

26, 2004 I conclude that a properly calculated 2004 TAF would have produced higher numbers of enplanements and operations in corresponding years than the 2003 TAF. Based on the narrative statement in Appendix R of the FEIS that the full build OMP-Master Plan would experience 13-16 minutes of delay in 2018 under the 2003 TAF Forecast Demand (and thus under FAA's 15 minute AAAW delay standard, be out of capacity in the 2018-2019 time frame), I conclude that under a properly revised 2004 TAF, the full build OMP-Master Plan would reach 1.4 million operations and thus be out of capacity (based on FAA's use of a 15 minute AAAW) several years before 2018. Further, if the lower delay levels used by FAA at other airports (e.g., Philadelphia, Boston, Miami, Washington Dulles, and Denver) were used as the Level of Acceptable delay for O'Hare, the full build OMP-Master Plan would be out of capacity virtually on the day it opens

82. Further, the claimed delay savings as comparing existing O'Hare vs. the full build OMP-Master Plan are time limited and illusory for several reasons:

- A. **Failure to Conduct FEIS TAAM modeling on the Existing Airport With FAA's Scheduling Order In Place.** FAA compares its model of "existing O'Hare" with OMP and states that existing O'Hare has experienced and will experience 15-17 minutes of delay in the future. However, FAA did not — in the TAAMs modeling done for the FEIS— model the delay performance of the existing O'Hare with the FAA's current scheduling order in place (i.e., 88 arrivals per hour). FAA has not shown that the modeled TAAM values for this base case would be anywhere near 15-17 minutes AAAW. FAA has reported that its scheduling order requirements have led to a 27% drop in delays on a year to year basis. Further, should FAA decide that more delay reduction is desirable or necessary, FAA can simply adjust the demand management program currently in place. Nor can FAA fall back on a claim that reported ASPM values validate the TAAMs modeling and that ASPM values can be a proxy for modeling. As FAA has acknowledged the ASPM values are often predicated on bad weather conditions that are not represented in the TAAM model.

The result is that ASPM may report higher delay values than would an "apples to apples" comparison of modeled TAAM values for the existing airport with the scheduling order in place compared to full build OMP-Master Plan.

- B. **The Claimed Delay Savings Disappear Rapidly.** The FEIS claims that the full build OMP-Master Plan will produce a major delay savings over the existing O'Hare — claiming a delay differential of 12.2 minutes in 2013 and 11.3 minute in 2018. But these so-called delay savings are predicated on the 2002 TAF. If one were to use the 2003 TAF or the 2004 TAF (adjusted or unadjusted) the delay savings would disappear as traffic rises and delays increase. FAA has filed to disclose the fact that delays will rise rapidly under the 2003 and 2004 TAFs wiping out the delay savings very rapidly.
- C. **Failure to disclose the taxi time penalty in the FEIS.** In Chicago's submission of its benefit-cost analysis for its request for AIP "discretionary funding" Chicago discloses the fact that because the full build OMP-Master Plan will have runways much further out from the terminals than the existing runways, the full build OMP-Master Plan will have a penalty of added aircraft taxi time — as compared to the existing airport— of approximately 6.5 minutes per aircraft operation. When one applies the 2003 and 2004 TAF Forecast Demand with the taxi time penalty added, it appears that there will be little or no travel time savings from the day full build OMP-Master Plan opens.

83. **The Manipulation of the Acceptable Level of Delay.** Based on a review of the other airports cited by FAA and the statements about the acceptable level of delay made by FAA and DOT elsewhere, O'Hare is the only airport in the nation where FAA has used a 15 minute AAAW as the Acceptable Level Of Delay for determining the practical capacity of a proposed airport. The maximum number for Acceptable Level of Delay used at any other airport was 10 minutes AAAW. FAA's use of a 15 minute AAAW as the Acceptable Level of Delay dramatically overstates the capacity of the full build OMP-Master Plan and overstates the year in which the full build OMP-Master Plan runs out of capacity. Further,

FAA continues to refuse to disclose the bad weather or IFR delay values associated with a TAAM modeling of a 15 minute AAAW. The IFR average delay values associated with a 15 minute AAAW would likely be higher than an average of 70 minutes and would be incompatible with the operation of a hubbing airport. Here are the conditions described by the USDOT in its 1995 report on delays at O'Hare as to the effects of the highest levels of delays at hub airports:

- *8 to 10 minutes of delay per operation: increasing VFR delays in peak hours with translation to shoulder hours in all but optimum conditions; high delay in IFR with resulting flight cancellations. -*
- *Over 10 minutes of delay per operation: VFR operations experience increasing delays in peak periods and shoulder hours in all but optimum conditions; very high delays in IFR resulting in extensive flight cancellations.*

...[W]hen the AAAW delay per operation reaches 6 minutes, project planning, engineering and design of capacity improvements should be actively pursued. When AAAW delay reaches eight minutes, implementation of capacity improvements should be underway.

1995 DOT HDR Report, Technical Supplement # 3, page D-2 (emphasis added in bold underscore and italics)

FAA in the FEIS declines to describe the chaos that would exist in IFR average delay conditions at 15 minutes AAAW.

84. FAA's refusal to model and describe the IFR delay as the AAAW delay for the full build OMP-Master Plan climbs toward 15 minutes AAAW – 2023 under the uncorrected 2004 TAF — is highly questionable. One of the declared purposes of the OMP was supposedly to achieve a balance between VFR processing (and VFR delays) and IFR processing (and IFR delays). FAA has refused to model IFR delays at demand levels higher than 1.2 million operations and thus leaves hidden what are likely to be very high IFR average delays as the traffic climbs to the 1.4 million operations. Based on what we know

42

about the earlier Ricondo modeling at 1.3 million operations, IFR delays exceeded 40 minutes on average under some conditions (with a 10.9 minute AAAW). Extrapolating an IFR delay curve from FAA's stated IFR delay at 1.2 million operations, and Ricondo's IFR delay at 1.3 million operations, and FAA's "professional judgment" call for AAAW of 13-16 minutes AAAW at 1.4 million operations, it is clear that average IFR delays at 1.4 million operations could exceed 70 or more minutes. Clearly the full build OMP-Master Plan will not achieve the goal of balanced VFR and IFR delays.

85. **The Manipulation of the Time Period Of Analysis.** As discussed above the FAA initially made a multi-million dollar AIP planning grant to the City of Chicago in 2002 to conduct a study of the capacity and delay characteristics of the full build OMP-Master Plan and specified that the Time Period of Analysis should extend to the year 2030. In early March 2004 Chicago submitted an application for a \$300 million AIP discretionary grant. The requirement to qualify for an AIP grant includes that: a) Chicago and the FAA must evaluate the full build OMP-Master Plan over a Time Period of Analysis from the opening of the project (2013) plus 20 years (to 2032) and b) that the FAA must evaluate alternatives to the proposed project within the framework of that 20 year Time Period of Analysis.

86. Despite this history, FAA in the FEIS states that FAA is only required to use a Time Period of Analysis that encompasses a "foreseeable time frame" — and FAA says that the foreseeable Time Period of Analysis is only five years from the opening of the project. However restricting the Time Period of Analysis to only five years from the start of the project is arbitrary and unreasonable because: a) using only a five year Time Period of Analysis provides misleading information about the impacts of the project, including the failure to disclose facts that the full build OMP-Master Plan will run out of capacity and that delay savings will disappear and b) using only a five year Time Period of Analysis hides the reality that FAA will necessarily have to employ a blended alternative (*i.e.*, demand management plus use of other airports) even with the full build OMP-Master Plan. FAA's

43

claim that use of a longer Time Period of Analysis would “not be credible” is disingenuous, arbitrary, and irrational. Not only did FAA fund a 2030 Time Period of Analysis in its 2002 planning grant, but the FAA’s evaluation and decision on Chicago’s application for an AIP discretionary grant requires FAA to evaluate both the proposed full build OMP-Master Plan and alternatives over a Time Period of Analysis from the opening of the project (2013) to 2032. Finally, it is common in large public works projects to evaluate the proposed project and alternatives to the project over a significantly longer period than five years — typically 20 years.

X. There are several feasible alternatives which would avoid the destruction of the homes, businesses and parklands in Bensenville and Elk Grove Village and avoid the destruction of St. Johannes Religious Cemetery

87. As discussed above, central to FAA’s selection of Alternative C (full build OMP-Master Plan) — and the rejection of lesser development alternatives which would avoid the destruction of the homes, businesses and parklands in Bensenville and Elk Grove Village and avoid the destruction of St. Johannes Religious Cemetery — were the FAA assertions that:

- A. Only Alternative C, D, and G could meet unconstrained forecast demand at the airport and that only alternatives that could meet forecast demand would be considered.
- B. That Alternative C produced greater delay reductions than any of the other alternatives.
- C. That FAA had no “authority” to force airlines to use other airports and thus no authority to implement a “blended alternative” (*i.e.*, use of some lesser level of development at O’Hare in combination with demand management and use of other airports.)

88. Ignored by the FAA was the uncontestable fact that full build OMP-Master Plan simply cannot be financed (see discussion above). As the Inspector General has said without reliable and secure financial resources to build the full build OMP-Master Plan,

FAA will be compelled by necessity to employ a blended alternative at O’Hare. As discussed below, once the need for a blended alternative is recognized, there are several blended alternatives which would address delays, address the need to handle future traffic, and avoid the destruction of the homes, businesses and parklands in Bensenville and Elk Grove Village and avoid the destruction of St. Johannes Religious Cemetery.

89. However, I have conducted my alternatives analysis accepting *arguendo* the FAA’s unfounded assumption that somehow the \$14.29 billion (and all the other unquantified costs described above) are somehow magically available. Putting the lack of financial feasibility aside, I have examined the first two of the FAA’s central assertions (ability to accommodate unconstrained demand and larger reduction in delays) and found them to be without merit.

90. In the FEIS FAA has examined a number of alternatives which combine lesser levels of development at O’Hare and demand (or congestion) management with use of other airports. These are what FAA calls “Derivatives” and I call alternatives H through N and they are listed at page 3-62 of the FEIS:

- **Derivative H** – No Action with Use of Other Airports and Congestion Management (Average Annual Delay of 9.3 Minutes per Operation)
- **Derivative I** – No Action with Use of Other Airports and Congestion Management (Average Annual Delay consistent with NPRM Modeled Delay)
- **Derivative J** – No Action with Use of Other Airports and Congestion Management (Average Annual Delay 4, 6, 8 Minutes per Operation or other FAA Level)
- **Derivative K** – OMP Phase I (Original Alt. B) along with Use of Other Airports and Congestion Management
- **Derivative L1** – Refinement of Alternative B, with the Northernmost Runway moved to a southern position.
- **Derivative L2** – Refinement of Alternative B, with the Northernmost Runway moved to the south, and the new Runway 10C moved to the north.
- **Derivative M** – No Action with a New South Runway only (4300’ south from existing Runway 9R/27L)
- **Derivative N** – No Action with a New South Runway only (5000’ south from existing Runway 9R/27L)

91. Alternatives H, I, and J are alternatives that use the existing airport and employ the same kind of congestion management that is in use by FAA today at O'Hare through its scheduling order and is used elsewhere in the country at LaGuardia and Reagan National. Under congestion or demand management, the FAA simply assesses the level of delay that is desirable and establishes operational requirements (e.g., a limit of 88 arrivals per hour at O'Hare) that will produce the standard of acceptable delay. Alternatives H, I, and J are without question feasible because they employ the existing airport and there are no questions of technical feasibility associated with those alternatives. These alternatives (which are "blended alternatives") were rejected by FAA because: a) they did not "serve forecast demand" and b) because they would allegedly yield less delay reduction than would full build OMP-Master Plan.

92. Alternatives L1, L2, and M and N would also likely require demand management and the level of delay they experienced would depend on what level of delay FAA deemed acceptable, be it the same delay as in the current scheduling order or a different level of desired delay.

93. Further, despite a lengthy technical discussion of L1 and L2 FAA concludes that each of these alternatives are "potentially feasible" (FEIS at 3-68). However, these two alternatives are also rejected because they would yield less delay savings than FAA's Alternative B (Phase One) which FAA has also stated would not meet the unconstrained demand and would have delay saving less than full build OMP-Master Plan. (Id at 3-68 to 3-69)

94. Similarly FAA concluded that Alternatives M and N, were "potentially feasible" (FEIS at 3-73). However according to FAA these alternatives would not meet the "purpose and need" presumably because they did not have the capacity to serve unconstrained forecast demand and because according to FAA, they would produce less delay savings than full build OMP-Master Plan.

95. The fallacy in FAA's cavalier rejection of these alternatives is demonstrated by the fact that FAA's preferred alternative (FAA's Alternative C – the full build OMP-Master Plan) will not meet purpose and need even if it could be funded. Based on the uncorrected 2004 TAF the full build OMP-Master Plan will run out of capacity by 2023 — requiring FAA to utilize a "blended alternative" (i.e., demand management and the use of other airports) with the full build OMP-Master Plan. Use of a corrected 2004 TAF (to address the strange unexplained anomalies in the creation of that TAF to reflect the higher economic growth rate that should have produced higher operations and enplanements than 2003) results in full build OMP-Master Plan running out of capacity no later than 2019 and probably earlier.

96. Similarly, as FAA has acknowledged, delays will mount under full build OMP-Master Plan and again based on the 2004 TAF any delay savings between the approximately 17 minutes of delay FAA claims for the existing airfield and the 5.2 to 5.8 minutes of AAW delay that FAA asserts for the full build OMP-Master Plan will be exhausted by 2023 under the uncorrected 2004 TAF and by 2019 under the corrected 2004 TAF.

97. Moreover, these dates and delay differentials do not take into account the approximately 6.5 minute additional taxi time penalty which the full build OMP-Master Plan must bear because of the extended outboard runways of the full build OMP-Master Plan as compared to existing O'Hare. Putting that 6.5 minute penalty into the analysis shows that under the 2004 TAF the full build OMP-Master Plan will have no travel time benefit over the FAA asserted 17 minute existing airfield in 2019 and even earlier if a corrected 2004 TAF is used.

98. It is clear from these facts that:

- A. The full build OMP-Master Plan does not meet and cannot meet unconstrained demand.

B. To address unconstrained 2004 TAF demand, FAA will be required to use a blended alternative (*i.e.*, congestion management and other airports) in combination with full build OMP-Master Plan. Once the need for a blended alternative is acknowledged, FAA has acknowledged that other blended alternatives — *e.g.*, Alternatives H, I, J, M, and N are feasible. Indeed, FAA has asserted that Alternative K (Phase One) would require a blended alternative.

C. Any so-called “delay savings” associated with full build OMP-Master Plan — as compared to FAA’s asserted 17 minute delay at existing O’Hare will be rapidly exhausted and within a few years after it opens, full build OMP-Master Plan will not have any delay savings advantage over the FAA’s asserted 17 minute delay at existing O’Hare.

99. Further, these facts make clear that several of the alternatives put forward in Alternatives H, I, J, L1 and L2 and M and N — all of which would employ demand management — would have superior delay performance over full build OMP-Master Plan without demand management. For example,

Alternative	Level of delay per operation
Full build OMP-Master Plan in 2023 at 15 minutes AAAW delay plus 6.5 minutes taxi delay — without demand management	21.5 minutes
Derivative H – No Action with Use of Other Airports and Congestion Management (Average Annual Delay of 9.3 Minutes per Operation)	9.3 minutes
Derivative I – No Action with Use of Other Airports and Congestion Management (Average Annual Delay consistent with NPRM Modeled Delay)	[unknown] FAA has not run TAAMS model on FAA Scheduled Order delays
Derivative J - No Action with Use of Other Airports and Congestion Management (Average Annual Delay 4, 6, 8 Minutes per Operation or other FAA Level)	4, 6, or 8 minutes as selected by FAA

100. Alternatives L1 and L2 and M and N, and even Phase One would have similar levels of delay performance at similar levels of delay selected by FAA under demand management.

101. In summary there are several alternatives which would avoid the need to destroy the homes, businesses, park lands in Bensenville and Elk Grove and the destruction of St. Johannes Cemetery. These alternatives would be blended alternatives just as FAA will be required to use blended alternatives with full build OMP-Master Plan when it runs out of capacity shortly after it opens.

XI. FAA's Claim of Lack of Authority to Implement a Blended Alternative is Without Merit.

102. FAA claims in that it cannot implement a blended alternative — *i.e.*, congestion management and the use of other airports in conjunction with various levels of development at O'Hare because FAA cannot compel the use of other airports. As stated by the FAA:

A significant component of the Blended Alternative is the use of other airports. The use of other airports is driven by the market and cannot be directed by the FAA. In a deregulated domestic aviation industry, the Federal government does not control where, when, and how airlines provide their services; nor is the Federal government the driving force in airport capacity development or airport utilization. Rather, the aviation industry, in partnership with local and regional government, in response to market demand, drives where and how air travel is accommodated.

FEIS p. 3-42 (emphasis added)

Under present law, the federal government cannot prescribe controls affecting the rates, routes, or services governing commercial aviation. Similarly FAA cannot require a change in the passenger distribution pattern of other modes of transportation.

ID (emphasis added)

103. FAA has set up a legal "straw man" argument here that suggests that use of a "blended" alternative somehow requires FAA to issue an order "directing" or "compelling" airlines to use certain airports. On the contrary, we are not advocates of FAA orders "directing" the airlines to use other airports. Moreover, nothing in the Blended Alternative evaluation requires the issuance of such an order.

104. The entire evaluation of blended alternatives — and the implementation of blended alternatives — can be undertaken within the framework of existing FAA authority involving the power of the pen and the power of the purse. As stated by the FAA in its recent Record of Decision for Logan Airport where the FAA ordered Massport to develop a demand management program:

50

"While FAA does not have the authority to control or direct the actions and decisions of Massport relative to planning for Logan airport, FAA does have the authority to withhold project approval, including federal funding and the other federal actions discussed in this ROD."

ROD p 6 (emphasis added)

"The EIS and MITRE findings not only point to the long-term significance of the runway [a proposed 5000 foot RJ runway] in reducing delays, but also indicate that demand management needs to be considered as a viable long-term measure."

Id at p. 12 (emphasis added)

"This requirement to develop and submit a detailed plan [for demand management] is a condition of the ROD and if Massport does not fulfill this requirement, the FAA is entitled to use a full range of legal options to compel Massport to fulfill this requirement."

Id, ROD Part 2 at p. 16 (emphasis added)

105. Indeed, a blended alternative is currently in place at O'Hare today as a result of the FAA Scheduling Order. FAA has observed that as a necessary consequence of demand management at O'Hare, the airlines will use other hub airports to accommodate the excess unsatisfied demand to accommodate transfer passengers. As stated by the FAA in its *Preliminary Regulatory Evaluation* (March 1, 2005) to support the FAA's proposed scheduling order in its March 2005 Notice of Proposed Rulemaking:

"[T]he hubbing carriers have many alternatives to reroute passengers

Id at 38

"With a large share of the passengers on connecting flights, hub carriers such as United and American would have many alternatives to reroute their passengers to their final destination...We believe that hub carriers could retain the connecting passengers on the remaining flights through alternative hub airports.

Id at 41.

51

106. These comments by FAA in its NPRM proceeding reflect the exact reasoning contained in a 1996 letter by executives from United and American stating that American and United have great flexibility in moving transfer traffic between hubs. FAA dismisses the letter a "dated"(without any basis for FAA's conclusion) but the operational flexibility reflected in that letter is the same as the flexibility addressed in the March 1, 2005 FAA report. There is nothing "dated" about the facts or the logic of the 1996 letter by executives from United and American.

107. As Campbell-Hill pointed out in our earlier filings with FAA in this matter, FAA can use either its grant power (and the related imposition of conditions on the grant as per the Boston Logan example) or the regulatory power through mechanisms such as the scheduling limitations currently in use at O'Hare, LaGuardia, and elsewhere. In our earlier filings with FAA we pointed out that the recent Record of decision in Los Angeles calls for and approves a blended alternative for LAX in which less than all of the unconstrained demand will be accommodated at LAX. The physical limitations at LAX will have the necessary effect of moving flights that would otherwise use LAX to other airports.

108. Similarly the communities and the Religious Objectors have pointed out that Chicago implemented and FAA approved a Record of Decision in 1984 for O'Hare that expressly rejected an alternative (new runways) that would be needed to carry the "unconstrained" demand and instead opted for an alternative development at O'Hare that would carry that traffic which could be carried by the exiting runways with the use of other hub airports for the excess demand. O'Hare has been using a "blended alternative" with FAA's approval since 1984.

XII. Compelling Governmental Need and Availability of Alternatives To Avoid Destruction of St. Johannes Religious Cemetery

109. I have been asked if I am aware of any facts which are relevant to the questions of:

A. Whether there is a compelling governmental need for O'Hare to accommodate all of the transfer traffic which United and American wish to route through O'Hare.

B. If there is such a compelling governmental need, are there alternatives to meet that need which would avoid destruction of St. Johannes Cemetery.

110. There is no compelling governmental need to force all of the transfer traffic that United and American wish to push through O'Hare into an expanded O'Hare (in accordance with the FAA forecast). It is important to emphasize that — as pointed out by the executives of United and American in their 1996 letter— the existing O'Hare has enormous reserves of capacity for local "origin-destination" passengers for decades into the future.

111. The delay and capacity crunch comes when United and American make private economic decisions for what they perceive to be their private competitive economic advantage to move transfer traffic (traffic that never sets foot outside the airport) between their various hubs (Denver, Dulles, and O'Hare for United; Dallas and O'Hare for American).

112. In my opinion the decision to push transfer traffic into O'Hare to the point that delays rise to pressure for the destruction of a religious cemetery is essentially a private economic decision which does not fill any compelling national or compelling local governmental need.

113. Even if some compelling governmental need was identified, full build OMP-Master Plan does not satisfy that need and there are (as discussed above) several alternatives by which the airlines using O'Hare can use other options to service their transfer passenger needs without destroying St. Johannes Cemetery. As discussed above, any so called "delay savings" made by destroying the religious cemetery will be short lived and there are less destructive alternatives that have equal or greater delay savings. Similarly, as FAA has acknowledged in its scheduling order documents, United and American have several

alternatives to route their excess transfer passengers without destroying the religious cemetery.

XIII. FAA's Baseless Assertions

114. FAA in late July released several hundred pages of detailed and somewhat disorganized comments on Campbell-Hill's earlier reports. We have not had the time to go through and respond to all of these comments in the time frame provided by FAA for response — September 6, 2005. By not responding to each comment, I do not mean to create the implication that we agree with each FAA comment. Nevertheless, given the shortness of time, I feel compelled to address some of the most serious errors in the FAA comments.

XIV. USE OF OTHER MID-CONTINENT AIRPORTS

115. As Campbell-Hill reported in its earlier filings with FAA, FAA performed no analysis of the potential use of other hubs to satisfy growth projected for O'Hare's connecting traffic. There are many hub airports that have sufficient available capacity and the FAA has the authority to exercise congestion management measures that would encourage airlines to use other airports. Also, its funding decisions (the power of the purse) influence airline scheduling decisions over their route network as well as their marketing and pricing strategies (C-H April 6, 2005 Report, pages 70-74).

116. **FAA Assertion.** FAA agrees that there is idle capacity at other mid-continent hubs, but it argues that it has no statutory authority to force a shift to other hubs. The FAA states that O'Hare is unique because of its "significant origin-destination traffic, historical function as a connecting hub, and one of the most important international gateways." (Comment 129) Since O'Hare is so unique, it is unlikely that the major airlines at ORD will be able to successfully use other mid-continent airports. The FAA also attacks Campbell-Hill using the term "mid-continent" to describe airports such as Atlanta,

Charlotte, Newark, Dulles, Philadelphia, and Pittsburgh. The FAA also says that a report called, *The National Impact of Civil Aviation*, co-authored by Campbell-Hill in 2002 lists some of the airports in this report that have additional capacity as airports that need capacity improvement (Comments 129, 130, and 131).

117. **Campbell-Hill Response.** Campbell-Hill's report explained that the FAA has implemented congestion management schemes that have had the effect of shifting traffic to other airports. Campbell-Hill never suggested that the FAA has the authority to force airlines to use certain airports. Campbell-Hill's point is that if congestion management is in place, airlines are likely to use other connecting hubs that have sufficient available capacity. This way the marketplace (individual airline decision-makers) decides how it wants to utilize a constrained (not unlimited) resource.

118. Also, the uniqueness of ORD will not deter airlines from shifting some connecting traffic to other airports. In fact, many of the airports that Campbell-Hill mentioned as competing hubs have high yields for connecting passengers and high load factors. The yields for passengers connecting over MEM, CLT, STL, DTW, PIT, ATL, IAH, CVG, and MSP are all higher than the yield of passengers connecting over ORD. Airlines are more likely to care about yields at other hubs than ORD's "historical function as a connecting hub."

119. The fact that some competing hubs that Campbell-Hill mentioned do not have a true "mid-continent" location is irrelevant. Regardless of their location, these are hubs that airlines could use to connect passengers instead of using ORD, and they are all hubs that compete with O'Hare today for connecting traffic.

120. The airports listed in Campbell-Hill's 2002 study entitled *The National Impact of Civil Aviation* were the airports with planned infrastructure improvements based on FAA sources. Campbell-Hill made no assessment of the economic merits of any of the programs referred to in the report. Just because some of the airports have planned capacity improvements does not mean that they are currently out of capacity, or that they pass a

rigorous benefit/cost test. In the situation of O'Hare's OMP, the costs outweigh the potential small and short-lived delay benefits, while at the same time increasing access times and terminal facilitation times.

121. **FAA Assertion.** In Chapter 3 of the EIS, the FAA intuitively considered the use of other mid-continent hubs as an alternative to relieving congestion and addressing future demand at O'Hare (Comment 129)

122. **Campbell-Hill Response.** As Campbell-Hill stated in its report, the FAA's entire treatment of the use of mid-continent hubs is contained in two pages. The FAA irresponsibly dismissed this alternative by arguing that it does not have the authority to mandate the use of other airports. As Campbell-Hill has shown, the FAA has a history of using congestion management measures that have had the effect of shifting traffic to other airports. The FAA moved its mention of mid-continent airports from obscurity in Appendix C of the DEIS to Chapter 3 in the FEIS. It is clear the FAA did this because putting it in the appendix, which is supposed to have details of the FAA's analysis, highlights the fact that the FAA dismissed the potential use of other mid-continent hubs without performing any analysis at all. It still has performed no analysis, but relies solely on biased opinion and conjecture. FAA cannot blindly rely on self-declared unsubstantiated "expertise", without evidence or logic to support its assertions.

XV. ORD As An International Gateway

123. Campbell-Hill in its earlier comments to FAA pointed out that even with a shift of some transfer traffic to other hubs, O'Hare's origin-destination ratio would still be comparable to other international hubs.

124. If a portion of ORD's connecting passengers was shifted to other mid-continent hubs, ORD's local to connecting ratio would increase to 61:39 by 2018. This is similar to many international gateways including JFK, LAX and SFO. Therefore, it is

reasonable to conclude that O'Hare would continue as a major international gateway (C-H Report, page 71 and 73)

125. **FAA Assertion.** FAA asserts that the other gateways cited by Campbell-Hill are not relevant because they are not "inland" gateways. FAA asserts that of the airports listed in Exhibit 400, ATL is most similar to ORD because it is a major inland international gateway. ATL has a larger connecting share than ORD today. This indicates that a large connecting share is required to support an international gateway at an inland airport (Comments 130 and 132).

126. **Campbell-Hill Response.** This claim by FAA is simply a *non sequitur* with no logical or empirical basis. ATL is not an inland gateway. It is 240 miles from the Atlantic coast and it is less inland than Dallas, which is 340 miles from Mexico. O'Hare is only 250 miles from Canada. ATL is not in any way an inland point.

127. The fact that ATL has a larger share of connecting passengers does not support the conclusion that a connecting share larger than 39% is needed at ORD for it to operate as an international gateway. The Atlanta local/connecting ratio simply demonstrates that it is a much smaller local O&D market than Chicago (27.9 million vs. 42.8 million), which is supported by a much smaller population (5.0 million vs. 9.6 million). Another reason for ATL's local/connecting ratio is that because of geography and history it is Delta's largest system hub. Due to the factors discussed above, the math simply produces a comparatively low local/connecting ratio for ATL.

128. Toronto Pearson Airport is a major inland international gateway and it has a connecting share of only 25%. Over 50% of all Toronto departures are international and one in four departures is operated by a foreign carrier. The Toronto metro area population is slightly larger than the Atlanta metro area population (5.3 million vs. 5.0 million). Toronto belies the FAA's contrived theory for basing its entire response on Atlanta.

XVI. LAX EIS ISSUES

129. Campbell-Hill in its earlier comments to FAA pointed out that FAA's work in the LAX EIS was more sensible and responsible because it truly focused on a balanced regional approach that uses a "blended alternative of LAX in combination with other airports. The ORD EIS on the other hand focuses only on the use of ORD for accommodating future increases in traffic demand.

130. **FAA Assertion.** FAA claims that The LAX EIS is not comparable to the ORD EIS because..."1. The airport systems in the Los Angeles region and the Chicago region are different; 2. The roles of LAX and ORD are different; and 3. The sponsor requests in each case are different." (Comment 138) The wide geographic spread of the Los Angeles region makes it easier for regional airports to serve regional demand. Chicago is not as densely populated. Also, ORD is different because it is more of a connecting hub than LAX. "ORD competes with other hubs such as DEN and DFW for connecting traffic, both domestic and international. Without a substantial critical mass of air service at ORD, the connecting hub airlines serving ORD would not be competitive in terms of frequency of connections and the availability of attractive fares." (Comment 138) The FAA also stated that because ORD serves as a major international gateway and connecting hub it is not practical to assume that flights will be spread to other airports, despite available capacity (Comment 138).

131. **Campbell-Hill Response.** The geographical spread of a population should not effect the FAA's consideration of alternatives that benefit the people of a whole region, instead of just one airport. Indeed, FAA is pursuing the same kind of regional approach in the Northeast (using multiple airports to address Boston Logan's excess long term demand) as is the FAA in the Los Angeles Metropolitan Area.

132. The FAA also argues that each airport is different and therefore it should not be held to a consistent set of standards or guidelines in its analysis. This is both wrong and irresponsible.

133. Campbell-Hill agrees that airlines use DEN and DFW to connect passengers instead of using O'Hare. ORD also competes with STL, HOU, ATL, KCI, PIT, CVG, CLT, DTW, IAH, MSP, SLC, and others for domestic traffic; and with SFO, LAX, DFW, IAH, ATL, EWR, JFK, IAD, BOS, YYZ, and others for international traffic. Campbell-Hill discussed this in Chapter 4 of its April 6 report. The FAA never quantifies or offers an opinion on how many connecting passengers, flights, or breadth of services comprise the "critical mass" necessary for ORD hub carriers to compete with hub carriers at other airports (some of which are the same). As shown in Campbell-Hill's analysis, even shifting all future unconstrained passengers that cannot be accommodated under a constrained ORD to other connecting hubs produces more connecting passengers at ORD than ORD has today (Exhibit 403). ORD's hub viability would not be diminished. In fact, the FAA offers no analysis whatsoever to demonstrate that a reduction in ORD's connecting ratio (not absolute numbers of passengers) will weaken its service pattern or competitive viability.

134. Furthermore, ORD could serve as a major international gateway, even it was considerably smaller than it is today. JFK, which is significantly smaller than ORD in terms of both roundtrip domestic O&D (8.1 million vs. 13.1 million) and total enplanements (18.6 million vs. 36.0 million), has 73% more international enplanements (8.6 million vs. 5.0 million) and 76% more roundtrip international O&D (2.8 million vs. 1.6 million) than ORD.

135. Finally, the request of the sponsor should not affect whether the FAA adequately and responsibly evaluates alternatives, assesses financial feasibility, and determines environmental impacts. The FAA performed no analysis to support the claim by the City that... "it would be necessary to increase capacity at O'Hare to meet regional demand needs." (Comment 138). The illogic of this statement is emphasized by the facts a) that Chicago cannot assemble the financing for full build OMP-Master Plan and that b) full build OMP-Master Plan falls far short of meeting regional demand and c) that FAA has not challenged the assertion by the impacted communities that far more capacity can be built at far less cost at other locations in the metropolitan Chicago region. FAA's failure to take a

regional approach in the Chicago metropolitan region — as contrasted with the regional multi airport approach taken by FAA in the Los Angeles and Boston — is simply irrational. Indeed, FAA's failure to examine regional demand and the impact of that demand on the capacity shortcomings of full build OMP-Master Plan is heightened by the FAA's statement that Midway will soon be out of capacity. FAA's FEIS ignores the impact of Midway's unmet demand growth on the full build OMP-Master Plan proposal.

XVII. Chances of a Fourth Airport Accommodating Regional Demand

136. **FAA Assertion** "There is no current example in the United States for a region to be served by more than three airports each with a significant (10 percent or greater) market share. From this data, it is not reasonable to conclude that the Chicago area could be served by more than three airports, with each having 10 percent or more of the regional demand." (3-20)

137. **Campbell-Hill Response.** : The FAA has no basis for this comment. Chicago is the third largest air travel market in the U.S. As traffic grows in large markets like Chicago it is likely that existing airports will run out of capacity and alternative airports will be needed and could actually have four airports with more than 10 percent of the regional traffic. The reason that no market has more than 3 airports with more than 10 percent of the regional traffic could simply be because no market is currently large enough. Moreover, the choice of a self-serving hypothetical criterion like "10 percent" is of no significance. The fact is that multiple-airport hub regions like Los Angeles, San Francisco, Washington/Baltimore, New York, and Chicago do support multiple numbers of growing airports. In fact, the Los Angeles region supports five significant air carrier airports.

XVIII Capitalized Interest Issues

138. **FAA Assertion.** FAA asserts that Capitalized Interest should not be added into the capital costs of the project because it is a financing cost. To add it in would be

double counting since the FAA considered capitalized interest in its financing plan (Comments 96 and 97).

139. **Campbell-Hill Response.** Throughout this discussion and in Section 3.0 of Campbell-Hill's report dated April 6, 2005, the term "capitalized interest" refers to interest paid on construction related loans during the period of construction and prior to project completion. Campbell-Hill has stated that capitalized interest is a project capital cost and should be incorporated as part of the total capital cost considered by the FAA in its assessment of financial feasibility and financeability (C-H Report, page 55).

140. Capitalized interest is part of the cost of acquiring an asset and bringing it available for use, and therefore, is a project capital cost. The capitalization of interest cost only occurs during the construction period. After this, the interest is treated as an operating expense. The Financial Accounting Standards Board (FASB) policy does not treat capitalized interest as an interest expense on debt, but adds the amount of capitalized interest to the cost of the asset in question. From an accounting perspective, capitalized interest is treated the same as concrete used to build a runway. The following quotations from an FASB policy document explain the proper treatment of capitalized interest:

"The historical cost of acquiring an asset includes the costs necessarily incurred to bring it to the condition and location necessary for its intended use. If an asset requires a period of time in which to carry out the activities necessary to bring it to that condition and location, the interest cost incurred during that period as a result of expenditures for the asset is a part of the historical **cost of acquiring the asset**"³ (emphasis supplied)

"The objectives of capitalizing interest are (a) to obtain a measure of acquisition cost that more closely reflects the enterprise's total investment in the asset and (b) to charge a cost **that relates to the acquisition of a resource that will benefit future periods against the revenues of the periods benefited**" (emphasis supplied)

³ Financial Accounting Standards Board, *Statement of Financial Accounting Standards No. 34: Capitalization of Interest Cost*, page 5, October 1979.

"On the premise that the historical cost of acquiring an asset should include all costs necessarily incurred to bring it to the condition and location necessary for its intended use, the Board concluded that, in principle, the cost incurred in financing expenditures for an asset during a required construction or development period is itself a part of the asset's historical acquisition cost." (emphasis supplied)

141. Using the term capitalized interest infers that the interest is a capital cost. Capitalization is defined as..."the process of accumulating cost in an asset account until the item is used to produce revenue." Simply using the term "capitalized interest" implies that this interest cost is part of the cost of an asset, not merely a financing cost.

142. Another important point is that if the cost of interest incurred during construction is not added to the project cost, it is not in the airline rates and charges base, and therefore, it will never be paid by the airlines. While the FAA admits on page U.4-563 that its own policy prohibits an airport from assessing interest expense on construction loans prior to a project's completion, it naively goes on to say, however, that nothing would preclude such charges if the airlines agreed to it in their rates and charges agreement. This weak response is without merit as the FAA did not provide a single example of an airport where the airlines willingly pay for construction loan interest (during construction) out of the goodness of their hearts. If this interest cost is not capitalized, the airport cannot recover it through future rates and charges.

143. Campbell-Hill's treatment of capitalized interest does not double count any expenditures. Campbell-Hill correctly divided the interest into two pools: (1) payments during project construction, and (2) payments after project completion. The payments required to be made during construction were "capitalized," that is, they were added to the capital cost of the project itself. The payments made after the project is completed and available for use were treated by Campbell-Hill as ordinary interest "expense" (a financing cost). This is consistent with FASB accounting standards.

144. In the FAA's tortured effort to minimize the total "capital" cost of the OMP it argues against a well-established accounting principal and asserts that interest expense during construction should not be capitalized (for unstated reasons) and therefore it is not a relevant cost for feasibility or benefit/cost analysis purposes. The City and the FAA attempt to invent new accounting conventions in their efforts to minimize the true OMP capital costs.

145. Campbell-Hill's analysis does not double count anything because the City never included interest cost during construction in its capital cost base any more than it included a portion of Mayor Daley's salary. The FAA's logic is totally flawed; its research of the City's cost figures leads to false conclusions or assumptions, and it demonstrates a complete ignorance of generally accepted accounting principles and standards.

146. **FAA Assertion.** Capitalized interest does not accumulate on PFC bonds because the City is receiving PFC revenue even during the construction period (Comments 97 and 107).

147. **Campbell-Hill Response.** The forecast PFC revenue will not be sufficient to cover the PFC-backed debt and Pay As You Go financing in the City's financing plan. During the construction period, this PFC shortfall will have to be funded by issuing GARBs because the airlines do not pay until the runways/terminals are available for their use. The interest on these additional GARBs during the construction period must be capitalized and added to the total construction cost (C-H Report, pages 55 and 58).

148. Campbell-Hill never calculated capitalized interest on PFC-backed bonds. As described above, the capitalized interest was calculated for the GARBs that would be issued to pay for the shortfall in PFC revenue. Campbell-Hill's analysis is correct.

I declare under penalty of perjury that the foregoing is true and correct.

Brian M. Campbell
Brian M. Campbell

SUBSCRIBED and SWORN TO before me this 6th day of September, 2005

Kathy A. Fedarko Notary Public

my commission expires 8/31/2007



ANALYSIS AND RESPONSE TO COMMENTS PRESENTED

IN THE AFFIDAVIT OF BRIAN CAMPBELL

This affidavit was part of a package of comments submitted to the FAA in response to the agency's invitation for public comments on portions of the Final Environmental Impact Statement and the FAA's proposed resolution of religious liberty issues. As with Mr. Fleming's affidavit, the FAA's analysis of his comments will track his affidavit, and will indicate our specific response to his assertions through our adoption of the same paragraph numbering convention used by Mr. Campbell. Some assertions require no FAA comment or notation of the commenter's opinion as they are restatements of comments from Campbell-Hill's previous submissions to the FAA. To the extent that other comments contained in this document are more properly directed to that component of the FAA which is considering the application by the City of Chicago for a Letter of Intent and federal funding, the Agency believes it would be inappropriate to engage with the commenter on these issues in this document. Instead, it has forwarded to the appropriate FAA office, a copy of this affidavit. The review of the LOI, including the Benefit Cost Analysis (BCA), is a separate process from this NEPA evaluation.

The Campbell affidavit deals primarily with two overarching issues that the FAA feels compelled to answer in the following narrative fashion. The Campbell issues are as follows:

- The overall costs of full build OMP are so great that the project will never be completed in its entirety and will likely conclude with Phase One. Therefore, the EIS misstates the environmental impacts and consequences of the actions; and
- The initial \$300 Million Letter of Intent (LOI) request is critical to the successful funding of the project and yet the approval of the LOI is uncertain. Therefore, the FAA needs to assure the financing up-front to prevent residential areas and cemeteries from needlessly being destroyed.

In response, the FAA notes that the Agency has conducted a review of the City's financing plan for the OMP and has summarized the findings of that review in Section 1.7 of the Final EIS. Section 1.7 stated,

On the basis of the information presented herein, the review of the City's financial plan, and an understanding of airport financing in general, FAA has no reason to believe that the City's financial plan cannot be implemented as generally presented in the ORD Master Plan. Further, FAA has no reason to believe that the resulting costs to airport users (most significantly, major airlines serving O'Hare) will significantly adversely affect the ability to finance the capital projects and realize the projected aviation demand, particularly in the context of future investments that will be required at other large hub airports in the United States. All projections and forecasts are subject to uncertainty, and future events may result in changes or adjustments to the FAA conclusions.

For purposes of satisfying the FAA's obligations under NEPA, FAA has concluded that it is reasonable to assume that, based upon the impact O'Hare has on the Chicago region, as well as the NAS, and the benefits to the regional economy, there will be sufficient funds to complete the City's proposal, if approved. Further, in response to comments on the Draft EIS, FAA has reviewed additional cost-related information applicable to the project. For purposes of this review under NEPA, the FAA has concluded that the estimated costs of the project are reasonable. In addition, FAA believes that with a project of this magnitude and importance, the availability of projected funding sources is sufficiently reasonable and capable of being obtained. Accordingly, the FAA has decided it is both appropriate and necessary under NEPA to subject the Sponsor's full build proposal and alternatives thereto to this environmental analysis because the entirety of the proposed action is reasonably foreseeable. This determination is made without prejudice to evaluation of the City's pending Letter of Intent request, which is a separate process from this environmental analysis.

While this text from the Final EIS indicates that the review of the financing plan was done from the NEPA perspective, the FAA also notes that the review of the Letter of Intent request is currently underway. Mindful of this ongoing LOI review, the FAA team responsible for the work involved in the NEPA review have coordinated with the FAA LOI review team and are satisfied that the LOI including a benefit-cost analysis reasonably reflect the determinations made above regarding the financing plan for the OMP. It is noted that Campbell-Hill has provided comments on the City's BCA portion of their LOI, which will be considered as part of the separate LOI administrative process.

With regard to the need for the FAA to make all funding decisions simultaneously with the issuance of this ROD, the Agency notes that this is impractical and inconsistent with typical practice. To the extent that the commenter is asserting that FAA environmental approvals are inadequate unless and until the sponsor has arranged all funding with exact certainty for the entire project, the FAA would point out again that this logic is at odds with normal professional practice and regulation. The Agency is not aware of any public improvement project of this size or scope where financing and funding have been locked in at this point for the entire project.

With any large, long-term capital program, there is some uncertainty regarding the sources of funds that have been assumed to provide for full implementation. Estimates and projections of funding sources are necessarily utilized in developing capital program financing plans, but actual developments can differ from original assumptions, and these actual developments can be both positive and negative with regards to the availability of funds. As a result, airport operators are routinely required to refine financing plans during the implementation of a capital program, making adjustments to take into account actual developments as they occur.

In the case of the OMP, there have been questions raised regarding the potential availability of assumed federal grants and PFC funds, as well as the sensitivity of the finance plan to external factors such as airline bankruptcy and/or reduced traffic levels. FAA has reviewed the City's overall finance plan for OMP for NEPA purposes, and believes it is based on reasonable assumptions. However, in the event that some of the project funds are not available in the

amounts assumed or at the times assumed, the City would need to make adjustments during implementation.

Therefore, the FAA conducted a sensitivity analysis of the OMP financing plan. This sensitivity analysis examined a number of mechanisms the City could employ should part of the funding for the project not be implemented as planned. These mechanisms include deferral of improvements, use of contingency, increased debt issuance, and short-term borrowing. The sensitivity analysis evaluated what-if scenarios, such as the \$300 million LOI being unavailable or disapproved, reduction in airline traffic with the loss of a major carrier at O'Hare, and the possibility that the authorized level of PFC collection is static. The sensitivity analysis demonstrated that changes in cost per enplaned passenger resulting from the use of these mechanisms would not be substantial and in some instances could be offset by cost benefits from the project's implementation.

The Campbell-Hill concept of funding of airport projects would require that prior to NEPA approval all funding needed to complete the entire project would have to be secured. This concept would necessitate the prior or concurrent issuance of all Airport Improvement Program (AIP) Grants, Passenger Facility Charge (PFC) impose and use application approvals, and sale of all necessary GARBs with the environmental approval that this ROD provides. The FAA does not agree with this concept.

The FAA does agree that the project must be evaluated from a financial feasibility standpoint and has conducted due diligence in this area with regard to the OMP. This evaluation of financial feasibility was conducted by the FAA to ensure that the project was indeed feasible.

The FAA notes the following facts regarding capital development at airports:

- Sponsors do not need FAA funds to implement a capital improvement for their airport. Sponsors can fund a project without federal funding. However, it is required that NEPA approval to amend their Airport Layout Plan be obtained from FAA.
- LOIs, AIP Grants, and PFC (authorization to impose and use, or use), require NEPA approval prior to FAA approval or authorization.
- A sponsor is not required to obtain a LOI approval prior to obtaining a grant. In most instances, sponsors do not. In addition, LOI approval is not a guarantee that federal funding will occur. The LOI can be withdrawn, and there is no guarantee of a continued revenue stream of funding.
- AIP grants can only be issued for funds appropriated in the current fiscal year, and it neither reasonable, nor industry practice, that all grant funding for a major capital development project would be secured within a fiscal year. Additionally, an AIP grant cannot be issued without environmental approval being issued.
- It is impractical and imprudent for a sponsor to issue bonds for its entire multi-year project at the outset of implementation, and therein require paying interest for funding, which would not yet be required.

9 – The FAA notes Dr. Campbell’s summary of findings and conclusions. FAA has responded to the findings and conclusions where the basis for the findings and conclusions are made throughout the Campbell-Hill submittals and this affidavit.

12/13 - The FAA completely disagrees with this statement. As is often the custom in reports of this type, the Department of Transportation Office of Inspector General (OIG) provided the FAA with a draft of its preliminary report, and invited the FAA to respond to it. The FAA responded to the Draft OIG report on May 20, 2005 and June 15, 2005. It is not uncommon for these reports to be revised following receipt of comments as part of the internal interagency review process. The Final OIG report was dated July 21, 2005, and made public at that time. Since the Final EIS was in the process of being printed, the FAA did not include it in the FEIS. The FEIS does not make explicit reference to the report and the Inspector General expressly disclaimed any interest in this NEPA process. Nevertheless, the FAA did address some of the OIG’s concerns within the FEIS, including Section 1.7 of the FEIS and supporting documentation. Again, the FAA directs the commenter to Section 10 of this Record of Decision for the FAA’s discussion of the report. In addition, the OIG report contains FAA’s response dated May 20, 2005 and June 15, 2005, and commitments. The FAA is in the process of preparing a formal response to the IG report.

15 – The FAA addressed the issue of availability of AIP funding in its response to the Campbell-Hill letter dated April 6, 2005, in the Final EIS, Appendix U, page U-566. Specific comments related to the City’s BCA are not being addressed here. The FAA notes that Campbell-Hill and others have submitted extensive comments on the City’s original BCA dated February 2005. Since those BCA comments will be considered as part of the Agency’s LOI review process, which is separate and apart from this EIS process, the FAA considers specific BCA comments (e.g. cost-benefit ratio, forecast, etc.) beyond the scope of this EIS. However, general programmatic issues related to LOI and PFC funding have been considered by the FAA in the EIS and this ROD.

16/17 – These comments have been forwarded for consideration within the LOI/BCA review process.

18/19 - The FAA created delay curves based on Phase I of the O'Hare Modernization Program. The FAA recognizes that there would likely be some increase in unimpeded travel times during portions of Phase I of the project due to the interim runway and taxiway geometry. Both delay and unimpeded travel times were included in the detailed TAAM analysis completed as part of the Environmental Impact Statement and used as the basis for the Benefit Cost Analysis. However, the increase in projected unimpeded travel times is offset by a greater value in the average annual delay reductions.

20 – The FAA addressed a similar PFC comment in the FEIS in Appendix U, page U-4-568.

21 – FAA cannot guarantee if or when an increase in the authorized PFC level will occur. However, Congress has authorized PFC increases in the past. Thus, there is historical precedent for increasing the level of PFC funding per passenger. This prior increase in the authorized PFC level (from \$3.00 to \$4.50) was determined appropriate due to (1) increased airport funding requirements and (2) the recognition of inflationary increases in general prices (including prices of airport improvements) relative to the fixed absolute level of the PFC. FAA believes that it is reasonable to assume that the authorized PFC level will again be increased in the future, for these same reasons, and that a future level of \$6.00 (that is, the same increment of increase as the last approved increase) is reasonable to assume in an airport financing plan such as the financing plan for ORD.

Given the benefits of the OMP, FAA does not believe it is essential to know the exact point when Congress might approve an increase in PFC level. The significant economic benefits to airlines of modernizing ORD (e.g., delay savings and revenue from increased traffic), combined with the support from key airlines for the OMP, indicate to FAA that it is reasonable to assume that airlines would be willing to proceed with OMP even with a delay in an authorized increase in the PFC funding level and a corresponding requirement to adjust the financing plan.

The FAA has also considered the impact of no PFC increase and believes that the types of funding adjustments that might be required would still result in an overall reasonable finance plan.

22 - FAA acknowledges that airlines serving ORD have to-date only provided MII approval for initial phases of OMP. The OMP is to be financed in phases, and airline MII approval will correspondingly be requested in phases. Just as it does not make sense to issue debt at the outset for all phases of OMP (because this would involve unnecessary interest expense for funds not currently required), it also does not make sense to obtain airline MII approval for all phases of OMP at the outset (because the financing plan conditions will continue to be refined and the mix of airlines involved in making the commitment will change over time).

The FAA believes it is reasonable to expect that the airlines serving ORD will approve future requests for incremental funding of OMP, given the positive statements made by key airlines regarding the need for the full OMP (as acknowledged by the commenter). as well as the significant benefits that will accrue to airlines serving ORD and the comments provided on record in support of OMP. Also, it is important to note that the airlines at ORD have approved Phase 1 projects (such as land acquisition) that would only make sense if the entire OMP were to be completed. FAA believes that airline support of such “full-build” elements of Phase 1 indicate an intent to proceed with the complete OMP development.

23-25 –FAA understands that there is always some element of risk and concern associated with special facility bonds and other forms of third party financing, and has taken this into consideration in reviewing the financing plan for OMP.

FAA has reviewed recent developments associated with special facilities bonds at U.S. airports, including the example cited by the commenter of United's special facilities bonds at ORD. FAA has concluded that there are circumstances in which special facilities bonds can carry risk of default or non-payment, but that this does not mean that this financing vehicle will not be appropriate or available in the future. As an example, a recent court decision to allow United Airlines to discontinue payment on special facility bonds at New York-JFK Airport did not prevent a recent issuance of special facility bonds by American Airlines for terminal facilities at that same airport.

FAA believes that special facility bonds will continue to be a valuable source of funding for airport improvements, if properly structured — and further believes that this is borne out by the recent issuance of special facility bonds at New York-JFK Airport. Given the airlines' interest in implementing OMP, FAA believes that it is reasonable to expect that airlines serving ORD would be willing to execute appropriately-structured agreements to use special facility bonds for facilities that are dedicated to their use and their benefit.

26A – The FAA established the Airspace Management Advisory Council specifically to address intra-agency coordination efforts, particularly insofar as airspace is concerned. The collective responsibility of the group, chaired by the Director of System Operations, Airspace and Aeronautical Information Management, is establishing cost and schedule controls, timely coordination with other FAA service areas and programs. The initial task is reviewing all National Airspace Redesign (NAR) projects, including those outside of the Chicago Area that support the OMP required airspace changes. These airspace initiatives are prioritized and synchronized with the Chicago ARTCC airspace changes to ensure that the anticipated benefits of the OMP are realized. The costs associated with these airspace changes have been identified, and the funding is being identified. Some of these airspace changes are part of the larger NAR Chicago Airspace Project; the funding for these initiatives has been identified in the ATO 2006 budget, and the work programmed in the ATO-W 2006 workplan.

26B – The FAA agrees that the cost estimates of the OMP did not explicitly include the cost of the surface transportation mitigation, as it was not established until the issuance of this Record of Decision. However, the FAA notes that the anticipated cost of this mitigation is well within the cost contingency that is included in the Master Plan cost estimate.

26C – In response to the April 6, 2005 Campbell-Hill submittal, the FAA noted the capitalized interest is not a capital cost. This opinion has not changed and is consistent with airport financing practice, see FAA's response to Campbell-Hill comments 96 and 97 beginning on page U.4-562 of Appendix U of the FEIS.

26D – The FAA has reviewed cost estimates provided by the City of Chicago and has found them to be reasonable. Further discussion is provided in Section 1.7 of the Final EIS. The FAA does not consider that a detailed line item and quantity and unit cost review is necessary, or required, for an EIS or to issue a ROD.

27 – The FAA disagrees with the commenter's assertion that the Phase One project is not financially feasible. For purposes of its review under NEPA, the FAA concluded that the estimated costs of the project are reasonable, it is reasonable to assume that there will be sufficient funds to complete the proposal, and there is no reason to believe that the City's financial plan cannot be implemented as generally presented in the Master Plan. The FAA's decisions on AIP and PFC funds involve separate processes that are not only different from its environmental analysis, but also are normally concluded only after the environmental issues are resolved and a ROD on those matters is issued.

28 - Comment noted.

30-36 – These comments have been forwarded for consideration within the LOI/BCA review process.

37 - The FAA addressed a similar PFC comment in the FEIS in Appendix U, page U.4-568.

38 - The FAA respectfully disagrees with the commentator's assertion that Chicago has removed Taxiway Lima Lima and its associated costs from the Phase I project. Recent correspondence with the City of Chicago has confirmed the City's intention to construct Taxiway Lima Lima according to the proposed phasing plan utilized for the EIS. In addition, the City of Chicago's Airport Layout Plan submitted in September 2005 for approval contains Taxiway Lima Lima on the Phase I drawing and the future full-build drawing.

39 – This comment has been forwarded for consideration within the LOI/BCA review process.

40 – Comment noted.

41 - FAA respectfully disagrees with the commenter's assertion that FAA has relied on "bald unsupported assumptions" and reached "bare bones conclusions" in determining that OMP is financially feasible. FAA has conducted a thorough review of the OMP financing plan. The response to comments on the DEIS and the additional information provided in the FEIS, and made publicly available, including being posted on the FAA website, indicate the thoroughness of FAA's review of the OMP financing plan. FAA has thoroughly reviewed the OMP financing plan, provided detailed and analytical responses to comments and questions, and is confident that the ORD OMP can provide the benefits that have been estimated and is correspondingly financially feasible.

42 - The commenter has offered two selected quotes from the FEIS as evidence that FAA has not addressed concerns regarding the financial feasibility of OMP. These two quotes do not reflect the effort or level of analysis undertaken by FAA to confirm the financial feasibility of OMP for purposes of this ROD. The FEIS and the administrative record accurately document the

agency's thorough consideration of this issue in the satisfaction of its environmental obligations. In addition to this ROD, FAA has considered and responded to previous Campbell-Hill's submissions in the FEIS.

43 – The FAA has reviewed recent bond issuances by the City of Chicago as part of its review of OMP financial feasibility, and has included the City's success on the bond market as one factor in its overall analysis.

44 – As stated earlier, the FAA believes that OMP is financially feasible. Section U.4 of the FEIS, the responses to comments in Appendix U of the FEIS (including specific responses to Campbell-Hill), and the responses to comments in this document, provide further explanation of the basis for FAA's conclusion.

45 – As noted above, the FAA does not believe that there are any outstanding issues or questions to which it has not been responded regarding financial feasibility of OMP for purposes of this ROD.

46 – FAA has given detailed consideration to blended alternatives in the FEIS. See, FEIS at Chapter 3 for its analysis.

47 - FAA does not agree that blended alternatives can meet the forecast unconstrained demand at ORD, as documented in the FEIS.

48A - FAA has documented in the FEIS that OMP will meet forecast demand at ORD. FAA has also documented in the FEIS that OMP is the preferred alternative to meet forecast demand at ORD.

48B - See response to comment 46 above.

49 –FAA has conducted a review of the financial plan for OMP. Thus, FAA does not agree that there is any reason to consider a different preferred alternative under the assumption that OMP is financially infeasible.

50 – The FAA believes that it is reasonable to expect that required funding will be available for OMP.

51 - The FEIS demonstrates that OMP Phase 1 (i.e. Alternative B) does not meet the purpose and need.

52-56 The FAA rejects the commenter's assertion that it cannot authorize this proposed action in the absence of a showing by the sponsor that the entirety of all funding for the complete OMP has been assured at this time. Such a suggestion is at odds with established practices for

financing a project of this size and scope, is not required by FAA regulations or guidance, and defies common sense.

57 - FAA acknowledges that these are key factors in the analyses conducted for the EIS. However, there are also many other variables and factors that were considered and analyzed, as documented in the FEIS.

58 – FAA addressed the use of the 2002 TAF in both the main body of the FEIS and in the response to comments contained in Section U.4 of Appendix U.

59 – See response to comment 46.

60 – 66 - FAA addressed Campbell's discussion of "acceptable levels of delay" in both the main body of the FEIS and in the response to comments contained in Section U.4 of Appendix U.

67 - These examples were not used in connection with the determination to use 15 minutes delay as a threshold in developing the constrained forecast. This is explained in both the FEIS and the response to comment in the FEIS.

68/69 – FAA disagrees with the commenter's assertion that the time period of analysis for the EIS should be based on financial analysis guidelines. Please see response to Karaganis-Cohn's September 6, 2005 comment regarding the same on page A.2-80 of this Appendix A.

70 - FAA set forth a statement of purpose and need, which included meeting forecast unconstrained demand. As documented in the FEIS, FAA considered various alternatives for meeting unconstrained demand, including blended alternatives. Contrary to the commenter's assertions, FAA did not "claim that it need not consider any blended alternatives". In fact, FAA carefully considered blended alternatives, as documented in the FEIS.

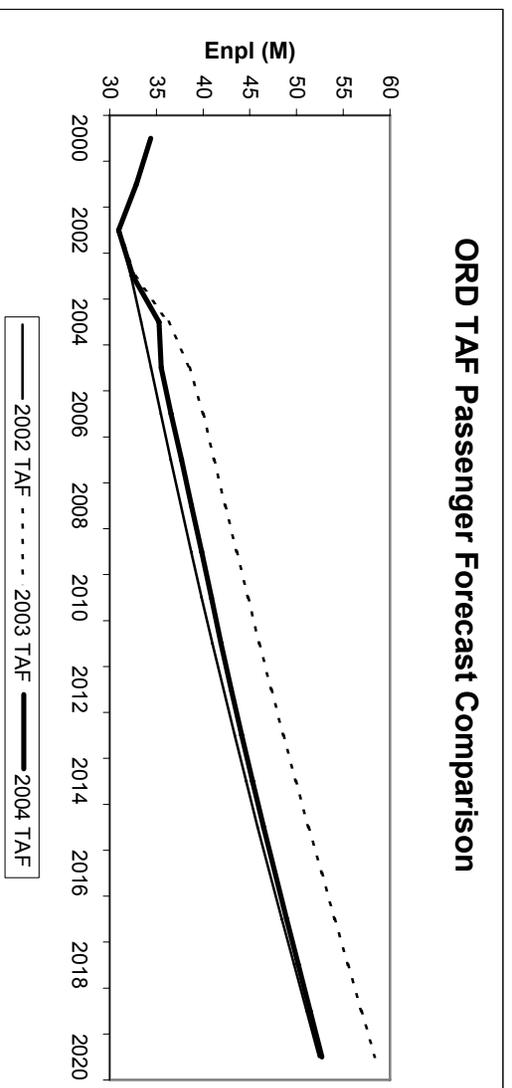
71 - FAA rejects as totally unfounded the assertion that FAA improperly manipulated any of the analysis reported in the FEIS. The FEIS contains a full disclosure of the analyses conducted in relation to consideration of alternatives. Other than making an assertion, the commenter has not offered any specific evidence of the purported "manipulation". In 1984, opponents of O'Hare improvements asserted that the FAA kept "two sets of books" on the City's proposal. This claim was rejected decisively by the courts. Two decades later, their claim of data manipulation is equally without foundation or merit.

72 - FAA acknowledges that blended alternatives should be considered. As documented in the FEIS, the FAA carefully considered blended alternatives. For the reasons documented in the FEIS, a blended alternative was not selected as the preferred alternative.

74 - FAA's basis for using the 2002 TAF, and the consideration of subsequent published TAFs (2003 TAF and 2004 TAF) is explained in the FEIS and response to comments in the FEIS.

75 – The 2004 TAF was not manipulated downward. The methodology used to generate the passenger forecasts in the 2004 TAF was the same as has been used the TAF’s since the events of September 11, 2001.

76 - FAA does conduct a comprehensive review of recent airline activity and the future outlook (including socio-economic data) for each annual TAF. This process was done for the 2002 TAF, the 2003 TAF, and the 2004 TAF’s for ORD. The difference in the forecast passengers for ORD in 2020 between the 2003 TAF and 2004 TAF is almost entirely explained by differences in the forecast enplanements for 2004 and 2005. For the period 2006-20 the average annual growth rate in enplanements is forecast to be roughly the same, 2.6% in the 2004 TAF and 2.7% in the 2003 TAF (see chart below).



77 – The methodology that the FAA employed to develop the passenger forecasts for the 2002 TAF, the 2003 TAF, and the 2004 TAF for ORD was not exclusively based on “regression analysis of income and other local socio-economic variables”. In fact there is a fundamental difference in the FAA’s forecast methodology for developing near term (1 year out) passenger forecasts as opposed to longer-term (more than 1 year out) passenger forecasts. In general, the FAA develops its near-term passenger forecasts using future schedules published by the airlines (up to 12 months in the future) that are publicly available as a basis for activity (departures) and forecasted values of passengers per departure based on historic seasonal (month to month) patterns. FAA employs information contained in the actual airline schedules in its near-term forecasts as opposed to a methodology relying solely on modeling. Longer-term forecasts are generally based upon results of econometric models (regression analysis) relating passenger demand to a series of local or national socio-economic variables such as income or price (yield). The methodology described above was used to generate the passenger forecasts for ORD contained in the 2002 TAF, the 2003 TAF, and the 2004 TAF. The passenger forecast for 2005 contained in the 2003 TAF was generated using a number of econometric models relating income and yield to passengers. This was done primarily because

there was no information (future schedules) available about the level of activity (departures) in 2005 to incorporate into the generation of the 2005 passenger forecast at the time the 2003 TAF was done. This process was clearly explained in the document "ORD Forecast Methodology" contained in the 2003 TAF documents that were submitted as part of the FOIA request and was referenced by Campbell-Hill in exhibit F, Table F-1.

The passenger forecast for 2005 contained in the 2004 TAF was developed using future schedules as a basis for a level of activity (departures) and forecasted values of passengers per departure based on historic month-to-month patterns. This is explained in the document "ORD 04 Forecast Methodology" that was provided by the FAA on August 26, 2005 in response to the FOIA request. An examination of the future schedules at the time the 2004 TAF (found in worksheet "Domestic OAG" in the file ORD 04.xls that was also submitted in response to the FOIA request) indicated that year over year growth in total commercial departures at ORD was slowing down significantly from the rates experienced in FY 2004 (+7.9%), turning negative beginning in Nov 2004 and remaining negative through June 2005 (the last month future schedules were available to FAA). FAA believes that the information about the reduced levels of activity (departures) that was available at the time of the development of the forecast contained in the 2004 TAF provided reasonable grounds for the reduction in the forecasted growth of passengers in 2005 relative to the forecast passenger growth rate for 2005 found in the 2003 TAF.

78 – The documents provided by FAA on August 26, 2005 do provide supporting evidence and calculations for the 2004 TAF passenger forecasts, as well as the passenger forecasts contained in the 2002 and 2003 TAF. The detailed review that Campbell-Hill performed (Exhibit F) only focused on the local socio-economic factors as the basis for their conclusions. The FAA employed a methodology that included consideration of factors beyond local socio-economic variables (see response to point 77), and thus was more comprehensive than the analysis by Campbell-Hill. As a result, the commenter's conclusion that the 2004 TAF should have been higher than the 2003 TAF is incorrect.

In addition, the passenger data that Campbell-Hill cited in Exhibit F supporting the claim that the 2003 TAF passenger numbers were closer to actual passenger numbers (Chart 1 in Exhibit F) include non-revenue passengers that are not included in the TAF passenger forecasts.

79 – The documents provided by FAA on August 26, 2005 do provide supporting evidence and calculations for the 2004 TAF passenger forecasts as well as the passenger forecasts contained in the 2002 TAF and 2003 TAF. Examination of the documents provided shows that the same methodology was used to develop the passenger forecasts for the 2002 TAF, 2003 TAF, and 2004 TAF. This methodology can be replicated or recreated by independent experts.

80 – As described in the responses to points 77, 78, and 79 above, FAA believes there is sufficient data and substantiation for the reduction in the enplanements and operations forecasts from the 2003 TAF to the 2004 TAF.

81 – FAA believes that employing the methodology described in point 77 above would lead one to conclude that a properly calculated 2004 TAF would result in lower, not higher (as has been asserted by Campbell in the affidavit), numbers of enplanements and operations in corresponding years than the 2003 TAF. Additionally, the most recent data on passenger activity at ORD (12 months ended July 2005, as cited by Campbell in Exhibit F, Chart 1), indicate that the passenger forecast in the 2004 TAF, not the 2003 TAF, is closer to the actual passenger counts, providing further evidence that the reduction in passengers between the 2003 TAF and 2004 TAF was proper.

82A –The FEIS has an explanation of the development of the constrained forecast. FAA does not believe it is reasonable to assume that the “stop gap” schedule order would be or should be permanently in place at ORD. Arbitrarily assuming a lower level of flight activity would be a convenient way to reduce projected delays, but would not, in FAA’s view, result in accommodating forecast demand or meeting purpose and need.

82B – FAA has disclosed the delay savings in relation to the forecast adopted for the EIS, the 2002 TAF. The use of the 2002 TAF is fully explained in the FEIS.

82C – The FAA agrees that there will be an increase in unimpeded travel time as the proposed runways are located further from the terminal core area. However, the FAA respectfully disagrees with the commenter’s assertion that the full-build OMP-Master Plan will have a taxi time penalty of 6.5 minutes per operation. Based on the TAAM modeling completed by the FAA as part of the EIS, average unimpeded ground travel time increases by 4.2 minutes per operation. This increase in travel time occurs with a subsequent reduction in delay of 11.4 minutes per operation at the 2018 activity level for a net delay and travel time reduction of 7.2 minutes per operation. In addition, at the 2018 activity level the airport is able to accommodate 220,000 additional operations and 10,799,000 additional total passengers.

83/84 - FAA addressed Campbell’s discussion of “acceptable levels of delay” in both the main body of the FEIS and in the response to comments contained in Section U.4 of Appendix U.

85/86 - FAA disagrees with the commenter’s assertion that the time period of analysis for the EIS should be based on financial analysis guidelines. Please see response to Karaganis-Cohn’s September 6, 2005 comment regarding the same on page A.2-80 of this ROD.

87 - The FAA does not agree with the commenter regarding the EIS alternatives analysis. In addition, the items listed by the commenter are not “assertions” made by the FAA but conclusions based on the analysis presented in the Final EIS.

88 – 93 – The FAA has addressed the commenter’s concerns regarding the alternatives analysis in Chapter 3, Section 3.6 of the FEIS and Section 11 of this ROD.

94 – Comment noted.

95 – The FEIS explains the analysis used to determine Alternative C meets purpose and need. FAA rejects the notion that the analysis must be conducted using an alternative forecast developed by the commenter.

96-98 – The FAA addressed these comments in responding to previous comments submitted by Campbell-Hill on April 6, 2005, which can be found in Section U.4 of Appendix U of the FEIS.

99/100 - The review and analysis of derivative alternatives is documented in the FEIS and in this Appendix A for this ROD (see Flenning affidavit response). The commenter has suggested that alternatives should be re-evaluated, using the commenter's preferred level of delay for Alternative C. FAA rejects the commenter's basis for assuming average delay of 21.5 minutes for Alternative C. The average delay level for Alternative C has been thoroughly modeled and documented in the FEIS.

101-108 – The FAA has addressed the commenter's concerns regarding the alternatives analysis in Chapter 3, Section 3.6 of the FEIS and Section 11 of this ROD.

109-113 – The FAA has addressed these issues in Section 11 of this ROD.

115 - FAA has considered the potential use of other hubs, in both the body of the FEIS and in several responses to comments in the FEIS. FAA has concluded that the availability of capacity at another airport is not sufficient basis to assume that the airlines using ORD as a hub would decide to move or split their ORD hub. In fact, in the past several years airlines have exhibited a greater tendency to consolidate operations at their main hubs, rather than spread connecting operations over multiple new hubs.

116/118 - The commenter has referred to high yields for connecting passengers at other hubs. The commenter has not offered comparative data on yields. The commenter offers a list of airports that are asserted to be attractive as alternative hubs to ORD. FAA does not believe that the main hubbing airlines at ORD would agree. For example, American reduced connecting activity at STL, which is a location the commenter offers as an attractive alternative.

119 - The commenter asserts that the geographic location of hubs is irrelevant to their suitability as an alternative for airlines hubbing at ORD. FAA disagrees with this assertion. In any event, the focus of FAA's assessment was other mid-continent hubs.

120 - The comment expressed here is, in the judgment of the FAA, inconsistent with the prevalent consensus within the aviation industry as to the economic benefits of major airport improvement projects. Moreover, this comment is diametrically contradictory to the author's 2002 report "The National Economic Impact of Civil Aviation". There the report concluded,

“more aggressive investment in civil aviation infrastructure is not only justified by benefits/cost analysis – it is also essential to the well being of the U.S. economy and its citizens.”

121/122 - The FAA responded to Campbell-Hill's detailed comments regarding the use of other mid-continent hubs as an alternative in FEIS Appendix U, beginning on page U.4-586. With regard to the moving of information on mid-continent hubs from EIS Appendix C to Chapter 3, FAA believes the commenter has “over-interpreted” the refinements to the organization of sections in the FEIS. FAA simply decided that it made the most sense for clarity of presentation to move the text regarding mid-continent hubs from Appendix C to Chapter 3.

123/124 - FAA previously responded to this comment in the FEIS, beginning on page U.4-587.

125-128 - The commenter disagrees with the FAA opinion that significant connecting flow is a key to the success of the ORD international gateway. The commenter appears to dismiss ATL as a relevant comparison, in terms of local-connect ratio, for, among other reasons, the following key reason: “because of geography and history it is Delta’s largest system hub”. This directly contradicts comments offered by the commenter in this same document:

- Comment 119—this comment seems to indicate the commenter’s opinion that geographic location is irrelevant to airline hubbing decisions.
- Comment 118—this comment seems to indicate the commenter’s opinion that “historical function as a connecting hub” is not a key factor.

In summary, the commenter states in comment #127 that ATL is not a valid comparison due to “geography” and “historical function”. However, in earlier comments, the commenter has dismissed each of these factors. Thus, FAA does not find the commenter’s arguments compelling.

The commenter offers Toronto as a more valid comparison. However, Toronto is not in the United States, and subject to different bilateral trade agreements and government regulations. FAA does not believe that it is valid to use Toronto as a comparable to ORD for the purpose of evaluating international gateway status.

129 - FAA has provided a summary of the “LAX example”, and reasons why this is different from the ORD situation in the FEIS beginning on page U.4-595.

130-131 - The commenter asserts that “the geographical spread of a population should not effect the FAA’s consideration of alternatives...” FAA does not agree with this assertion. Taken to its logical extreme, this assertion would imply that airlines should be expected to use any available airport, regardless of the incidence of demand in the area around that airport. This is simply not consistent with reasonable business practices. Every regional situation is unique, and needs to be considered in determining what is reasonable to assume regarding airlines’ use of various airports. In the FEIS, FAA has presented data on various regions, and explained why

FAA has concluded that it is reasonable to assume that ORD will continue to be a major focus of airline activity in the Chicago region. Compare, for example, the different population densities surrounding regional airports as shown in Exhibits 3-3 and 3-4 of the FEIS.

132 - The commenter seems to assert that it is wrong to recognize the differences between airports. FAA believes that it is important to consider the particular local and regional circumstances associated with any airport for which improvements are proposed. In fact, the commenter's arguments elsewhere in the comment document repeatedly refer to differences at individual airports (e.g., the particular situation at ATL); this conflicts with the apparent assertion in this comment that unique airport circumstances should not be considered.

133 - FAA believes that the airlines are the ultimate judges of strategic viability. The U.S. aviation market is deregulated, and airlines are free to serve the markets of their choice. The two main hubbing airlines at ORD—United and American—have indicated their support for OMP, as a means of accommodating future demand in both local and connecting passengers. While Campbell-Hill may have an opinion that increased capacity is not necessary to support the hubbing activities of these airlines, United and American are on record as stating that such increased capacity is necessary.

The commenter has stated that FAA has not offered analysis to demonstrate that a reduction in connecting activity would weaken the viability of the hub. FAA has in fact provided the following evidence and analysis:

- the unconstrained demand forecast prepared by FAA, which indicates the level of future activity expected by FAA to be associated with the continued development of the ORD hub
- statements by United and American, indicating that increased capacity at ORD is necessary to support the continued development of the hub—not providing this capacity would conversely result in a compromise of the airlines' hub development plans

In fact, the shortfall in analysis is from the commenter—the commenter has not offered compelling evidence that airlines would choose or otherwise prefer an alternative to the development of the ORD hub. For example, in the response to comments on the DEIS, FAA provided the example of STL—American reduced its hub and focused activity on ORD. The commenter has not offered any evidence that American would reverse this decision and suddenly begin moving hub operations from ORD to STL.

134 - FAA does not find the comparison of ORD to JFK compelling. The market conditions, airport locations, and population characteristics in the New York region and the Chicago region are substantially different.

135 – FAA has adequately and responsibly evaluated alternatives and assessed financial feasibility and environmental impacts, contrary to the commenter's assertion. The FAA has addressed this comment in its thorough evaluation of reasonable alternatives in the FEIS.

The commenter asserts that "regional solutions" in Los Angeles and Boston should be used as a model for Chicago. In the FEIS, FAA provides the reasons why the Chicago region is different from the Los Angeles region, and therefore why the regional airport solutions are necessarily different. Moreover, as noted earlier, the FAA responds to the airport sponsor's proposal for improvement. Thus, the particular path selected by Los Angeles and Boston recently, and Chicago in 1984, evidenced a respect for the limited expectations of physical improvements. Such respect for the role of the sponsor is equally appropriate when that sponsor, as is now true in Chicago, has adopted a more expansive and ambitious approach to airport improvements.

136/137- The commenter asserts that FAA "has no basis" for conclusions regarding the use of multiple airports in a region. FAA presented data in the FEIS on multi-airport regions, and this is the basis for FAA conclusions. The commenter has not provided compelling alternative evidence that would produce reasonable alternative conclusions. The commenter's opinion is supported instead by statements such as "could simply be", which does not, in FAA's view, represent compelling evidence. Anything "could simply be", but this does not mean there is a logical reason for it.

The commenter cites examples of multi-airport regions (Los Angeles, San Francisco, Washington/Baltimore, New York, and Chicago). These were all considered by FAA. The commenter does not offer any data or analysis related to these multi-airport regions which would refute the conclusions reached by FAA.

138/139 - The commenter asserts that capitalized interest should be included as a capital cost. FAA has responded to this comment in the FEIS. To further clarify, FAA understands that capitalized interest is a cost associated with the implementation of OMP. This cost has been included as a financing cost in the financing plan for OMP. To include capitalized interest as a capital cost would be a "double-count" of this cost, as it has already been included as a financing cost. This has been explained in the FEIS, beginning on page U.4-562.

140 - The commenter has cited data from FASB. This is interesting, but does not change the fact that capitalized interest has been accounted for in the OMP financing plan.

141/142 - The FAA's understanding of capitalized interest does not comport with that of the commenter.

143 – The FAA does not agree with Campbell-Hill's analysis.

144 - The commenter asserts that FAA has asserted that interest expense during construction should not be capitalized. This assertion is simply wrong. FAA has stated that the OMP

financing plan includes interest capitalized during construction, and has reported the amount of this capitalized interest. What FAA has stated is that it would be incorrect to include such capitalized interest as both a capital cost and an interest cost. See FEIS response to comments.

145 - The commenter asserts that the City did not include the cost of interest during construction. The FAA addressed this comment in the FEIS response to comments.

146/147 - FAA directs the commenter to response to comment 20 of this document.

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Comment	Response
Attachment 3 to Karaganis-Cohn	The FAA's response to Mr. Fleming's affidavit appears immediately following the last page of the affidavit.

Affidavit of Kenneth Fleming

Kenneth H. Fleming, first duly sworn on oath, deposes and says:

1. I currently serve as Director, Air Traffic Management Research at the School of Aviation, Embry-Riddle Aeronautical University, in Daytona Beach, Florida. Embry-Riddle is one of the world's preeminent institutions on the science, practice and business of aviation, aerospace, and related technologies.

2. I have a Ph.D. in Economics from the University of California at San Diego.

3. Since 1988, I have been a tenured professor at Embry-Riddle Aeronautical University, serving first as Chairman of the Department of Business Administration (1988-1994) and from 1994 to the present as Director, Air Traffic Management Research at the School of Aviation at Embry-Riddle.

4. From 1982 to 1988, I served on the faculty of the United States Air Force Academy at Colorado Springs, Colorado - first as Chairman and Professor, Department of Economics at the Air Force Academy (1982-1986) and then as Vice Dean of the Air Force Academy (1986-1988).

5. From 1979-1981, I served as Commander of the 704th Tactical Air Support Squadron, United States Air Force and from 1981-1982 as Assistant Deputy Commander for Operations, 601st Tactical Control Wing, United States Air Force.

6. My expertise at Embry-Riddle is in a wide variety of areas involving air traffic control and air traffic management.

7. During the past ten years, I have been involved in a multitude of programs where modeling and simulation technologies were used to assess and evaluate airspace and airport operations, delay and capacity issues, and the development of national airspace procedures. These initiatives included funded research programs

for the Federal Aviation Administration, NARI, Lockheed Martin Corporation, Boeing Corporation, Harris Corporation, Honeywell Corporation, NASA Ames Research Center and NASA Langley Research Center, as well as numerous other customers with a requirement for economic or operations research-oriented analysis in aviation and airspace systems and facilities.

8. At the present time I lead a group of 15 research analysts and computer programmers at Embry-Riddle who are actively participating in applied aviation research projects with Boeing, NASA, and the FAA. I have been the principal author or co-author of over 17 reports over the past six years that have dealt with all aspects of aviation and airspace management.

9. In addition to my academic qualifications and experience, I am a former United States Air Force pilot with over 3,000 hours in nine different aircraft, including bombers, transports, and single-seat fighters.

10. I, along with my colleagues, Mr. Joseph Del Balzo (former Acting Administrator of the FAA) and Mr. William Marx (a former senior FAA air traffic management expert), have been retained by the municipalities of the Village of Bensenville and Elk Grove Village to examine issues relating to Chicago's proposed "O'Hare Modernization Program" (OMP), including proposed and alternative runway configurations, impacts on air traffic and airspace congestion, evaluation of alternatives to the OMP, and the FAA's Final Environmental Impact Statement.

11. The FAA's Final EIS states that the FAA is required, pursuant to its own Orders, to examine all "feasible and prudent" alternatives, which, according to FAA requirements, "involves a study of those alternative that are practical or feasible from the technical and economic standpoint and using common sense." See, FEIS page

ES-18 ("[an alternative] may not be prudent, however, because of safety, policy, environmental, social, or economic consequences." FAA Order 5050.4A, paragraph 83b.

12. In addition to the requirements of NEPA and FAA Orders, the FAA has conceded the application of the Religious Freedom Restoration Act to the OMP, concluded that approval of the City of Chicago's Preferred Alternative will substantially burden the St. Johns United Church of Christ cemetery and acknowledged that RFRA requires that FAA must determine that the OMP is "the least restrictive means" to further a compelling governmental interest.

13. In my expert opinion, the Preferred Alternative is the least prudent and feasible alternative and, moreover, there are a number of viable, prudent and feasible alternatives that will accomplish the FAA's stated purpose and need better than the Preferred Alternative without the destruction of the cemeteries and the communities.

14. In my analysis of the OMP and alternatives, I have focused on the availability of alternatives to the Preferred Alternative (Alternative C) including "blended alternatives." "Blended alternatives" are alternatives which involve a combination of actions including some level of runway and taxiway facilities at an airport such as O'Hare in conjunction with the use of what FAA calls "congestion management" techniques to manage delays to acceptable levels and combined with the use of other airports to carry the excess traffic that would otherwise use the airport if there were no constraints on capacity.

15. Blended alternatives are feasible for Chicago O'Hare, are currently in use at O'Hare, are in widespread use by the FAA in several metropolitan areas of the United States including New York's LaGuardia Airport and Washington D.C.'s Reagan Washington National Airport, and have been recently approved by the FAA in the recent Record of Decision approving the Airport Layout Plan for Los Angeles

International Airport (i.e., relying on Los Angeles International Airport in combination with other local Los Angeles airports).

16. Alternatives H-L of the alternatives identified and described in the April 6, 2005 and May 6, 2005 submissions to the FAA by the communities of Bensenville and Elk Grove are all blended alternatives which would control delay to acceptable levels and also handle forecast growth and meet the FAA's stated purpose and need without the destruction of the cemeteries and the communities.

17. Based on the delay analysis set forth by the FAA in the FEIS and using more current 2003 or 2004 Terminal Area Forecasts (TAF), it is my expert opinion that (A) Phase One of the OMP will reach gridlock with delay at or exceeding historic high levels on opening day and (B) the full OMP will, using the 2003 TAF, reach gridlock with delay at or exceeding historic high levels within a year of opening day and, using the 2004 TAF, will reach gridlock within five years of opening day. As a result, both OMP Phase 1 and the full OMP will require some form of congestion management to reduce delays and congestion (as is being done today at O'Hare) and reliance on use of other airports to accommodate future demand (i.e., a "blended alternative").

18. I have met with senior air traffic control representatives of the O'Hare Air Traffic Control Tower and discussed various aspects of the OMP proposal and alternatives to the OMP proposal.

19. The air traffic controllers expressed to me and my colleagues serious reservations about the safety, efficiency and utility both of OMP Phase 1 and the Preferred Alternative approved by the FAA. The Transportation Code does not permit approval of ALPs that would "affect adversely the safety, utility or efficiency of the airport" (49 U.S.C. Section 47107(a)(16)).

20. The description of the controllers' expressed concerns were set forth in the April 6, 2005, May 6, 2005 and September 6, 2005 submissions to the FAA by the Community and Religious Objectors and those are true and accurate descriptions of the O'Hare Tower controllers' communications to me. The controllers raised serious safety concerns about the elimination of the two critical existing cross-wind runways which will create unsafe conditions during high wind/inclement weather conditions which are prevalent in Chicago, particularly during the winter months. They also expressed concerns about the substantial increase in the number of active runway crossings which will inevitably create the potential for accidents due to runway incursions.

21. Alternative L-1 which was presented to FAA in the Communities' April 6, 2005 and May 6, 2005 submissions to the FAA, is a true and correct reflection of the alternative that the controllers developed and preferred over Phase One of the OMP and the OMP.

22. I have reviewed the FAA's discussion of Alternatives to the Preferred Alternative and the FAA's rejection of every alternative other than the Preferred Alternative and in my expert opinion the FAA's conclusions are without foundation and are technically and factually incorrect.

23. I have examined the FAA's statements and conclusions concerning Alternatives L-1 and L-2 in the Final EIS. The FAA agreed that both of these alternatives are "potentially feasible." However, the FAA rejects these alternatives because, according to the FAA:

"they are most likely to yield less delay savings than Alternative B. Alternative B was found not to meet purpose and need. Therefore Commenters' Derivatives L1 and L2 would not meet purpose and need."

The FAA rejected any further consideration of L1 or L2 because — like Alternative B— the FAA stated that it rejected any alternative that would not meet “unconstrained demand.” Since, according to the FAA, only alternatives C, D and G would meet “unconstrained demand” — every other alternative that would not meet “unconstrained demand” was rejected by FAA.

24. However, a critical defect in the FAA’s analysis is its arbitrary decision to limit its analysis of Alternatives C, D, and G to an unreasonably short time period of only five years after completion of the OMP. Had the FAA conducted analysis beyond five years, the FAA would have necessarily found that neither Alternative C (Chicago’s proposal and the FAA’s preferred alternative) — nor Alternatives D and G — would accommodate unconstrained demand at an acceptable level of delay.

25. The FAA would have also found that the FAA would be required to use a “blended alternative” as part of Alternative C — *i.e.*, the use of demand management and the use of other airports to meet the Forecast Demand. The FEIS stated no basis for using such a short time period of analysis. With respect to AIP discretionary funding, which is an essential element of the OMP financing plan, the FAA requires a time period of analysis of 20 years from project commencement (*i.e.*, 20 years from 2013). Further, the FAA specified the use of a time period of analysis through 2030 in its 2002 master planning grant for the OMP.

26. In the FEIS, the FAA asserts that the FAA does not have the authority to implement a “blended alternative” for O’Hare, *i.e.*, the use of O’Hare with various runway configurations in conjunction with congestion management and the use of other airports to handle excess traffic demand.

27. I strongly disagree with that assertion by the FAA. The FAA has the authority to adopt a blended alternative and has done so on a number of occasions. It is

currently using blended alternatives in metropolitan areas throughout the country. Further, as I noted above, both Phase One and the full OMP will experience historic levels of delays (using either the 2003 or 2004 Terminal Area Forecast) shortly after the projects are completed, which will necessitate resumption of the existing congestion management combined with the use of other airports to handle excess demand (*i.e.*, a blended alternative). Thus, after the communities and the cemeteries are destroyed and billions are spent reconfiguring the airport, the airport will be in worse condition than it is today with massive delays and congestion.

28. Before I undertake a detailed analysis of the FAA comments on the various alternatives (H-M and the derivatives), I preface my observations by noting that the FAA has agreed that all of these alternatives are “potentially feasible.” There is no question that these alternatives are technically feasible; *i.e.*, they can be safely implemented and operated by the FAA.

29. I have examined the FAA’s criticisms in the FEIS of alternatives that would involve shortening Runway 10C to avoid the destruction of the St. John’s cemetery and it is my expert opinion, as discussed in detail below, that the FAA’s conclusions are factually and technically wrong and its rejection of such non-destructive alternatives is unsupportable and without merit.

30. In the following paragraphs, I identify the FAA’s comments in the FEIS and provide a detailed response.

31. FEIS discussion of Derivative C1 –Alternative C with No Runway 10C (Section 3.6.2.1, pg. 3-74, par. 1,2,3,5,6).

31.1 FAA Statement. “While Derivative C1 (five East/West parallels) has the capability to absorb some of the hourly flights lost in the VFR and IFR West primary operating configurations represented in the original alternative, not all of the operations can be accommodated without a higher level of delay.”

Response. The FAA's conclusion is erroneous and misleading. The FAA fails to acknowledge that all alternatives — including Alternative C (preferred alternative), and Alternatives D and G — will exhaust all delay savings within a few short years and will correspondingly run out of capacity. The difference between the alternatives will be in the number of operations handled at a given level of delay (i.e., whatever level is determined by the FAA as acceptable).

- 31.2 FAA Statement.** VFR and IFR East primary operating configurations do not have the ability to accommodate a greater level of traffic.

Response. The FAA is mistaken. This alternative configuration would allow for triple approaches in both IFR and VFR conditions which will produce significant reductions in delay and increases in capacity.

- 31.3 FAA Statement.** All operating configurations under this scenario do not support four arrival runways in a balanced airfield operation.

Response. Quadruple IFR arrivals are not technically feasible today, and there is no timetable when quadruple arrivals would be technically feasible. Discussions with local controllers at O'Hare indicate that triple arrivals and departures are all that is needed for a significant reduction in delay and increases in capacity. The FAA is not relying on quadruple approaches in its capacity/delay modeling.

- 31.4 FAA Statement.** The former runway pair of Runways 10C and 10L are no longer coupled operationally during IFR weather. During IFR weather, Runway 10C and 10L must be operated in a sense as one runway, while the pair Runway 10L and Runway 10R can be operated independently.

Response. Since runways 10C and 10L are only projected to be 1200 ft. apart in the preferred alternative, then they would have to have been operated in IFR conditions (by the ordinary rules of separation) as if they were one runway anyway. So from that point of view, the statement makes no sense. Operating 10L and 10R independently is exactly what alternative C-1 would allow, and therefore provides maximum air traffic flexibility between these Runways without destroying the cemeteries.

- 31.5 FAA Statement.** "It appears that the absence of this 10,800 foot runway would require an extension to proposed runway 10R/28L of at least 1,000 feet to

accommodate a majority of the forecast fleet mix. Because of existing Runway 4R/22L, such an extension of Runway 10R/28L could only be accomplished on the west side of the runway requiring additional land acquisition in the Bensenville area." (pg. 3-75, par 1,2).

Response. This is not correct. 10R/28L would be used as primarily an arrival runway and not as a departure and arrival runway. Many airports have dedicated arrival and departure runways, and there is no particular reason that they be of equal length. As an arrival runway, the principal requirements would be the landing requirements for the aircraft that would use the runway. Landing requirements are considerably less restrictive than take off requirements. Using the table that was developed in the original OMP concept submitted to the FAA in February 2003 (pg. II-7, table II-5), the only aircraft that would be precluded from landing on this runway under restrictive landing conditions (i.e., wet runway, maximum landing weight) would be the B737-800, the B747-400, and the A380 (proposed). Therefore, there is no need to extend runway 10R/28L to the west or acquire any new land.

- 31.6 FAA Statement.** "Because of the separation distances required for taxiway clearances and other restrictions it is not feasible to widen to 200 ft. any other propose runway that as long enough to handle NLA."

Response. This is an absurdly incorrect statement. It is perfectly feasible to widen runways and move taxiways. It is also true that the requirements for the new large aircraft have not yet been determined so that this objection may not be valid at all. As in the above discussion, the savings from the non-construction of the extra runway would clearly suffice to make this alteration feasible.

32. The FEIS discussion of Derivative C2-Alternative C with Runway 10C Shortened to 7500' (3.6.2.2).

- 32.1 FAA Statement.** "Runway 10C/28C is envisioned as a primary (only one of two on the proposed airfield) runway for group VI aircraft. Reducing the length to 7500 ft. would eliminate this runway from consideration for those aircraft. All group VI

aircraft would be restricted to the north side of the airport and utilize proposed runway 9C/27C."

Response. This is false and misleading. Many airports have dedicated arrival and departure runways, and there is no particular reason that they need to be of equal length. 10C/28C would be an arrival runway only so that the principal requirements would be the landing requirements for the aircraft that would use the runway. And, landing requirements are considerably less restrictive than take off requirements. Using the table that was developed in the original OMP concept submitted to the FAA in February 2003 (pg. II-7, table II-5), the only aircraft that would be precluded from landing on this runway under restrictive landing conditions (i.e., wet runway, maximum landing weight) would be the B737-800, the B747-400, and the A380 (proposed). Therefore, the problem of heavy jets landing on 10C would be eliminated by procedure and they would naturally be replaced by lighter jets.

The second part of a statement is manifestly incorrect since both Group VI aircraft and new large aircraft would be able to use 10L for departure -- and this is clearly on the south side of the airport.

- 32.2 FAA Statement.** From a proposed runways use perspective, FAA air traffic would operate this layout in the same manner as Alternative C. However, due to the proposed shortening of the runway and supporting taxiway network, operational issues would be significant.

Response. This is essentially a meaningless statement unless the supposed operational issues are detailed and made clear. It should be recalled that this configuration is essentially the same as that of the preferred alternative, so whatever "operational issues" are alleged to exist in this alternative, are also likely to be present in the preferred alternative.

- 32.3 FAA Statement.** "Runway 10C/28C would be an arrival runway on any east flow operation. Movement of aircraft west of the approach and of Runway 10C would be impossible while other aircraft arriving Runway 10C, due to requirements to remain clear of protected surfaces."

10

Response. This is exactly the same as the situation in the preferred alternative, so whatever concerns are applicable to this alternative apply to the preferred alternative.

- 32.4 FAA Statement.** The addition of Precision Object Free Zone (POFZ) and Runway Protection Zone (RPZ) restrictions would require arrival aircraft from Runway 10R and Runway 10C to cross Runway 10L at taxiway ZT or further east. This is incompatible with the operation of the runways as conceived, and would provide a significant reduction in the number of departures on Runway 10L with the introduction of up to 60 arrivals crossing Runway 10L per hour in the last 1/3 of the runway.

Response. Runway crossings present the same operational problems in both this and the preferred alternative. This is exactly the same situation as the situation in the preferred alternative since the projected operational configuration (take off and landing directions) is the same in both alternatives. It does not matter where the runway crossing takes place since the air traffic control situation is precisely the same as far as take off aircraft is concerned. In other words, the take off aircraft must be held in place until the runway crossing has been accomplished. For that reason, runway crossings present the same operational problems in both this and the preferred alternative. Therefore, the second part of the statement is either meaningless or applies equally to the preferred alternative.

- 32.5 FAA Statement.** Wake turbulence also plays a role in this runway layout. Heavy jet and Boeing 757 aircraft departures on runway 10L at the full-length could become a wake turbulence factor for runway 10C arrivals. In addition, Heavy and Boeing 757 aircraft assigned to arrive on Runway 10C would provide wake turbulence issues for Runway 10L departures.

Response. Wake turbulence from aircraft that are taking off dissipates quickly and depends strongly on prevailing weather conditions and type of aircraft. For example, the FAA's own advisory circular on aircraft wake turbulence (see Advisory Circular, Aircraft Wake Turbulence, AC No.: 90-23E, Date: Feb. 20, 2002, Initiated by AFS-430) has the following statement: "Tests with large aircraft have shown that the vortices remain spaced a bit less than a wingspan apart, drifting with the wind at altitudes greater than a wingspan from the ground.... flight tests have shown that the vortices from larger (transport category) aircraft sink at a rate

11

of several hundred feet per minute, slowing their descent and diminishing in strength with time and distance behind the generating aircraft." (AC, pg.5). And further: "A wake encounter is not necessarily hazardous. It can be one or more jolts with varying severity depending upon the direction of the encounter, weight of the generating aircraft, size of the encountering aircraft, distance from the generating aircraft, and point of the vortex encounter." (AC, pg. 7)

Wake turbulence is a concern when very large aircraft (or Boeing 757s) precede lighter aircraft on the same runway. And, although the FAA considers runways that are less than 2500 ft. apart as a single runway, it is clear that lateral (and horizontal) separation can be expected to reduce the effect of wake turbulence. Moreover, with respect to this alternative the runways are offset by 1200 ft. and landing aircraft would be touching down at least 1000 ft. down runway 10C for a minimum separation of over 4200 ft. (from the start of take off roll on 10L) with the 1200 ft. offset. As a practical operational matter these facts will certainly contribute to the mitigation, if not elimination, of the wake turbulence issue as a substantive problem. The conclusion is clear – wake turbulence is not a safety or efficiency problem with respect to this alternative.

Problems with aircraft of the same or similar type do not cause as much difficulty as a heavy aircraft preceding a light aircraft and this is recognized by the reduced separation requirements for like following like on the same runway. Therefore, the real question would be the mix of aircraft that could be expected to use these runways. It is commonplace at airports throughout the nation that certain types of aircraft may be required to use specific runways. This is certainly the case at many existing airports and, as long as other aircraft are distributed to the remaining runways, the overall capacity and delay situation will not be adversely affected. In this case, heavy jets may opt for, or be directed to a different take off runway. Heavy aircraft and Boeing 757s will generally not opt to land on runway 10C but will rather select runway 9C which will give them approximately the same taxi time. And, even if they do not, the number of very large aircraft is considerably smaller

(as a percentage) than the smaller aircraft, so these circumstances will not arise that often in practice; that is, a heavy aircraft taking off with a lighter aircraft landing. Thus, the shortened runway is not unsafe or inefficient

Moreover, the same kind of concerns would apply with respect to the preferred alternative in its final form. That is, 10C is a primary arrival runway and 10L is a primary departure Runway, so aircraft landing on 10C would be exposed to the wake turbulence of aircraft taking off on 10L.

- 32.6 **FAA Statement.** "There would be no apparent method of routing Runway 10R departures to that runway. Runway 10R departures would need to cross mid-field with the Runway 10R and Runway 10C arrivals, significantly reducing the number of aircraft able to depart on Runway 10L. Under this scenario, it may not be viable to get to and from other runways other than to cross Runway 10L in the last 1/3 of the runway with the departures, and the last 1/4 with the arrivals."

Response. This is exactly the same situation as the situation in the preferred alternative since the projected operational configuration (take off and landing directions) is the same in both alternatives. It does not matter where the runway crossing takes place since the air traffic control situation is precisely the same as far as the take off aircraft is concerned. In other words, the take off aircraft must be held in place until the runway crossing has been accomplished. For that reason, runway crossings present the same operational problems in both this and the preferred alternative. Since they are similar in their operational consequences, there is no a priori reason that one of these situations would be worse than the other. However, and this is the critical point, the shortened runway will certainly be less expensive and will prevent the destruction of the cemeteries.

33. **Derivative C3-Alternative C with Runway 10C Shortened to 6900'**
(3.6.2.3).

- 33.1 **FAA Statement.** "The Derivative C3 is nearly identical in operational aspects to Derivative C2 with two exceptions. First, with respect to group VI aircraft, Derivative (total length of 6900' ft.) is operationally more restrictive than Derivative (total length of 7500'). Second, in a further shortened Runway 10C/28C

under Derivative C3, wake turbulence issues could be greater than under Derivative C2.”

Response. This statement is wrong for the same reasons discussed above with respect to the FAA's erroneous assertion with respect to Derivative C2.

The wake turbulence claim is wrong for the same reasons discussed above with respect to Alternative C3. Moreover, in the situation described above, and as pointed out earlier, it is not even the same runway that is being considered; that is, the runways are offset by 1200 ft. and landing aircraft would be touching down at least 1000 ft. down runway 10C for a minimum separation of over 4800 ft. (from the start of take off roll on 10L) with the 1200 ft. offset. As a practical operational matter these facts will certainly contribute to the mitigation, if not elimination, of the wake turbulence issue as a substantive problem.

Moreover, the same kind of concerns would apply with respect to the preferred alternative in its final form. That is, 10C is a primary arrival runway and 10L is a primary departure runway, so aircraft landing on 10C would be exposed to the wake turbulence of aircraft taking off on 10L.

34. Derivative C4-Alternative C with Runway 10C Shifted 350' South & Shortened to No Less than 10,300' (3.6.2.4).

34.1 FAA Statement. A preliminary Terminal Instrument Procedures (TERPs) analysis was completed as part of the early planning effort. The results of this analysis indicated that there is a small land envelope on a line running east/west between proposed Runway 10C/28C and Runway 10R/28L. Shifting the proposed Runway 10C/28C south would likely force an overlap of the TERPs services for Category II/III approaches to Runway 10R and Runway 10L. This could cause high minimums to be required on these runways impacting the operational efficiency of this runway during poor weather conditions.

Response. The FAA's reasons given for rejecting this alternative are completely without merit from an operations and efficiency standpoint. From any reasonable operational point of view, this is an entirely acceptable alternative that prevents the

destruction of the cemeteries and provides equal if not better operational capabilities than the preferred alternative.

(It is assumed that what is meant in this statement is that the Category II/III approaches mentioned are between runway 10C and runway 10R and not between runway 10R and 10L – otherwise, the statement makes no sense at all). The TERPs issue mentioned in the statement above is also a non-issue. Even if there were some slight overlap in the TERPs requirements, runway 10R is not envisioned as an arrival runway in IFR conditions. In fact, it is designated as a departure runway. Therefore, there is no need to be concerned about this problem.

The rationale presented in this paragraph for rejecting this alternative is a good example of the fact that the FAA has already reached its decision and is merely grasping for reasons to reject viable alternatives.

34.2 FAA Statement. “Initial traffic flow assumptions on the west configuration assume that departing aircraft on Runway 22L would not be airborne prior to crossing over the flight path of Runway 28C arrivals. In Alternative C, the original distance from the threshold of runway to be extended final is 2,400 feet. The movement of runway to the south does not provide a linear addition of length for the departure roll on runway 22L. The movement 350 feet south moves the intersection of the flight path about 450 feet southwest. The more the flight path crosses to the southwest, the greater the possibility of wake turbulence issues.”

Response. From any reasonable operational point of view, this is an entirely acceptable alternative that prevents the destruction of the cemeteries and provides equal if not better operational capabilities than the preferred alternative.

The wake turbulence issue that is mentioned is particularly unfounded -- for a number of good reasons. First, according to OMP's own figures (see Runway 12/30 “Proof –of-Concept” Evaluation, Table III-12, September 11, 2003, Ricondo & Assoc., Inc) VFR West flow occurs about 55% of the time, so the problem would not exist 45% of the time. Secondly, the FAA's own advisory circular on aircraft wake turbulence has the following statement: “A wake encounter is not necessarily hazardous. It can be one or more jolts with varying severity depending upon the

direction of the encounter, weight of the generating aircraft, size of the encountering aircraft, distance from the generating aircraft, and point of vortex encounter. The probability of induced roll increases when the encountering aircraft heading is generally aligned or parallel with the flight path of the generating aircraft." (see Advisory Circular, Aircraft Wake Turbulence, AC No.: 90-23E, Date: Feb. 20, 2002, Initiated by AFS-430). In this particular case, the runways do not intersect and, rather than a parallel flight path, there is a full 50° of offset between the aircraft taking off and the landing aircraft. Third, not only are the heavy aircraft a small percentage of the total number of aircraft to begin with, 22L is itself a relatively short runway, so heavy jet aircraft would not be inclined to select this runway for take off -- under either this alternative or the preferred alternative. Therefore, the number of heavy aircraft that could be expected to use this runway for take offs would be small under any circumstances.

Not only is possible wake turbulence between runways 22L and 28C not a significant problem, it is also true that the proposed shift of the runway 350 ft. south will undoubtedly improve wake turbulence issues between runway 28C and 28R. Unlike the offset that is present for runways 22L and 28C, these two runways (in the preferred alternative) are parallel and therefore subject to the greatest amount of wake turbulence. Although obviously not mentioned in the EIS, all of the proposed objections apply equally well to these runways in the preferred alternative -- including the fact that the take off roll for heavy aircraft on runway 28R starts some distance back from the threshold of 28C. Therefore, any increase in the lateral distance between these runways will improve the wake turbulence situation.

450 ft. of runway would not make any significant difference in respect of wake turbulence impacts between 22L and 28C. Aircraft can vary their position on the runway for take off and/or use a rolling take off with gradually increasing power and this clearly affects the duration and intensity of any wake turbulence that might be experienced in either this or the preferred alternative. Therefore, the method of take off in the preferred alternative could produce a similar wake turbulence issue.

- 34.3 FAA Statement.** Moving proposed Runway 10C/28C would require modification to the proposed south storm water detention facility.

Response. Modification of the water detention facility is a trivial issue when the size and expense of this project is considered. Even if this alternative is selected, are we to assume that the destruction of an entire religious cemetery is preferred to a relatively small and inexpensive alteration to an existing water detention basin? If so, a comparison of the costs of the two actions is clearly required (with special regard to the unique circumstances of the cemeteries) and this has not been forthcoming.

- 34.4 FAA Statement.** The proposed south cargo area would need to be modified and other areas on the Airport may have to be identified to make the facility requirement analysis.

Response. Modification of the south cargo area is a trivial issue when the size and expense of this project is considered. Even if this alternative is selected, are we to assume that the destruction of an entire cemetery is preferred to a relatively small and inexpensive alteration to the cargo area? If so, a comparison of the costs of the two actions is clearly required (with special regard to the unique circumstances of the cemeteries) and this has not been forthcoming.

- 34.5 FAA Statement.** By moving proposed Runway 10C/28C further away from the central terminal area, all aircraft arriving or departing on Runway 10C/28C would experience an increase in the unimpeded taxi time.

Response. Taxiing a mere 350 feet further is a monumentally trivial issue when the size and expense of this project is considered. Even if this alternative is selected, are we to assume that the relocation of an entire cemetery is preferred to this tiny increase in taxi time? If so, a comparison of the costs of the two actions is clearly required (with special regard to the unique circumstances of the cemeteries) and this has not been forthcoming.

- 34.6 FAA Statement.** "A modification to the airfield resulting in Runway 10C/28C shifting south of the proposed location in Alternative C could limit the ability of the airfield to support future quadruple approach procedures in IFR conditions, should quadruple IFR procedures be approved in the future by the FAA."

Response. Quadruple IFR approaches are not at all likely any time in the foreseeable future and, at such time as they may be feasible, it is entirely likely that the necessary technology would overcome the reduced separation distance, especially since the separation distance has been reduced by only 350 ft.

35. Derivative C5-Alternative C with Runway 10C Shifted 450' South & Shortened to No Less than 10,300' (3.6.2.5)

35.1 FAA Statement. The comments on Derivative C5 are nearly identical to those previously mentioned concerning Derivative C4 with two exceptions. First, the movement 450 feet south (in Derivative C5) moves the intersection of the flight paths about 550 ft. southwest. This is approximately 100 ft. greater than in Derivative C4. The more the flight path crosses to the southwest, the greater the possibility of wake turbulence issues. Second, moving the runway 450 ft. south (compared to alternative C4 at 350 ft.) would further increase the unimpeded travel times.

Response. The wake turbulence issue that is mentioned is particularly unfounded for the reasons mentioned above.

Not only is possible wake turbulence between runways 22L and 28C not a significant problem, it is also true that the proposed shift of the runway 450 ft. south will undoubtedly improve wake turbulence issues between runway 28C and 28R. Unlike the offset that is present for runways 22L and 28C, these two runways (in the preferred alternative) are parallel and therefore subject to the greatest amount of wake turbulence. Although obviously not mentioned in the EIS, all of the proposed objections apply equally well to these runways in the preferred alternative -- including the fact that the take off roll for heavy aircraft on runway 28R starts a couple of thousand feet back from the threshold of 28C. Therefore, any increase in the lateral distance between these runways will improve the wake turbulence situation.

550 ft. of runway would not make any significant difference with respect to wake turbulence between 22L and 28C. Aircraft can vary their position on the runway for take off and/or use a rolling take off with gradually increasing power and this

clearly affects the duration and intensity of any wake turbulence that might be experienced in either this or the preferred alternative. Therefore, the method of take off in the preferred alternative could produce a similar wake turbulence issue. This kind of statement would have to be backed up (at a minimum) by extensive tests and assumptions about the wind direction and duration, and the type and number of aircraft that could be expected to use runway 22L throughout the year. Needless to say, none of these calculations were made to support the statements in the EIS.

Indeed, wake turbulence (if any existed) could be reduced by this change because the two parallel runways in the preferred alternative are now further apart -- in this case by 450 ft.

36. Commenters' Derivatives L-1 and L-2. (3.6.1.3, pg. 3-65).

36.1 FAA Statement. "Commenters' derivatives L-1 and L-2 represent refinements to alternative B presented earlier in this chapter 3. Commenters' derivatives L-1 is a refinement of Alternative B, with the difference being the northernmost runway is moved to a southern position. Commenters' derivative L-2 is also a refinement of alternative B, with the differences being the northernmost runway is moved to the south, and the new runway 10C is moved to the north. As stated previously L-1 and L-2 represent Limited Build derivations of Alternative B."

Response. Neither L-1 nor L-2 is a derivative of Alternative B. In our discussions with the active local controllers from O'Hare, they continually pointed out that Alternative B (or the presently proposed Phase One of the OMP) contains a far north runway that will seriously affect the operation of runways 4L, 32L and 32R. The controllers told us the following concerns about Phase One (Alt B).

The controllers characterized Phase One of the OMP as consisting of adding a far north runway as well as a new parallel runway just south of the current runway 9R. If for any reason the OMP project were to cease at Phase One, the controllers stated that there would be virtually no additional capacity added to the existing operation for the following reasons: The far north runway in the OMP is planned for use as the third arrival runway in all weather conditions. If the far north runway was

opened and used as an arrival runway, the controllers stated that the arrival paths of aircraft landing on this runway would block the departure paths of runways 4L, 32L and runway 32R. The result would be no departures off the airport while this runway was in use. If departures were stopped, a gridlock condition would quickly occur on the taxiways. The only way to fix this problem would be to discontinue the use of the north runway for arrivals so that aircraft could depart. Even when the new departure runway (the east/west parallel south of the current 9R) became operational, there would not be enough departure capacity available to keep a balanced flow of arrivals and departures. For this reason, the far north runway would not be used until later phases of expansion kicked in and additional departure runways became available.

The O'Hare controllers advised us that "L-1" and "L-2" are much better alternatives than Phase One of the OMP. As does Phase One, both options add two new runways to the existing airfield. However, the physical location of these two runways differ from Phase One, and their location allows for both three arrival runways to be in use as well as two to three departure runways in all weather conditions.

In "L-1", the third arrival runway is located on the far south boundary of the field. The location of this runway means that the departure paths for runways 32L, 32R and 4L are unrestricted while the three east-west parallels are available for arrivals. In addition, L-1 adds an additional east-west parallel, just south of the current runway 9R. This runway would also be used for departures, insuring an equal flow of arrivals and departures. An estimated 120 arrivals an hour and 120 departures an hour could be maintained in all weather conditions. Weather delays present today would be eliminated.

"L-2" also provides for a better scenario than an OMP which stopped after Phase One. This plan also locates the third arrival on the south side of the field, providing three arrival runways in all weather conditions and leaving the north runways (32L,

32R and 4L) available for departures. Layout 2 also adds an additional departure runway, but on the north side of the field, just north of the current 9L. While the location of this runway makes it available for departures, it also crosses departure runways 32R and runway 4L.

This creates an intersecting runway operation. A "gap shot" would also exist with 32L departures and 9L arrivals. Because of the intersecting runway operations by positioning this new runway on the north side, both arrival and departures rates would be less than the L-1 option.

As the foregoing clearly shows, it is disingenuous to claim that alternatives L-1 and L-2 are simply a variation of Alternative B. Such a claim allows the unnamed authors of the Final EIS to compare the viable alternatives of L-1 and L-2 to an inefficient alternative (Alternative B) that was purposely selected to make the comparison as unfavorable as possible.

- 36.2 FAA Statement.** "As noted by the commentators, these derivatives could potentially, eliminate the need to acquire properties in Elk Grove Village, Bensenville, and the two cemeteries;" (3.6.1.3, pg. 3-65).

Response. It will eliminate this need to acquire properties in Elk Grove Village, Bensenville, and the two cemeteries.

- 36.3 FAA Statement.** "Western terminal development would not be precluded with these derivatives, but runway 14R/32L would remain and would create a natural barrier to terminal development on the airfield."

Response. The first part of this statement is an admission that the alternatives that we have presented are perfectly compatible with the development of a Western terminal. However, it is precisely the development of this terminal that is being openly questioned in the media and by the airlines that are supposed to fund its development. At this point, it is highly unlikely that the Western terminal will actually be constructed. Retaining Runway 14R/32L means that O'Hare would have a viable crosswind runway when wind and weather conditions would

otherwise dictate a partial or complete closing of the airport. As it is now proposed, the OMP would deprive the airport of this crosswind runway capability, which as the pilots have confirmed, is essential to safe and efficient operations at O'Hare -- particularly during adverse conditions such as bad wind and weather conditions. Loss of the existing crosswind runway capability means the airport will be unable to accept traffic during high crosswind conditions when it safely operates today with more optimal runways, or the airport will have to ratchet down traffic flow during contaminated (e.g., wet or icy) runway conditions. The costs of such closures and/or delays can be extremely high and such closures are sure to happen given the prevailing weather conditions at Chicago. Therefore, it is our firm contention that the ability to keep O'Hare open under adverse wind and weather conditions is a compelling argument in favor alternatives L-1 and L-2.

- 36.4 FAA Statement.** "Due to parallel runway spacing, during weather conditions below a 4500 ft. ceiling and seven statute miles visibility, the operating configurations resulting from these derivatives would be limited to two arrival runways thus limiting the arrival capacity of the airfield to approximately 76 to 80 per hour which is equivalent to the IFR rate today"

Response. This statement is wrong. Existing regulations allow triple instrument approaches if runway separation is 5000 ft. (with no special equipment) and 4300 ft if: "A high-resolution color monitor with alert algorithms, such as the final monitor aid or that required in the precision runway monitor program shall be used to monitor approaches where: Triple parallel runway centerlines are at least 4300 but less than 5000 ft. apart and the airport field elevation is less than 1000 ft. MSL."(ATC 7110.65P, par. 5-9-7).

In this case there is over 7700 ft. separation between the central and northern approach runways and 4300 ft. between the central and southern runway; therefore, triple instrument approaches would be available for this alternative with the installation of the appropriate equipment. The air traffic controllers at O'Hare have advised us that this particular configuration would allow triple approaches in IFR conditions and this would result in a capacity of approximately 120 per hour.

The controllers told me that in "L-1," the third arrival runway is located on the far south boundary of the field. They stated that the location of this runway means that the departure paths for runways 32L, 32R and 4L are unrestricted while the three east-west parallels are available for arrivals. In addition, L-1 adds an additional east-west parallel, just south of the current runway 9R. This runway would also be used for departures, insuring an equal flow of arrivals and departures. The controllers stated that an estimated 120 arrivals an hour and 120 departures an hour could be maintained in all weather conditions and weather delays present today would be eliminated.

- 36.5 FAA Statement.** "Reducing the length of runway 10R/28L by approximately 1500 feet and shifting it to the east would cause the Runway Protection Zone for runway 10R to infringe on areas east of the Airport. At only 6095 ft. in length, this runway would not be used by as many aircraft as the FAA has projected for the Preferred Alternative, thereby making this runway only marginally useful and shifting much of that runway's traffic to other runways."

Response. This conclusory statement simply assumes that any infringement on the west or east of the airport would be equal in terms of the costs involved. This is manifestly not true since it is on the west of the airport that the most serious infringements will take place. The RPZ on the east would not require the destruction of any homes or any religious cemeteries and may be suitable for an "avigation easement" such as are proposed west of York Road.

The second part of the statement is wrong. Runway 10R is proposed principally as an arrival runway and not as a departure and arrival runway. As such, the principal requirements for this runway would be landing requirements for aircraft and these are considerably less restrictive than take off requirements. Using the table that was developed in the original OMP concept submitted to the FAA in February 2003 (pg. II-7, table II-5), the only aircraft that would be precluded from landing on this runway under restrictive landing conditions (i.e., wet runway, maximum landing weight) would be the B737-800, the B747-400, and the A380 (proposed).

Finally, the L-1 alternative discussed the option of extending the length of the runway to the west (beyond the 6095 foot length) for longer length — without the need to destroy any homes or the religious cemeteries.

- 36.6 FAA Statement.** “Both Alternative L-1 and L-2 retain the ‘runway triangle’ on the north side of the airport (current Runways 9L/27R, 4L/22R and 14R/32L) which would never allow the airport to achieve the efficiencies of the proposed OMP. This is because all three of those runways are ‘dependent’ upon each other, intersecting in ways that limit operations, and increase controller workload. In essence, any such proposal can only fine-tune the efficiency of today’s airfield.”

Response. The local O'Hare controllers do not agree with this statement at all, particularly with respect to alternative L-1. The controllers told me that in “L-1,” the third arrival runway is located on the far south boundary of the field. They stated that the location of this runway means that the departure paths for runways 32L, 32R and 4L are unrestricted while the three east-west parallels are available for arrivals. In addition, L-1 adds an additional east-west parallel, just south of the current runway 9R. They said this runway would also be used for departures, insuring an equal flow of arrivals and departures. An estimated 120 arrivals an hour and 120 departures an hour could be maintained in all weather conditions.

Moreover, retaining Runway 14R/32L means that O'Hare would have a viable crosswind runway when wind and weather conditions would otherwise dictate a partial or complete closing of the airport. As it is now proposed, the OMP would deprive the airport of this crosswind runway capability, which as the pilots have confirmed, is essential to safe and efficient operations at O'Hare -- particularly during adverse conditions such as bad wind and weather conditions. Loss of the existing crosswind runway capability means the airport will be unable to accept traffic during high crosswind conditions when it safely operates today with more optimal runways, or the airport will have to ratchet down traffic flow during contaminated (e.g., wet or icy) runway conditions. The costs of such closures and/or delays can be extremely high and such closures are sure to happen given the prevailing weather conditions at Chicago. Therefore, it is our firm contention that,

in addition to the controller's arguments presented above, the ability to keep O'Hare open under adverse wind and weather conditions is also a compelling argument in favor alternatives L-1 and L-2.

- 36.7 FAA Statement.** “Due to the length of proposed runways and their location, intersection departures would not be viable nor could Land and Hold Short Operations (LAHSO) be utilized. Therefore, every runway crossing would be across an active runway, thereby reducing efficiency.”

Response. This statement is wrong. Under both proposals L-1 and L-2 Runway 9R/27L would be extended to 13,150 ft. Local O'Hare controllers confirm that the majority of Land and Hold Short Operations can be accomplished with 6000 ft. of runway. The extension of runway 9R/27L allows for Land and Hold Short Operations in both directions on 9R/27L with 6235 ft. in the easterly direction and 6915 ft. in the westerly direction prior to the intersection of runway 14R/32L. Since the first part of the statement is incorrect, the second part is wrong as well.

37. Derivative L-1 -- East Flow (pg. 3-68, par.1).

- 37.1 FAA Statement.** This configuration would be comparable To Plan X (use of the specific set of runways as described in the Draft EIS) that is used today. See Appendix D, Simulation Modeling, Section D.3. It would provide marginal increases in the hourly operational throughput over Plan X. However, this configuration would neither reduce existing delays nor accommodate anticipated growth in aviation activity at the airport at acceptable levels of the delay.

Response. The plan is not directly comparable to plan X since there are two extra east-west runways and one of these can be used for continual departures, while the other one will provide another arrival runway for the majority of aircraft that would be using O'Hare. Moreover, the statement that it would provide marginal increases in the hourly operational throughput over plan X is not supported by any analytical model, simulation, or even hard numbers from expert opinion. It is also directly contradicted by the FAA analysis that was produced for the year 2009. In that analysis, the FAA compared the no action alternative (that is, the field as it exists and is operated today) with Phase One of the projected OMP project. Phase One in

the FAA analysis also consists of only four east-west runways, but in positions that are vastly inferior to L-1. The tower controllers stated that "L-1" and "L-2" are much better alternatives than Phase One of the OMP. As does Phase One, both options add two new runways to the existing airfield. However, the physical location of these two runways differ from Phase One, and their location allows for both three arrival runways to be in use as well as two to three departure runways in all weather conditions.

In its own Phase One analysis, the FAA concluded that average delay at the Airport would be reduced from 16.6 minutes to 10.8 minutes -- even with, as the above quotation plainly demonstrates, the runways located in clearly inferior positions. Therefore, the assertion that alternative L-1 would not reduce existing delays contradicts the FAA's own earlier analysis and the expert opinion of the local controllers. In fact, L-1 would reduce delay by a greater amount than the proposed Phase One.

38. Derivative L-1 -- West Flow (pg. 3-68, par.2).

- 38.1 FAA Statement.** This configuration would be comparable To Plan W (use of a specific set of runways as described in the Draft EIS) that is used today. See Appendix D, Simulation Modeling, Section D.3. It would provide benefits in hourly operational throughputs over plan W. Although this specific configuration would provide modest delay benefits, it would not accommodate anticipated growth in aviation activity at the airport of acceptable levels of delay.

Response. The plan is not directly comparable to plan W since there are two extra east-west runways and one of these can be used for continual departures, while the other one will provide another arrival runway for the majority of aircraft that would be using O'Hare. Moreover, the statement that it would provide marginal increases in the hourly operational throughput over plan W is not supported by any analytical model, simulation, or even hard numbers from expert opinion. It is also directly contradicted by the FAA analysis that was produced for the year 2009. In that analysis, the FAA compared the no action alternative (that is, the field as it exists

and is operated today) with Phase One of the projected OMP project. Phase One in the FAA analysis also consists of only four east-west runways, but in positions that are vastly inferior to L-1 -- as the following quote from active O'Hare controllers clearly shows: " 'L-1' and 'L-2' are much better alternatives than Phase One of OMP. As does Phase One, both options add two new runways to the existing airfield. However, the physical location of these two runways differ from phase one, and their location allows for both three arrival runways to be in use as well as two to three departure runways in all weather conditions."

In its own Phase One analysis, the FAA concluded that average delay at the Airport would be reduced from 16.6 minutes to 10.8 minutes -- even with, as the above quotation plainly demonstrates, the runways located in clearly inferior positions. Therefore, the assertion that alternative L-1 would not reduce existing delays contradicts the FAA's own earlier analysis and the expert opinion of the local controllers. In fact, L-1 would reduce delay by a greater amount than the proposed Phase One.

39. Derivative L-2 -- East Flow (pg. 3-68, par.3).

- 39.1 FAA Statement.** "This configuration would be comparable To Plan X (use of the specific set of runways as described in the Draft EIS) that is used today. See Appendix D, Simulation Modeling, Section D.3. However, due to the runway interaction between arrivals and departures, this configuration would perform worse than the existing airfield and would not be used.

Response. To claim that this configuration would perform worse than the existing airfield, when there are two extra runways, defies common sense and logic. Moreover, the runways would be in more suitable locations as the controllers stated to me in written comments on L-1 and L-2: " 'L-1' and 'L-2' are much better alternatives than Phase One of OMP. As does Phase One, both options add two new runways to the existing airfield. However, the physical location of these two runways differ from phase one, and their location allows for both three arrival

runways to be in use as well as two to three departure runways in all weather conditions."

There is no analytical model, simulation model, or even expert opinion to back this up. Moreover, in its own Phase One analysis, the FAA concluded that average delay at the Airport would be reduced from 16.6 minutes to 10.8 minutes -- even with, as the above quotation plainly demonstrates, the runways located in clearly inferior positions. Therefore, the assertion that alternative L-2 would actually perform worse than the existing airfield contradicts the FAA's own earlier analysis and the expert opinion of the local controllers. In fact, not only would L-2 perform better than the existing airfield, it would reduce delay by a greater amount than the proposed Phase One.

40. Derivative L-2 -- West Flow (pg. 3-68, par.4).

- 40.1 FAA Statement.** "This configuration would be comparable To Plan W (use of the specific set of runways as described in the Draft EIS) that is used today. See Appendix D, Simulation Modeling, Section D.3. However, due to the runway interaction between arrivals and departures, this configuration would perform worse than the existing airfield and would not be used."

Response. This is another incredible and unsupported erroneous statement. To claim that this configuration would perform worse than the existing airfield, when there are two extra runways, defies elementary logic. Moreover, the runways would be in more suitable locations. The local O'Hare controllers told me that "L-1" and "L-2" are much better alternatives than Phase One of the OMP. As does Phase One, both options add two new runways to the existing airfield. However, the physical location of these two runways differ from phase one, and their location allows for both three arrival runways to be in use as well as two to three departure runways in all weather conditions.

There is no analytical model, simulation model, or even expert opinion to back up FAA's statement. Moreover, in its own Phase One analysis, the FAA asserts that

average delay at the Airport would be reduced from 16.6 minutes to 10.8 minutes -- even with, as the above quotation plainly demonstrates, the two extra East-West runways located in clearly inferior positions. Therefore, the assertion that alternative L-2 would actually perform worse than the existing airfield contradicts the FAA's own earlier analysis and the expert opinion of the local controllers. In fact, not only would L-2 perform better than the existing airfield, it would reduce delay by a greater amount than the proposed Phase One.

41. A Potential Derivative which Combines Commenters' Derivatives L-1 & L-2 (pg. 3-68, par.5).

- 41.1 FAA Statement.** "A combined airfield configuration which might include some or all of the components of the L-1 and L-2 configurations presented by the Commenters' would yield many of the same problems listed above. Further, the complexities brought about by all of the interdependencies, the inability to perform triple approaches in all weather conditions, and potential performance issues join IFR conditions make further detailed analysis of such a combined derivative by FAA unnecessary."

Response. The local O'Hare controllers disagree with this unsubstantiated and non-analytical statement. The local O'Hare controller's told me that "L-1" and "L-2" are much better alternatives than Phase One of OMP. As does Phase One, both options add two new runways to the existing airfield. However, the physical location of these two runways differ from Phase One, and their location allows for both three arrival runways to be in use as well as two to three departure runways in all weather conditions.

Moreover, both L-1 and L-2 propose that Runway 14R/32L be retained. This means that O'Hare would continue to have a viable crosswind runway when wind and weather conditions would otherwise dictate a partial or complete closing of the airport. As it is now proposed, the OMP would deprive the airport of this crosswind runway capability, which as the pilots have confirmed, is essential to safe and efficient operations at O'Hare -- particularly during adverse conditions such as bad

wind and weather conditions. Loss of the existing crosswind runway capability means the airport will be unable to accept traffic during high crosswind conditions when it safely operates today with more optimal runways, or the airport will have to ratchet down traffic flow during contaminated (e.g., wet or icy) runway conditions. The costs of such closures and/or delays can be extremely high and such closures are sure to happen given the prevailing weather conditions at Chicago. Therefore, it is our firm contention that, in addition to the controller's arguments presented above, the ability to keep O'Hare open under adverse wind and weather conditions is also compelling argument in favor alternatives L-1 and L-2.

42. Conclusion on Commenters' Derivatives L1 and L2 (pg. 3-68, par.6).

- 42.1 FAA Statement.** "In particular, the FAA finds that the Commenters Derivatives L1 and L2, which represent refinements to Alternative B presented in detail earlier in this chapter 3, are most likely to yield less delay savings than Alternative B."

Response. Neither L-1 nor L-2 is a derivative of Alternative B. In our discussions with the active local controllers from O'Hare, they continually pointed out that Alternative B (or the presently proposed Phase One of the OMP) contains a far north runway that will seriously affect the operation of runways 4L, 32L and 32R. The controllers told me that "L-1" and "L-2" are much better alternatives than Phase One of OMP. As does Phase One, both options add two new runways to the existing airfield. However, the physical location of these two runways differ from Phase One, and their location allows for both three arrival runways to be in use as well as two to three departure runways in all weather conditions.

The controllers told me that in "L-1," the third arrival runway is located on the far south boundary of the field. The location of this runway means that the departure paths for runways 32L, 32R and 4L are unrestricted while the three east-west parallels are available for arrivals. In addition, L-1 adds an additional east-west parallel, just south of the current runway 9R. This runway would also be used for departures, insuring an equal flow of arrivals and departures. An estimated 120

arrivals an hour and 120 departures an hour could be maintained in all weather conditions. Weather delays present today would be eliminated.

The controllers also told me that "L-2" also provides for a better scenario than an OMP which stopped after Phase One. This plan also locates the third arrival on the south side of the field, providing three arrival runways in all weather conditions and leaving the north runways (32L, 32R and 4L) available for departures. Layout 2 also adds an additional departure runway, but on the north side of the field, just north of the current 9L. While the location of this runway makes it available for departures, it also crosses departure runways 32R and 4L.

As these comments clearly show, it is disingenuous to claim that Alternatives L-1 and L-2 are simply a variation of Alternative B. Such a claim allows the unnamed authors of the Final EIS to compare the viable alternatives of L-1 and L-2 to an inefficient alternative (Alternative B) that was purposely selected to make the comparison as unfavorable as possible. For example, using the controller estimates for IFR and VFR throughput with the four runways in the L-1 location, the difference in average yearly delay between the preferred alternative and our suggested alternative (at 3500 operations per day) would be approximately 3.7 minutes; and this would constitute "significant delay reduction" by anyone's standards and certainly much more than Alternative B.

Moreover, both L-1 and L-2 propose that Runway 14R/32L be retained. This means that O'Hare would continue to have a viable crosswind runway when wind and weather conditions would otherwise dictate a partial or complete closing of the airport. As it is now proposed, the OMP would deprive the airport of this crosswind runway capability, which as the pilots have confirmed, is essential to safe and efficient operations at O'Hare -- particularly during adverse conditions such as bad wind and weather conditions. Loss of the existing crosswind runway capability means the airport will be unable to accept traffic during high crosswind conditions when it safely operates today with more optimal runways, or the airport will have to

ratchet down traffic flow during contaminated (e.g., wet or icy) runway conditions. The costs of such closures and/or delays can be extremely high and such closures are sure to happen given the prevailing weather conditions at Chicago. Therefore, it is our firm contention that, in addition to the controller's arguments presented above, the ability to keep O'Hare open under adverse wind and weather conditions is also a compelling argument in favor alternatives L-1 and L-2.

43. Derivative M--No Action with a New South Runway Only (4300' South from Existing Runway 9R/27L) (Section 3.6.1.4).

43.1 FAA Statement. "The proposed runway layout of this alternative provides the capability for quadruple approaches using three parallel runways and a converging runway. Quadruple approaches can only be utilized a limited portion of the time, namely in good weather during East Flow operations. However, arrivals to runway 9R would be limited to approximately 10 per hour to maintain a balanced airfield."

Response. Discussions with local air traffic controllers at O'Hare show conclusively that triple approaches are all that is needed to handle the VFR capacity at O'Hare. While there would be a dependency between runway 10 and 4R, it would generally be supposed that runway 4R would be used as an overflow arrival runway to assist in either arrivals or departures during peak traffic periods. The controllers told me that in "L-1," the third arrival runway is located on the far south boundary of the field. The location of this runway means that the departure paths for runways 32L, 32R and 4L are unrestricted while the three east-west parallels are available for arrivals.

Alternative M locates the new East-West runway 4300 ft. to the south just as is proposed in L-1, so this part of the controller statement would apply equally to both alternatives L-1 and M. The second half of the statement that arrivals to runway 9R would be limited to approximately 10 per hour makes no sense whatsoever. There are still three departure runways available and runway 4R could be used as a departure runway if needed. Therefore, there would be no need to limit the number

of arrivals to runway 9R. It seems as if this number has been plucked from thin air to provide a rationale for rejecting this alternative.

43.2 FAA Statement. "Due to the converging approach in VFR East Flow, high weather minimums would apply. The VFR conditions are generally defined as 1000 foot ceiling and a visibility of three nautical miles. For this configuration (VFR East Flow), the weather minimums would require a ceiling of 2500 ft. and a visibility of at least 7 nautical miles to protect for the missed approach and to provide separation from Runway10R arrivals and Runway 4R arrivals."

Response. Discussions with local air traffic controllers at O'Hare show conclusively that triple approaches are all that is needed to handle the VFR capacity at O'Hare. In the controller's own words: "In 'L-1', the third arrival runway is located on the far south boundary of the field. The location of this runway means that the departure paths for runways 32L, 32R and runway 4L are unrestricted while the three east-west parallels are available for arrivals."

Alternative M locates the new East-West runway 4300 ft. to the south just as is proposed in L-1 so this part of the controller statement would apply equally to both alternatives L-1 and M. Therefore, the fourth approach to runway 4R would not be needed to sustain capacity demands so that ordinary VFR weather minimums would apply.

43.3 FAA Statement. "Triple approaches for IFR East or IFR West Flow would not be allowed. FAA Order 7110.65 requires 5000 ft. between parallel runways for simultaneous triple approaches. This limitation restricts the hourly arrival throughput of this alternative to a level equivalent to the existing airfield."

Response. This statement is wrong. Existing regulations allow triple instrument approaches if runway separation is 5000 ft. (with no special equipment) and 4300 ft. if: "A high- resolution color monitor with alert algorithms, such as the final monitor aid or that required in the precision runway monitor program shall be used to monitor approaches where triple parallel runway centerlines are at least 4300 but less than 5000 ft. apart and the airport field elevation is less than 1000 ft. MSL." (ATC 7110.65P, par. 5-9-7).

In this case there is over 5000 ft. separation between the central and northern approach runways and 4300 ft. between the central and southern runway; therefore, triple instrument approaches would be available for this alternative with the installation of the appropriate equipment. The air traffic controllers at O'Hare have advised us that this particular configuration would allow triple approaches in IFR conditions and this would result in a capacity of approximately 120 per hour. The following is a direct quotation from the controller's written comments provided to me: "In 'L-1,' the third arrival runway is located on the far south boundary of the field. The location of this runway means that the departure paths for runways 32L, 32R and runway 4L are unrestricted while the three east-west parallels are available for arrivals. Therefore, throughput for this alternative would far exceed that of the existing airfield.

- 43.4 FAA Statement.** No quadruple arrivals in either good weather or poor weather would be available under this alternative if the far south proposed runway is shifted exactly 5000 feet south of existing Runway 9R/27L. The Runway Safety Areas (RSA's) for Runway 28L and Runway 4R would overlap. In order for quadruple arrivals to be available using three parallel runways and a converging runway, the proposed south runway would have to be shifted further west potentially requiring additional property acquisition in Bensenville.

Response. This statement is incorrect. First, the runway could be shortened by 1000 ft. in order to prevent the overlap problem. In this case the runway would be primarily an arrival runway, and still would be able to accommodate the majority of aircraft using O'Hare. Second, the runway could be shifted to the west with some acquisition of property. The FAA has a requirement to examine these impacts and compare them to the impacts of the full OMP before summarily rejecting this alternative.

- 43.5 FAA Statement.** Land and Hold Short Operations (LAHSO) would be required with the Rejected Landing Procedure (RLP). Today, no LAHSO operations with an RLP have been approved nationwide.

Response. It is difficult to make sense of the statement. In the first place, the statement is completely nonspecific as to which runway and where the procedure

would be required. In the second place, if it is meant to imply that the FAA will never approve such a procedure, then it is clearly up to the FAA to issue such a ruling. If not, then it is entirely possible that this procedure could be approved.

- 43.6 FAA Statement.** This alternative would perform worse than alternatives B, C, D and G.

Response. No quantitative analysis is offered to back up this statement. As shown in the affidavit of Brian Campbell, every alternative – including alternatives B, C, D and G— will face rising delays to unacceptable levels and will require demand management to control levels to whatever level of delay is deemed acceptable or desirable.

Additionally, the other alternatives all contain one or more extra runways and therefore, a proper analytical comparison would have to factor in the cost of the extra runways versus the gains in capacity and/or the decrease in delay.

- 43.7 FAA Statement.** Locating the proposed southern runway at 5000 ft. from the existing runway would require additional land acquisition to the south. Specifically, the following facilities would require relocation:

- o United States Post Office,
- o Detention basins located to the south of the Post Office,
- o Irving Park Road,
- o Railroad Yard.

Response. There is no evidence presented that it would be necessary to move the rail yard. Preliminary GIS photo analysis indicates that the physical runway need not use the rail yard. As to the movement of the other facilities, the FAA proposes to move these facilities for the full build OMP-Master Plan.

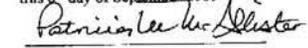
- 43.8 FAA Statement.** In addition to the land in the southwest quadrant proposed to be acquired in the preferred alternative, property would have to be acquired south of Green Street in Bensenville.

Response. No rationale or evidence is given as to why this land would be required in addition to the preferred alternative. If this alternative were selected, then only the land associated with it would have to be acquired. The FAA has a requirement to examine the cost of these impacts and compare them to the impacts of the full OMP before offering this as a reason to reject this alternative. The FAA has failed to do.

I declare under penalty of perjury that the foregoing is true and correct to the best of my information, knowledge and belief.


Kenneth Fleming

SUBSCRIBED and SWORN TO before me
this 6th day of September 2005


Notary Public

NOTARY PUBLIC-STATE OF FLORIDA
Patricia Lee McAllister
Commission # DD362932
Expires: OCT. 14, 2008
Bonded Thru Allstate Bonding Co., Inc.

FAA AIR TRAFFIC WORKING GROUP – GREAT LAKES REGION

ANALYSIS AND RESPONSE TO COMMENTS PRESENTED

IN THE AFFIDAVIT OF KENNETH FLEMING

As requested, we have studied the 37-page affidavit of Kenneth Fleming, dated September 5, 2005. This affidavit was part of a package of comments submitted to the FAA in response to the agency's invitation for public comments on portions of the Final Environmental Impact Statement and the FAA's proposed resolution of religious liberty issues. For ease of reference, our analysis of his comments will track his affidavit, and will indicate our specific response to his assertions through our adoption of the same paragraph numbering convention used by Mr. Fleming. Some assertions require no comment, and others that fall beyond the scope of our assignment are answered elsewhere in response to comments.

¶ 1-9 Mr. Fleming has a Ph.D in Economics, served as a Professor of Economics at the Air Force Academy, is a former Air Force pilot, and presently is with Embry-Riddle Aeronautical University. We find no need to comment on these qualifications, other than to note that Mr. Fleming's views of various O'Hare runway layout alternatives and derivatives suggest an approach to air traffic issues starkly different from those employed by the FAA. Mr. Fleming would operate O'Hare in ways that are contrary to existing FAA air traffic procedures. His approach presents operational issues which would require the FAA to impose severe reductions in operations in order to assure an adequate level of safety. He also appears to have an incomplete understanding of how the Selected Alternative is designed to be implemented. Each of these criticisms is identified in detail in our analysis of his comments below.

¶ 13 Mr. Fleming declares that Alternative C, the Selected Alternative, is "the least prudent and feasible alternative" and that there are other "viable, prudent and feasible alternatives" that will accomplish the agency's stated purpose and need better than Alternative C and without the destruction of the cemeteries. We note that the FEIS, as a result of detailed and comprehensive modeling, has demonstrated that the Selected Alternative performs far better than any other alternative or derivative considered.

¶ 14 Mr. Fleming's overall approach is to focus on the availability of "Blended Alternatives" which include a limited number of runway and taxiway facilities combined with the use of congestion management to impose capacity restrictions in order to maintain delays at acceptable levels. The FEIS discussed use of such Blended Alternatives, and contained the FAA's conclusion that such an approach would not meet the purpose and need of the proposed action.

¶ 15 We do not dispute the fact that Blended Alternatives are in use at some airports. Recently, a Blended Alternative including congestion management was approved for Los Angeles because the airport sponsor was unwilling to make the kind of major improvements Chicago wishes to do at O'Hare. Congestion management is in use at LaGuardia and Washington National because the physical confines of those airports preclude major improvements as a matter of basic feasibility. It has long been the FAA's policy, as expressed in the interim congestion management order for O'Hare and in other documents that, given its statutory duties to promote air commerce, congestion management is an appropriate device only where absolutely necessary and as an interim measure until long-term delay solutions can be implemented.

¶ 17 Mr. Fleming uses the 2003 and 2004 Terminal Area Forecast and contends that Phase One of the Selected Alternative will reach gridlock on opening day, and that the full build-out of the Selected Alternative will produce similar results within a year of its completion. The FAA has responded to this assertion in its FEIS response to comments, see Appendix U, at U.4-534.

Mr. Fleming has provided no new information to cause the FAA to reassess its response to this assertion.

¶¶ 18-20 Mr. Fleming asserts that he has met with several air traffic controllers who have expressed serious concerns about the safety, efficiency, and utility of the Selected Alternative. We are aware that several individuals who are or were controllers have expressed their own personal views about this project. Although individuals are entitled to their own personal opinions, we do not believe such expressions of concern are entitled to any weight, since Mr. Fleming has left these controllers unnamed and has not provided their Air Traffic operational background.

Throughout the Environmental Impact Statement (EIS) process, the FAA had a team of Air Traffic Controllers (known as the Air Traffic Working Group) assigned to the evaluation of the alternatives evaluated. Representatives from both Management and the National Air Traffic Controllers Association (NATCA) from the O'Hare Air Traffic Control Tower, Chicago Terminal Radar Approach Control (TRACON) facility and the Chicago Center participated on this team. They invested over 1,400 hours reviewing assumptions, iterative model runs, and results of the detailed computer simulation modeling conducted for Alternatives C, D, G and the No Action alternative. Upon conclusion of this process, the FAA Air Traffic Working Group determined that the modeling represented, "a reasonable representation of how the proposed design year airport layouts would be operated, if implemented at O'Hare International Airport." See, Attachment D-3 FAA Air Traffic Memo in the FEIS for a summary of the Air Traffic Assessment of the modeled alternatives. In addition, the alternatives submitted during the EIS process, as well as derivatives of Alternative C, were thoroughly evaluated by a subgroup of the FAA's Air Traffic Work Group.

¶ 23 Contrary to Mr. Fleming's assertion that Derivatives L-1 and L-2 were given cursory treatment because neither satisfied purpose and need, the FAA identified a number of flaws in each of those options. It is also true that a number of alternatives and derivatives that could not provide meaningful delay reduction for unconstrained demand were rejected. The FAA has

applied consistent criteria in its consideration of alternatives and derivatives for both environmental review and for purposes of satisfying its obligations under the Religious Freedom Restoration Act.

¶ 24 Mr. Fleming criticizes the FAA's decision to conduct its environmental analysis with a planning horizon of build-out plus five years. This is a standard planning horizon for the purpose of evaluating environmental impacts under the National Environmental Policy Act, and meets with the approval of the Environmental Protection Agency which is charged by law with grading each EIS.

¶ 25 At some point following the full build out and implementation of the Selected Alternative, it is likely that additional steps will be necessary to deal with issues of delay that will appear. The development of new technology that might address these issues that far in the future is very difficult to predict. We do not know at this point how the FAA will respond to that challenge if and when it appears. Looking backward to 25 or 30 years ago, the technology that was in use then seems primitive compared to that in use today. But, between now and some point in the future when O'Hare delay will again require a response, the Selected Alternative will enable an increase in operations to 1,194,000 annually with an average annual delay of 5.8 minutes per operation. That delay level is approximately one-third of the delays experienced today. This reduction in delay is also accompanied by a concurrent increase in approximately 220,000 additional annual operations and nearly 11 million annual total passengers. In addition, the FAA believes that when approximately 1.4 million operations occur, the Airport would have between 13 and 16 minutes of average annual delay which is similar to the delays experienced today. Of course, the Airport would be handling nearly 40% more operations than today. It has never been the policy of the FAA to forego such benefits of airport improvement over the reasonably foreseeable future because at some point in the more distant future other solutions may be required for the challenges of tomorrow.

¶ 31 Here we respond to Mr. Fleming's criticism of the FAA's analysis concerning Derivative C-1, the Selected Alternative without Runway 10C/28C which is planned to be placed directly over the present site of St. Johannes Cemetery.

Most importantly, Mr. Fleming seems to have difficulty with the concept that an airport operating with four arrival streams will have fewer delays than an airport handling the same amount of traffic with only three arrival streams. By eliminating Runway 10C/28C which is intended to be used as an arrival runway in all weather conditions and in both east and west flow, there would be a greater degree of delay in operating the airport. Notably, good weather conditions allowing quadruple approaches exist more than 50 percent of the time at O'Hare. This is a very significant benefit, as the modeling for Alternative C demonstrated.

It is correct that the FAA does not have procedures developed, as of yet, for quadruple IFR approaches at O'Hare. However, quadruple VFR approaches have been developed and implemented by the FAA for use at other airports. These same procedures are proposed by the Air Traffic Workgroup for Alternative C. When technology and procedures are developed at some point in the future, Alternative C could provide the capability for IFR quadruple approaches.

Mr. Fleming does not appear to take issue with the FAA statement that C-1, when operated in east flow, allows only two departure streams, and that IFR weather reduces the airport's departure capacity from 120 per hour to only 90 per hour, a significant reduction from that available with Alternative C.

To operate Derivative C-1 most efficiently in the absence of Runway 10C/28C, which as noted earlier was intended as an arrival runway in all conditions, Runway 10L/28R must be converted from a departure to an arrival runway in west flow conditions. This is because the intersecting paths of Runway 22L departures and arrivals on Runway 28L would require such large distances in separation between aircraft as to produce severe delays in both departures and arrivals on the south side of the airport.

However, assigning arrivals to Runway 28R in west flow means that all departures originally intended for that runway must now be assigned to Runway 28L. There are numerous occasions at O'Hare today when an aircraft captain will reject a runway assignment for takeoff (Runway 4L) because she or he prefers or requires a runway longer than 7,500 feet. We expect some controller assignments for aircraft takeoff from Runway 28L, also at 7,500 feet in length, to be rejected for the same reasons (and by the same pilots). There is no way to predict how many pilots will reject this runway, but operational experience shows that when longer runways are available at an airport, pilots will request them. Under these circumstances, the alternatives are: lengthen Runway 10R/28L by extending it into Bensenville so that it will become universally acceptable, allow those aircraft to use the longer runways on the north side of the field for takeoff, which reduces the efficiency of the airport and increases delays, or reduce the arrival rate on Runway 28R to accommodate the requests for a longer takeoff runway.

Permitting a pilot to use a runway other than the one assigned "imbalances" the airport by placing extra demand on departure runways north of the terminal, and by reducing the departure rate as aircraft originally intended to depart from Runway 28L reject that assignment and use Runway 27L instead. The departure rate is reduced because controllers assign aircraft to specific departure runways based on the aircraft's destination. For example, in Derivative C-1 operating in west flow, traffic headed to the east (Cleveland, Pittsburgh, New York, Boston or Washington) would be assigned Runway 22L. Immediately upon departure, those aircraft are turned east. Traffic headed to the south (St. Louis, Memphis, Atlanta, or Miami) would be assigned Runway 28L, and turned to the south several miles after departure. Westbound traffic (Denver, Phoenix, Los Angeles, Las Vegas) would be assigned Runway 27L for departure. But, when an Atlanta-bound aircraft rejects Runway 28L because of its seemingly inadequate length and gets in the queue with westbound traffic using Runway 27L, that Atlanta flight on Runway 27L requires special handling from tower controllers. The Atlanta flight must be inserted into the stream of departure traffic that used Runway 28L and are all heading south. Not only must the tower controller insert the Atlanta flight into a new departure stream; she or he must also insure that other departures to the south on Runway 28L, such as one to St. Louis, are held on the ground so that the Atlanta-based flight can be turned so that it will be to the east of the flight path of the St. Louis-based aircraft. Ensuring this type of adequate separation between aircraft is likely to adversely impact the departure rate of all O'Hare runways, thereby impairing the overall efficiency of the airport.

Similar inefficiencies afflict Derivative C-1 in east flow. As noted earlier, this operating configuration allows only two departure streams in both VFR and IFR conditions, thereby reducing capacity and increasing delays..

In addition to these long-term limitations, Derivative C-1 deprives O'Hare of a critical runway during the build-out of the overall project. As two runways are decommissioned, and new ones constructed, the sequence in which these events occur is critical to maintain efficient operations. Runway 10C/28C is planned to be built early in the overall process of implementing the Selected Alternative. Its absence would cause significant short-term delay issues, along with all the other permanent limitations that would preclude this Derivative from achieving a level of delay reduction necessary to achieving the goals of proposed action.

¶¶ 32-33 In Derivatives C-2 and C-3, the FAA considered the option of shortening Runway 10C/28C from 10,800 feet to 7,500 feet and 6,900 feet, respectively, in order to avoid St. Johannes Cemetery. Mr. Fleming's comments on both derivatives are similar, and so we have chosen to respond to his analysis in the same consolidated fashion.

Mr. Fleming seriously misunderstands the operational consequences of shortening a critical arrival runway by either 2,100 feet or 3,900 feet. It is true that there are airports where the longest runway is only 7,500 or 6,900 feet (Washington National and La Guardia, for example), and such runways are regularly used in all conditions. It is also true, however, that the availability of longer runways, especially in adverse weather conditions, means that in the real world, airline pilots will reject the shorter runway and demand to land on a longer one. We know this from our experience at O'Hare today. Adoption of Derivative C-2 would cause aircraft that could have landed on Runway 10C/28C at its originally designed length of 10,800 feet to reject that runway in its shortened state. Instead, some pilots would request a longer runway, which is only available on the north side of the airfield. These requests, especially in adverse weather, will interrupt the smooth flow of arrival traffic from the several navigational fixes some 60-80 miles from O'Hare. At each of those points, controllers line up aircraft for landing on a specific runway at O'Hare. Because Runways 10C/28C and 9C/27C are both intended to serve constant streams of arrival traffic, the line of aircraft for a particular O'Hare runway may extend almost 100 miles, to the east or west of the airport, depending on wind conditions. When a pilot reaches the navigational fix where her or his aircraft is positioned with others for arrival on a shortened Runway 28C, and rejects that assignment in favor of Runway 27C because of its greater length, the constant stream of arrivals is severely disrupted. The controller working approaches to Runway 28C on the south side of the airport must coordinate with her or his counterpart working the north side to insert the non-conforming aircraft into that other approach stream for Runway 27C. In addition to provoking serious controller workload concerns, the reduced ability to segregate arrivals in conforming streams of traffic reduces the operational efficiency of the airport by increasing arrival delays.

Mr. Fleming similarly misunderstands the unique operation of the Selected Alternative as it functions on the ground, and therefore he erroneously concludes that there will be no difference in runway crossing procedures between it and Derivatives C-2 or C-3. The Selected Alternative designates Runway 10L/28R as a departure runway. It will be 13,000 feet in length. Because of its great length, aircraft departing from this runway will not need to use its full length, except

for certain international departures to Tokyo, Hong Kong, Rome, and similarly distant points. Instead, most aircraft will be assigned an "intersection" departure, from a point where a taxiway connects to the runway some 3,000 feet from the beginning of the runway so that 10,000 feet would still be available for takeoff. By using intersection departures, traffic landing on Runways 10C/28C and 10R/28L will be able to reach the terminal by taxiing across Runway 10L/28R, **behind** the intersection departure point. In this manner, these arrival aircraft can proceed to the terminal unimpeded by the departure activity on the departure runway. Contrary to Mr. Fleming's assertion at ¶ 32.4, the take off aircraft will not need to be held in place until the arrival aircraft crosses the departure runway, which would be the case if Runway 10C were shortened.

Those operational benefits, however, are no longer available with Derivatives C-2 and C-3. Although shortening Runway 10C/28C will not affect the intersection departures on Runway 10L/28R, the shortened runway will have its western terminus relocated by either 2,100 or 3,900 feet. In other words, the ends of these two runways will be staggered on the west. At the end of each runway, there is a Runway Protection Zone ("RPZ") in which no aircraft movement is permitted when the runway is being used by aircraft. When Runway 10C/28C is shortened, the relocated RPZ effectively closes the taxiway the arrival aircraft would use to taxi behind the departure point of Runway 10L. As a result, C-2 and C-3 would have the same type of "dependency" requiring the interruption of departures to allow arriving aircraft to cross the active departure runway. As we know from the O'Hare problems of today, such runway dependency exacts a serious toll on efficiency in order to ensure safety under those conditions. With up to 60 arrivals per hour needing to cross the active departure runway, the operational efficiency of the departure runway would be compromised in a major fashion.

Mr. Fleming is equally dismissive of the FAA's concerns with wake turbulence issues generated by Derivatives C-2 and C-3. Again, because the threshold of Runway 10C/28C is so severely staggered in its shortened condition, aircraft would land on Runway 10C parallel to the very point where aircraft are departing from Runway 10L. The Selected Alternative avoids this problem by aligning the thresholds of these two runway even with each other so that aircraft landing on Runway 10C touch down at a point well before departure aircraft on Runway 10L become airborne, thus avoiding the wake turbulence. Thus, these derivatives create another runway dependency, impacting efficiency in both arrivals and departures on these runways, and potentially derogating safety. Mr. Fleming's response to this problem is to minimize wake turbulence concerns by assigning larger aircraft with greater wake turbulence potential to other runways. Of course, this "solution" creates the same problem identified above, as approach controllers scramble to interrupt arrival streams established many miles from O'Hare to allocate runways based on aircraft size rather than point of origin. This increases complexity for both the pilot and controller, increases controller workload and reduces efficiency.

The measures the FAA would need to take in order to ensure that Derivatives C-2 and C-3 would operate safely seriously cripple the ability of these measures to provide a level of delay reduction close to that of the Selected Alternative.

¶ 34-35 Derivatives C-4 and C-5 were created by the FAA to examine O'Hare operations with Runway 10C/28C shifted to the south some 350 and 450 feet respectively in an attempt to avoid St. Johannes Cemetery.

Mr. Fleming downplays the FAA's application of its airport safety and design standards to these Derivatives. TERPS are FAA standards that govern the height of buildings and objects in relation to runways. Applying TERPS, the FAA can construct a new air traffic control tower to handle aircraft using Runway 10R/28L on a small sliver of land between the "protected surfaces" for Runway 10C/28C and Runway 10R/28L. As applied here, TERPS provides an adequate measure of safety by precluding obstructions that could compromise an aircraft conducting a missed approach to a landing runway. If Runway 10C/28C is shifted south, the relocated runway invades the space protected by TERPS for the south tower. When TERPS is violated in this manner, the FAA is required either to shorten the height of the tower to protect for such missed approaches, or must impose greater separation between the aircraft using the two southernmost runways and establish more stringent minimums for aircraft landing these two runways. If shortening the tower height causes an obstructed line of sight, then operational restrictions are the only recourse. Contrary to Mr. Fleming's assertion, there would be occasions when the FAA would operate these derivatives in a manner involving landing traffic on 10R/28L.

Shifting Runway 10C/28C also creates wake turbulence issues that are not present in the Selected Alternative. Although Mr. Fleming attempts to minimize these concerns by stating that they only occur in west flow, that 45 percent of the time the airfield is operated in this manner present significant and legitimate concerns. When Runway 10C/28C is moved south, the aircraft arriving on Runway 28C pass directly over Runway 22L at about the point where departing aircraft become airborne. The farther south the runway is relocated, the greater the possibility for wake turbulence events. Mr. Fleming's response is for pilots to use a lower power setting so that their aircraft will have a longer takeoff roll, use more runway, and achieve flight after passing below the wake turbulence of arriving aircraft. We know of no airline captain who would voluntarily adopt such a maneuver, and we know of no authority at the FAA for it to compel such a bizarre and potentially dangerous procedure. The real alternative is that traffic departing Runway 22L will be held in position on the runway until the wake turbulence event has passed. However, with some 40 arrivals per hour expected on Runway 28C, the utility of Runway 22L as one of only three departure runways would be severely compromised.

As with the other derivatives generated by FAA, we again see how each of the pieces of the airport relate to each other, and how, when one is changed, that change has impacts on other runways and the overall efficiency of the airfield. For Derivatives C-4 and C-5, these cumulative limitations on operations would be required in order to safely operate either of these derivatives. As a result, they have the real-world potential to handle considerably less traffic than the Selected Alternative.

¶¶ 36-42 Derivatives L-1 and L-2 were submitted to the FAA as potential airport runway designs that could avoid St. Johannes Cemetery.

Most of Mr. Fleming's criticism of the FAA's earlier analysis rests on a totally unfounded assumption: that the City of Chicago will only build Phase One of this project, and that such a truncated improvement project would not operate as well as either Derivative L-1 or L-2. The FAA in its EIS and in this ROD have concluded that the entire project will be completed. But, in making this assertion, Mr. Fleming also makes the point that is of principal concern to us. Mr. Fleming reports that controllers have advised him the FAA's plan to begin the Selected Alternative with the construction of the northernmost runway, Runway 9L/27R will cause gridlock at the airport. Accordingly, Mr. Fleming argues that the addition of one new runway on the far south end of the airport would operate much better.

Mr. Fleming's statement about Phase One producing gridlock is wrong, for when O'Hare is on Plan X (East Flow), and using Runways 4L, 32L and 32R, the new runway will not be in use. But, when Runways 32L and 32R are decommissioned, the newly built Runway 9L/27R will become fully operational. More importantly, however, the reason for Mr. Fleming's concern appears to be his recognition that on the north side of the airport, the addition of Runway 9L/27R adds to the existing complexity of the existing "runway triangle." These intersecting runways are all dependent upon each other, in the sense that the use of one implicates and limits the use of another. The genius of the OMP is that it breaks the runway triangle in favor of modern airport architecture. The problem with Derivatives L-1 and L-2 is that they retain the triangle.

We cannot agree with Mr. Fleming in his assertion that Derivative L-1 will perform better than Phase One of the Selected Alternative. He is incorrect in asserting L-1's capacity of a balanced airfield with 120 arrivals and 120 departures in all weather conditions. For a configuration to sustain this balance, it would require three independent arrival and three independent departure runways with no dependencies between any of the runways. Alternative L-1 does not have this capability. All departures on Runway 32L "are dependent on..." with arrivals on Runway 9L. Arrivals to Runway 9L cross runway Runway 32L approximately 5,600 feet from the departure point. Therefore, air traffic must increase the inter-arrival spacing for Runway 9L arrivals in order to meet the separation requirements for both arrivals on Runway 9L and departures on Runway 32L. In addition, Runway 4L departures become dependent upon Runway 9L arrivals. Finally, due to the runway spacing of Runways 9R and 10L, these runways must be treated as one runway and additional dependencies are created for arrival on Runway 9R and departures on Runway 10L. Ultimately, it makes little difference whether, as Mr. Fleming asserts, Derivative L-1 performs as well as, or better than Phase One of the Selected Alternative. This is because the FAA believes the full OMP will be constructed as approved here, and that the Selected Alternative has the demonstrated capacity to handle far greater volumes of traffic at lower levels of delay.

Derivatives L-1 and L-2 allow for triple streams of arrivals, unlike the Selected Alternative that allows quadruple streams in VFR weather. Moreover, these derivatives do not operate nearly as well as the Selected Alternative because of other dependencies in addition to those listed immediately above. First, in east flow, controllers would have arrivals assigned to Runways 9L, 9R, and 10. Departures would remain assigned to Runways 32L, 4L and 9L. Arrivals to Runway 9R and 10 would be independent. However, arrivals to Runway 9L would be

dependent with Runway 32L departures and also with Runway 9R arrivals. Runway 9L departures become dependent with Runway 9L arrivals and with Runway 4L departures. Finally, Runway 4L departures become dependent with Runway 9L arrivals and departures. All of this dependencies would lead to inefficiencies and increased delays. Secondly, west flow would produce similar dependencies that could only reduce the efficiency of the configuration. Arrivals would be assigned to Runways 27R, 27L and 28L. Departures would be assigned to Runways 32L, 32R and 22L. Arrivals on Runway 27R would be dependent with Runway 32L departures. The most significant dependency would be arrivals on Runway 28L and departures on Runway 22L. Runway 28L arrivals would cross Runway 22L approximately 7,000' down the runway. In light of FAA standards for separation of such traffic, the distance between arrival aircraft on Runway 28L would reduce significantly the efficiency of this operation. In summary, in both east and west flow IFR conditions, air traffic would have to take steps to operate these Derivatives in a manner that would have the immediate effect of reducing capacity and increasing delays.

Mr. Fleming is critical of the FAA's earlier analysis of the L-1 East Flow and West Flow capacity in which the agency found limited benefits to capacity or delay reduction. In response to his criticism, we suggest it is important to remember that additional runways do not necessarily mean additional capacity. The proposed layout of any new runways, including their relationship with other existing runways, is pivotal in determining the performance of the proposed airfield. After reviewing his critique, we still believe that the L-1 configuration would perform only marginally better than our existing Plan X. We understand that the FEIS considers Plan X to be part of the "No Action" Alternative, and therefore the slight improvement produced by Derivative L-1 over today's situation represents only minimal improvement, at best.

Today, Plan X has three arrival runways (Runways 4R, 9R, and 9L) and four departure runways (Runways 32L, 32R, 4L and 9L). Departures on Runway 32L are dependent with arrivals to Runway 9L. Departures on Runway 32R are dependent with departures on Runways 4L and Runway 9L. Departures on Runway 4L are dependent with arrivals on Runway 9L, and departures on Runways 32R and 9L. In contrast, Derivative L-1 East Flow has three arrival runways (Runways 9L, 9R, and 10R) and three departure runways (Runways 32L, 4L, and 10L). There are no differences between the numbers of arrival or departure runways. The north side of this proposed configuration is similar to the dependencies in existing Plan X although no departures are assigned to Runway 9L or Runway 32R. This reduction in dependency may result in marginally better performance. As with Plan X, departures on Runway 32L would be dependent with Runway 9L arrivals. Arrival spacing would be the same as today for Runway 9L arrivals. On the south side of the airfield, due to the runway spacing, arrivals on Runway 9R would have a dependency with departures on Runway 10L. Overall, this configuration would perform marginally better than existing Plan X due to the reduced coordination on the north airfield.

Similarly, Derivative L-1 in West Flow would have three arrival runways (Runways 27R, 27L, and 28L). Departures on Runway 32R would be dependent with arrivals on Runway 27R. Departures on Runway 27L would have a dependency with departures on Runway 28R.

However, this relationship is less intensive than must be conducted on the existing Plan W which causes departures on Runway 32R to be dependent with arrivals on Runway 22R and 27R, and makes departures on Runway 22L dependent with arrivals on Runway 27L. Although this configuration performs marginally better than existing Plan W, it does not accommodate the forecast level of aviation activity through the planning horizon. Perhaps, this is the reason that Mr. Fleming insists on comparing L-1 with Phase One of the OMP rather than with the Selected Alternative.

L-1 proposes a shortened Runway 10C/28C to 8,000, to avoid St. Johannes on the west end of the runway. However, the RPZ for that runway would likely preclude public attendance at the cemetery, and further shortening of this runway to alleviate this problem would render it useless.

With regard to Derivative L-2, the FAA found that it would perform worse than today's airfield in delay reduction. The north side of this proposed configuration is very similar to the dependencies in existing Plan X. However, due to the location of the runways and the geometry created by the new runways, the operation would not perform as efficiently. Departures on Runway 32L would be dependent with Runway 9L arrivals. The new Runway 9L is moved further north, causing the intersection of the extended centerline of Runway 9L to be farther from the departure point on Runway 32L. Arrival spacing would have to be increased on Runway 9L arrivals. The new Runway 9L would cross Runway 4L farther from the departure point. Therefore, Runway 4L departures would have to be held in position on the runway awaiting departure longer until the Runway 9L arrival is through the intersection of the two runways. This additional degree of dependency would result in a configuration that would perform worse than Plan X today.

Also, we disagree with the commenter's assertion that retaining Runway 14R/32L is necessary. As part of the Airport Layout Plan analysis, it was determined based on an analysis of 10-years of historical weather data that the proposed airfield (without either Runway 14L/32R or Runway 14R/32L) exceeds the requirement in FAA standards. FAA Advisory Circular 150/5300-13 – Airport Design in Appendix 1 – Wind Analysis paragraph 3. Coverage and Orientation of Runways states that “The desirable wind coverage for an airport is 95 percent, based on the total numbers of weather observations.” For O'Hare, with a crosswind component of 16 knots (which is typical for large air carrier aircraft) the proposed runway layout provides 99.8% coverage. If the FAA were to retain this runway, it would rarely be placed in use because its intersections with other runways reduce its effectiveness and active use would impede traffic destined to and from the new western terminal.

In its earlier analysis, the FAA also observed that Derivatives L-1 and L-2, when combined with some or all of the components of each, would produce many of the problems associated with each while providing few benefits in terms of delay reduction for unconstrained traffic in the future. Again, comparison to Phase One of the OMP is not especially relevant when the goal of this project is to reduce delay at present and projected traffic levels. The FAA has not compared Derivatives L-1 and L-2 with Alternative B, the initial phase of O'Hare improvement. Instead, the appropriate comparison is with Alternative C, the Selected Alternative that produces only 5.9 minutes of delay at 1,194,000 operations. When measured against the Selected Alternative,

it is clear that these derivatives fall far short of achieving meaningful delay reduction during the planning horizon.

¶ 43 Derivative M was generated by the FAA in response to a newscast in which an individual asserted that a single new runway in the southernmost part of the airport could accomplish the delay reduction sought by the OMP at a fraction of the cost and without the need to take St. Johannes Cemetery. The agency's analysis of Derivative M found that it allowed quadruple approaches only during east flow in good weather, and even then, higher than normal landing minima would apply because of the converging traffic assigned to Runway 4R. FAA also found that in IFR conditions, the requirement for a 5,000 foot separation between parallel runways for triple simultaneous landings reduced this derivative to two streams of traffic. There is no improvement in capacity on the north side of the field, as the runway triangle is retained intact. In response, Mr. Fleming asserts that the limitation on quadruple landings is of no consequence, because "discussions with local air traffic controllers at O'Hare show conclusively that triple approaches are all that are needed to handle VFR capacity at O'Hare." (¶ 43.1, p. 32). We completely disagree. One of the significant limitations to the existing airport configuration is when the weather transitions from good to poor weather, the airport loses the capability of operating triple converging approaches. The airport users schedule their activity based on the greatest capacity configurations, with the assumption that three arrival runways will be available every day. Therefore when the weather turns poor, the ability to operate triple approaches is lost, resulting in flight cancellations and increased delays. With a forecast increase in traffic of approximately 23% over the planning horizon, it is reasonable to say that delays would be significantly higher without being able to address the disparity between good weather and poor weather. The Selected Alternative provides quadruple streams of arrivals in good weather in both east and west flow, and triple streams in IFR conditions.

Mr. Fleming takes issue with the earlier FAA statement that triple approaches for IFR east or west flow would not be allowed for Derivative M or N, because a controller told him that the special equipment required for such activity could be ordered. What Mr. Fleming misses is that even if such activity were possible, triple IFR approaches in either flow would not be independent or operationally efficient. First, east flow would have arrivals assigned to Runways 9L, 9R, and 10. Departures would remain assigned to Runways 32L, 4L and 9L. Arrivals to Runway 9R and 10 would be independent. However, arrivals to Runway 9L would be a dependent and highly coordinated operation. Runway 32L departures would be dependent with Runway 9R arrivals. Runway 9L departures would be dependent with arrivals on this Runway and with Runway 4L departures. Finally, Runway 4L departures would be dependent with Runway 9L arrivals and departures. All of these dependencies lead to inefficiencies and increased delays. Virtually nothing is done to address the inherent dependencies and limitations of the existing runway triangle. Second, west flow would have similar coordination requirements reducing the efficiency of the configuration. Arrivals would be assigned to Runways 27R, 27L and 28. Departures would be assigned to Runways 32L, 32R and 22L. Arrivals on Runway 27R would be dependent with Runway 32L departures. The most significant dependency would be arrivals on Runway 28 and the necessary coordination with departures on Runway 22L. Runway 28 arrivals would cross Runway 22L approximately

7,000' down the runway. This would increase the inter-arrival separations on Runway 28 significantly reducing the efficiency of this operation. In summary, in both IFR conditions, the number of departures would be significantly lower than arrivals, especially in the east flow operation. Air traffic would have to increase the arrival separations to allow the departures to leave, in order to maintain a balanced airfield.

Although proposed Runway 10/28 in Derivative M was evaluated as a primary arrival runway, it would be used as a departure runway during certain wind and weather conditions. For this analysis the FAA assumed that the proposed runway would be 7,500'. Mr. Fleming's suggestion to shorten the runway by 1000' (7500' to 6500') to prevent the overlap of the Runway Safety Areas of Runway 28L and Runway 4R would severely limit the number of aircraft able to arrive on the runway and would eliminate a majority of the fleet mix from using this runway as departure runway. Furthermore, the suggestion of shifting the runway west to avoid shortening the runway would most likely result in the same land envelop proposed for acquisition under the Selected Alternative. Thus, the land envelop in the same southwest quadrant may have to be acquired with this derivative as the Selected Alternative with significantly fewer operational benefits.

Also, we cannot accept the assertion that under this Derivative, the railroad yard would not need to be relocated. The FAA agrees that the physical runway itself would not infringe on the railroad yard. However, the Runway Safety Area on the southwest side of the approach end of Runway 10R would encroach on the northern most portion of the railroad yard requiring at least a partial relocation. FAA Advisory Circular 150/5300-13 Airport Design states that a runway safety area shall be, "cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations." In addition, that document also provides that a runway safety shall be, "free of objects, except for objects that need to be located in the runway safety area because of their function." This is clearly not the case with the railroad yard.

There is one final comment we offer in this response to Mr. Fleming's affidavit. As described earlier, Derivative C-1 eliminates Runway 10C/28C. In designing the Selected Alternative, the planners created a runway layout design that permits quadruple streams of landing traffic in good weather. Derivative C-1 precludes that benefit, for it removes a runway intended for full-time use. In contrast, Derivatives C-2 through C-5 do not change the overall geometry of the Selected Alternative in the sense that all the runways contained in the Selected Alternative appear in C-2 through C-5, albeit in a shortened or slightly relocated format. Our comment is that at some point in the future, air traffic specialists expect technology to develop to the point where controllers at O'Hare will have the capability of conducting quadruple streams of arrivals in IFR conditions. That potential will be lost if any of these derivatives is adopted. By adopting Derivative C-1, quadruple streams are impossible in any weather. Because Derivatives C-2 and C-3 shorten a critical runway, quadruple streams are highly unlikely to receive future approval for bad weather approaches. Derivatives C-4 and C-5, because they move Runway 10C/28C closer to Runway 10R/28L, also virtually assure that quadruple streams in bad weather will never be approved, even when the technology is available because those runways will be too close to each other to authorize such procedures..

The FAA may not wish to emphasize this point in the ROD. It does involve a degree of prediction about future air traffic techniques, rather than an assessment of how we operate O'Hare and these derivatives with the tools of today. Nevertheless, it is our judgment that this point should be recognized, insofar as adoption of any of these derivatives would deprive the FAA of a potential tool in the future that could provide significant benefits during adverse weather at O'Hare.

We trust this analysis of comments will prove helpful in the preparation of the ROD in this matter.