PROGRAM AND DESIGN AS A CONCURRENT PROCESS

AN ARCHITECTURAL THESIS FOR A NEW TERMINAL 2
AT CHICAGO-O’HARE INTERNATIONAL AIRPORT

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ABSTRACT

The thesis is to investigate a concurrent program and design process which will improve the quality of the built environment. A program is often regarded as only the initial step which establishes the parameters for a design. The thesis position is to consider programming as a continuous synthesis of information about emotions and actions during all design stages. The premise of this approach is that it can result in a facility which is more responsive to the users needs and becomes the enhancement and celebration of life.

The project is a new domestic terminal at Chicago O'Hare International Airport. Construction is currently underway for the most extensive redevelopment of any airport that has ever occurred. Projected growth is from the current 43 million passengers a year to 75 million a year by 1995.

The airport is currently operating far above its designed capacity which creates a crowded and disorienting environment for the traveler. The thesis and project recognizes this condition and the final design meets the projected demands for 1995.

I dedicate this book to my family - especially Adam - an inspiration for new beginnings.

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INTRODUCTION

THESIS POSITION

Architecture is the manifestation in form of a society’s dominant cultural values. The belief, attitudes, and opinions of a society become the controlling forces of the built environment. Skolimowski noted that the deficiencies of Western culture are reflected in the architecture of the Modern and Post-Modern movements. An emphasis on economics and technology has led to a glorification of an objective, efficient, and physical approach to design. The spirited, humane, and social components are no longer regarded with equal importance. There has been a shift away from directly responding to human needs towards an idealization of mechanistic standardized norms. Facilities are usually inadequate due to this lack of understanding, sensitivity, and creativity within the framework of an economic and technological emphasis. Skolimowski felt that we do not want to build sterile buildings and shoddy environments, but our culture “makes” us design such spaces.

The functionalist theory of modern architecture still has a strong influence today. It promotes a design process which strictly adheres to a programmatic listing of activities and spatial requirements. Programming is regarded as the initial and objective step which establishes the parameters for the design. The intangible considerations of human emotions and desires are often overlooked because they are difficult to express in a listing of requirements.

Skolimowski stated that we must regard the human being as sacred if we want to design spaces which respond to a variety of user needs. This implies that sympathetic design solutions can result when programming is regarded by the designer as an intuitive synthesis of information about human emotions and actions. The internalization of these concerns should continue throughout the design process. Therefore, “programming” can be viewed as concurrent with design with no distinction between these two activities. The human spirit is considered with every refinement of the solution.

Louis Kahn felt that a building should embody and serve the human institutions of society. These institutions are positive human desires which are expressed when people come together in the sense of a community. He believed that the institutions that a building should house must be realized by the architect for they will not be found in a list of spatial requirements in the client’s program. Often Kahn’s first reaction to a program was to change it because it would never convey the essence of the social institution that the building was to embody.

The implications of considering...
emotions and human institutions as the focus for a program is that it will lead to an improvement in the quality of life. If the essence of our emotions, actions, and desires can be incorporated into the design process, it will enrich the personal interaction with the final building form. Skolimowski recognized the following aspects of quality in architecture:

1. Quality of the original idea.
2. Quality of the construction process.
3. Quality of the final product.
4. Quality of the personal interaction with the environment.

Quality at the first three levels does not insinuate that an improvement in the quality of life at the fourth level will occur. We cannot assume a linear approach to creating a meaningful experience for the facility users.

The traditional approach to programming of problem statement to solution is described in Edward T. White’s book, Introduction to Architectural Programming. This method assumes that there will be a consistency in values to insure a smooth transition from the initial program to the final design. It is apparent that when the collective design synthesis is distilled into these two processes there is a greater likelihood that a discrepancy will occur. This is even more evident when the program and design are assigned as separate tasks to various individuals. A program can be written from a different point of view than the designer has, and there may be some difficulty relating to it in trying to solve the problem.

The main goal of my architectural thesis is to address these discrepancies and explore a wholistic program/design process. The intent of this approach is to create a facility which is more responsive to the user’s needs and considers the problems which occur at many different scales. Additional goals which are pertinent to the thesis include the following:

1. To maintain flexibility by absorbing and considering all information throughout the process.
2. To create an environment which will allow various types of users to have a meaningful experience.
3. To develop a solution which lessens a negative impact on the ecological and social context of the project.

As previously stated, the implications of this thesis position is that it can spur quality-of-life architecture which recognizes both the physical and psychological well-being of the facility users. The complexity of the building type which was selected for the explorations of the thesis gave meaning and direction to this concept.

To create a quality experience, the convenience of the person’s interaction with the environment was regarded as having utmost importance. The traditional meaning of quality being material and amenity selection is recognized as being critical yet playing a subservient role.
PROJECT DESCRIPTION

The project which was developed to investigate the thesis was a new design for a portion of Chicago-O’Hare International Airport. Construction is currently underway for expansion of this complex during the next decade which will increase its passenger activity from 43 million a year to 75 million a year. The large volume and variety of people that must interact in this major airport terminal reinforces the appropriateness of a concurrent program/design approach. Regarding the convenience of the facility as being extremely important, the massive scale and complexity dictated an analytical nature to the process. There was a need for continuous evaluation of how to enrich the physical and psychological well-being of the facility users. The design must respond to travelers who fly weekly, and to individuals who visit the airport once a year or less. Also, there are employees who are expected to perform at a high level of efficiency, interact with the public, and function as a part of a total system.

PROJECT GOALS

Goals which are pertinent to the building type and project location include the following:

1. To develop a design that responds to the characteristics of a transient environment and overcomes the glorified corridor image.
2. To understand the planning process in terms of the phasing of expansion.
3. To become more aware of realistic and established influences on a project by considering existing conditions.
4. To understand successful design concepts at other airports that could be applied to O’Hare.
5. To develop a design which greatly reduces the impact of the problems that exist at O’Hare.
6. To become an "expert" about the issues at O’Hare which are critical to the exploration of the thesis position.
The history behind what is known today as Chicago O’Hare International Airport dates back to the beginning of the Second World War in 1942. The Federal Office of Production Management was looking for a location for a new Douglas Aircraft manufacturing plant and selected the small town of Orchard Place just 17 miles from downtown Chicago. The plant assembled several aircraft up until the end of the war in 1945. The facility and its adjacent lands were bought by the City of Chicago, and the airstrip was renamed Orchard Field creating the ORD abbreviation that is still used today. The airport was renamed for a third time in 1949 in honor of a navy air ace, Lieutenant Commander Edward H. O’Hare, Jr. Chicago’s Midway Airport was the world’s busiest air transportation center during the 1950’s handling 10 million passengers a year. Its runways could not be extended, however, to serve the new jet aircraft so expansion took place at O’Hare. Even before it was officially dedicated in 1961, O’Hare was the busiest airport in the world.
BACKGROUND

SCALE

The massive scale and scope to the operations at the world’s busiest airport is difficult to comprehend. There are currently 102 gates that accommodate 120,000 travelers and 1,200 aircraft every day. By 1995, the airport will have 145 gates and there will be 921,000 takeoffs and landings at the airport each year. In 1963, 21 airlines used its facilities. Today, there are 42 domestic airlines and 13 international carriers providing service.

Approximately 880 acres, which is one-seventh of the airport’s total area, is paved. The U.S. Postal Service facility at the airport, and the parking garage for 12,000 cars are the largest in the country.

There has been a great deal of controversy surrounding the O’Hare expansion, however the city feels that it cannot afford not to implement the O’Hare Development Program. The airport has 28,000 employees and contributes $6 billion to the area’s economy every year. The improvements will create 9,200 construction jobs and 100,000 new permanent jobs.

CONCERNS

There are also liabilities to consider with the expansion of O’Hare. The airport is completely landlocked by 25 communities that have 90,000 homes, 21 hospitals, 200 schools, and 150 parks and forest preserves that are affected by the noise and pollution of aircraft. The three sets of parallel runways are to be improved to handle the projected growth in air traffic, and 3 of these runways will actually be extended. Several lawsuits have been filed in an attempt to limit the expansion and public relations are severely strained. The Suburban O’Hare Commission was formed by the mayors of 15 surrounding communities to uphold the interests of the residents living near the airport. The Commission has been successful in implementing a school soundproofing program and having noise berms constructed on the airport’s property. In 1984, the residents made over 18,000 calls to the Noise Abatement Office at the airport.

AERIAL OF O’HARE
DESTRUCTION OF INTERNATIONAL TERMINAL
A master plan for the redevelopment of O'Hare was completed in June 1982. The plan was based upon a forecast of what would be required to meet future needs with the growth in air passenger traffic and improvements in aircraft design. The Master Plan includes over 90 separate projects which are being funded jointly by the airlines at a total cost of $840 million. Individual airlines and the other local businesses that use O'Hare will provide an additional $500 million for general improvements.

The major project of the Master Plan includes the expansion of domestic terminals, a new international terminal, a new cargo complex, new roadways, parking facilities, and a 7 mile long intra-airport 'people mover' transit system.

The first Development Program project to have been completed is the Terminal 3 extension and concourse "L" for Delta airlines at the east end of the complex. Concourses "H" and "K" are being renovated by American Airlines with an extensive skylighting system and computerized baggage processing. United Airlines will move its operations from the existing Terminal 2 to a brand new Terminal 1 which is being built where the international facilities once stood. All of the improvements are highlighted in royal blue on the Master Plan map. The existing inner-outer taxiway system will be relocated outward to permit extensions of the existing concourse. Other improvements include expansions to the airside of Terminal 2 and 3 for new security processing and additional concession areas.

The people mover system which is shown as a bright red line on the map is an automated system that should help to relieve vehicular congestion in the core of the complex. Rubber wheeled cars on a concrete track will travel between remote parking, rental car parking, and all terminals.

The new international terminal, shown in red, will provide 12 gates, ticketing, and baggage claim facilities. Short-term parking, shown in yellow, will be provided in front of the terminal building.

The areas shown in green on the map are improvements to existing roadway access systems.
The three terminals at the core of the O'Hare complex were built in the 1940's and 1950's by Naess-Murphy Associates. Even though the passenger traffic has more than doubled in the past 20 years, improvements to these buildings have been limited. Murphy/Jahn, Schal Associates, and Envirodyne Engineering are directing a consortium of firms collectively known as O'Hare Associates to execute the $1.4 billion O'Hare Development Program.

Terminal 2 at the center of the complex is currently used by United and several smaller commuter carriers. The commuter airlines will continue to be located here...
after United moves their operations. The only improvements planned for Terminal 2 are an extension of concourses "E" and "F", and additional space for passenger processing areas. The thesis project recognizes the need for a brand new terminal so that the entire complex can function more efficiently. This project assumes that a carrier currently using the terminal, such as Northwest Orient, would provide the funding for a new facility and in turn rent space to commuter airlines.

A widening of the upper and lower level roadways is to occur with the current Master Plan. The additional lanes,
however, will still be insufficient to meet curb frontage requirements. Congestion also occurs for pedestrians with the bottleneck effect of the glass walkways that connect sections of the terminal.

The new United Terminal, designed by architect Helmut Jahn, consists of an 1,800 ft. main concourse and a satellite facility providing a total of 42 gates. An underground pedestrian tunnel with moving sidewalks will connect the two buildings. John stated that his intentions were to create a galleria effect and a grand public space.
The interior of the new Delta concourse is the only portion of O'Hare that even begins to resemble a modern facility. It provides a wider circulation corridor and more spacious waiting areas than exist in the other concourses.

The circular form of the restaurant building located between Terminals 2 and 3 severely restricts circulation during peak passenger hours. The arrangement of the plan with several small restaurants is disorienting to most travelers. My proposal is to remove this building, and
extend the width of Terminal 3 in order to improve public flow and allow for a more logical organization of public services.

Paul Gnapp, an architectural critic for the Chicago Tribune describes the interior of the terminals as having a Spartan, almost military appearance. The amount of space for queuing in the ticketing lobby is grossly inadequate causing long lines that double-back several times.

Current plans to provide additional space on the
The effective width of the concourse corridor is greatly reduced by seating, lockers, telephones, and signage displays. Also, the crowded gate waiting areas provide only half of the number of seats that are needed. A recent survey by "Advertising Age" magazine showed that travelers throughout the United States consider this airport to be their least favorite. Some of their reasons included long walks, poor inter-line connections, and it is not refreshing artistically.
The final design solution for a new Terminal 2 is a four level facility containing over 1 million square feet. The upper level is predominantly ticket counters, boarding lounges, concessions, and waiting areas below an office mezzanine level. The lower level consists of vehicular arrival and departure curbs, baggage claim areas, and offices. Baggage processing and make-up facilities are located in the basement level.

The configuration of this solution which utilizes a "drive to the gate" concept, responds to the issues which have become critical at O'Hare. With the addition of a loop into the existing roadway system, critically needed curb frontage can be provided. Four lanes ramp down from the existing upper level roadway and feed back onto the lower level system. Passengers arrive at the east side of the terminal and are picked up on the west side. This terminal adjoins the new United facility and extends the gate frontage for an additional 850 feet.
UPPER LEVEL PLAN

The thesis project provides 42 gates which is equal to the plans for the actual facility. Also, this configuration increases the distance that existed between concourses which benefits aircraft circulation. Costly and inconvenient flight delays are the result of airside congestion. By alternating the sizes of aircraft parking positions, wingtips can overlap which greatly increases the total gate count. This concept is being used by American Airlines at concourses "H" and "K". Another important issue with this solution is that walking distances are shortened considerably with incoming and outgoing traffic on the lower level stopping directly below any airline's gates.

Security check points are located on the lower level at every escalator and at the connection with the other two terminals on the upper level. This insures that all passengers in all areas of the upper level have passed through security. The option exists to locate security points on the bridges that connect to the boarding lounges if the airport feels that a totally secure upper level is unnecessary at this time.

The concept of the final solution is a departure from the traditional pier configurations that have existed in the past at O'Hare. The integration of terminal and concourse creates a unique identity for Terminal 2 which will help to orient the facility users. The transparent curvilinear forms reflect the new vocabulary which has been established at O'Hare with the new United and American terminals.

To create a place of movement and transition from earth to sky, the forms become lighter and more transparent as one enters the boarding lounges. Barrel-vault skylights above each escalator core are also symbolic of this transition. The prismatic glass panels of the skylights are arranged in a color sequence of orange, yellow, green, blue, that reflects the natural landscape. At nighttime, the color sequence of the lighted vaults could be read from the exterior.
UPPER PARTIAL PLAN

Innovative concepts have been applied to the various functions in the upper level that take advantage of the unique plan arrangement. The moving walks, running at slightly less than normal walking speed, will enhance passenger flow by encouraging people to walk, rather than stand. An interrupted handrail system, on the side towards the ticket counters, will allow passengers to step on or off at any point.

The island ticket counter arrangement allows for passenger processing from both sides. Overhead monitors give flight information and gate locations.

The major public seating areas, located adjacent to the ticket counters, provide diversity of views and activity areas. Informally arranged seating in the center of the space, creates a more relaxed environment than is typically found in airport terminals. The tables provide a place for reading material, hand luggage, and concession purchases. The seating which is arranged in a linear manner is for people to watch passersby. Low top tables between each seat recognize that the individual usually prefers a separation between himself and strangers. Low-key advertisement displays will be located in these areas.

At the boarding lounges there is a seat for every passenger on a full plane. Luggage racks between seating rows recognize the preferred separation and provide temporary storage of hand items. The informal seating areas are desirable for passengers with long layovers. The separation of boarding lounges from the major public flow conveys a sense of place and a more relaxed environment at the gates.

Airport signage will be strictly controlled for uniformity of design to insure legibility with respect to viewing distances and travel speed. The terminal’s graphic system will inform and direct the traveler in a clear and concise manner.
LOWER LEVEL PLAN

The critical factor of the lower level is airport signage indicating designated curb frontage. In order for the "drive-to-the-gate" concept to function smoothly, incoming traffic must easily locate the desired airline. Uniform signage is mounted on the side of the bridges relative to an airline's gate position. This indicates which entrance should be used in order for the passenger to proceed directly upstairs to the desired airline ticket counter. Carriers are assigned gate positions relative to their ticket counter locations.

The amount of curb frontage which has been provided for both incoming and outgoing traffic is in a direct response to forecasted airport activity. The airport's Master Plan indicates additional lanes will be constructed for the existing upper and lower level roadways, but they still fall short of forecasted needs. The thesis' solution recognizes this deficiency, and provides more curb frontage in order to meet projected demands. Vehicle dwell times average twice as long for the deplaning cycle than for the enplaning cycle. Therefore, nearly a doubling of curb frontage occurs on the outbound side. The inner 3 lanes of outgoing traffic are strictly for buses, taxis, and limousines.

With the trend toward the use of travel agencies, and tickets being purchased in advance, curbside check-in is growing in popularity. Skycaps assist travelers unloading their baggage, and then send it to the basement level for processing. The pre-ticketed passenger can then proceed directly to his gate position. Security check points are provided at every entrance to the building. This eliminates long lines and provides more thorough security measures.
SECTION A • TICKETING, BAGGAGE CLAIM, HOLD RMS.
SCALE \[\frac{1}{20}\text{acre}\]

SECTION B • SKYWALKS, SECURITY, ESCALATORS
SCALE \[\frac{1}{20}\text{acre}\]
SECTION A - TICKETING, BAGGAGE CLAIM, HOLD RMS.

SCALE  

DAYLIGHTING STUDIES

SECTION B - SKYWALKS, SECURITY, ESCALATORS

SCALE  

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The development from schematic design to final form can easily be seen on the site model for O'Hare. The massive scale of the complex is evident from the vehicles shown on the upper and lower level roadway systems. The parking garage, O'Hare Hilton, and the control tower are central to the plan. The proposed people mover system is to be constructed within the loop which will access each terminal by a skywalk above the upper level roadway.
PROGRAM ANALYSIS

The planning of future airport facilities requires analysis of past airport activity, and projection of future air traffic trends. The annual enplaned passenger forecast is a critical figure for sizing all terminals areas. The number of expected passengers dictates the size and type of aircraft an airline will be using which directly affects all performance standards of the terminal building.

There are peaks and lulls in the amount of activity at any airport throughout the year and even within any given day. Seasonal variations in activity can be attributed mostly to pleasure travelers. The airlines scheduling of connecting flights determines peak hour activity periods within the course of a day. At O'Hare, these peaks occur at 3 p.m. and 8 p.m.

The implication of the thesis position is that a listing of spatial requirements is inadequate for a program analysis. The following outline is a documentation of endless hours of research to determine a process for sizing a new terminal "F" for O'Hare. This should be regarded as only the initial step for determining spatial requirements. The designer must rely on personal observation and spatial intrinsic values to adjust the results of this formula.

To size boarding lounges:

1. Determine total number of gates which could be provided based on forecasts of needing an average of 145.2 l.f./gate:
   
   \[
   5,970 \text{ l.f.} = 41.2 \text{ gates}
   \]

2. Provide at least as many gates as determined by the Master Plan for 1995:
   
   42

3. Determine 1995 fleet mix:
   
   40% wide body
   
   \[
   \begin{align*}
   \text{wingspan:} & \quad \text{wingspan:} \\
   747 & -200 \text{ l.f.} \quad 727 -108 \text{ l.f.} \\
   DC10 & -155 \text{ l.f.} \quad DC9 -100 \text{ l.f.} \\
   L1011 & -155 \text{ l.f.} \quad 757 -125 \text{ l.f.} \\
   767 & -156 \text{ l.f.} \quad 737 -93 \text{ l.f.}
   \end{align*}
   \]

4. Future gates:
   
   17W, 25N

5. Determine maximum passenger capacity:
   
   \[
   \begin{align*}
   747 & -360 \quad 727 -100 \\
   DC10 & -250 \quad DC9 -100 \\
   L1011 & -250 \quad 757 -140 \\
   767 & -350 \quad 737 -100 \\
   \text{Av.} & 305 \quad \text{Av.} 110
   \end{align*}
   \]

6. Determine peak hour fleet mix:
   
   \[
   \begin{align*}
   747 & -1\% \quad 727 -38\% \\
   DC10 & -12\% \quad DC9 -16\% \\
   L1011 & -4\% \quad 757 -15\% \\
   767 & -12\% \quad 737 -1\%
   \end{align*}
   \]
therefore, from 42 gates:
747 -1 gate
DC10 -5 gates
L1011 -1 gate
767 - 5 gates
however, with increase in wide body
747 - 2 gates
DC10 -6 gates
L1011 -3 gates
767 - 6 gates
gates to 17, provide:
747 -16 gates
DC9 - 7 gates
757 - 6 gates
737 - 1 gate
188,050 total s.f. for boarding rooms
7. Determine maximum s.f. needed for
seated passenger: 15 s.f.
8. Determine maximum s.f. needed at
each gate: (seat for every
passenger on a full plane)
aircraft: # of gates:
747 2
DC10 6
L1011 3
767 6
727 16
DC9 2
757 6
737 1
# of seats/gate: s.f. at ea. gate:
360 5400
250 3750
250 3750
360 5400
100 1500
100 1500
140 2100
100 1500
188,050 total s.f. for boarding rooms
gate frontage required:
# of gates: frontage/gate
2 200 l.f.
9 155 l.f.
6 156 l.f.
16 108 l.f.
2 100 l.f.
6 125 l.f.
1 93 l.f.
To assign airlines to gates:
1. Determine future airlines:
Northwest
Eastern
Braniff
Piedmont
Continental
2. Determine current total of gates used by each airline:
Northwest - 6
Eastern - 6
Braniff - 4
Piedmont - 2
Continental - 4
3. Determine aircraft used from airlines ramp activity charts:
Northwest, 1-747; 5-727
Braniff, 4-727
Eastern, 5-727; 1-L1011
Piedmont, 2-737
Continental, 2-727; 2-DC10
4. Future gates and airlines:
aircraft: total # of gates
747 2
DC10 6
L1011 3
767 3
727 16
DC9 2
757 6
737 1
# of gates by airlines:
2 N.W.
4 N.W., 2 Con.
1 N.W., 2 Ea.
4 N.W., 2 Con.
5 N.W., 5 Ea., 2 Con., 1 Pied., 3 Br.
2 Pied.
2 Con., 2 Br., 1 Ea., 1 Pied.
1 Pied.
PROGRAM ANALYSIS

To determine ticket counter frontage:

1. Determine 1.f. of ticket counter provided: 600 1.f.

2. Determine projected needs: 1200 1.f.

To determine entrances and escalators:

1. Entrances which will exist in 1995: 5 entrances w/ 2 sets of double doors for entering, 1 set of double doors for exiting.

2. Number of entrances planned for project: 8 entrances

3. Determine the number and width of escalators needed at each entrance: 2 escalators- 4 ft. wide

Determine number of fire exits: (150 ft. max. distance from any point to an exit)

21 exits

To determine total s.f. for concessions:

1. Upper level s.f. = 583,200

2. 5% of total (suggested by consultant) = 29,160 s.f.

3. Published needs at 10% = 58,320 sf.

To determine office and airline space:

1. Projected management = 2% of total: 11,664 s.f.

To determine public waiting areas:

1. Determined existing s.f. of public waiting areas in terminal "2": 35,000 s.f.

2. Determine peak mo./av. day domestic enplanements:
   1985-80,720 ; 1995-107,780

3. Ratio of s.f. to passengers: 35,000 s.f. X 80,720 pass. 107,780 pass.

   x = 47,423 s.f.

4. Projected needs of doubling existing: 70,000 s.f.

To determine utility space:

1. Upper and Lower level s.f. = 1,166,400 s.f.

2. Predicted utility needs @ 14%: 163,296 s.f.
SCHEMATIC DESIGN

The evolution of the schematic design alternatives, directly responded to critical research information. The airport has changed little in the past 30 years, and expansion has not been able to keep pace with the increasing activity. The airport is operating at a level that is far above the designed capacity. The amount of gate frontage that is needed exceeds what exists by 23%, the curb frontage is short by 50%, and the terminal spaces operate at 48% above designed capacity.

Prior to the final design, ticketing and gate areas formed a continuous space above the arriving and departing roadway system. The lack of separation between vehicular and aircraft circulation created problems with controlling access to the airfield from the lower level. It was also realized that the "tunnel effect" of driving below the building would be undesirable and would require an extensive ventilation system.

Circulation studies for incoming and outgoing traffic, arriving and departing passengers, and baggage handling systems served as design analysis. The importance of coordinating the activity of all three levels was realized with this method.
The first three models shown above are an attempt to explain the thesis position in a 3-dimensional form. The last photograph shows two models that were being considered for design alternatives.

The first model describes a process that is divergent from an initial point, creating a conflict of unorganized information, and convergent to the final resolution. The importance of this model is that it recognizes the various pieces that must begin to structure a conceptual framework.
The second model indicates cyclical nature of the design process. One can begin with any problem, and with the refinement of the issue, an organizational concept is achieved. The third model truly expresses the notion of entering at any point into the design. With any issue, a decision is made as to the course of action that is to be taken to form an organizing structure. The purpose of the last two models were to consider options for various parts of the building. Two alternatives for moving sidewalks, escalators, and ramp systems were constructed.
Edward T. White's, *Introduction to Architectural Programming*, outlines a research process in which fact gathering may be either segregated or integrated with design synthesis. Segregated gathering implies that all information is documented before any design decisions can be made. With integrated gathering, only a general overview is necessary for schematic design.

The two approaches of integrated gathering, atomistic and wholistic, were both used in agreement with the thesis position. The atomistic approach can be seen in the early development of the ideas for the moving walkway system. The wholistic, overall organizational idea, is evident in the schematic design alternatives. Both approaches can be used when one recognizes that some facts are primary organizers while others are secondary.

With the decision to work with realistic influences on a project, the initial step was to determine the boundaries of the site in relation to the future terminals. The site configuration was determined by aircraft parking restriction lines and the inner taxiway system. A series of sketch problem solutions were generated to maximize the configuration within these site lines. The conclusion from this activity was that the various solutions did not produce a substantial difference in total gate count.

An undergraduate research grant made it possible to visit the airport and meet with architects and airport consultants in the Chicago area. These interviews were extremely helpful in gathering information about the new terminals, O'Hare in general, and documented project studies. Interviews were conducted with the following individuals:

1. Martin Wolf, V.P., Murphy/Jahn
2. Ed Tamminga, project architect, Kober-Belluschi Associates
3. Ron Rowan, Pres., Ralph Burke Associates, Airport Consultants
4. James Ratteree, V.P., Bevins Consultants, Inc.

Conclusions of the research include the following:

1. There are few (if any) airports which are successful in terms of both function and aesthetics. (Functional concerns are pedestrian flow and the spatial relationships of the public areas. Aesthetic concerns are imagery and appropriate material selection.) This raises two points that the design should address: What are the images and "vocabulary" that an airport should have?

2. Some initial beliefs were confirmed:
   - An airport is indeed a good example of a facility that is not responsive to its users and therefore supports the thesis argument.
   - There are a few basic plan concepts that most airports follow.
   - Passenger flow from curb to ticketing to gate, and from gate to baggage claim to curb is very important.

3. Airports have structural and spatial concepts that are rather straightforward. However, these facilities become difficult to understand due to the large number of users that are involved.

4. Architects and the general public are becoming more concerned about airport design, but changes are limited by economic and political forces. (An example is the power of taxpayers) Several cities are doing feasibility studies or have already started remodeling and expansion programs.
LINEAR,
1. Short walking distances.
2. Dropped off near gate.
3. Expansion by linear extension of existing structure.
4. Efficient use of site.
5. Expansion must be considered.
6. Initial master planning.
7. Congestion of circulation.
8. Large airports.

SATELLITE,
1. Security point.
2. Common or separate lounges.
3. Mechanized systems connected to common point.
4. Difficult to expand.
5. New satellite.
6. Multiple units require large site.
7. Long walks.

FINGER (PIER),
1. Security point.
2. Efficient use of site.
3. Passenger is more likely to know where to go.
4. Must provide adequate space between fingers.
5. Rearrangement of aircraft.
6. Requires two taxylanes if there are several gates.
7. Requires 2 apron-edge taxylanes to avoid delays.
8. Congestion near terminal.
9. Corridor image.
10. Long walks.

REMOTE HOLD,
1. Additional aircraft parking.
2. Aircraft servicing activities are separate from terminal.
3. Shorter walks.
4. Maneuver aircraft in and out.
5. People tend to miss more flights (unfamiliar with system).
7. Master planning stages.

PEDESTRIAN CIRCULATION
COMING TO O'HARE FROM LANDSIDE
- Baggage Claim → Gate
- Parking → Terminal
- Ticketing → Gate
- Gate

RENTAL CAR RETURN
- Check-in → Gate
- Gate

CURB
- Baggage Claim → Gate
- Ticketing → Gate
- Gate

COMING TO O'HARE FROM AIRSIDE
- Baggage Claim → Car Rental
- Parking
- Gate
- Ticketing → Gate
- Parking
- Curb

WITHIN O'HARE
UNITED TERMINAL
- Check-in → Gate
- Gate

AMERICAN TERMINAL
- Check-in → Gate
- Gate

INTERNATIONAL TERMINAL
- Check-in → Gate
- Gate

VEHICULAR CIRCULATION
COMING TO OR LEAVING O'HARE
- Baggage Claim → Expressway
- Parking → Expressway
- Parking → Check-in → Expressway
- Parking → Expressway
- Parking → Baggage Claim → Expressway
- Parking → Expressway
The final solution of the project can be regarded as the optimum design capacity for this site. Due to the finite geometry of the roadway system, further expansion appears impossible at this time. Also, with the airport being completely surrounded by residential and commercial areas, there are definite limitations to any runway extensions.

Throughout the course of this study, it became apparent that there were positive and negative aspects to designing a terminal at Chicago O'Hare. The magnitude of the problems and solutions that a project can have became evident with the enormous scale of the facility. This was viewed as a positive result of the study. However, at times it was difficult to communicate this scale and convey the essence of the solutions which were being considered.

The Chicago O'Hare Master Plan is the most extensive redevelopment of any airport that has ever occurred. For the city to manage its completion, there is an extensive network of government agencies, engineering and construction management firms, and architectural design firms working on various projects. It became difficult to obtain information regarding funding and the staging of expansion phases which was an initial goal.

The exploration of the thesis was an extremely challenging experience. However, having a unique approach and project to work with proved to be a great opportunity to explore new ideas and become aware of another field of design that is often disregarded by schools of architecture.

An airport is an excellent example of a facility that is lacking in “quality-of-life” considerations. Because the design begins with an emphasis on the engineered aspects, concern for the users has only occurred after the parameters have been established. It is for this reason that facilities of this type have become sterile environments that are merely a conglomeration of technical systems. The participation of the architectural design profession at an earlier stage would help to create environments which evoke human emotions and enhance the quality-of-life.
- Slower speed to encourage people to walk.
- How fast does the EPCOT system move? People Movers?
- Apt. to see below concourse.
- Ski lifts.

A series of three essays were written as a further exploration of the thesis position and commercial air transportation.

The first essay is a personal interpretation of Theodore Sturgeon's statement regarding permanence and change:

"It is a personal insight, and a pivotal one, that the universal quest for stability takes two forms - that of the pyramid-builder, who stakes out his territory, measures it, and plans course after course toward a definite goal or apex; and that of the gull, whose stability is dynamic, who must be ever in motion to remain stable, and who has equipped himself to tilt and recover, to adjust to direction and temperature, and whatever else he may encounter. And by in large, gulls outlast pyramids, for flex and bend and change are the very essence of life, while pyramids, however impressive, are doomed to dust for the lack of ability to cope with the life-forces, the sunbeams, the raindrops which will destroy them."

The response describes what this statement has meant to me personally, how it relates to architecture in my mind, and what questions I feel it raises.

The second essay describes the dominant principle which provides structure and order to commercial air transportation. The structure of the ordering system is dictated by the principle as described.

The final essay examines the idea of adaptiveness within the ordering system for the airline industry. Adaptiveness is defined as the enhancement of the conditions of life by having the ability to change over time. Maladaptive factors refer to a resistance to change that degrades or destroys life.

Theodore Sturgeon's statement reflects my own perception that flexibility and change are essential to a dynamic stability which allows one to "cope with the life forces". As architects, I feel that we have a responsibility to absorb and consider all information that is revealed throughout a design process. If we consider what people want, what they do, and how they feel as we design, it can result in facilities which are more responsive to the user's needs. Too often, a program is given to the architect and the student to follow which simply is the result of a listing of required square footage. As Lobell described in his article, "Between Silence and Light", a meaningful building serves the vital institutions of society which grow out of the human beings desire to express oneself. By maintaining dynamic stability, it will increase our sensitivity and result in designs that will more adequately stand the test of time.

In relating Sturgeon's statement
to architecture, a critical point to consider is that what we are, and what we have produced is a product of our environment and a collection of our experiences. Skolimowski refers to this simply as "form follows culture", and in the recent past, our buildings have stood like the isolated monuments of the pyramid builder. The rationalism of Modern Architecture which glorified functionalism as the way to improve society was actually a very static approach, for it did not consider man’s constant needs to adapt and change directions. Architecture has been striving to express a dynamic stability, but mostly we have produced only pyramids.

Sturgeon’s statement indicates the importance of accepting a philosophy of regionalism in the sense of responding to the culture and context of an area. The latest trends in architecture which are producing buildings as sculptural pieces continue the static approach to design in even more finite geometries. Anything added or subtracted will be and obtained which creates severe limitations when we need to be responding to the changing context of our cities.

There are several questions raised by the pyramid-gull analogy:

1. The world is in a state of chaos for there is not a dominant global philosophy. How much flexibility can be incorporated into architecture to cope with change, and still maintain a strong conceptual framework for stability?
2. If the world were to shift from a traditional humanism approach to ecological humanism, would this create dynamic stability and a more organic approach to architecture?
3. How quickly can society adapt and change, and will it allow us to maintain a stable framework for continual progress and development?
4. Is our society forever striving to be like the gull but forever destined to be pyramid builders?

Commercial air transportation involves one of the largest ordering systems that has been institutionalized by today’s society. The dominant principle of the system is an economically based demand and profit relationship. A balance must be carefully maintained between the demand for flights, and the congestion of the air transportation network which results in lost revenue. When the network becomes clogged, flights are delayed and this drastically reduces the airline’s profit. This in turn limits their ability to provide service to and from various destinations. There is an obvious need to maintain internal consistency for the system to function efficiently.

The ordering system within air transportation exists because of the convenience of flight, and the necessity to traverse the globe in this age of technology. It is the dominant transportation system in speed and efficiency which overcomes its higher initial cost. It follows the statement that one must spend money in order to save money over the long term. We do not actually need an airplane to get to any city of this continent, but saving time getting there can also mean a monetary savings.

The ordering system as described, has become a powerful force in organizing the micro-worlds of business and pleasure. Air transportation can have an influence on where a company will locate its manufacturing plants and corporate offices. Our age of technology has dictated the need for this consideration. Some companies would not even be in existence without the service of commercial flight. At the level of the individual businessman, daily schedules, meetings, and activities are dictated by the time elements of the system. For the pleasure traveler, the time element also begins to organize activities but in terms of vacations and holiday celebrations.

The principles of the ordering
APPENDIX 1

system address the masses of population it involves, and there is little attention to the individual. When one begins to analyze the effectiveness of the system at the personal scale, it is evident that anomalies cause a breakdown to occur. In the servant-served scenario of air transportation, it is ironic that our technological sophistication has perpetuated such an ordering system.

The commercial airline industry is structured by an organizing principle of an economically based demand and profit relationship. Airlines attempt to meet the demands for service without overloading the transportation network. Any point of congestion within the system resulting in delays, reduces an airline's profit which affects the amount of service that can be provided.

This theory for the ordering system forces decisions to be based on meeting the needs of the masses rather than the individual. The airlines and the city must consider the majority of the population and therefore, the principles are to a greater extent maladaptive at the personal scale. An airline has a limited number of flights to schedule and carefully selects which cities will have service. Therefore, not all requests can be met 100%, and an individual in the minority is likely to encounter a greater inconvenience. Commuter airlines and connecting flights are scheduled to meet this need, however, one finds that it still may be necessary to travel a great distance on land to reach an airport with the desired flight. Also, since there are a limited number of flights, most are scheduled for peak travel hours. This may not be convenient or even possible for everyone's schedule. Since there are a limited number of destinations and flight times that an airline can provide, flights are overbooked, passengers are put on standby, and airplanes are crowded and uncomfortable. Airport terminals do not function as efficiently under maximum capacity, and they become exasperating and disorienting to most travelers.

At a larger scale, the supporting environmental context of an airport also appears to incorporate many maladaptive factors as a result of this ordering system. Economic considerations force many airlines to centralize their activity to a limited number of airports. In most instances, it is more convenient and profitable for an airline to have offices and employees at a single larger facility than dispersed at several smaller locations. This process of centralization creates congestion at all levels of the system, and is harmful to the quality of life of the context. In most cities, the transportation network in
and around the airport hub is severely strained and inefficient. Highways, subways, and commuter trains must handle the additional traffic which is generated by the airport's activity. The increase also leads to more companies locating near the airport with the higher density adding to the congestion problems. The quality of the natural environment is devastated by the increase in water, air, and noise pollution.

The theory of this ordering system has several maladaptive factors, but there are also a few characteristics which one could consider as adaptive of the system. The centralization of activity creates congestion which is harmful for an airport's context. However, the impact of one major airport is likely to be less severe than two or three smaller airports in the same amount of area. Centralization also directs funding from taxes to support one airport rather than needing to be dispersed among multiple airports in a city. Theoretically, this should help to create a facility which is better equipped to function more efficiently. At the personal scale, the increase in competition between the airlines can improve the quality of service available to the consumer. Discounted rates to frequent travelers is one example of the outcome of increased competition.

In response to the enormous environmental impact that airports have had, communities which are affected in surrounding areas have formed coalitions to voice their opposition to expansion and increased congestion. This could be seen as adaptive in the sense that a common cause is uniting the members of a community.

The theory of the ordering system for commercial air transportation certainly has more maladaptive implications than characteristics which enhance the quality of life. One finds an adaptive quality most often by examining the specific areas which are not impacted in the maladaptive statements.

Maladaptiveness of Airline’s Demand and Profit Ordering System

Supporting environmental context:
1. More profitable for 1 vs. 3 airports
2. Higher density of business near airport
3. Strains transportation network
4. Harms natural environment

Individual:
1. Limited number of flights
2. Service at peak hours
3. Crowded airplanes and terminals

Principles of the Ordering System

Airlines
What is the demand? What are the needs for service at a given location?

Known demand-
Potential profit
Does the degree of demand imply it will be profitable to provide service?

Known demand-
Potential capacity
If the demand is high, how much service can be added to the air transportation network?

Known demand-
Balance of potential profit and capacity
What is the balance between providing enough service to be profitable and an unprofitable clogged system?

Business

Pleasure

Corporate offices
Vacation

Individual

Mfg. Plants
Visiting relatives or friends

52
Security called lax in key O'Hare areas

By Gary Washburn
Transportation writer

Restricted areas at O'Hare International Airport are protected by untrained security guards who routinely allow entrance by people who don't have proper credentials, U.S. Rep. Cardiss Collins (D., Ill.) charged Tuesday.

Collins said a congressional investigation into security at O'Hare's 7,200-acre airfield has found "serious problems" and it is "largely luck" that there have been no incidents of sabotage or other criminal acts.

Collins, who heads a House subcommittee concerned with airport security, said a subcommittee investigator twice in one day last month "basically talked his way past a major checkpoint on O'Hare's perimeter.

"Once inside the airport grounds, he either bypassed other security checkpoints or talked his way past the guards in entering the most sensitive and restricted areas of the airport," Collins said. She did not identify the areas.

A private security guard who allowed the investigator to pass was on her first night on the job and "had received absolutely no formal training," Collins said at a press conference in the Dirksen Federal Building. On another occasion an inspector from the Federal Aviation Administration drove into the airfield without being challenged, doubled back to the security shack and found two guards playing cards, she said.

Local governments are responsible for providing security at major airports and the FAA is charged with oversight, ensuring that proper security is provided.

In talking about problems at O'Hare, Collins played down the city's role and charged that the FAA "is just not doing its job." Four FAA reports in the last few months said that security at O'Hare has been "very, very good," she said.

Collins, who supports Jane Byrne in the last Democratic mayoral primary, reportedly has been seeking to mend political fences with Mayor Harold Washington.

Mort Edelstein, public affairs officer for the FAA's Great Lakes regional office, said the agency has cited the city for unauthorized incursions into the airfield in recent months, has conducted special inspections and has held meetings with city officials to solve security problems.

The city has about 100 employees involved in security throughout the airport. In addition to a Chicago police unit and about 60 private security guards working at the airfield, said Leroy O'Shield, O'Hare's security chief.

There have been shortcomings in airfield security for years, but the city aggressively is trying to eliminate them, O'Shield said.

"It's a security force that needs to be redesigned as I have stated since I came here; in April," he said. "I inherited this system and I am on record as saying it should be changed . . . I have received nothing but 100 percent support from the city administration.

"The city is hiring employees to bolster a security force that is "substantially under strength" and training procedures will be upgraded by early 1986, O'Shield said. Sophisticated "access control systems" are to be installed and checkpoints changed—"something that should have been done a minimum of 10 years ago."

O'Shield could not say how much the improvements will cost or when they will be completed, but when they are finished, "it will be difficult for a mosquito to get in," he said.
Runway rhapsody keeps packing ’em in on midsummer nights

By Robert Blau

Up in the electric blue sky of dusk, flickering tail lights line up in an airborne convey. Below, along a runway at O’Hare International Airport, known as “27 right, 9 left,” which demotes its span on the compass, immigrants and lovers leaning on rails, arms around each other’s necks in affectionate headlocks, shiver with anticipation.

This is their night out, their re-creation, their drive-in theater.

“Some people like to go fishing,” explains Shelby Hamid, a Palestinian who moved to Chicago in the 1970s. “Some people like to watch birds. I like to watch planes.” His wavy brown hair and thick mustache shift with passing winds and occasional blasts of gust. A pack of cigarettes bulges from the pocket of his white shirt.

Hamid said that when he lived in Israel he couldn’t get near the airport, so he watched the planes from a couple of miles away. Now he comes to O’Hare every week to watch planes from a football field’s distance away.

Hamid finishes his gyro and French fries and sits on his car, watching a 727 heading down the runway. He smokes a cigarette.

Thousands of small blue lights border the runways. O’Connell says the lights are his favorite part. They make the runways look like the science fiction set of “Close Encounters of the Third Kind.” In the car, her children climb over the seats and cover their ears.

“When they were babies we used to come here every night. We’d sit here for hours,” O’Connell explains.

Her son, Kip, says he’ll never fly in a plane.

“Just watch all these movies,” he says as he gestures disaster with a sweeping downward stroke of his arm and a whistle. “I’m afraid it’s gonna crash.”

A jet rumbles past them, their shrills toward the end of the runway, lifts off the ground and suddenly veers off with a sharp tilt of its wings.

Experienced plane watchers claim that at night they can distinguish planes from the sound of their engines.

“When you hear a 747 in your ear,” says one, “you know it.”

Maria and Otto Delcid have been in Chicago for one year. They have been coming to this spot along the runway twice a week. When they lived in Guatemala they used to visit the airport there. Neither speaks much English, but they say that O’Hare is bigger than the airport in Guatemala. They have only one word for their weekly pastime: exciting. And they say this together, nodding in agreement.

The spot that attracts the plane watchers is part of an area where limousines and vans idle before picking up passengers at the airport. Only a fence topped by barbed wire separates the spectators from the jets.

On weekends, when the sun goes down, the sweethearts come out. “At night it’s more romantic,” gapes Jill Eadic, leaning on her boyfriend’s shoulder.

“‘It’s wild. You can feel the ground shake and the hot air after it goes. Sometimes, after they take off, the wing tips and I think, oh, wow,” she explains, worried that it may signal a nose dive.

At the end of the ramp, between his customized Mustang and the wire fence, Steve Zellers kisses his girlfriend.

Zellers, 30, is no stranger to aviation.

“I grew up on Air Force bases,” he says. “My dad was in the Air Force for 12 years and was a fighter pilot in Vietnam. I think he spent his time taking out ground-to-air missiles.

When Zellers worked at the airport last summer for a car rental agency, he’d often make quick detours back to the ramp to watch the moonlight and outgoing flights.

Now, most of the time he spends there is with his girlfriend, Trissy Eastman.

“I think it’s just neat how something that big and carrying that many people can just get off the ground,” he says.

“It’s just gives me . . . it’s weird.”

Eastman bestows a wide smile. “It tingles all over my body. It’s just free up there. It feels like freedom,” she says.

“Takeoffs,” she says, are her favorite part.

Another 727 rolls down the runway and effortlessly rises into the air. The ground shakes and the young couple feel the engines at full throttle. Their Crowell pound. About 300 feet off the ground, the 727 tips its wing and veers off to the north. The two of them, wearing blue windbreakers and holding hands, sit on the hood of the customized Mustang.

They look, entranced, at the sky. They aren’t kissing.

“That would be too movie,” Eastman says.

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$119 million pact for people-mover at O'Hare on hold

By Fran Spielman

A $119 million contract to build an airport people-mover system, awarded after the Washington administration secretly opened sealed bids, will not be formalized this week, city attorneys promised a judge yesterday.

The administration's pledge not to finalize its tentative award to the low bidder, the Matra French Group, was made in response to a biding bidder's request for a temporary injunction halting the move.

"The suit also alleges that Matra, a firm partly owned by the French government, is not licensed to do business in Illinois," Westinghouse testified.

"A bid on the contract after a full round of bidding in March," Kaplan said. "The suit has started rolling, but the [approval] process will not end until next week, when the [City Council] Finance Committee has the 10 working days to review the contract," said Assistant Corporation Counsel Herbert Kaplan.

"I can assure the court the city will take no further action over the next few days," Circuit Judge David J. Shields prohibited the city from making the contract, the largest in city history, final until the parties return to his courtroom Thursday for a status report.

"Shields" assigned the case yesterday after two other circuit judges excused themselves from the controversy.

But Steve Murray, assistant chief administrative officer for the Finance Committee, said in an interview that the Washington administration had not yet forwarded copies of the disputed contract to the committee, which is controlled, by Mayor Washington's foes.

"I can't see how the 10 days could have started running already," Murray said. "The paper work has to be in our hands before the clock starts running."

The suit also alleges that Matra, a firm partly owned by the French government, is not licensed to do business in Illinois.

According to an executive order signed by Washington last year, the Council has 10 working days to review no-bid contracts, then submit written objections to the purchasing agent.

The purchasing agent must then decide whether to withhold the award, open it for competitive bidding or provide written justification for the no-bid process within 90 days.

If the stalemate continues, a so-called sole-source board would mediate the dispute, according to the executive order.
O’Hare will remain too busy, study says

By Pat Wingert

The demand for flights at O’Hare International Airport will soar past the airport’s capacity this year, and the shortage of space at the world’s busiest airport will continue after a $1.3 billion expansion is completed, a new federal report says.

Officials of suburbs near O’Hare who have waged long-running battles against jet noise and the expansion project said the report by the Federal Aviation Administration confirmed their fears. A major criticism was that the expansion would be rendered obsolete by the time of its scheduled completion in 1995.

The projected shortfall in capacity could mean that the City of Chicago, which owns and operates O’Hare, will try to build more runways, an internal rail transit system, or "people-mover." The airport expansion project includes new domestic, international and cargo facilities, and plans for extended runways and an internal rail transit system, or "people-mover.

Earlier reports included in the Chicago Department of Aviation’s environmental impact statement, prepared for the expansion program, forecast flight capacity at the airport through the year 2000.

Those reports estimated that O’Hare would be able to handle 920,000 flights a year by the scheduled completion of the project. O’Hare handled 731,742 flights last year. The FAA’s new forecast is that O’Hare will set an operations record this year with 812,000 flights.

Normmy Lopate, city Department of Aviation spokesman, said the city anticipated the capacity shortfall when it put together the expansion program. "The expansion project will take care of today’s demand and ease the future demand," she said. "It’s not the solution."

She said the airport will not be able to meet forecasted demands after the expansion is completed because of the airport’s current runway configuration, limited land and air space and the air-traffic control system now in place.

Martin Butler, chairman of the Suburban O’Hare Commission, which has brought a federal lawsuit against the city to stop the expansion, said suburban officials expected the need for flights would outstrip O’Hare’s capacity.

"The expansion of facilities was done with a minimum of outcry," Butler said. "But we are afraid that the city will come back later and start talking about the need for additional runways" to meet future demand.

He said the suburbs’ fear that the expansion program will not meet the airport’s future needs is one reason they have pushed for consideration of a third airport, rather than improvement of O’Hare.

In light of the new study, the suburbs will push anew for assurances from the city that no new runways will be built. Such an agreement, Butler said.

As part of an earlier agreement between the suburbs and the city, the Department of Aviation had promised that no new runways large enough to handle commercial jets would be built before 1995. But city aviation officials said the agreement does not forbid construction of a smaller runway for private and corporate planes, technically known as general aviation flights.

"If such a runway were built, one official said, O’Hare could accommodate more flights by larger passenger and cargo planes on existing runways.

About 8 percent of all O’Hare flights are now general aviation flights.

Another O’Hare official said the answer to the crunch for more space might be solved by applying pressure on the state to expand general aviation facilities at other airports, such as Midway, Meigs, Rockford, Du Page County, Palwaukee, Aurora, Gary, Joliet and Glenview Naval Air Station.

The officials said pilots of the smaller planes could be encouraged to avoid O’Hare if the ground facilities at smaller airports were improved or if the cost of landing at O’Hare were increased.

A state study of these airports, generally known as "reliever airports," began this year. The study will examine the feasibility of expansion at each of the smaller airports.

Diverting general aviation flights (GAAs) to reliever airports, suburban airport officials agree, would be another way of accommodating the larger commercial and cargo planes at O’Hare.

But Butler said, suburbanites would not favor such a change because they think the larger planes make more noise than smaller craft.

"The GAAs are not the problem, with the exception of some of the executive jets," Butler said. "We’d rather keep the GAAs there and limit the number of large jets."

The FAA report is the first time operations at Chicago area airports have been forecast since 1978.

Besides its predictions concerning O’Hare, the report indicates that demand also will outstrip capacity at Chicago’s two other airports, Midway and Meigs.

The FAA forecasters said demand for flights at Midway will reach 486,000 by 2000, but the Southwest Side airport will be able to accommodate only 364,000 departures and landings, despite a $200 million refurbishing now underway.

The problem will begin this year, forecasters said, when about 249,000 flights will operate out of Midway while demand will reach 278,000.

Meigs should be able to meet the demands of its general aviation users until 1995. But by 2000, the airport on the lake will be able to handle only 250,000 of the 273,000 flights that will want to use it.
O'Hare noise study flies into turbulence

By Pat Wingert

The first meeting between Chicago and suburban officials to discuss a noise study for O'Hare International Airport got off to a jumpy start Thursday as the suburbs pressed for new assurances that the city will try to lessen the noise.

The suburbs asked that the city "thoroughly examine" major changes in airport operations, such as airplanes in flight paths, before considering alternatives that would affect suburban homeowners, such as having the airport buy homes in extremely noisy areas.

City officials said they would review the request.

The airport was required to conduct the study, formally known as a Federal Aviation Administration Flight 30 study, to get the FAA's approval of O'Hare's $1.5 billion expansion program. The study will measure noise around the airport and recommend ways to make the airport "compatible" with its noisy neighbors.

Martin Butler, mayor of Park Ridge and co-chairman of the Suburban O'Hare Commission, said suburban officials are "vehemently opposed" to the study because its regulations don't require the airport to implement any of the changes recommended.

But Butler admitted the study's fine print does require the airport to identify which homes are hardest hit by noise, and make that information available to the property owner. That information could make a home harder to sell and reduce its value, he said.

In addition, if the home is later sold, a second owner cannot sue the airport because of the noise.

Butler asked that there be "ground rules" requiring the city to agree that penalties will be imposed on airlines if they create more noise in the future and that permanent noise monitors will be set up in various suburban locations.

Meanwhile, Tim Haslett, head of O'Hare's noise-abatement office, said the interiors of about 30 suburban schools subject to intense airport noise are being monitored this summer to determine how much jet noise can be heard indoors. That information will be used to determine which schools will be eligible for the next round of school soundproofing, he said.

The schools are in Bensenville, Schiller Park, Wood Dale, Des Plaines, Elmhurst, Franklin Park, Itasca, Medinah, Northlake and Rosemont.

Eighty percent of the funding for the soundproofing program comes from a federal grant. Chicago, which owns the airport, pays the rest. The city, as part of its effort to gain FAA approval of its expansion program, agreed to participate in the soundproofing program.

Three elementary schools, Washington in Schiller Park, Orchard Place in Des Plaines and Mohawk in Bensenville, already have been soundproofed under the program.

Chicago O'Hare International Airport
1985 noise contour

65 Ldn* Noise level average considered 'normally unacceptable' for residential land use by HUD and FAA

* Ldn equals annual average in decibels of airport noise with nighttime sounds more heavily weighted

Chicago Tribune Graphic; Source: Chicago O'Hare International Airport Noise Abatement Office
‘Council Wars’ taking off again over O’Hare

By John Camper and Cheryl Devall

Chicago’s “Council Wars” are threatening once again to halt the $1.5 billion expansion of O’Hare International Airport as the mayor and the council fight over control of contracts.

In a slight variation of last year’s battle, which came within a week of shutting down the O’Hare project, the city council Finance Committee voted Tuesday to give its chairman, Ald. Edward Burke (14th), veto power over all future airport construction contracts.

“Who does he think he is?” Mayor Harold Washington said at a press conference Tuesday night. “Even the mayor can’t do that.”

The measure was expected to go to the full council Wednesday and Washington pledged to veto it. “I’ll do it in red ink so he can read it,” the mayor said, referring to Burke.

“I’m calling tonight for every member of the city council, on both sides of the aisle, to join with me in repudiating this move,” Washington said.

Earlier in the day, Paul Karas, the city’s public works commissioner, said, “No other project in the world is subject to this kind of constraint.”

Jerome Butler, city aviation commissioner, said, “They’re opening up last year’s fight all over again.” Butler shares responsibility for the O’Hare project with Karas.

Butler said his department would begin immediately preparing contingency plans to halt O’Hare construction in January if the dispute is not resolved by the year-end budget deadline. Only about 20 percent of the project has been completed.

Under the controversial legislation, any new contract or payment for the O’Hare project would have to be approved unanimously by a five-member committee that includes Burke and Ald. Frank Damato (37th), chairman of the council’s Aviation Committee. The other members would be Butler, Karas and an airline representative.

The Finance Committee, at Burke’s urging, voted 15-6 to attach the new “oversight committee” measure to an ordinance authorizing the city to sell as much as $480 million in bonds needed to keep the project moving. The bonds are to be repaid entirely through landing fees paid by the airlines.

The Washington administration wants to issue the bonds before the end of this year, in case Congress approves a tax-reform package restricting its authority to sell tax-exempt notes. Even if Congress delays, city officials say, any delay in issuing the new bonds could add $30 million to $60 million in interest costs.

But Burke said the new bonds should not be issued without an oversight committee to get control of the “cost overruns, construction delays, contract abuses and lack of management accountability” that “are turning the O’Hare project into another McCormick Place fiasco.”

The General Assembly is wrestling with a $60 million overrun in a project to build a $200 million annex to McCormick Place, the city’s lakeshore exposition center. That project, unlike the O’Hare expansion, is being financed with taxpayers’ money.

O’Hare faces an anticipated overrun of $43 million on a $1.5 billion budget, according to James Stevenson, general manager of O’Hare Associates, the city’s consultant overseeing construction at O’Hare.

Stevenson said $33 million of the expected overrun is attributable to the proposed “people mover,” a driverless transit line from a remote parking lot to the airline terminals. The people mover contract is tied up in court in a dispute between two companies that want to build it.

Another overrun of $20 million is expected in work at the United Airlines-terminal, Stevenson said.

He said other O’Hare projects are running a combined $10 million under budget, for a net expected overrun of $43 million.

Washington contended that the O’Hare development “is not seri- ously over budget behind sched- ule.” He charged that the Finance Committee is deliberately trying to confuse the convention center and airport cost overruns “to make a case for the need for new manage- ment—their management.”

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