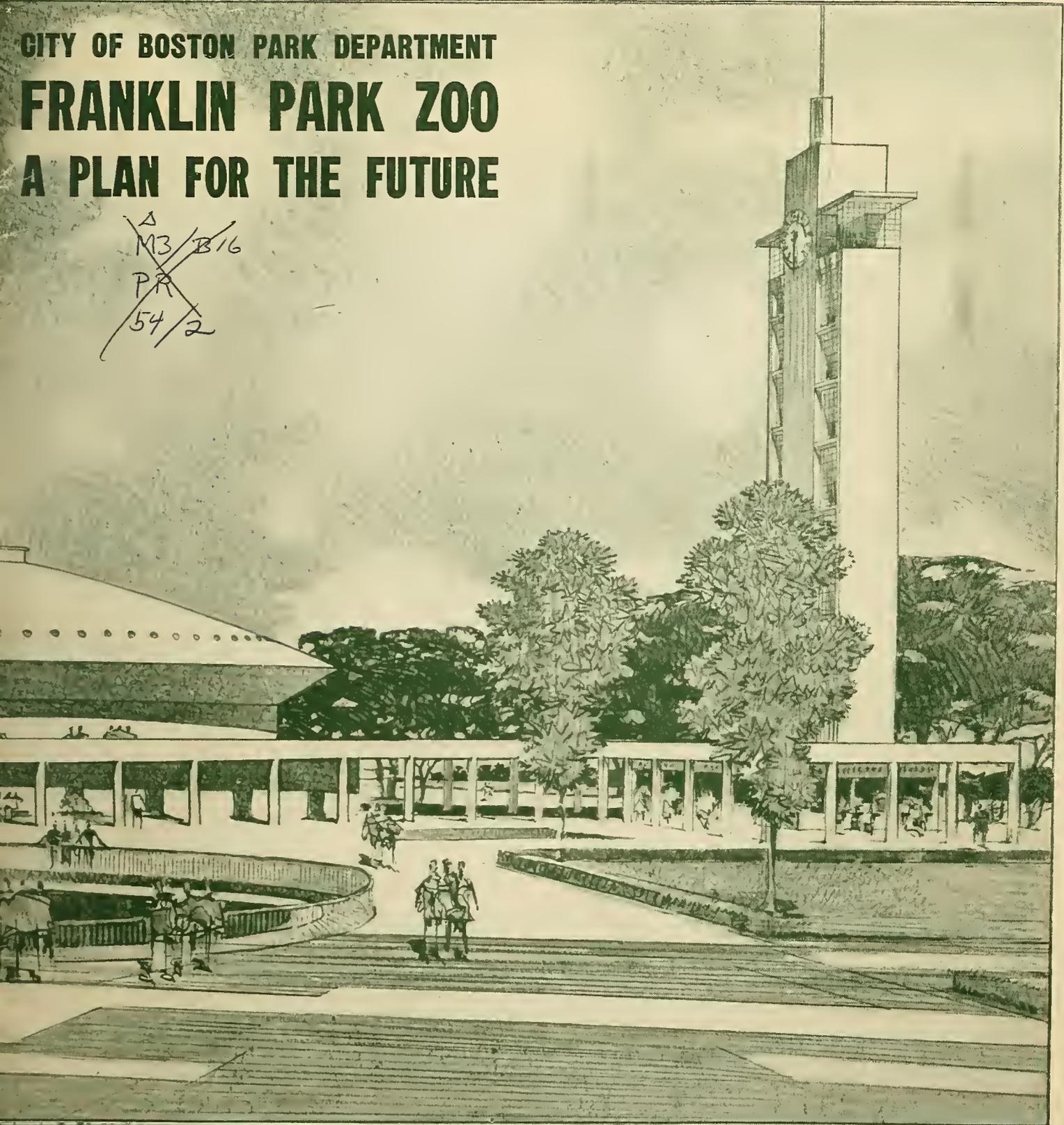


CITY OF BOSTON PARK DEPARTMENT FRANKLIN PARK ZOO A PLAN FOR THE FUTURE

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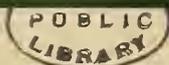
JOHN B. HYNES, Mayor

FRANK R. KELLEY, Park Commissioner

SHURCLIFF & SHURCLIFF, Landscape Architects

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CITY OF BOSTON PARK DEPARTMENT

FRANKLIN PARK ZOO

A PLAN FOR THE FUTURE

PREPARED BY

ARTHUR A. SHURCLIFF and SIDNEY N. SHURCLIFF
LANDSCAPE ARCHITECTS

APRIL, 1954

JOHN B. HYNES, Mayor



FRANK R. KELLEY, Park Commissioner

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Phone: CApitol 7-7080
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April 15, 1954

Mr. Frank R. Kelley, Chairman
Board of Park Commissioners
33 Beacon Street
Boston, Massachusetts

Dear Sir:

In pursuance of your request and in conformance with our agreement with the City, we submit herewith our Final Report on the Proposed Improvement and Expansion of the Franklin Park Zoo.

During the preparation of the Report we have closely observed activities at the Zoo over a period of many months and have worked in cooperation with the Zoo Management and with other City Officials. We have also conferred with, and wish to acknowledge assistance from, the members of the Massachusetts Zoological Society.

Further in conformance with our agreement the undersigned has visited, among others, the Zoos at New York City, Cleveland, Chicago and St. Louis and has conferred with members of the staff of each of these Zoos, who were in every instance most helpful. Especial thanks are extended to Messrs. Fairfield Osborn and John Tee-Van in New York, Mr. Fletcher Reynolds in Cleveland, Mr. George P. Vierheller in St. Louis and Mr. Robert Bean in Chicago.

Finally, we wish to acknowledge the assistance of our architectural consultants, Messrs. Shepley, Bulfinch, Richardson and Abbott through whose help the perspective pictures of the proposed Zoo have been produced.

Yours very truly,

Sidney N. Shurcliff

Sidney N. Shurcliff

SNS/MJ

Report on the Proposed Improvement and Expansion of the Franklin Park Zoo

SCOPE OF THE REPORT

This report first deals with the desirability of the present geographic location of the Zoo, and delves briefly into its history. Next are presented a survey of existing conditions and the development plan for the future. These are followed by a text which makes recommendations — first, with respect to existing buildings and structures and, second, with respect to proposed buildings, structures, and ancillary features. In each case, the cost of improvement or new construction has been estimated.

Accompanying the text are three perspective pictures depicting our conception of how the improved Zoo will look, both from the ground and from the air.

A 12-year financial program for the period ending in 1966 and a predicted schedule of operational costs over the same period are next presented.

Finally there is a discussion of possible methods which might be adopted to make the Zoo more nearly self-supporting, either with or without an admission charge, the predicted income under both alternates being stated.

Not included in this report, by agreement with the City, are considerations of possible methods of reconstituting the organization, direction, and management of the Zoo, legal steps which may be needed to effectuate some of the recommendations, or methods of raising funds for capital outlays.

LOCATION OF THE ZOO

Experience throughout the United States and in many other countries has shown that a city the size of Boston can support only one large zoo. Because of Boston's high tax rate and the lack of any endowment funds for maintaining a zoo, Boston has found it difficult enough to support even one zoo and, in fact, the present one is far from complete.

Fortunately, the location of the Zoo at Franklin Park is excellent geographically and with relation to means of public transportation; it is only four miles from the State House, three-quarters of a mile from each of the nearest rapid transit stations (Green Street and Egleston Square), and 375 yards from the nearest trolley and bus stop. Trolleys and buses pass along streets which border it on two sides. Approach by motor is also good and recently has been improved by the construction of the Forest Hills traffic interchange at the very entrance to Franklin Park.

Because the Zoo is well located, the site more than ample in size, and construction of several buildings and exhibition pens is complete, it appears absurd to discuss moving the Zoo to any other location in the city. The remainder of our report, therefore, is based on the premise that the improvement of the Zoo in its present location is the wisest course for the City to follow.



GENERAL CONSIDERATION OF THE ZOO AND ADJOINING AREAS

In his original design for Franklin Park, prepared more than seventy years ago, the late Frederick Law Olmsted set apart a portion of the Park along Seaver Street for a collection of native animals, together with a Deer Park and a Little Folks' Fair, in which were to be merry-go-rounds, donkey trains, and other amusements for children. Not until thirty years later, in 1912, was actual construction of a zoo started here, and at about the same time the Refectory was constructed, together with an adjoining stable for ponies to be used for pony rides.

The building program, started in 1912, was based on an over-all development plan prepared by Mr. Arthur A. Shureliff. This plan envisioned the eventual creation of a very large zoo with a wide variety of exhibits. The plan called for thirteen heated exhibition buildings, an administration building, several Bear Dens, a Flying Cage, thirty-nine outdoor pens with shelters, and numerous other activities. In order to provide enough ground space for all these installations, it was planned to cover eighty-one acres, which meant including Long Crouch Woods as part of the Zoo proper.

If the Zoo had been built as planned, there would have been little unused space between the exhibits, and hence no complaints would have been made about having to walk long distances between them. However, only four heated buildings and the Bear Dens, the Flying Cage, and twenty-four outdoor pens with shelters were actually built. Except near the Antelope House, these are mostly located at considerable distances from each other so that there is usually a long walk between them. In fact, the Bear Dens are actually 1,600 feet from the next nearest exhibit in use today.

The Bear Dens are the only Zoo installations now remaining in the entire 22½-acre Long Crouch Woods area, set off from the remainder of the Zoo by Pierpont Road. Because of the isolation of the Bear Dens and the need for filling up vacant spaces between exhibits in the main body of the Zoo, it has been decided to plan on future abandonment of the present Bear Dens, and their reconstruction in the main Zoo area. For this reason, Long Crouch Woods in its entirety has been eliminated by the City from the area which we have agreed to study. Nevertheless, we have not failed to consider the presence of the existing Bear Dens, which in themselves are attractive, well constructed, easy to maintain, and stocked with an interesting variety of exhibits, all in good condition.

It is our recommendation with regard to the Bear Dens that they be continued until such time in the future as more pressing needs in the remainder of the Zoo may have been taken care of. The long-range plan provides for the eventual relocation of the Bear Dens in the main body of the Zoo, but it may be as long as twenty years before this is justified.

At the time our agreement with the City was written, the area to be studied was defined in such a way as to include the present main body of the Zoo (58.4 acres) and the rolling, heavily wooded, but unused tract between Glen Lane and Circuit Drive (16.25 acres). It was then thought that the smaller tract would be developed for motor parking as a part of the long-range plan. However, as our studies have progressed it has been generally agreed that the best place for motor parking is the existing open field between Pierpont Road and the Schoolboy Stadium to the north. Not only is this much easier and cheaper to develop, but it is also much nearer to the proposed main entrance gate and to the existing Bear Dens, which will continue to remain as an attraction for some years

to come. Therefore we have placed the parking outside the area which we contracted to study and have not shown any development of the tract between Glen Lane and Circuit Drive. We believe the latter should be held in reserve; time alone will tell whether it may some day be needed for expansion of the Zoo, or of the parking area, or a combination of uses presently unforeseen.

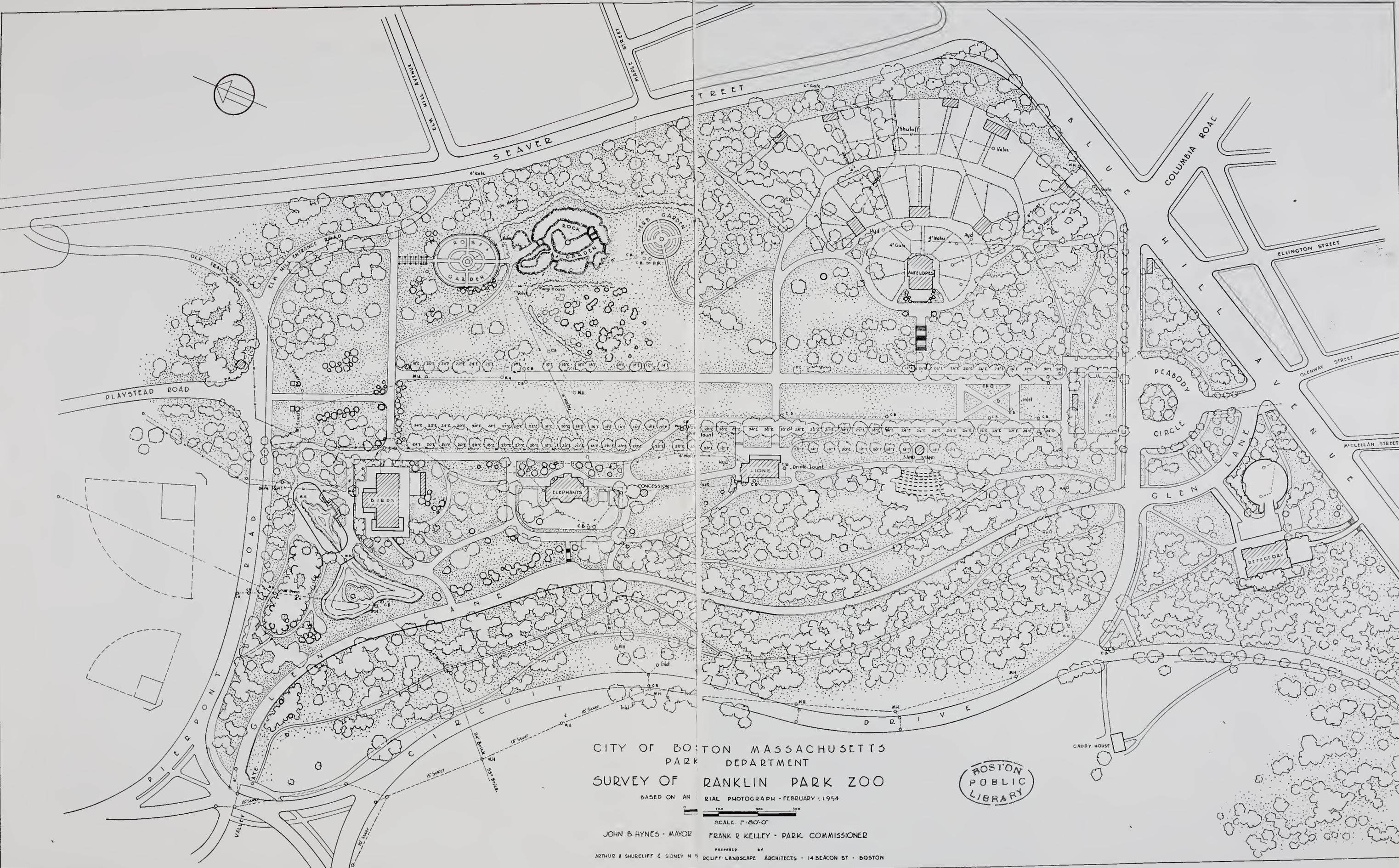
The important subject of motor parking will be dealt with more fully later in this report.





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CITY OF BOSTON MASSACHUSETTS
 PARK DEPARTMENT
 SURVEY OF RANKLIN PARK ZOO

BASED ON AN AERIAL PHOTOGRAPH - FEBRUARY, 1954

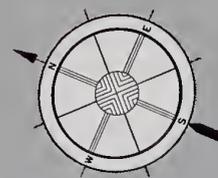


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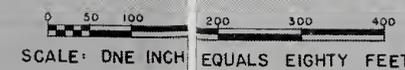
JOHN B. HYNES - MAYOR
 FRANK R. KELLEY - PARK COMMISSIONER

PREPARED BY
 ARTHUR A. SHURCLIFF & SIDNEY N. SHURCLIFF - LANDSCAPE ARCHITECTS - 14 BEACON ST. - BOSTON





CITY OF BOSTON - PARK DEPARTMENT
DEVELOPMENT PLAN FOR FRANKLIN PARK ZOO



JOHN B. HYNES - MAYOR FRANK R. KELLEY - PARK COMMISSIONER.
ARTHUR A. SHURCLIFF & SIDNEY D. SHURCLIFF LANDSCAPE ARCHITECTS
14 BEACON ST. BOSTON, MASS.

- LEGEND**
- EXISTING TREES
 - PROPOSED TREES
 - PICNIC TABLE & BENCHES
 - ⊕ DRINKING FOUNTAINS
 - ⊞ TURNSTILE



Recommendations with Respect to the Existing Buildings and Structures

BIRD HOUSE

The heated Bird House is today the focal point of all the activities of the Zoo. Its exhibits include not only birds, but also monkeys, chimpanzees, small mammals, etc. In addition to housing these exhibits, the Bird House contains the following activities:

Living quarters for the Curator.

Curator's office.

Locker room and toilet for Zoo employees.

Lounging room for Zoo employees while off duty.

Additional office space now held in reserve.

Women's public toilets.

A large basement which is used for commissary, food preparation, materials and vehicle storage, and an animal hospital.

The Bird House, which was built in 1913-14 at a cost of \$107,102, is constructed in Oriental style, in which it is unique. No doubt if a new building for this purpose were to be designed, it would be of a different style, but we believe that the oriental appearance of the Bird House is of sufficient historic interest so that it should be maintained, although at the same time most of the interior appointments should be modernized.

Desirable improvements to the Bird House would include the following:

1. Substantial repairs to, or replacement of, the roof.
2. Improve the women's public toilets for continued temporary occupancy.
3. Provide a new ventilation system.
4. Modernize present kitchen for food preparation for the Bird House and its dependents.
5. Improve the employees' quarters by painting, new plumbing, and improvements to the lighting system.
6. Place glass paneling in front of cages inside the building and otherwise improve the interior exhibit space.
7. Improve the exterior, including painting, repairs to terraces, changes in barricades, etc.

The estimated cost of the above improvements, including architects' and engineers' fees, is \$75,000.

It is emphasized that repair work alone will not accomplish all the desired results, because, until space is provided elsewhere for the monkeys, chimpanzees, and small

mammals, the Bird House cannot be devoted in its entirety to the purposes for which it is intended and to which it should be confined. The removal of these animals to new quarters involves new construction, and is taken up in later sections of this report.

FLYING CAGE

The Flying Cage, built in 1912 at a cost of \$25,467, is of generous size and in fairly good condition. In the background is a grotto or niche of masonry construction which adds interest to the setting. However, in recent years four small enclosed wooden shelters have been placed in the Flying Cage to protect certain specific categories of birds from cold weather, or while nesting. These wooden shelters are out of keeping in appearance with the remainder of the Flying Cage and have occasioned public criticism.

After the Bird House has been improved and the monkeys and small mammals removed from it, it is recommended that some of the Flying Cage exhibits which require shelters be transferred to the Bird House and that the remainder of these exhibits either be done away with or else that new shelters of stone construction, with a naturalistic appearance, be built to replace the wooden shelters. There should be no more than two of these shelters, in our opinion.

We also recommend that an effort be made to keep out of the Flying Cage a large number of domestic pigeons which have found their way into it and breed there. At the same time the floor of the Flying Cage should be kept as clean as possible, the sand being replaced or cleaned frequently and possibly some thorny shrubs planted to overcome the bareness of the stone work and to provide shelter.

In addition to replacing or recleaning and spreading sand on the floor, it is recommended that the pitch in grade from the outer edge of the cage floor to the water's edge be reduced, an improved surface drainage be provided by use of a more porous soil for the dry land section of the cage, and a series of drain lines be laid to improve the condition of the cage floor and to reduce muddying the water in the ponds. For this work we estimate a construction expense of \$3,000.

WATERFOWL POOL

The Waterfowl Pool is a constant drawing card to the public, perhaps mainly because it contains the sea lions, but also there are many other interesting exhibits. However, the dividing fences which cut across the water are unattractive and serve to catch branches, leaves, and feathers.

In our opinion the sea lions (frequently referred to by the public as seals) should be placed in a separate pool, as they are at most other zoos. Accordingly, we have indicated on our long-range plan a new location for a Sea Lion Pool and we think this should be built in the very near future. This is discussed more fully in the section dealing with new structures.

As soon as the sea lions can be removed from the Waterfowl Pool an attempt should be made to unify this water area and to diminish the number of small fences which criss-cross it. At the same time the small wooden shelters on the shores of the Waterfowl Pool should be rebuilt in a manner to make them more attractive in appearance. We estimate the cost of changing the fences and rebuilding the shelters at \$5,000.



ELEPHANT HOUSE

The Elephant House, built in 1914 at a cost of \$28,311, is regarded as presently fairly satisfactory for the exhibition of the five elephants now there, except that the heating and ventilation is inadequate, and it would be desirable to have a glass partition in front of the pens on the inside of the building.

However, the Elephant House is not large enough to exhibit additional animals such as the hippopotamus, rhinoceros, or giraffe. The rhinoceros is of great interest to the public and certainly should be added to the exhibits. The hippopotamus, because he spends so much time inanimate below water, is of less interest to the public except when he comes out of his tank. On the other hand, the display of the hippopotamus is regarded as necessary to a well-balanced zoo. Giraffes are, of course, a major attraction, but at present cannot be imported from Africa because of the hoof and mouth regulations. However, it might be possible to obtain a giraffe by other means. All three of the animals discussed above require heat in the winter.

It is recommended that a new wing be built on the Elephant House sufficiently large to house a rhinoceros and a giraffe. Later the giraffe can be moved to the proposed Giraffe House shown on our long-range plan and the hippopotamus can be installed in place of the giraffe at the Elephant House. The proposed alterations to the outside pens are shown on the long-range plan. The estimated cost of improving the heating and ventilating of the present building and putting a glass partition in front of the pens is \$15,000, and the cost of the new wing, approximately 30 feet by 50 feet by 25 feet high, is \$86,500, including architects' and engineers' fees.

LION HOUSE

The Lion House was built in 1920 at a cost of \$61,095. Although small, it is very popular, and the number of exhibits has been so increased by the birth of cubs that a considerable number of animals are kept in closets or in back rooms, where not only are they hidden from the public, but also health conditions for them are poor. In addition, it has been found difficult to breed cats in the type of cages originally constructed here. The female wishes complete privacy for a period of months on each side of the arrival of cubs and unless she is assured of this she will not mate. It is desirable to have the cats breed because the cubs are very valuable in exchange for other exhibits. Thus, for several reasons, the enlargement of the Lion House is needed.

The present Lion House was never constructed to the full size of its original design; the southerly end was left unfinished in anticipation of future expansion in that direction. In addition, it would be both fairly simple and very desirable to extend the building to the west so that a double row of interior cages would face on the present central aisle, instead of a single row as at present. This addition could be achieved without serious structural alteration of the present building, and, if the additions in both directions were carried out, the Lion House would be a most attractive and satisfactory building, although it could not compete with the very elaborate Lion House at Brookfield (Chicago), for example. Here the outdoor cages are plateaus of large size with a naturalistic background completely hiding the buildings and with a moat in the foreground too wide for the lions to jump, thus eliminating the need for iron bars. This latter type of construction, we believe, would take up too much space and would be too costly to be justified in Boston.

We have estimated the cost of expanding the Lion House to the size shown on the long-range plan at \$231,200, including architects' and engineers' fees. The above addition would triple both interior display space and exterior cage space.

ANTELOPE HOUSE AND PENS

The Antelope House was built in 1930 at a cost of \$41,000. In view of increased building costs, it would probably cost two and one-half times as much today, or about \$100,000. It is structurally sound and has had improvements to the plumbing in the interior so that it functions today fairly well for its intended purpose, except that it is too small. At the time the building was designed, allowance was made for the future construction of a wing on each side. Such wings would be desirable because of present lack of sufficient heated exhibit space and could be made in symmetrical fashion as shown on the long-range plan. At the same time the exterior pens would have to be changed to provide outdoor space to correspond to each of the interior cages.

We have estimated the cost of the additions to the buildings at \$108,000, including architects' and engineers' fees, and outdoor changes, also required, at \$34,500.

SHELTERS AND STORAGE SHEDS EAST OF THE ANTELOPE HOUSE

In this area, generally known as the Range, there are approximately twenty-four outdoor pens exclusive of those adjoining the Antelope House, served by eight wooden roofed shelters or storage buildings. Six of these buildings are entirely of wooden construction, plebian in appearance and subject to being burned by vandals. The other two are replacements of wooden buildings already destroyed by vandalism, and have concrete block walls as a fire protection measure.

One of the wooden buildings serves as management headquarters for the area and has a small, inadequate stove for heating a portion of the building and a water supply line which is subject to freezing in cold weather. This building is antiquated and in poor condition.

The outdoor pens of the Range have been criticized not only on the grounds of the appearance of the buildings but also because many of the pens are very deep and when the animals are at the backs of the pens they are too far away for satisfactory observation. When in the shelters they sometimes cannot be seen at all. Further criticisms are that it is too long a walk around the central block of pens; there should be one or more paths through it. Also, the presence of domestic animals such as cows in between exhibits of wild animals is regarded by many as incongruous and it is thought they should be segregated elsewhere.

Our short-term recommendations for the Range are:

1. Remove the domestic animals to the "Farm in the Zoo" as soon as this can be constructed, as described in the following section of this report.
2. Make only urgently needed repairs and improvements to the existing structures and pens and do not construct any more shelters of a permanent type until a complete reconstruction of the entire area can be undertaken as described later.



CONCESSION BUILDINGS

There is a concession booth in the Zoo area proper and another one across Pierpont Road outside the proposed fence line around the Zoo. Both these concessions are operated by the same concessionnaire who operates the Refectory Building to the southwest of the Zoo.

The Refectory Building is outside our study area, and hence we make no recommendations for its future. However, among the new installations which are discussed hereinafter is a proposed restaurant building inside the Zoo, complete with eating terrace and shady area for picnic tables. Should this be built, it is obvious that it will have an adverse effect on food sales in the Refectory, although the latter might still operate successfully with the patronage of the golfers from the adjoining golf course and those patrons of the Zoo who wish to obtain beer. Beer is not sold inside the Zoo.

Regardless of who manages the concessions in or near the Zoo, we feel the present concession booths are inadequate for the future demands which we anticipate the improvement and expansion of the Zoo will create. We see no objection to continuing to have one of the concessions outside the fence near the north entrance. This will permit persons who are going to the Bear Dens, or who are using the proposed motor parking area, access to a concession booth without entering the Zoo enclosure.

We recommend that the present concession booths be continued until such time as the new restaurant building is constructed. After the new building is open, if there still seems to be a demand for these concessions, they should be modernized. This presumably would be done at the expense of the concessionnaire, and hence the modernization of the concession booths is not included in our cost estimate. On the other hand, the construction of the new restaurant building and terrace is included in the cost estimate.

In the long-range development of the Zoo more small concession stands will be needed. These additional small stands would be distributed around the Zoo at strategic points such as at the entrance to the Miniature Railroad and near the Giraffe House, as shown on the long-range plan. Such concession booths are not expensive to build and can be created rapidly if the need for them becomes evident. Their cost should be paid for by the concessionnaire when and if he decides to build them. As in the Brookfield Zoo, most of these small food and drink stands are kept closed on rainy days and in the off-season, and are opened only when it is thought attendance at the Zoo will overcrowd the main food and drink sales installations. This method of operation is highly efficient, since no cost for employee services in the small booths is incurred except when the possibility of sales is good.

ROSE GARDEN, ROCK GARDEN AND HERB GARDEN

These are all existing structures within the Zoo area and should be either maintained or eliminated. At present the Rose Garden and the Herb Garden, which are walled in, are kept locked, except during certain designated periods. This is necessary in order to reduce damage by vandalism, but on the other hand discourages use of these areas by the public. Herbs have proven too difficult to grow in the Herb Garden, and the planting beds are mostly empty. The wooden gates and other wooden structures in the Herb Garden are rotting badly.

As soon as the boundary fence around the Zoo has been constructed, as recommended hereinafter, the danger of damage to the flower gardens by vandalism will be very much reduced, and it should not be necessary to lock the gates during daylight hours. The Rose Garden is much enjoyed by the public and if properly maintained will be an asset to the Zoo. Accordingly, it is recommended that it be preserved with at least the present degree of maintenance. In addition, it is recommended that a new entrance to the Rose Garden be made on its west axis so as to form a more direct connection between it and the Zoo installations proper. We estimate the cost of the new gate and connecting path at \$3,000.

In order to increase interest in the flower display in the Rose Garden we recommend that the growing of roses be confined to the four center beds and that the larger outside beds be planted with a wide variety of garden flowers calculated to produce an impressive display of color through a long season of bloom.

With regard to the Herb Garden, it is felt that the public gets very little use or enjoyment from it, not only because it is usually locked, but also because no herbs are grown in it. Accordingly, our long-range plan for the development of the Zoo shows a proposed Farm Group where the Herb Garden now is. This new installation is a necessary adjunct of the Children's Zoo and should be built concurrently with the latter. In the meantime the Herb Garden should be maintained approximately as at present, but after the fence around the Zoo has been built, the gates should be left open during daylight hours.

The Rock Garden adjoins the area to be fenced off to enclose the proposed Miniature Railroad, herein later described. The railroad track has been laid out to skirt the Rock Garden without injuring it. We feel that the presence of the Rock Garden here will make the railroad trip much more interesting, and consequently it should be maintained as at present and the artificial brook and waterfall which are a part of it should be reactivated.

PRESENT PUBLIC TOILETS

The present public toilets are difficult to find, antiquated in some respects, and inadequate in size. Our long-range recommendations involve discarding all the present public toilet facilities, but for the short term it will be desirable to improve and modernize the women's toilets, located in the Bird House, so as to make them more suitable until such time as new facilities can be constructed. The cost of this work has been included with the alterations to the Bird House. The interior of the men's toilet building already has been renovated.

NORTH ENTRANCE GATES

The statuary group on top of each post of the north gate is in need of some repair work. Until some future date when it may be decided to replace them with some motif more in harmony with the spirit of the Zoo, it is recommended that each group be repaired.

We have estimated that \$3,000 will cover the cost of repairs, and this amount is included in the estimate of construction costs for the grounds of the Zoo.

BANDSTAND

The Bandstand seems to be structurally sound, and, while it is not in any direct way related to the needs of the Zoo, there is no harm in allowing it to remain for the present. Also, the benches adjoining the Bandstand are in a shady location and serve a subsidiary function as picnic benches. In the far future, when the Giraffe House is built, the Bandstand probably should be torn down and the picnic area rebuilt in the nearby wooded area, where shown on the plan.

Definitive Recommendations for Future Development of the Zoo

From the viewpoint of the visitor, the chief defects of the Zoo at present are lack of parking space and the paucity of exhibits, with long distances to be walked between such exhibits as there are. The basic recommendations embodied in this report are intended to provide a parking space and a wider and better balanced variety of exhibits, displayed as attractively as possible, and interspersed with other features such as a Children's Zoo, a Question Box, and a Miniature Railway, which will give a festive atmosphere in place of the present countrylike but rather sombre one.

The chief new exhibits which it is believed are needed, in addition to those already recommended in connection with the improvement of the existing structures, are a Monkey and Ape House operated in connection with a Monkey Island, a Children's Zoo operated in connection with a "Farm in the Zoo," a Reptile House, a Small Mammal House, a Seal Pool, a Giraffe House, and dens for foxes, wolves, dingoes, and other small mammals which do not require heat.

Less important exhibits, but also recommended, include a Penguin Pool, an Otter Pool, a Raccoon Pit, Pheasant Runs, a Vulture Cage, Waterfowl Lagoon, and complete reconstruction of the Range near the Antelope House. Also, as previously stated, the Bear Dens eventually should be reconstructed inside the main Zoo area, at which time the bears from the Long Crouch Woods could be brought to the new dens.

From the viewpoint of management, the chief defects of the present Zoo, in addition to those brought out in the discussion of existing structures, are lack of an animal hospital, an animal nursery, an up-to-date commissary department, vehicle and material storage space, and an enclosing protective fence. All these are embodied in our long-range plan and are discussed hereinafter.



General Discussion of the New Exhibition Installations

The size of the area which it is recommended should be fenced in to form the Zoo is 58.4 acres. Of this amount The Greeting, which is 2,060 feet long and averages 140 feet wide, occupies 6.6 acres directly in the center of the Zoo, splitting it into halves. As previously observed, The Greeting was originally designed to accommodate large crowds of people in horse-drawn vehicles and on bicycles. Its scale is so large as to be discouraging to most pedestrians and its length so great that it is difficult to see from one end what is going on at the other end. The Greeting also suffers in visual effect from the fact that its profile is not level; there is a hump in the middle of sufficient height so that persons standing in the north one-third of The Greeting cannot see the ground level in the south two-thirds, and the reverse is true for persons standing at the south end.

We believe that The Greeting should be brought into scale with the pedestrian use of the Zoo, and at the same time the hump in the middle of The Greeting should be utilized to provide a site for a major exhibition building which would be equipped with a balcony from which the public can look down on all the rest of the Zoo in general and into the proposed Sea Lion Pool in particular. We realize that the proposal to place a building in the center of The Greeting will seem radical to many who have regarded this long vista as a permanent feature of the Zoo. In defense of our choice we should like to point out that, even after the major building has been built in the approximate center of The Greeting, there will still be a vista just under 1,000 feet in length in each direction from the new building to the gates. This is a greater distance than the longest vista in the Bronx Zoo, New York, where the distance from the entrance steps at the Administration Building to the Elephant House is 750 feet. In short, we feel that we are creating two architectural compositions, each of which is better than the existing one. At the same time the scale is so much improved that visitors will not feel apprehensive at the sight of long distances which they believe they will have to walk.

Mr. Arthur A. Shureliff, the senior partner of this firm, who laid out the present Zoo in 1912, has stated that for many years he has regarded the present Greeting as out of scale with a Zoo and he approves highly the thought of breaking it into two compositions with the new building near the center.

Our basic plan for arranging the new exhibition installations is dependent on the construction of the new building in The Greeting as described above. From this building we plan plazas extending to the north and south, taking full advantage of the open space and existing trees offered by The Greeting. These plazas would be surrounded in as attractive a fashion as possible, with new exhibition buildings, cages, concessions, and planting. The central panels of the plazas would be partly paved and partly turf, broken only by the Monkey Island, Sea Lion Pool, Penguin Pool, and a new Waterfowl Reflecting Lagoon.

Our arrangement of the new exhibits has also been carefully considered in relation to the probable order of their construction, and in relation to the existing utility systems. For instance, the Monkey House with its adjoining island will be one of the most popular exhibits in the Zoo, if not the most popular. The Monkey Island has been placed directly

in front of the main gate and the Monkey House not far away, so that persons who enter the Zoo will find themselves immediately rewarded by proximity to popular exhibits. At the same time, the Monkey House and Island are located near the Curator's quarters and the present Maintenance Headquarters and utilities system, so that until further expansion can be carried out they will be easy to operate in connection with the present facilities.

Similar consideration has been given to the location of the other buildings, with the thought that those having the lowest priority in time of construction will be the furthest from the main entrance gate and its adjoining motor parking space.

DESCRIPTION OF NEW STRUCTURES AND ANCILLARY FACILITIES

In the following paragraphs the new exhibit structures and maintenance buildings are described. The ancillary facilities are also discussed wherever they are relevant.

In each case the estimated construction cost of the new facility is given together with the estimated annual operating cost of this facility after the construction is finished. The construction cost estimates are based on cubic footage figures for the buildings plus allowance for special items. In each case the changing of paths around the building is included when necessary, and also a 10 per cent contingency allowance plus the architects' fee. The estimated maintenance costs include personnel, heating, light, and food for the animals.

The cost of the new animals themselves is not listed in this section of the report, but an allowance for the cost of such exhibits has been included in the 12-Year Financial Program. Allowances for the cost of animals must necessarily be very rough, because in some cases they are already at the Zoo or are obtained free by exchanging surplus exhibits with those from some other zoo. Again, some animals are gifts. When animals must be acquired by purchase it is very difficult to predict far ahead of time what the cost will be.

The new structures and facilities are listed, in general, in the order in which it is recommended they be built. Utilities and landscaping other than in the immediate vicinity of the buildings are discussed at the end of this section without consideration of time of construction. Their recommended time sequence and costs appear on the 12-Year Financial Program.

PARKING AREA

Most of the United States zoos which we have visited contain off-street parking areas to which a small admission charge is made for private cars and a larger one for chartered buses or trucks. In some cases, as in St. Louis, parking along the streets near the Zoo is free but the fenced, supervised parking area close to the Zoo entrance requires an admission fee.

At present at Franklin Park, since there is no enclosing fence or barrier, persons parking anywhere around the periphery of the Zoo can walk directly into it. If, as we recommend, the Zoo is fenced, and an admission charge made at least part of the time, there will be only two entrance gates. This will mean that persons who are not able to park close to the gates will have a long way to walk to get in.



It is our recommendation that present free parking on all streets continue to be free but that the proposed off-street parking area near the northerly gate be a paid one. The fact that free parking along most of Glen Lane will be a long way from either entrance gate will discourage some parking there and thus concentrate the demand for parking near the northerly and southerly entrance gates. The amount of free parking at the southerly entrance is not great, and this will still further increase the demand for the northerly parking area. Hence an admission charge here of 15 cents or 25 cents would not be out of line. For example, the rate at the Bronx Zoo had been 15 cents for some years and recently was raised to 35 cents.

We have already discussed our reasons for recommending the location of the parking area in the open field near the northerly gate. We visualize this parking area as being constructed in four stages, each of which would add about 300 cars to the capacity. The recommended time sequence of the four stages appears on the 12-Year Financial Program. In each case it would be necessary to remove loam, add a gravel base and 2 inches of bituminous concrete paving. Proper allowance for surface water drainage also should be made.

The first stage of the parking area construction, close to the gate, should be built at the same time the Zoo is fenced, even though no substantial increase in the number of animal exhibits is made that year. This is because parking will be concentrated at the north and south gates, rather than all around the periphery, as at present.

The long-range plan shows the parking area completed through the second stage with a total capacity of 600 cars. We have not attempted to depict on the plan the subsequent two increases which might make the parking area overflow into the ball fields to the west or into the present parking area to the north beside the Schoolboy Stadium, because these areas are not only outside of our contract study area but also outside of the area of which we have a survey.

The first stage of construction would involve building not only one half of the parking shown on the long-range plan, but also the entrance road, some enclosing fence, and a booth for the ticket seller. The cost of this stage we estimate at \$31,600, and annual operating costs at \$5,000. The costs incurred as the additions are built are listed on the 12-Year Financial Program. Eventually a pedestrian underpass under Pierpont Road might be needed, and this is discussed in detail later in this report.

FENCING

It is recommended that the Zoo be fenced in. The location of the proposed fence is indicated on the long-range plan. This fence should be built whether or not any admission charge is to be made to the Zoo, since it is needed to protect it at night. As previously pointed out, vandalism has been a very serious problem in the past, with buildings having been burned and the animals stoned or stolen.

We recommend that 100 feet of ornamental fence 10 feet high be placed on each side of each entrance gate so as to enhance the good appearance of the approaches. The remainder of the fence we presume would be made of chain link construction, 10 feet high, with arms at the top of each post projecting approximately at right angles and overhanging 18 inches on each side. Three strands of barbed wire would be placed on these arms to prevent children and vandals from climbing over the top of the fence.

The total length of the proposed fence is 5,500 feet. Gates would have to be provided not only at the pedestrian entrances but also for maintenance vehicles.

We estimate the cost of the chain link fence at \$27,000 and the ornamental iron fence at \$4,000, making a total of \$31,000.

We do not anticipate any operating cost for the fence during the first ten or twelve years of its life because it should require little or no attention.

TICKET BOOTHS AND POLICE OFFICE

If an admission charge is to be made to the Zoo at certain times, ticket booths will be necessary. One of these should be combined with Police Headquarters for the Zoo so that during dull times the ticket seller can also answer telephone calls relating to police activities and take whatever action is required.

We recommend that two ticket booths be built at the north gate, where we expect the largest number of persons to enter because of its proximity to the proposed parking area. One of these booths would be larger than the other and would contain the police office. The small one would be kept closed except during rush hours. A similar small booth would be located at the south gate.

We visualize these buildings to be of wooden construction but so designed and decorated as to add to the attractiveness of the Zoo and to be harmonious with the present entrances.

We estimate the cost of the three booths at \$13,000 and annual operating costs at \$8,400. This figure is almost entirely for salary of employees who would, we assume, be required seven days a week in each of two booths for a 6-month period. It also includes a small allowance for heating and lighting. However, insofar as the Zoo may be open without charge to the public, operating costs of the booths would be almost eliminated.

SEA LION POOL

The Sea Lion Pool is the first new exhibit structure which we recommend be constructed. At relatively low cost, it offers a feature which will be much appreciated by the public and at the same time will reduce the demand for space at the present Waterfowl Pool.

This pool, roughly kidney-shaped, and built of reinforced concrete, would be equipped with a filtration system in order to keep the water crystal clear at all times. It contains approximately 3,500 square feet of water at an average depth of 6 feet. A low reinforced concrete platform with several different levels serves the dual purpose of providing diving and sunning areas as well as an enclosed low-ceilinged shelter with one protected entrance close to water level. It is surrounded by a wide viewing path of bituminous material for the spectators, who are separated from the pool edge by a strip of planting and a low railing. Later, spectators will have a superb view of the sea lions from the upper balcony level of the Reptile House, when it is built.

We estimate the cost of the pool at \$48,000 and the operating cost at \$4,000. Not all of this operating cost is an additional expense, since some food and care of the sea lions are included in present operating costs.



CHILDREN'S ZOO

Children's Zoos have proven extremely popular in most zoos where they have been tried. Particularly notable are those at Regent's Park in London, at the Bronx in New York, and Brookfield near Chicago. These Children's Zoos all differ in character but all have a single purpose — to provide a small-scale exhibit emphasizing small animals and birds, mostly of domestic types. The background motif is frequently derived from nursery rhymes, fairy tales, or other themes believed to be especially attractive to children.

In the Regent's Park Children's Zoo special emphasis is placed on allowing the children to touch or handle the animals. Sheep, goats, barnyard fowl, and even ponies and llamas are allowed loose to mingle with the children. It is believed that this is not practical in the United States because our children are less restrained than the British in their behavior and it is probable that both animals and children would suffer from close contact. In the Bronx Zoo the children are not allowed to touch the exhibits except in one central pen which is about 12 feet in diameter and contains mostly ducks and geese. An attendant stands in this pen at all times to prevent the children from handling the exhibits too roughly. Nevertheless, the strain is so great that the exhibits have to be exchanged for fresh ones every two hours.

Some statistics regarding the Children's Zoo at the Bronx are relevant here. This Zoo occupies an area of only 11,030 square feet but nevertheless appears to be adequate in size. It is fenced in, and adults are not allowed to enter unless accompanying a child. Admission is 18 cents for individual children and 12 cents for children who come in groups of twenty or more. It is open from April to November, and the average attendance during this period is 350,000.

Despite the fairly large number of attendants required, the Bronx Children's Zoo runs at a substantial profit. When in full operation it is staffed by a full-time director, four to six girl attendants, four men attendants, and a night watchman. Some of the exhibits are: Noah's Ark, Pigeon House, Angora Goats, Peter Rabbit and Farmer MacGregor, Guinea Pig and Piglets, Hen and Chickens, Crow, Angora Rabbit, Young Doe, Goats, Ducks and Geese, Japanese Fowl, Squirrel Cage, Sheep and Lambs, Guinea Pigs, Hamsters, Mouseville, Skunk, Tortoise, Hare, and a Wishing Seat.

The new Children's Zoo at Brookfield, Chicago, was opened August 20, 1953, and closed for the season on September 27. During this short period 78,926 children and 74,172 adults paid admission, with total receipts for 37 days of \$19,712.58.

It is believed that a Children's Zoo in Franklin Park, if well designed and given proper publicity, would be successful financially, provided a legal way is found to make an admission charge.

We have set aside an area of approximately 28,600 square feet for the Children's Zoo. It is situated on a slight knoll near the center of the Zoo itself and, since this size is more than twice as big as the Children's Zoo at the Bronx, it is obvious that it is sufficient for the purpose. When actual working drawings for it are prepared it is very likely that the designer will not need to use the entire area set aside. This Zoo would have to be enclosed by a fence, and presumably most of the fence would be opaque to prevent the children outside from seeing what goes on inside and also to form a background for the exhibits. However, a few panels in the fence might be of wire or iron pickets so as to provide a few tantalizing glimpses into the activity inside.

We visualize the Children's Zoo exhibits to be arranged in an irregular oval backing against the enclosing fence and with a few additional exhibit cages in the middle of a central paved area. Some of the existing trees should be retained. This design is similar to the Bronx Children's Zoo, and not as elaborate as the Children's Zoo in Brookfield.

The proposed entrance to the Children's Zoo is located between the Reptile House and the Restaurant Building, which we regard as the best location we can find for it. An exit could be located at the back of the Children's Zoo so that by walking through a turnstile the children could proceed directly to the Miniature Railroad or to the Farm in the Zoo. The Farm in the Zoo, of necessity, must be near the Children's Zoo, to permit easy transfer of exhibits from the Farm Building if bad weather or the need for replacing tired animals with fresh ones so require.

We estimate the cost of the Children's Zoo, including the fences and approaches, at \$37,500. This does not include the cost of the exhibits themselves but does include the entire physical plant. The estimated annual operating expense of \$21,700 should be more than offset by admission charges, as described in the final section of this report.

FARM BUILDING GROUP

This group of wooden buildings and outside pens and corrals is similar to the "Farm in the Zoo" at the Bronx Zoo and there is another one in Brookfield operated in connection with the Children's Zoo there.

The Farm in the Zoo is intended to serve several functions; it will display domestic animals (rarely seen by many city children) in a typical farm setting. It will also serve as living quarters for the animals exhibited in the Children's Zoo close by. Finally, it will relieve the pressure on the present Range by removing from that area the domestic animals now exhibited there.

The buildings will provide 4,300 square feet of heated enclosed space for the animals, and the spectators can easily look in from the outside so that it is not anticipated that they will be allowed in the buildings. The upper story of each building could be used for storage. The outside pens provide 29,500 square feet of exhibition space. Designed to be in a playful mood, these structures and their pens surround an open court area. To make the Farm seem typical, a silo and a windmill have been added. We recommend construction be divided into three stages in three successive years.

We estimate the cost of construction of this group at \$96,000 and the annual operating cost at \$10,000.

MINIATURE RAILROAD

Miniature Railroads have been used with great success at a number of Zoos, and it is believed that one in Franklin Park could easily operate at a profit. The Miniature Railroad at the Cleveland Zoo makes a substantial profit, and this is also true of the Miniature Railroad at Benson's Wild Animal Farm at Nashua, New Hampshire. There are no Miniature Railroads at the Brookfield or Bronx Zoos, but the latter has several trackless tractor trains which are financially successful.

It is intended that this feature be convenient to the Children's Zoo, that it be large enough to accommodate at least two adults seated side by side in each seat on the train, that it provide a ride sufficiently long enough to be interesting, yet short enough



to permit a practical financial return. It would be built complete with a protective fence, station, rolling stock, and typical associated equipment such as a tunnel and a bridge all properly scaled to approximately one-third full size, with 24-inch gauge track for maximum safety. At that rate the 1,600 feet of loop and cross-over track would represent the equivalent of 4,800 feet of prototype track.

As previously described, a scenic feature of this railroad would be the Rock Garden, to which it would closely pass.

We estimate the cost of constructing the Miniature Railroad and fence and providing the rolling stock at \$46,000 and the annual operating cost at \$15,500.

PENGUIN POOL

Some types of penguins such as the emperor penguin require a continuously even frigid temperature, so that they must be refrigerated in warm weather. At the Bronx Zoo one of the latest installations is a small Penguin House with elaborate equipment to regulate the temperature and filter the water.

We do not believe that Boston can afford the expense of a separate Penguin House and we therefore recommend displaying only the small Galapagos types of penguins which do not require much special care.

The proposed Penguin Pool is provided with a curved ramp which is cantilevered out over the water area and has small steps on it. The penguins starting from the shore and mounting slowly up the steps on a ramp would soon find themselves over the water and could dive into it from whatever height they chose. This should take full advantage of the amusing method of locomotion the penguins employ on land. Also it will be possible to observe them underwater as they swim in the pool.

Somewhere in the background of the Penguin Pool would be a shelter for the protection of the birds in bad weather.

We estimate the cost of the pool with 1,500 square feet of water area, the concrete ramp, and a low railing for enclosure at \$20,000 and the annual operating cost at \$2,750.

RACCOON PIT

In years past a Raccoon Pit was constructed in Long Crouch Woods. This pit was surrounded by iron pickets, and contained a dead tree with a rustic house near its top for the coons' protection and shelter. This was an attractive exhibit, but unfortunately vandals repeatedly entered the area at night and stoned the animals to death. They also broke up a portion of the physical structure of the exhibit.

Now that it is proposed to fence in the Zoo and guard it at night, it is probable that vandalism can be substantially reduced or stopped entirely. Therefore it will again be advisable to build a Raccoon Pit.

The proposed location is appropriately close to the Small Mammal House. The proposed pit is ovoid in shape, approximately 34 feet long by 25 feet wide. The floor of this pit would be 3 feet below the spectators' level and separated from them by a low railing and planting. An artificial stream and a shallow pool would be provided, plus a large dead tree similar to the previous one, with a shelter built into it.

We estimate the construction cost at \$12,500 and the annual operating cost at \$2,000.

PUBLIC TOILETS

As previously pointed out, the present facilities are inadequate, and the men's toilet is hard to find.

We recommend that, as soon as possible, two new toilet buildings should be constructed at each side of the northerly gate. Later a single additional toilet building of smaller capacity should be built near the southerly gate, and when the Restaurant Building is constructed it, too, should have toilets, in the end nearest the Children's Zoo.

The women's toilet building at the north gate should be made large enough to house a matron's room and a first-aid room where sick persons may be attended until they can be removed, or until recovery. Therefore, this building would require approximately 580 square feet of floor space which would include ten toilet compartments and four or five washstands. There should also be a washstand in the first-aid station. We estimate the cost of this building, including the first-aid station, at \$41,250.

The men's toilet building at the north gate would be approximately 17 feet by 24 feet in size, and the cost is estimated at \$33,750.

The men's and women's toilet buildings at the north gate are symmetrically placed with relation to the gate, and it is intended they should be sufficiently well designed, architecturally, to enhance the appearance of the entrance.

The toilet building to be built later near the south gate would have one division for men and one for women, and we estimate its cost at \$70,000.

Operating costs and possible income from coin-operated stalls are discussed in the final section of this report.

THE RESTAURANT

We visualize the Restaurant as being similar to the Lake Terrace Restaurant at the Bronx Zoo. Ice cream, cold drinks, hot dogs, and hamburgers are sold at a counter under a roof. Outside, partly on a terrace and partly on grass, under the existing trees, are placed a large number of picnic tables, benches, and waste containers. Drinking fountains are also provided. Although many people bring their own sandwiches, it has been found in the Bronx Zoo, and also in the St. Louis Zoo, that many will supplement what they have brought by buying ice cream and cold drinks in such quantities that the Restaurant makes a substantial profit despite competition with the picnic baskets.

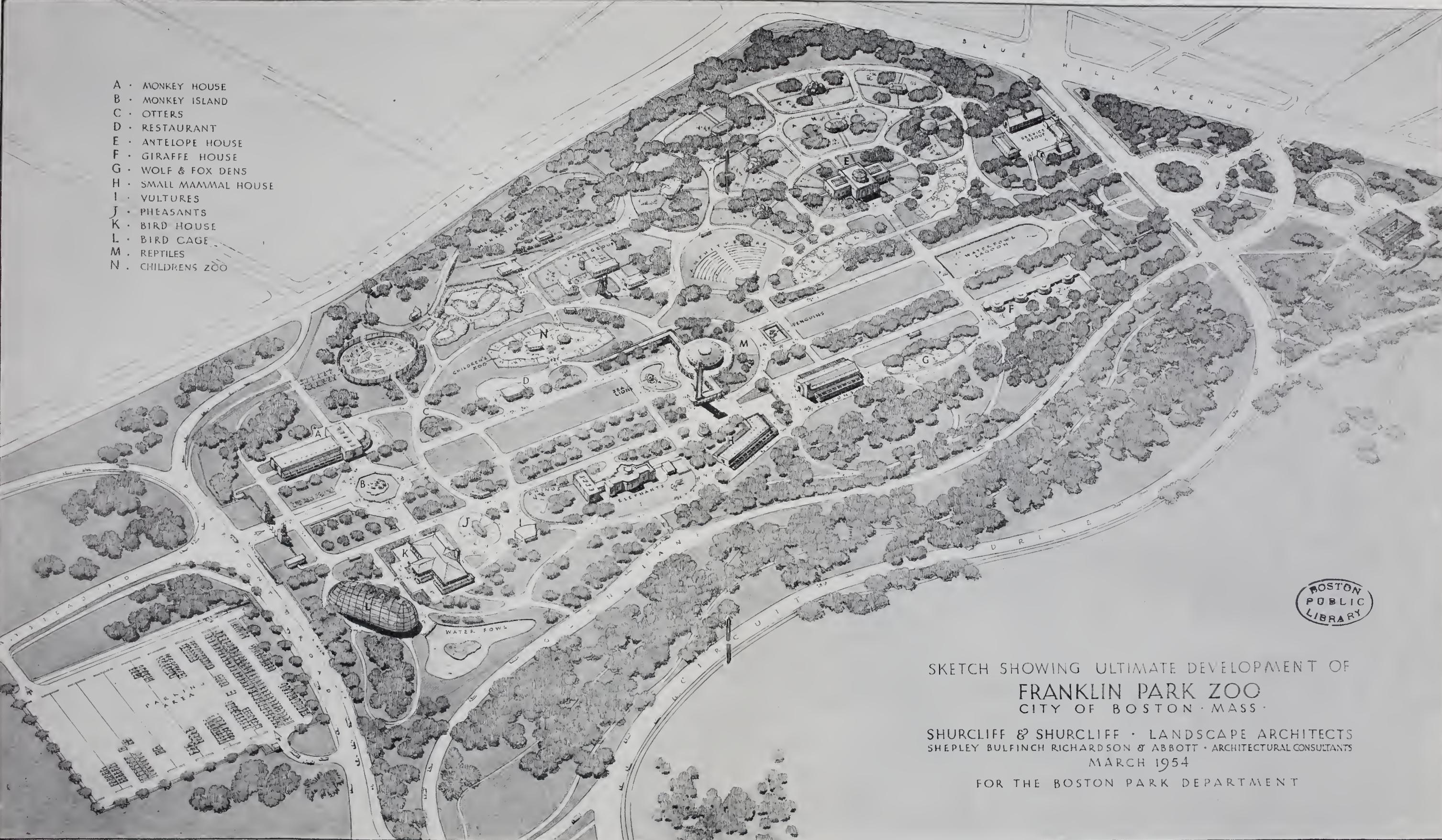
The Restaurant structure itself would be a one-story building 32 feet by 50 feet serving over counters. Adequate space for the storage of food and drinks will be provided and also a small public toilet which would be open only when the concessionaire chooses to open the main building.

We estimate the cost of the building, the picnic terrace, and tables and benches at \$76,600. Since this building would be operated as a concession, not only should there be no operating cost, but, rather, an income should be expected.

In addition to the picnic tables in the vicinity of the Restaurant, we are also proposing a picnic grove in the wooded area west of the present Bandstand, as will be more fully discussed later.



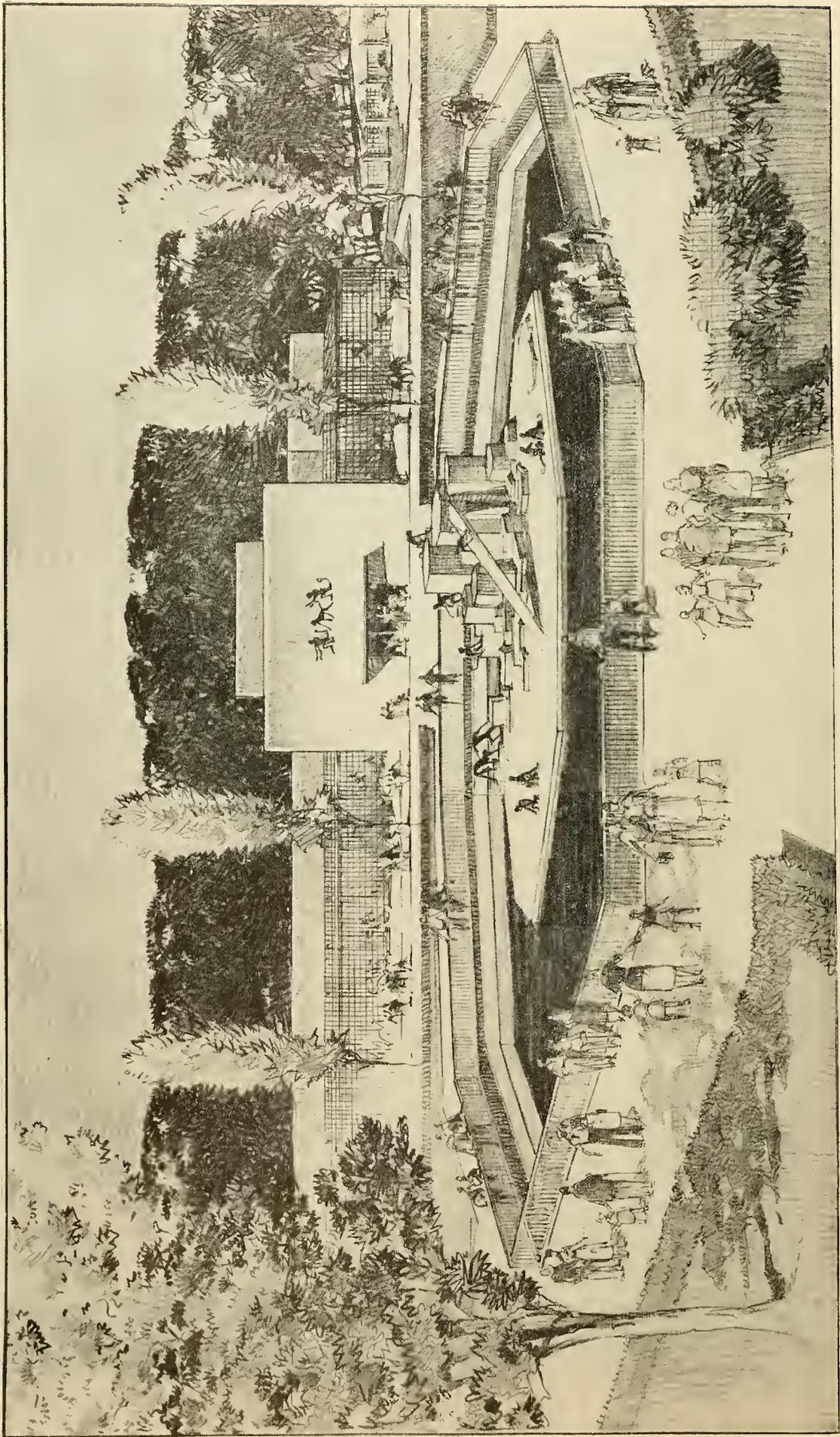
- A · MONKEY HOUSE
- B · MONKEY ISLAND
- C · OTTERS
- D · RESTAURANT
- E · ANTELOPE HOUSE
- F · GIRAFFE HOUSE
- G · WOLF & FOX DENS
- H · SMALL MAMMAL HOUSE
- I · VULTURES
- J · PHEASANTS
- K · BIRD HOUSE
- L · BIRD CAGE
- M · REPTILES
- N · CHILDRENS ZOO



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 MARCH 1954

FOR THE BOSTON PARK DEPARTMENT



PROPOSED MONKEY HOUSE AND MONKEY ISLAND

MONKEY HOUSE AND MONKEY ISLAND

The proposed Monkey House and Monkey Island would be, in our opinion, one of the most outstanding and popular exhibits in the Zoo. Experience has shown in other cities and countries that in warm weather a Monkey Island is the delight of all who see it, and throughout the year everyone is interested in watching the antics of chimpanzees, apes, and monkeys which, in winter, must be displayed in a heated building.

The proposed Money House is composed of a central exhibition hall with a long wing on the north side for the monkeys and a shorter semicircular wing on the south side for the great apes. The two wings would be separated by a hermetical seal to prevent transmission of respiratory diseases from one wing to the other. The proposed first floor area is 10,250 square feet, and it is thought the entire structure should be of masonry construction, one story high, but with varying roof levels to add architectural interest.

The monkey wing will provide approximately 36 interior cages each 6 feet by 8 feet arranged on each side of a 15-foot-wide spectator passage and separated from the public by a keeper's walk. Corresponding outdoor cages approximately 8 feet by 10 feet in size would be provided for use during the summer months. The great apes' wing is visualized as containing six interior cages each of approximately 120 square feet, and an equal number of outdoor cages of approximately 240 square feet.

The central exhibition hall, separating the two wings, would contain an indoor exhibition cage for the monkeys from the Monkey Island during cold weather and could contain temporary exhibits during warm weather. The tunnel to the Monkey Island would run from the bottom of this cage under the floor and under the plaza to the Monkey Island. A similar tunnel is used at the Cleveland Monkey Island, and also in the St. Louis Zoo, to bring the chimpanzees from their cages to the stage where they perform. The tunnels are big enough for the keepers to walk through also, although full height for a man to stand erect is not necessary.

The Monkey Island would consist of an octagonal reinforced concrete pool 90 feet in diameter containing water to a sufficient depth and width to discourage the monkeys from escaping, with an artificial island of interesting shape in the center. The island would be especially designed to exhibit the climbing abilities of the monkeys to best advantage and presumably also would be equipped with wheels, swings, and other devices for the amusement of the monkeys and onlookers.

Inside the Monkey Island would be one or more ventilated chambers of sufficient size to house the monkeys during the time when the moat and the island itself are cleaned, which occurs usually once a week. At this time the monkeys are herded into the chamber so that the cleaning operation can be carried on easily.

The moat around the Monkey Island would be bordered on the outside by a wall 5 feet or 6 feet in height surmounted by a railing to keep the monkeys from escaping and to keep the spectators from falling into the moat.

It is planned that the Monkey Island should be situated in an attractive courtyard with paths, walls, steps, and planted areas as shown on the long-range plan and perspective pictures. The cost of the courtyard, which should be built at the same time as the Monkey Island, is included in the cost of constructing the Island.

We estimate the cost of the Monkey House at \$495,000, and the cost of the Monkey Island, with its 130-foot long connecting tunnel and the courtyard at \$95,600. Estimated operating costs are \$32,100 for the Monkey House and \$8,200 for the Island.



OTTER POOL

The Otter Pool has been made a feature in several zoos and in fact the newest construction at the Cleveland Zoo is a combination Otter Pool and Muskrat Pool. We do not recommend the exhibition of muskrats, because they stay in their dark huts nearly all day long, with the result that most of the time nobody can see them. On the other hand, the otters spend much of their time swimming about in the pool, and their playful antics are appreciated by everyone.

The proposed Otter Pool is a semicircle with an approximate diameter of 45 feet and an average water depth of 4 feet. Inside the enclosure is a small cave where the otters can sleep or breed and some beach or island which they can use when they choose to sun themselves.

The estimated cost of the Otter Pool is \$20,000, and the annual operating cost is estimated at \$2,750.

SERVICE GROUP

The proposed Service Group is particularly needed since, at present, most service activities take place in the basement of the Bird House. Its functions are to provide an animal hospital, an animal nursery, a commissary and storage space for vehicles and incidental equipment. It should be mentioned here that maintenance of the grounds is carried out by maintenance personnel for Franklin Park as a whole, operating from a separate headquarters outside the Zoo area.

The Service Group has been located at the extreme southerly end of the Zoo with the intention of separating the Zoo from the car tracks, stores, and buildings which are now all too apparent from the southerly end of the Range. The Service Group will form a visual barrier which will make the Zoo more attractive. At the same time it is located on land which is not now being used for any fruitful purpose.

The Service Group is visualized as consisting of four masonry buildings, each one one story high, surrounding a paved courtyard. One of these buildings is labeled Future Building on the long-range plan and would not be built until some time after the construction program is essentially completed. We have not included its construction nor its operating costs in this report.

We have incorporated the Hospital and the Nursery into one building because their functions are so similar. They would be separated by a masonry partition in order to prevent spread of disease from the hospital to the nursery.

That part of the building used as a hospital will provide an operating room, a two-box stall shed for the larger animals, a cage room for the smaller animals, a room for the attendant's use, and outdoor cage areas.

The Nursery Section of the building will provide much-needed space for handling young animals and birds until strong enough to join the other exhibits elsewhere in the Zoo, or to be traded for new exhibits.

The Commissary, 2,000 square feet in area, will contain food storage, refrigeration, and preparation areas and will provide a convenient point for dispersal and inspection of food supplies delivered to the Zoo.

The Storage Building, 3,000 square feet in area, will provide storage space for vehicles used exclusively within the Zoo area and for the storage of such items as paint, tools, carpentry and plumbing supplies, all used in the normal maintenance work of the Zoo.

We estimate the cost of the Service Group at \$196,000 and the annual operating cost at \$16,800.

BENCHES AND PICNIC TABLES

As attendance at the Zoo increases because of increased attractions, there will be need for more benches on which the public can rest. Such benches would be in addition to those provided in the picnic grove next to the Restaurant, as described under that heading. We estimate that one hundred more benches will be needed, placed at strategic points around the Zoo. At \$60 apiece these would cost \$6,000.

As previously stated in the discussion about the Bandstand and again in the discussion of the Restaurant, we propose the construction of a new Picnic Grove northwest of the present Bandstand location. This need not be constructed until such time as the Bandstand and the benches near it are taken down. At that time we estimate that \$4,000 should be spent in providing new picnic tables and benches in the Picnic Grove.

For the above reasons, the 12-Year Financial Program contains an item of \$10,000 for benches and picnic tables. There would be no operating cost for the benches and tables while they are new, and the picking up of papers and refuse would be carried out by the Franklin Park maintenance force as at present, without any special charge against the Zoo. Therefore, no allowance is made for operating costs for benches and picnic tables.

SMALL MAMMAL HOUSE

The Small Mammal House is a heated building intended to care for all types of small mammals except those such as foxes and wolves which do not require heat. Many of these small mammals such as the sloth, the anteater, the panda, and marsupials are of great interest to persons of all ages.

This building of approximately 6,000 square feet floor area will provide forty heated cages each 6 feet by 8 feet ranged on each side of the spectators' corridor. Outdoor cages each 8 feet by 10 feet will be connected by short ramps to the inner ones. A keepers' service corridor will provide access to each cage from the rear.

The proposed location for the building is a central one very close to the elephants, the lions, and the proposed Reptile House.

The estimated cost of this building is \$282,800, and annual operating costs are estimated at \$23,500.

PHEASANT RUNS

The present runs should be replaced with a better looking and larger structure. The new construction would be in approximately the same location as the present one.

The new runs would provide 6,100 square feet of pen area around a central unheated shelter needed for nesting and protection. The shelter would be large enough for the birds only, and any management space required for the pheasants is available nearby in the present Bird House.

We estimate the construction cost at \$12,500 and the annual operating cost at \$1,300.



MYNAH BIRD CAGE

At present the mynah birds are exhibited in the Bird House, which is as it should be on a year-round basis, because the mynah birds require heat in the winter. It is our thought, however, that some of these birds should be put in a small outdoor cage during the summer so that everyone will have a chance to hear their strident calls, and in some cases, their imitations of the human voice.

The mynah birds' cage might be equally well used for some other birds of special interest such as parrots, cockatoos, or whatever the Curator wishes to place there.

The proposed structure is a light metal cage resting on a concrete foundation, with the cage floor somewhat above the general grade, and numerous perches within.

We estimate the cost of the structure at \$5,000 and the annual operating cost at \$500.

REPTILE HOUSE

The Reptile House, unlike most zoo structures, does not require any outdoor cages. Hence it is possible to place the keeper's walk around the back of the cages between them and the outside wall. This is one of the reasons we have chosen a circular form for the shape of this building. We visualize it as having a ring of forty-eight exhibits, forming a complete circle except where the entrances interfere. These could be lighted from above, and the "Jewel Box" type of displays could be featured. In the center we propose a large pit for alligators, crocodiles, and possibly some turtles or tortoises.

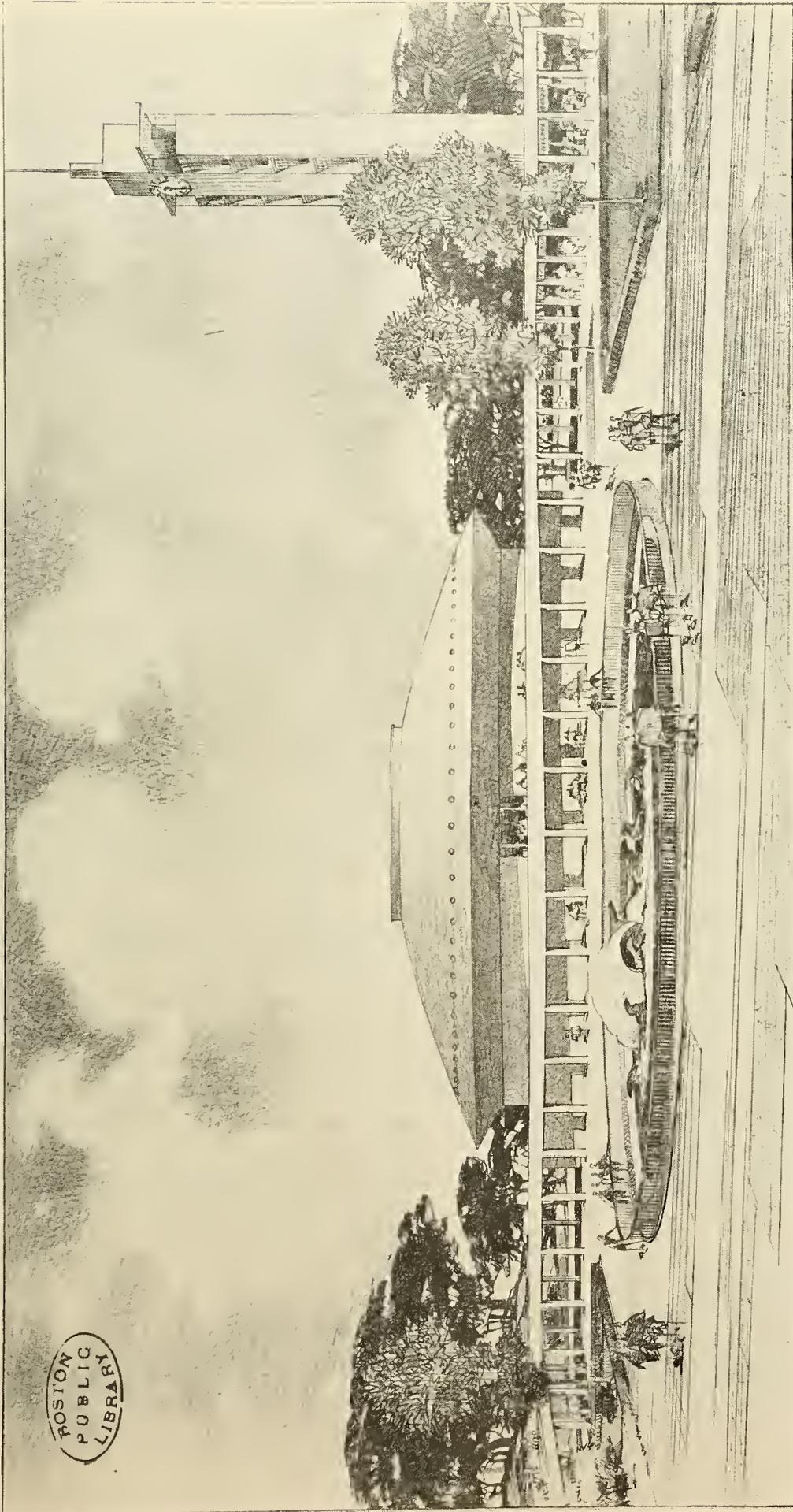
The structure is planned to be 90 feet in diameter, two stories in height on the north and only one story high on the south. It would be topped by a low, rounded roof and encircled by a 26-foot wide terrace and balcony at the upper level. This terrace would be one of the chief features of the Franklin Park Zoo. From it one could look down the main vistas in either direction and also directly down into the Sea Lion Pool, close below. Descent from the terrace on the two-story side would be via a long ramp running in the direction of the Restaurant and the Children's Zoo, and from the other side via some wide ornamental steps. On the west side of the Reptile House would be placed the Question Box and Observation Tower next described. The Question Box and Tower, when completed, will form a portion of the architectural composition which it is desired to establish in relation to the Reptile House.

We estimate the cost of the Reptile House at \$400,000, which includes the terrace, balconies, and ramp. The annual operating cost is estimated at \$35,270. The basement of the Reptile House might well be used for storage and for quarantine of new exhibits.

QUESTION BOX AND TOWER

The name is taken from the Question Box recently erected in the Bronx Zoo. The Question Box is a small room with a counter, behind which sits an attendant who is familiar with all the exhibits and also has reference books available. Her function is to answer all questions relating to the animals in the Zoo, and children in groups or singly are encouraged to come in for information. Sometimes the questions or their answers are sufficiently interesting so that they are printed in the newspapers as part of a public relations program.

We visualize the Question Box at Franklin Park as fulfilling three separate functions. The first is the answering of questions; second, there could be a small concession



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PROPOSED REPTILE HOUSE, SEAL POOL AND OBSERVATION TOWER

stand backing on the Question Box proper; and third, for architectural effect we propose a high tower located on top. This tower could be utilized as a watch tower, a clock tower, a weather indicator, or a combination of some or all these uses.

We estimate the cost of the Question Box, including the concession and the tower, at \$80,000 and the annual operating cost at \$7,500. This includes the salary of the Question Box staff, light, and heat, but nothing for the concessionaire's expenses.

GIRAFFE HOUSE

In addition to exhibiting giraffes, it is thought that the Giraffe House would also be used to exhibit kangaroos, ostriches, and possibly one other type of animal needing a heated cage.

The proposed structure consists of four circular concrete and glass cages each 30 feet in diameter with high ceilings. These heated cylinders would project above a large reinforced canopy which would encase all of them, to shade the spectators and to unify the structure visually. Each of the heated cages would be provided with an outdoor pen to the west. This design concept is in some ways similar to the Elephant House at the Whipsnade Zoo near London, England, but we believe that it would be superior to the English prototype.

A space for storage of supplies, food, and for management usage also would be provided in this structure.

We estimate its cost at \$165,000 and its annual operating expense at \$14,440.

VULTURE HOUSE

The proposed Vulture House is located about 150 feet from the Bird House midway between it and the proposed new wing of the Elephant House. Its construction would finish a well-balanced exhibition of birds, all in the same general area. The exhibits in this building, in addition to vultures, would be buzzards, hawks, and possibly eagles. The building would have to be heated, because most of the birds in these categories require heat in the winter, but, in addition, outside cages would be provided for summer use. The heat could be brought underground either from the Bird House or the Elephant House in order to avoid installation of a separate heating unit, and management operations would be conducted from the Bird House so that no storage space would be required.

We visualize a simple fan-shaped structure of glass and masonry with wire cages. A cage area of 500 square feet would be available inside the building and 1,200 square feet outside. The public would enter at one door near the base of the fan and pass directly through to an exit door.

The estimated construction cost is \$40,000, and the annual operating cost \$3,100.

FOX AND WOLF DENS

Although of secondary importance as compared to monkeys, lions, or elephants, the Zoo surely will not be complete without dens for such mammals as foxes, wolves, and dingoes, which require caves or shelters in their pens, but no heat. Provision for such an installation has been made between the Lion and Giraffe Houses where the grade rises fairly steeply upward away from The Greeting, so that the backs of the pens would be

higher than at the front, which is desirable. We feel that a naturalistic setting is desirable here and have provided space for eight cages of varying size, totaling 9,000 square feet in area.

This is one of the exhibition structures in which it would be possible to use a moat along the front to keep the animals from escaping but at the same time allowing the spectators to view them without looking through bars or a cage. However, we are not convinced that the cost of the moat would be justified, so at this time we are estimating the cost without including any such feature.

The estimated construction cost is \$70,000, and the annual operating cost \$5,500.

WATERFOWL LAGOON

After the sea lions have been removed from it, the present Waterfowl Pond adjoining the Flying Cage will be adequate for a number of years. However, we feel that eventually additional water area for waterfowl will be needed. Accordingly, we are proposing a large reflecting-type pool covering 21,200 square feet which we have designated "Waterfowl Lagoon" on the long-range plan. This is located in The Greeting near its south end, and, in addition to displaying the proposed waterfowl to best advantage, there would be reflections in the water of the Giraffe House to the west, the Reptile House to the north, and the monumental south gate.

This lagoon might be provided with an island for nesting purposes and also a beach at one end. The island might be reached by the keepers across a narrow pedestrian bridge with a gate at the outer end to keep the public from using it. As at Brookfield, we visualize only the larger type of waterfowl such as swans or geese to be present. These would have clipped wings, so that only a low enclosing wall with a railing fence would be needed to contain them.

The estimated cost of constructing the Waterfowl Lagoon is \$62,000, and the estimated annual operating cost \$2,750.

PEDESTRIAN UNDERPASS TO PARKING AREA

At present there is not sufficient traffic on Pierpont Road, which separates the proposed parking area from the northerly gate, to necessitate a pedestrian underpass from the parking area to the gate, but, as the Zoo increases in popularity, it is believed an underpass will become desirable.

Such an underpass has already been built at the Brookfield Zoo in Chicago. It is made of reinforced concrete, has headroom of 8 feet and width of about 10 feet, and is approached by ramps on each end. We have shown a similar underpass on the long-range plan located where the present grade is most suited to such an installation. It is convenient to the northerly entrance gate and because of present advantages of grade would not require long approach ramps.

We estimate the cost of this underpass at \$60,000 and the annual operating cost at \$100.

IMPROVEMENTS TO RANGE

As previously noted, critics of the Range have commented that the pens are too deep, methods of circulation for the public too devious, and the shelters unattractive



and obsolete. Despite these criticisms the Range does today exhibit to fairly good advantage a wide variety of horned and hooped exhibits which are of considerable interest to the public. We have already recommended under the section dealing with treatment of existing structures some minor changes to be made in the Range in the near future. Anything beyond these minor changes requires, in our opinion, an extensive relocation of paths and the rebuilding of most of the animal shelters and nearly all the fences. This means incurring a very considerable expense, and hence we feel that this expense should be postponed till near the very end of the operations to improve the Zoo. This is clearly indicated in the 12-Year Financial Program.

The new scheme is characterized by the creation of eight new animal shelters, each located in a roughly oval enclosed area, which in turn is divided into at least four pens plus a keeper's walk to the shelter. The general arrangement is shown on the long-range plan.

The proposed animal shelters would also contain food storage, but not any other management functions, since these could be accommodated in the proposed Service Yard close by.

It is planned that the animal shelters should be carefully designed to be as attractive and as gay as possible and at the same time to be fireproof and sanitary.

The estimated cost of the improvements to the Range, including structures, fencing, grading, new paths, utilities, and architects' and engineers' fees is \$167,220. The estimated operating cost is the same or less than at present, and therefore no provision for extra operating costs is made in the Financial Program.

BEAR DENS

Because the existing Bear Dens are satisfactory except for their location, the construction of new dens is recommended as the last of the changes needed to finish a complete and well balanced Zoo. On the proposed long-range plan we have placed the new Bear Dens in the steeply sloping bank on each side of the entrance to the Antelope House and have reserved a total area of 23,500 square feet for this purpose. The dens would be at the level of the lower walk but they could also be seen from the upper walk at their rear. The upper walk could be sufficiently elevated so that the caves themselves would be under the walk; a high netting would be required, so that spectators looking down on the bears from above would not be tempted to bombard them.

These new dens are visualized as being in appearance very much like the old dens but smaller and less deep so as to permit the public to be closer to the bears. As at the old Bear Dens, a pool would be provided for the polar bears and at least one additional pool for other varieties.

Much of the terrain in this vicinity is natural pudding-stone ledge, and full advantage could be taken of this to build the dens and caves into the living rock by drilling and blasting.

We estimate the cost of construction at approximately \$150,000, and the annual operating expense should be less than at present. Hence we have made no provision for additional operating expense for the new Bear Dens in the 12-Year Financial Program.

AMPHITHEATER

Some zoos make a feature of trained animal acts, while others are opposed to this activity. For example, the Cleveland Zoo has an outdoor theater in which animal acts are presented by a concessionaire. At Benson's Wild Animal Farm, Nashua, New Hampshire, trained animal acts are featured in order to bring more persons to the Farm, and the cost is covered by the general admission charge. In St. Louis, where there is no admission charge, animal acts are one of the chief features of the Zoo, and the sale of booklets, refreshments, post cards, and souvenirs more than pays for the cost of putting on the acts.

On the other hand, the managements of the Bronx Zoo and many others feel that it is contrary to the purpose for which a zoo is intended to display animals executing tricks which would be unnatural to them in the wild. It is claimed that this type of performance should be relegated to the circus or other place of entertainment rather than to a place chiefly devoted to education and instruction.

We do not intend to take sides in the animal-act controversy, but we do wish to point out that in order to present really effective animal acts a large investment in trainer's time and physical plant is required. At St. Louis, for example, three separate outdoor theaters are operated every summer day, one for elephants, one for lions and tigers, and one for the chimpanzees. The keepers for all the different trained animals must be kept on the payroll throughout the winter and must intensively devote themselves during the dull season to preparing new acts for the coming summer. Also, the cost of the animals themselves is high because those with the highest intelligence are needed. In the case of the chimpanzees, when they get older the temperament usually becomes surly, and they can no longer be used, so the cost of training an animal must be written off in a very few years.

It is our feeling that Boston cannot at present financially undertake to prepare and maintain high quality animal acts. Furthermore, in view of the other expenses anticipated at the Zoo, it would seem that it will be quite a number of years before such an endeavor could be launched. With this in mind, we have shown on the long-range plan a site of adequate size for one large Amphitheater. This is centrally located, and the ground slopes toward the proposed stage at about the right angle for proper seating. This assures that if animal acts are ever felt desirable, there will be a place to have them performed. Furthermore, the functions of the present bandstand could well be carried on at the Amphitheater.

Should animal acts ever become as popular as they are at St. Louis, there is also space west of the Lion House for a large Amphitheater there, and, in similar manner, there is as much room for spectators near the Elephant Pens as there now is at St. Louis.

Thus we have provided space for all conceivable animal act requirements, but, because we do not feel it feasible to undertake them now or in the near future, we have not included their construction or operational costs in our 12-Year Financial Program.

UTILITIES

The chief utilities required by the Zoo are water supply, sanitary sewer system, and storm sewer system. Electrical, telephone, and possible gas lines are not discussed in this report since there is no difficulty and little expense involved in acquiring these services as they are needed.



The existing utilities are shown on the survey, insofar as they are known. Unfortunately, the location of a substantial number of utilities now underground has been lost. Most of these were installed by the W.P.A. in the middle 1930's, and no records were kept as to where they were placed.

In the foregoing pages we have estimated the cost of new utilities in or adjoining new installations as a part of the cost of the installation itself. In addition, we have allowed on the 12-Year Financial Program an item each year for the entire twelve years for improving each of the three systems. Since it would be folly to attempt to explain here the changes to each system each year, the following discussion covers each subject over the entire twelve years.

Water Supply

A water supply at nearly all of the proposed exhibit structures and areas is necessary. In addition, there must be provision for adequate drinking fountains and hose bibs. Fortunately, the existing water mains are of sufficient size and so located that their expansion in conformance with the development program will be less costly than at first seemed possible. Sound economy is achieved by the fact that the proposed new structures have been so located that in the proposed time sequence of their construction no one of them will require a disproportionate expansion of the utility system at the time it is built.

In estimating the cost of the new water supply, allowance has been made for seven new drinking fountains where shown on the long-range plan, a reasonable number of hydrants, gate valves, control boxes, and other fittings, and all trenching, blasting, and backfilling necessary for a complete installation.

The estimated cost of construction of new water supply lines is \$30,000, and corresponding improvements to existing water lines is \$15,000, making a total of \$45,000. Operating costs should be negligible, since the cost of the water to be used has been assigned to the operating costs of the various activities which consume it.

Sanitary Sewer System

Much that has been said in the preceding paragraph about the water supply is true of the sewerage system. We estimate the cost of improving the existing system within the study area of our contract at \$15,000 and the cost of new sewer mains to be laid in the same area at \$25,000. The cost of ledge excavation for the new mains has been included in the cost of improving the grounds, as described later.

We have learned that outside of our study area the question has been raised as to the adequacy of the size and slope of the sanitary sewer main which collects all sewage from the entire Zoo area and carries it to a main in Walnut Street, north of Long Crouch Woods. This subject should be examined by the proper city department and, if the line is inadequate in size, its improvement or replacement should be provided elsewhere in the city's budget prior to intensive development of the Zoo.

Storm Drainage System

The existing storm drainage system appears to be adequate for present needs in most respects. However, there are certain defects which should be corrected, such as the frequent clogging of the drains at the Flying Cage by fine sand and other debris, with resultant high labor cost for frequent cleanouts. Also there are some portions of the present

drainage system which should be enlarged when the new installations are built. Therefore, we are allowing \$15,000 for improvements to the present storm water drainage system.

The cost estimates for the new structures or installations requiring connections with the storm water drainage system have been included in the cost of these new installations. However, the main drainage system itself will have to be expanded in addition, and for this we estimate a cost of \$25,000 for all the improvements required by the proposed design. This includes manholes, catch basins, and drain lines. Possibly the expense will be higher than the estimate because ledge excavation may be greater than we have anticipated. The cost estimate for improving the grounds includes considerable ledge excavation, but, even so, it is impossible to say whether this allowance is sufficient.

No allowance is made on the cost estimate for annual maintenance of the drainage system since we believe that the maintenance cost of the improved and expanded system will be no more than it is for the present system.

IMPROVEMENTS TO GROUNDS

As previously stated, the cost estimate for the new structures and installations includes the cost of grading and of paths immediately around them. However, a large part of the proposed development of the grounds cannot be directly attributed to the new installations, and therefore a separate item has been inserted in the cost estimate to cover this work.

Many linear feet of new walks and service roads will be required. Loam stripped from the parking space and the sites of other new installations must be stock-piled and subsequently spread and graded. Much seeding and a considerable amount of planting will be needed. Our cost estimate also includes construction of new walls and steps, part of the cost of blasting pudding stone or ledge, and improvements to such features as the existing entrance gates.

The improvements to the grounds presumably would be carried out over a period of many years, and we have allocated a total of \$295,000 for this purpose in the cost estimate. The allocation for each year may be determined by looking at the estimate.

With regard to annual operating cost of the grounds, it should be again noted that at present this work is handled by the crews and equipment which maintain the remainder of Franklin Park. The cost accounts of these crews are kept separate from the other Zoo employees and the cost of such maintenance does not appear in the Zoo budget. Since we assume that the present methods of grounds maintenance will be continued during and after the improvement and expansion of the Zoo, we have provided no item in the annual operating cost estimate for grounds maintenance.

.. ANIMAL EXHIBITS

Insofar as new cages or exhibit areas are opened, animals will have to be found to fill them. As previously mentioned, there is already a good start in this direction, because there is now a surplus of many types of exhibits in the Zoo, kept in closets and back rooms, or in exhibition pens where they are too crowded. For example, not only are there extra lion and tiger cubs but there are also enough bears in the Long Crouch



Woods bear dens to fill the proposed Bear Dens. There are plenty of raccoons for the Raccoon Pit and, possibly, waterfowl for the Waterfowl Lagoon.

New animals will have to be acquired, nevertheless, and while such acquisition is very much of a bargaining affair, the final cost being determined by many variable and unpredictable conditions, we have used the following figures for the preparation of estimates:

- Otters, \$50 per pair
- Sea lions, \$150 each
- Penguins, \$115 each
- Pheasants, \$125 per pen
- Vultures, hawks, etc., \$50 apiece
- Foxes and wolves, \$100 per pair
- Ostriches, \$250 each
- Rhesus monkeys for the Monkey Island, \$30 each
- Giraffes, \$3,500 to \$4,500 each
- Hippo and rhino, \$4,000 to \$5,000 each
- Chimpanzees, \$700 each
- Orang-outangs, \$1,000 each
- Gorillas, \$5,000 each

Exhibits needed to fill the forty-eight cages and two pits of the Reptile House vary greatly in cost. For example, snakes cost from \$10 apiece to as much as \$25 per foot of length, while alligators can be had for \$25 and up each. The total cost of the Reptile House exhibits is estimated at \$20,000.

Perusal of the 12-Year Financial Program will indicate the amounts which have been allocated in each year for the acquisition of new exhibits.

TWELVE-YEAR CONSTRUCTION COST PROGRAM

ITEM	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	Total
Parking Area—Pt. I	\$31,600	—	—	—	—	—	—	—	—	—	—	—	—
Fencing	31,000	—	—	—	—	—	—	—	—	—	—	—	—
New Entrance Gate and Walk, Rose Garden.	3,000	—	—	—	—	—	—	—	—	—	—	—	—
Ticket Booths and Police Office.	13,000	—	—	—	—	—	—	—	—	—	—	—	—
Sea Lion Pool	48,000	—	—	—	—	—	—	—	—	—	—	—	—
Children's Zoo	37,500	—	—	—	—	—	—	—	—	—	—	—	—
Farm Buildings—Pt. I	24,000	—	—	—	—	—	—	—	—	—	—	—	—
Miniature Railroad	46,000	—	—	—	—	—	—	—	—	—	—	—	—
Penguin Pool	20,000	—	—	—	—	—	—	—	—	—	—	—	—
Raccoon Pit	12,500	—	—	—	—	—	—	—	—	—	—	—	—
Flying Cage	3,000	—	—	—	—	—	—	—	—	—	—	—	—
Waterfowl Pool	5,000	—	—	—	—	—	—	—	—	—	—	—	—
Public Toilets (North End)	—	\$75,000	—	—	—	—	—	—	—	—	—	—	—
Restaurant	—	76,600	—	—	—	—	—	—	—	—	—	—	—
Monkey Island and Court	—	95,600	—	—	—	—	—	—	—	—	—	—	—
Otter Pool	—	20,000	—	—	—	—	—	—	—	—	—	—	—
Farm Buildings—Pt. II	—	24,000	—	—	—	—	—	—	—	—	—	—	—
Parking Area—Pt. II	—	—	\$28,500	—	—	—	—	—	—	—	—	—	—
Bird House	—	—	75,000	—	—	—	—	—	—	—	—	—	—
Service Group	—	—	196,000	—	—	—	—	—	—	—	—	—	—
Picnic Tables and Benches	—	—	4,000	—	—	—	—	—	—	—	—	—	—
Sitting Benches (50%)	—	—	3,000	—	—	—	—	—	—	—	—	—	—
Farm Buildings (Completed)	—	—	48,000	—	—	—	—	—	—	—	—	—	—
Lion House	—	—	—	\$231,200	—	—	—	—	—	—	—	—	—
Antelope House	—	—	—	142,500	—	—	—	—	—	—	—	—	—
Public Toilets (South End)	—	—	—	70,000	—	—	—	—	—	—	—	—	—
Monkey House	—	—	—	—	\$495,000	—	—	—	—	—	—	—	—
Small Mammal House	—	—	—	—	—	\$282,800	—	—	—	—	—	—	—
Pheasant Runs	—	—	—	—	—	12,500	—	—	—	—	—	—	—
Mynah Birds	—	—	—	—	—	5,000	—	—	—	—	—	—	—
Elephant House	—	—	—	—	—	101,500	—	—	—	—	—	—	—
Reptile House	—	—	—	—	—	—	\$400,000	—	—	—	—	—	—
Question Box and Tower	—	—	—	—	—	—	80,000	—	—	—	—	—	—
Giraffe House	—	—	—	—	—	—	—	\$165,000	—	—	—	—	—
Parking Area—Pt. III	—	—	—	—	—	—	—	28,500	—	—	—	—	—
Vulture House	—	—	—	—	—	—	—	—	\$40,000	—	—	—	—
Fox and Wolf Dens	—	—	—	—	—	—	—	—	70,000	—	—	—	—
Waterfowl Lagoon	—	—	—	—	—	—	—	—	—	\$62,000	—	—	—
Underpass	—	—	—	—	—	—	—	—	—	60,000	—	—	—
Sitting Benches (Completed)	—	—	—	—	—	—	—	—	—	3,000	—	—	—
Parking Area—Pt. IV (Completed).	—	—	—	—	—	—	—	—	—	28,500	—	—	—
Improvement to Range	—	—	—	—	—	—	—	—	—	—	\$167,220	—	—
Bear Dens	—	—	—	—	—	—	—	—	—	—	—	\$150,000	—
Outdoor Amphitheater	—	—	—	—	—	—	—	—	—	—	—	—	—
Water Supply	Future	Development	—	—	—	—	—	—	—	—	—	—	—
Sanitary Sewer	13,500	2,040	2,040	6,020	6,360	1,020	2,550	7,200	1,700	850	1,720	—	—
Storm Sewer	3,000	8,000	8,000	1,800	2,500	6,800	2,200	3,200	2,200	1,400	900	—	—
Grounds	8,000	3,000	3,000	6,800	2,500	6,800	2,200	3,200	2,200	1,400	900	—	—
Bird and Animal Exhibits	20,000	20,000	20,000	20,000	20,000	20,000	20,000	25,000	25,000	30,000	30,000	45,000	—
	600	3,800	1,200	—	2,500	19,500	13,000	20,000	18,700	1,200	—	—	—
	\$319,700	\$328,040	\$388,740	\$478,320	\$528,860	\$455,920	\$519,950	\$252,100	\$159,800	\$188,350	\$200,740	\$195,000	\$4,015,520



TWELVE-YEAR OPERATING COST ESTIMATE

Based on Twelve-Year Construction Cost Program

ITEM	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Carried Over from Previous Year.	\$205,000	\$205,000	\$269,350	\$286,550	\$311,550	\$331,600	\$363,700	\$393,500	\$436,270	\$450,710	\$459,310	\$464,660	\$464,660
Parking Area—Pt. I	—	5,000	—	—	—	—	—	—	—	—	—	—	—
Fencing	—	—	—	—	—	—	—	—	—	—	—	—	—
New Entrance and Walk to Rose Garden.	—	—	—	—	—	—	—	—	—	—	—	—	—
Ticket Booths and Police Office.	—	8,400	—	—	—	—	—	—	—	—	—	—	—
Sea Lion Pool	—	4,000	—	—	—	—	—	—	—	—	—	—	—
Children's Zoo	—	21,700	—	—	—	—	—	—	—	—	—	—	—
Farm Buildings—Pt. I	—	5,000	—	—	—	—	—	—	—	—	—	—	—
Miniature Railroad	—	15,500	—	—	—	—	—	—	—	—	—	—	—
Penguin Pool	—	2,750	—	—	—	—	—	—	—	—	—	—	—
Raccoon Pit	—	2,000	—	—	—	—	—	—	—	—	—	—	—
Public Toilets (North End)	—	—	3,750	—	—	—	—	—	—	—	—	—	—
Restaurant	—	—	†	—	—	—	—	—	—	—	—	—	—
Monkey Island and Court	—	—	8,200	—	—	—	—	—	—	—	—	—	—
Otter Pool	—	—	2,750	—	—	—	—	—	—	—	—	—	—
Farm Buildings—Pt. II	—	—	2,500	—	—	—	—	—	—	—	—	—	—
Parking Area—Pt. II	—	—	—	—	—	—	—	—	—	—	—	—	—
Bird House <i>et al.</i>	—	—	—	5,700	—	—	—	—	—	—	—	—	—
Service Group	—	—	—	16,800	—	—	—	—	—	—	—	—	—
Farm Buildings (Completed)	—	—	—	2,500	—	—	—	—	—	—	—	—	—
Lion House	—	—	—	—	10,200	—	—	—	—	—	—	—	—
Antelope House	—	—	—	—	6,100	—	—	—	—	—	—	—	—
Public Toilets (South End)	—	—	—	—	3,750	—	—	—	—	—	—	—	—
Monkey House	—	—	—	—	—	32,100	—	—	—	—	—	—	—
Small Mammal House	—	—	—	—	—	—	23,500	—	—	—	—	—	—
Pheasant Runs	—	—	—	—	—	—	1,300	—	—	—	—	—	—
Mynah Birds	—	—	—	—	—	—	500	—	—	—	—	—	—
Elephant House	—	—	—	—	—	—	4,500	—	—	—	—	—	—
Reptile House	—	—	—	—	—	—	—	35,270	—	—	—	—	—
Question Box and Tower	—	—	—	—	—	—	—	7,500	—	—	—	—	—
Giraffe House	—	—	—	—	—	—	—	—	14,440	—	—	—	—
Parking Area—Pt. III	—	—	—	—	—	—	—	—	—	3,100	—	—	—
Vulture House	—	—	—	—	—	—	—	—	—	5,500	—	—	—
Fox and Wolf Dens	—	—	—	—	—	—	—	—	—	—	2,750	—	—
Water Fowl Lagoon	—	—	—	—	—	—	—	—	—	—	100	—	—
Underpass	—	—	—	—	—	—	—	—	—	—	2,500	—	—
Parking Area—Pt. IV (Completed).	—	—	—	—	—	—	—	—	—	—	—	—	—
Improvement to Range	—	—	—	—	—	—	—	—	—	—	—	—	—
Bear Dens	—	—	—	—	—	—	—	—	—	—	—	—	—
Outdoor Amphitheater	—	—	—	—	—	—	—	—	—	—	—	—	—
	\$205,000	\$269,350	\$286,550	\$311,550	\$331,600	\$363,700	\$393,500	\$436,270	\$450,710	\$459,310	\$464,660	\$464,660	\$464,660

† Concession.

Methods by which the Zoo can be Made More Nearly Self-Supporting

At the present time Franklin Park Zoo is open to the public year round, and no income is obtained from visitors except insofar as the city receives a small fixed fee annually from the two small concession stands which are operated during the busy season. As previously shown, in its ultimate development the Zoo will cost approximately \$465,000 annually to operate, or 126 per cent more than present operating costs. For this reason it is desirable that the Zoo be made more nearly self-supporting, as is the case with most comparable zoos.

As previously stated, a study of possible sources of funds for new construction and physical improvement, while obviously desirable, is beyond the scope of this report. However, we have agreed to study possible sources of direct income from the Zoo, and these studies are presented herewith.

It is obvious that the amount of revenue to be derived from visitors will have a fairly direct relation to the number of visitors, and it is equally clear that if admission is free the number of visitors may be expected to be greater than if an admission is charged. Hence, the first step in estimating direct revenue is to estimate the number of visitors who may be expected.

Though present annual attendance at Franklin Park Zoo is not known accurately, it is estimated to be 1,000,000. This figure includes many nearby residents who use the area as a park and who presumably would come much less frequently if an admission charge is made.

For comparison, attendance at the Museum of Fine Arts in Boston, which is free, was 581,000 in 1953. At the rapidly growing Museum of Science, attendance was over 200,000 in the year ending June 30, 1953, and will be between 235,000 and 250,000 in the present fiscal year. At the Museum of Science an admission charge is made at all times of 40 cents for adults and 20 cents for children.

The nearest large zoo to Franklin Park is Benson's Wild Animal Farm at Nashua, New Hampshire. Although Nashua is a small city, with access to the Zoo only by automobile and bus, and although the relatively high admission of 60 cents for adults and 30 cents for children is charged, the annual attendance reaches the astonishingly large total of approximately 500,000. (About two-thirds of the attendance is adults and one-third children.)

A look at figures of attendance at some other zoos is also of interest. Cleveland and St. Louis are both free at all times. Cleveland draws about 1,000,000 visitors and St. Louis about 2,500,000. Chicago, with approximately 1,500,000, and the Bronx Zoo, with 2,360,469 visitors in 1953, both charge admission during several days in the week. Chicago charges adults, only, 25 cents admission four days a week (Monday, Tuesday, Wednesday, and Friday) and receives \$58,000 net. The Bronx Zoo charges 12 cents for adults and 5 cents for children on Tuesdays, Wednesday, and Thursdays and receives in the neighborhood of \$28,000.

The arguments in favor of making an admission charge at Franklin Park Zoo are several, and may be summarized as follows:

1. A greater income will be derived.
2. The cost of operation will fall at least in part on those who use the Zoo rather than, as at present, on the taxpayers of Boston. Since the Zoo serves a very large metropolitan area outside of Boston proper, those who use it should share the burden of its upkeep.
3. Experience at other zoos both in the United States and Europe and at the Museum of Science, Boston, indicates that a small admission charge does not significantly discourage attendance.
4. Vandalism would be reduced by an enclosing fence; in addition, experience at other zoos has shown that an admission charge can be expected to help to reduce vandalism inside the fence during visiting hours.

Since it has not yet been determined whether an admission charge will be made at Franklin Park Zoo, the remainder of this report has been divided into two sections — first, an estimate of attendance and income in case an admission is charged, and, second, a similar estimate if no admission is charged.

Estimated Attendance and Income in Case an Admission is Charged

If it is decided to charge an admission fee, we recommend that a daily charge of 25 cents for adults and 10 cents for children be made between April 15 and October 15 and that admission be free at other times. Under these conditions, *and after the Zoo has been fully improved*, we estimate the annual attendance at 1,475,000.

ESTIMATED INCOME FROM MAIN GATE ADMISSIONS

On the basis of daily attendance figures for the Bronx Zoo for the year 1953 and other years, we estimate that 70 per cent of the annual attendance will occur during the six months' warm weather period, so that the revenue-paying visitors would number 1,032,500.

We also estimate that 40 per cent of the visitors will be adults and 60 per cent children. On this basis, and in view of the recent elimination of the federal tax on admissions under 50 cents, the income from main gate admissions would be

413,000 adults	at \$0.25	=	\$103,250
619,500 children	at 0.10	=	61,950
			\$165,200
Total			

ESTIMATED INCOME FROM PARKING FEES

Other zoos throughout the country have found it desirable to provide large motor parking areas, some of which are free and some not. Since the St. Louis Zoo is very largely supported by a mill tax levied on the entire city, it provides a very large amount of free parking in addition to its free admission. However, there is also a pay parking lot which is used mostly during peak attendance; the income received is, therefore, a low \$4,618.75. Chicago (Brookfield) has several large parking areas, totaling 4,200 cars capacity. Some of these are free and some not. Where a charge is made the amount is 50 cents, and the income in a recent year was \$55,000. Cleveland has two parking areas operated by a concessionaire and receives 25 per cent of the gross. Charges are 10 cents per hour, 15 cents minimum, and the Zoo receives \$4,200 income. The Bronx Zoo charges 35 cents per car and maintains a total of 1,492 car spaces.

As previously stated, at Franklin Park Zoo we recommend that the present rather limited parking facilities remain free parking and that a 1,200-car paid parking lot be constructed. Streetcars, buses, walking, and free parking will probably provide access for half (737,500) of the yearly visitors. The other half may be expected to be motorists who use the proposed parking area.

If a parking fee of 25 cents is charged for each car using the 1,200-car parking area at Franklin Park Zoo during the six-month period between April 15 and October 15, then a gross annual income of \$52,650 can be expected. Our method of arriving at this amount is as follows:

The peak period of attendance can be expected to be from June 15 to September 15. On two days of each week of this thirteen-week period each parking space will be filled



twice a day; that is, 62,400 cars. For the other sixty-five days each space would be occupied once each day; that is, 78,000 cars. During the other ninety days when a fee would be charged, only half as many cars would use the parking area, or 70,200 cars. Therefore a paid parking fee can be expected from each of 210,600 cars. At 25 cents this will produce a revenue of \$52,650.

The remaining six months of the year will produce only 30 per cent of the Zoo's total attendance, and it is suggested that the proposed parking area be made available for free parking during these "dull" months.

ESTIMATED INCOME FROM CHILDREN'S ZOO

At the Bronx Zoo, the Children's Zoo is open from April 8 into November. It has an annual attendance of 350,000, which is 14 per cent of the total attendance, or 20 per cent of the summertime attendance. Charges are 18 cents each for adults and individual children and 12 cents apiece for children in groups of twenty or more. The total income is not known to us.

As stated elsewhere in this report, the new Children's Zoo at Brookfield, Chicago, was opened for only thirty-seven days at the end of the past season. During this brief period 78,926 children and 74,172 adults paid a total of \$19,712.58. Admission charges were approximately 10 cents for children and 20 cents for adults. This information is included to show the earning power of this type of attraction.

We estimate an ultimate summertime attendance at Franklin Park Zoo, if admission is charged, of 1,032,500. On the basis of the Bronx Zoo's experience, 20 per cent of these can be expected to visit the Children's Zoo, making an annual attendance of 206,500. We believe there will be a ratio of three children to each adult, so that 51,650 adults and 154,850 children can be expected to visit the Children's Zoo each season. Some 82,500 of these children (40 per cent of the total attendance at the Children's Zoo) can be expected to come in groups of twenty or more and be led by but one or two adults. They can be expected to pay the proposed group rate of 10 cents apiece. The other 60 per cent of the total attendance (51,650 adults and 72,350 children who come in groups of less than twenty) would pay a higher individual rate of 25 cents apiece for adults and 15 cents each for children.

Estimated returns would be as follows:

51,659 adults	at \$0.25 =	\$12,910
72,350 individual children	at 0.15 =	10,850
82,500 children in groups of twenty or more	at 0.10 =	8,250
Total		\$32,010

Operating costs have already been estimated at \$21,700, so that \$10,310 can be expected to be the net annual return to Franklin Park Zoo from the Children's Zoo.

ESTIMATED INCOME FROM FOOD SALES

This should be one of the better sources of income at Franklin Park Zoo, according to the experience of other zoos in this country. The following figures from other zoos have been made available to us.

The Bronx Zoo has an annual gross sale of food and tonic of approximately \$800,000, of which about \$110,000 is profit. This amounts to a profit of 4 cents for each visitor to the Zoo.

Brookfield Zoo, Chicago, in a recent year received a net profit of \$135,000, or 9 cents per visitor.

In the 1952 fiscal year St. Louis had gross food sales of \$377,180.69 (15 cents per visitor), of which \$156,498.19 was profit, an amount equal to 6 cents net profit for every visitor. Sales and profits in 1953-54 have been running substantially better.

All three of the above zoos operate their own food preparation and sales; no concessionaire is used. In comparing the above figures, the following comments are relevant. Per capita profits at the Bronx Zoo were lower than at some other zoos, partly because at least one of the several restaurants is poorly located and also because more "sit down" meals and more perishable foods are sold than at other zoos. This is desirable from the consumer's viewpoint but less profitable than the sale of a few nonperishable items "over the counter" and without employing waitresses, as, for example, at St. Louis. Profits at the Brookfield Zoo are undoubtedly higher per capita in part because this zoo is located well out in the country. Since it is relatively inaccessible, the visitors who go there usually make a day of it and hence consume more food and refreshments than if their stay were shorter.

At Cleveland concessionaires operate food, tonic, and souvenir sales, and the Zoo receives 25 per cent of the gross sales. No breakdown is available to us for the receipts from the sale of individual classifications, but the income to the Zoo from the entire operation is approximately 5 cents per person. Probably 4 cents out of the 5 cents comes from food sales. Annual gross sales amount to \$200,000 for food and souvenirs. Four-fifths of this amounts to \$160,000, or 16 cents per visitor. This compares with the 15 cents per person received by St. Louis.

Should food sales be handled at Franklin Park Zoo by concession, with the Zoo receiving 25 per cent of this gross, then it is to be conservatively estimated the ultimate gross return will be \$221,500, or 15 cents per person. Of this amount the Zoo would receive \$55,375.

Should food sales be handled directly by the Zoo management, and should the management be reasonably efficient, the net proceeds to the Zoo would certainly be greater than 25 per cent of the gross. For example, in 1953, between April 1 and September 9, the St. Louis Zoo derived a profit of slightly over 50 per cent from all food sales during that period. However, for the purposes of this report we are using the more conservative figure of 25 per cent of the gross, which, as explained above, we estimate at \$55,375 direct income to the Zoo.

ESTIMATED INCOME FROM SALES OF CARDS, SOUVENIRS, ALBUMS, ETC.

The Brookfield Zoo, Chicago, has an average annual attendance of 1,500,000, and sales of cards, souvenirs, etc., produce \$19,000 net income yearly. At St. Louis, with a yearly attendance of nearly 2,500,000, the gross income from similar sales amounts to \$40,350. The Bronx Zoo receives a net income of over \$4,000 from the sale of publications, but no data is available to show the income from souvenirs, cards, etc.



We calculate that, on the basis of an ultimate attendance at Franklin Park Zoo of 1,475,000, revenue from this source can be expected to produce a net income to the Zoo of about \$7,400 annually.

ESTIMATED INCOME FROM RENTAL OF BABY BUGGIES AND WHEEL CHAIRS

While only one zoo we have investigated (Brookfield, Chicago) lists this item as a source of income, there is good reason to believe that it should be a source of steady income here. Distances will be just as great at Franklin Park as at Brookfield, and, even though there will be many more attractions to minimize the present extensive open spaces, more time will be necessary to visit all the exhibits. Fatigue will become a greater factor for the young or infirm. The possibility of renting buggies or wheel chairs can be expected to draw people to the Zoo who would otherwise hesitate to expose themselves to the effort required. Brookfield reports an annual net income of \$14,000 from the rentals of carriages and wheel chairs.

Should it be decided to do the same thing at Franklin Park Zoo, a gross profit of 1 per cent per person attending the Zoo, or \$14,800, should be possible. If an agreement is reached whereby this rental service would become a concession, and 50 per cent of the gross were returned to the Zoo, then a net profit of \$7,400 yearly could be expected.

ESTIMATED INCOME FROM PUBLIC TOILETS

While no data is available from other zoos, we believe that of the total ultimate attendance at Franklin Park Zoo, 50 per cent, or 737,500 persons, will make use of the toilet facilities. It is expected that half of these, or 368,750, will be females, who will use stalls. Probably 20 per cent of the stalls should be free of charge, and the other 80 per cent operated by nickel locks. Because many women prefer to use the pay stalls even when the free ones are vacant, we believe that 80 per cent, or 295,000, will use the coin-operated stalls, returning a gross of \$14,750. Of the 268,750 males expected to use the toilets, only about 15 per cent (55,300) can be expected to use the pay stalls. They would return \$2,765, so that a total annual gross of \$17,500 may be expected from this source of revenue.

The present operating cost of the Zoo includes a full-time matron, year round, at the women's toilets, and frequent inspection and clean-up of the men's toilets by Bird House attendants. Heating expense is also included in present costs. When the women's new toilets at the north gate are opened, the same matron will be transferred to the new facilities, so the only additional cost here will be for more fuel. At the men's toilets at the north gate additional fuel and some additional salary expense will be required. We estimate total additional annual expense at the northerly toilets at \$3,750.

When the new southerly toilet building is constructed, we believe it will be kept open only during the six months' busy season, and will not be heated or staffed during the winter. We estimate the summertime operating cost for a full-time matron and male attendant at another \$3,750. All of this will be an additional expense, making the total additional expense \$7,500. Deducting this from the estimated gross income leaves a net income of \$10,000.

ESTIMATED INCOME FROM FILMS AND TELEVISION

The Bronx Zoo reports a net return of \$7,000 from television rights; the St. Louis Zoo produces films for both television and movies which are sold to the highest bidder; the Museum of Science, Boston, operates a television program; and the Brookfield Zoo, Chicago, has a weekly television presentation.

We believe that an annual net income of \$7,500 could be realized directly from television shows originating at Franklin Park Zoo, and at the same time a program of this sort can be expected to induce many persons who would not otherwise do so to visit the Zoo.

We do not foresee any appreciable income forthcoming to Franklin Park Zoo from motion pictures.

ESTIMATED INCOME FROM SALE OR EXCHANGE OF EXHIBITS

As previously noted, Franklin Park Zoo has often in the past benefited by the sale or exchange of surplus exhibits. As the number of cages in the Zoo increases, and after the proposed Animal Hospital and Nursery have been built, it is expected that the number and value of excess exhibits propagated in the Zoo will increase substantially. We know of no statistical way to estimate far in advance the cash value of these exhibits, and for the purposes of this report have arbitrarily picked the figure of \$7,500 as the annual income which may be expected to be derived from this source. This income might be derived either in cash or as a credit for the exchange of animals with other owners.

ESTIMATED INCOME FROM MINIATURE RAILROAD

As previously noted, miniature railroads are in operation at Cleveland's Zoo and at Benson's Wild Animal Farm, Nashua, New Hampshire. At both places the miniature railroad produces a good income, and an even better result is to be expected of the one proposed for Franklin Park Zoo.

Of the 1,000,000 people who yearly attend Cleveland's Zoo, 22 per cent, or 221,600 persons, ride on the railroad at 10 cents per ride, producing a gross income of \$22,160. The Zoo leases this feature as a concession and receives 25 per cent of the gross, for a net annual income of \$5,540.

Benson's, with an annual attendance of about half a million, has a gross return of \$21,000 yearly from its railroad, exclusive of taxes and maintenance costs. Total operating expenses are unknown to us. Adults pay 21 cents admission and children 16 cents, exclusive of taxes, and we estimate that a ratio of three children to every adult buy rides, so that the average cost per ride amounts to $17\frac{1}{4}$ cents. On this basis, to produce the gross return of \$21,000, approximately 121,800 rides must be sold on Benson's railroad. Hence, 24.4 per cent of the total attendance buy rides. This railroad is approximately 1,600 feet in length, takes five minutes to complete one trip, including loading and unloading, and as many as 4,000 rides are sold on a peak day.

We estimate the peak daily usage of the Miniature Railroad, Franklin Park Zoo, to be 6,000 persons. To accommodate such a load in an eight-hour day will require 750 rides per hour, or 65 rides per trip. Since the proposed railroad at Franklin Park Zoo is approximately the same length as the one at Benson's, we estimate that one complete trip round the track will require five minutes' time, including loading and unloading.



The six months' season from April 15 to October 15 has 184 days, of which 26 are Sundays, each with anticipated peak attendance, five three-day holiday week ends of which two of the three days will be near-peak days, exclusive of Sundays, and the remaining 148 are weekdays on which attendance can be expected to be substantially lower. We estimate there will be a peak attendance of 6,000 on Sundays, 4,500 on the other two days of each three-day week end, and a comparatively even distribution averaging 1,375 throughout the other days of the operating season. A ratio of three children for each adult can be expected to buy rides, so that an attendance breakdown can be expected about as follows:

26 Sundays	at 6,000 =	156,000 rides, or	39,000 adults and	117,000 children
5 holiday week ends (exclusive of Sundays)	at 9,000 =	45,000 rides, or	11,250 adults and	33,750 children
148 weekdays	at 1,375 =	203,500 rides, or	50,875 adults and	152,625 children
Totals 184 days		<u>404,500 rides</u>	<u>101,125 adults</u>	<u>303,375 children</u>

The above estimate makes no provision for potential rides eliminated by occurrence of rainy weather. A reduction of 15 per cent because of bad weather seems reasonable. This reduces the above totals to 85,955 adults and 257,870 children. We recommend a charge of 25 cents for adults and 15 cents for children. On this basis the gross income for six months would be \$60,170. It is open to question whether it would be profitable to operate the Miniature Railroad during good days during the winter. Hence we estimate no income during the winter period.

Since we recommend that, for best returns to the Zoo, the Miniature Railroad should be operated by the Zoo, operating expenses must be considered. We estimate that to maintain the right of way, allow for replacement of rolling stock every ten years and of trackage every fifteen years, buy fuel, keep up the structures, and pay salaries, liability insurance, etc., a yearly operating cost of \$15,500 can be expected. Therefore, there can be expected after deducting operating costs an annual net income of \$44,670 from the proposed Miniature Railroad.

Despite our recommendation that the Miniature Railroad be operated by the Zoo for maximum profit, we are ready to admit that operation by an efficient concessionaire has distinct advantages. Amongst these are relative freedom from liability in case of an accident, and the fact that little or no capital outlay would be required. In case a concessionaire is allowed to build and operate the Miniature Railroad at his own expense, the original cost of \$46,000 would be assumed by him. In return, he might be expected to retain 80 per cent of the gross income and return to the Zoo 20 per cent, or \$12,054.

Estimated Attendance and Income if No Admission is Charged

Should it be decided that no admission charge will be made, it is predictable that a greater number of people will visit Franklin Park Zoo. There is no statistical method by which the amount of the increase can be foreseen. However, experience at the Museum of Science has shown that an admission charge has not acted as a deterrent to those really interested in finding out what the Museum has to offer. For this reason we do not foresee any great increase in visitors coming from a distance if the admission charge is eliminated. However, in the case of persons living within a short walk or ride of the Zoo, it is obvious that they may be expected to attend much more often if no admission charge is made. We estimate a total annual attendance 20 per cent greater if no admission is charged. Most of the increase would be in the form of repeat visits by those living in the neighborhood.

If our predictions are correct, the total annual attendance without admission charge would be 1,770,000, of whom 1,239,000 are expected to be warm weather visitors. We think 40 per cent of these, or 495,600, would be adults and the other 743,400 would be children.

Although the income from admissions would vanish, we believe this would be partially offset by increased returns from most other paying activities, as appears later. However, we do not foresee any diminution of operating costs by eliminating the admission charge. True, no ticket takers will be required, but experience elsewhere has shown that vandalism tends to mount rapidly when no admission is charged, and therefore the saving on ticket takers' salaries will be at least offset by the extra police and guards required. Actually the operating costs may increase because of this factor, and the need to pick up more papers and refuse.

ESTIMATED INCOME FROM PARKING FEES

We believe that if no admission to the Zoo is charged, more people will use the paid parking space. An increased income of as much as 10 per cent is expected, and, on this basis, the total number of paying parkers is estimated at 231,660. We estimate that the gross receipts to the Zoo from this source would amount to \$57,900. After operating costs are deducted, the net income to the Zoo can be expected to amount to \$50,400.

ESTIMATED INCOME FROM CHILDREN'S ZOO

Despite an estimated 20 per cent increase in general attendance if admission is free, we feel that attendance at the Children's Zoo will increase only 10 per cent. This is largely because we believe most of the increased general attendance will be in the form of "repeaters" from the vicinity of the Zoo. The Children's Zoo will lose novelty to the repeaters, with consequent reduction in urge to attend.



If the increase at the Children's Zoo is 10 per cent, the estimated figures will stand as follows:

56,800 adults at 25 cents	\$14,200
79,520 individual children at 15 cents	11,930
90,880 children at 10-cent group rate	9,090
	<hr/>
Total	\$35,220
Less annual operating expense	21,700
	<hr/>
Profit	\$13,520

ESTIMATED INCOME FROM FOOD SALES

When people come to the Zoo knowing that admission is free, they may be expected to spend a bit more freely for food. Also, there will be an estimated 20 per cent more customers than before. Hence we expect total food and drink sales to rise to \$265,800, and, at a 25 per cent return from the concessionaire to the Zoo, this will bring in a net profit of \$66,450.

ESTIMATED INCOME FROM SALES OF CARDS, SOUVENIRS, ALBUMS, ETC.

As has been previously stated, should no admission be charged, a goodly number of the increased attendance can be expected to be local residents for whom repeat visits to the Zoo would be more attractive. For these people, the acquisition of albums, souvenirs, etc., would have little appeal after the first experience. This means that the increase in sales and gross income from this source would be less spectacular than for many of the other sources of income for the Zoo. At most, an increase of 5 per cent income can be expected. This would amount to \$7,770 total net annual income for the Zoo.

ESTIMATED INCOME FROM RENTAL OF BABY BUGGIES AND WHEEL CHAIRS

As stated before, we anticipate an increased attendance of 20 per cent at the Zoo itself, should no admission fee be charged. Also, we estimate this increase will be made up almost entirely of local residents who can be expected to make repeat visits. If this be the case, local mothers would use their own baby carriages, so that the demand to rent carriages would not be in proportion to the anticipated increased attendance at the Zoo. We estimate the increased rental of carriages and wheel chairs would not be more than 7 per cent, or \$15,800 gross receipts, and the net income to the Zoo would approximate \$7,900.

ESTIMATED INCOME FROM PUBLIC TOILETS

These also can be expected to show an increase in revenue should there be a greater attendance at the Zoo, and an increase in the gross receipts of about 12 per cent can be expected. We estimate 413,000 females would use the toilets, and of these 80 per cent would use the pay stalls for a gross return of \$16,500. Of the 413,000 males, 15 per cent, or 61,950, would pay \$3,100, so that a total gross of \$19,600 can be expected. After deducting operating costs, the Zoo can expect a net income of \$12,100.

ESTIMATED INCOME FROM FILMS AND TELEVISION

We do not believe that an increase in revenue from television programs can be expected, although it is conceivable that an intangible benefit might be received from the increased attendance that such advertising might create

We anticipate no appreciable income from the sale of films.

ESTIMATED INCOME FROM SALE OR EXCHANGE OF EXHIBITS

We foresee no cause to change the arbitrarily chosen figure of \$7,500 for the net income to be derived from the sale or exchange of annual exhibits.

MINIATURE RAILROAD

As would be the case at the Children's Zoo, a 10 per cent increase in attendance could be expected for the Miniature Railroad, should there be no general charge levied for admission to the Zoo. Such an increase would mean an annual sale of 378,200 rides, and a gross income of \$66,190 can be anticipated. Operating costs would remain at \$15,500; so that there can be expected a net annual income of \$50,690 from the Miniature Railroad. This compares with \$44,670 if general admission is charged.

If the Miniature Railroad is built and operated by a concessionaire, again there would be no capital outlay, and the estimated return to the Zoo would be \$14,464.

The reader should be reminded that the above estimate for the income from the Miniature Railroad, like all the other estimates, is based on the assumption that the entire Zoo improvement plan has been completed. Should the Miniature Railroad be installed before the remainder of the Zoo is completed, its drawing power would not be as great and the income would be less in proportion.



SUMMARY OF ESTIMATED INCOME

If an Admission Fee is Charged

(ZOO OPERATED)

<i>Source</i>	<i>Gross Receipts</i>	<i>Operating Cost</i>	<i>Net Income</i>
Admission	\$165,200	\$8,400	\$156,800
Parking	52,650	7,500	45,150
Children's Zoo	32,010	21,700	10,310
Public Toilets	17,500	7,500	10,000
Miniature Railroad	60,170	15,500	*44,670
Sale of Animals	—	—	7,500
Television Rights	—	—	7,500
Total	\$327,530	\$60,600	\$281,930

(CONCESSIONAIRE OPERATED)

<i>Source</i>	<i>Gross Receipts</i>	<i>Income to Concessionaire</i>	<i>Net Income to Zoo</i>
Food Sales	\$221,500	\$166,125	\$55,375
Souvenir Sales	29,600	22,200	7,400
Rental of Carriages and Wheel Chairs	14,800	7,400	7,400
Total	\$265,900	\$195,725	\$70,175

Total Net Income (if an admission fee is charged), \$352,105.

* Reduce to \$12,054 if concessionaire operated.

If no Admission Fee is Charged

(ZOO OPERATED)

<i>Source</i>	<i>Gross Receipts</i>	<i>Operating Cost</i>	<i>Net Income</i>
Admissions	—	—	—
Parking	\$57,900	\$7,500	\$50,400
Children's Zoo	35,220	21,700	13,520
Public Toilets	19,600	7,500	12,100
Miniature Railroad	66,190	15,500	† 50,690
Sale of Animals	—	—	7,500
Television Rights	—	—	7,500
Total	\$178,910	\$52,200	\$141,710

(CONCESSIONAIRE OPERATED)

<i>Source</i>	<i>Gross Receipts</i>	<i>Income to Concessionaire</i>	<i>Net Income to Zoo</i>
Food Sales	\$265,800	\$199,350	\$66,450
Souvenir Sales	31,080	23,310	7,770
Rental of Carriages and Wheel Chairs	15,800	7,900	7,900
Total	\$312,680	\$230,560	\$82,120

Total Net Income (if no admission fee is charged), \$223,830.

† Reduce to \$14,464 if concessionaire operated.

