PROPOSAL FOR ILLINOIS CENTRAL AIR RIGHTS PROPERTY

CHICAGO, ILLINOIS

by

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ABSTRACT

Proposals for Illinois Central Air Rights Property, Chicago, Illinois

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The Illinois Central Air Rights project is intended to be the focus of a larger scale study of the Chicago Lake Michigan interface. Therefore this study will consider at its largest scale approximately two miles of Lake front adjacent to the Loop and downtown Chicago, including Grant Park.

This study is seen to be carried out in stages of study as follows:

A. A large scale study of downtown Chicago, in order to determine the urban context for other stages of study. We are concerned with defining and exploring our specific project within the context of the total development of the City of Chicago, the potential for new transportation, development in the Lake including the proposed airport, and its connections to the city, and new Lake front uses.

B. This stage is to be a planning study of the central area lake front, including Grant Park and its harbor, the mouth of the Chicago River and the Air Rights Property, the Navy Pier, and the Beach area north of the Air Rights property to the Loop, within the context of expanded Central Business District growth, including public transportation, and the design of pedestrian corridors.

C. Planning of relationships of the elements to be built on the Air Rights site, functional relationships study, visual relationships study with existing Chicago skyline, relationship to Grant Park, and to the Lake Front.

D. Development of prototype proposals for the different functional structures which will be proposed for the site.

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INTRODUCTION

Early in February the four authors of this thesis met to discuss the possibility of collaborating on a group thesis in the hope that the interaction of the members would prove to be a stimulating and a beneficial experience to all concerned. We also believed that the end product could prove to be of a higher caliber and be a much more in depth study due to the much larger amount of material we would be able to cover.

Consequently, we met many times during the next few weeks in order to construct a basis on which to work. During this period we set out the ground rules which we were to follow in the next several months. The organizational aspects and the details of the operation methods involved are set out later in the report in the section devoted to the log, as are the other aspects.

Briefly, the ground we hoped to cover in the short time allotted to us was as follows:

Group participation technique;

Development of individual responsibility within the group;

Constructive interaction between the members;

A methodological approach to the selection of a problem;

Decision interaction with a real client;

To work within an objective contextual situation;

To collect, absorb and analyse relevant data in an organized realistic manner;
To integrate as much as possible the elective courses being taken by the members;

To record all the decisions and discussion by the group, and to analyse this record in order to learn as much as possible about the design process which developed.

As far as all the members of the group were concerned, this was to be an experiment in group participation. We had all worked in groups before but not in a group which had no overall control by an individual. We realised at the outset that there would be many difficulties involved in the creative process. We were aware that there was a strong possibility of conflict of ideas within the group. Obviously some aspects of the design process are particularly suitable to group work, such as the collection of data, program formation, and multi-investigation of alternative solutions, aspects such as the dissemination of several good ideas into one better one, constructive criticism tecniques, and major decisions regarding form, etc. are more difficult. All of these problems are discussed at the end of the log in the hope that they may prove to be of some value to others embarking on a similar venture.
HISTORY OF THE CONTEXT AREA

Even in the period of national expansion prior to the turn of the century, the population growth in Chicago was nothing short of spectacular. Between 1840 and 1870 Chicago's population grew from 4,470 to 298,977 -- which means that is 1840 population was increased by 66 times. During the same period the United States population grew one and a quarter times. By 1880 the population had jumped to 503,185 and in 1910 it was over two million, having more than quadrupled in three decades. By the turn of the century Chicago's physical make-up was well established. The street grid, based upon the U.S. Government Rectangular Survey System, had been in existence for forty or fifty years, and all the large parks had been acquired and developed by 1900. Often, Chicago's performance had been characterized by innovation. One example is the development after the Great Fire of 1871. Another was the reversal of the current of the Chicago River begun in 1892 to divert the sewage from Lake Michigan, the source of the city's drinking water.

The World's Fair of 1893 stimulated public interest in civic beauty and marked the beginning of a movement to improve the urban scene. After the Fair closed there were several piecemeal plans put forward for urban improvement, and the Commercial Club retained Daniel H. Burnham and Edward H. Bennett to explore the possibilities for future comprehensive development of the Chicago area.
Their study "The Plan of Chicago" was presented to the Mayor, Fred Busse, who formally endorsed it on July 6, 1909, and recommended its adoption as public policy.

The Burnham team had spent nearly a decade and a half on the preparation of the plan, at first on their own initiative, and thus the results were conceptually well organized. These principles have served as a basis for much of the development that has taken place since then in Chicago. This was due to, in the first place, the promotional efforts of Burnham himself, and secondly, to the active support of many influential citizens.

The plan outlined a comprehensive approach for organizing the development of the rapidly expanding metropolitan area. Included in it were proposals for solutions of inter-city transportation facilities and for the formation of an extensive system of parks and parkways. Burnham also recognized Chicago as the center of the United States, and sought to consolidate the city's importance as a world focus and express it by emphasising the central area. Burnham's plan was centered symmetrically about a grand east-west axis along the line of Congress Parkway. This grand axis extended out into Lake Michigan where a large yacht harbor was to be formed, and two large recreation piers constructed out into the water. Grant Park was to be laid out as a great open formal space, and the lakefront was to be opened out to the public. In the intervening years, the program details in some of Burnham's Central
Area Proposals have been varied to suit the changing needs, but the importance of his contribution has been the system of soundly based principles which have been largely adhered to.

This then is the mood of growth which has been set. Following is a historical summary of the growth and the development of the site in question.
HISTORICAL SUMMARY OF LAKEFRONT DEVELOPMENT

To place the Burnham plan in its historical context, the past influences on development of the Central Area Lakefront are here summarized. For over a century, the Chicago Lakefront has undergone an almost continuous evolution. This transformation is the product of topographical conditions, various social forces, and urban planning activities. The outline below points out the important events in chronological order:

To 1779:
The area adjacent to the mouth of the Chicago River was made up of high ground surrounded by low marsh land. Its early occupants, fur traders and Indians, left very little mark on its landscape.

1779-1830
1779 Jean Baptise Point du Sable, Chicago's first settler, constructed a log cabin on the north bank of the Chicago River, almost directly across from the future site of Fort Dearborn.

1804 Construction began on the first Fort Dearborn, which was destroyed and rebuilt in 1816.

1818 The first temporary flood relief channel was cleared, through the Chicago River sand bar, to allow a more direct flow of water into Lake Michigan.

1830-1840
1833 United States Government Engineers began to work on a pier
on the north bank of the river and extended it directly through the Chicago River sand bar and into Lake Michigan.

1836 The United States Government changed the angle of the pier to the northeast during extension operations. In the same year work was begun on the Illinois and Michigan Canal to connect the Chicago and Des Plaines Rivers and thus join the Mississippi watershed with the Great Lakes.

1837 Chicago was granted a municipal charter.

1840-1850
1840 Chicago attempted, unsuccessfully, to obtain Federal help to stem the destructive erosion of the Lake front.
1848 The Illinois and Michigan Canal was completed.

1850-1860
1852 Chicago allowed the newly formed Illinois Central Railroad to build a double timber trestle from Twenty-Second to Randolph Street along a perpetual easement running across the bed of Lake Michigan. In return, the Railroad constructed a stone masonry breakwater to retain both its right of way and the eroding shore line. The west line of the Illinois Central's easement between Randolph and Twelfth Streets was less than 400 feet east of Michigan Avenue.

1853 The Illinois Central Railroad began to landfill the Lake between the Chicago River and Randolph Street. This was the
beginning of the Randolph Street railroad yards and peninsula. This early filling carried the land to a line about 600 feet short of and parallel to the present Lake Shore Drive viaduct.

1856 The city allowed the Railroad to further fill in the land between the original easement and the Randolph Street peninsula to gain the necessary curvature for approach track to the railroad yards north of Randolph Street.

1857 The Sands Area along the Lake, just north of the river, was cleared of squatters' shanties by Mayor Wentworth.

1858 The U.S. Government constructed a lighthouse and tide gage at the end of the north pier; by this year, there were drawbridges across the main stem of the Chicago River, at Rush Street.

1860-1870

1867 The Illinois Central Railroad began harbor improvements to keep up with growing trade.

1869 The Illinois Legislature passed the Lake Front Bill, over the Government's veto and against an intense protest by Chicago's citizenry. This bill finalized the rights of the Illinois Central to land and water, riparian rights, harbor jurisdiction, etc., but occasioned extensive litigation, culminating in a U.S. Supreme Court Decision in 1902. Also in 1869, the Water Tower was completed.
1870-1880

1870 Work began on additional landfill between Twelfth and Fourteenth Streets for railroad shops and round houses. The harbor was now so active and the facilities so inadequate that a start was made on the first section of the breakwater enclosing the present Naval Reserve Basin.

1871 A major portion of the Central Area was destroyed by the Chicago fire, and the flow of the Chicago River was reversed to prevent contamination of the water supply.

1873 More land was filled, in order to further improve the approach from the Illinois Central easement to the railroad yards north of Randolph Street.

1880-1890

1880 The inner breakwater enclosing Monroe Street Harbor was constructed with a Congressional appropriation and additional piers were built off the Randolph Street peninsula. By this date, Lake Park was in existence, a narrow 400' strip extending between Randolph and Twelfth Streets.

1885 Additional piers were built off Fourteenth Street.

1889 Chicago became the world's busiest harbor, and the Auditorium Building by Adler and Sullivan was completed.
1890-1900

1892 The present initial building of the Art Institute and the Illinois Central Twelfth Street Station were completed.

1893 The Columbian Exposition opened in Jackson Park.

1897 Twenty-five lakefront acres, south of Jackson Boulevard, were seeded, walks constructed, trees planted and the Logan monument erected; and the first six acres of what is now Grant Park came into being with landfill from river dredging. This same year the Chicago Public Library was completed.

1900-1910

1901 Lake Park as extended was officially rechristened as Grant Park.

1902 Fifty acres of new park land south of Jackson Boulevard and east of the I.C. tracks emerged from landfill operations.

1904 Orchestra Hall was completed.

1907 The Grant Park landfill was extended east to what is now the Lake Shore Drive; and the Chicago River was widened and deepened.

1909 The Plan of Chicago prepared by Daniel H. Burnham and Edward H. Bennet under the sponsorship of the Commercial Club was presented. The study, a landmark in urban planning literature and Chicago's most influential plan, was developed over the years 1906, 1907 and 1908. It considered Grant Park as the formal
focal point of the city and recommended its intensive landscaped development. The first Chicago Plan Commission was appointed.

1910-1920

1913 Construction began on Burnham Park.

1916 Navy Pier was completed in an attempt to arrest the decline in port activity.

1919 The Lake Front Ordinance was enacted, after extended negotiations between the Illinois Central Railroad, the Park Commissioners and the City of Chicago.

1920-1930

1920 A Bond Issue was approved for the development and improvement of Chicago's parks. This included extensive improvement of Grant and Burnham Parks, construction of Soldiers Field and the acquisition of lakefront property between Twelfth Street and the existing Grant Park. In this same year the Michigan Avenue Bridge was opened to traffic, linking the north and south boulevard and park systems with its multi-level roadways as proposed in the 1909 plan.

1921 The harbor line was realigned further out into the Lake and a new seawall constructed, in order that the Lake Shore Drive would be on the north-south axis with the Field Museum. This addition extended the park out to its present eastern edge along the Monroe Street Yacht harbor. Also, the Field Museum, designed by Daniel Burnham & Company was completed.
1925 The Goodman Theater addition to the Art Institute was completed.

1926 Wacker Drive was completed as a multi-level street connecting with the Michigan Avenue Bridge.

1927 Buckingham Fountain was dedicated and became the focus of Grant Park.

1928 By this date, Northerly Island was established and Soldiers Field was opened to the public.

1929 In this year The Shedd Aquarium was completed, the Outer Drive extension studies were published by the Chicago Plan Commission and the Lake Front Ordinance was amended in part to define the responsibilities of the City and Railroad in regard to viaducts over the Illinois Central property.

1930-1940

1931 The present Grant Park Bandshell was erected.

1933 The Century of Progress Exhibition was opened on Northerly Island and the adjacent lakefront park areas. By this date, Grant Park was developed to its present state and most of Burnham Park and the Lake Shore Drive was under construction or completed.

1934 The consolidation of Chicago's Park systems was put into effect and the Chicago Park District published its first report.
1937 The Outer Drive Bridge over the Chicago River was completed and dedicated by President Franklin D. Roosevelt.

1937 and 1938 The Water Control Works and the Navigational Gates and Locks at the mouth of the Chicago River were completed.

1940-1950

1940 and 1941 Lake Shore Drive became a limited access, divided highway along the lakefront from Foster Avenue to Jackson Park.

1948 Meigs Field was officially opened. The Chicago Plan Commission adopted its Lakefront Resolution.

1950-1960

1954 The Grant Park North Underground Garage was opened.

1955 The Prudential Building was completed on the Illinois Central Air Rights.

1958 The Chicago Central Area Plan was adopted.

1960

1960 McCormick Place was opened.

1962 The Central Area Lakefront Development Plan Study was initiated.

1964 The Outer Drive East Apartment Building was opened. Basic Policies for the Comprehensive Plan of Chicago were published.
1965 The Equitable Building, Pioneer Court, and the Grant Park South Underground Garage were completed. In response to criticism of plans for highway extension in Jackson Park, a Special Development Policies Statement for the Chicago Lakefront was issued by the Department of Development and Planning.
THE EXISTING SITE

Of the 78 acres total of the overall site, some 60 are available for construction, this being the actual Air Rights area. At present about 12 acres of land are devoted to warehousing, the remainder being used for rail and trucking facilities. Two buildings already exist on the site, and a third is proposed. Outer Drive East, an apartment building, and the Prudential Office Building are located on the southeast and southwest corners of the site respectively, and a new office building by Mies Van Der Rohe is proposed for the north western corner of the site.

The boundaries of the site are made up as follows:

To the north is the Chicago River, still used to carry ships inland. To the south is Grant Park and is the focus of a number of important building, including the Field Museum, Shedd Aquarium, Adler Planetarium, Roosevelt Library, The Art Institute, Orchestra Hall and the Public Library. To the west is Lake Michigan, and to the east is the City of Chicago itself. Of all the interfaces, this latter is probably the most significant of all, particularly with the Loop area located as it is only two blocks from the site, and Michigan Avenue running north-south along this boundary.

Another major highway, Outer Drive, runs over the site again from north to south at the western edge of the site.
The site is provided with exceptionally good aspects in all but the north orientation, and the views from the site are of great variety, from water to park to city. Due to the unique location at the north end of Grant Park the views are guaranteed for all time and this proves to have a considerable effect on the planning aspect of this problem.

The whole of the site is on landfill and this operation began in 1853 when the Illinois Central Railroad began filling between the Chicago River and Randolph Street. This was the beginning of the Randolph Street Railroad Yards and the Peninsula. This early filling carried the land to a line about 600 feet short of and parallel to the present Lake Shore Drive viaduct. (See the section on the history of the site page 11.

Another feature of the area is Navy Pier, completed in 1916 in an attempt to arrest the decline of port activity. Lying due north of the Air Rights site, it offers much potential for ancillary development to the Air Rights site.
Finally, due to the site's unique position, the usual problem of growth is by no means as critical as a site often encountered in the heart of a downtown section of a city.

Two definite areas for growth present themselves. One to the north of the site across the Chicago River in an area of old delapidated warehousing, and of course the other being the Lake itself, particularly bearing in mind the possibility of a new airport out in the lake in the near future.

The potential for growth into the lake, using a similar system of construction to that on the site, i.e. Caisson Construction, offers many exciting possibilities.
QUANTITATIVE PROGRAM

The following figures which provide the basis for all of the quantitative elements of the project are those provided in "Lakefront Development Plan - Central Area Chicago, Illinois" by Skidmore Owings and Merrill and C. F. Murphy Associates March 3, 1966. The figures projected in the 1965 and 1961 plan are based on market demand in the central city of Chicago and this program is seen to have two stages of development. The first stage projected for development within the first 15 year period is coincident with the 1965 plan. The second stage figures are projected for the next ten years and are assumed to be of a less finalised nature, and would be adjusted as the market demand fluctuates, and would be finalised at the termination of the first stage of the project. Thus, the 1965 figures over the 15 year period constitute the amount of accommodation to be provided over the whole of the buildable Air Rights site of the Illinois Central Railroad. The remaining amount are to form figures for growth on the north side of the Chicago River or as lake development immediately to the east of the site and as a direct continuation of the first stage.

<table>
<thead>
<tr>
<th>Space Type</th>
<th>1st Stage</th>
<th>2nd Stage</th>
<th>Gross Floor Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>12,135,000</td>
<td>1,155,000</td>
<td>13,290,000</td>
</tr>
<tr>
<td>Office</td>
<td>4,196,800</td>
<td>2,531,000</td>
<td>6,728,000</td>
</tr>
<tr>
<td>Hotel</td>
<td>864,000</td>
<td>704,000</td>
<td>1,568,000</td>
</tr>
<tr>
<td>Cultural</td>
<td>830,000</td>
<td>295,000</td>
<td>1,125,000</td>
</tr>
<tr>
<td>Commercial</td>
<td>1,910,700</td>
<td>1,242,300</td>
<td>3,153,000</td>
</tr>
<tr>
<td>Building</td>
<td>745,100</td>
<td>325,000</td>
<td>1,071,000</td>
</tr>
<tr>
<td>Services</td>
<td>2,437,000</td>
<td>550,000</td>
<td>2,987,000</td>
</tr>
<tr>
<td>Parking</td>
<td>23,118,600</td>
<td>6,496,400</td>
<td>29,615,000</td>
</tr>
</tbody>
</table>
The following figures are a breakdown of the above figures and indicate more specifically the type, range and size of the accommodations to be provided.

**Residential**

12,135,000 units gross floor space consisting of 10,920 apartment units at an average area of 1,100 square feet. These are to meet the demands of upper middle and upper income tenants and will consist of efficiency, one-, two-, and three-bedroom units, with a rent scale of $200, $300, $400, and $500 respectively.

**Office Space**

3,567,000 square feet net floor space. It is intended that as wide a range of office space as possible be provided and the types of uses envisioned are professional, financial, transportation, merchant, general and public.

**Hotel, Transient Facilities**

864,000 square feet gross area. 1,260 rooms based on capturing a quarter to one third of the central business district demand which averages 350 new rooms per year.

**Cultural, Recreation and Entertainment Facilities**

830,000 gross floor space.

Cultural: Modern art museum 150,000 sq. ft.

3 live theaters @ 250, 750 & 1,500 seats 100,000 sq. ft.
Church 1,000 sq. ft.
Small nursery school 4,000 sq. ft.

Recreation:
Health Center 60,000 sq. ft.
Large private club i.e. winter club 100,000 sq. ft.
Yacht club 20,000 sq. ft.
Ten business clubs 200,000 sq. ft.
Five special interest clubs 50,000 sq. ft.
Winter sports complex (indoor/outdoor) unassigned
Summer sports facilities unassigned

Entertainment:
Large night club (2000 people) 50,000 sq. ft.
3 movie theaters (total 1200 people) 8,400 sq. ft.

Commercial
1,910,700 square feet gross space to have prime accessibility for public from Michigan Avenue and vehicular accessibility for wholesale and warehousing areas.

Two large department stores 900,000 sq. ft.
Large men's store 100,000 sq. ft.
Large women's store 100,000 sq. ft.
Supermarket 100,000 sq. ft.
Unassigned 100,000 sq. ft.

Liquor store/Men & women's apparel/Furniture & design store/Radio, TV & Hifi store/Hardware & appliance store/office supplies/Drug store/Book store 200,000 sq. ft.

100 small shops to accommodate such facilities as small service & retail outlets 150,000 sq. ft.
Parking

Provision to be made for the storage of 20,000 cars as follows:

Short term (1 hour)

Medium term (up to 4 hours)

Long term (resident and 8 hour parking)

Growth:

The concept of growth for this project is one which has been derived using the following major criteria:

A. The necessity to provide a non-physical ordering system, that is, a system which permits growth to take place bearing in mind the interference of construction between one phase and another, unforeseen technological improvements and change of design policy during the total construction period.

B. A physical ordering system -- that is a system of flexible structure unlikely to change because of its nature.

These two criteria in addition to the following method of growth over time, which we have chosen to call time unit growth, form the approach to the overall growth system. Figures have shown that the estimated absorption period for this project into the central business district of Chicago is 15 years. This overall 15 year period is broken down into five time units of 3 years each. Overleaf is a breakdown of the various elements of the project.
<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>AREA/NO.</th>
<th>EST.ABS. PERIOD YRS.</th>
<th>NO.TIME UNITS</th>
<th>PER TIME UNIT</th>
<th>AREA/NO. PER YEAR</th>
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</thead>
<tbody>
<tr>
<td>Residential</td>
<td>10,920 units</td>
<td>15</td>
<td>5</td>
<td>2,184</td>
<td>728</td>
</tr>
<tr>
<td>Office</td>
<td>4,196,800</td>
<td>12</td>
<td>4</td>
<td>1,049,199</td>
<td>349,733</td>
</tr>
<tr>
<td>Hotel</td>
<td>864,000</td>
<td>12</td>
<td>4</td>
<td>315</td>
<td>105</td>
</tr>
<tr>
<td>Cultural</td>
<td>830,000</td>
<td>15</td>
<td>5</td>
<td>165,999</td>
<td>55,333</td>
</tr>
<tr>
<td>Commercial</td>
<td>1,910,700</td>
<td>15</td>
<td>5</td>
<td>382,140</td>
<td>127,380</td>
</tr>
<tr>
<td>Building</td>
<td>745,100</td>
<td>15</td>
<td>5</td>
<td>149,019</td>
<td>49,673</td>
</tr>
<tr>
<td>Services</td>
<td>2,437,000</td>
<td>15</td>
<td>5</td>
<td>487,398</td>
<td>162,466</td>
</tr>
</tbody>
</table>

In view of the fact that the further away we get from the present time, the less accurate our predictions are likely to be, it seems that it would be a viable solution to work within a framework where the committed amount of space each year is a part of the whole. Construction phasing would also follow this same pattern and will permit little or no interference to existing units during the construction of later units. Upon completion of a time unit, it acts as a self-sufficient unit, and can live without the problems of future neighbors under construction. Upon or near completion of its neighbor, the existing unit becomes physically linked to the new one. This is possible because of the physical ordering system. This process is repeated as is necessary and allows for any change to take place due to fluctuation in demand. The time unit is not the stiff method of growth, it can be altered to suit a changeable pattern of growth. For instance,
if after the first few time units of three years it becomes possible because of perhaps some technological progress to more accurately predict the amount and type of growth, there is no reason why the time unit should not become four or five years, or possibly more. Hopefully, the physical ordering system provides consistency in linking together the various time units.

Most of all, it hopefully allows construction on a large scale to take place, and at the same time allows life to go on on the same site in a tolerable manner, and at the same time permits the marrying of a number of time units because of the inherent ordering system (physical).

Whereas the time unit provides us with a non-physical ordering system, some form of physical ordering system is necessary. The suggestion is that all the large scale horizontal transportation elements are not subject to frequent change, either through necessity or desirability. This could provide horizontal order (physical). Under this precept, there are certain physical vertical elements which are also less subject to change, i.e. large scale service cores, vertical circulation and basic services, and at the same time would provide a basic means of structure.

Thus, these elements are basically fixed, and the free floor space hopefully becomes an element of high flexibility potential.
DESIGN INTENT

Objectives and Criteria

This problem, like many problems in urban design, involves interpreting the needs and aspirations of users over time. It is necessary to develop some kind of organizational principles for housing a great diversity of activities in a high density problem. While much positive can come out of easy accessibility, considerable control has to be exercised to assure the smooth functioning of sometimes conflicting activities.

Most of the constraints placed on us are 'givens' - the remainder being self-imposed. The translation of these limitations into positive, viable and imaginative solutions is the challenge of the design process. As previously outlined, the major types of facilities included in the program are as follows: housing, offices, hotels, commercial, wholesale, and parking. The relative amount of space allocated to each has been predetermined by an economic study.

The fact that the proposal must utilize air rights is one of the most obvious and severe limitations. The railroad yard below must function normally during all stages of building. As the building will take place in an incremental fashion over a fifteen year period, the placement and timing of facilities becomes critical. The site has strong boundaries on at least three sides.
river, lake and downtown edge. The park boundary is more artificial, but exists as a legal line nevertheless. Other rules and regulations exist such as codes, and we feel that many new regulations would have to be investigated for a project of this nature. The context area has a very strong orthogonal organization. We have chosen to recognize this at least in part. We have recognized the impact of climate particularly with respect to orientation. It is our tenet that it is important for dwellings particularly, to have sunshine in the living space at some point in the day. All of these problems will be cited in conjunction with examining the different physical parts of the project in relation to their intended service to specific users. The remainder of this section will set out specific design criteria based on objectives ascribed to particular users such as residents, office workers, etc.

a) Residential Patterns

The resident is someone whose business and leisure time revolve around the central business district. He is the executive who likes to be close to his work. He likes to sail and enjoys the company of others interested in sailing. He enjoys the clubs in the area, and the contact with the members. He probably travels to a great extent. The cultural facilities in the area are attractive to him. If he is married, his wife may be involved in women's committees concerned with symphony concerts, art shows, and benefits. Their children will be mostly pre-school or grown
up. If they are of school age, there is every chance they are sent to private schools. Generally, the residents are people who are engaged in interaction with a select group of people whose common interests hinge around the central area. More than likely there is little contact desired with neighbors, except a nodded greeting in passing. Leisure activities are most likely to be in the privacy of an apartment than on a common terrace or in a lounge.

One of the advantages of living here is the possibility of close proximity to friends, yet without living on their doorstep. While we envisage that most residents will work in the C.B.D., a few may be reverse commuters working in the outer city and living downtown. Their life styles remain similar otherwise.

As well as providing for the upper income resident, we feel that the project should be aimed at capturing some of the medium income market — perhaps the couple where both the husband and wife are working, perhaps two working people of the same sex whose combined incomes make this location possible to afford, or the bachelor with no one to support. The residential environment should not be exclusive in the sense of not providing for a variety of life styles. It should allow the choice of remaining anonymous or leading a community oriented life. This environment should provide outlets for the young, restless, or lonely as well as for the self-satisfied, self-assured or snobbish people. The leisure
oriented associations in the project can do a lot in this direc-
tion to help give the option of friendliness to apartment living.

What kind of a residential environment is suitable for these 
living patterns? Irregardless of a particular life style, what 
facilities are needed to serve residents? To answer the first 
question, it appears to us that the social unit is more often 
the career person, the executive, or the retired couple, than 
the family with children. Existing upper income in the context 
area, and trends in other cities attest to the validity of this 
assumption. The social make-up suggests an introverted, anonymous 
quality of life with respect to fraternizing with other residents 
in close proximity. The high density involved and downtown location 
makes both the concept of centering around the elementary (or 
any other) school invalid. However, sheer size demands that 
residential units be grouped according to some principle. Common 
needs, regardless of interests, are the strongest framework for 
this kind of organization. The elevator lobby is a common deno-
minator. The laundry or nursery may or may not be shared. Leisure 
time use of residents suggests that the street or corridor is not 
a good social basis for organization of the habitat. Security 
is something which can be an organizing principle. A large group 
of apartments could afford to support a doorman. Several hundred 
apartments may support a sauna bath or swimming pool of their 
own. Facilities which are normally found in the basement or
ground floor of many apartment blocks must be incorporated at convenient intervals throughout the complex. These facilities include lockers, storage, workshops, perhaps even a small projection room, and a party room with a bar and stage equipment. This housing must be competitive and must have extra facilities to draw people to it. The apartments themselves should be spacious in order to accommodate entertaining. Generous private outdoor space is also necessary for each apartment. As many residents as possible should enjoy the variety of two views.

In summary, in terms of supportive facilities, a hierarchical type of organization seems valid, the specific facility indicating the range of hierarchy involved.

The proximity of existing shops and stores in the downtown area means competition for any on-site functions such as a supermarket, a liquor store, or drugstore. Certainly there will be increased demand for such facilities and the program allots space for this purpose. Our analysis of the context leads us to reject the neighborhood corner as a rational basis in this project. We propose that large new supermarket and drugstore facilities be incorporated as a part of the public rather than private or semi-private domain. We feel, however, that there is demand for small businesses such as newsstands, cigar stores, milk and bread stores, some bar lounges, a restaurant, etc. These facilities can be supported at an upper semi-residential, semi-leisure, semi-office
pedestrian level by virtue of the mixture and meeting of functions.
The size of this complex may make meeting rooms, painting studios,
workshops, sauna-swimming facilities economically feasible. The
meeting of the private and public domains seems the most approp-
riate location for many of these functions.

At upper residential floor levels, there is a conflict between
providing continuous horizontal circulation from building to
building and limiting access for reasons of security and privacy.
It would appear that continuous circulation at every level has
more disadvantages than advantages. However, it seems that
different routes or paths at certain intervals is valid both in
terms of the variety and diversity of the walking experience,
and also for access to and from different parts of the project.
In addition, these walkways are to be planned as alternate means
of egress in case of emergency. Thus, the residential network of
paths is a combination of hierarchical and open-ended systems
of circulation. The vertical systems are no small parts of such
a network. A combination of express and local elevators is
necessary to serve upper levels of high rise buildings. In daily
patterns of going to work, an efficient system with few stops
is undoubtedly the preference of most businessmen.

The skip-stop corridor system offers many advantages as a residential
network. It cuts down the building space necessary for circulation.
Perhaps even more important it allows the possibility of double
exposure units. It also lessens the number of elevator stops. A possible disadvantage is for two-thirds of the residents having to walk either up or down a flight of stairs after leaving their local elevator. In our mind the superiority of the apartment unit and the different combinations of apartment plans made possible by this system are well worth this price.

Such a residential network is to be designed in terms of sequential motion. We feel that is is important for the user to have a sense of direction and orientation while moving along these paths. Attempting to predict each person's perception is an impossible task. Some usefulness can come in terms of helping a design decision if the daily cycles of movement are traced. This means simply following the user to and from work, shopping, visiting or a stroll. His choice of routes becomes apparent as does the significance of facilities along the path. We make a differentiation between the habitually travelled and occasionally travelled paths. A path which is travelled habitually say from the apartment to the elevator to the subway station soon becomes second nature and can easily become boring. We believe that controlling the facilities along these paths provides necessary variety in the form of changing window displays, changing people and views. By providing vista or transparency of function along the route, the visual environment is made much richer for the casual pedestrian. On this particular site, glimpses of the river, lake, park or interior at various appropriate intervals will give recognition
of orientation. Level changes, street furniture, signs and other
design tools can help mold an image for the user.

b) Work Patterns

As well as housing residents, this proposal intends to expand
the office facilities of the downtown area. Competitive business
demands that offices open up at the same time. Thus, there is a
problem of tremendous numbers of people arriving at their work
at the same time. These people will arrive in a range of modes.
The new subway connection will play no small part. There are
many types of offices ranging from the small professional to the
large corporate office. Some organizations have many departments
which can be separated in space while others require instantaneous
access to all parts of the office. Some offices depend on the
passers-by for their business much like small shops; others need
only 'directory' contact or recognition by address. Still other
concerns are dependent on visual communication of their enterprise
and need 'show windows' such as the real estate office or photographic
studio. Most offices in this project have approximately an eight
hour cycle of life.

Types of offices which depend somewhat on visual contact for
business are best located within easy walking access of major pedes-
strian plaza levels. These enterprises are small businesses probably
under six people. The remainder of small businesses can be located
at higher levels, perhaps in close proximity to pedestrian levels.
These businesses are in demand and do not have to rely on casual business. Some professional offices might fall into this category as well as contract sales, brokers, or other types of businesses conducted primarily over the telephone. Large corporate offices require many types of space and this requirement more than anything determines their location. Large secretarial space is required, offices, cubicles are sometimes needed, conference rooms, lunch rooms, and executive offices are needed in varying quantities. Interior flexibility is achieved by modular planning to suit a client's changing needs or a change of clients.

The close proximity of offices and housing is mutually beneficial from the point of view of access but also from the competition resulting in better restaurants, bars, shopping facilities. The close proximity of all these facilities give potential for the design of truly varied and interesting civic spaces.

Because of the nature of the corporate office space needs, we feel that they are best located in large aggregates well above the plaza level. The great majority of office workers need to be away from noise and distraction yet with a sense of the changing light of the day if they don't have a distant view. Where possible we feel that it is highly desirable for a working person to have the opportunity of the light and view while working. This smaller philosophy carries through to offices located near the plaza level. Where possible surfaces will be utilized to provide a courtyard or terrace.
accessible to office workers. Such a transitional space allows compatibility between the juxtaposition of offices and shops or pedestrian concourses. As stated, offices which require high visual contact are to be located directly off pedestrian areas. These locations are not reserved to the interior of the site but also apply to the river and park edges.

c) Commercial, Cultural and Entertainment Patterns

The criteria to date have concerned mostly those users who either live or work on the site, or both. The program calls for additional facilities to be supported by the general public. These facilities will cater to a wide variety of tastes, some being bigger and better versions of existing facilities in the Loop, while others provide badly needed or specialist functions. The existence of some 11,000 housing units on the site will help to make many facilities more than an eight hour cycle of activity. Commercial facilities, including both service and retail facilities depend on visual and physical contact. They depend on being extremely accessible to public and private transportation. The closer to the crossroads of activity, the happier they are. For the purposes of this study we have classed commercial enterprises, whether retail or service, according to space demand, i.e. large, medium, or small. Of course, large space functions can be divided up, but it is more difficult for small establishments to expand because of leases of neighbors, etc. We propose an even distribution of space sizes at major pedestrian levels. This means that
should a business require more room, it would 'move across the street'. Larger stores such as department stores, could 'annex' medium size spaces if the present occupant were rewarded sufficiently. An even distribution of spaces with consistent accessibility would provide considerable flexibility with respect to growing or changing commercial patterns. The direction indicated seems to be one of modular planning.

Our definition of cultural facilities is that of a performing arts theater, an art gallery, museums, etc. Our intent is that such facilities can easily be enjoyed on a casual basis as well as that of a planned trip. The spatial characteristics of these facilities are varied and their requirements for light differ. Our concern is not for detailed interpretation of the internal spaces of these functions but rather for their effect on activity and plasticity of so called civic spaces associated with this project. Thus, we feel that the placement of the various cultural facilities should be in close conjunction with commercial areas and pedestrian plaza spaces.

Entertainment is of course another form of cultural expression. Movie theaters, night clubs, bars, displays, music, etc. make up some of the entertainment function. In this context we are thinking of entertainment as a planned event. Spontaneous entertainment such as soap box speakers can only be hoped for. Again, entertainment facilities have a close connection to commercial activity,
sometimes being directly connected, as in the case of hotel facilities.

In conclusion, the three activities involved seem best located in an interdependent way easily accessible to the general public and both private and public transport. Their variety and interest provide a good basis for a series of 'civic' spaces as near as possible to the existing pedestrian level of the city.

Combinations of all of these facilities are already to be found in or adjacent to Grant Park. We intend to expand the park's facilities greatly increasing the variety of leisure possibilities. Like the plaza areas, the park is for the enjoyment of all Chicagoans. A direct subway extension will open up its use to people from all over the metropolitan area. In order to make the park more usable and pleasurable, we would advocate the following physical revisions:

1. A rejection of the formal quality of the Burnham Plan, while preserving some of its focal points, such as Buckingham Fountain.

2. Opening up access to Lake Michigan by relocating Outer Drive and developing lake edge activity more.

3. To develop more landscape interest by the use of water, planting and earth terracing.
4. To expand existing park facilities such as the art museum and introduce new participation activities.

5. To recognize the underlying geometry in part and to introduce a sequential series of smaller spaces.

6. To reconcile the possible conflict of interest between nearby residents and workers and people from outside areas by providing continuous activity and well defined functions.

c) Transportation and Service Patterns

In order to formulate a policy towards transportation on this site, it is necessary to evaluate the relationship of this area to metropolitan Chicago, as well as the importance of recent trends.

One of the distinct advantages of this location is the direct accessibility to major activities (walking distance) would seem to make use of a private car questionable.

However, the inconvenience and discomfort of using the present mass transit for short trips does not seem to be an answer either. It is our thought to investigate new forms of transportation to help solve the problem of comfortable, efficient and convenient access to central sections of the Loop as well as inter-site journeys. Of course, present modes of transportation will continue to be indispensable for longer range trips outside the central
business district. Preliminary investigation indicates that some form of connection to existing or proposed mass transit facilities is necessary.

Listed below are the major transportation suggestions for the comprehensive area study. The feasibility of any or all of these is not yet established.

1. Possibility of hovercraft landings in connection with over lake transportation system;

2. Possibility of connection to new Lake Michigan airport;

3. Possibility of harbor facilities for pleasure craft;

4. Possibility of automatic internal site circulation;

5. Possibility of connections to existing or proposed mass transit system;

6. Possibility of helicopter facilities on the Air Rights site;

7. Re-alignment of Outer Drive.

Statements following are the beginnings of a basis for the design and choice of an integrated transportation network.
It will be our policy to minimize or possibly reverse pollution in our area via design controls, i.e. we will limit the amount of fumes escaping via land vehicles or transportation services in general. There will inevitably be a trade off between maximum accessibility, desirability and the least pollution possible. This will entail looking into the possibility of other forms of transport in addition to existing modes.

Noise, one of the prime disadvantages of central city living can mostly be attributed to transportation sources. Again, the services provided and popularity of use will not preclude the use of such vehicles. However, design control can alleviate the noise associated with land, water, air transportation. For example, policies could be structured in such a way so as to allow the use of small helicopters provided the nature of use and location can be acceptably integrated with over-all design criteria.

The transportation facilities connected with this project will be designed in such a way as to allow some flexibility with respect to technological advances. For example, corridor rights of way shall be structured in a highly adaptable manner and will be able to accept change of mode over time.

A high density urban area requires elaborate movement systems varying in scale from pedestrian movement to high speed modes. It is our intention to correlate the scale of transport with the
hierarchy of spaces associated with this development. For example, the transfer points between different modes of movement must be scaled transitionally between the two as pedestrian to subway transfer.

Different scales of channels imply different juxtaposition of activities. While each access channel must be tailored to its mode and function serving its immediate purpose efficiently, it must not be allowed to infringe upon other activities. For example, grade separation may indeed be necessary where high flows of pedestrian and vehicles occur simultaneously. Channel width and associated flows of traffic (pedestrian and vehicular) shall complement the various activities fronting the corridor. Major criteria concerning access channels are clarity of arrival and departure, hierarchy of penetration, efficiency of movement and flexibility of use.

It is our intention to allow varying access to vehicles relating to general criteria. This will involve different types of storage from short term specific objective parking to long term storage of seasonal and occasionally used vehicles. Because of the scarcity of space, limits will be imposed on amount, times, and types of storage. Functional relationships will considerably influence location of these facilities. At the same time parking must not occupy space more valuable for other uses, including aspects of availability of light, space and view. For example, if vertical parking structures are used, they must be so placed as to occupy space not suitable for residential purposes.
THE PROBLEM

The Illinois Air Rights problem is especially significant for several reasons. The complex make up of the problem consists of major long term growth control, flexible planning allowing for continual replanning and reorientation beyond the immediate future which can be accurately planned. Significant conflict with existing site use in that the use must continue uninterrupted during construction and in the future, especially high density and the suggestion of experimental architectural techniques, and the overriding strength and demands of the context, the city of Chicago.

Economic

The economic analysis done for this development is based on present trends in growth and demand, for downtown Chicago. The resulting figures supposedly represent an optimum volume based on investment return, in that the present program figures were arrived at through optimization, maximizing the present worth of the land. A comparison of the new program with a previous one seems to bear this out. We feel, however, though by present and foreseeable standards this may be true, that a period of over five years is beyond a reasonable time for a detailed and exacting proposal. The planning proposal for the site must be flexible in meeting the alteration of requirements for growth through time.

The economic study on which our program for the site is based, indicates that the figures represent about one third of the total
demand for new space in the corresponding time periods for projected program figures. The fifteen year construction period with partial occupation of the site in the impending period is proposed as a balance between most efficient economic use and the related factor of the desirability of the site for residence and users in the construction period.

Growth Planning

The proposed fifteen year construction period providing for optimum present worth of the land, far extends a realistic period for exact planning, even though the study almost guarantees accuracy in its figures. Thus the fundamental problem of growth is to achieve resilience for incremental changes and new demands, additions or subtractions, in the process of meeting the future need. In addition, the whole project must be prepared to absorb the shock of major change such as project termination before the final date of completion, if its continuation is economically no longer viable. It must remain sufficient and vital as an environment within the facilities already built.

Over the fifteen year construction period assuming maximum growth the problem of accommodating users and residents already on the site in later stages of construction suggests that careful planning considerations must be made in reference to physical growth and placement. Our growth plan schematically is based on a linear pattern of growth and development starting at Michigan Avenue and
reaching the lake end of the site in the final stages. As the demand in time for the various uses on the site is evenly proportional over the fifteen year construction period, this means that a fairly even distribution of uses must exist throughout the site, at least with regard to major construction phases.

**Railroad**

The operation of Illinois central's rail yard must continue in a primarily uninterrupted fashion throughout the fifteen year construction period. This factor combined with the poor soil-bearing condition of the site has led us to the conclusion that a system of long span structure which interrupts the base level of the site as infrequently as possible is the most viable solution. We feel that with infrequent penetrations, it will be possible to make minor track relocations without hampering the function of the rail yard.

**Environment**

Combined with the especially high density nature of the program, and the need for flexibility in accommodation for longer term planning, we feel that a major structural system of long span structure is best. It has at least been suggested to us, that considering the volume of building, combined with the density demand, an experimental system could possibly compete with more conventional building structure forms, and we feel that the resulting environment is much more viable. The high concentration of residential use we feel warrants the consideration for optimum sun
and aspect exposure. The long span system which we propose solves this constraint, and makes possible high penetration of open spaces, as well as better scale definition. In addition, this experimental proposal stems from our feeling that cities must truly become three dimensional in movement and use of volume.

**Density**

The density requirement according to the recommended program consists of about 200 living units per acre, plus 350 cars parked on the same acre, in addition to numerous facilities of all types as listed in the program, 'Office, Commercial, and Cultural.' The result is a land floor area ratio of about 14 to 16, which is one and a half times the coverage in the downtown Loop area. It is clear that while density alone is an overriding problem, in basic architectural terms, this very high density also compounds all other problems.

**Vehicular Traffic**

Traffic movement becomes a major consideration. It is estimated very roughly, using density and area relationships as correction factors for comparison with the Loop, that a constant capacity of 500 service vehicles must be accommodated on the site at an average cycle of one hour. The parking area and roadway necessary to maintain this service requirement alone accounts for an equivalent of 10 percent of the site area.
The 20,000 cars which must be parked on the site represent an equivalent of about 200 percent of the site area. Of these, about 40 percent are 8 hour parking turnover, or lease parking for on site office space. It can be assumed that most of this parking will be for nine to five workers, and therefore the turnover of this parking will take place essentially within about a one-hour period in the morning and afternoon. In addition to the problem of developing efficient movement on the site to the perimeter for this traffic, the effective increase load on the Loop area and adjacent traffic arteries must be considered.

**Urban Pattern**

Thus, the most difficult problem environmentally arises, that of combining or meeting a new type of urban growth and form with the existing urban form and pattern. This problem must be considered at three conceptual levels. The most basic consideration is functional in terms of providing for continuity of movement systems. In the case of Chicago with its strong orthogonal grid circulation pattern, we have tried to extend this basic pattern into our site.

Because the major levels of pedestrian movement are well above the datum level of Chicago streets, we are proposing that a major secondary system of pedestrian movement corresponding to the pedestrian level on the site, grow back into the city in the direction of the Loop. We feel that in the long run such a system could be a seed for the transition of the old city in the same
kind of three-dimensional environment which we are proposing on
the I.C. site. Very long term projects suggest to us, that a
complete system of linear horizontal growth in some form could
completely transform the existing city, and the valuable histori-
cally significant architecture could be maintained in the older
context, as outstanding landmarks in the new urban pattern. In
this way we suggest a means of two remaining levels of marriage
of the old and the new, that of maintaining continuity environ-
mentally, and at the very basic level of conceptual urban form
itself.

Responsibility
The effect of density on social patterns is not clearly understood.
We feel that the nature of density such as we are dealing with
creates the need for new responsibility in the area of providing
conditions of a physical environment which can accommodate the
need for social space. We are aware of the fact that economic
burden for our system should not be the responsibility of the
private investment sector within the existing economic structure.
In fact, the demand for large amounts of space which represent no
capital return are the responsibility of the social political
structure in order to insure continuation of a healthy environment.
In this respect, while we have not provided a solution which
could be successful economically totally under private investment
as is the condition of existing responsibility, we have tried to
suggest how this new responsibility should be allocated. We feel
that the major spaces for movement and urban experience should be thought of as parks, public squares, and streets, their construction and maintenance the responsibility of the city, in that they contribute to the life and social health of the whole community rather than just the full-time residents.
INTRODUCTION TO THE PHYSICAL PROPOSAL

The success of any long-term development such as the Illinois Air Rights project will depend on the ability to control within a framework of some nature the facilities which are finally built within it. It is impossible to develop a specific program which is dependable enough over even a fifteen year period on which to base a detailed planning solution.

Any proposal of this scale will also be subject to policy and administrative changes; changes in planning staff, and other technical staff who will prepare plans for construction in carrying out the execution of the project, as well as changes in demand for facilities, changes in technology, and way of life.

Taking this need for flexibility in the proposal, we have described a basic physical and non-physical framework, which can be subject to a great variety of specific space allocations, architectural expressions and technical innovations.

The non-physical system consists basically of a growth pattern which is described in the quantitative program. The physical ordering system is a projected pattern of horizontal and vertical movement for pedestrians and vehicles.

This proposal is based upon the desire to create a new pattern of movement and perceptual experience in the urban environment.
The existing urban fabric consists of planar experience and movement with isolated vertical systems which are only local and therefore strongly dependent on the one basic horizontal system at ground level. Our proposal consists of a three-dimensional movement system which makes possible a new experience of user penetration through volume of urban spaces rather than only along the perimeter.

The proposed system of movement can be thought of as an expansion of the existing two-dimensional grid system of Chicago, with major streets or paths of movement with secondary systems working off of the major systems not as local or dead-end systems, but as continuous connections back into the major systems.

Because of the strength of the existing grid of Chicago streets, the basic pattern of vehicular movement on the site is compatible with off-site vehicular movement. Pedestrian movement on the site is not dependent on existing patterns, and in fact the potential influence on this new type of movement, in our opinion, should be allowed to penetrate back into the existing city.

In that this system represents the major constraint for control over the period in which the project would actually be built, it allows for many alternatives in form, technology and activity allocations. In order to demonstrate the concept, we present one specific alternative based on this framework, and we feel that within the existing and foreseeable technology, our alternative represents a vital and viable solution.
PHYSICAL PROPOSAL

This particular segment of the report will make an attempt to describe the physical proposal for the Illinois Central Air Rights (hereafter I.C.A.R.) as put forth by this group design effort. In so describing the project, it is assumed that the reader is familiar with the group philosophy and statement of the problem as explained in the first part of this report, and will bear in mind their importance in forming the basis for the decision policies concerning the physical proposal.

Basic to the essence of any Air Rights proposal is the function that exists under the air rights. In the I.C.A.R. proposal this function consists of operating rail yards and commuter rail services that have to be maintained in operation at the present time and incorporated into the total design from a long range viewpoint. This function requires a long span structure so as to have the least amount of interference with the movement of trains and approximately twenty feet clearance because of the size of the trains, and an extensive means of air movement, both supply and exhaust, as the only electric lines are those for the commuter trains.

To accomplish these requirements, we have established an orthogonal grid system that is an extension of the city grid system, and penetrates the tracks at two hundred and forty foot intervals. With the supports located two hundred and forty feet apart there
is a minimum amount of interference with the operations of the trains. This system of long spans is also highly adaptable to different spatial arrangements in the event that the Illinois Central decides to abandon their rail activities in this area and convert the space to a different function. Should the Illinois Central decide to convert this space, our long range design proposals for the space would be to use it for such activities as warehousing, light industry, i.e., boat building and repair, and other associated functions that require large open areas.

The basic structuring system will integrate into the I.C.A.R. property in such a manner as to easily accept existing facilities of the central business district. These established facilities are organized in an orthogonal grid system (this is the predominant system for the whole of the city of Chicago) and should logically penetrate the I.C.A.R. site as a continuation of this system. By allowing this penetration, we are able to efficiently utilize all existing facilities without impairing their present functions. This adaptation at the planar value of street level also fulfills the criteria of ease of ingress and egress to the I.C.A.R. by allowing the existing patterns of automobile and pedestrian circulation to penetrate the site smoothly and make all transitions to different systems within the site itself. However, once these patterns penetrate the site, particularly on a vertical scale, the mutual values of the old and the new are no longer valid.
Structuring System

Within the I.C.A.R. itself we have established, at the base levels, a basic orthogonal grid system of a 60 foot squared diameter. The 60 foot grid is composed of load points in a two-story truss which also houses two levels of parking over the entire site, minus a 100 foot to 150 foot setback at the perimeter edges of the site.

The truss system was established at this level and of this size because of the small amount of allowable penetration through to the track level below. With a truss of this size, supports would be 240 feet apart, and orthogonal in pattern. Four of these large grids would compose the boundaries for one of the larger trihexal grids of the vertical shafts.

Within this truss will be located all major utility functions. The bulk of this utility space will be taken for storage and circulation of 20,000 automobiles and 500 service vehicles. The sixty foot grid system of the truss serves this particular function (automobile parking and circulation) in an efficient manner while at the same time also accomplishing a functional space for operations of trucks and service vehicles. Above this base grid is located the main pedestrian level with all its ancillary facilities, additional parking structures and open air spaces. These facilities undulate in varying heights above the truss and to either side of the truss where they meet the
different interface conditions of the site, i.e. park, city, river and lake. The 100 foot to 150 foot setback of base level facilities allows this undulation at the edges of the site to vary according to the condition of the interface of the particular edge. In all cases the condition of built surfaces on the site are scaled such as to allow ease of transition to the adjacent surfaces off the site or penetration onto the site.

Penetrating through all these activities is a trihexal grid system of multi-use shafts that occupy the 60' square right of way space of the base level orthogonal grid system. In this way, the upper levels of activities can deviate from the orthogonal system to a new system of their own that is scaled to the city as a whole and not just to street level conditions. This trihexal system is based on a 340 short dimension and 480 long dimension triangle with the 480 dimension having intermediate supports composed of vertical utility systems such as elevators, stairs and mechanical distribution systems. The major structuring shafts are located at the points of connection of the trihexal grid and contain within them the support for the spanning structures, vertical accessibility both automated and standard types, collection points for pedestrians, major distribution for mechanical services and platforms that serve as nodal points for the elevated pedestrian circulation network.
This large scale network of vertical shafts forms a vital role in visually ordering the entire site in that they form a regular sequence that can easily be identified in forming a mental image of the site. Spanning between these shafts is a large truss that can take any one of six directions away from the shaft. This truss has a system of smaller trusses that cross it at right angles and cantilever 20 to 30 feet either side of the main truss. These smaller trusses then serve as support systems for the different activities located in the described spaces between the shafts. The smaller trusses are on an alternating system that allows greater flexibility in space planning. The whole of the upper levels of the site are basically formed in this manner in order to accept a new form of urban environment, that is one that can free itself from its base level conditions while remaining functional within that system. This entire system has the flexibility and adaptability required for the site, as all the dimensions are variable depending upon the conditions required by the particular activity located within it, while retaining a long range potential to penetrate outwards into the existing central business district (the Loop).

In the more foreseeable future the potential for expansion across the Chicago River into what is now an outdated warehousing district is eminently more likely to occur. In the event this does occur, the system derived for the I.C.A.R. is adaptable enough to integrate into this area.
The amount of flexibility within the truss system derived for this project can easily be seen in the variety of floor plans for the different activities. The system is such that the highly fragmented spaces -- that is an activity that functions in small spaces that make only small incremental changes -- are located on the levels at which the structural trusses cross at right angles and those activities which require large floor areas free of supporting systems are located on levels that are suspended from the minor trusses at the peripheral edges with only the major truss penetrating the space. Through this method of structuring, we have derived a system that is capable of fulfilling the variety of spatial activities provided in one system of structuring.

Transportation

The transportation systems employed on the I.C.A.R. will incorporate all forms of movement. A portion of the metropolitan subway system is proposed under the site and a station is located near the Michigan Avenue edge of the site. This subway is connected to all lines of rapid transit in the city of Chicago. There is an underground right of way through the site in an east-west direction which is proposed to be an extension of the subway projected in the area as a further means of access to the site in the event its future growth extends westward into the lake and also as a means of access to the proposed Lake Airport for the city of Chicago.
In addition to the subway systems there is an inter-site automated movement system which operates at a lower speed and lower capacity to bring the entire site into an equal accessibility system that will provide all points of the site with equal opportunity for development of various activities. This system will consist of a mini-rail (enclosed) which will also have the possibility of extending back into the Loop at a future date.

Augmenting these two major systems will be the customary systems such as elevators, escalators and limited use of moving sidewalks.

The elevators will be in conjunction with the shaft system, with intermediate elevators located at mid span of the long dimensions between shafts. These elevator systems will be a combination of express and local types with the local type serving the various occupancy types located vertically along the shaft. Obviously each bank or set of banks will be versatile enough to adapt to the conditions that exist along and adjacent to the particular shaft in which the elevators are enclosed. In all cases, there will be at least one pair of elevators in each bank that will penetrate into the automobile parking areas located in the lowermost levels.
Mechanical Considerations

The mechanical systems employed within the site are separated into five basic types which are as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Sq. Ft./Ton</th>
<th>Area</th>
<th>Mechanical Load/Tonnage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>500</td>
<td>11,000,000 sq. ft.</td>
<td>22,000</td>
</tr>
<tr>
<td>Office</td>
<td>300</td>
<td>4,196,000 &quot; &quot;</td>
<td>13,985</td>
</tr>
<tr>
<td>Commercial</td>
<td>350</td>
<td>2,000,000 &quot; &quot;</td>
<td>5,700</td>
</tr>
<tr>
<td>Hotel</td>
<td>400</td>
<td>864,000 &quot; &quot;</td>
<td>2,160</td>
</tr>
<tr>
<td>Cultural</td>
<td>300</td>
<td>830,000 &quot; &quot;</td>
<td>2,750</td>
</tr>
</tbody>
</table>

Approximate total tonnage ....................... 46,595 tons

These basic types of mechanical situations are divided into two methods of solution. All residential spaces are solved by the use of individual self-contained air conditioning units. These units are all-electric in energy concept and therefore require no central plant or utility system in their operation. They are approximately 22" deep, 24" high and vary in their length with a 6" exposure grill on top of the unit for air movement. These units are located on a modular system of 15' which allows individual room control throughout the residential area.

This same system is used in the same manner for all the hotel areas. The office areas are divided into two separate systems. The perimeter spaces of the office floors are served by the same
system as used in residential and hotel areas while the central areas of the office spaces are served by a low velocity air system from a localized mechanical room. This central area system uses blower and duct equipment that originates in the local mechanical room that serves that particular area. These mechanical rooms occupy an area approximately one tenth of the area they serve and are located on every tenth floor of the office floors. This system allows a single mechanical room to serve ten floors down and ten floor up for a total service area of twenty floors. The local mechanical rooms are providing their heating and cooling media from a central plant located on the same level with the warehousing and storage. This central plant will provide a tonnage capacity of 15,450 tons and occupy an area of 13,000 sq. ft.

The commercial spaces will be entirely handled by local mechanical rooms providing a low velocity air system of air conditioning. Again, the heating and cooling media will be provided from the central plant. This same system will be used in the cultural spaces.

The mechanical system employed in the parking levels is a system of exhaust ducts located vertically through both parking levels and the warehouse level. These ducts disperse the exhausted air through a filtering system and then into the air above the activities on the main pedestrian level.
<table>
<thead>
<tr>
<th>DATE</th>
<th>DISCUSSIONS/DECISIONS</th>
<th>EXPLANATORY COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb.19</td>
<td>Preliminary goals and objectives were outlined. Previous discussion to date was summarized. It was decided to set up some parameters using objectives as a basis for search in order to select an appropriate thesis subject. Application of the Manheim Decision Model No. 1 was attempted. A matrix was prepared assigning coefficients to parameters as agreed by the group. A priority ranking of projects emerged with Chicago and Montreal in first and second order.</td>
<td>For detailed outline and analysis see Appendix A. See Appendix A for model, coefficients, and method of evaluation.</td>
</tr>
</tbody>
</table>
| Feb.22 | 1. Organization of work space in the studio.  

2. Preliminary discussions on phasing of project and necessary information input and output for each phase.  

Phase - I  

1. Information gathering process.  

a) prior to decision of project choice  

b) prior to visit to site.  

2. Decision re project choice.  

3. Detail collection process.  

Feb.23 | 1. Discussion on weekly time schedule of individuals.  

2. Dissemination of information received.  

3. Discussion concerning trip(s) to the site.  

A weekly calendar was prepared to be filled out by each individual at the beginning of each week.  

Received - Lakefront Development Plan, Central Area, Chicago, Ill. from W. Netsch - S.O.M., Chicago.  

Received - Clips from Inland Architect concerning I.C. Air Rights project from H. Nelson, Chicago City Planning Dept. |
<table>
<thead>
<tr>
<th>DATE</th>
<th>DISCUSSION/DECISIONS</th>
<th>EXPLANATORY COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb.23</td>
<td>4. Professor Lubicz-Nycz</td>
<td>The following questions were raised in an afternoon discussion with Professor Lubicz:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A. Individual weekly time schedules.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B. Individual responsibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C. Depth of Project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D. Choice of Project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E. Semester Schedule</td>
</tr>
<tr>
<td>Feb.24</td>
<td>1. Organization of work space</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Discussion of scheduling for the semester's thesis work.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Discussion concerning trip(s) to the site.</td>
<td></td>
</tr>
<tr>
<td>Feb.25</td>
<td>Organization of work space.</td>
<td></td>
</tr>
<tr>
<td>Feb.26</td>
<td>1. Preparation of schedule for the semester's thesis work.</td>
<td>A preliminary schedule was prepared in calendar form. It was decided that a complete</td>
</tr>
<tr>
<td></td>
<td></td>
<td>schedule in bar chart form would be prepared later.</td>
</tr>
<tr>
<td></td>
<td>2. Discussion concerning trip(s) to the site.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Discussion on choice of project.</td>
<td>It was decided that the project choice would be made before 8 pm on February 28.</td>
</tr>
<tr>
<td>Feb.27</td>
<td>Discussion with Professor Lubicz-Nycz concerning semester schedule.</td>
<td>The following comments were raised in an afternoon discussion with Professor Lubicz-Nycz:</td>
</tr>
<tr>
<td></td>
<td>Review of procedures involved in joint project.</td>
<td>A. A physical concept prior to site visit to get a positive reaction from client.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B. Suggested inner group competition during conceptual stages with class participation as</td>
</tr>
<tr>
<td></td>
<td></td>
<td>jury.</td>
</tr>
<tr>
<td>DATE</td>
<td>DISCUSSION/DECISION</td>
<td>EXPLANATORY COMMENTS</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Feb.28</td>
<td>Final decision was made to accept the Chicago project for thesis subject.</td>
<td>The decision was reached due to the lack of information on the Montreal project as per deadline set by group decision.</td>
</tr>
<tr>
<td></td>
<td>Contact the following people:</td>
<td>The group was able to compile a preliminary list of useful data to be obtained:</td>
</tr>
<tr>
<td></td>
<td>J. Villemur</td>
<td>1. Chicago background</td>
</tr>
<tr>
<td></td>
<td>W. Netsch</td>
<td>- Burnham &amp; Root</td>
</tr>
<tr>
<td></td>
<td>H. Nelson</td>
<td>- Eliel Saarinen</td>
</tr>
<tr>
<td></td>
<td>in connection with obtaining all the necessary background data.</td>
<td>- Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Housing Data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- H.U.D.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- F.H.A.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Transportation*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Chicago Transportation Authority</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- State Roads Commission</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Illinois Central Railway</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Chicago Aviation Authority</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Chicago Maritime Union</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Depth of water channels</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Economic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Real Estate Research</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Development Organ.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jerry Wexler</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leo Sharidan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Site Information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Utility survey</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil Survey</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Base map of site</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Land use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Population Information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Projected growth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Socio-economic study</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Mobility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Legislation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Code restrictions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Floor area ratios</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Air rights</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Condominiums</td>
</tr>
</tbody>
</table>
Feb. 28

**DATE**

**DISCUSSION/DECISION**

Contact the Chicago area universities i.e. schools of architecture. Theses

Discussion centered around the method of locating, absorbing, and indexing all pertinent data in the following week.

Research M.I.T. Library

Amended Schedule:
Prepares preliminary network for Phase 1 & 2

Feb. 29

**DATE**

**DISCUSSION/DECISION**

1. Library research & listing

2. Start of network diagram

3. Establishment of dates for visit to Chicago

Mar. 1

**DATE**

**DISCUSSION/DECISION**

Development of activities and contacts pertaining to visit to Chicago.

Distribution of reference material.

**EXPLANATORY COMMENTS**

8. Climate
   - Sun
   - Rain
   - Wind
   - Snow

Library search of pertinent material and dissemination of this material among the group

Preliminary of complete network analysis of first phase of project.

It was decided to leave for Chicago Saturday March 23, and return to Boston Friday March 29. Contacts and activities during the trip were to be decided at a later date.

All reference material was distributed among the group to be read, indexed and redistributed rotationally among the members.
<table>
<thead>
<tr>
<th>DATE</th>
<th>DISCUSSION/DECISIONS</th>
<th>EXPLANATORY COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar. 6</td>
<td>1. Group coordination of reference material.</td>
<td>General familiarization with all of the reference material.</td>
</tr>
<tr>
<td></td>
<td>2. Meeting with J. T. Howard of the Dept. of City Planning</td>
<td>Discussion with Professor Howard about methods of formulating quantitative programs for projects of this scale.</td>
</tr>
<tr>
<td></td>
<td>3. Meeting with Donlyn Lyndon Head of the Dept. of Architecture</td>
<td>Group explanation of the project.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discussion of M.I.T. policy re copyrights.</td>
</tr>
<tr>
<td>Mar. 7-12</td>
<td>General research &amp; background development.</td>
<td></td>
</tr>
<tr>
<td>Mar. 12</td>
<td>Discussion about preliminary program format</td>
<td>This involved a split into two groups of two - i.e.,</td>
</tr>
<tr>
<td></td>
<td>Decision on program procedure</td>
<td>1. Quantitative data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Qualitative criteria</td>
</tr>
<tr>
<td>Mar. 12-18</td>
<td>Recording of data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discussion of contents and preliminary sketches mailed to developer and S.O.M.</td>
<td>See preliminary program</td>
</tr>
<tr>
<td>Mar. 18</td>
<td>1. Made appointments with people in Chicago re forthcoming trip to Chicago</td>
<td>1. Appointments for group conferences to discuss our thesis proposals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appointments were made with:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a) W. Netsch S.O.M.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) N. O. Sutphin S.O.M.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c) Mr. Greenwald President Metropolitan Structures Inc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d) H. Nelson Chicago City Planning Department</td>
</tr>
<tr>
<td></td>
<td></td>
<td>e) D. Corey Chicago Department of Public Works</td>
</tr>
</tbody>
</table>
Mar.18
2. Additional inquiries concerning information gathering process

Mar.19-22
1. Organization of trip to Chicago via automobile
2. Refinements and additions to preliminary program
3. Conceptual studies. These thoughts were to be used in our conferences in Chicago

EXPLANATORY COMMENTS

2. Letters of inquiry were sent to:
   a) Sanborn Map Company
      re maps and data information for contextual model
   b) Mr. C. Manny -- C.F. Murphy Associates
   c) Mr. J. Wexler -- President
      Jupiter Corporation
      re Co-Developer of Illinois Central Air Rights
      Request for quantitative program material.

The process or methodology was a brainstorming sketch approach to generate new ideas for the project. The major aspects covered in this series of studies are as follows:

1. Transportation:
   a) Sketch analysis of existing networks.
   b) Expansion proposals, e.g. Extensions into the Loop, extensions to proposed Lake Airport, innovation of a lake transportation system which would employ hovercraft and implementation of pedestrian systems.
   c) Relocation of Outer Drive:
      i) same alignment, straighten curve
      ii) Tunnel under Air Rights no turns.
      iii) Same as (ii) but open to Lake edge.
      iv) New alignment in IC depression through Grant Park.
      v) Relocation to west side of Loop
      vi) Relocation eastward into the Lake.
<table>
<thead>
<tr>
<th>DATE</th>
<th>DISCUSSION/DECISIONS</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Mar.23</td>
<td>Group trip to Chicago</td>
<td>Automobile accident forced cancellation of trip and return to Boston Monday March 25</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar.27</td>
<td>Reassessment of program &amp; re-scheduling of time allocations</td>
<td>It was decided that another trip to Chicago was not possible because of time and finances.</td>
</tr>
<tr>
<td>Mar.28</td>
<td>Began contextural model</td>
<td>This activity included measurement of existing buildings from photos and maps.</td>
</tr>
<tr>
<td>Apl.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apl.11</td>
<td>1. Preparation of materials for columetric studies in conjunction with contextural model.</td>
<td>Discussions revolved around subject matter, depth of coverage of the subjects and extents of group involvement.</td>
</tr>
<tr>
<td>DATE</td>
<td>DISCUSSION/DECISIONS</td>
<td>EXPLANATORY COMMENTS</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Ap1.11</td>
<td>Received additional information from Chicago</td>
<td>Information was received from S.O.M. accurate maps of the area, sections through the site, base plans of existing buildings on the site.</td>
</tr>
<tr>
<td>Ap1.12</td>
<td>1. Discussions of various alternative methods to implement the first stages of design.</td>
<td>Discussion was an attempt to synthesize group objectives. The efforts of the discussion were aimed at a primary objective of involving each member of the group in depth with every facet of the conceptual design phase.</td>
</tr>
</tbody>
</table>

2. **Decision**  
The methodology of approach and implementation of the preliminary stage of design was derived by the group.

a) Initial statements by each individual concerning his opinions and evaluations of the basic design facets listed below:  
1. Volumetric studies  
2. Space characteristics studies  
3. Growth studies  
4. Circulation studies  
5. Form studies  
6. Form criteria  
7. Activity studies  

To this list each individual was asked to add any additional criteria he feels is important:  
b) Group evaluation of all material in (a) above  
c) Research and preparation of a single cohesive statement.  
Implementation to be on both group and individual levels.

<p>| Ap1.14| Each member presented his thoughts on basic design theory in a group meeting. | The methodology decided April 12 was discussed at length on a point by point basis with each individual making specific proposals for each facet under consideration. The session consisted mostly of making clear each individual's position on design theory in general and for this project specifically. |</p>
<table>
<thead>
<tr>
<th>DATE</th>
<th>DISCUSSION/DECISION</th>
<th>EXPLANATORY COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 15</td>
<td>Received additional material from S.O.M. Chicago</td>
<td>Material consisted of base maps and sections of the I.C. Air Rights property.</td>
</tr>
<tr>
<td>April 15</td>
<td>The group attempted to set up a matrix as a design tool as discussed on April 14.</td>
<td>Purpose of a matrix: a) set up formal volumetric relationship w.r.t. context. b) develop basis on which to evolve circulation patterns and activity intensities.</td>
</tr>
<tr>
<td></td>
<td>The matrix consisted of cross referencing activity types (such as residential, office, etc.) with qualitative aspects (such as access, growth, manipulability, etc.)</td>
<td>Difficulty was experienced in assigning measuring devices to boxes. It seemed that an essay could be written in each box. It was felt that the activities were too loosely defined and qualitative aspects lacked explicit meaning and definition. The use of antitative measurement alone was proposed such as min. distance between activities. The problem of using a matrix for urban design at all was discussed.</td>
</tr>
<tr>
<td></td>
<td>It was decided to consult with Prof. A. Fleisher concerning this approach.</td>
<td></td>
</tr>
<tr>
<td>April 18</td>
<td>Decision: each member is to work individually and without collaboration with the other members of the group on his specific proposal (physical) for the project.</td>
<td>This decision was reached after an afternoon discussion with Prof. J. Lubicz-Nycz. It was decided that each member was to follow certain criteria in his specific proposal. All proposals were to be presented at a group meeting April 24, at which time each individual would present his proposal to the rest of the group. The parameters which each individual was to follow were: a) relocation of Outer Driver b) proposals for the development of Grant Park c) Proposals for growth systems and staging systems d) Circulation studies: network linkages -- mass transit: private vehicle: pedestrian: parking. e) Massing and grouping studies.</td>
</tr>
<tr>
<td>DATE</td>
<td>DISCUSSION/DECISIONS</td>
<td>EXPLANATORY COMMENTS</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>April 22</td>
<td>Received information from Chicago Area Transportation Study&lt;br&gt;Received additional program information from G.F.M.&lt;br&gt;Received additional information from Metropolitan Structures Inc.&lt;br&gt;Meeting with Prof. Fleisher &lt;br&gt;Discussion about use of a matrix in urban design process. Question of selection of what to go on matrix and what to cross reference.</td>
<td>Analytical report on existing apartment building on the site. &lt;br&gt;Complement to program material. &lt;br&gt;Information on proposed residential rents in the area.</td>
</tr>
<tr>
<td>April 23</td>
<td>Received slides from H. Nelson City Planning Department, Chicago.</td>
<td>Conclusion: best to start with broad levels or 'aggregates' of activity. Assign priorities try to define what proximities and relationships are absolutely essential. Also determine what rel. are extremely bad. Make statements for initial start. Leave matrix for prototype stage.</td>
</tr>
<tr>
<td>April 29</td>
<td>Presentation of individual sketch attempts to group and to Professor Lubicz-Nycz &lt;br&gt;Criticism of all 4 schemes. &lt;br&gt;Decision to discuss schemes strong and weak points to represent one to four refined schemes to jury following week.</td>
<td>General information on the visual aspects of the I.C. site and its contextual surroundings.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All schemes located Outer Drive moved eastward to 'breakwater' position. Exact placement unresolved.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Two concepts of site circulation systems &lt;br&gt;1) Extension of grid throughout site. &lt;br&gt;2) Extension of grid only to Michigan Ave edge with variations on site itself to suit type of development.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 concepts of parking to site relationship: &lt;br&gt;a) cover majority of site to 3 levels. &lt;br&gt;b) collect parking in vertical stacks placed strategically on site. &lt;br&gt;c) combination of (a) and (b)</td>
</tr>
</tbody>
</table>

| 72.      |
DISCUSSION/DECISION

April 24 (cont'd)

Arrival of color slides of site from H. Nelson

Further discussion of all aspects of project.

April 25

Agreed on lower level edge setbacks to allow interaction of facilities with parking and services of the interior of the site.

Decision was made to change from the use of a matrix to bubble diagram to breakdown existing facilities further and define their physical, sequential and time relationships.

EXPLANATORY COMMENTS

Three concepts of Grant Park Development:

a) informal -- bring water, create islands.
b) informal -- bring water in retain water edge as is.
c) semi-formal -- let building (cultural center, etc.) spill into park.

Four concepts of building form:

a) continue in spirit of existing structures.
b) Existing rectilinear following pattern of voids instead of solids.
c) Cluster development off open spine.
d) Pinnace clusters linked by rambling spine.

The group met in the evening for the purpose of constructing positive physical directions.

Setback dimensions

River edge 150'
Park edge 100'
Lake edge 100'

Breakdown of activities was developed as follows:

Parking

a) short term (0-4 hour)
b) medium term (8 hour)
c) long term (24 hour-monthly)

*Commercial --
a) retail
b) service
c) wholesale

*See preliminary program
<table>
<thead>
<tr>
<th>DATE</th>
<th>DISCUSSION/DECISION</th>
<th>EXPLANATORY COMMENTS</th>
</tr>
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</table>
| April 27  | Decision to assign priorities to relationships by 'bubble diagram' studies.         | Two types of bubble diagrams:  
   a) activity-activity proximities  
   b) activity-edge conditions.  

Examples of (a) are residence as focal related to parking, office and other activities.  
Examples of (b) include park edge, river edge etc. and high priority activities for these locations such as bookshops, restaurants, etc.  
This sketch was based on greed staging in five periods of three years each.  
Major considerations were:  
1) Minimum interruption to tenants during construction periods in terms of noise, dirt, view and general commotion.  
2) Allowing existing roads, railroad, office and residential facilities to carry on service normally.  
3) Initial close tie with Loop and C.B.D. in first stages. |
| Worked up preliminary proposal for growth in sketch form. | Physical proposal consisted of five incrementals working outwards from Loop to lake (see plate) |
| April 28  | Decision to study lower access level & priority of vehicular & service necessary at this level. | Lower level had to be 20' in height to satisfy wholesaling storage etc. thus two levels of parking were possible.  
*Need 6000 parking spaces (residential/long term)  
   1500 worker spaces (daily/medium term)  
   3000 short term (0-4 hours)  

Average car movement on site 4200/hr (includes 500 taxis/hr or .25 of Loop taxis) assume cap. of 1000 cars/lane/hr.  
Peak capacity: 7000 cars/hr.  
Reverse commuters: 2000 cars/hr (based on 20% of residents)  
Need min,10 entry-exit lanes  
max,16 entry-exit lanes  
Circulating traffic over site |
| Calculated vehicular flow (daily and hourly) onto and off of site. | *See preliminary program & Cordon count |

74.
April 28  Calculated truck capacities - daily, hourly and parking needs

It appeared that there would be 500 trucks on the site at all times.

A figure of 540,000 sq. ft. was arrived at for handling truck access and parking. This represents approx. 1/6 site area.

It was assumed at this time that all building services would occupy this level, again accounting for approximately 1/6 site area.

April 29  Proposed alternate Grant Park configurations based on previous preliminaries. (see log April 24)

No decision was reached on a common philosophy towards the park.

A sketch proposal was made concerning the relationship of the lower levels to the main pedestrian levels.

April 28 (cont'd)  Truck capacities calculations were based on interpolations of Cordon count figures of Loop area.

Ratio of site to Loop area (1/4)

Ratio of Flr. area = 1.4

Therefore equivalent served area = 1/3 (1.4 x .25)

Loop capacity = 18,000 trucks in a 12 hour period.

Therefore site capacity = 1/3 x 18,000/tr/12 hrs

= 6000 trucks or 500 trucks/hr

Total static truck area assume average truck 30 x 12 = 360 sq. ft.

500 x 360 = 180,000 sq. ft.

Assume 3 times this space needed for maneuverability.

Two basic approaches emerged:

1) Natural 'romantic' development of park contrasting geometry of city and also Burnham's plan.

2) Geometric translation of combination of Burnham plan and Chicago grid pattern creating a '20th Century Park'

This sketch (see diagram) shows a wedge shaped section getting larger towards the main level. The narrowest pedestrian is on the truck service -- wholesale level.
April 30

Worked with study model @ 1" = 80' of parking and service levels.

Experimented with massing possibilities of parking.

Studied massing implied by the three types of parking:
  a) short term
  b) medium term
  c) long term

Decided that short term & medium term could be accommodated in horizontal configurations while long term should be concentrated in tower form.

May 1

1. Investigation of housing, office and commercial massing on model.

2. Decision of impact on edges.

3. Discussion re major SE orientation.

4. Began to work out concepts of lower level organization, incl. parking, wholesale and servicing as well as circulation at lower & main pedestrian levels. Began developing sections thru entire site.

5. Drew up list of required drawing and models for final jury presentation.

May 2

1. Received information from S.O.M. a) Map of Metropolitan area with proposed mass transit expansions and additions for the year 1980.

   b) Diagrams of alternative positions for Lake Shore Drive showing the solution favored by the City.
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<tr>
<th>DATE</th>
<th>DISCUSSION/DECISION</th>
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<tbody>
<tr>
<td>May 2</td>
<td>2. Received Vol.3 Report from Chicago Area Transportation study.</td>
<td>3a) Discussions revolved around basic structural types and potentials of each.</td>
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<td>(Cont'd)</td>
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<td>Systems under consideration ranged from the conventional to the purely theoretical.</td>
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<td>3. Discussions concerning systems (structural and non-structural) for an integrated</td>
<td>Each system was investigated in discussion and drawings in conceptual form and then</td>
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<td>development.</td>
<td>considered in light of the specifics implied by the site.</td>
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<td>3b) Criteria to be met by the system include:</td>
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<td>4. Decided to investigate some kind of shear wall system.</td>
<td>i) varying diagonal placement of functions;</td>
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<td>5. Decision to work off a base grid of 30 feet square increments.</td>
<td>ii) jog (housing)</td>
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<td>iii) Terracing + vertical</td>
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<td>iv) services integration</td>
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<td>v) max. free space at base</td>
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<td>vi) concrete or steel const.</td>
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<td>Other systems discussed were:</td>
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<td></td>
<td>a) post and beam</td>
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<td>b) space frame</td>
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<td></td>
<td></td>
<td>c) no system</td>
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<td></td>
<td></td>
<td>It was felt that it was best to work with some specific system so that each member</td>
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<td>of the group would have a common framework.</td>
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<td></td>
<td>It was agreed that in this kind of a problem structure (&amp; services) should have a</td>
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<td>positive influence in determining order, clarity and organization of functional</td>
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<td>relationships on the site, at an early stage of design.</td>
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<tr>
<td>DATE</td>
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<td>EXPLANATORY COMMENTS</td>
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<tr>
<td>May 3</td>
<td>1. Discussion about plotting traffic flow resulting from site impact on surrounding loop area.</td>
<td>First run on computer was successful; subsequent compilations will provide additional information.</td>
</tr>
<tr>
<td></td>
<td>2. Received letter from Niles O. Sutphin, S.O.M. Chicago</td>
<td>Mr. Sutphin has agreed to meet with us June 6 at our studio to discuss the project.</td>
</tr>
<tr>
<td>May 4</td>
<td>Discussions concerning approach to mid-term jury.</td>
<td>Discussions included scheduling of time &amp; programming activities for the next week. Emphasis was on explicit definitions of our proposal.</td>
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<tr>
<td></td>
<td>Basic approach to structuring the site was arrived at by the group.</td>
<td>The group employed the use of sketch graphics and sketch models to arrive at a group consensus concerning structure.</td>
</tr>
<tr>
<td></td>
<td>Decision on structure</td>
<td>The basic structural system developed was an orthogonal grid system at the lower levels of the development. This system has a strong physical relationship to existing orthogonal patterns of the surrounding contextual area. Basic dimensions of this system is a 60' x 60' square (at the lower levels) penetrating through the system is a larger system of shafts or vertical rights-of-way that extend through to track level, and upward until they have fulfilled their use as a multi-activity space. These shafts serve as primary structure, primary vertical distribution of utilities, major vertical accessibility spaces for pedestrian movement and as vertical reference points in the overall ordering of the site. They also serve as points of departure for future expansions of the development.</td>
</tr>
<tr>
<td>DATE</td>
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<td>EXPLANATORY COMMENTS</td>
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<tr>
<td>May 4</td>
<td>Further development of truck service level.</td>
<td>This system of service movement was integrated with point above (Decision on Structure). The 60' x 60' basic orthogonal grid with the larger (60' square) shafts were integrated into a system of horizontal and vertical movement that (at this level) best facilitate the activities located at this level without infringing on the higher priority levels above.</td>
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<tr>
<td>(Cont'd)</td>
<td>System derived bringing in trucks from sides &amp; feeding central ladder at a point past the up ramps for car parking. An additional two banks of parking for short term park side and riverside shops were installed near front edge of site at lowest level.</td>
<td>Calculations were made to determine density of housing units on site by designing a lower level configuration of terrace housing and finding out how how combinations of verticals would need to be. Another approach was attempted by accepting an average height of 40 stories and seeing what kind of space it generated.</td>
</tr>
<tr>
<td>May 5</td>
<td>Discussion about expression &amp; form as it involves the required density of development.</td>
<td>Neither model yet provided a rich or varied spatial environment. Neither dealt with the problem of transition to the existing city fabric. Neither solved the problem of a range of related scales. He felt that the two models would not marry and represented different philosophies.</td>
</tr>
<tr>
<td></td>
<td>Quick study models were made of each approach.</td>
<td>He suggested experimentation with either superimposed additional grid or recalling 45° line at certain times to form more of an interlocked spiderweb approach.</td>
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<tr>
<td></td>
<td>Criticism by Prof. Lubicz-Nycz</td>
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<tr>
<td>May 6</td>
<td>The group all worked up a common philosophy of form by building a rough study model.</td>
<td>This model focused on superstructure and upper levels.</td>
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<td>DATE</td>
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<tr>
<td>May 6</td>
<td>Upon completion of the model an internal group criticism was held, each member underlining specific successes and failures.</td>
<td>Major points brought up were:</td>
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<tr>
<td>(Cont'd)</td>
<td>Discussion about growth expression as form spreads from land to water.</td>
<td>- Loop edge transition not solved yet.</td>
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<td>- Need for more variety of space in central spine.</td>
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<td>- Form still chaotic.</td>
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<td>- No small scale spaces.</td>
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<td>- Orientation good.</td>
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<td>- Park edge improved.</td>
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<td></td>
<td>- River and lake edges not solved.</td>
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<td>Form must be open ended but also have sense of strong definition.</td>
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<tr>
<td>May 7</td>
<td>Drawings were laid out according to revised pattern of service cores and fixed idea of service level.</td>
<td>See April 29</td>
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<td>Drawings on growth, and structure were begun according to agreed consensus of approach.</td>
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<td>A discussion of the park development ensued with agreement on mutual interpretation of park and site interfaces. A mixture of natural and geometric translation followed.</td>
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<tr>
<td>May 8</td>
<td>Presentation of drawings and model for May 9 jury.</td>
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<tr>
<td>May 9</td>
<td>A jury was held to assess the progress made to date</td>
<td>Jurors' Comments</td>
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<tr>
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<td>Professor Fleisher:</td>
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<td>1. The only solution to the problem of added volume created by displacing existing roads in Grant Park and the additional load from the I.C. site appeared to be to add 1 lane to each of the major N-S &amp; E-W soutes in the Loop area.</td>
</tr>
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</table>
May 9
(Cont'd)

**DATE** | **DISCUSSION/DECISION** | **EXPLANATORY COMMENTS**
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2. Suggested the possibility of eliminating all on-site traffic and suggesting connecting automated distribution system, mechanically reinforced pedestrian, and automatic on-site vertical parking.

Leo Groisser:
Said that the existing truss system was inadequate and should be reinforced by additional beams over the trusses.

Bill Porter:
1. Suggested studying interest in spaces over long period of time for users, by tracing typical user routes by means of isometrics, schematics, perspectives, etc.

2. Corridor wind problem

3. Suggested tying down elements over which we considered we had control.

4. Suggested developing alternatives regarding allocation of space to demonstrate the flexibility of our system.
   Two kinds of flexibility:
   a) Incremental additions/changes due to demand fluctuation,
   b) Ability to withstand abrupt large scale change, i.e. termination, radical re-planning due to technological progress etc.

Professor Stephan:
1. Suggested a more consistent environmental framework be set up for outside user experience, e.g. regularity of Loop.

2. Re-examine arrival experience by auto - continuity of experience for unfamiliar user, large scale of parking lot a bit worrying.
<table>
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<tbody>
<tr>
<td>May 11</td>
<td>Meeting with Mr. Dennis McLaughlin, Ph.D. in Aerospace Technology to discuss problem of wind.</td>
<td>The possibility of testing the model in a wind tunnel was also discussed (either by strengthening the preliminary model or using the final model. He agreed to meet with us again to research the problem further.</td>
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<td>The schedule was prepared for the final six weeks -- see bar chart #2.</td>
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<td>The log was updated.</td>
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<td>May 14</td>
<td>Received letter from John J. Howe, Chicago Area Transportation Study.</td>
<td>The letter received gave information concerning several questions about transportation proposals in the area of influence of the Air Rights site.</td>
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<td>a) A study is currently being conducted concerning the elevated Loop structure: it is proposed that it be replaced with a subway system.</td>
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<td>b) In connection with the above study, a distributor system is also proposed for the C.B.D.</td>
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<td>c) Information concerning a proposed hydrofoil lake transportation system, Mr. Howe was not enthusiastic about such a lake transportation system.</td>
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<tr>
<td>May 16</td>
<td>1. Quantitative analysis of material submitted at first jury.</td>
<td>A check was made to see if the model presented at the jury did in fact accurately represent the correct volume as given in the program. It was found to be short.</td>
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<td></td>
<td>2. A preliminary mock-up model of Grant Park Development.</td>
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82.
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<tr>
<th>DATE</th>
<th>DISCUSSION/DECISION</th>
<th>EXPLANATORY COMMENTS</th>
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<tbody>
<tr>
<td>May 17</td>
<td>Group discussion with Prof. Wazlaw Zalewski concerning structuring of the building</td>
<td>Discussion revolved around different theories of long span heavily loaded structures.</td>
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<td>elements.</td>
<td>Several systems were discussed. Example - cable systems, arch systems, truss systems,</td>
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<td>cantilever systems and combinations of different systems.</td>
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<td>May 18</td>
<td>A detailed set of sketches were prepared with respect to locating activities on the</td>
<td>Each activity e.g. commercial, was color coded. Percentage breakdowns of individual</td>
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<td>site at the various stages of growth.</td>
<td>activities were determined according to need for concentration or dispersion.</td>
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<td>A more detailed quantitative program concerning commercial and cultural figures was</td>
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<td>made.</td>
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<td>May 20</td>
<td>Group meeting</td>
<td>Subject matter concerned scheduling activities for remainder of term. A preliminary</td>
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<td>review date for base drawings was set for June 1, and it was decided all base drawings</td>
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<td>should be in progress by this date.</td>
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<td>May 21</td>
<td>Four separate studies are in progress.</td>
<td>1. The upper level pedestrian circulation network is being analysed in view of activity</td>
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<td>location, intensity of activity, ease of accessibility etc. in a detailed drawing form.</td>
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<td>These studies were coordinating all physical elements to a special scale.</td>
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<td>2. A basic system of structuring was decided on; trusses of varying dimensions are</td>
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<td>to be the major structuring element for the project. Different systems of implement-</td>
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<td>ing this system into the various activities is being investigated.</td>
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May 21
(Cont'd)

3. The base levels which consist mainly of auto storage and circulation and warehousing activities was drawn in detail to establish exact sizes and locations within these levels.

4. The main pedestrian level is being studied in view of the total geometry of the site and of physical location and size of different activities. The edge conditions and the integration of structure is being studied in model form.

May 22

1. The upper level has been established as a street concept; along this level are located a cross section of all the activities of the site. At critical interaction there are developments of large open spaces that serve as collection areas and nodal points in the circulation pattern.

2. The major structuring system is a system of two large trusses that span from shaft to shaft while minor trusses 30' apart cross the main truss and support the facilities to either sides of the main truss. The main trusses are 24' apart and the minor trusses cantilever 20' to either side of the main truss. This system has the most flexibility in meeting our criteria for space planning.

3. The base level has developed into a system that establishes a two level parking structure over the majority of the site with an additional series of two-level parking above this and one 15 level parking structure at the entrance of the site.
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<tr>
<td>May 22 (Cont'd)</td>
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<td>4. The main pedestrian level has developed a spatial quality that is geometric in form and relatively small in scale. These spaces flow out from the site into the park and to the river and lake edges which they meet the Loop with a larger scale and larger activities. The geometry of the upper part of the site integrates to the pedestrian level in the same pattern but much more fragmented in scale.</td>
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<tr>
<td>May 23</td>
<td>Meeting with Leon Groisser about structural system.</td>
<td>Questioned rationality of long span. Groisser suggested cross spans which had hierarchy towards lower levels, i.e. 60' parking bay and 20' residential bay. Suggested flexibility to be found in smaller rather than larger spans.</td>
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<td>Began to look into residential module which would allow a preponderance of 'through units' and/or good orientation.</td>
<td>This involved consideration of structure and unit planning compatibility.</td>
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<td>Decision to use skip stop corridor system.</td>
<td>Skip stop allowed 'through units' and cuts down on circulation compared to double or single loaded corridors on every floor.</td>
</tr>
<tr>
<td>May 24</td>
<td>Group discussion with Professor Trum, Department of Engineering M.I.T.</td>
<td>Discussion involved systems and alternatives for the major structure within the site. Professor Trum supported our initial structural system of major and minor trusses integrated into an entire system as it was presented to him in sketch form.</td>
</tr>
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</table>
May 25  Detailed sketch studies were made of the core conditions.

EXPLANATORY COMMENTS
Attempts were made to recognize the possibility of 8 connections at different vertical conditions. It was decided to try to maintain the 60' outside dimension at least at the base levels. Several configurations were derived. The basic constraint was supporting the 24' wide truss which would interconnect with the core. Thus forms were variations on octagonal and circular types. Attempts were made to integrate the mechanical and service functions with the structure of the core.

May 26

-29  Continued design development

EXPLANATORY COMMENTS
Studies were in progress concerning final decision policies. These policies will lead into the start of final presentation. Specific policies being finalized are:
Core geometry, size form and material of trusses, configuration of pedestrian (main) level, policy concerning ultimate use of the track level, physical configuration of Grant Park and establishing level changes and limitations in sections.

May 30 - June 3

Development of an accurate model of activity placement and volume necessary to fulfill the quantitative program.

Prototype drawings are being made as studies of the shaft in conjunction with the building trusses.

EXPLANATORY COMMENTS
This is the final in a series of such studies and is intended to finalize all previous studies.

June 4  Meeting with Mr. Crowley, mechanical engineer.

EXPLANATORY COMMENTS
These drawings are studying the approach of a totally integrated structural system of occupied structure and supporting structure into one truss system.

This meeting was an extensive analysis of our activities and their needs mechanically. Mr. Crowley discussed the different methods of mechanical services available and the ones most appropriate for our particular needs. All the requirements
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<tbody>
<tr>
<td>June 4</td>
<td>(Cont’d)</td>
<td>necessary for mechanical service to our site in the form of area provided were met.</td>
</tr>
<tr>
<td>June 5</td>
<td>Meeting with Prof. Carl Linn, Landscape Arch. MIT</td>
<td>Professor Linn was helpful in resolving a general framework of philosophy concerning the approach to the development of Grant Park.</td>
</tr>
<tr>
<td>June 7</td>
<td>Meeting with Mr. N. O. Sutphin, &amp; his associate of S.O.M. Chicago Office and Mr. Ted Hardey, Head of Design, Pittsburgh City Planning Commission.</td>
<td>Meeting revolved around general approaches to urban design problems of this scale and the different methodologies used to meet these problems.</td>
</tr>
</tbody>
</table>
PRESENTATION OF

PHYSICAL PROPOSAL
TRACK LEVEL
Masters of Architecture Thesis
Massachusetts Institute of Technology
June 1968
Proposal for
Illinois Central Air Rights
Chicago, Illinois
P.A. Bailey W.O. Horst
J.C. Platt G.O. Ridgill
UPPER LEVEL HOUSING & OFFICE
APPENDIX A -- RECORD OF PROBLEM CHOICE

The following is a summation of all material covered at previous meetings held for the preparation of the thesis program.

A. Basic Goal

1. Develop good technique for group participation in the decision making process of urban design.
   a. Develop individual responsibility to group and ability of individual to coordinate his activity with others participating.
   b. Develop effective constructive interaction of individuals for the purpose of producing a single well integrated series of proposals.

2. To work within the context of a problem which could simulate as much as possible a real world context of operation for urban designers, rather than a theoretical, or idealistic one.
   a. To establish interaction in decision processes with a real client, individual or group.
   b. To work on a site located in an area familiar enough to relate our other experience in urban design, i.e. U.S.A. - Canada.
   c. To have available sufficient information, obtained within the context of this problem.

To provide contextual situation that is objective rather than abstract. Relevancy and implications of endeavors more explicit than in the idealized situations of studio problems.

3. To integrate into this thesis exercise as much material from other courses concerned with the urban design context as
well as experience from individual interest areas, as possible:

a. Computer aided Urban Design (Negroponte, 4.191, Urban 5)

b. Decision Theory (Manheim, 1.148)

c. Spatial Design and Imagibility, (Lynch, 11.31) (Sekler, Shaping of Urban Form 1-5a Harvard)

d. City Design Methods (Lynch, 11.32)

e. Psychological Functions of Urban Form (Carr, Potter 11.35)

f. Transportation and Urban Form (Fleisher 11.22)

g. Urban Housing Problems and Analysis

h. Operational Management, Job Coordination (Network Analysis CPM)

4. To prepare a final presentation consisting of three parts:

a. A report of the project;

b. A record of the decision making process which will evolve from the date of this submittal;

c. A physical design proposal in models and drawings.

B. Problem Choice

The following information is a review of search-selection processes being used in order to determine specific project to be used for the thesis exercise. (Manheim - Decision Model No. 1)

1. Using objectives as a basis for search, develop a matrix of seven projects listed below, parameters describing optimum problem for the thesis exercise was formulated.
2. Develop five point scale for matrix comparison.

3. Develop coefficients for priority ratings of parameters.

4. Evaluation

5. Decision

Parameters for Project Evaluation: **

The following parameters are general descriptive of optimum project for study in this thesis exercise:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Coef. of Priority*</th>
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<tbody>
<tr>
<td>A. Urban Context - Comprehensiveness of Scope and range of problems</td>
<td>10</td>
</tr>
<tr>
<td>B. Information available</td>
<td>10</td>
</tr>
<tr>
<td>C. Phasing and Growth Potential for Growth Study</td>
<td>10</td>
</tr>
<tr>
<td>D. Urban Context - Influence of Surrounding Urban Environment</td>
<td>10</td>
</tr>
<tr>
<td>E. Real Client</td>
<td>9</td>
</tr>
<tr>
<td>F. Interest</td>
<td>9</td>
</tr>
<tr>
<td>G. Experimental Potential</td>
<td>8</td>
</tr>
<tr>
<td>H. Accessibility (proximity to M.I.T.)</td>
<td>4</td>
</tr>
</tbody>
</table>

Rating scale from 1 to 5 descriptive of project relative to optimum desired to thesis study 5 being optimum.

* Coefficient of Priority for weighting of parameters for project evaluations -- 10 being full weight and 1 being minimum weight.

** Economic constraints were discussed as a possible parameter, however, the group decided that it was not qualified to make judgements at this stage.
A matrix was evolved through consideration and discussion by
the group to evolve each tabulation, and then applying the
coefficient of priority to the tabulations. The matrix showed
that the Chicago project was most suitable for our purposes.
PROJECTS FOR CONSIDERATION

The following descriptions are based on preliminary information obtained by the group for the purpose of making this basic evaluation. The descriptions are limited to information received to date. In some cases, further clarification is expected immediately.

1. Baltimore -- Intercity Highway, Joint Projects Air Rights Development. (Information received and available from Norman Klein, Head Baltimore Design Concept Team in Washington D.C.)

2. Boston -- Columbia Point Development Project, Waterfront Reclamation. Medium and low cost wide density range housing and supporting facilities. (Information available from Boston Redevelopment Authority and Kevin Lynch.)

3. Cambridge -- Model Cities Project -- Inter belt study area renewal and air rights study. (Justine Gray, Assistant City Manager, Cambridge Model Cities Directory, HUD.)

4. Chicago -- Waterfront development, downtown air rights development over rail yard. (Information from Harold Nelson, Chicago City Planning Department, Walter Netsch, SOM, Chicago.)

5. Montreal -- Large scale area development northeast of downtown Montreal. Comprehensive scope. (Information from Jean Villemur, Director of Physical Planning Division, City of Montreal.)

7. Washington D.C. -- Fort Lincoln Urban Renewal area. (Comprehensive scope development project on Federal property (HUD, RLA.))
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