2, the reality is that fare reductions related to time savings are not possible for most of the forecast period during which aircraft costs will rise due to time increases over the Base Case. Chart 11 shows that the phantom fare reductions would have to occur in the face of increasing costs without even considering project costs.[37]

Chart 11
There Is A Significant Phantom Fare Reduction Even When the OMP Project Costs to Airlines Are Not Considered



Source: Exhibit 1 and Exhibit 8

4.7.1 The City Did Not Consider the Increased OMP Costs to Airlines that Would be Passed on to the Passengers

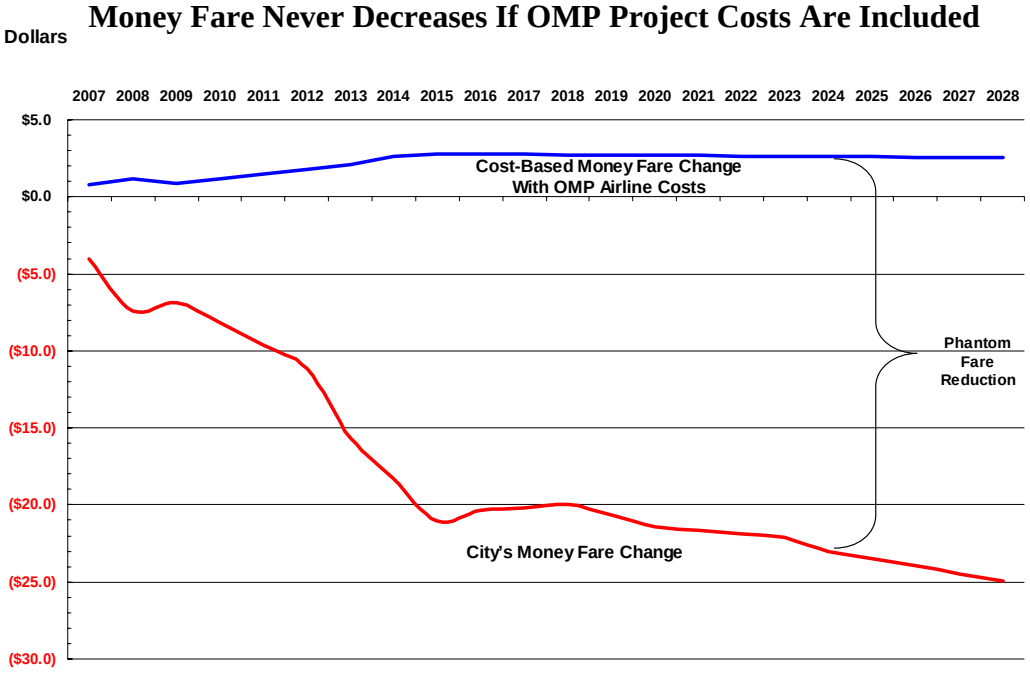
The phantom fare reductions are even less plausible considering that the City's forced fare reductions ignore entirely several cost increases that are required to be considered by the FAA's BCA Guidance; and, if they were included would require an even larger fare reduction that has no cost basis.

[37] Includesaccurate time savings comparisons.

Any costs that will be passed on to the passengers must be considered as an offset to any savings realized because of decreased total travel time. These costs arise from additional O&M and financing charges that the airlines must pay if the OMP projects are built. The additional costs would be $121 million a year once the OMP-Phase I Airfield is built, $172 million a year once the Master Plan Phase I is built, and $538 million a year once the Total Master Plan is built.[38] These airline cost estimates are very conservative because Campbell-Hill assumed that all principal on borrowed funds would be repaid beyond the period of analysis. Therefore, the only financing payments included are the interest payments. Additionally, the airline cost estimates are conservative because they do not include a realistic contingency markup. They do include airline payments for the shortfall in PFC revenue that will occur using the City's financing plan.

As shown in Section 4.2, the limited time savings are easily overwhelmed by the costs of OMP to the airlines. As shown in Chart 12, the potential fare reduction that is unrelated to costs would increase by another $1.54 per passenger in 2009.[39]

Chart 12
Money Fare Never Decreases If OMP Project Costs Are Included



Source: Exhibit 1 and Exhibit 8

[38] See Exhibit 17.

[39] This is based on the City's cost estimates and OMP-Phase I Airfield traffic forecast and would be even higher using the Base Case passenger forecast.

In its previous reports, Campbell-Hill has emphasized the importance of including the effects of OMP costs on fares and passenger volumes. The FAA's BCA Guidance is clear that consumer surplus benefits should incorporate all relevant costs that must be borne by airlines and air passengers and therefore affect demand forecasts. The Guidance states that the impact of airline fares should be based on "net operating cost savings associated with improved infrastructure."[40]

The example described in Appendix C of the FAA's BCA Guidance includes project costs passed on to the airlines, including fees and charges due to capital, operating, maintenance and financial costs (as recommended by Campbell-Hill in its previous reports). The BCA Guidance states further:

> " It should be noted that airport user fees are considered here because they affect the net gain to the aircraft operator, and thus the average cost savings that may be passed along to passengers."[41]
>
> "O&M is influenced by the amount of traffic using the airport and is assumed to have a constant per passenger value. Thus, O&M totals developed in Section 11 for the base case are adjusted upwards by the amount of induced passengers associated with scenario"[42]
>
> "Financing charges, which reflect the payments needed to pay off loans and bonds issued for project costs not covered by AIP or other grants, are reflected in column R of Table C.1."

The City has ignored completely the impact of all these costs on induced demand. It did this by back-solving fare reductions rather than following the FAA guidelines. The City's contrived method further obscures the fact that most of the predicted fare reductions are not

[40] FAA, FAA Benefit-Cost Analysis Guidance, page C-1, December 1999.
[41] ibid, page C-7, footnote 34
[42] ibid, page C-13

based on any cost reductions at all. They are nothing more than phantom reductions unsubstantiated by any analysis or economic theory. The City's findings are a fiction.

4.8 The O'Hare Fare Decreases Assumed by the City Cannot Be Justified

The FAA/GRA methodology states clearly that the "analyst should assess whether the expected reduction in the money fare is plausible given market circumstances and experience" (p. 75). There is no empirical support from Chicago or elsewhere to validate the notion that increased capacity must drive air fares down, given the enormous cost of the added OMP capacity and other factors.

The FAA's BCA Guidance suggests various sources for determining the impact of aircraft cost saving on fares, including "passenger and/or operator surveys, consultations with operators, and/or data provided by commercial data vendors" (p. C-7). This clearly indicates that a significant amount of analysis would be required to expand fare reductions beyond the actual cost savings (aircraft time savings net of project costs). In fact, it suggests that considerable new empirical research is necessary to utilize the consumer surplus method of benefits estimation at all. The City failed completely in its burden of proof.

There is no national, regional or local analysis or data to support the City's BCA model propositions. The City simply asserts that these high fare decreases are reasonable, and it based this assertion solely on a historical drop in national airline yields without establishing any connection between the historical decline and airport expansion in general, or how this national yield trend might relate to ORD yield trends in a market which the FAA has consistently argued is "unique" in order to defend its FEIS methods. The City posits that a 2.6% average annual reduction in historical airline yields supports its predicted declines in average ORD fares far exceeding that level in most of the forecast years. The predicted fare reductions range from 3.1% in 2009 to 11.3% in 2028, almost a decade after the City admits the OMP-Phase I Airfield will be constrained and annual operations will be fixed. In fact, the FAA/GRA methodology cites national yield reductions as a way to determine if fare reductions are "plausible" but they say that "since de-regulation, average yield .. has fallen continuously at approximately one percent per year" (p. 75). The City's fare reductions are even more "implausible" using this standard.

In reality, airline yields have fallen for a variety of reasons unrelated to airport capacity including the increase of low-cost carriers and larger aircraft, not to mention the increased competition after de-regulation. In fact, the TAF forecast growth presumably incorporates the continuation of yield declines (through increased productivity, etc.) and that normal growth should not be attributed to OMP-Phase I Airfield.

The City's assumed decreases in O'Hare airfares are premised on the fact that O'Hare passenger demand is now constrained by delays and capacity. Using the same data that the City used in defending its massive decreases in airfares at O'Hare reveals that O'Hare demand is not constrained. From 1995 to 2004 O'Hare yields (revenue per passenger per mile) decreased by 4.3% annually, while the system[43] yield of U.S. air carriers decreased by only 3.4% during the same time period (See Table 4 below). The average yield at O'Hare is in fact lower than the national average for both years with the relative difference increasing over the period when delay increases were supposedly driving up costs.

The fact is that passenger demand is not constrained at O'Hare. The recent orders FAA have limited operations, but operations are not the measure of airline capacity. The correct measure of capacity is available seats. Airlines can accommodate more passengers by simply using larger aircraft. Further evidence that passenger demand is not constrained at O'Hare is that total available seats have decreased by 8% since 2000.[44]

[43] Includes both domestic and international passengers.

[44] Campbell-Hill, A Critical Assessment of the Draft Environmental Impact Statement for the O'Hare Modernization Program (OMP), Exhibit 100, April 6, 2005.

Table 4
O'Hare's Yields Have Decreased More Rapidly than the System Yields of All U.S. Carriers

	Real Yield (Fare per Passenger Mile) (Constant 2004 Dollars)	
	U.S. Airlines	O'Hare
1995	16.01¢	15.84¢
2004	11.70	10.67
Average Annual Rate of Change	-3.43%	-4.30%

Sources: The Air Transport Association of America, Inc, http://www.airlines.org/econ/d.aspx?nid=1035; U.S. DOT, Origin-Destination Passenger Survey, via Data Base Products.

If one accepts the City's model with its assumed demand elasticity (-1.18) and its erroneous forecasts, the City is in the position of claiming that airlines will gratuitously publish the substantially lower fares that are required by their mechanical calculation. The City has not justified these lower fares. There is no analysis or empirical data of any operating efficiencies that could result in this fare reduction. The asserted reduction seems even more unbelievable given the increases in taxi time, ingress/egress constraints, and additional airline-borne costs associated with the financing of the expansion. All of these factors work to drive up costs of the airlines, leading to increased fares and not decreased fares.

But, can the City's model with its asserted and assumed demand elasticity be justified? The City's BCA provides no empirical evidence from Chicago, or elsewhere, to support this low elasticity. The City's assumed price elasticity of -1.18 is unrelated to the Chicago market. It is based upon estimates of total U.S. air travel demand profiles. Moreover, the City applied the same elasticity (-1.18) to both local and connecting passengers. Due to the existence of numerous close substitutes (acceptable alternative airports) available to the O'Hare connecting market, the price elasticity for connecting passengers is much greater than it is for local passengers who face more limited airport alternatives. Hence, for connecting passengers with a very elastic demand curve the model would show that the consumer surplus benefits are zero or very low. Because these connecting passengers have so many acceptable options at other

connecting airports and at fares equal or lower than O'Hare fares, it is illogical to think that airlines will substantially lower fares to these passengers in response to an expansion of capacity with no reduction in delay times (after the first few years). And, in this case, the benefits claimed by the City for these passengers also disappear.

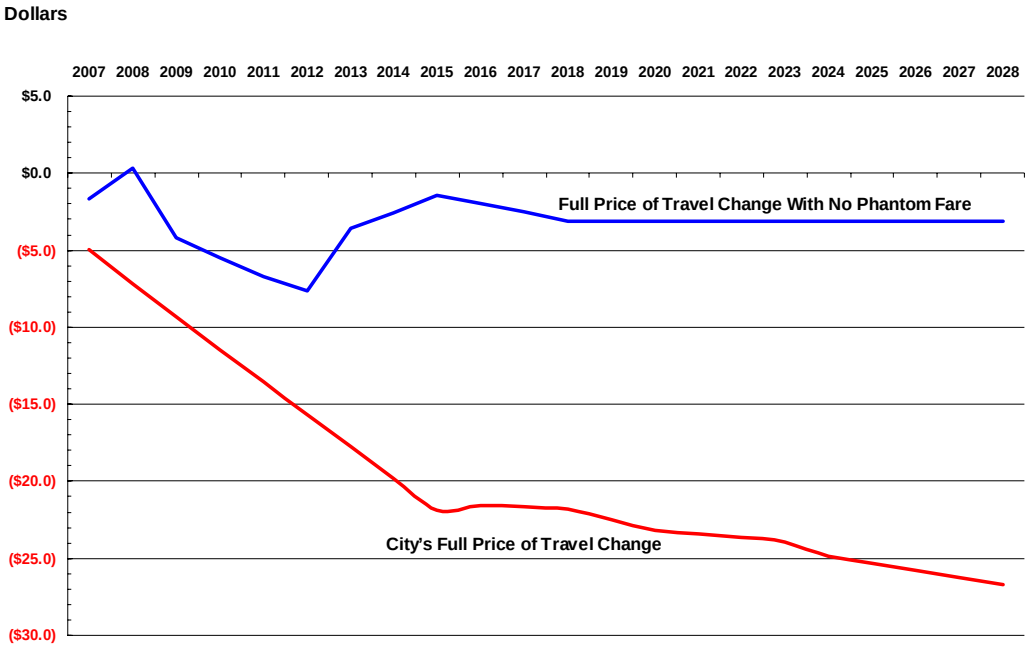
Hence, the claimed benefits attributable to Phase I are 'phantom' with and without the City's elasticity assumptions. If one accepts the City's demand elasticity the large required fall in fares cannot be justified, will not materialize, and, in fact, fares are likely to rise because of Phase I. This would destroy claimed consumer surplus benefits. Furthermore, if one presumes a more appropriate high elasticity of demand for connecting passengers there will be little or no fare decrease and again consumer surplus benefits will be zero or negligible. Whether one accepts the City's claimed elasticity, its asserted benefits are manufactured, and fail to materialize when examined closely.

4.9 Elimination of the City's Phantom Fare Reduction Substantially Reduces OMP-Phase I Airfield Benefits by 90%

The City's benefit estimates are primarily dependent on assumed fare reductions that are not justified by cost savings or any other consideration. In fact, the City's assumed fare reductions contradict the FAA' BCA Guidance as well as economic theory. As shown in Chart 13, the elimination of the phantom fare savings as a benefit significantly reduces the average decline in the full price of travel under OMP-Phase I Airfield, and partially corrects for the illogical patterns of fare reduction over time.[45]

[45] These corrections are based on the City's own flawed travel time comparisons that are discussed in Section 4.4.

Chart 13
City's Adjusted Reduction in Full Price of Travel Without The Phantom Fare Reductions

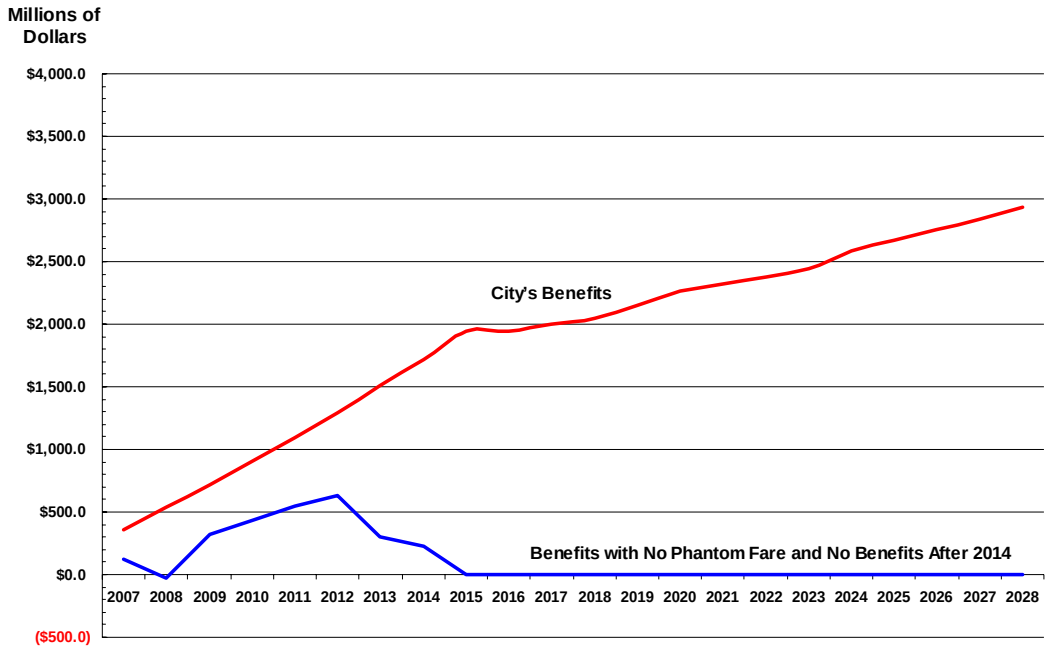


Source: Exhibit 1

The net result of just eliminating phantom fare benefits is a severe decline in the City's claimed $12.4 billion of benefits (in NPV terms) to just $2.3 billion.

The benefits are further reduced when any time-based savings are limited to the 2007-2014 period before OMP-Phase I Airfield is constrained. The resulting total benefit amount is $1.3 billion – a 90% reduction from the City's results (Chart 14)!

Chart 14
Total Phase I Benefits Eliminating Phantom Fare Reductions



Source: Exhibit 2

4.10 Time-Based Benefits Are Incorrectly Measured And Are Actually Negative

Even the remaining time-based benefits are inaccurate and based on time savings that cannot be justified. A primary consideration in determining the existence of any OMP-Phase I Airfield benefits is whether there is any reduction in average travel time. Benefits can only occur in years that could have a net reduction in travel time. Rather than correctly and fully representing the time impacts of OMP-Phase I Airfield (as shown in the FAA's own modeling results), the City has created a false comparison between OMP-Phase I Airfield and the Base Case by:

(1) misrepresenting changes to Base Case travel time over the forecast period by assuming an increase in the average trip time and cost even though those differences are caused solely by changes to flight mix and average flight distance and not delay;

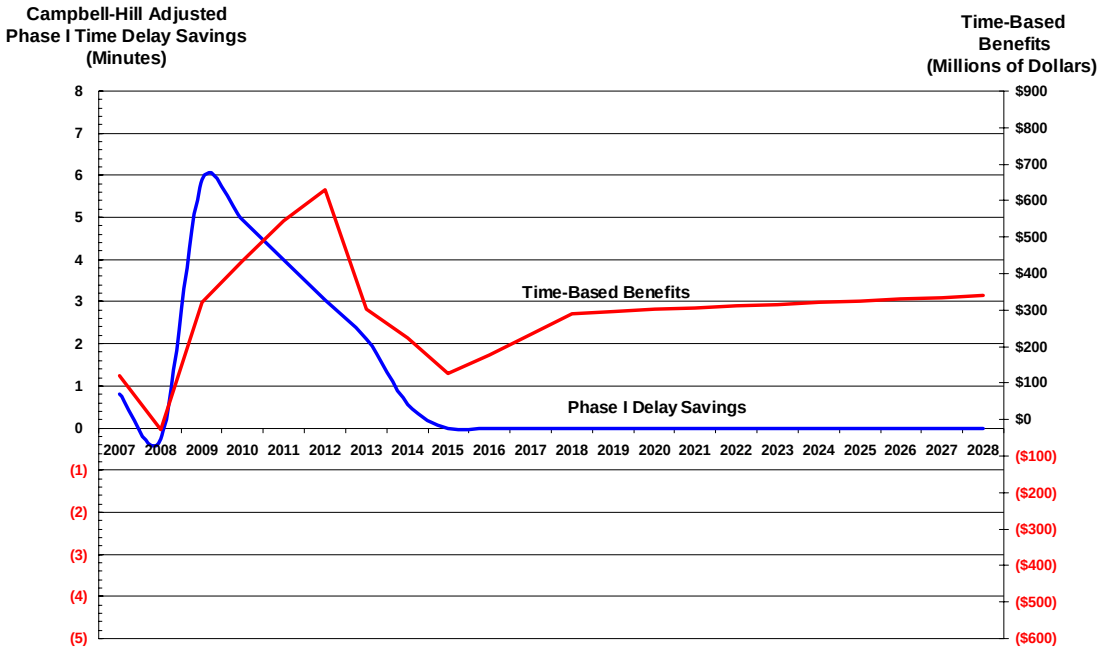
(2) masking the true net impact of the project on uninterrupted travel time that should be determined by the net increase in taxi time of 4 minutes in Phase I and 6.5 minutes in Total Master Plan that should offset any delay savings[46]; and

(3) ignoring increases in access/egress and terminal facilitation times that would further offset and obliterate the City's minimal time savings.

Simple adjustments to the City's travel time assumptions based on common sense and the FAA's BCA Guidance eliminates any purported time savings for almost all years of the OMP-Phase I Airfield, and, in reality, create higher travel times than under the Base Case (see Section 4.2). The impact of this flaw is shown by comparing the City's estimated time-related benefits to the actual delay savings claimed for the airfield. As with total benefits, time-related benefits mostly are unrelated to actual delay savings (Chart 15).

[46] The only possible way of measuring the project's impact on uninterrupted travel time (i.e., average trip time excluding delay) is to compare model results using the exact same flight schedule or the same mix of flights albeit at a higher level of total operations. The FAA's TAAM modeling for the FEIS ran comparable schedules using the 2002 TAF (unconstrained) forecast for Phase I, Total Master Plan and the Base Case for 2007, 2009 and 2013, while the City's first BCA contained a similar comparison for 2007, 2009 and 2013 using the Base Case "constrained" schedule created for the FEIS (although the Phase I results were merely summarized). The impact on uninterrupted travel time was very similar using both forecasts and for all years, despite changes to operating levels using the unconstrained forecasts. The net effect of Phase I was 3.9 to 4.0 minutes of additional taxi time with the Total Master Plan producing additional taxi of 6.5 minutes.

Chart 15
Delay Savings Do Not Correspond to the City's Time-Based Benefits



Source: Exhibit 1 and Exhibit 5

The comparison is even more striking using the net impact on travel time including the increased taxi time with OMP (Chart 16).

Chart 16
Realistic Travel Time Savings Do Not Correspond to the City's Time-Based Benefits

Source: Exhibit 1 and Exhibit 8

In order to produce results that supports the City's case, the City assumed that travel time would increase for the Base Case throughout the forecast period, even after its operations are constrained (fixed). In fact, the total travel time[47] under the Base Case increases by 16 minutes (11 percent) from the year that operations are assumed to be fixed (2007) to 2018. On the other hand, as soon as operations are constrained in OMP-Phase I Airfield, total travel time does not change, even though Base Case times **continue to increase** for unexplained reasons. This creates an excessive travel time advantage for OMP-Phase I Airfield that is totally unrelated to the new airfield. One way to correct for this egregious error is to hold the total travel time constant for the Base Case once operations are constrained, or at the very least not vary delay time as is assumed below. This is consistent with the City's own assumptions for Phase I.

[47] Total Travel Time is defined as Unimpeded Travel Time + Delay

The FAA's BCA Guidance supports the notion that schedules should remain constant in its methodology for calculating consumer surplus.[48] A further way that the City manipulated the total travel time to its advantage was to use differences in flight schedules to create phony time savings that far exceed the true impact of OMP-Phase I Airfield on both delays and unimpeded taxi time as shown in its own modeling results. The City in its first BCA acknowledged that both OMP-Phase I Airfield and Total Master Plan increase unimpeded travel times by 4 to 6.5 minutes due to the size and structure of the new airfields.[49] The City's OMP-Phase I Airfield total travel time is calculated using unimpeded[50]travel time for Phase I based on a schedule that had a lower average flight distance than the Base Case schedule. This makes no sense but it does provide the City with a fictitious trip time saving.

This erroneous assumption has the effect of reducing total travel time, even though existing passengers are no better off. Total travel time for OMP-Phase I Airfield should be calculated by adding the additional unimpeded taxi time and subtracting the delay time advantage for OMP-Phase I Airfield from the Base Case total travel time.[51]

A simple analysis of the interaction between the City's traffic forecast, travel times and purported benefits in the first forecast year (2007) reveals the flaws and irrationalities that are embedded in the benefit calculations (see Appendix A) including:

- The City's time-based benefits (from fare and passenger value reductions) of $119 million include a negative benefit of -$73 million for the Base Case passengers.

- The large benefits for "induced" passengers are not based on delay reductions, but are entirely based on a 57 minute difference in the average flight time.

[48] FAA, FAA Airport Benefit-Cost Analysis Guidance, Appendix C, December 1999. It does this by calculating travel time differences using traffic forecasts that are percent increases over the base case forecast. This method does not allow for schedule changes that are unrelated to the project.

[49] While the FAA's modeling clearly shows both airfields will increase unimpeded travel time when flight schedule is appropriately held constant with the Base Case, there is no clear explanation of the specific causes of the increased time. Campbell-Hill assigns the increase to average taxi time that clearly must increase, although the net effect is the same regardless of the cause.

[50] Unimpeded Time is defined as the average time that it would take a plane to and from O'Hare if there was no delay.

[51] The City contends that the constrained forecast for OMP-Phase I Airfield is based on 17 minutes of delay, presumably starting in 2015 when total travel time is frozen. For consistency, OMP-Phase I Airfield delay was fixed at the same level used for the Base Case (16.2 minutes) without regard as to whether this modeled value is a valid constraint.

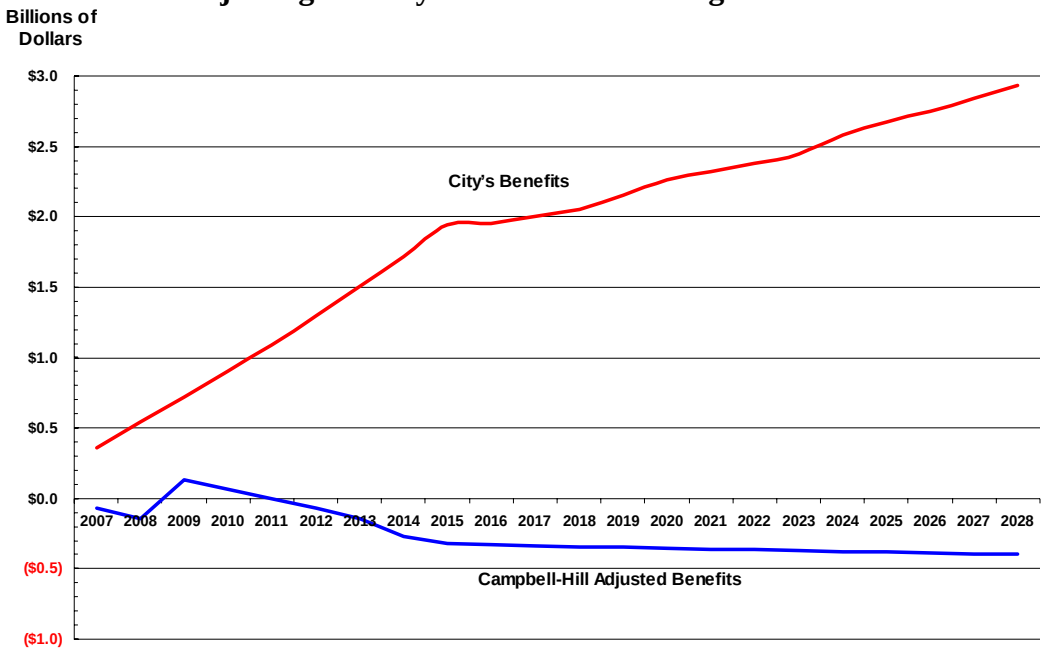
- Correcting for this false time comparison creates a negative benefit for all passengers in 2007.

Correcting for variations in Base Case delay and the differences in flight schedules, Phase I only has a travel time advantage over the Base case for two out of the 22 years considered in this analysis (see Section 4.2). This creates disbenefits (advantage for the No Build-Base Case). Therefore, with two simple corrections, OMP-Phase I Airfield is shown to produce no benefits at all for 20 years of the forecast period.

4.11 Adjusting the Travel Time Comparisons Creates Negative Benefits for OMP-Phase I Airfield

Basing traffic stimulation on a legitimate comparison of travel times between the Base Case and Scenario airfields corrects for the major flaws of the City's calculations by basing benefits solely on time and cost changes. This eliminates phantom fare reductions, limits benefits to other those years with actual time savings, and correctly accounts for years when there are negative benefits. As shown in Chart 17, **the computed benefits are negative** for most of the forecast years.

Chart 17
Adjusting the City's BCA Produces Negative Benefits

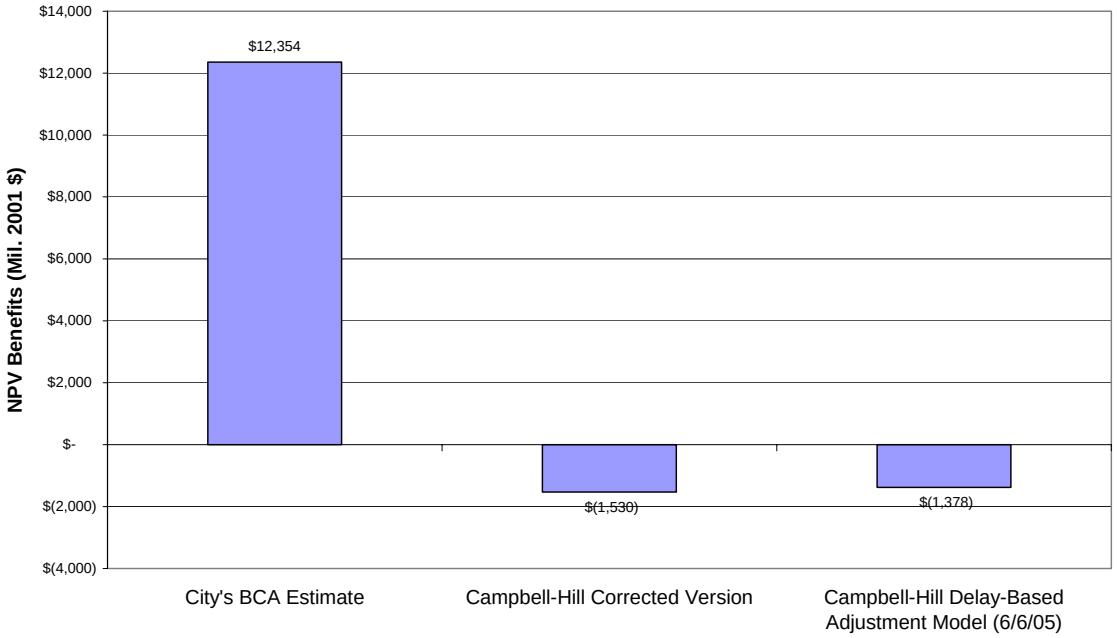


Source: Exhibit 1 and Exhibit 3

The net impact of these simple corrections results in Campbell-Hill's prediction of **negative** $1.5 billion in benefits, as shown below. This result is very close to Campbell-Hill's original results (negative $1.4 billion) using its Delay-Based Adjustment Model[52] that incorporates many of the factors required by the FAA's BCA Guidance methodology.

[52] From Exhibit 101 of Campbell-Hill's June 6, 2005 report based on aircraft cost and passenger time savings using 2002 TAF forecast and excluding downstream passenger benefits.

Chart 18
Total Phase I Benefits With Campbell-Hill Adjustments
(NPV in Constant 2001 Dollars)



Source: Exhibit 3 and Campbell-Hill June 6, 2005 Report, Exhibit 101

4.12 The City Did Not Consider Other Critical Impacts on Total Trip Time As Required by The FAA's BCA Guidance

The FAA's BCA Guidance is clear that all elements of travel time affected by the airport project must be considered. It states:

> "Estimation of total trip time should make allowances for passenger check in, transfers to connecting flights, check out, and delay encountered. It is also critical that trip time be considered for a whole one-way trip, and not simply a segment of a multi-segment flight."[53]

[53] FAA, FAA Airport Benefit-Cost Analysis Guidance, December 1999, page C-7.

"Realization of benefits from a new runway may be contingent on simultaneous investments in terminal or ground access capacity." (emphasis supplied)[54]

The City's travel time estimates should have included ground access/egress and terminal connecting and processing times that are certain to increase with the additional OMP-Phase I Airfield traffic, and which was obviously not part of the City's analysis. The City ignores increased groundside congestion (access/egress and terminal facilitation) that will in reality dwarf its small and short-lived delay time savings. No access improvements are in the Total Master Plan yet those times will increase dramatically with large increases in local vehicular traffic. Also, when the Western terminal is built inter-terminal connecting transportation will add approximately one hour to each connecting passenger's trip when movement between these two terminal complexes is required.

By excluding the cost of all terminal expansion and roadway improvements in its primary scenario (OMP-Phase I Airfield), the City has implicitly assumed no travel time benefits from their construction.[55] This assumption is unreasonable, especially considering the City's claims of time savings in previous applications for funding of the World Gateway Program. The City must include the Total Master Plan costs, or it must incorporate it in its benefits analysis the negative impacts of forcing additional traffic through existing terminals and over the existing access/egress system.

The City should have considered possible time impacts associated with the project construction period, despite the assurances that there will be none. A couple of minutes of delay or extra processing time attributable to any one of these time factors would eliminate or overwhelm the limited airfield delay saving attributable to OMP-Phase I Airfield.

Campbell-Hill estimated the minimum additional time required for access/egress under the build scenarios. Campbell-Hill assumed that access/egress time for local passengers would be 60 minutes in 2006, and that it would increase by at least the year-over-year growth rate in the passenger forecast. Campbell-Hill assumed that terminal facilitation time would be 45 minutes in 2006, and that it too would grow at least by the year-over-year growth rate in local passengers. In addition, for the Master Plan Phase I and Total Master Plan, 10 minutes of terminal facilitation

[54] FAA, FAA Airport Benefit-Cost Analysis Guidance, December 1999, page 15.
[55] Or disbenefits from not having them.

time was added to the time of connecting passengers from 2009 onward. This accounts for the additional time needed to move through and between larger terminals. Terminal facilitation and access/egress time would add a minimum of 6 minutes to the OMP-Phase I Airfield trip time and 10 minutes to the Master Plan Phase I trip time in 2028.[56]

It should also be noted that the City also did not address connecting passenger times as required in the FAA's BCA Guidance. It is these passengers who are most likely to experience additional terminal transfer times under OMP-Phase I Airfield. They are also the most sensitive to the effect of added trip time since most connecting passengers have multiple airport routing options.

4.13 The City Ignored Totally The Primary Purpose Of Using Induced Demand in Benefit Calculations

The City's methodology completely reverses the economic theory of consumer surplus by generating cost benefits from traffic forecasts rather than calculating traffic stimulation (induced demand) from expected time and cost savings. Even if there were significant time savings, the FAA's BCA Guidance methodology is designed not to accentuate any initial time or cost savings that might apply to existing passengers and flights, but rather to consider that reduced prices and fares will attract some new or induced flights (and passengers) to the airport. **These new flights will increase airfield utilization and drive up delays, thereby diminishing the initial price and fare savings, albeit applied to more passengers.**

Without any significant time savings, Campbell-Hill did not have to incorporate the effect of fare-induced demand on the results. However, the clear fact that prices and fares would increase with the project has significant implications on future passenger traffic at O'Hare. Increased fares and travel times will drive passengers to not fly, or to fly via other airports. The high project costs will have to "shared" by fewer passengers, thereby further increasing fares and creating the "death spiral" effect previously measured by Campbell-Hill. The practical effect is that fare and time increases will result in 2% to 17% fewer passengers using O'Hare than in the Base Case. This is based on the City's elasticity coefficient and it ignores the probable effect on highly price-sensitive connecting passengers.

[56] See Exhibits 19-21 for Campbell-Hill access/egress and terminal facilitation time calculations.

5.0 THE TOTAL MASTER PLAN FAILS TO JUSTIFY THE ENORMOUS COSTS AND IT PRODUCES LOW BENEFITS

5.1 The City Provides No Justification (or Analysis) For Total Master Plan

In this and its original BCA, the City has attempted to justify the ultimate project (Total Master Plan) by shifting benefits to Phase I while ignoring the minimum of infrastructure investment (Master Plan Phase I) that is necessary to achieve their claimed benefits. When appropriately analyzed in full, the Total Master Plan can not be justified on a benefit-cost basis — either as a whole (including Phase I) or incrementally apart from Phase I— and the City's own uncorrected results show that the final phase of OMP fails all benefit-cost tests.

The City makes no mention of the Total Master Plan in its benefits analysis and the unacknowledged results presented in Appendix F are totally erroneous and appear to be based on some minor variation on the OMP-Phase I Airfield results. The FAA must judge the wisdom and financial viability of the entire plan and not simply incremental stand-alone pieces of it. While still retaining the negative benefits of the Phase I Airfield for the 2007-2012 period, the full project triples the project costs of Phase I with a limited increase in benefits in the period after it opens. Applying the same simple corrections to the City's methodology as with OMP-Phase I Airfield, the total project benefits (including the 2007-2012 Phase I period) are at most $1.2 billion not $12.4 billion as alleged by the City. This amount is based on the City's assumptions about average delay and other inputs that would require adjustment as cited by Campbell-Hill in its June 6, 2005 report. In any case, the expected benefits are a fraction of the estimated project costs, even assuming the City's low cost estimate of $6.2 billion.

The City should have limited its analysis only to the Total Master Plan and all elements of the OMP that are integrally related to the entire project. Failing this level of assessment, the FAA must evaluate the Phase I Master Plan and not simply OMP -Phase I Airfield. By ignoring the additional projects in the master plan, the City has either (1) erroneously left out costs for improvements that create benefits or (2) assumed no benefit impacts (negative) if those improvements are not made. The City's LOI request deals only with OMP-Phase I Airfield which is a device it contrived to strip away major Master Plan costs that are essential to the potential success of the Phase I runway program. The benefits of the Phase I Master, although

not separately calculated in this report, would be less than that of the OMP-Phase I Airfield as additional project costs must drive passenger fares higher, not lower.

5.2 The City Should Have Considered The Master Plan Scenarios (And Costs) That Must Accompany Any Claimed Benefits

The City and FAA should have considered the "Master Plan" elements of OMP, whether Phase I or the full project, in all of the project analysis. In this case, the City has ignored costs that must be incurred in order to achieve its own forecasts. Further, it has claimed benefits (but not the corresponding costs) that would diminish and exhaust those benefits. The City has not incorporated any access/egress cost or trip time analysis which must accompany a forecast of ever-increasing local passenger demand. Otherwise the City must include the infrastructure costs to handle the added traffic volumes on the access system. The City simply ignored it – no increased trip times and no OMP costs to cure it. Likewise, the FAA in its DEIS and FEIS ignored the access/egress requirements, especially under conditions of unconstrained demand. One can only reason that the FAA did not want to impose significant added costs on the OMP justification, or it did not want to incorporate major additions/changes to the existing access/egress system into its environmental impact analysis.

5.3 The City's Benefits Claimed For Total Master Plan Are Erroneous

The City makes no mention of the Total Master Plan in its benefits analysis and the unacknowledged results presented in Appendix F are erroneous. They appear to be based on some minor variation on the OMP-Phase I Airfield results. The estimated benefits shown are exactly the same as for OMP-Phase 1Airfield for each year of the 2007 to 2028 forecast period, and they differ only by minor amounts during the extended forecast (2029-2032). If the City had actually calculated benefits for the Total Master Plan, it must be assumed that the same errors in regard to phantom fares and erroneous travel time comparisons would have infected and destroyed its analysis.

5.4 Using The Same Corrected Methodology As Applied To OMP - Phase I Airfield, Total Master Plan Benefits Are Small

The Total Master Plan suffers from similar problems to the OMP Phase I-Airfield in terms of generating benefits, most particularly that the scenarios share the same limited delay improvements for the 2007 to 2012 period. During this period, the OMP Phase I-Airfield generates negative benefits of -$90 million despite including the only two years with positive benefits.[57]

While the Total Master Plan provides additional airfield capacity from 2013 onward, any delay benefits (over-stated in Campbell-Hill's opinion) will be offset by a higher taxi time penalty (6.5 minutes) than exists in Phase I. The maximum delay savings of 12.1 minutes would occur in 2013, but would be immediately translate into only 5.6 minutes of net travel time savings. (see Exhibit 3).[58] The net savings would consistently diminish over the forecast period and would be even less using the 2003 TAF operations forecasts or correcting for delay problems. Any time benefits could also be easily reversed by incorporating additional time impacts (e.g., access/egress) which would be higher with unconstrained traffic after 2014 (as compared to the constrained Phase I forecast).

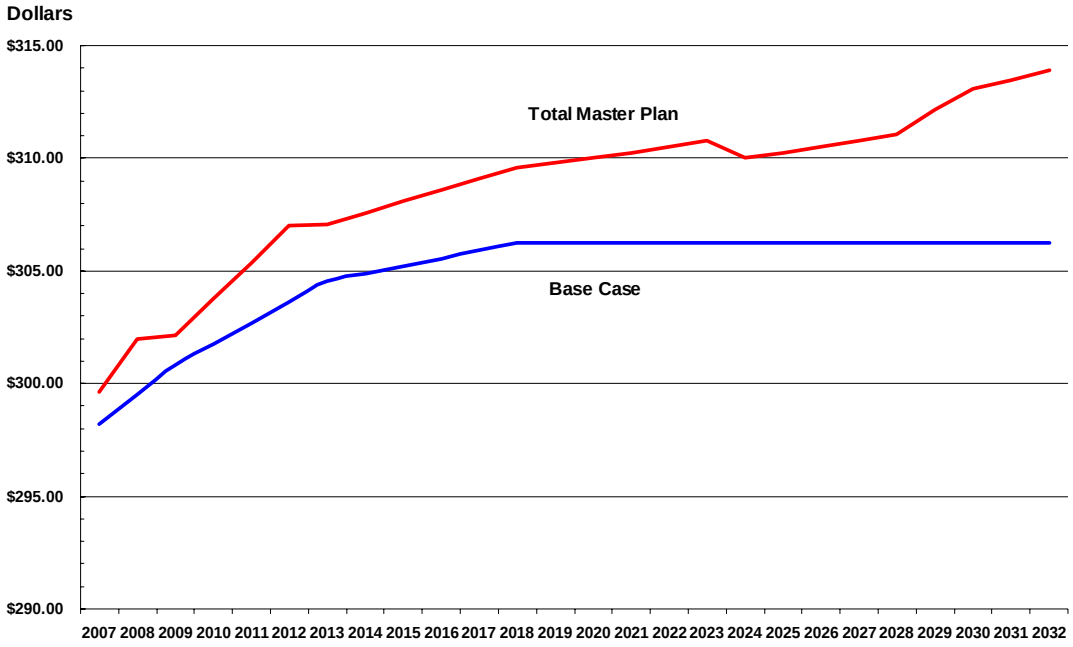
The primary difference between Total Master Plan and the OMP-Phase I Airfield is the enormous increase in Total Master Plan project costs that must be absorbed into the airline fares. These costs offset any aircraft cost savings to the airlines. Even assuming the nominal time savings that can be deduced from the FAA's modeling results, the allocated project costs will not only overwhelm any aircraft cost savings and require fare increases [59], but will also overwhelm any passenger value savings and create a net increase in the full price of travel for all of the 2013-2032 forecast period (see Chart 19).

[57] The Total Master Plan benefits for the 2007-2012 differ slightly from the OMP-Phase I Airfield due to minor differences in the project costs allocated to the airlines.

[58] The

[59] In addition to the OMP costs paid by the airlines, the City's financing plan used in the Master Plan assumes that the federal government will permit it to increase the PFC from $4.50 to $6.00 in 2011. This $1.50 increase in the PFC per enplaned passenger will increase an average one-way passenger's fare by 75 cents. This City never factored this increase in passenger fare into its consumer surplus analysis. Exhibit 18 shows the 75 cent PFC in constant 2001 dollars.

Chart 19
Adjusted Full Price of Travel : Total Master Plan vs. Base Case

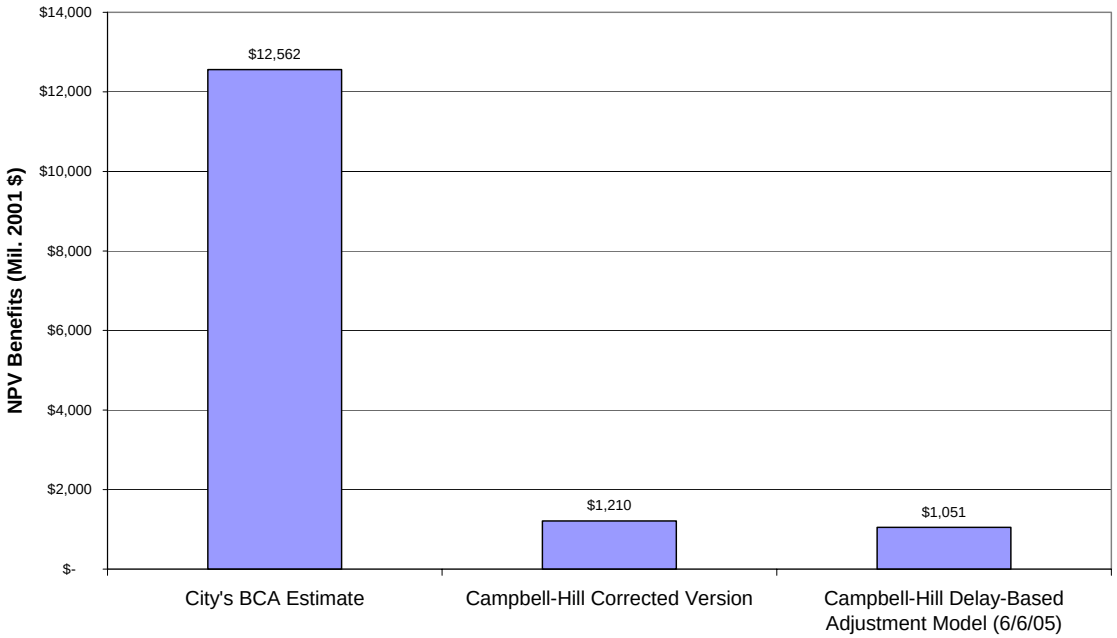


Source: Exhibit 14

Using Campbell-Hill's methodology based solely on time-based cost and price savings, the net benefits for Total Master Plan total just $1.2 billion, while its costs are $6.2 billion according to the City. This result slightly exceeds the original results ($1.0 billion) produced by Campbell-Hill using its Delay-Based Adjustment Model[60] that incorporated many of the factors used in the FAA BCA Guidance methodology.

[60] Campbell-Hill, June 6, 2005 report, Exhibit 102 based on aircraft cost and passenger time savings using 2002 TAF forecast and excluding downstream passenger benefits.

Chart 20
Total Master Plan Benefits With Campbell-Hill Adjustments



Source: Exhibit 15 and Exhibit 102 of Campbell-Hill's June 6 2005 report

These positive net benefits result solely from the FAA's BCA Guidance requirement to subtract the effect of allocated project costs for purposes of the benefit-cost calculation.[61] In reality, the "existing" passengers in the Base Case forecast will experience a net increase in the full price of travel for all of the post-2013 years and realistically will experience negative benefits when the appropriate costs are included.

The Total Master Plan's negative effect on the full price of travel will theoretically result in a reduction in passengers over the Base Case forecast (as it does in terms of the benefits calculations). Based on relative price difference, the Total Master Plan will fall 8 percent short of the "unconstrained" passenger demand in 2013 (6.8 million passengers) with the shortfall increasing to 26 million passengers by the end of the forecast period (see Exhibit 16).

[61] The FAA's BCA Guidance specifies that project costs should only be used to calculate the effect of fare changes on traffic and should be excluded from the benefit calculations since costs are separately included in the costs. This adjustment is solely intended to avoid double-counting costs when there are reductions in the full price of travel and does not imply that project costs are not passed on to the passengers.

Even without a net decline in travel costs, the Total Master Plan can clearly not produce the necessary time and cost savings to generate enough passengers to satisfy the 2002 TAF "unconstrained demand", much less the more appropriate 2003 or 2004 TAF forecasts. **Consumer surplus analysis shows that the Total Master Plan (and all other lesser scenarios) will not handle unconstrained demand in any of the forecast years when it is available and therefore cannot fulfill a primary requirement of the "Purpose and Need".** This result is true regardless of what forecast is used. It is based on overstated delay reductions, and it does not incorporate any impacts on other passenger trip time elements (e.g., access/egress).

6.0 WITH SIMPLE CORRECTIONS, THE CITY'S BENEFIT-COST RATIOS DROP BELOW 19 CENTS OF BENEFITS FOR EVERY DOLLAR OF THE CITY'S COST

6.1 Benefit Adjustments

Campbell-Hill has adjusted the City's second (September 27, 2005) BCA to account for two primary problems: (1) the City's method creates fare savings that are unrelated to any direct impact of the project on fares or other price factors; and (2) the City's overstates even the time-based benefits by distorting time changes by a drastic difference in average flight distance between the Base Case schedule and the flights added under the build scenario. Campbell-Hill recalculated benefits with adjusted travel time estimates that directly determine fare and price savings. The decreased benefits claimed for Phase I from $12.4 billion to (negative) -$1.5 billion. Since the benefits are negative, without factoring in the cost of the projects, the passengers are better off if the City does not build Phase I. For the Total Master Plan, benefits decrease from $6.3 billion to $1.2 billion, while the costs (NPV) are $6.2 billion.

6.2 Results

When Campbell-Hill's benefit adjustments are combined with the City's costs then the net benefits are (negative) -$3.5 billion, (negative) -$4.2 billion and (negative) -$5.0 billion for OMP-Phase I Airfield, Master Plan Phase I, and the Total Master Plan, respectively. The benefit-cost ratios for the three projects are –0.78, –0.57, and 0.19 (See Table 5 below).[62]

[62] While the Net benefits are lower when Campbell-Hill's cost adjustments are considered the benefit-cost ratios are lower for the Phase I projects (OMP-Phase I Airfield and Master Plan Phase I) because mathematically when a negative number (negative benefits) is divided by a higher number (costs) the result is a lower negative number.

Table 5
Benefit-Cost Results Using City's Costs

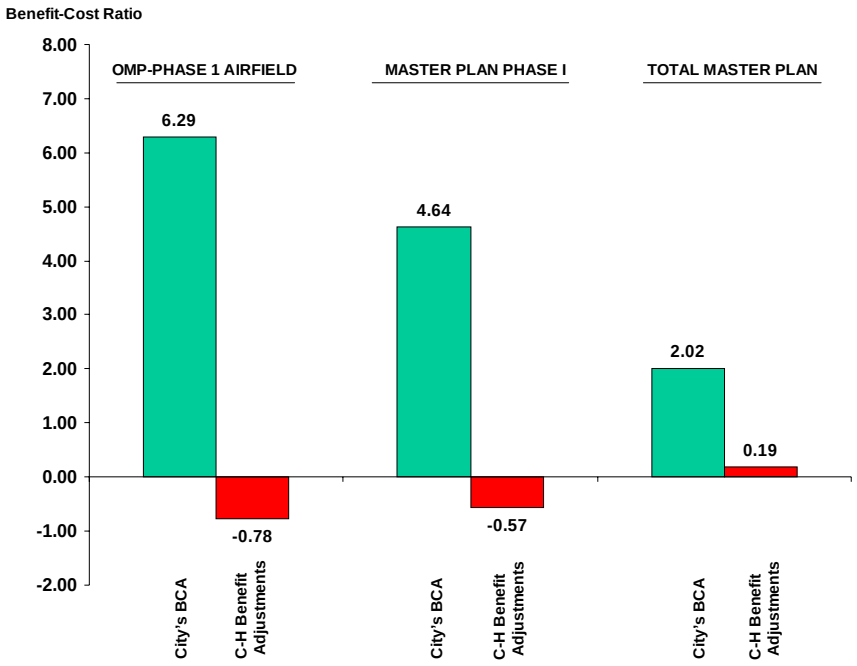
	OMP-Phase I Airfield	Master Plan Phase I	Total Master Plan
Benefits[1]	-$1,529.7	-$1,529.7	$1,210.4
City's Costs[2]	$1,962.9	$2,664.2	$6,233.3
Net Benefits	-$3,492.6	-$4,193.9	-$5,022.9
BC Ratio	-0.78	-0.57	0.19

1/ Exhibits 3 and 15

2/ From City of Chicago, Supplemental Benefit-Cost Analysis, pages 27, 28, and 85.

It is clear from the results above that the costs of the OMP overwhelm any benefits.

Chart 21
The Adjusted B-C Ratios Are All Well Below 1.0



Source: Table 5

E X H I B I T S

THE CITY'S BENEFITS FOR OMP-PHASE I AIRFIELD BY SOURCE
(Calculated Using City's Assumptions and Methodology)

	Passenger Benefits (Mil. $) 1/				Phantom Fare Reduction Share	Average Benefits per Passenger			
	Passenger Value Savings	Cost-Based Fare Reduction	Phantom Fare Reduction	Total		Passenger Value Savings	Cost-Based Fare Reduction	Phantom Fare Reduction	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2007	$70	$49	$243	$363	67%	$0.96	$0.67	$3.33	$4.96
2008	-$16	-$11	$564	$536	105%	-$0.21	-$0.15	$7.52	$7.15
2009	$189	$133	$395	$717	55%	$2.46	$1.73	$5.14	$9.32
2010	$255	$179	$468	$901	52%	$3.24	$2.27	$5.94	$11.44
2011	$320	$224	$551	$1,094	50%	$3.96	$2.78	$6.82	$13.56
2012	$370	$259	$667	$1,295	51%	$4.47	$3.13	$8.06	$15.65
2013	$177	$124	$1,205	$1,506	80%	$2.09	$1.46	$14.20	$17.75
2014	$131	$92	$1,497	$1,720	87%	$1.51	$1.06	$17.25	$19.81
2015	$73	$51	$1,820	$1,944	94%	$0.82	$0.58	$20.48	$21.88
2016	$105	$73	$1,771	$1,948	91%	$1.16	$0.81	$19.57	$21.54
2017	$137	$96	$1,765	$1,998	88%	$1.49	$1.04	$19.14	$21.67
2018	$171	$120	$1,759	$2,050	86%	$1.82	$1.28	$18.71	$21.80
2019	$174	$122	$1,858	$2,154	86%	$1.82	$1.28	$19.42	$22.51
2020	$177	$124	$1,959	$2,260	87%	$1.82	$1.28	$20.12	$23.21
2021	$180	$126	$2,015	$2,321	87%	$1.82	$1.28	$20.36	$23.45
2022	$183	$128	$2,071	$2,382	87%	$1.82	$1.28	$20.59	$23.68
2023	$186	$130	$2,130	$2,446	87%	$1.82	$1.28	$20.83	$23.92
2024	$189	$132	$2,260	$2,581	88%	$1.82	$1.28	$21.77	$24.86
2025	$191	$134	$2,341	$2,667	88%	$1.82	$1.28	$22.24	$25.33
2026	$194	$136	$2,424	$2,754	88%	$1.82	$1.28	$22.71	$25.80
2027	$197	$138	$2,509	$2,844	88%	$1.82	$1.28	$23.18	$26.27
2028	$200	$140	$2,595	$2,934	88%	$1.82	$1.28	$23.64	$26.73
Total	$3,853	$2,701	$34,864	$41,417	84%				
2009-2015 Change	-61%	-61%	361%	171%		-67%	-67%	299%	135%
2015-2028 Change	173%	173%	43%	51%		121%	121%	15%	22%
NPV - Total	$1,336	$937	$10,080	**$12,352**	82%				
NPV - 2007-14	$757	$530	$2,750	**$4,037**	68%				
% of Total	57%	57%	27%	**33%**					

Source: Calculated based on inputs and methodology contained in City's BCA. Results may differ due to rounding.

ELIMINATING PHANTOM FARE REDUCTIONS AND POST-2014 BENEFITS REDUCES THE CITY'S CLAIMED BENEFITS FOR OMP-PHASE I AIRFIELD $1.3 BILLION (NPV)

	Passenger Benefits (Mil. $)				Phantom Fare Reduction Share	#	Average Benefits per Passenger			
	Passenger Value Savings	Cost-Based Fare Reduction	Phantom Fare Reduction	Total			Passenger Value Savings	Cost-Based Fare Reduction	Phantom Fare Reduction	Total
	(1)	(2)	(3)	(4)	(5)		(7)	(8)	(9)	(10)
2007	$70	$49	$0	$120	0%		$0.96	$0.67	$0.00	$1.64
2008	-$16	-$11	$0	-$27	0%		-$0.21	-$0.15	$0.00	-$0.36
2009	$189	$133	$0	$322	0%		$2.46	$1.73	$0.00	$4.19
2010	$255	$179	$0	$434	0%		$3.24	$2.27	$0.00	$5.51
2011	$320	$224	$0	$544	0%		$3.96	$2.78	$0.00	$6.73
2012	$370	$259	$0	$629	0%		$4.47	$3.13	$0.00	$7.60
2013	$177	$124	$0	$301	0%		$2.09	$1.46	$0.00	$3.55
2014	$131	$92	$0	$223	0%		$1.51	$1.06	$0.00	$2.57
2015	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2016	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2017	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2018	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2019	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2020	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2021	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2022	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2023	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2024	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2025	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2026	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2027	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
2028	$0	$0	$0	$0	0%		$0.00	$0.00	$0.00	$0.00
Total	$1,496	$1,048	$0	$2,544	0%					
2009-2015 Change	-100%	-100%	0%	-100%			-100%	-100%	0%	-100%
2015-2028 Change	0%	0%	0%	0%			0%	0%	0%	0%
NPV - Total	$757	$530	$0	**$1,287**	0%					
NPV - 2007-14	$757	$530	$0	**$1,287**	0%					

Source: Exhibit 1 assuming no "phantom fare reduction" for all years and no benefits after 2014.

CAMPBELL-HILL'S CORRECTIONS TO THE CITY'S CLAIMED
BENEFITS FOR OMP-PHASE I AIRFIELD CREATES NEGATIVE BENEFITS OF $1.5 BILLION (NPV)

	Passenger Benefits (Mil. $)				Phantom Fare Reduction Share	Average Benefits per Passenger			
	Passenger Value Savings	Cost-Based Fare Reduction	Phantom Fare Reduction	Total		Passenger Value Savings	Cost-Based Fare Reduction	Phantom Fare Reduction	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2007	-$43	-$30	$0	-$73	0%	-$0.59	-$0.41	$0.00	-$1.00
2008	-$86	-$60	$0	-$147	0%	-$1.15	-$0.81	$0.00	-$1.96
2009	$78	$55	$0	$133	0%	$1.02	$0.71	$0.00	$1.73
2010	$40	$28	$0	$68	0%	$0.51	$0.36	$0.00	$0.86
2011	$0	$0	$0	$0	0%	$0.00	$0.00	$0.00	$0.00
2012	-$42	-$29	$0	-$72	0%	-$0.51	-$0.36	$0.00	-$0.86
2013	-$86	-$60	$0	-$147	0%	-$1.02	-$0.71	$0.00	-$1.73
2014	-$159	-$112	$0	-$271	0%	-$1.84	-$1.29	$0.00	-$3.12
2015	-$190	-$133	$0	-$323	0%	-$2.14	-$1.50	$0.00	-$3.64
2016	-$194	-$136	$0	-$329	0%	-$2.14	-$1.50	$0.00	-$3.64
2017	-$197	-$138	$0	-$336	0%	-$2.14	-$1.50	$0.00	-$3.64
2018	-$201	-$141	$0	-$342	0%	-$2.14	-$1.50	$0.00	-$3.64
2019	-$205	-$144	$0	-$348	0%	-$2.14	-$1.50	$0.00	-$3.64
2020	-$208	-$146	$0	-$354	0%	-$2.14	-$1.50	$0.00	-$3.64
2021	-$212	-$148	$0	-$360	0%	-$2.14	-$1.50	$0.00	-$3.64
2022	-$215	-$151	$0	-$366	0%	-$2.14	-$1.50	$0.00	-$3.64
2023	-$219	-$153	$0	-$372	0%	-$2.14	-$1.50	$0.00	-$3.64
2024	-$222	-$156	$0	-$378	0%	-$2.14	-$1.50	$0.00	-$3.64
2025	-$225	-$158	$0	-$383	0%	-$2.14	-$1.50	$0.00	-$3.64
2026	-$228	-$160	$0	-$389	0%	-$2.14	-$1.50	$0.00	-$3.64
2027	-$232	-$162	$0	-$394	0%	-$2.14	-$1.50	$0.00	-$3.64
2028	-$235	-$165	$0	-$400	0%	-$2.14	-$1.50	$0.00	-$3.64
Total	-$3,283	-$2,301	$0	-$5,583	0%				
2009-2015 Change	-343%	-343%	0%	-343%		-311%	-311%	0%	-311%
2015-2028 Change	24%	24%	0%	24%		0%	0%	0%	0%
NPV - Total	-$899	-$630	$0	**-$1,530**	0%				
NPV - 2007-14	-$140	-$98	$0	**-$237**	0%				

Source: Recalculated based on adjusted average benefits per passenger (from Exhibits 8 and 9) as applied to City's traffic forecasts.

ESTIMATED INCREASE IN THE FULL PRICE OF TRAVEL WITH OMP-PHASE I AIRFIELD WILL DECREASE THE NUMBER OF PASSENGERS AT O'HARE

	Base Case		OMP-Phase I Scenario					
				Passengers (Million)				
	"Full Price of Travel"	Total Passengers (Mil.)	"Full Price of Travel"	Price-Based Induced	Price-Based Total	City's Forecast	Price-Based Shortfall	Percent Shortfall
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2007	$298.21	72.44	$299.58	(0.36)	72.08	73.89	1.80	2%
2008	$299.52	73.91	$301.83	(0.62)	73.29	76.05	2.76	4%
2009	$300.84	75.44	$300.65	0.05	75.49	78.30	2.81	4%
2010	$301.76	76.96	$302.39	(0.18)	76.78	80.56	3.78	5%
2011	$302.68	78.54	$304.14	(0.41)	78.13	82.90	4.77	6%
2012	$303.60	80.15	$305.88	(0.65)	79.50	85.32	5.82	7%
2013	$304.53	81.82	$307.63	(0.90)	80.92	87.82	6.90	8%
2014	$304.87	83.36	$309.33	(1.31)	82.05	90.24	8.19	9%
2015	$305.21	84.95	$310.15	(1.47)	83.48	92.73	9.26	10%
2016	$305.55	86.57	$310.47	(1.49)	85.08	94.36	9.29	10%
2017	$305.90	88.24	$310.79	(1.51)	86.73	96.22	9.49	10%
2018	$306.24	89.95	$311.11	(1.53)	88.42	98.12	9.71	10%
2019	$306.24	91.38	$311.09	(1.55)	89.83	99.99	10.16	10%
2020	$306.24	92.85	$311.06	(1.57)	91.28	101.89	10.61	10%
2021	$306.24	94.33	$311.04	(1.59)	92.74	103.62	10.88	10%
2022	$306.24	95.84	$311.03	(1.61)	94.23	105.38	11.15	11%
2023	$306.24	97.38	$311.01	(1.62)	95.76	107.17	11.42	11%
2024	$306.24	98.64	$310.99	(1.64)	97.00	109.00	12.00	11%
2025	$306.24	99.92	$310.97	(1.66)	98.26	110.63	12.37	11%
2026	$306.24	101.22	$310.95	(1.67)	99.55	112.29	12.74	11%
2027	$306.24	102.54	$310.94	(1.69)	100.85	113.97	13.12	12%
2028	$306.24	103.87	$310.92	(1.70)	102.17	115.68	13.52	12%

(1),(3) Exhibit 11
(2),(6) City's BCA
(4),(5) Calculated based on City's elasticity methodology.
(7) Col. 6 - Col. 5
(8) Col. 7 divided by Col. 6

CONSUMER BENEFITS CAN ONLY OCCUR IN YEARS WITH DELAY SAVINGS (2007 and 2009-2014)

	City's Delay Estimates (minutes)			Adjusted Delay Estimates (minutes)		
	Base Case	OMP-Phase I Airfield	Delay Change	Base Case	OMP-Phase I Airfield	Delay Savings
	(1)	(2)	(3)	(1)	(2)	(3)
2007	16.2	15.4	(0.8)	16.2	15.4	(0.8)
2008	16.1	16.5	0.4	16.2	16.5	0.2
2009	15.9	10.3	(5.6)	16.2	10.3	(5.9)
2010	16.2	11.3	(5.0)	16.2	11.3	(5.0)
2011	16.6	12.2	(4.4)	16.2	12.2	(4.0)
2012	16.9	13.2	(3.7)	16.2	13.2	(3.1)
2013	17.2	14.1	(3.1)	16.2	14.1	(2.1)
2014	17.2	15.6	(1.6)	16.2	15.6	(0.6)
2015	17.2	17.2	-	16.2	16.2	-
2016	17.1	17.1	-	16.2	16.2	-
2017	17.1	17.1	-	16.2	16.2	-
2018	17.1	17.1	-	16.2	16.2	-
2019	17.1	17.1	-	16.2	16.2	-
2020	17.1	17.1	-	16.2	16.2	-
2021	17.1	17.1	-	16.2	16.2	-
2022	17.1	17.1	-	16.2	16.2	-
2023	17.1	17.1	-	16.2	16.2	-
2024	17.1	17.1	-	16.2	16.2	-
2025	17.1	17.1	-	16.2	16.2	-
2026	17.1	17.1	-	16.2	16.2	-
2027	17.1	17.1	-	16.2	16.2	-
2028	17.1	17.1	-	16.2	16.2	-

(1) Exhibit 12
(2) Exhibit 12
(3) Col. 1 - Col. 2
(4) Assumes no increase in Base Case delay over 2007 value of 16.2 minutes with no change to operations.
(5) Col. 2 with maximum of 16.2 minutes for 2009-2028 per Base Case constraint.
(6) Col. 4 - Col. 5

CONSUMER BENEFITS CAN ONLY OCCUR IN YEARS WITH DELAY SAVINGS THAT EXCEED TIME INCREASES
(Per One-Way Passenger)

	City's Delay Savings Net of Increased Taxi Time			Adjusted Delay Savings Net of Increased Taxi Time		
	City's Delay Change	Taxi Time Change for OMP-Phase I Airfield	Net Travel Time Change	Adjusted Delay Savings Case	Increased Taxi Time OMP-Phase I Airfield	Net Travel Time Savings
	(1)	(2)	(3)	(4)	(5)	(6)
2007	(0.8)	1.9	1.1	(0.8)	1.9	1.1
2008	0.4	1.9	2.3	0.2	1.9	2.1
2009	(5.6)	4.0	(1.6)	(5.9)	4.0	(1.9)
2010	(5.0)	4.0	(1.0)	(5.0)	4.0	(1.0)
2011	(4.4)	4.0	(0.4)	(4.0)	4.0	(0.0)
2012	(3.7)	4.0	0.3	(3.1)	4.0	0.9
2013	(3.1)	4.0	0.9	(2.1)	4.0	1.9
2014	(1.6)	4.0	2.4	(0.6)	4.0	3.4
2015	-	4.0	4.0	-	4.0	4.0
2016	-	4.0	4.0	-	4.0	4.0
2017	-	4.0	4.0	-	4.0	4.0
2018	-	4.0	4.0	-	4.0	4.0
2019	-	4.0	4.0	-	4.0	4.0
2020	-	4.0	4.0	-	4.0	4.0
2021	-	4.0	4.0	-	4.0	4.0
2022	-	4.0	4.0	-	4.0	4.0
2023	-	4.0	4.0	-	4.0	4.0
2024	-	4.0	4.0	-	4.0	4.0
2025	-	4.0	4.0	-	4.0	4.0
2026	-	4.0	4.0	-	4.0	4.0
2027	-	4.0	4.0	-	4.0	4.0
2028	-	4.0	4.0	-	4.0	4.0

(1) Exhibit 5
(2) City's BCA
(3) Col. 1 + Col. 2
(4) Exhibit 5
(5) City's BCA
(6) Col. 4 - Col. 5

FARE REDUCTIONS CAN ONLY OCCUR IN YEARS WHEN AIRCRAFT COST SAVINGS EXCEED AIRLINES' SHARE OF OMP COSTS
(BASED ON CITY'S INFLATED TIME SAVINGS)

(Per One-Way Passenger)

	City's Travel Time Change	Fare Change from Cost Change	Project Costs Paid by Airlines (Mil.$)	City's OMP-Phase I Forecasts (Millions of Passengers)	Average Project Cost per Passenger	Fare Change
	(1)	(2)	(3)	(4)	(5)	(6)
2007	(1.8)	-$0.67	$26.6	73.89	$0.36	-$0.31
2008	0.4	$0.15	$26.6	76.05	$0.35	$0.50
2009	(4.6)	-$1.73	$120.8	78.30	$1.54	-$0.18
2010	(6.1)	-$2.27	$120.8	80.55	$1.50	-$0.77
2011	(7.4)	-$2.78	$120.8	82.90	$1.46	-$1.32
2012	(8.4)	-$3.13	$120.8	85.31	$1.42	-$1.71
2013	(3.9)	-$1.46	$120.8	87.82	$1.38	-$0.09
2014	(2.8)	-$1.06	$120.8	90.23	$1.34	$0.28
2015	(1.5)	-$0.58	$120.8	92.73	$1.30	$0.73
2016	(2.2)	-$0.81	$120.8	94.36	$1.28	$0.47
2017	(2.8)	-$1.04	$120.8	96.22	$1.26	$0.21
2018	(3.4)	-$1.28	$120.8	98.13	$1.23	-$0.04
2019	(3.4)	-$1.28	$120.8	99.98	$1.21	-$0.07
2020	(3.4)	-$1.28	$120.8	101.89	$1.19	-$0.09
2021	(3.4)	-$1.28	$120.8	103.61	$1.17	-$0.11
2022	(3.4)	-$1.28	$120.8	105.37	$1.15	-$0.13
2023	(3.4)	-$1.28	$120.8	107.17	$1.13	-$0.15
2024	(3.4)	-$1.28	$120.8	108.99	$1.11	-$0.17
2025	(3.4)	-$1.28	$120.8	110.62	$1.09	-$0.18
2026	(3.4)	-$1.28	$120.8	112.28	$1.08	-$0.20
2027	(3.4)	-$1.28	$120.8	113.97	$1.06	-$0.21
2028	(3.4)	-$1.28	$120.8	115.67	$1.04	-$0.23

(1) City's BCA, Table IV-1
(2) Col. 1 x $0.375 ($1,800 cost per block hour/ 80 passengers per operation/ 60)
(3) Exhibit 17
(4) City's BCA
(5) Col. 3 divided by Col. 4 (airline costs passed on to the passengers)
(6) Col. 2 + Col. 5

FARE REDUCTIONS CAN ONLY OCCUR IN YEARS WHEN AIRCRAFT COST SAVINGS EXCEED AIRLINES' SHARE OF OMP COSTS

(BASED ON CAMPBELL-HILL TIME ADJUSTMENTS)

	C-H Adjusted Travel Time Change	Fare Change from Cost Change	Project Costs Paid by Airlines (Mil.$)	City's OMP-Phase I Forecasts (Millions of Passengers)	Average Project Cost per Passenger	Fare Change
	(1)	(2)	(3)	(4)	(5)	(6)
2007	1.1	$0.41	$26.6	73.89	$0.36	$0.77
2008	2.1	$0.81	$26.6	76.05	$0.35	$1.16
2009	(1.9)	-$0.71	$120.8	78.30	$1.54	$0.83
2010	(1.0)	-$0.36	$120.8	80.55	$1.50	$1.14
2011	(0.0)	$0.00	$120.8	82.90	$1.46	$1.46
2012	0.9	$0.36	$120.8	85.31	$1.42	$1.77
2013	1.9	$0.71	$120.8	87.82	$1.38	$2.09
2014	3.4	$1.29	$120.8	90.23	$1.34	$2.63
2015	4.0	$1.50	$120.8	92.73	$1.30	$2.80
2016	4.0	$1.50	$120.8	94.36	$1.28	$2.78
2017	4.0	$1.50	$120.8	96.22	$1.26	$2.76
2018	4.0	$1.50	$120.8	98.13	$1.23	$2.73
2019	4.0	$1.50	$120.8	99.98	$1.21	$2.71
2020	4.0	$1.50	$120.8	101.89	$1.19	$2.69
2021	4.0	$1.50	$120.8	103.61	$1.17	$2.67
2022	4.0	$1.50	$120.8	105.37	$1.15	$2.65
2023	4.0	$1.50	$120.8	107.17	$1.13	$2.63
2024	4.0	$1.50	$120.8	108.99	$1.11	$2.61
2025	4.0	$1.50	$120.8	110.62	$1.09	$2.59
2026	4.0	$1.50	$120.8	112.28	$1.08	$2.58
2027	4.0	$1.50	$120.8	113.97	$1.06	$2.56
2028	4.0	$1.50	$120.8	115.67	$1.04	$2.54

(1) Exhibit 6
(2) Col. 1 x $0.375 ($1,800 cost per block hour/ 80 passengers per operation/ 60)
(3) Exhibit 17
(4) City's BCA
(5) Col. 3 divided by Col. 4 (airline costs passed on to the passengers)
(6) Col. 2 + Col. 5

PROJECT BENEFITS CAN ONLY OCCUR IN YEARS WHEN "FULL PRICE OF TRAVEL" IS REDUCED

	Adjusted Fare Change	Adjusted Passenger Travel Time Change (Minutes)	Adjusted Passenger Value of Time Change	Full Price of Travel Change
	(1)	(2)	(3)	(4)
2007	$0.77	1.1	$0.59	$1.36
2008	$1.16	2.1	$1.15	$2.31
2009	$0.83	-1.9	-$1.02	-$0.19
2010	$1.14	-1.0	-$0.51	$0.64
2011	$1.46	0.0	$0.00	$1.46
2012	$1.77	0.9	$0.51	$2.28
2013	$2.09	1.9	$1.02	$3.11
2014	$2.63	3.4	$1.84	$4.46
2015	$2.80	4.0	$2.14	$4.94
2016	$2.78	4.0	$2.14	$4.92
2017	$2.76	4.0	$2.14	$4.90
2018	$2.73	4.0	$2.14	$4.87
2019	$2.71	4.0	$2.14	$4.85
2020	$2.69	4.0	$2.14	$4.83
2021	$2.67	4.0	$2.14	$4.81
2022	$2.65	4.0	$2.14	$4.79
2023	$2.63	4.0	$2.14	$4.77
2024	$2.61	4.0	$2.14	$4.75
2025	$2.59	4.0	$2.14	$4.73
2026	$2.58	4.0	$2.14	$4.72
2027	$2.56	4.0	$2.14	$4.70
2028	$2.54	4.0	$2.14	$4.68

(1) Exhibit 8
(2) Exhibit 8
(3) Col. 2 x $0.535 (average value of passenger time in City's BCA)
(4) Col. 1 + Col. 3

THERE WILL BE NO PROJECT BENEFITS OR INDUCED TRAFFIC IN ANY FORECAST YEAR

	Average Delay Change (minutes per passenge)	Average Travel Time Change (minutes per passenge)	Net Fare Change (per passenger)		Full Price of Travel Change (per passenger)
	Using Corrected Travel Time Savings	Using Corrected Travel Time Savings	Using City's Travel Time Change	Using Corrected Travel Time Savings	Using Corrected Travel Time Savings
	(1)	(2)	(3)	(4)	(5)
2007	-0.8	1.1	-$0.31	$0.77	$1.36
2008	0.4	2.1	$0.50	$1.16	$2.31
2009	-5.6	-1.9	-$0.18	$0.83	-$0.19
2010	-5.0	-1.0	-$0.77	$1.14	$0.64
2011	-4.4	0.0	-$1.32	$1.46	$1.46
2012	-3.7	0.9	-$1.71	$1.77	$2.28
2013	-3.1	1.9	-$0.09	$2.09	$3.11
2014	-1.6	3.4	$0.28	$2.63	$4.46
2015	0.0	4.0	$0.73	$2.80	$4.94
2016	0.0	4.0	$0.47	$2.78	$4.92
2017	0.0	4.0	$0.21	$2.76	$4.90
2018	0.0	4.0	-$0.04	$2.73	$4.87
2019	0.0	4.0	-$0.07	$2.71	$4.85
2020	0.0	4.0	-$0.09	$2.69	$4.83
2021	0.0	4.0	-$0.11	$2.67	$4.81
2022	0.0	4.0	-$0.13	$2.65	$4.79
2023	0.0	4.0	-$0.15	$2.63	$4.77
2024	0.0	4.0	-$0.17	$2.61	$4.75
2025	0.0	4.0	-$0.18	$2.59	$4.73
2026	0.0	4.0	-$0.20	$2.58	$4.72
2027	0.0	4.0	-$0.21	$2.56	$4.70
2028	0.0	4.0	-$0.23	$2.54	$4.68

(1) Exhibit 5
(2) Exhibit 6
(3) Exhibit 7
(4) Exhibit 8
(5) Exhibit 9

CORRECTIONS TO THE CITY'S TIME AND PRICE ESTIMATES CREATE NEGATIVE BENEFITS FOR CONSUMERS

	Average Travel Time (minutes per passenger)			Average Money Fare (per passenger)			"Full Price of Travel" (per passenger)			Project Benefit (per passenger)	
		With OMP-Phase I Airfield			With OMP-Phase I Airfield			With OMP-Phase I Airfield			
	Base Case	City's Model Assumption	Campbell-Hill Adjustment	Base Case	City's Model Assumption	Campbell-Hill Adjustment	Base Case	City's Model Assumption	Campbell-Hill Adjustment	City's Model Assumption	Campbell-Hill Adjustment
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2007	146.1	144.3	147.2	$220.05	$216.05	$220.82	$298.21	$293.25	$299.58	$4.96	-$1.00
2008	148.6	148.8	150.7	$220.05	$212.68	$221.21	$299.52	$292.29	$301.83	$7.23	-$1.96
2009	151.0	146.1	149.1	$220.05	$213.19	$220.88	$300.84	$291.35	$300.65	$9.49	$1.73
2010	152.7	146.7	151.8	$220.05	$211.85	$221.19	$301.76	$290.33	$302.39	$11.43	$0.86
2011	154.5	147.4	154.5	$220.05	$210.45	$221.51	$302.68	$289.31	$304.14	$13.37	$0.00
2012	156.2	148.5	157.1	$220.05	$208.86	$221.82	$303.60	$288.31	$305.88	$15.29	-$0.86
2013	157.9	155.0	159.8	$220.05	$204.39	$222.14	$304.53	$287.31	$307.63	$17.22	-$1.73
2014	158.5	156.7	162.0	$220.05	$201.75	$222.68	$304.87	$285.58	$309.33	$19.29	-$3.12
2015	159.2	158.6	163.2	$220.05	$198.99	$222.85	$305.21	$283.84	$310.15	$21.37	-$3.64
2016	159.8	158.6	163.8	$220.05	$199.67	$222.83	$305.55	$284.52	$310.47	$21.03	-$3.64
2017	160.5	158.6	164.5	$220.05	$199.87	$222.81	$305.90	$284.72	$310.79	$21.18	-$3.64
2018	161.1	158.6	165.1	$220.05	$200.07	$222.78	$306.24	$284.92	$311.11	$21.32	-$3.64
2019	161.1	158.6	165.1	$220.05	$199.36	$222.76	$306.24	$284.21	$311.09	$22.03	-$3.64
2020	161.1	158.6	165.1	$220.05	$198.66	$222.74	$306.24	$283.51	$311.06	$22.73	-$3.64
2021	161.1	158.6	165.1	$220.05	$198.42	$222.72	$306.24	$283.27	$311.04	$22.97	-$3.64
2022	161.1	158.6	165.1	$220.05	$198.19	$222.70	$306.24	$283.04	$311.03	$23.20	-$3.64
2023	161.1	158.6	165.1	$220.05	$197.95	$222.68	$306.24	$282.80	$311.01	$23.44	-$3.64
2024	161.1	158.6	165.1	$220.05	$197.01	$222.66	$306.24	$281.86	$310.99	$24.38	-$3.64
2025	161.1	158.6	165.1	$220.05	$196.54	$222.64	$306.24	$281.39	$310.97	$24.85	-$3.64
2026	161.1	158.6	165.1	$220.05	$196.07	$222.63	$306.24	$280.92	$310.95	$25.32	-$3.64
2027	161.1	158.6	165.1	$220.05	$195.60	$222.61	$306.24	$280.45	$310.94	$25.79	-$3.64
2028	161.1	158.6	165.1	$220.05	$195.14	$222.59	$306.24	$279.99	$310.92	$26.25	-$3.64

(1),(2) City's BCA, Table IV-1 (Base Case adjusted to fix average delay at 16.2 minutes throughout forecast period).
(3) Col. 1 + Exhibit 10, Col. 2
(4),(5) Calculated based on inputs and methodology contained in City's BCA. Results may differ due to rounding.
(6) Col. 4 + Exhibit 10, Col. 4
(7),(8) Calculated based on inputs and methodology contained in City's BCA. Results may differ due to rounding.
(9) Col. 7 + Exhibit 10, Col. 5
(10) Col. 7 - Col. 8
(11) Col. 7 - (Col. 9 - Col. 5, Exhibit 7 to exclude project cost impacts)

AVERAGE TRAVEL TIME FACTORS IN CITY'S BCA ANALYSIS
(With Certain Estimates by Campbell-Hill)

	Uninterrupted Travel Time			Delay			Total Travel Time			Net Travel Time Change	
	Base Case	Phase I Airfield	Total MP	Base Case	Phase I Airfield	Total MP	Base Case	Phase I Airfield	Total MP	Phase I Airfield	Total MP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2007	**129.9**	**128.9**	**128.9**	**16.2**	*15.4*	15.4	**146.1**	**144.3**	144.3	-1.8	-1.8
2008	132.4	*132.4*	132.4	16.1	*16.5*	16.5	148.4	148.8	148.8	0.4	0.4
2009	**134.8**	**135.8**	**135.8**	**15.9**	*10.3*	10.3	**150.7**	**146.1**	146.1	-4.6	-4.6
2010	136.5	*135.5*	135.5	16.2	11.3	11.3	152.8	*146.7*	146.7	-6.1	-6.1
2011	138.3	*135.2*	135.2	16.6	12.2	12.2	154.8	*147.4*	147.4	-7.4	-7.4
2012	140.0	*135.4*	135.4	16.9	13.2	13.2	156.9	*148.5*	148.5	-8.4	-8.4
2013	**141.7**	**140.9**	**143.0**	**17.2**	*14.1*	**5.1**	**158.9**	**155.0**	**148.1**	-3.9	-10.8
2014	142.3	*141.1*	144.1	17.2	*15.6*	5.3	159.5	156.7	149.4	-2.8	-10.1
2015	143.0	*141.4*	145.3	17.2	*17.2*	5.4	160.1	*158.6*	150.7	-1.5	-9.5
2016	143.6	*141.5*	146.4	17.1	*17.1*	5.6	160.8	158.6	151.9	-2.2	-8.8
2017	144.3	*141.5*	147.6	17.1	*17.1*	5.7	161.4	158.6	153.2	-2.8	-8.2
2018	**144.9**	*141.5*	**148.7**	**17.1**	*17.1*	**5.9**	**162.0**	**158.6**	**154.5**	-3.4	-7.5
2019	144.9	*141.5*	148.7	17.1	*17.1*	*6.1*	162.0	158.6	*154.8*	-3.4	-7.2
2020	144.9	*141.5*	148.7	17.1	*17.1*	*6.4*	162.0	158.6	*155.1*	-3.4	-6.9
2021	144.9	*141.5*	148.7	17.1	*17.1*	*6.6*	162.0	158.6	*155.3*	-3.4	-6.7
2022	144.9	*141.5*	148.7	17.1	*17.1*	*6.9*	162.0	158.6	*155.6*	-3.4	-6.4
2023	144.9	*141.5*	148.7	17.1	*17.1*	*7.2*	162.0	158.6	*155.9*	-3.4	-6.1
2024	144.9	*141.5*	148.7	17.1	*17.1*	*7.5*	162.0	158.6	*156.2*	-3.4	-5.8
2025	144.9	*141.5*	148.7	17.1	*17.1*	*7.8*	162.0	158.6	*156.5*	-3.4	-5.5
2026	144.9	*141.5*	148.7	17.1	*17.1*	*8.2*	162.0	158.6	*156.9*	-3.4	-5.1
2027	144.9	*141.5*	148.7	17.1	*17.1*	*8.5*	162.0	158.6	*157.2*	-3.4	-4.8
2028	144.9	*141.5*	148.7	17.1	*17.1*	*8.9*	162.0	158.6	*157.6*	-3.4	-4.4
2029	144.9	*141.5*	148.7	17.1	*17.1*	*9.3*	162.0	158.6	*158.0*	-3.4	-4.0
2030	144.9	*141.5*	148.7	17.1	*17.1*	*9.7*	162.0	158.6	*158.4*	-3.4	-3.6
2031	144.9	*141.5*	148.7	17.1	*17.1*	*10.2*	162.0	158.6	*158.9*	-3.4	-3.1
2032	144.9	*141.5*	148.7	17.1	*17.1*	*10.7*	162.0	158.6	*159.4*	-3.4	-2.6

AVERAGE TRAVEL TIME FACTORS IN CITY'S BCA ANALYSIS
(With Certain Estimates by Campbell-Hill)

	Uninterrupted Travel Time			Delay			Total Travel Time			Net Travel Time Change	
	Base Case	Phase I Airfield	Total MP	Base Case	Phase I Airfield	Total MP	Base Case	Phase I Airfield	Total MP	Phase I Airfield	Total MP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Annual Growth											
2008	1.9%	2.7%	2.7%	-0.9%	6.8%	6.8%	1.6%	3.1%	3.1%		
2009	**1.9%**	**2.6%**	**2.6%**	**-0.9%**	**-37.4%**	**-37.4%**	**1.5%**	**-1.8%**	**-1.8%**		
2010	1.3%	-0.3%	-0.3%	2.0%	9.2%	9.2%	1.4%	0.4%	0.4%		
2011	1.3%	-0.2%	-0.2%	2.0%	8.4%	8.4%	1.3%	0.5%	0.5%		
2012	1.2%	0.1%	0.1%	2.0%	7.8%	7.8%	1.3%	0.7%	0.7%		
2013	**1.2%**	**4.1%**	**5.7%**	**1.9%**	**7.2%**	**-61.2%**	**1.3%**	**4.4%**	**-0.3%**		
2014	0.5%	0.1%	0.8%	-0.1%	10.9%	3.1%	0.4%	1.1%	0.9%		
2015	0.4%	0.3%	0.8%	-0.1%	9.8%	3.0%	0.4%	1.2%	0.9%		
2016	0.4%	0.0%	0.8%	-0.1%	-0.1%	3.0%	0.4%	0.0%	0.8%		
2017	0.4%	0.0%	0.8%	-0.1%	-0.1%	2.9%	0.4%	0.0%	0.8%		
2018	**0.4%**	**0.0%**	**0.8%**	**-0.1%**	**-0.1%**	**2.8%**	**0.4%**	**0.0%**	**0.8%**		

Col.

(1) FEIS simulation results for 2007, 2009, 2013 and 2018 interpolated for other years and fixed after 2018.

(2) FEIS simulation results for 2007, 2009, and 2013 interpolated for 2008; all other years were calculated by Col. 8 - Col. 5

(3) Col. 2 for 2007-2012; FEIS simulation results for 2013 and 2018 were interpolation; 2019-32 no growth.

(4) FEIS simulation results for 2007, 2009, 2013 and 2018 interpolated for other years and fixed after 2018.

(5) FEIS simulation results for 2007, 2009, and 2013 and interpolated for 2010-12; 2008 estimated by Col. 8 - Col. 2; 2015-28 assumed at Base Case level (Col. 4) with 2014 interpolated.

(6) Col. 5 for 2007-2012; FEIS simulation results for 2013 and 2018 with interpolation; 2019-32 based on delay curve developed by Campbell-Hill without any adjustments to TAAM model estimates for 2009, 2013 and 2018.

(7) City's BCA, Table IV-1

(8) City's BCA, Table IV-1

(9) Total of Col. 3 and 6

THERE CAN BE NO CONSUMER BENEFITS OR INDUCED TRAFFIC FOR TOTAL MASTER PLAN IN ANY OF THE FORECAST YEARS

	Average Delay Change (minutes per passenge)	Average Travel Time Change (minutes per passenge)	Net Fare Change (per passenger)		Full Price of Travel Change (per passenger)
	Using City's Assumptions	Using City's Travel Time Changes	Using City's Travel Time Change	Using Corrected Travel Time Savings	Using City's Travel Time Savings
	(1)	(2)	(3)	(4)	(5)
2007	-0.8	1.1	-$0.27	$0.81	$1.40
2008	0.4	2.3	$0.55	$1.21	$2.36
2009	-5.6	-1.6	$1.17	$2.19	$1.17
2010	-5.0	-1.0	$0.63	$2.54	$2.04
2011	-4.4	-0.4	$0.12	$2.90	$2.90
2012	-3.7	0.3	-$0.23	$3.26	$3.76
2013	-12.1	-5.6	$3.23	$5.55	$3.09
2014	-11.9	-5.4	$3.47	$5.61	$3.24
2015	-11.7	-5.2	$3.72	$5.67	$3.38
2016	-11.6	-5.1	$3.97	$5.73	$3.53
2017	-11.4	-4.9	$4.22	$5.79	$3.67
2018	-11.2	-4.7	$4.46	$5.85	$3.82
2019	-11.0	-4.5	$4.59	$5.94	$4.04
2020	-10.7	-4.2	$4.68	$6.03	$4.26
2021	-10.5	-4.0	$4.78	$6.13	$4.50
2022	-10.2	-3.7	$4.88	$6.23	$4.75
2023	-9.9	-3.4	$4.99	$6.34	$5.01
2024	-10.7	-4.2	$4.68	$6.03	$4.26
2025	-9.3	-4.0	$4.78	$6.13	$4.50
2026	-8.9	-3.7	$4.88	$6.23	$4.75
2027	-8.6	-3.4	$4.99	$6.34	$5.01
2028	-9.6	-3.1	$5.11	$6.46	$5.29
2029	-7.8	-1.3	$5.23	$6.58	$6.37
2030	-7.4	-0.9	$5.94	$7.29	$7.31
2031	-6.9	-0.4	$6.11	$7.46	$7.72
2032	-6.4	0.1	$6.29	$7.64	$8.16

Source: Estimated using the same assumptions and sources as OMP-Phase I Airfield estimates.

TOTAL MASTER PLAN'S TIME AND PRICE ESTIMATES CREATE NEGATIVE BENEFITS FOR CONSUMERS

	Average Travel Time (minutes per passenger)			Average Money Fare (per passenger)			"Full Price of Travel" (per passenger)			Project Benefits (per passenger)	
		With Total Master Plan			With Total Master Plan			With Total Master Plan			
	Base Case	City's Model Assumption	Campbell-Hill Adjustment	Base Case	City's Model Assumption	Campbell-Hill Adjustment	Base Case	City's Model Assumption	Campbell-Hill Adjustment	City's Model Assumption	Campbell-Hill Adjustment
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2007	146.1	144.3	147.2	$220.05	$216.05	$220.86	$298.21	$293.25	$299.62	$4.96	-$1.00
2008	148.6	148.8	150.9	$220.05	$212.67	$221.26	$299.52	$292.28	$301.96	$7.24	-$2.04
2009	151.0	146.1	149.4	$220.05	$213.20	$222.24	$300.84	$291.36	$302.17	$9.48	$1.57
2010	152.7	146.7	151.8	$220.05	$211.84	$222.59	$301.76	$290.32	$303.78	$11.44	$0.88
2011	154.5	147.4	154.1	$220.05	$210.47	$222.95	$302.68	$289.33	$305.39	$13.35	$0.19
2012	156.2	148.5	156.5	$220.05	$208.85	$223.31	$303.60	$288.30	$307.01	$15.30	-$0.50
2013	157.9	148.1	152.3	$220.05	$208.09	$225.60	$304.53	$287.32	$307.08	$17.21	$4.72
2014	158.5	149.4	153.1	$220.05	$205.64	$225.66	$304.87	$285.57	$307.58	$19.30	$4.56
2015	159.2	150.7	153.9	$220.05	$203.23	$225.72	$305.21	$283.85	$308.08	$21.36	$4.41
2016	159.8	152.0	154.8	$220.05	$200.79	$225.78	$305.55	$282.11	$308.58	$23.44	$4.25
2017	160.5	153.3	155.6	$220.05	$198.37	$225.84	$305.90	$280.39	$309.08	$25.51	$4.10
2018	161.1	154.6	156.4	$220.05	$195.94	$225.90	$306.24	$278.65	$309.57	$27.59	$3.94
2019	161.1	154.8	156.6	$220.05	$196.38	$225.99	$306.24	$279.22	$309.79	$27.02	$3.72
2020	161.1	155.1	156.9	$220.05	$194.76	$226.08	$306.24	$277.73	$310.02	$28.51	$3.50
2021	161.1	155.3	157.1	$220.05	$193.00	$226.18	$306.24	$276.11	$310.25	$30.13	$3.26
2022	161.1	155.6	157.4	$220.05	$191.59	$226.28	$306.24	$274.85	$310.50	$31.39	$3.01
2023	161.1	155.9	157.7	$220.05	$190.09	$226.39	$306.24	$273.50	$310.77	$32.74	$2.75
2024	161.1	156.2	156.9	$220.05	$188.18	$226.08	$306.24	$271.75	$310.02	$34.49	$3.50
2025	161.1	156.5	157.1	$220.05	$186.37	$226.18	$306.24	$270.12	$310.25	$36.12	$3.26
2026	161.1	156.9	157.4	$220.05	$184.48	$226.28	$306.24	$268.41	$310.50	$37.83	$3.01
2027	161.1	157.2	157.7	$220.05	$182.87	$226.39	$306.24	$266.99	$310.77	$39.25	$2.75
2028	161.1	157.6	158.0	$220.05	$181.33	$226.51	$306.24	$265.65	$311.04	$40.59	$2.47
2029	161.1	158.0	159.8	$220.05	$179.67	$226.63	$306.24	$264.21	$312.13	$42.03	$1.39
2030	161.1	158.4	160.2	$220.05	$178.27	$227.34	$306.24	$263.03	$313.07	$43.21	$0.45
2031	161.1	158.9	160.7	$220.05	$176.93	$227.51	$306.24	$261.94	$313.48	$44.30	$0.04
2032	161.1	159.4	161.2	$220.05	$175.49	$227.69	$306.24	$260.75	$313.91	$45.49	-$0.40

Source: Estimated using the same assumptions and sources as OMP-Phase I Airfield estimates.

CAMPBELL-HILL'S ESTIMATED BENEFITSFOR TOTAL MASTER PLAN IS ONLY $1.2 BILLION (NPV)

	Passenger Benefits (Mil. $)				Phantom Fare Reduction Share	Average Benefits per Passenger			
	Passenger Value Savings	Cost-Based Fare Reduction	Phantom Fare Reduction	Total		Passenger Value Savings	Cost-Based Fare Reduction	Phantom Fare Reduction	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2007	-$43	-$30	$0	-$73	0%	-$0.59	-$0.41	$0.00	-$1.00
2008	-$86	-$60	$0	-$147	0%	-$1.15	-$0.81	$0.00	-$1.96
2009	$78	$55	$0	$133	0%	$1.02	$0.71	$0.00	$1.73
2010	$40	$28	$0	$68	0%	$0.51	$0.36	$0.00	$0.86
2011	$0	$0	$0	$0	0%	$0.00	$0.00	$0.00	$0.00
2012	-$42	-$29	$0	-$72	0%	-$0.51	-$0.36	$0.00	-$0.86
2013	$209	$146	$0	$355	0%	$2.46	$1.73	$0.00	$4.19
2014	$206	$145	$0	$351	0%	$2.38	$1.67	$0.00	$4.04
2015	$203	$143	$0	$346	0%	$2.29	$1.61	$0.00	$3.89
2016	$200	$141	$0	$341	0%	$2.20	$1.55	$0.00	$3.75
2017	$197	$138	$0	$336	0%	$2.12	$1.49	$0.00	$3.60
2018	$194	$136	$0	$330	0%	$2.03	$1.43	$0.00	$3.46
2019	$184	$129	$0	$313	0%	$1.90	$1.33	$0.00	$3.24
2020	$175	$123	$0	$297	0%	$1.77	$1.24	$0.00	$3.01
2021	$164	$115	$0	$279	0%	$1.63	$1.15	$0.00	$2.78
2022	$152	$107	$0	$259	0%	$1.49	$1.04	$0.00	$2.53
2023	$139	$98	$0	$237	0%	$1.33	$0.93	$0.00	$2.27
2024	$124	$87	$0	$211	0%	$1.17	$0.82	$0.00	$1.99
2025	$108	$76	$0	$183	0%	$1.00	$0.70	$0.00	$1.70
2026	$90	$63	$0	$153	0%	$0.82	$0.57	$0.00	$1.39
2027	$70	$49	$0	$119	0%	$0.62	$0.44	$0.00	$1.06
2028	$48	$34	$0	$81	0%	$0.42	$0.30	$0.00	$0.72
2029	$24	$17	$0	$41	0%	$0.21	$0.14	$0.00	$0.35
2030	-$2	-$2	$0	-$4	0%	-$0.02	-$0.01	$0.00	-$0.04
2031	-$31	-$22	$0	-$53	0%	-$0.26	-$0.18	$0.00	-$0.45
2032	-$63	-$44	$0	-$106	0%	-$0.52	-$0.36	$0.00	-$0.88
Total	$2,339	$1,639	$0	$3,978	0%				
NPV - Total	$712	$499	$0	$1,210	0%				

Source: Estimated using the same assumptions and sources as OMP-Phase I Airfield estimates.

ESTIMATED INCREASE IN THE FULL PRICE OF TRAVEL WITH TOTAL MASTER PLAN WILL DECREASE THE NUMBER OF PASSENGERS AT O'HARE

	Base Case		OMP-Phase I Scenario					
				Passengers (Million)				
	"Full Price of Travel"	Total Passengers (Mil.)	"Full Price of Travel"	Price-Based Induced	Price-Based Total	City's Forecast	Price-Based Shortfall	Percent Shortfall
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2007	$298.21	72.44	$299.62	(0.37)	72.07	73.89	1.82	2%
2008	$299.52	73.91	$301.96	(0.65)	73.26	76.05	2.79	4%
2009	$300.84	75.44	$302.17	(0.36)	75.08	78.30	3.22	4%
2010	$301.76	76.96	$303.78	(0.56)	76.40	80.56	4.16	5%
2011	$302.68	78.54	$305.39	(0.76)	77.78	82.90	5.12	6%
2012	$303.60	80.15	$307.01	(0.97)	79.18	85.32	6.14	7%
2013	$304.53	81.82	$307.08	(0.74)	81.08	87.82	6.75	8%
2014	$304.87	83.36	$307.58	(0.80)	82.56	90.24	7.68	9%
2015	$305.21	84.95	$308.08	(0.86)	84.09	92.73	8.65	9%
2016	$305.55	86.57	$308.58	(0.92)	85.65	95.32	9.67	10%
2017	$305.90	88.24	$309.08	(0.99)	87.25	97.98	10.73	11%
2018	$306.24	89.95	$309.57	(1.06)	88.89	100.74	11.85	12%
2019	$306.24	91.38	$309.79	(1.14)	90.24	102.10	11.86	12%
2020	$306.24	92.85	$310.02	(1.23)	91.62	104.40	12.78	12%
2021	$306.24	94.33	$310.25	(1.33)	93.00	106.80	13.80	13%
2022	$306.24	95.84	$310.50	(1.43)	94.41	109.10	14.69	13%
2023	$306.24	97.38	$310.77	(1.54)	95.84	111.50	15.66	14%
2024	$306.24	98.64	$310.02	(1.31)	97.33	113.80	16.47	14%
2025	$306.24	99.92	$310.25	(1.41)	98.51	116.10	17.59	15%
2026	$306.24	101.22	$310.50	(1.51)	99.71	118.50	18.79	16%
2027	$306.24	102.54	$310.77	(1.63)	100.91	120.80	19.89	16%
2028	$306.24	103.87	$311.04	(1.75)	102.12	123.10	20.98	17%
2029	$306.24	105.22	$312.13	(2.16)	103.06	125.50	22.44	18%
2030	$306.24	106.58	$313.07	(2.53)	104.05	127.80	23.75	19%
2031	$306.24	107.96	$313.48	(2.71)	105.25	130.10	24.85	19%
2032	$306.24	109.36	$313.91	(2.91)	106.46	132.50	26.04	20%

Source: Estimated using the same assumptions and sources as OMP-Phase I Airfield estimates.

AIRLINE COSTS OF OMP PROJECTS
(Millions of 2001 Dollars)

	OMP-Phase I Airfield	Master Plan Phase I	Total Master Plan
2007	$26.64	$30.92	$29.7
2008	$26.64	$30.92	$29.7
2009	$120.84	$172.00	$214.2
2010	$120.84	$172.00	$214.2
2011	$120.84	$172.00	$214.2
2012	$120.84	$172.00	$214.2
2013	$120.84	$172.77	$537.6
2014	$120.84	$172.77	$537.6
2015	$120.84	$172.77	$537.6
2016	$120.84	$172.77	$537.6
2017	$120.84	$172.77	$537.6
2018	$120.84	$172.77	$537.6
2019	$120.84	$172.77	$537.6
2020	$120.84	$172.77	$537.6
2021	$120.84	$172.77	$537.6
2022	$120.84	$172.77	$537.6
2023	$120.84	$172.77	$537.6
2024	$120.84	$172.77	$537.6
2025	$120.84	$172.77	$537.6
2026	$120.84	$172.77	$537.6
2027	$120.84	$172.77	$537.6
2028	$120.84	$172.77	$537.6
2029	-	-	$537.6
2030	-	-	$537.6
2031	-	-	$537.6
2032	-	-	$537.6

Note: Airline costs are the interest on debt plus O&M costs from the OMP. These numbers are conservative because they do not include any principal repayment during the relevant time period. Airline interest payments were calculated using the methodology used in Exhibits A-2 and A-3 in Appendix A of Campbell-Hill's June 6 report entitled, Chicago's O'Hare Modernization Program Fails to Meet the FAATests for Benefit-Cost Justification. The total numbers are different than the ones used in Campbell-Hill's previous report because the City has slightly changed its cost estimates since that report was written. Other differences in the cost estimates from Campbell-Hill's original report are Campbell-Hill did not mark up the costs by any contingency factor and it did not consider the shortfall in PFC revenue that would exist from the City's financing plan.

PFC INCREASE REQUIRED BY THE TOTAL MASTER PLAN

	Unadjusted PFC Increase per Passenger[1]	PFC Increase In 2001 Dollars[2]
2011	$0.75	$0.56
2012	$0.75	$0.54
2013	$0.75	$0.53
2014	$0.75	$0.51
2015	$0.75	$0.50
2016	$0.75	$0.48
2017	$0.75	$0.47
2018	$0.75	$0.45
2019	$0.75	$0.44
2020	$0.75	$0.43
2021	$0.75	$0.42
2022	$0.75	$0.40
2023	$0.75	$0.39
2024	$0.75	$0.38
2025	$0.75	$0.37
2026	$0.75	$0.36
2027	$0.75	$0.35
2028	$0.75	$0.34
2029	$0.75	$0.33
2030	$0.75	$0.32
2031	$0.75	$0.31
2032	$0.75	$0.30

1/ Assumes PFC per enplaned passenger increases from $4.50 to $6.00 in 2011 per the City's Financing Plan. When deplaned passengers are factored in, the average passenger will pay 75 cents more ($1.50/2).

2/ Assumes a 3% annual inflation rate

Source: City of Chicago, O'Hare International Airport Master Plan, page V-II-29, February 2005.

MINIMUM ADDITIONAL ACCESS/EGRESS AND TERMINAL FACILITATION TIMES OF THE OMP PROJECTS
(Minutes per One-Way Passenger)
A. Additional Access/Egress and Terminal Facilitation Time

Column	A	B	C
	OMP-Phase I Airfield[1]	Master Plan Phase I[2]	Total Master Plan[3]
2007	0.09	0.09	0.09
2008	0.52	0.52	0.52
2009	0.97	5.94	5.94
2010	1.57	6.51	6.51
2011	2.22	7.12	7.12
2012	2.91	7.78	7.78
2013	3.65	8.48	8.48
2014	4.36	9.15	9.15
2015	5.14	9.88	9.88
2016	4.45	9.18	10.67
2017	3.88	8.61	11.54
2018	3.28	8.02	12.47
2019	3.58	8.31	12.38
2020	3.88	8.61	13.08
2021	4.02	8.76	13.84
2022	4.17	8.91	14.50
2023	4.32	9.06	15.22
2024	4.73	9.47	16.09
2025	4.97	9.70	16.95
2026	5.21	9.95	17.87
2027	5.47	10.20	18.70
2028	5.72	10.46	19.51
2029	-	-	20.40
2030	-	-	21.18
2031	-	-	21.95
2032	-	-	22.79

MINIMUM ADDITIONAL ACCESS/EGRESS AND TERMINAL FACILITATION TIMES OF THE OMP PROJECTS
(Minutes per One-Way Passenger)
B. Additional Access/Egress Time

Column	A OMP-Phase I Airfield[4]	B Master Plan Phase I[5]	C Total Master Plan[6]
2007	0.05	0.05	0.05
2008	0.29	0.29	0.29
2009	0.55	0.55	0.55
2010	0.90	0.90	0.90
2011	1.27	1.27	1.27
2012	1.66	1.66	1.66
2013	2.08	2.08	2.08
2014	2.49	2.49	2.49
2015	2.94	2.94	2.94
2016	2.54	2.54	3.42
2017	2.22	2.22	3.94
2018	1.88	1.88	4.50
2019	2.04	2.04	4.45
2020	2.22	2.22	4.85
2021	2.30	2.30	5.29
2022	2.38	2.38	5.66
2023	2.47	2.47	6.07
2024	2.70	2.70	6.57
2025	2.84	2.84	7.06
2026	2.98	2.98	7.59
2027	3.12	3.12	8.06
2028	3.27	3.27	8.53
2029	-	-	9.03
2030	-	-	9.48
2031	-	-	9.92
2032	-	-	10.40

MINIMUM ADDITIONAL ACCESS/EGRESS AND TERMINAL FACILITATION TIMES OF THE OMP PROJECTS
(Minutes per One-Way Passenger)
C. Additional Terminal Facilitation Time

Column	A OMP-Phase I Airfield[7]	B Master Plan Phase I[8]	C Total Master Plan[9]
2007	0.04	0.04	0.04
2008	0.22	0.22	0.22
2009	0.42	5.39	5.39
2010	0.67	5.61	5.61
2011	0.95	5.85	5.85
2012	1.25	6.11	6.11
2013	1.56	6.39	6.39
2014	1.87	6.65	6.65
2015	2.20	6.94	6.94
2016	1.91	6.64	7.25
2017	1.66	6.40	7.59
2018	1.41	6.14	7.97
2019	1.53	6.27	7.93
2020	1.66	6.40	8.23
2021	1.72	6.46	8.55
2022	1.79	6.52	8.84
2023	1.85	6.59	9.15
2024	2.03	6.76	9.52
2025	2.13	6.86	9.89
2026	2.23	6.97	10.28
2027	2.34	7.08	10.64
2028	2.45	7.19	10.98
2029	-	-	11.36
2030	-	-	11.70
2031	-	-	12.03
2032	-	-	12.39

1/ Page 2, Column A + Page 3, Column A
2/ Page 2, Column B + Page 3, Column B
3/ Page 2, Column C + Page 3, Column C
4/ Exhibit 20, Column R
5/ Exhibit 20, Column R
6/ Exhibit 21, Column R
7/ Exhibit 20, Column T
8/ Exhibit 20, Column T + Column W
9/ Exhibit 21, Column T + Column W

CALCULATION OF ACCESS/EGRESS AND TERMINAL FACILITATION TIMES FOR PHASE I

Column	A	B	C	D	E	F	G	H
	Phase I Scenario Forecast[1]							
	Local Passengers	Connecting Passengers	Total Passengers	Percentage Local	Local Growth	Access/Egress Time per Local Passenger[2]	Terminal Facilitation Time per Local Passenger[3]	Total Time per Total Passenger[4]
2006	35,685	35,913	71,598	49.8%	-	60.00	45.00	105.00
2007	36,869	37,017	73,886	49.9%	1.033	61.99	46.49	108.48
2008	38,104	37,950	76,054	50.1%	1.033	64.07	48.05	112.12
2009	39,384	38,914	78,298	50.3%	1.034	66.22	49.66	115.88
2010	40,801	39,760	80,561	50.6%	1.036	68.60	51.45	120.05
2011	42,275	40,626	82,901	51.0%	1.036	71.08	53.31	124.39
2012	43,809	41,512	85,321	51.3%	1.036	73.66	55.24	128.90
2013	45,405	42,419	87,824	51.7%	1.036	76.34	57.26	133.60
2014	47,086	43,153	90,239	52.2%	1.037	79.17	59.38	138.55
2015	48,833	43,902	92,735	52.7%	1.037	82.11	61.58	143.69
2016	49,690	44,672	94,362	52.7%	1.018	83.55	62.66	146.21
2017	50,668	45,552	96,220	52.7%	1.020	85.19	63.89	149.09
2018	51,671	46,453	98,124	52.7%	1.020	86.88	65.16	152.04
2019	52,652	47,336	99,988	52.7%	1.019	88.53	66.40	154.92
2020	53,653	48,235	101,888	52.7%	1.019	90.21	67.66	157.87
2021	54,565	49,055	103,620	52.7%	1.017	91.74	68.81	160.55
2022	55,493	49,889	105,382	52.7%	1.017	93.30	69.98	163.28
2023	56,436	50,738	107,174	52.7%	1.017	94.89	71.17	166.06
2024	57,396	51,600	108,996	52.7%	1.017	96.50	72.38	168.88
2025	58,256	52,374	110,630	52.7%	1.015	97.95	73.46	171.41
2026	59,130	53,160	112,290	52.7%	1.015	99.42	74.56	173.98
2027	60,017	53,957	113,974	52.7%	1.015	100.91	75.68	176.59
2028	60,918	54,766	115,684	52.7%	1.015	102.43	76.82	179.25

CALCULATION OF ACCESS/EGRESS AND TERMINAL FACILITATION TIMES FOR PHASE I

Column	I	J	K	L	M	N	O	P
	Base Case Forecast[5]							
	Local Passengers	Connecting Passengers	Total Passengers	Percentage Local	Local Growth	Access/Egress Time per Local Passenger[2]	Terminal Facilitation Time per Local Passenger[3]	Total Time per Total Passenger[6]
2006	35,685	35,913	71,598	49.8%	-	60.00	45.00	105.00
2007	36,809	35,630	72,439	50.8%	1.031	61.89	46.42	108.31
2008	37,754	36,159	73,913	51.1%	1.026	63.48	47.61	111.09
2009	38,729	36,706	75,435	51.3%	1.026	65.12	48.84	113.96
2010	39,745	37,218	76,963	51.6%	1.026	66.83	50.12	116.95
2011	40,796	37,739	78,535	51.9%	1.026	68.59	51.45	120.04
2012	41,883	38,269	80,152	52.3%	1.027	70.42	52.82	123.24
2013	43,008	38,809	81,817	52.6%	1.027	72.31	54.23	126.55
2014	44,243	39,119	83,362	53.1%	1.029	74.39	55.79	130.18
2015	45,513	39,432	84,945	53.6%	1.029	76.52	57.39	133.92
2016	46,821	39,749	86,570	54.1%	1.029	78.72	59.04	137.77
2017	48,166	40,070	88,236	54.6%	1.029	80.99	60.74	141.72
2018	49,551	40,394	89,945	55.1%	1.029	83.31	62.49	145.80
2019	50,344	41,040	91,384	55.1%	1.016	84.65	63.49	148.13
2020	51,149	41,697	92,846	55.1%	1.016	86.00	64.50	150.50
2021	51,968	42,364	94,332	55.1%	1.016	87.38	65.53	152.91
2022	52,800	43,042	95,842	55.1%	1.016	88.78	66.58	155.36
2023	53,645	43,731	97,376	55.1%	1.016	90.20	67.65	157.85
2024	54,342	44,300	98,642	55.1%	1.013	91.37	68.53	159.90
2025	55,048	44,876	99,924	55.1%	1.013	92.56	69.42	161.98
2026	55,765	45,459	101,224	55.1%	1.013	93.76	70.32	164.08
2027	56,490	46,050	102,540	55.1%	1.013	94.98	71.24	166.22
2028	57,225	46,649	103,874	55.1%	1.013	96.22	72.16	168.38

CALCULATION OF ACCESS/EGRESS AND TERMINAL FACILITATION TIMES FOR PHASE I

Column	Q	R	S	T	U	V	W
	Phase I Scenario Local Access/ Egress Time Increase[7]	Phase I Scenario Local Access/Egress Increase per Passenger[8]	Phase I Scenario Local Terminal Facilitation Time Increase[9]	Phase I Scenario Local Terminal Increase per Passenger[10]	Master Plan Phase I Additional Terminal Facilitation Time per Connecting Passenger[11]	Master Plan Phase I Additional Terminal Facilitation Time from Connecting Passengers[12]	Master Plan Phase I Additional Terminal Facilitation Time per Passenger[13]
2006	0	0.00	0	0.00	0.00	0	0.00
2007	3,719	0.05	2,790	0.04	0.00	0	0.00
2008	22,424	0.29	16,818	0.22	0.00	0	0.00
2009	43,374	0.55	32,530	0.42	10.00	389,140	4.97
2010	72,444	0.90	54,333	0.67	10.00	397,600	4.94
2011	105,128	1.27	78,846	0.95	10.00	406,260	4.90
2012	141,868	1.66	106,401	1.25	10.00	415,120	4.87
2013	182,994	2.08	137,246	1.56	10.00	424,190	4.83
2014	225,079	2.49	168,809	1.87	10.00	431,530	4.78
2015	272,594	2.94	204,446	2.20	10.00	439,020	4.73
2016	239,698	2.54	179,774	1.91	10.00	446,720	4.73
2017	213,151	2.22	159,863	1.66	10.00	455,520	4.73
2018	184,182	1.88	138,137	1.41	10.00	464,530	4.73
2019	204,345	2.04	153,258	1.53	10.00	473,360	4.73
2020	225,873	2.22	169,405	1.66	10.00	482,350	4.73
2021	238,277	2.30	178,708	1.72	10.00	490,550	4.73
2022	251,300	2.38	188,475	1.79	10.00	498,890	4.73
2023	264,861	2.47	198,646	1.85	10.00	507,380	4.73
2024	294,705	2.70	221,028	2.03	10.00	516,000	4.73
2025	314,179	2.84	235,635	2.13	10.00	523,740	4.73
2026	334,584	2.98	250,938	2.23	10.00	531,600	4.73
2027	355,952	3.12	266,964	2.34	10.00	539,570	4.73
2028	378,308	3.27	283,731	2.45	10.00	547,660	4.73

CALCULATION OF ACCESS/EGRESS AND TERMINAL FACILITATION TIMES FOR PHASE I

1/ Total Forecast Passenger Numbers from page 13 of the City's Supplemental Benefit-Cost Analysis. Percentage local passengers from Campbell-Hill's June 6 Report entitled, Chicago's O'Hare Modernization Program Fails to Meet the FAA Tests for Benefit-Cost Justification, Exhibit 302, page 2.

2/ Assumes a base access/egress time of 45 minutes in 2006 and increases by the annual growth rate in local passengers.

3/ Assumes a base terminal facilitation time of 30 minutes in 2006 and increases by the annual growth rate in local passengers.

4/ Column F + Column G

5/ Total forecast passenger numbers from page 12 of the City's Supplemental Benefit-Cost Analysis, Percentage local passengers from Leigh Fisher Associates, Summary of Annual Enplaned Passengers,October 26, 2004.

6/ Column N + Column O

7/ (Column F - Column N) x Column A

8/ Column Q / Column C

9/ (Column G - Column O) x Column A

10/ Column S / Column C

11 The Western Terminal is assumed to add an average of 10 minutes to the terminal facilitation time of an average O'Hare connecting passenger. It could take connecting passengers going from the current terminals to the new terminal over an hour as discussed in Campbell-Hill's June 6 Report at page 91.

12/ Column U x Column B

13/ Column V/ Column C

CALCULATION OF ACCESS/EGRESS AND TERMINAL FACILITATION TIMES FOR THE TOTAL MASTER PLAN

Column	A	B	C	D	E	F	G	H
	2002 Unconstrained TAF[1]							
	Local Passengers	Connecting Passengers	Total Passengers	Percentage Local	Local Growth	Access/Egress Time per Local Passenger[2]	Terminal Facilitation Time per Local Passenger[3]	Total Time per Total Passenger[4]
2006	35,685	35,913	71,598	49.8%	-	60.00	45.00	105.00
2007	36,869	37,017	73,886	49.9%	1.033	61.99	46.49	108.48
2008	38,104	37,950	76,054	50.1%	1.033	64.07	48.05	112.12
2009	39,384	38,914	78,298	50.3%	1.034	66.22	49.66	115.88
2010	40,801	39,760	80,561	50.6%	1.036	68.60	51.45	120.05
2011	42,275	40,626	82,901	51.0%	1.036	71.08	53.31	124.39
2012	43,809	41,512	85,321	51.3%	1.036	73.66	55.24	128.90
2013	45,405	42,419	87,824	51.7%	1.036	76.34	57.26	133.60
2014	47,086	43,153	90,239	52.2%	1.037	79.17	59.38	138.55
2015	48,833	43,902	92,735	52.7%	1.037	82.11	61.58	143.69
2016	50,649	44,666	95,315	53.1%	1.037	85.16	63.87	149.03
2017	52,538	45,446	97,984	53.6%	1.037	88.34	66.25	154.59
2018	54,503	46,241	100,744	54.1%	1.037	91.64	68.73	160.37
2019	55,237	46,863	102,100	54.1%	1.013	92.87	69.66	162.53
2020	56,481	47,919	104,400	54.1%	1.023	94.97	71.22	166.19
2021	57,779	49,021	106,800	54.1%	1.023	97.15	72.86	170.01
2022	59,024	50,076	109,100	54.1%	1.022	99.24	74.43	173.67
2023	60,322	51,178	111,500	54.1%	1.022	101.42	76.07	177.49
2024	61,566	52,234	113,800	54.1%	1.021	103.52	77.64	181.15
2025	62,811	53,289	116,100	54.1%	1.020	105.61	79.21	184.81
2026	64,109	54,391	118,500	54.1%	1.021	107.79	80.84	188.64
2027	65,353	55,447	120,800	54.1%	1.019	109.88	82.41	192.30
2028	66,598	56,502	123,100	54.1%	1.019	111.98	83.98	195.96
2029	67,896	57,604	125,500	54.1%	1.019	114.16	85.62	199.78
2030	69,140	58,660	127,800	54.1%	1.018	116.25	87.19	203.44
2031	70,385	59,715	130,100	54.1%	1.018	118.34	88.76	207.10
2032	71,683	60,817	132,500	54.1%	1.018	120.53	90.39	210.92

CALCULATION OF ACCESS/EGRESS AND TERMINAL FACILITATION TIMES FOR THE TOTAL MASTER PLAN

Column	I	J	K	L	M	N	O	P
	Base Case Forecast[5]							
	Local Passengers	Connecting Passengers	Total Passengers	Percentage Local	Local Growth	Access/Egress Time per Local Passenger[2]	Terminal Facilitation Time per Local Passenger[3]	Total Time per Total Passenger[6]
2006	35,685	35,913	71,598	49.8%	-	60.00	45.00	105.00
2007	36,809	35,630	72,439	50.8%	1.031	61.89	46.42	108.31
2008	37,754	36,159	73,913	51.1%	1.026	63.48	47.61	111.09
2009	38,729	36,706	75,435	51.3%	1.026	65.12	48.84	113.96
2010	39,745	37,218	76,963	51.6%	1.026	66.83	50.12	116.95
2011	40,796	37,739	78,535	51.9%	1.026	68.59	51.45	120.04
2012	41,883	38,269	80,152	52.3%	1.027	70.42	52.82	123.24
2013	43,008	38,809	81,817	52.6%	1.027	72.31	54.23	126.55
2014	44,243	39,119	83,362	53.1%	1.029	74.39	55.79	130.18
2015	45,513	39,432	84,945	53.6%	1.029	76.52	57.39	133.92
2016	46,821	39,749	86,570	54.1%	1.029	78.72	59.04	137.77
2017	48,166	40,070	88,236	54.6%	1.029	80.99	60.74	141.72
2018	49,551	40,394	89,945	55.1%	1.029	83.31	62.49	145.80
2019	50,344	41,040	91,384	55.1%	1.016	84.65	63.49	148.13
2020	51,149	41,697	92,846	55.1%	1.016	86.00	64.50	150.50
2021	51,968	42,364	94,332	55.1%	1.016	87.38	65.53	152.91
2022	52,800	43,042	95,842	55.1%	1.016	88.78	66.58	155.36
2023	53,645	43,731	97,376	55.1%	1.016	90.20	67.65	157.85
2024	54,342	44,300	98,642	55.1%	1.013	91.37	68.53	159.90
2025	55,048	44,876	99,924	55.1%	1.013	92.56	69.42	161.98
2026	55,765	45,459	101,224	55.1%	1.013	93.76	70.32	164.08
2027	56,490	46,050	102,540	55.1%	1.013	94.98	71.24	166.22
2028	57,225	46,649	103,874	55.1%	1.013	96.22	72.16	168.38
2029	57,967	47,250	105,217	55.1%	1.013	97.46	73.10	170.56
2030	58,719	47,863	106,582	55.1%	1.013	98.73	74.05	172.78
2031	59,480	48,484	107,964	55.1%	1.013	100.01	75.01	175.01
2032	60,252	49,113	109,365	55.1%	1.013	101.31	75.98	177.29

CALCULATION OF ACCESS/EGRESS AND TERMINAL FACILITATION TIMES FOR THE TOTAL MASTER PLAN

Column	Q	R	S	T	U	V	W
	Total Master Plan Scenario Local Access/ Egress Time Increase[7]	Total Master Plan Scenario Local Access/Egress Increase per Passenger[8]	Total Master Plan Scenario Local Terminal Facilitation Time Increase[9]	Total Master Plan Scenario Local Terminal Increase per Passenger[10]	Total Master Plan Additional Terminal Facilitation Time per Connecting Passenger[11]	Total Master Plan Additional Terminal Facilitation Time from Connecting Passengers[12]	Total Master Plan Additional Terminal Facilitation Time per Passenger[13]
2006	0	0.00	0	0.00	0.00	0	0.00
2007	3,719	0.05	2,790	0.04	0.00	0	0.00
2008	22,424	0.29	16,818	0.22	0.00	0	0.00
2009	43,374	0.55	32,530	0.42	10.00	389,140	4.97
2010	72,444	0.90	54,333	0.67	10.00	397,600	4.94
2011	105,128	1.27	78,846	0.95	10.00	406,260	4.90
2012	141,868	1.66	106,401	1.25	10.00	415,120	4.87
2013	182,994	2.08	137,246	1.56	10.00	424,190	4.83
2014	225,079	2.49	168,809	1.87	10.00	431,530	4.78
2015	272,594	2.94	204,446	2.20	10.00	439,020	4.73
2016	325,993	3.42	244,495	2.57	10.00	446,660	4.69
2017	386,206	3.94	289,655	2.96	10.00	454,460	4.64
2018	453,802	4.50	340,352	3.38	10.00	462,410	4.59
2019	454,417	4.45	340,813	3.34	10.00	468,634	4.59
2020	506,333	4.85	379,750	3.64	10.00	479,191	4.59
2021	564,582	5.29	423,437	3.96	10.00	490,207	4.59
2022	617,673	5.66	463,254	4.25	10.00	500,764	4.59
2023	677,238	6.07	507,929	4.56	10.00	511,780	4.59
2024	747,818	6.57	560,864	4.93	10.00	522,336	4.59
2025	819,755	7.06	614,816	5.30	10.00	532,893	4.59
2026	899,461	7.59	674,596	5.69	10.00	543,909	4.59
2027	973,985	8.06	730,488	6.05	10.00	554,466	4.59
2028	1,049,570	8.53	787,178	6.39	10.00	565,023	4.59
2029	1,133,499	9.03	850,124	6.77	10.00	576,039	4.59
2030	1,211,504	9.48	908,628	7.11	10.00	586,596	4.59
2031	1,290,504	9.92	967,878	7.44	10.00	597,153	4.59
2032	1,377,757	10.40	1,033,318	7.80	10.00	608,168	4.59

CALCULATION OF ACCESS/EGRESS AND TERMINAL FACILITATION TIMES FOR THE TOTAL MASTER PLAN

1/ Campbell-Hill's June 6 Report entitled, Chicago's O'Hare Modernization Program Fails to Meet the FAA Tests for Benefit-Cost Justification, Exhibit 300, page 1.

2/ Assumes a base access/egress time of 45 minutes in 2006 and increases by the annual growth rate in local passengers.

3/ Assumes a base terminal facilitation time of 30 minutes in 2006 and increases by the annual growth rate in local passengers.

4/ Column F + Column G

5/ Total forecast passenger numbers from page 12 of the City's Supplemental Benefit-Cost Analysis, Percentage local passengers from Leigh Fisher Associates, Summary of Annual Enplaned Passengers, October 26, 2004.

6/ Column N + Column O

7/ (Column F - Column N) x Column A

8/ Column Q / Column C

9/ (Column G - Column O) x Column A

10/ Column S / Column C

11 The Western Terminal is assumed to add an average of 10 minutes to the terminal facilitation time of an average O'Hare connecting passenger. It could take connecting passengers going from the current terminals to the new terminal over an hour as discussed in Campbell-Hill's June 6 Report at page 91.

12/ Column U x Column B

13/ Column V/ Column C

A P P E N D I X

APPENDIX A
DEMONSTRATED EFFECT OF TRAVEL TIME CORRECTIONS

A simple analysis of the interaction between the City's traffic forecast, travel times and purported benefits in the first forecast year (2007) reveals the flaws and irrationalities that are embedded in the benefit calculations (see Exhibit A-1) including:

- The "unconstrained" forecast merely overlays additional flights and passengers to the constrained forecast. The Phase I forecast increases operations more than passengers in 2007 (which has limited delay benefits) resulting in an average of just 28 passengers for each "new" flight.
- The Phase I airfield in 2007 reduces delays by 0.8 minutes, but adds 1.9 minutes of increased taxi time. Base case "existing" passengers on "existing" flights will experience an additional 1.1 minutes of travel time based on the City's own assumptions.
- The "new" flights and passengers will experience the exact same combination of delay and added taxi time (17.3 minutes on average) as the existing passengers (relative to what would have occurred with the Base Case airfield).
- The City somehow converts a net increase in trip time related to delay and taxi time, for both existing and new passengers, into a 1.9 minute reduction in the average travel time for all passengers under the build scenario.
- This can only be accomplished by significantly changing the flight mix and average airborne time of the "new" flights relative to the "existing" flights, in particular adding flights of much shorter stage length to create a false impact on the "total travel time".
- In 2007 the "new" flights added with the scenario have an average "uninterrupted travel time" (i.e., trip time excluding delays) of 74.9 minutes which is 55 minutes less than the 130 minute average for "existing" (base case) flights and that absorbs the extra 1.9 minutes of taxi time.
- Based on the benefit calculations, the "existing" passengers should appropriately be assigned a negative benefit of $73 million, but the overall impact is a positive benefit of $120 million. This requires that the "new"

passengers account for $192 million of new benefits despite having the exact same delay and extra taxi time as the "existing" passengers. It is entirely based on the false "benefit" attributable to the vastly different flight schedules.

- Correcting for difference in flight mix (i.e., assuming the same average flight distance), all of the passengers (existing and new) would experience an additional 1.1 minutes of travel time with the project and the $120 million benefits becomes a negative disbenefit of $193 million.

DERIVATION OF PROJECT BENEFITS FOR 2007
(City's Method vs. Campbell-Hill Adjusted Method)

		Base Case	OMP-Phase I Airfield				
						Net Change from Base Case	
Type of Flights/Passengers:		Existing	Existing	New	Total	New	Total
City's Forecasts	1/						
Number of Flights (000)		974.0	974.0	52.3	1,026.3		52.3
Passengers (Million)		72.44	72.44	1.45	73.89		1.45
Average Passengers per Flight		74	74	28	72	(47)	(2)
Total Aircraft Travel Time (000 Hours)	2/	2,371.7	2,389.5	78.7	2,468.3		
Average Travel Time by Component (minutes)	3/						
Delay		16.2	15.4	15.4	15.4	(0.8)	(0.8)
Project-Related Taxi Time Increase		-	1.9	1.9	1.9	1.9	1.9
Project-Related Time Change		16.2	17.3	17.3	17.3	1.1	1.1
Distance-Based Travel Time		129.9	129.9	73.0	127.0	(56.9)	(2.9)
Average Travel Time per Flight - Total (minutes)		146.1	147.2	90.3	144.3	(55.8)	(1.8)
Total Benefits Using City's Method (-1.8 minutes savings)							
Net Benefit (Mil. $)	4/		-$73	$192	$120	See Exhibit 2	
Average Travel Time Value Change (per pax)	5/		-$1.00	$266.05	$1.62		
Adjusted Total Benefits (+1.1 minutes)							
Net Benefit (Mil. $)	6/		-$73	-$1	-$73	See Exhibit 3	
Average Travel Time Value Change (per pax)	5/		-$1.00	-$1.00	-$0.99		
Net Difference in Total Benefits					-$193		

1/ City's BCA
2/ Number of Flights x Total Travel Time from City's BCA (with calculated results for "New" flights)
3/ City's BCA with "New" values calculated based on flight weighting assuming same project-related time factors.
4/ Total Benefit = Net Change in Total Travel Time for "All Flights" (from Base Case) x $0.91 x (Existing Pax + New Pax/2)
Existing Benefit = Net Change in Total Travel Time for "Existing " (from Base Case) x $0.91 x (Existing Pax)
New Benefit = Total Benefit - Existing Benefit
5/ Net Benefit divided by Passengers (x 2 for "New")
6/ Same calculations as 4/ based on on "Project-Related Time Changes"