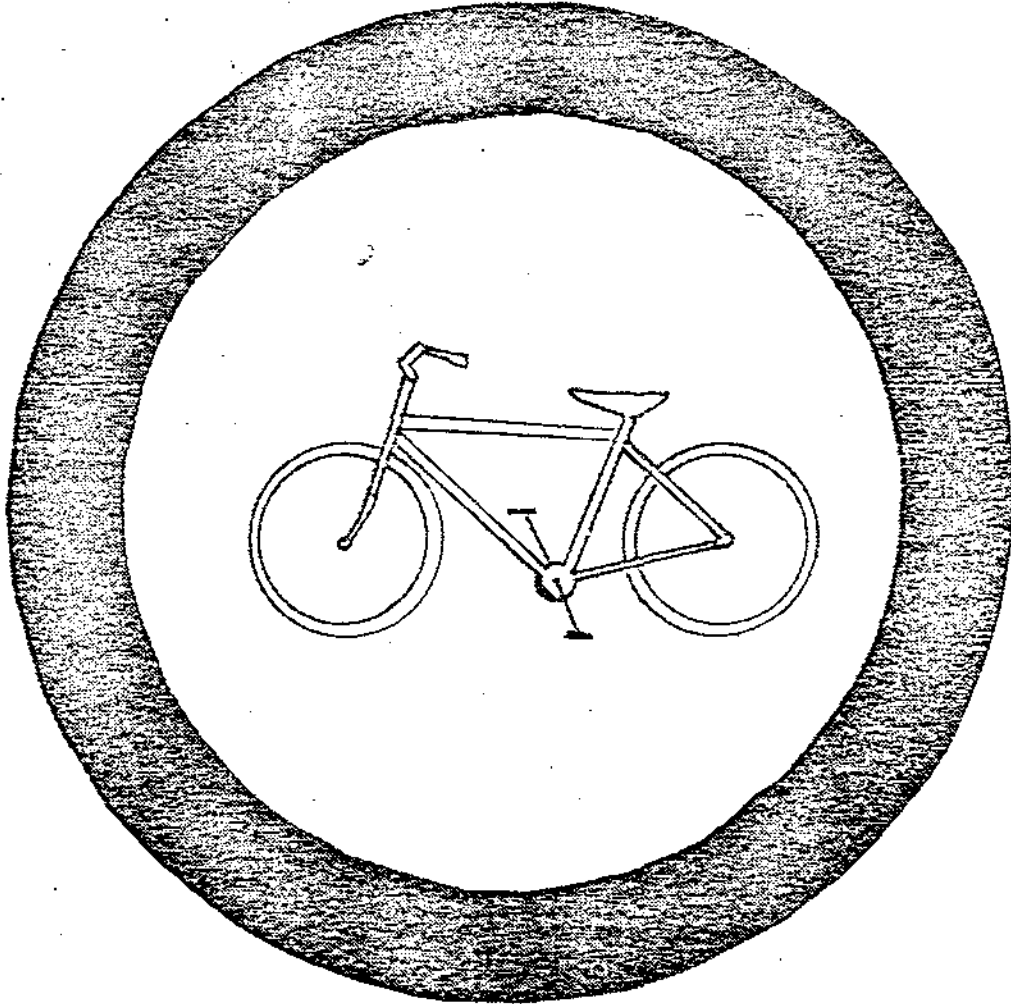


DEPARTMENT OF DEVELOPMENT AND PLANNING

CITY OF CHICAGO

GUIDELINES FOR A COMPREHENSIVE BICYCLE ROUTE SYSTEM



RICHARD J. DALEY, MAYOR
LEWIS W. HILL, COMMISSIONER

PRELIMINARY REPORT

SUMMARY FOR A BICYCLE PATH SYSTEM

The purpose of these guidelines is to suggest the means for providing the bicyclist with safe, pleasant, recreational and utilitarian bicycling. This objective is accomplished by expanding the city's existing bicycle paths to their maximum size potential, and then linking the paths to one another by means of bicycle safety routes.

Bicycle safety routes are lightly traveled streets and sidewalks on which the cyclist shares the roadway with other traffic. The routes are marked with signs which serve two functions. First, to inform the cyclists that the marked path is relatively safer than nearby alternate routes, and secondly, to warn other traffic that bicyclists may be encountered. In addition to linking the existing paths safety routes also connect parks, schools, neighborhood shopping facilities, libraries, and forest preserves; all places people may want to visit but not necessarily by car. Generally, these routes will follow the city's quarter mile streets since these streets have low traffic volumes, are wide enough for bicycles and automobiles to avoid one another, and are already equipped with a significant number of traffic control devices, such as stop signs and lights.

The guidelines identify a number of priorities for the implementation of the city-wide path system. The single most important priority is closing the gap in the lake front path that exists over the Chicago river.

The other priorities in order of importance are:

- closing the other gaps in the lakefront path
- linking the communities of Hyde Park and Lincoln Park to the lakefront path via safety route development. This is important as a test of the principles stated in the guidelines and to gain public support for the total system.
- to develop the city-wide system of interconnecting safety routes.
- to begin construction of bike paths in the inland parks, boulevards and the lakefront.

The first three priority items can be implemented almost immediately and at little cost. The last priority item requires substantial engineering and capital outlay and, therefore, should be developed over an extended period of time.

NEEDS AND TRENDS

The sport of cycling has reached an all-time high in popularity. With an estimated 63,000,000 children and adults, or about 30% of the nation's population riding for a variety of reasons, this activity is making an impact greater than all expectations. Whatever the reasons for their use-transportation, recreation, or physical fitness - nearly 10,000,000 bicycles are expected to be sold in the U. S. in 1970, more than three times the number sold in 1960.¹

If 30% of Chicago's population are bicycle riders then there may be a million cyclists in the City of Chicago.

Validity is given to this figure by the Chicago Park District which estimated that as many as 10,000 persons on a nice summer week-end day use the city's existing facilities for cycling. To meet the obvious need for additional facilities generated by the sudden almost explosive increase in the popularity of the sport, new more extensive facilities must be developed.

EXISTING FACILITIES

There are 18 miles of paved and marked bike paths in Chicago, the most extensive of which are along the lakefront. Other less extensive facilities are found in the large inland parks and along the edge of the North Shore Channel. Many of these facilities are either broken up into segments which cause the continuity of the paths to be lost or are not long enough to receive repeated use from cyclists.

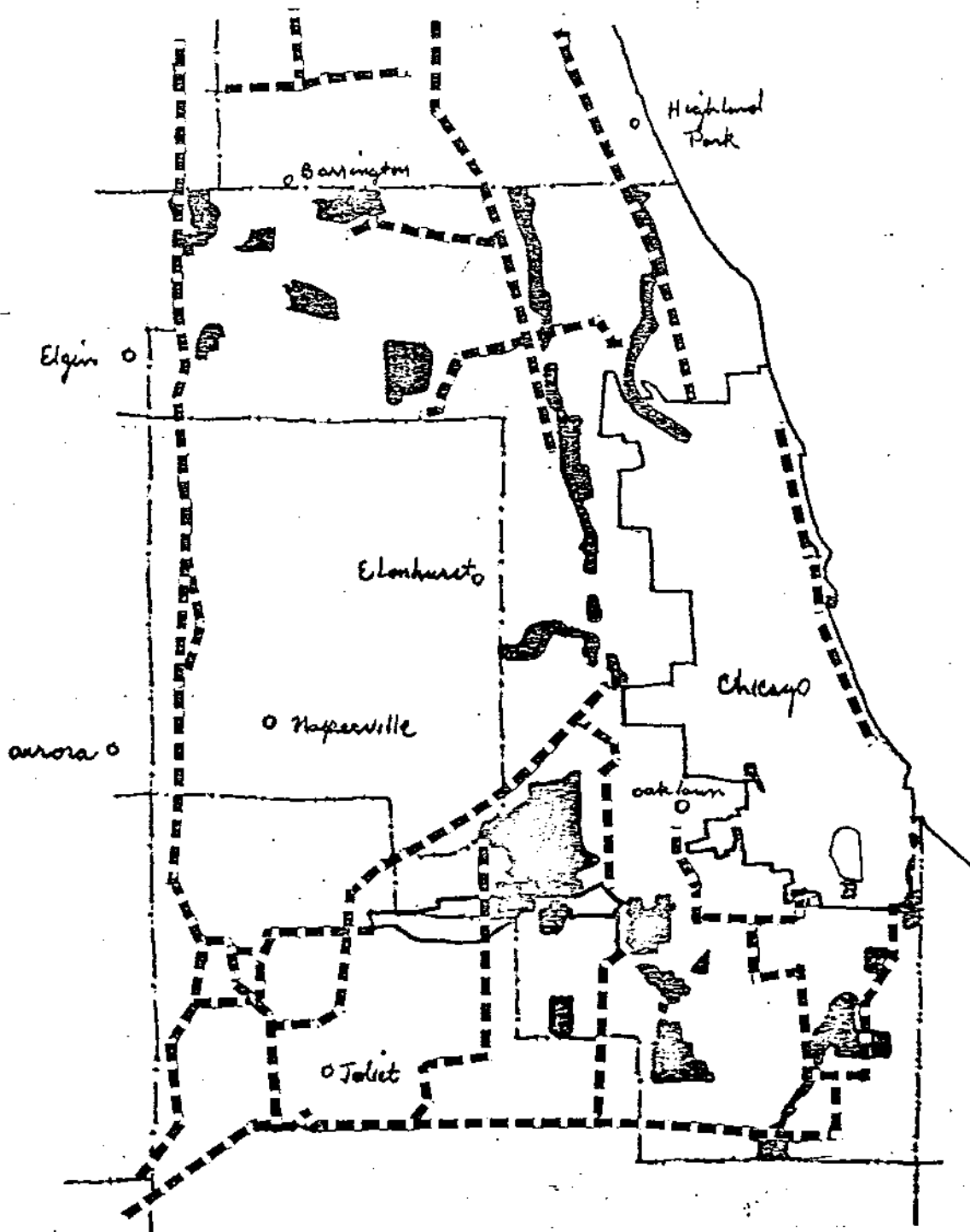
1. Bike Trails and Facilities --- A guide to Their Design, Construction, and Operation, May, 1965, American Institute of Park Executives, Inc.

The Cook County Forest Preserves maintains several extensive bike trails next to or a short distance from the City. In the near future, additional paths will be constructed which will give the County a total of 17 miles of bike trails outside of the city. In addition to this effort, a number of suburban park districts to the north and south of the city are planning to develop a variety of bicycling facilities and programs. The Cook County Council of Governments is coordinating the efforts of a half dozen governmental bodies and the Illinois Prairie Path in an effort to develop an inter-county network of bike trails.

DEVELOPING A UNIFORM DIRECTION

All efforts should be coordinated to maximize their effectiveness. A common end of providing safe, pleasant, recreational and utilitarian bicycling throughout the City, contiguous suburbs, forest preserves, and surrounding counties should be adopted by all who provide bicycling facilities. In Chicago this end can be achieved by doing the following things:

1. Create a continuous and separate right-of-way for bicycles along Chicago's lakefront from Howard Street on the North to Calumet Park on the South.
2. Link the existing bicycle paths in Chicago's inland parks to the proposed bike-way system for the City and County areas.
3. Create a system of bicycle safety routes to move cyclists around the community to parks and recreation facilities, schools, Churches, and shopping areas.
4. Create a similar system of bicycle safety routes to move cyclists out of the city and into the outlying State and County recreation areas.



The dotted line in figure #1 shows the proposed Inter-County network of bicycle paths that the Cook County Council of Governments is coordinating.

DEVELOPMENT PRINCIPLES

The principles listed below, should be used to guide the development of the bike-way system:

- A. Continuity
- B. Safety
- C. Recreation and utility
- D. Relating to user needs
- E. Effectively using what exists

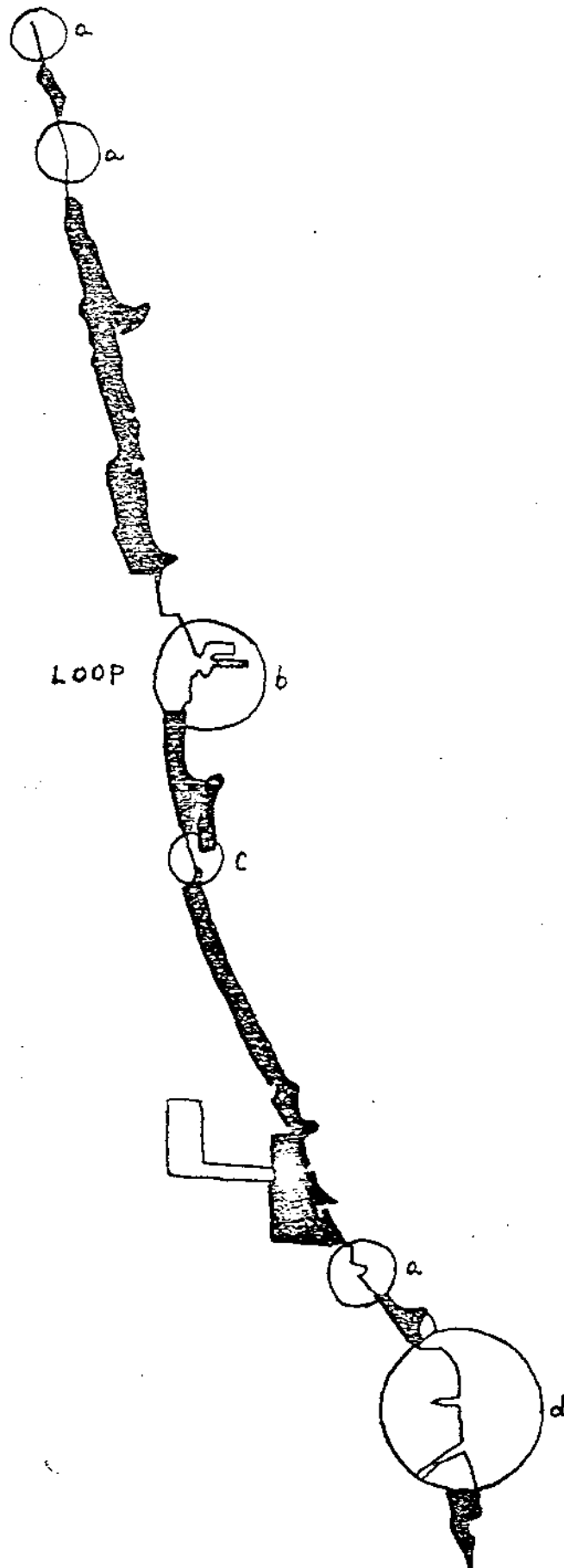
CONTINUITY

Continuity is achieved when all the existing paths are expanded to their maximum size potential and linked together to form a single unified path, and when easy access to these paths and the recreation areas they are in is obtained. Developing this type of continuity is important in order to obtain the greatest amount of use from existing facilities, and to insure that the facilities are used on a primarily regional basis rather than simply a local one.

Continuity of the Lakefront

The lakefront path is Chicago's most extensive bicycle path. At present it is broken up into a number of separate segments with little continuity between segments. Linking these independent segments into a continuous bikeway maximizes its recreational usefulness and helps add to the continuity of all the lakefront. The path acts, in itself, as a recreational area of focus and will draw people from all parts of the city. While ideally all the gaps in the lakefront path should be filled by expanding the lakefront parks, immediate closing of gaps is possible through the creation of bicycle safety routes. (2)

(2) Bicycle Safety routes are bike trails utilizing streets and sidewalks. Most safety routes would use lightly travelled city streets on which the motorist and cyclist share the pavement.



Various points where the continuity of the lakefront and lakefront bicycle path are interrupted

fig. 2

Figure two indicates the existing gaps in the Lakefront path. The following are examples of land use that tend to disrupt the unity of the lakefront bike path:

a. Private residential and recreational developments which fence off portions of the shorelines.

b. The Chicago river mouth area: The locks and waterfront rail yards and warehousing have discouraged continuity at this point.

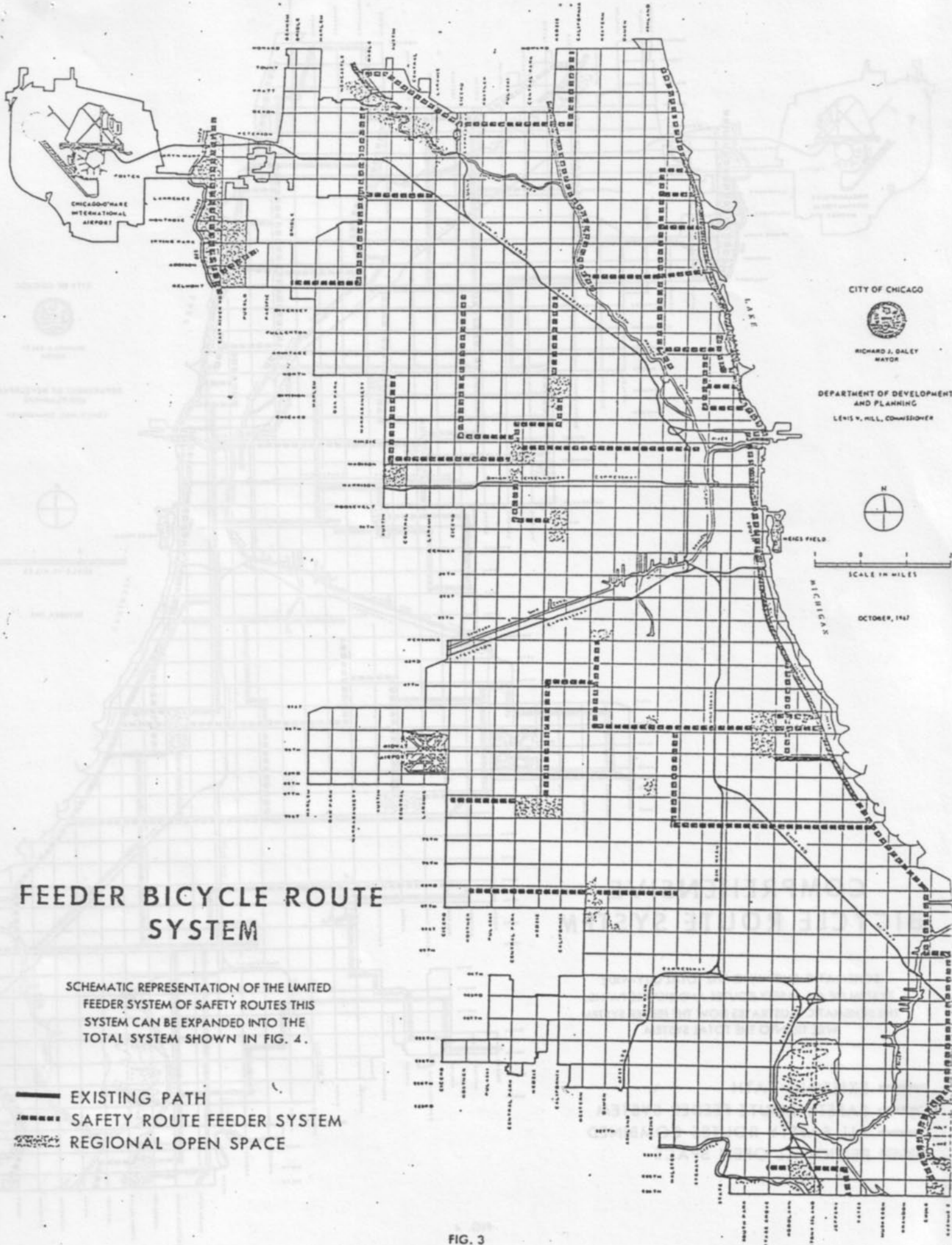
c. The location and present design and conditions of McCormick Place inhibits bicycle circulation and lakefront continuity although this will be corrected in the near future.

d. The industrial areas and the Calumet river mouth on the South do not allow for any sort of circulation along the shore. It discourages continuity between two major parks; Rainbow Beach and Calumet Park and the existing and proposed paths there.

After the parts of the lakefront path are joined together to form a single unified shoreline path the bike trails in the large inland parks should be expanded to their maximum size potential. Expanding these paths will make them more useful for recreational bicycling because increased numbers will be able to use them and the riding experience offered will be fuller and more varied.

TOWARDS A TOTAL CONTINUITY THROUGH THE DEVELOPMENT OF SAFETY ROUTES

While the expansion of existing bicycle paths is extremely desirable, it in itself is not enough. What is needed still is a means of carrying the cyclist from his home to the various recreational facilities in the community, and from one facility to another. Through the development of bicycle safety routes this kind of linking is made possible.



CITY OF CHICAGO



RICHARD J. DALEY
MAYOR

DEPARTMENT OF DEVELOPMENT
AND PLANNING
LEWIS W. HILL, COMMISSIONER



SCALE IN MILES
0 1 2

OCTOBER, 1947

FEEDER BICYCLE ROUTE SYSTEM

SCHEMATIC REPRESENTATION OF THE LIMITED FEEDER SYSTEM OF SAFETY ROUTES THIS SYSTEM CAN BE EXPANDED INTO THE TOTAL SYSTEM SHOWN IN FIG. 4.

- EXISTING PATH
- SAFETY ROUTE FEEDER SYSTEM
- REGIONAL OPEN SPACE

FIG. 3



COMPREHENSIVE BICYCLE ROUTE SYSTEM

SCHEMATIC SHOWING THE TOTAL CITY-WIDE SYSTEM OF ALL SAFETY ROUTES AND BICYCLE PATHS. THE SCHEMATIC ILLUSTRATES HOW THE FEEDER SYSTEM WILL TIE INTO THE TOTAL SYSTEM.

- EXISTING PATH
- - - SAFETY ROUTE FEEDER SYSTEM
- x-x-x- ALL SAFETY ROUTES COMBINED
- REGIONAL OPEN SPACE

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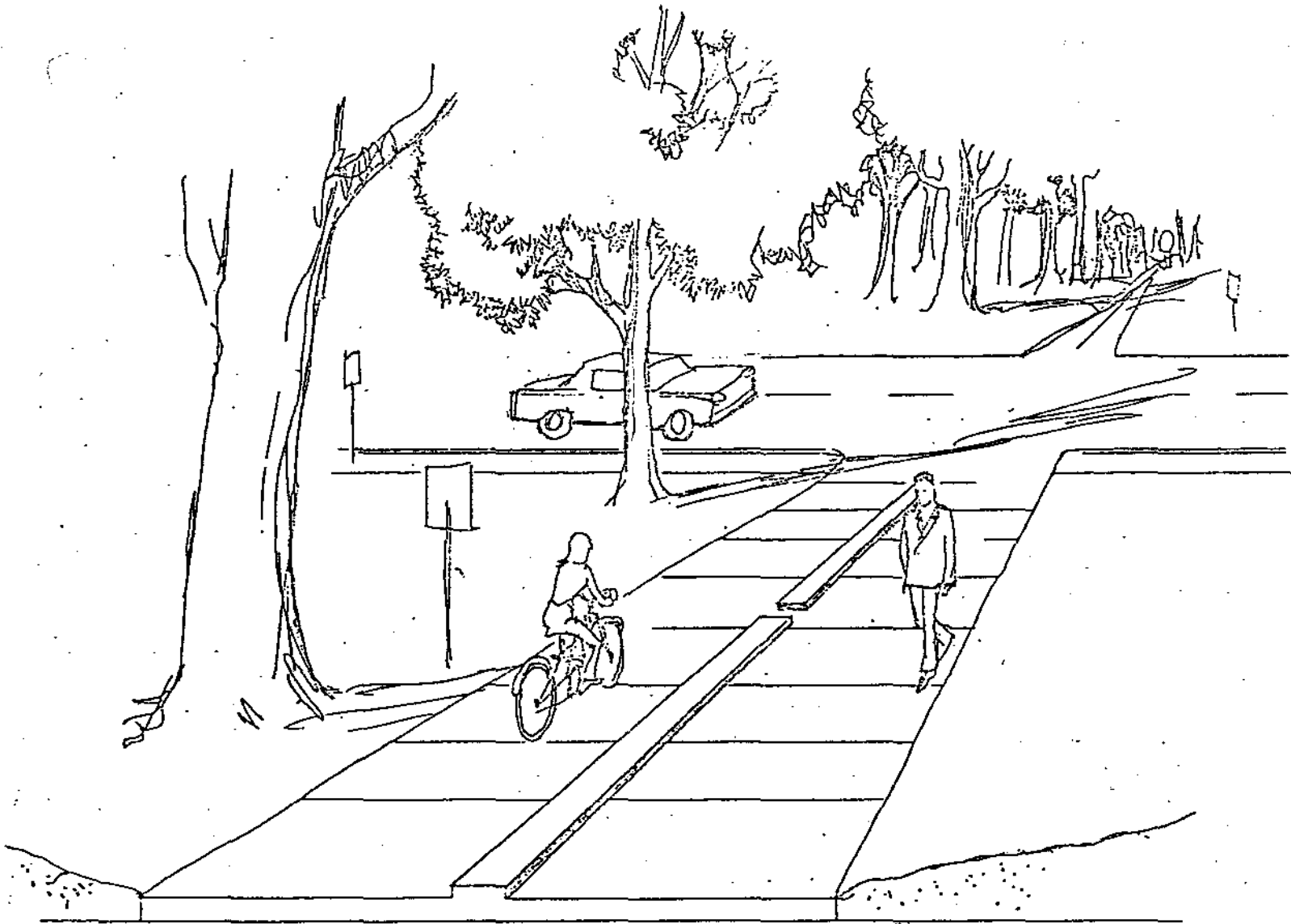
OCTOBER, 1947

FIG. 4

The routes can be made as comprehensive as shown in figure 3, where the safety routes themselves take on a recreational role by forming round trips of varying lengths, or as simple as in figure 4 where the safety routes serve the more limited functions of channeling bicycle traffic into the large regional recreation centers. The main advantages in a complex looping system is that every section of the City, including the areas with extremely limited recreational facilities, is put in close proximity to, and is tied together by the network of safety routes. The simpler feeder system of routes, however, has the advantages of being slightly less costly to develop, is easier and faster to build, and lends itself to gradual expansion. Both approaches end with the same result of creating a sense of continuity between the City's widely dispersed centers of recreation, and between these centers and the communities they serve.

Most safety routes would use lightly travelled city streets on which the motorist and cyclist share the pavement. Others would use sidewalks on which a careful distinction between cyclist and pedestrian right-of-ways (see illustration #5) is made. The safety routes would be marked by special signs to direct the cyclist along the proper path, as at the same time they warn motorists that bicyclist may be encountered. Police departments in other cities report that motorists tend to drive more cautiously along such designated streets or avoid them entirely. In order for safety routes to be fully developed as described in the above paragraph a City Council ordinance permitting bicycles to use certain sidewalks as roadways must be passed.

METHODS OF DIVIDING PEDESTRIANS FROM BICYCLES



RAISED DIVIDER

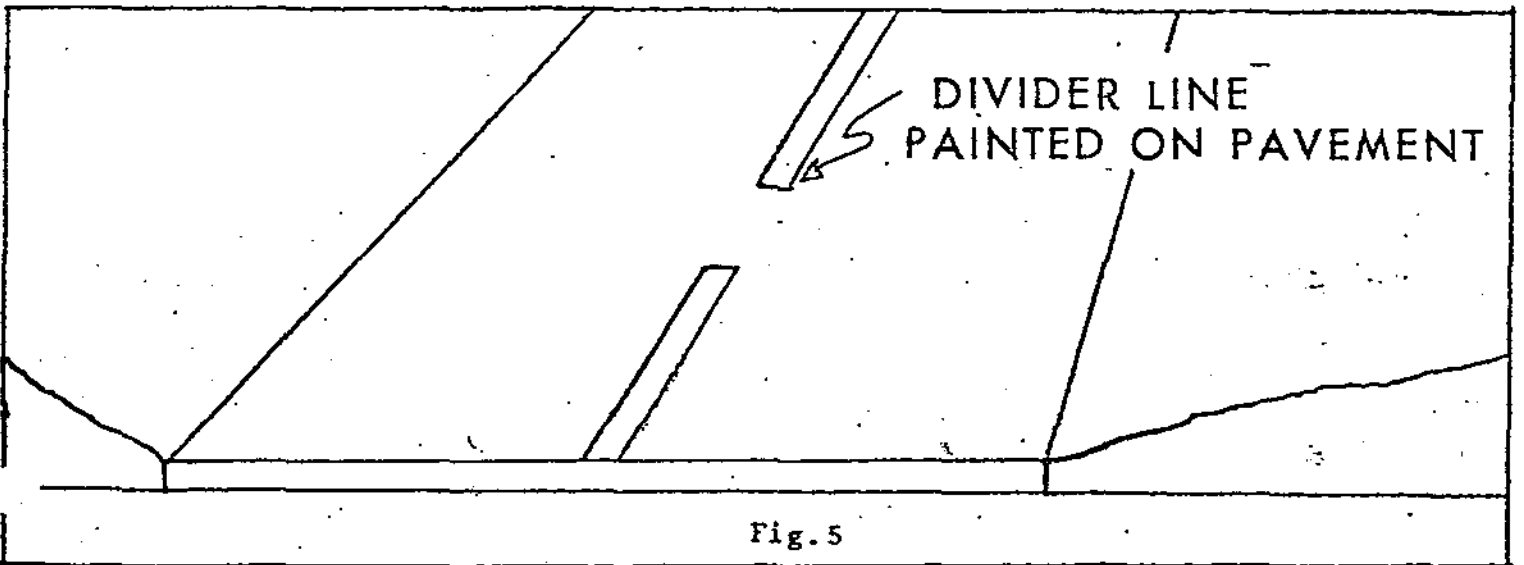


Fig. 5

SAFETY

As traffic congestion in the city increases the need for safe places to bicycle becomes more and more apparent. The type of bicycle paths suggested in these guidelines are safer than alternative routes that the cyclist may choose for himself because they are either completely free from motor vehicles or have only limited traffic volumes. In choosing the best location for a bike path, the placement of traffic regulating devices, over and under-passes across major roadways, street speed limits should all be considered; as should hidden dangers along these paths, such as, storm drains with gratings that are wide enough to catch a bicycle tire and cause an accident. The cyclist's safety must also be considered in relation to police protection. Bicycle paths that pass through areas where crime is prevalent need special attention and cooperation from the City's Police Department to protect both riders indigenous to these communities and those from outside it who are just passing through.

UTILITY AND RECREATION

The primary purpose of the city's bike trails is to provide an opportunity for recreational cycling. This is accomplished by providing bicycle paths in the city's parks and forest preserves. However, bike paths can also serve a utilitarian function by linking schools, transportation terminals and shopping areas; all areas that people may want to visit but not necessarily by car. The utilitarian function of these paths is particularly important to the children who use bicycles as a means of transportation to and from school.

The Chicago Board of Education and also the Chicago Public Library could play an important role in the development of a Chicago bike-way system by providing bike racks at their facilities, (at present these agencies have no official policy for the installation of bike racks though one could easily be developed). In addition, the Board of Education and the Chicago Park District could develop or sponsor bicycle clubs and safety programs.

RELATING TO USERS NEEDS

When a route is being considered it should take into consideration the needs of those who use the system most and attempt to fulfill those needs. The prime users of Chicago's bikeways are:

- Children
- Families
- Individuals interested in physical fitness
- Bicycle Clubs
- Commuters

Most of the paths will form round trips, though some will be linear in character. They will be of varying lengths so that they will challenge riders with all levels of riding experience from novices to semi-professionals.

Short paths of 5 miles or less usually will not get repeated use from cycling enthusiasts who ride in groups and on planned trips. The attraction will be to novice cyclists, families, and persons interested in physical fitness. Physical fitness buffs will generally tend to ride such short paths at faster speeds than other user groups.

Paths in natural or wooded areas or along a stream lend themselves to leisurely cycling and attract all categories of users. The longer the path the more leisurely the ride. With a path that is over five miles in length, it can be anticipated that some people will bring bicycles on cars

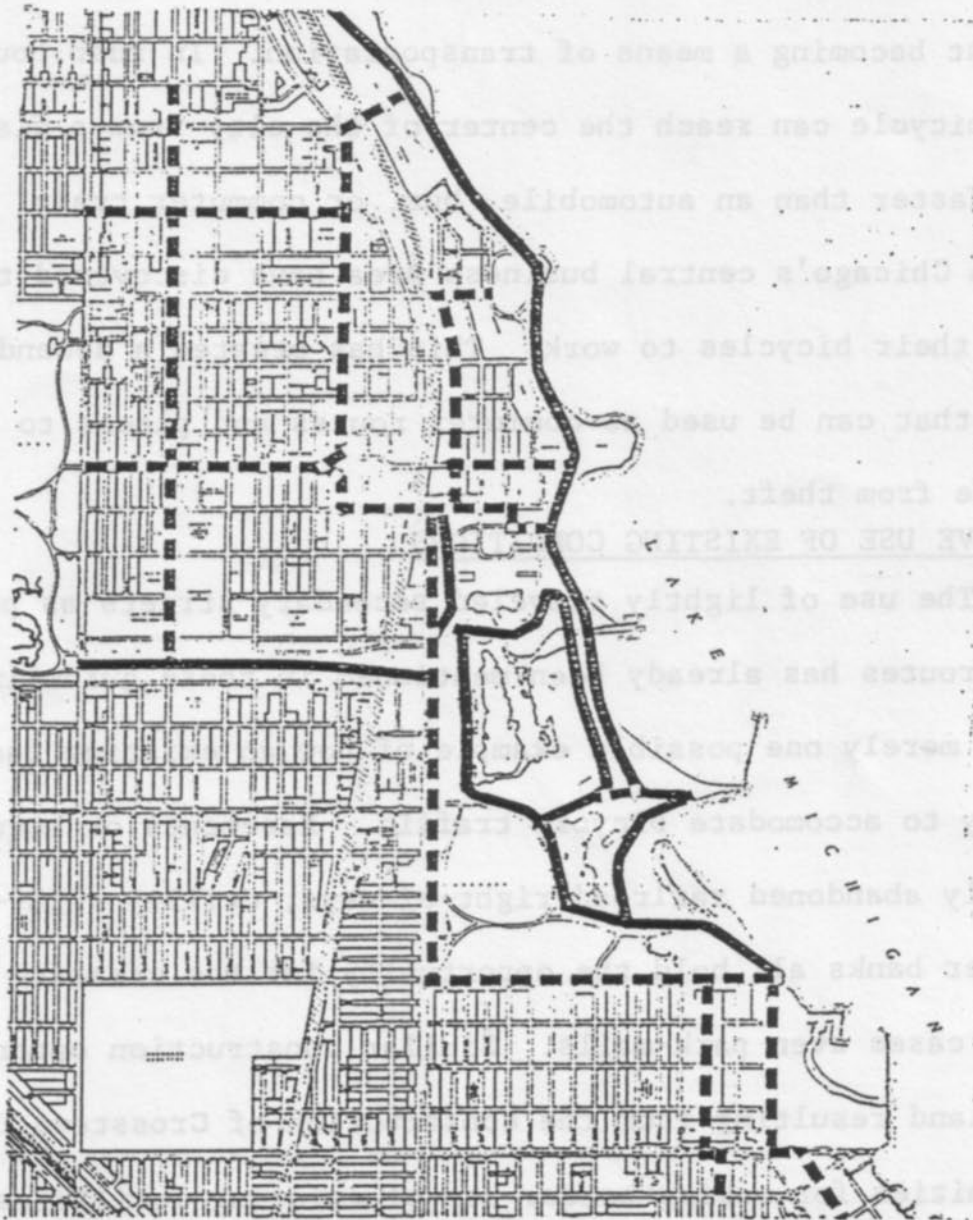
or on trailers. Bicycle rental services can spark impulse cycling on either a long or short path.

In addition to the role of a recreation vehicle in America, bicycles are fast becoming a means of transportation. In rush hour traffic on a nice day a bicycle can reach the center of the city from a distance of up to five miles faster than an automobile, bus, or commuter train. Many people who work in Chicago's central business area have discovered this fact and are taking their bicycles to work. This has created a demand for bicycle safety routes that can be used as commuter routes and places to park bicycles that are safe from theft.

EFFECTIVE USE OF EXISTING CONDITIONS

The use of lightly traveled secondary streets as possible bicycle safety routes has already been mentioned in these guidelines. However, this is merely one possible example of how an existing facility can be altered slightly to accommodate bicycle traffic. Easements or acquisition of abandoned or nearly abandoned railroad right-of-ways, utility right-of-ways, and canal and river banks all hold the opportunity for the creation of bike paths and in some cases even park-malls. Similar construction opportunity may arise from excess land resulting from the construction of Crosstown Expressway. Other opportunities for making better use of existing facilities also arise in such things as equipping existing pedestrian passarellas over the outerdrive with ramps in addition to the stairs so that they become useful to cyclists as well as pedestrians. Taking advantage of existing facilities greatly reduced the cost of developing a bicycle system as it increases the amount of land available for such construction.

HYDE PARK TARGET AREA



————— EXISTING BICYCLE PATHS
- - - - - PROPOSED SAFTY ROUTES

Fig. 5

LINCOLN PARK
TARGET AREA

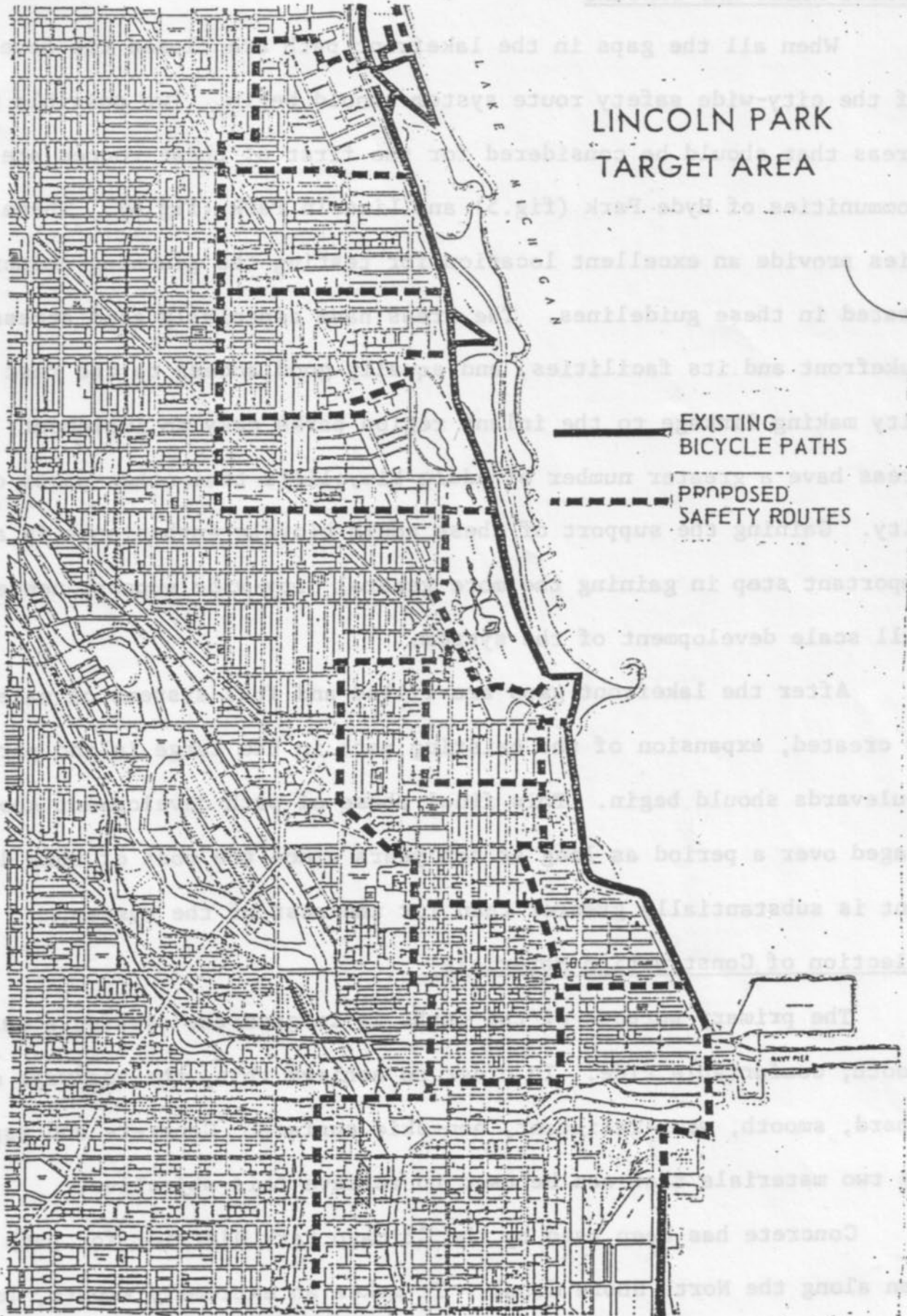


Fig. 6

When all the gaps in the lakefront path are closed the development of the city-wide safety route system should begin. Two possible target areas that should be considered for the first of these routes are the communities of Hyde Park (fig.5) and Lincoln Park (fig.6). These communities provide an excellent location for testing the planning principle stated in these guidelines. The areas have especially good access to the lakefront and its facilities, and equally good access to the rest of the city making linkage to the inland region parks easy to implement. The areas have a greater number of adult bicyclists than other parts of the city. Gaining the support of these adult bicycle enthusiasts is an important step in gaining the more general city-wide support needed for full scale development of the system.

After the lakefront gaps are filled and full systems of safety routes is created, expansion of the existing path in the large inland parks and boulevards should begin. This final phase of path development should be staged over a period as long as ten years since the cost of this development is substantially greater than for the rest of the system.

Selection of Construction Materials

The primary purpose of the paths is to give the cyclist a safe, smooth, comfortable ride. In order to achieve this, the roadways must be a hard, smooth, wear-resistant, non-skid surface. Concrete and asphalt are two materials that can be used to achieve this objective.

Concrete has been used by the Chicago Park District for path construction along the North Shore Canal. It makes an extremely smooth, long-lasting, heat-resistant surface. However, it has the drawbacks of being expensive to lay and repair.

It is subject to severe cracking due to winter freeze/thaw conditions.

Asphalt is much less expensive to lay than concrete. However, its life expectancy is only two-thirds as long. Though it wears fast, its repair is extremely easy and inexpensive. Asphalt is also resistant to breakage caused by a shifting road bed.

Asphalt appears to be superior to concrete as a building material for bicycle paths. Compressed aggregate material (chipstone, compressed cinders, etc.) are not advisable because they generally do not hold up well under heavy use and have greatly reduced traction in wet weather. Flag stones and similar materials that require hand work for installation have prohibitive costs and do not form as smooth a riding surface as concrete or asphalt. See the following tables.

Cost of Development

The following tables estimate the proposed capital expenditures, required from the various agencies, to implement and develop a comprehensive system of bicycle trails for the City of Chicago. These estimates are based on the cost of creating a limited feeder system. This limited system will consist of all the new trails to be constructed and some of the safety routes as shown in Fig.4. If the total system were to be implemented (Fig.3) instead of the limited system, the increase in capital expenditures would be minimal. The additional expenditures would be for more safety route signs and not for additional bicycle path roadways. The increase would be equal to about double the given estimated cost of signs or about \$1,400. The estimate was arrived at by taking the approximate number of miles of proposed bike trails and multiplying that number by an average of 16 signs per mile or about two signs per block.

The cost estimate is then calculated by multiplying the number of signs needed by a \$1.75 for the Department of Streets and Sanitation signs and about \$2.00 for the Chicago Park District, and the Cook County Forest Preserves signs.

Calculating the approximate cost of building bike paths in the City was based on eleven and a half miles of six foot wide paths.(six feet is the minimum width that will carry two-way traffic). A cost of \$1.80 per square foot was used for paths constructed of four inches of crushed limestone and four inches of poured concrete. A cost factor of \$1.00 per square foot was used for paths using two inches of crushed limestone and four inches of asphalt. The estimates are shown in Figs. 9, 10, 11, of the appendix.

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PAUL RASMUSSEN

GRAPHICS BY
EUGENE CIARDULLO

APPENDIX

ADVANTAGES-DISADVANTAGES OF CONCRETE & ASPHALT

Material	Advantages	Disadvantages
Concrete	<ol style="list-style-type: none"> 1. Road Surface has a long life before it begins to decay due to weathering. 2. Can support heavy loads if reinforced properly. 3. Surface remains hard under all weather conditions. 	<ol style="list-style-type: none"> 1. High Construction cost (\$1.80 square foot). 2. When a road surface ruptures it is extremely difficult and costly repair. 3. If the road bed shifts, the road surface will often crack forming a ridge or rough spot.
Asphalt	<ol style="list-style-type: none"> 1. Material inexpensive and easy to lay. 2. Easy to repair 3. Road surface will not crack due to shifting road beds, but will remain intact. 4. Can be colored to make it more attractive. 	<ol style="list-style-type: none"> 1. Road surface is subject to decay in a shorter time than concrete 2. Road surface becomes soft when heated and can develop ruts. Heat resistant asphalt is available. 3. Road surface will not support as heavy loads as concrete.
Compacted Aggregates	<ol style="list-style-type: none"> 1. Aesthetically attractive. 2. Easy to repair. 3. Very inexpensive to lay. 	<ol style="list-style-type: none"> 1. Very short life expectancy. 2. Needs constant repair and attention. 3. Forms a low traction, rough riding surface.

ESTIMATE FOR CONCRETE PATHS

LAKEFRONT ZONE	PARK DISTRICT			FOREST PRESERVES			STREETS AND SANITATION		
		MILES	COST		MILES	COST		MILES	COST
Path Development	Lincoln Park No.	1.5	85,500	Eggars Grove	2.0	114,000			
	Lincoln Pk. So.	1.25	71,000	Burnham Woods	1.0	57,000			
	McCormick Pl.	.5	28,500						
	Calumet Pk.	.75	42,000						
INLAND ZONE Path Development	Columbus Pk.	.25	14,000	Edgebrook Pre.	1.75	99,500	Garfield Blvd	3.5	199,00
	North Shore	.25	14,000	Beaubien Pre.	1.5	85,000	Western Blvd.	2.0	114,00
	Canal			Dan Ryan Woods	.75	42,500	Independence Blvd.	1.75	99,00
							Franklin Blvd	1.0	57,00
						Kedzie Blvd.	1.25	71,00	
TOTAL		4.5	255,500		7.0	398,000		9.5	541,00

1. Total estimated cost for paths using concrete --- 1,197,500

2. There is a total of 21 miles of proposed paths exclusively for bicycle traffic.

LAKEFRONT ZONE	PARK DISTRICT			FOREST PRESERVES			STREETS AND SANITATION		
		MILES	COST		MILES	COST		MILES	COST
Path Development	Lincoln Pk.No.	1.5	47,500	Eggars Grove	2.0	63,360			
	Lincoln Pk.So.	1.25	39,600	Burnham Woods	1.0	31,600			
	McCormick Pl.	.5	15,800						
	Calumet Park	.75	23,700						
ISLAND ZONE Path Development	Columbus Pk.	.25	7,900	Edgebrook Pre.	1.75	55,400	Garfield Blvd	3.5	110,8
	North Shore	.25	7,900	Beaubien Pre.	1.5	47,500	Western Blvd.	2.0	63,3
	Canal			Dan Ryan Woods	.75	23,000	Independence		
							Blvd.	1.75	55,4
							Franklin Blvd.	1.0	31,6
						Kedzie Blvd.	1.25	39,5	
TOTAL		4.5	142,400		7.0	221,000		9.5	300,6

Total estimated cost for paths using asphalt --- \$664,000 dollars

ADDITIONAL INFORMATION

SUPPLEMENTARY ROUTE DIRECTIONAL SIGNS

When needed, a supplementary sign plate with a directional arrow may be placed below the Bike Route sign. The supplementary sign is a horizontal rectangle, 18" x 12" in size with an arrow symbol (vertical, left-hand, or right-hand) and a border in white on green background.

COLOR SAMPLES

Color Tolerance Charts showing acceptable standard colors and variations may be obtained by sending \$6 to Clearinghouse, U. S. Dept. of Commerce, Springfield, Va. 22151. Ask for: Stock No. PB-169 553 COLOR CHARTS.

HEIGHT & MOUNTING

Signs erected at the side of rural roads shall be at least 5 feet above the roadway edge, measured from bottom of sign. In business or residence districts, and where parking is likely to occur or where there are view obstructions, the height should be at least 7 feet. Height to the bottom of secondary sign (arrow) may be 1 foot less than the appropriate height specified above.

There are no specifications for poles or posts used to mount signs. However, they should never be painted red. Treat wood posts with penta-chloro-phenol for rustic color & preservation.

FREQUENCY

There is no specified frequency; signs should be placed only where necessary, using existing poles to the fullest extent possible.

HELP IN ESTABLISHING BICYCLE ROUTES

Cycling is more popular today than ever. This year more than 61 million people of all ages are riding bicycles for a variety of reasons. If there are no riding facilities in your area, write to the Bicycle Institute of America, 122 East 42 St., New York, N. Y. 10017 for free publications and other helps which may guide your local campaign. The Bicycle Institute will also mail a list of free safety materials available in limited quantities.

MANUFACTURERS OF BICYCLE SIGNS

Nearly every city, county or state government has facilities for making signs, and may be consulted about manufacturing these two bicycle signs. However, if requested, the Bicycle Institute will provide the names of sign manufacturers who can provide these signs at minimum cost.

ESTIMATE FOR COST OF SIGNS

	NUMBER OF SIGNS	COST	NUMBER OF SIGNS	COST	NUMBER OF SIGNS	COST
LAKEFRONT ZONE	95	200.00	30	60.00	1060	200.00
INLAND ZONE	195	400.00	30	60.00	1150	460.00
TOTAL	290	600.00	60	120.00	2210	720.00

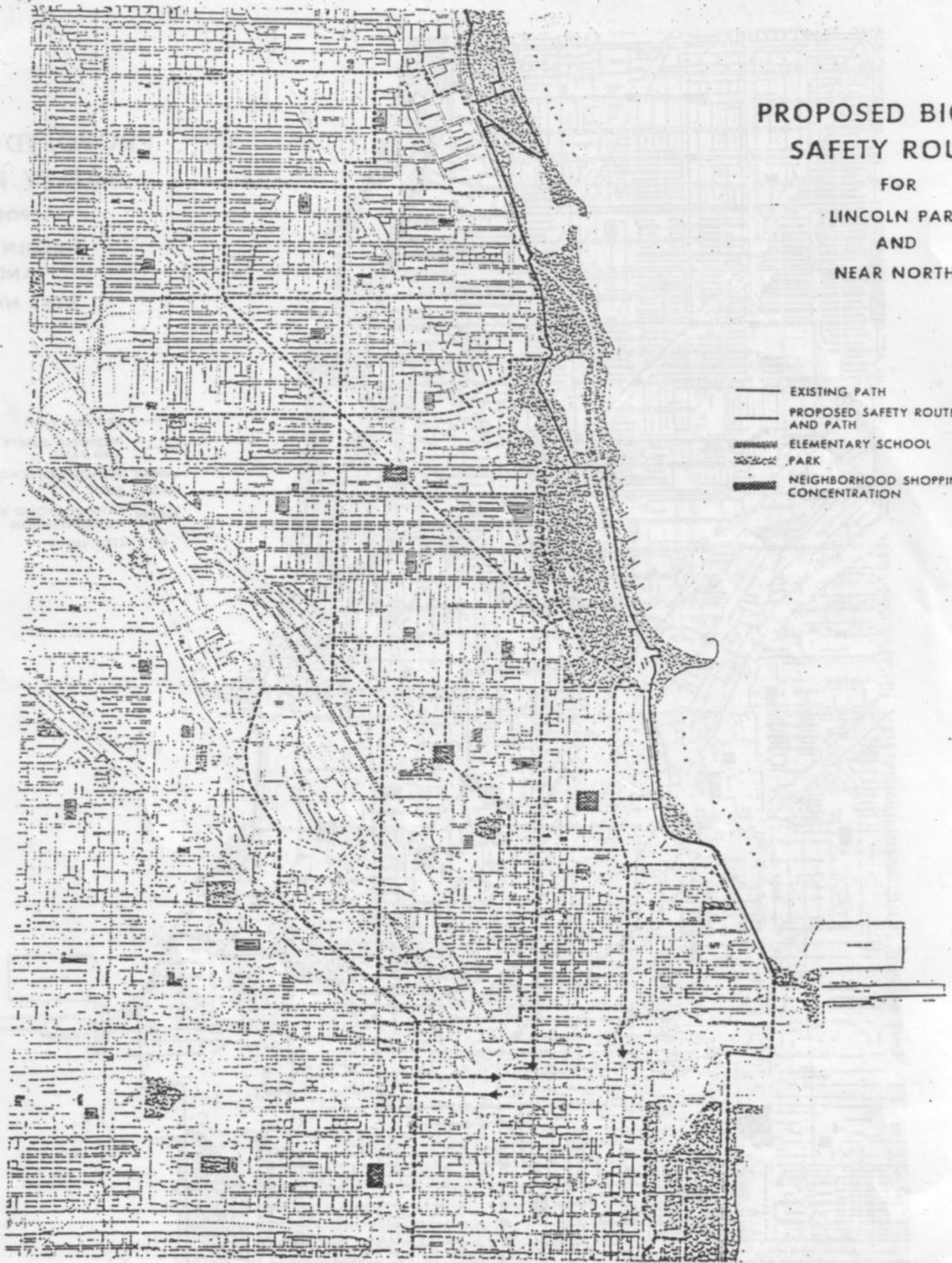
TOTAL ESTIMATED COST OF SIGNS -- \$720.00

GRAND TOTALS:

Concrete paths plus signs -- \$1,298,900
Asphalt paths plus signs -- 685,000

PROPOSED BICYCLE SAFETY ROUTE FOR LINCOLN PARK AND NEAR NORTH

- EXISTING PATH
- PROPOSED SAFETY ROUTE AND PATH
- ▨ ELEMENTARY SCHOOL
- ▨ PARK
- ▨ NEIGHBORHOOD SHOPPING CONCENTRATION



PROPOSED BICYCLE SAFETY ROUTE

FOR
LINCOLN PARK
AND
NEAR NORTH

- EXISTING PATH
- PROPOSED SAFETY ROUTE AND PATH
- ▨ ELEMENTARY SCHOOL
- ▨ PARK
- ▨ NEIGHBORHOOD SHOPPING CONCENTRATION
- STOP LIGHT

