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. ll-7, table ll-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. ll-7, table ll-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 use10L 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."

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

of several hundred feet per minute, slowing their decent 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 there 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 lll-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. ll-7, table ll-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 runway14R/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 rivals 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:

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

Kenneth Fleming

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

Patricia Lee McAllister

Notary Public

NOTARY PUBLIC-STATE OF FLORIDA
Patricia Lee McAllister
Commission #DD362932
Expires: OCT. 14, 2008
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