The Redevelopment of the Central Business District of Chicago

submitted in partial fulfillment of the requirements for the degree of Master in Architecture at the Massachusetts Institute of Technology.

Sanford R. Greenfield

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Dear Dean Belluschi:

In partial fulfillment of the requirements for the degree of Master in Architecture, we herewith submit the thesis entitled "The Redevelopment of the Central Business District of Chicago".

Sincerely yours,

Sanford R. Greenfield

Bernard Röthzeit
We would like to thank the following people for their collaboration:

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INTRODUCTION

The problem in the central business district of Chicago is the same as in many large American cities.

The large number of suburban developments in housing and in general business indicate an expansion of the metropolitan area away from the center.

Vacancies have occurred due to obsolescence and inefficiency of the present stock of office space. After a period of overbuilding in the 1920's, which ended with the Field building in 1933, there has been no major building in the central area until the present construction of the Prudential Life Insurance Company building.

There have been few attempts to revitalize that rentable space which remains; consequently, there is much blight.

Chicago's gridiron street pattern remains as it was initially developed in the 1830's, and does not meet today's demands of the automobile. The city subway, built in the period following the Second World War, has limited facilities and serves a population that is too thinly dispersed for functional efficiency and economic operations.

The Chicago River and the band of steel railroads which surround the central business district today have inhibited the expansion of certain facilities in the area and have denied entrance to additional functions which might otherwise have located themselves in the center.
The lack of open space, the blight and congestion in the central business district have given Chicago a shrinking tax base. Except for Grant Park, there are little or no amenities which might retard a constant degradation of social and economic values.
This section contains a discussion of the following:

(1) the functions which exist in the central business district
(2) the functions which will leave the central area
(3) the functions which will remain in the future
(4) the functions which will be created

The discussion includes planning proposals and architectural objectives for 20 - 25 years. Wherever possible we have used quantitative criteria for establishing our objectives.

The scope of the problem prevents us from reaching a detailed solution. We have approached the central business district as an entity. Our solution is primarily a physical one.
OFFICES

Today there is 25 million square feet of office space in downtown Chicago, covering 70 - 80 acres of land. With a continued rise in the regional economy, one may reasonably provide a 10 percent increase, or 27.5 million square feet of office space by 1975. New, efficiently-designed office structures, built at 6.0 or 6.5 floor area ratio would decrease the present building density and cover approximately 100 acres in the central business district.

Present office space in Chicago rents at $4.50 a square foot. This is a high price for low quality space. New office construction would probably rent for $6.00, but the obsolescence and inefficiency of the existing stock, and a pent-up demand for good office space, make new construction a good investment.

Much of the existing office space is of fireproof construction, built within the last 30 years, and rises over 20 stories in height. These buildings should remain for another 20 years. They are well located in relation to the transit system and to the retail area. The new office space will replace those functions that are no longer an essential part of the business district.
EMPLOYMENT BY BLOCKS IN THE CENTRAL BUSINESS DISTRICT 1940

AN ATTEMPT HAS BEEN MADE TO EQUALIZE AREAS FOR THIS MAP BY COMBINING THE POPULATION OF THE FOLLOWING BLOCKS AND GIVING EACH BLOCK THE SYMBOL OF THE TOTAL 50 AND 64, 59 AND 63, 60 AND 66, 61 AND 67, 62 AND 68, 63 AND 70, 69 AND 96, 90 AND 99.
OFFICES

Quantitative assumptions for office space have been discussed previously. Parking requirements for office space: 1 car space for every 1500 square feet of ground floor space and 1 car space for every 2500 square feet ground establish a need of 12,000 cars.

Office workers are the principal shoppers in the central area. Provisions must be made so that these people are within walking distance of the main retail area, and have access to that area unhindered by the automobile.

There are three predominant office areas bordering the retail area on the north, west and south.

Existing land use on the north and south permit completely new developments in the next twenty years. We propose to employ a superblock pattern wherever conditions permit and/or create a separation in grade between the pedestrian and the automobile through "platform" development. Contrasted with the new developments would be the third area on the west which is an existing office area. The needs of this area are to be strengthened through the introduction of some open space, and by eliminating certain buildings and replacing them with new, efficient structures at a lower density.

The height of the office structures will tend to give form to the central area as a whole. The structures give the city its skyline and, to a great extent, its character.
RETAIL

There is approximately 15 million square feet of retail space in the Chicago central business district, including servicing, amusements and commercial establishments. It is reasonable to assume that we can provide a 5 percent increase by 1975, built at a 4.5 floor area ratio, and covering approximately 80 acres of the downtown area. The "100 percent" retail area in Chicago today centers about the corner of State and Madison Streets, and those neighboring blocks where Marshall Field and Carson Pirie Scott are located. The area is close to the transit system and tends to appeal to a specialized consumer market. Despite recent developments in the suburbs, the State Street Merchants Association claims that this area is holding its own. However, increased competition from business in the outlying areas, where adequate parking space is available, servicing is efficient, and shopping is a pleasant experience, will create a demand for a revitalization of the downtown retail areas. Much of the present retail space is adequate and should remain, but the facilities upon which it depends must be reorganized. These facilities include parking, rapid transit (local) systems, servicing and the pedestrian approach.
CHICAGO AREA - 1946
MAP AND DATA ADAPTED
FROM STUDY BY CHICAGO
DOWNTOWN SHOPPING NEWS

NUMBER OF LOOP SHOPPERS
PER NUMBER OF FAMILIES

LEGEND
NUMBER OF SHOPPERS PER NUMBER OF FAMILIES

HIGHEST
2nd HIGHEST
3rd HIGHEST
FEWEST

A-D ECONOMIC RATINGS
RETAIL

Parking requirements for retail space are determined as follows:
1 car space for every 1500 square feet of ground floor space and
1 car space for every 2500 square feet of space above ground.
The need of the retail area is 7500 cars.

As in the office areas, a superblock pattern will be created
wherever possible. However, those cases which one attempts to
create in the new office areas are neither as desirable nor as
practical in an existing retail area.

There seems to be a basic conflict between this desire to create
sheltered areas for the shopper, free from the automobile, and the
desire to permit the automobile to enter the retail area. The
merchants, and many students of urban shopping problems, maintain
that retail trade is dependent upon the ability of the motorist
to see shop fronts from his vehicle and, in some cases, to ap-
proach the shop front by auto.

With respect to Chicago we feel that:
(1) Many of the existing retail structures are adequate. The needs
of this area lie in the realm of integration and renewal, rather
than the need to recreate or redevelop.
(2) In those instances where superblock design conforms to the
demands of the shoppers' parade and helps to separate the pedestrian
from the automobile, it is used.
(3) The green area is a device which may lower land values in a retail
area rather than raise them if the area is not strategically located
or properly scaled.
It is necessary to introduce some visual order into the shopping area without lessening any of its present vitality.

The problem here for the designer is not so much to create something new as it is to work within strong limitations already framed by existing conditions. To determine which are the true needs of the area, and to work with those to create a revitalized environment is perhaps the principal task.
CHICAGO INNER CENTRAL BUSINESS DISTRICT

PEDESTRIAN FLOW WITHIN EACH BLOCK DURING OFF-PEAK HOURS (10:00-11:30 A.M. 1:30-4:00 P.M.)

- 100,000-199,999
- 60,000-79,999
- 20,000-39,000
- 40,000-59,999
- 0-19,999 PERSONS
LIGHT MANUFACTURING AND LOFTS

A good part of the central business district today is occupied by the garment industry. Because of the marginal nature of this industry in Chicago it is the practice for manufacturers to seek out old buildings with a low rental price per square foot. Consequently, much of the space they occupy may be expendable. Moreover, the industry is not dependent upon the local market and no longer needs to be located close to the retail establishments. The present location of the garment industry brings much truck traffic in the central area that could be eliminated by relocating the industry. One possible new site for this industry, or similar light industries, would be across the Chicago River, to the west of the central business district, straddling Congress Street. Here the industry would be close to the public transit system, providing transportation for its labor force and access to truck, water and railroad facilities.

At the present time this land is occupied by the railroad tracks of the Pennsylvania, Burlington and Alton Railroads. They are in a cut below the surface of the surrounding area, making it feasible to establish this area for industrial use by acquiring the air rights over the tracks.
CIVIC CENTER

The Federal government in Chicago is scattered in 35 different locations. Chicago offices of the State of Illinois occupy about 20 diverse sites, and Cook County has 10 different business addresses. Today, thousands of administrators and employees conduct the city's business in 40 separate buildings at 15 different locations. Since 1949 at the latest, the city has felt the need for a centrally located administrative group with adequate office space for the executive, administrative and judicial functions of the metropolitan area. It needs a center to provide an appropriate setting for City, County, State and Federal agencies operating in Chicago, and provisions for the Sanitary District of Chicago, the Board of Education, the Board of Forest Preserve Commissioners, and more than 100 courts of various jurisdictions,

While there is no data to support a civic grouping, there are many who believe that a government center within the central business district will improve the quality of government, increase citizen interest, and symbolize the Loop as the focus of city life. Moreover, the proposed site, at the junction of the Chicago River and its South Branch, not only provides certain visual amenities, but also allows the center's working force of 30,000 people direct access to the retail establishments of the downtown area.

Since most of the existing land use is occupied by parking garages, parking lots, or generally old and vacant loft structures, the proposed site may be assembled with a minimum of clearance of essential facilities.
CIVIC CENTER

Estimated square foot office requirements for the Civic Center are as follows:

City of Chicago................................ 1,000,000 square feet
County of Cook................................... 1,000,000 square feet
State of Illinois.................................. 1,000,000 square feet
Federal space................................... 1,000,000 square feet
Municipal Agencies Building, containing Sanitary District, Board of Education, Chicago Transit Authority, Park District, Public Library and others........ 2,000,000 square feet

TOTAL 5,000,000 square feet

Parking for approximately 2000 cars on site, 2000 cars off site.

We propose here that there be a grade separation between the pedestrian and the automobile. This may be achieved through a raised plaza overlooking the river, and from which there may be direct access to shopping strips leading to the retail center. This area is well related to the rapid transit system, to shopping, and to those professional offices which may require daily contact with the government administrators.

It has been estimated that such a project would cost roughly $165,000,000.
CULTURAL CENTER AND LAKE FRONT DEVELOPMENT

The metropolitan area of Chicago has made good use of its position along Lake Michigan by providing almost a continuous string of parks, beaches and general recreational areas. To the east of the central areas lies Grant Park. The Park's western boundary is Michigan Avenue; its eastern, the Lake. It is an enormous green area, covering more land than the central business district. Unfortunately, it is formally planned, out of scale with the individuals who use it, and regulated by a Supreme Court decision which restricts the building of above-ground structures.

In many respects the central business district and its peripheral areas is the community center of Chicago not only for the market but for cultural activities as well. At the southern end of Grant Park are situated the Museum of Natural History, the Planetarium and the Aquarium, integrated with additional park and recreational facilities. Chicagoans have already allocated funds for additional cultural development, and it appears most logical to propose that these additional facilities relate themselves contiguously to the existing cultural facilities. The southern end of Grant Park, facing Lake Michigan, offers many advantages as a site for an extended cultural center.
The program for the cultural center includes:

1 Civic Auditorium, 500,000 square feet, with rail facilities for exhibits. This building will dominate the group architecturally.

1 Auditorium to seat 2500 people
1 Auditorium to seat 1500 people

Swimming Pool
Gymnasia and skating rinks
Clubrooms
TV and radio facilities
Parking - 10,000 cars

Total: 700,000 square feet.

We propose to place the cultural center, on islands or peninsular developments off the coast of Grant Park and extending into Lake Michigan. Coordination of the cultural center facilities with a permanent fair site would be desirable.

We propose to locate the Civic Auditorium off the coast of Grant Park and accomplish the following without violating the Supreme Court decision:

(1) locate our newly-proposed parking facilities under the Park so that they can be used by the central business district during the week and the Civic Auditorium at night.

(2) articulate the scale of Grant Park by placing the development in juxtaposition with it.
(3) permit the development to be viewed from great distances when approaching the central area from Congress Street or on the Lake Shore Drive. (In our proposal the Drive has now been moved from its present location to a position out on the lake. This permits a more liberal use of the lakefront and punctuates the physical expression of the business area.)

The tax exempt classification of such a development as the cultural center justifies the proposal to place it out on the lake in an area somewhat removed from the highly taxable land surrounding the central business district.
CONVENTION HALL

For years Chicago merchants have complained that the city lacks the proper facilities for attracting more conventions. The city leaders suggest a building that would accommodate 30,000 people for a variety of recreational, social, political and educational events. It would be built from private funds as a commercial endeavor.

A site peripheral to the central business district, integrated with surrounding buildings and developed with funds for an urban renewal plan is feasible. The proposed site at the junction of the Chicago River, joining the civic center to the east, appears to be in many respects idea.

This site is well related to rapid transit, suburban transportation, and expressways, and provides sufficient space for the development of large parking areas which seem vital to an enterprise of this scope. Moreover, its relationship to the river offers many possibilities to additional commercial facilities which would profit from contiguity with the Convention Hall, such as hotel, restaurants, night clubs, etc.

At present, the predominant land use for this site is industrial and commercial. However, private resources backed by municipal aid in assembling the necessary lots make site acquisition possible.
HOTELS

There are two existing hotel nuclei in Chicago's central area. One group centers about the Conrad Hilton and Congress Hotels on Michigan Avenue south of Congress Street and overlooking Grant Park. The location maintains a prestige value for these establishments and therefore supports the recommendation to locate new hotels in the Michigan Avenue area adjoining the present group, should a market analysis indicate an increased demand for new hotel space.

The second group of existing hotels is in the City Hall area. There are few natural amenities attached to this location; however, it survives due to proximity to the entertainment and theatre district and its relationship to the financial and legal office section. A future location for this type of hotel group might be the site facing the Chicago River south of the Civic Center and adjoining the future office district and transportation center. Here, the group would be well related to the Convention Hall, new entertainment facilities and other functions, still to be discussed.

Existing in this area now are parking garages, parking lots and many vacant lofts, which remain because the land costs, and consequently the taxes, are low. Hotel interests could easily acquire land in this area for development, if they found the investment sound.
HOUSING

There is virtually no housing in the central business district today. Due to the cost of acquiring land and the type of competitive activities in the central area it is unlikely that there will be housing there in the future. However, housing appealing to a particular group might be developed in certain areas peripheral to the central area. One type is luxury housing, which could be built on the 45 acres south of the Chicago River, north of Grant Park. Here, multi-story housing could be constructed to provide a view of the lake or the park and proximity to the retail stores of the central business area and to the recreational facilities of the theatre district and the cultural center. One mile to the north, where Michigan Avenue joins Lake Shore Drive, is the Gold Coast, a residential area comparable to that of Park Avenue at Fiftieth and Sixtieth Streets in New York City. A new luxury housing development, adjacent to the central area, would be close enough to the Gold Coast to be competitive socially as well as economically.

At the present time, the land is occupied by the railroad yards of the Illinois Central. The land could be acquired in one of two ways. Functionally, the I.C. tracks could be removed to an area on the periphery, and the land sold. Or, the air rights over the I.C. tracks might be sold or leased. The Prudential Life Insurance Company has employed this device for their own development on adjacent property.

The second type of housing would be designed for middle income groups, white collar workers, single individuals or couples with no children,
or faculty or staff members from the adjoining University of Illinois campus. A development south of Congress Street, close to Grant Park and the lake front, would provide many attractions for the groups described.

This area is occupied at the present time by a heterogeneous mixture of uses: light manufacturing, burlesque houses, fifth-rate movie houses, and flop houses. With the completion of the proposed Congress Street Expressway, and the Consolidated South Side Railroad Terminal, this area will be cleared and the new land use developments may be anticipated.
GENERAL BUSINESS AND WAREHOUSES

The functions in this category refer mainly to those activities which service the central business district and the metropolitan area as a whole. These services include the receipt, storage and distribution of goods by rail, truck or water, and, to some extent, light manufacturing, such as printing or packaging. For the most part, these activities are found on the near north and west sides, close to existing transportation facilities. They are functions which are related to the central business district but which do not have to be closer to the center than they are now. Consequently, it appears most likely that the present relation between these functions and the functions of the central area will continue. We propose that the near north and west sides remain predominantly as general business and warehousing activities.

Many of these establishments are located on land adjacent to the Chicago River. Since it is part of our comprehensive program to develop the banks of the river as passive recreation areas, much of the river bank could be devoted to the labor force serving these establishments.
TRANSPORTATION

There is much to be said of the transportation problem in Chicago as it relates to the central business district. However, it is not the objective of this thesis to do more than briefly analyze the most pertinent characteristics of the existing transportation facilities and to discuss our proposals concerning them. Much of the graphic data in this section indicates the various modes of transportation people employ to reach the central area, the number of people who come, and where they come from. Consequently, this discussion will consist primarily of a qualitative, rather than quantitative, analysis of transportation facilities in the business district.

TERMINALS - RAILROADS

The present locations of the passenger terminals emphasize the ring of steel that confines Chicago's downtown business area. On the north is the Chicago and Northwestern Railway, serving important loft buildings and factories. The passenger depot for this line is one block west of the river on Madison Street and is situated on an elevated embankment which forms a wall-like barrier against westward expansion. We would propose that the Northwestern terminal move three blocks south to join its neighbor, the Union Station, forming thereby a consolidated western terminal, and freeing much of the land west of the river.

The Union Station, built in 1925, serves the Pennsylvania, Burlington and Alton Railroads, which approach it from the south, and the Milwaukee Road from the north. Many of these tracks are in a cut below
the surface of the surrounding land. Contemporary structural and financial innovations make it possible to acquire air rights and build over the tracks, thus creating opportunities for new land use.

Southwest of the central area, between the lake and the river, is one of the greatest compact agglomerations of railway facilities to be found anywhere in the world. There are three depots: Grand Central Station, which serves the Baltimore and Ohio, Soo Line, Pere Marquette, and Chicago Great Western; the LaSalle Street Station, which furnishes accommodations to the New York Central, the Rock Island, and the Nickel Plate Roads; and the Dearborn Station, which serves the Santa Fe, Wabash, Chicago and Eastern Illinois, Erie, Monon, Grand Trunk Western, and the suburban trains of the Chicago and Western Indiana. These terminals are small, old and obsolescent, having been built in 1890, 1903, and 1885, respectively.

The Chicago Plan Commission, in a joint venture with these railroads, spent $300,000 in a study of the Southside Railroad problem. This study proposes the consolidation of these three stations and facilities. We are in agreement with this proposal; however, we would make the consolidation more formidable by including the remaining Southside station -- the Illinois Central. This depot lies to the southeast of the business area. Running north along the eastern side of the business district is a wide, open cut in Grant Park which is the right-of-way for the Illinois Central. North of Monroe Street
NOTE: OUTBOUND TRAINS FROM CHICAGO ARE SHOWN AS DESTINED ONLY TO FINAL TERMINAL CITIES. THE CHART DOES NOT SHOW SERVICE TO INTERMEDIATE POINTS.

PREPARED BY: THE CHICAGO ASSOCIATION OF COMMERCE AND INDUSTRY, INDUSTRIAL DEPARTMENT
SOURCE: OFFICIAL GUIDE OF THE RAILWAYS
MARCH, 1952
the tracks fan out, and north of Randolph Street is a large area of freight stations, tracks and yards, used by the Illinois Central. There, too, is the suburban station of the Illinois Central, which shall remain in our proposal. At the present time, this is the only downtown terminal used exclusively by suburban trains.

There have been many schemes in the past 50 years, including one by Burnham, to consolidate the railroad terminals in Chicago. The objective of consolidation, however, is not to ease the transference of passengers and baggage passing through Chicago, although there are some benefits to be achieved here through consolidation, but rather to make efficient use of one combined set of facilities, eliminate duplication, and thus make additional land available for expansion.

The South Side Consolidated Railroad Passenger Terminal accomplishes the liberation of 56 acres just south of the central area between Polk and 16th Street, and between Clark and State Streets. The land to be occupied by the consolidated terminal extends from Clark Street to the river, and from Congress Street Expressway to 18th Street. The land is owned and occupied by the LaSalle and Grand Central Station groups. By acquiring 4 1/2 additional acres north of Polk Street, between Clark and LaSalle, the 62 daily trains of the Illinois Central could be accommodated also.
TERMINALS - BUS

We are unable to find quantitative data to support the creation of a suburban bus terminal. However, it is known that 113,000 suburbanites who work in the central business district commute by means other than by bus, and that they commute from sectors whose total population is over 1,300,00. It is safe to assume that of this figure one-third are wage earners, 50 percent of whom work in the central business district. Upon this assumption there remains approximately 200,000 people who commute by bus.

The New York Port Authority recently established a suburban bus terminal at 40th Street and 8th Avenue with direct access from the terminal through the Holland Tunnel and onto the expressway system.

A proposal of this nature for Chicago would: (1) reduce the number of automobile commuters to the city (2) increase the efficiency of suburban bus operations (3) maximize the comfort and convenience of commuters. Bus terminals enterprises are favorably viewed by non-participating investors; that is, with the establishment of terminal facilities there follows various retail establishments which have a reasonable assurance of success. As a result, there is frequently capital available in addition to those sums raised by the bus companies themselves.

The proposed site for the terminal is north of the new Congress Street expressway, and south of the huge Heliport, linking the latter to the South Side Consolidated Railroad Terminal. This land is presently used by the garment industry, but a proposed change in land use
NUMBER OF PEOPLE ENTERING THE CENTRAL BUSINESS DISTRICT DAILY BY VARIOUS MODES OF TRANSPORTATION (7:00AM - 7:00PM)

CHICAGO PLAN COMMISSION
may be supported by the completion of the Congress Street Expressway, making this a fortunate site for the suburban bus terminal.
A study of the potential of the helicopter was made recently by the New York Port Authority for the New York - New Jersey Metropolitan area. There follows a discussion of some of the findings which are pertinent to this problem in Chicago.

The new potentialities of the helicopter will expand air travel in the short-haul field. Most authorities feel that it will appeal to a vastly greater market for inter-city distances within a 300 mile radius than the fixed-wing craft; its potentialities also lie in the expanding area of commutation service; and it will be used to a great extent as an airport shuttle service. By 1958 it is expected that 30-place helicopters will be available for common carrier operations.

Contrary to popular belief, it will not be possible to land helicopters on any and every rooftop. The impact load of 30 or 40-place helicopters exceeds the design loads of most existing structures. It will be necessary to design rooftop heliports to withstand not only impact loads but to provide sufficient roof space for as many as 30 flight operations per hour, storage of air craft, passenger loading and unloading, waiting rooms, parking, administrative offices, etc. Thus, the construction of helicopter terminals, and the selection of sites, is one of the major problems connected with the growth of this transportation medium.
AIRPORTS IN THE CHICAGO INDUSTRIAL AREA

SEPTEMBER, 1953

SCALE OF MILES

Prepared by the Chicago Association of Commerce and Industry - Industrial Department
CHICAGO DAILY OUTBOUND FLIGHTS AND TERMINATING POINTS OF SCHEDULED PASSENGER AIR CARRIERS JULY, 1953

NOTE: OUTBOUND FLIGHTS FROM CHICAGO ARE SHOWN AS DESTINED ONLY TO FINAL TERMINAL CITIES. THE CHART DOES NOT SHOW SERVICE TO INTERMEDIATE POINTS.

PREPARED BY: THE CHICAGO ASSOCIATION OF COMMERCE & INDUSTRY INDUSTRIAL AVIATION DEPARTMENT SOURCE: OFFICIAL AIRLINE GUIDE JULY, 1953
The proposed site for the Heliport is bordered by Wacker Drive on the west, Wells on the East, Monroe on the north and Jefferson on the south. The site was selected on the basis of two principal determinants: (1) an approach in one or two directions that would be clear of tall structures. The proposed site is approachable over the railroad tracks from the south and over the industrial area from the west. (2) accessibility to the central area. The proposed site is conveniently located close to subway and bus lines, the Congress Street expressway and Wacker Drive, and is within walking distance of much of the Central Business District. Because of the relatively small size of the Chicago business area, only one Heliport is required.
CHICAGO WIND ROSE
BASED ON 43,637 HOURLY OBSERVATIONS
IN 5 YEARS 1947-1951
BARS INDICATE PER CENT OF TOTAL OBSERVATIONS
FROM EACH MAJOR COMPASS POINT

PREPARED BY THE CHICAGO ASSOCIATION
OF COMMERCE AND INDUSTRY, INDUSTRIAL DEPT
SOURCE: U.S. WEATHER BUREAU
TRANSPORTATION - AUTOMOBILE

A study of the automobile and its relationship to the central business district could be a thesis in itself. Our intention here is only to establish some objectives with reference to the use of the automobile in the central business district.

The following drawings indicate the proposed superhighway and expressway system for the Chicago metropolitan area and the central area respectively. Those arteries leading away from the city are Lake Shore Drive, Congress Street Expressway, the Crow Town Route, and the Franklin Street Extension. These are eight-lane highways, capable of moving 1500 cars per lane per hour. Total capacity of this system is 36,000 surface vehicles per hour, if we consider Franklin Street Extension and the Congress Street Expressway as contributing only 4 lanes each away from the center.

In addition to the expressways, there are a total of 29 car lanes of internal streets capable of carrying 14,500 surface vehicles per hour away from the center. Therefore, the capacity for the total artery system for carrying surface vehicles away from the center is roughly 50,000.

The limitation of the number of cars spaces one may provide in the central area is the capacity of these peripheral roads which lead cars to and from the center. If one expands the peripheral system, additional problems arise: highways with too many lanes are often inefficient artéries; the intersections consume huge quantities of
The Cook County comprehensive system of Expressways is a county wide system which is integrated with the state system of highways.

Some of the features of the comprehensive expressway system as presently planned are:

- Complete elimination of all cross traffic. (Both pedestrian and vehicular cross traffic will use the overpass structures at important streets.)
- Main roadways will consist of two, three, or four 12-foot wide traffic lanes in each direction with a capacity of 1,500 vehicles per hour per lane.
- The design speed is 60 miles per hour in Chicago and 70 miles per hour outside the city. Access to the Expressways is to be provided by means of entrance and exit ramps at controlled locations.
- Interchanges are designed to meet present and future traffic needs.
- The built-in safety features of this system will reduce roadway accidents by several thousand annually.

The complete system of Expressways will be built at a cost of nearly one billion dollars. The Lake Shore Drive Extension (North Route), Foster to Hollywood is scheduled to be finished in 1954. Congress St. (West Route) is scheduled to be finished in 1955; Northwest Expressway, 1957; Wacker Drive Extension, 1957. Completion on the remainder of this system is still indefinite and will depend upon the raising of funds.

When the master plan is completed, Cook County will have the finest expressway system in the world.
land; the size of a gigantic highway, i.e. one in the 12-lane category, would inhibit expansion by creating a ring of concrete around the central business district, similar to the ring of steel railroad tracks which surround the area today.

Of the 50,000 car per hour capacity provided by the proposed superhighway system, it is probable that at off-peak hours the system will be used by 17,500 surface vehicles or 35 percent capacity. This would allow an additional load of 32,500 surface vehicles at peak hour capacities. Of this number, one may assume that roughly 20,000 are private automobiles. If this were the figure representing those cars which left the central business district at the peak hour, it would constitute 60 percent of the total number of car spaces in the central business district.

Therefore, we may assume that our proposed peripheral expressway system permits us to provide 35,000 car spaces within the central area, and that we require about 70 lanes of internal street capacity.
CENTRAL CHICAGO SHOWING ROUTES OF THE PROPOSED SUPERHIGHWAYS
TRANSPORTATION - PARKING

The existing parking facilities provide for a total of 16,000 car spaces distributed as follows:

- curb parking........... 1,000 cars
- Grant Park............. 3,000
garages and lots..........12,000

Most of the garages and lots will be replaced as they now exist upon land that we are reclaiming for a different use.

At the present time the city has a program underway to provide additional parking for 12,000 cars in multi-level garages and under Grant Park, as shown in the following diagram. Our proposed program would provide for 35,000 car spaces, of which roughly 15,000 are existing facilities, and 20,000 are new facilities.

35,000 car spaces will provide daily parking facilities for between 100,000 and 150,000 cars in the business district. This figure should not be confused with the total number of vehicles entering or leaving the central area daily, which would be considerably higher. Our proposed internal road capacity would permit more than 300,000 cars to enter the central area daily and allow roughly 450,000 people per day to arrive by automobile. Compared with the present figures of 131,000 cars and 231,000 people, this is a 100 percent increase.
1. 4 levels to accommodate 720 cars
2. 4 levels to accommodate 1500 cars
3. 2 levels to accommodate 525 cars
4. 2 levels to accommodate 1500 cars
5. 2 levels to accommodate 650 cars
6. 2 levels to accommodate 319 cars
7. 2 levels to accommodate 340 cars
8. 4 levels to accommodate 650 cars
9. 5 levels to accommodate 1000 cars
10. 3 levels to accommodate 650 cars
11. 12 levels to accommodate 695 cars
<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
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<tbody>
<tr>
<td>Passenger Autos</td>
<td>316</td>
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<tr>
<td>Cabs</td>
<td>109</td>
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<tr>
<td>Contract Carriers</td>
<td></td>
</tr>
<tr>
<td>Semi-Trailers</td>
<td>20</td>
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<tr>
<td>Trucks</td>
<td>107</td>
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<tr>
<td>Food</td>
<td>59</td>
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<tr>
<td>Linen carriers</td>
<td>26</td>
</tr>
<tr>
<td>Post office Trucks</td>
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<tr>
<td>Mail</td>
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<tr>
<td>Private trucks</td>
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<tr>
<td>Cars</td>
<td>5</td>
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<tr>
<td>Merchandise</td>
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<tr>
<td>Milk</td>
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<tr>
<td>Misc.</td>
<td>25</td>
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<tr>
<td>Money</td>
<td>11</td>
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<tr>
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<tr>
<td>Govt.</td>
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<tr>
<td>State &amp; County</td>
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<td>Parcel delivery</td>
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<tr>
<td>Public Utility</td>
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<td>Cars</td>
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<tr>
<td>Trucks</td>
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<td>Repair Service</td>
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<td>Soft drinks</td>
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<td>Beverage</td>
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<td>Liquor</td>
<td>5</td>
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<tr>
<td>Beer</td>
<td>4</td>
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<tr>
<td>Water</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>948</strong></td>
</tr>
</tbody>
</table>
TRANSPORTATION - SUBWAY AND SURFACE TRANSIT

The problem of the Chicago Transit Authority involves greater implications than the business area congestion.

The following is mentioned as a footnote to indicate one of the many problems involved in approaching a solution to the rapid transit enigma. At the present time, the Chicago Transit Authority is an independent authority, no subject to a check by any other municipal agency. The law states that it must remain in the black in order to continue operating. Consequently, service is often curtailed and/or rates are increased. In addition, the metropolitan population which it serves is too thinly dispersed for efficiency and its facilities are too limited for economic operation. These problems extend beyond the realm of the central business district. However, there are some aspects to the rapid transit problem that may be solved in the central business district alone.

The increasing use of the rapid transit system by those employed in the downtown area may be the key to the problem of automobile congestion in the central business district. For example, if the size and location of central business area activities were integrally planned with the rapid transit system, the area would be more attractive to the consumer, and there would be a reduction in the number of automobiles which enter the business area daily.

The relatively small size of the central business district of Chicago makes it adaptable to its own particular type of rapid transit.
PORTION OF PEOPLE ENTERING AND LEAVING THE CENTRAL AREA
(BOUNDED BY THE RIVER, HARRISON, AND MICHIGAN)
BY EACH OF THE VARIOUS MODES OF TRANSPORTATION
Weekday in May, 1940

ENTERING

LEAVING

LEGEND

- Railroad
- Out-of-Town Buses
- Chicago Motor Coach Buses
- Chicago Rapid Transit
- Street Car
- Taxicab
- Passenger Automobiles Excluding Taxicabs

CHICAGO ASSOCIATION OF COMMERCE

1 - Includes passengers of the Illinois Central Suburban R.R. (Electric) and the Chicago, South Shore & South Bend R.R. Co.
2 - Includes passengers of the Chicago, North Shore & Milwaukee R.R. Co. and the Chicago, Aurora & Elgin R.R. Co.
3 - Factor used was 1.7 passengers per auto
POPULATION CHANGE BETWEEN 1940 AND 1950
BY SQUARE MILE

- POPULATION INCREASE
- POPULATION DECREASE

1940 POPULATION 3,396,808
1950 POPULATION 3,620,962
1940-50 INCREASE 224,154

Derived from data of U.S. Bureau of the Census.

CHICAGO PLAN COMMISSION
MAY 1949
The completion of the St. Lawrence Seaway project will increase the amount of water traffic in the Chicago area. The increase will probably affect Calumet Harbor to the south more than the Navy Pier in the central area. Nevertheless, the Pier's facilities will have to expand in order to handle the additional package freight arriving by water.

At the present time, the University of Illinois campus uses the facilities of the Navy Pier. A proposed site for the campus is the 56 acres of land liberated by the south side consolidation of the railroads. Approximately 40 acres would be devoted to institutional use and would be tax exempt. The remaining 16 acres would provide for staff housing or middle income housing. This area would border the central business district directly on the south, and would be taxable property. Here the University's facilities would be well related to Grant Park and the new cultural development on the east, the river on the west, existing transportation facilities and the attractions of the business district on the north.
STRATA COVERING BED ROCK IN "LOOP" AREA

The diagram shown to the left indicates the strata encountered when caissons were sunk to bed rock to support the new addition to the Chicago Tribune building on the North Bank of the Chicago River at a point about one-half mile west of Lake Michigan.

The figures are depths in feet.
CHICAGO MONTHLY PRECIPITATION
1952

Inches


Average

SOURCE: Chicago Meteorological Summary. U.S. Weather Bureau
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Trucking in the Central Business District of Chicago, 1953, Chicago Plan Commission and Committee on Traffic and Public Safety, 1953

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OTHER:


Rubloff, Arthur and Skidmore, Owings & Merrill  Chicago's $400,000,000
Fort Dearborn Project, Chicago, 1954
1. Lower Density
   a. more efficient structures
   b. greater open space

2. Improved transportation through
   a. pedestrian and vehicular separation
   b. 35,000 parking spaces
   c. terminal area

3. To break through physical barriers that restrain growth

4. To complement land usage by
   a. removing low-rent functions from high-rent sectors
   b. opportunities for expansion
   c. stimulating investment in the area

5. To provide public centers - civic and cultural

6. To bring lake and park closer to the central area and make them more accessible to the central area community

THE REDEVELOPMENT & IMPROVEMENT OF CHICAGO'S CENTRAL DISTRICT
PREDOMINANT LAND USE

KEY:
- OFFICES
- COMMERCIAL - RETAIL & AMUSEMENTS
- MULTI-STORY RESIDENCES
- HOTELS
- HOUSING - NEW UNIV. OF ILLINOIS CAMPUS
- GENERAL BUSINESS
- TERMINALS
- PUBLIC, INSTITUTIONAL PARK

[Diagram of urban land use with various symbols and labels]
KEY
A REMODELL ED DEPARTMENT STORE
B RAISED PEDESTRIAN SHOPPING STRIPS
C SERVICE WAYS & ACCESS TO PARKING GARAGES
D VERDANT SHOPPING PARADE
... verdant shopping parade
a detailed analysis of the transportation system

- rail
- parking
- servicing
- pedestrian
- basic grid
the transportation center