USE OF VISUAL APPROACH DURING FLY QUIET HOURS

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1. Use of Visual Approaches during Fly Quiet Hours
(O'Hare Runways 28C/10C and 27L/9R)

a. Visual Approach Definition:

A Visual approach allows a pilot to fly direct to a runway without performing a full instrument approach. Visual approaches are used to expedite aircraft to the airport by shortening its flight path or by reducing the size of required spacing behind other aircraft. Visual approaches can reduce pilot and controller workload. An aircraft on a visual approach is required to remain clear of clouds and keep the airport or the aircraft he is following in sight, along with any other restrictions issued by the controller. This often includes an instruction to maintain (pilot) visual separation from adjacent or preceding aircraft.

b. Visual Approaches and Noise:

An aircraft on a visual approach is typically not flying a localizer or glideslope but instead is navigating manually and in most cases short-cutting, or on an angling approach to the runway or its final approach course. Unless otherwise stated, the only altitude requirement for aircraft on a visual approach is to maintain obstacle clearance. During Fly Quiet hours at O'Hare (2200-0700) the noise abatement procedure does not allow an aircraft to descend below 4000' until it is lined up on final approach (the extended runway centerline). Often, an aircraft on a visual approach and angling in to the runway must descend below 4000' to establish a stabilized final approach to the runway and land. If conducting a visual approach close to the airfield (i.e., within 10 nautical miles, or NM), this angling approach may not allow the aircraft to be in compliance with the "4000' until on final" portion of the O'Hare noise abatement procedure. An aircraft angling in on a visual approach and/or descending below 4000' is randomly generating noise in areas where it's not normally expected nor intended. In addition, pilots who are flying visual approaches sometimes make more frequent power adjustments because of the lack of glide slope and localizer information until they are on final approach. Power adjustments can create additional unwanted noise. There have been documented complaints to the City of Chicago Noise Office of aircraft appearing to violate noise procedure on approach into O'Hare during Fly Quiet hours.

c. Recommendation:

In order to maintain the integrity and intent of the O'Hare Fly Quiet Program, we recommend modifying the air traffic Fly Quiet guidance as follows: "Unless an emergency exists, visual approaches should not be used during Fly Quiet hours, unless

the pilot is issued a clearance to maintain 4000' until established on final and the aircraft is turned far enough on final to allow it to meet the 4000' requirement." Because of air carrier requirements for shallow descents and stabilized approaches, this 4000' requirement would create the result of aircraft being aligned on the extended runway centerline approximately 10 nautical miles or beyond.

The authority most responsible for considering this recommendation is the Air Traffic Manager, Federal Aviation Administration, Terminal Radar Approach Control (TRACON), Elgin, IL.

d. Considerations:

Air Traffic Control often utilizes visual approach clearances to expedite the arrival of an aircraft to minimize flight time, reduce conflicts or avoid extended flight patterns otherwise needed to follow aircraft approaching from another direction. In busier periods, use of this clearance can slightly reduce required spacing behind preceding aircraft, reducing go-arounds or losses of required separation. However, it should be noted that controller complexity is affected whenever additional restrictions are placed upon how traffic is managed, especially if it contributes to aircraft spending additional time in the air. In this instance, Chicago TRACON controller complexity might increase slightly by reducing the usefulness of visual approaches or by slightly increasing flying time. Though Fly Quiet hours are typically a light traffic time of day, conditions can sometimes cause the shoulder hours to experience moderate traffic. Also, night staffing is consistently at reduced levels, so the responsible TRACON controller manages a larger amount of airspace than typical. ORD Tower controller complexity could be slightly enhanced, since all aircraft arrive via a single point, vs. a wider expanse and less predictable flight path when cleared on visuals. Guidance using "should" (vs. "shall") alleviates controllers or pilots from distraction from minor infractions or rigid adherence to a procedure that could occasionally lead to the development of an adverse situation. Otherwise, this requirement should have little effect on the efficiency of the ATC operation. It should have minimal impact upon flight time or fuel management, during a period when operators typically benefit noticeably because of reduced traffic.

Amending this procedure could have secondary noise impacts. Aircraft that might have been cleared for a short visual approach might overfly other noise sensitive areas by avoiding a low approach over closer-in communities. However, the additional distance flown is brief, likely at higher altitude, primarily within areas that traditionally accommodate such higher traffic via published procedures, or even in noise compatible areas such as forest preserves or over Lake Michigan. It appears impractical to further restrict visual approach procedures, even during light traffic periods.

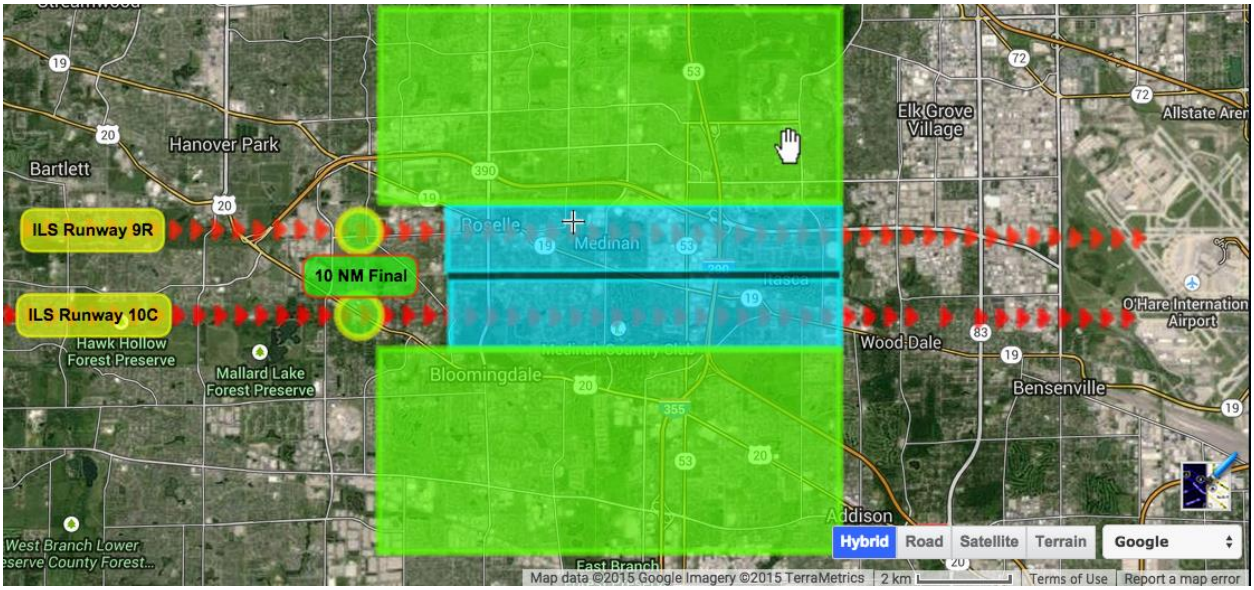

Exhibit 1: Photo -: Approximation of ILS9R and ILS10C

(east flow, dotted lines in red); 10 nautical mile final point, areas likely to most benefit if procedure is adopted (green rectangles), additional areas likely to most benefit when opposite arrival runway is in use (blue).

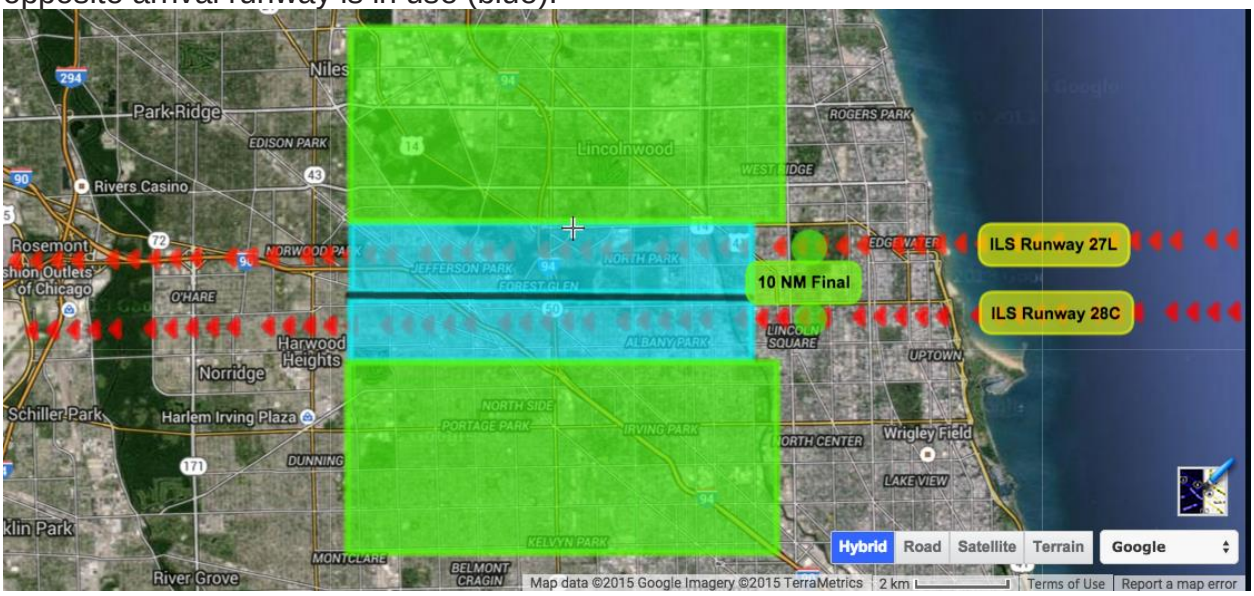

Exhibit 2: Photo - Approximation of ILS27L and IL28C

(west flow, dotted lines in red); 10 nautical mile final point, areas likely to most benefit if procedure is adopted (green rectangles), additional areas likely to most benefit when opposite arrival runway is in use (blue).

References:

http://www.flychicago.com/SiteCollectionDocuments/OHare/AboutUs/Fly%20Quiet/FQ%20Manual%20080814.pdf (O'Hare International Airport Fly Quiet Program, Arrival and Departure Procedures)

https://www.faa.gov/air_traffic/publications/media/AIM_Basic_4-03-14.pdf (FAA Aeronautical Information Manual, 5-4-23- no altitude requirement on visual approaches)

Exhibit 3: THE JDA TEAM

Author:

Rob Voss Senior Air Traffic Operations Subject Matter Expert (SME), is a JDA associated consultant and former career FAA Air Traffic Control Specialist, Operations Supervisor, Quality Assurance and Training Specialist, Plans and Procedures Specialist, Air Traffic Manager, Integration and Efficiency Specialist and finished his FAA career as a System Operations Senior Advisor. Rob spent more than 26 years with the FAA including assignments at Chicago Midway (MDW), San Francisco (SFO), Santa Rosa (STS), Scottsdale (SDL), San Carlos (SQL) and the Midwest Tactical Operations office. While working for several years outside of the FAA, Rob was an Air Traffic Consultant to the Deputy Airport Director (Noise Abatement) at SFO, where he provided analysis, advice and education involving aircraft noise and air traffic procedures and was the Project Manager for a FAR Part 150 noise exposure map update. He has also served as a contractor and Air Traffic Analyst at NASA-Ames Future Flight Central research and simulation facility.

Contributing:

Dr. Antonio A. Trani, is a JDA associated consultant and Professor with the Department of Civil and Environmental Engineering at Virginia Tech University and is Co-Director of the National Center of Excellence for Aviation Operations Research (NEXTOR). He has been the Principal or Co-Principal Investigator on 68 research projects sponsored by the National Science Foundation, Federal Aviation Administration, National Aeronautics and Space Administration, National Consortium for Aviation Mobility, Federal Highway Administration, and the Center for Naval Analyses. Dr. Trani has provided noise, capacity and safety consulting services to the Norman Manley International Airport, Punta Cana International, National Institute for Aerospace (NIA), Xcelar, Quanta Technologies, Los Angeles World Airport, Charles Rivers Associates, Boeing Phantom Works, Civil Aviation Administration of China (CAAC), British Airports Authority (BAA), SEATAC Airport Authority, Louisville International Airport, Delta Airport Consultants, Celanese, and the MITRE Corporation.

Dr. Sanford Fidell, is a JDA associated consultant and owner and President of Fidell Associates which provides consulting and research services and litigation assistance in environmental acoustics, transportation noise, and effects of noise on individuals and communities. He is the U.S. Representative to International Standards Organization (ISO) Technical Advisory Group on Community Response Questionnaire Standardization and to ISO Working Group 45 on Community Response to Noise. Dr. Fidell is member of the Acoustical Society of America and the Technical Committee on Noise. He was on the Design Review Group for the FAA's Integrated Noise Model software. Dr. Fidell has provided consulting services to community, airport and government agencies involved in aircraft noise controversies and assessments and

disclosures of aircraft noise impacts and has consulted on land use planning related to aircraft noise regulation. He is active in international standardization efforts for prediction of aircraft, rail and road noise impacts.

Dr. David Dubbink, is a JDA associated consultant and an Environmental Planning and Noise Management Specialist. He holds a PHD from UCLA in Urban Planning and Environmental Management. He is the designer and developer of ISIS (the Interactive Sound Information System). Dr. Dubbink is a member of the Acoustical Society of America, Institute of Noise Control Engineering, International Association for Impact Assessment and the Transportation Research Board, Committee A1F04, Transportation Related Noise and Vibration. He has provided training and consulting services on noise management to over 80 organizations worldwide.

Craig Burzych is an Air Traffic Operations Specialist, a JDA associated consultant and former career FAA Air Traffic Control Specialist. He spent 24 years working at the O'Hare Control Tower and 4 years working in the Chicago Midway Tower. He was detailed annually to lead the FAA Air Traffic Control support for the annual EAA Oshkosh "fly In" the single largest aviation show and exhibit held in the U.S. Chuck served as President of the National Air Traffic Control Association (NATCA) (Chicago ORD) 9 years and also was a NATCA Aviation Safety Inspector and a member of the FAA Runway Safety Action team for the Great lakes Region.

Cynthia Schultz PE, AAE is JDA's Vice President of Airports where she manages the airport line of business including, airport Safety Management System services, airport sustainability, airport strategic planning, airport security, facilitating new technology/products for airports, training for airports and airlines, airline negotiation and development of support services. Before joining JDA Cynthia was the Airport Director of Great Falls International Airport where she directed and led all airport operations, maintenance, administration, finances, security and support services including project management of engineering, architectural and construction, negotiation and administration of leases and concessions, safety, certification, design, construction and funding issues.

Joe Del Balzo, JDA Founder and President, served as the highest-ranking career professional (Acting Administrator) in the Federal Aviation Administration (FAA). Both in his long career with FAA (where he also served as FAA's Executive Director of System Operations, Executive Director for System Development, Director of the Eastern Region and Director of the FAA Technical Center) and in his subsequent private role as an aviation consultant, he has earned wide respect for his expertise in a wide range of aviation issues.