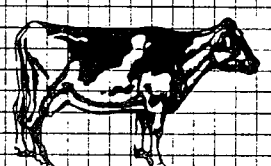
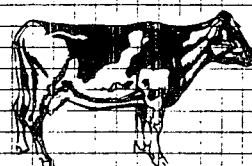
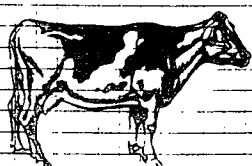
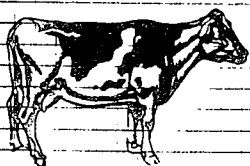
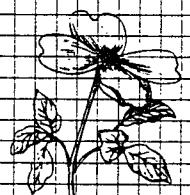
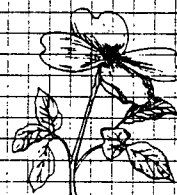
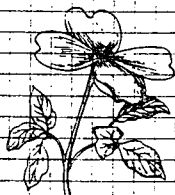
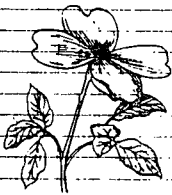
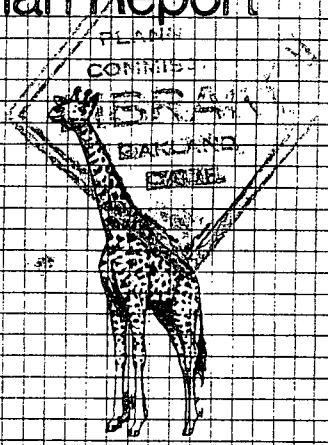
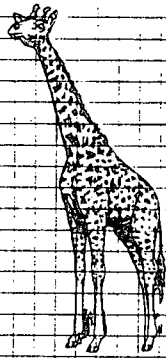
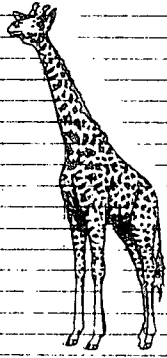
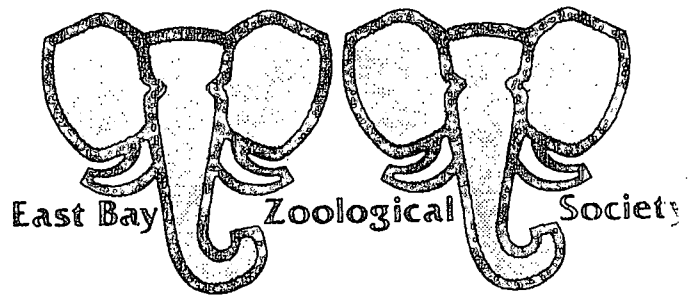


Knowland Park

Master Plan Report





P.O. Box 5238 • 9777 Golf Links Road • Oakland, California 94605 • 415/569-7353

October 2, 1980

Mr. Norman J. Lind
Director of City Planning
Planning Department
City Hall
14th & Washington Streets
Oakland, CA 94612

Dear Mr. Lind:

Since the Cormarc Master Plan Report for Knowland Park was submitted in 1976, the Society has felt that there are changes that should be taken into account in assessing the contents of the report.

The Planning Committee and Board of Trustees of the East Bay Zoological Society have studied and reviewed the neighborhood comments and concerns as expressed at the January 16, 1980, meeting of the Planning Commission and at two community meetings held prior to the January 16, 1980, Planning Commission meeting.

The attached paper entitled "~~Comments on the Master Plan~~" clarifies and sets forth the position of the Society with respect to modifications that should be made in the Master Plan report in response to objections that have been raised. These comments were approved by the Board of Trustees at their regular meeting of September 10, 1980.

Sincerely,

Jay Ver Lee
President
East Bay Zoological Society

JV:dr
Attachment

COMMENTS ON THE MASTER PLAN FOR KNOWLAND PARK

SOUTH SIDE BUFFER STRIP (Page 15)

The Society supports the concept that the 100' buffer strip in the plan be increased in width to at least 200' for the entire length of the Biomes on the south side of the park (Malcolm Avenue).

MEADOW PARKING (Page 19)

The Society has confirmed to the City Council that the lower meadow parking area as shown on Page 19 shall be excluded from the plan. This area will be continued as a meadow for park purposes.

AMPHITHEATRE (Page 26)

The Society does not approve of rock bands or inappropriate entertainment activities in the park that would have an adverse effect on the animals or the neighborhood due to excessive noise, people or traffic congestion.

AMUSEMENT AREA (Page 26)

The sketch titled "Commerical Amusement Park Study Sketch" is misleading. The Society strongly feels that the rides area, as now developed, is adaqute and that any improvements should be limited to small childrens (kiddy) rides only. We have no objection to this being a condition of the approval of the Master Plan.

TRANSITION ZONE (Page 27 - 30)

A great deal of detailed study will be required before a final decision can be made as to how best to reach the upper mesa. Whatever scheme is finally adopted must be cost effective and it will have to meet E.I.R. and planning requirements. This is one of the most difficult problems to be solved.

BIOMES DEVELOPMENT PLAN (Page 31)

This conceptual plan should be regarded as a shopping list of a variety of possible uses. What is finally developed will depend on economic and ecological restraints and availability of animal species.

LOG FLUME (Page 35)

We consider the log flume concept impractical and have no objection to it being removed from the Master Plan as a condition of approval.

NORTH AMERICAN GRASSLANDS (Page 38 & 39)

It is the Society's studied opinion that this development should be moved to the west. The area now proposed has the beginnings of a fine stand of conifer. This change will become obvious when more detailed studies of the area have been made. The concept of a family farm seems valid and will have considerable appeal to youngsters as well as adults.

CIRCULATION (Page 43)

Public entrance to the proposed park and zoo development will be confined to a single entrance at Golf Links Road and Mountain Boulevard. Neither the Master Plan nor the Society approves or contemplates public access from the side streets (Fallbrook, Elvessa, Ettrick, Lochard, Snowdown, Edgemont, Maggiora, Woodcliff) off of Malcolm Avenue or the north side of the park except at 98th and Mountain Boulevard. The existing fire roads with locked gates must be maintained.

SCHEMATIC GRADING PLAN (Page 46)

This schematic plan suggests far more grading for roadways than will be required. Elimination of the service road entering off of Golf Links Road will eliminate substantial grading shown as "A" in the Biomes. This road will be maintained as a fire road only. In the "Gardens" area no grading will be done in the lower meadow and at the main zoo parking lot although both are designated "A" in the Grading Plan. Road grading for the circulation road in the Gardens area will be minimal.

PHASING (Page 51)

Phasing will be revised to meet economic conditions and to relate to the contract. The proposed contract requires the Society to provide the Council with a capital improvements budget two (2) years in advance at each annual budget presentation. When sufficient money has been accumulated to develop a site or construct a building, planning for that set or building will commence. Buildings can be sited to conform to the existing topography unobtrusively.

PHASING (Page 53)

The development of the garden area will, as a practical matter, remain essentially as it is. There will be minor improvements and rebuilding of the existing sets but it does not seem practical or economically sound to consider totally rebuilding the garden area as proposed.

PHASING (Page 55)

Item 2. Acquisition of Concessions

This has been accomplished.

Item 3. Improvement of Food Service, Merchandise Outlets & Rides

Has been accomplished.

Item 4. Addition of Games

Inappropriate, abandone.

Item 5.

We agree that detailed plans and funds must be accumulated to accomplish this work. The Society considers the moving of the entrance gate and completing the circulation road of first priority.

GENERAL COMMENTS

On those items in which we have made no comments, the Society agrees in general with the recommendation of the consultant. However, we are aware that a great deal more planning is necessary before the ideas expressed in the Master Plan Report can be implemented and that planning changes will occur. In order to relate the planning and operation process more closely to the neighborhood interests, the Board of Trustees have added four more members who reside in the neighborhood, suggested by the neighborhood organizations and bringing the total neighborhood residents to nine (9) of the twenty five (25) Trustees.

/dr

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Introduction



In September of 1975 the East Bay Botanical and Zoological Society retained Comarc Design Systems and its associated firms to prepare a Master Plan for Knowland Park. A very intensive planning program was then undertaken during which all aspects of the site and the market were analyzed and the goals of the Society as well as the educational, recreational and cultural needs of the area were assessed. An active participation committee was established with members representing a variety of groups from the area to insure that their ideas would be reflected in the plan. The Society's Master Plan Committee also met frequently with the planning team to review plans and establish direction. With the use of this information an overall concept for the park was evolved and then developed into a Master Plan for a high quality park.

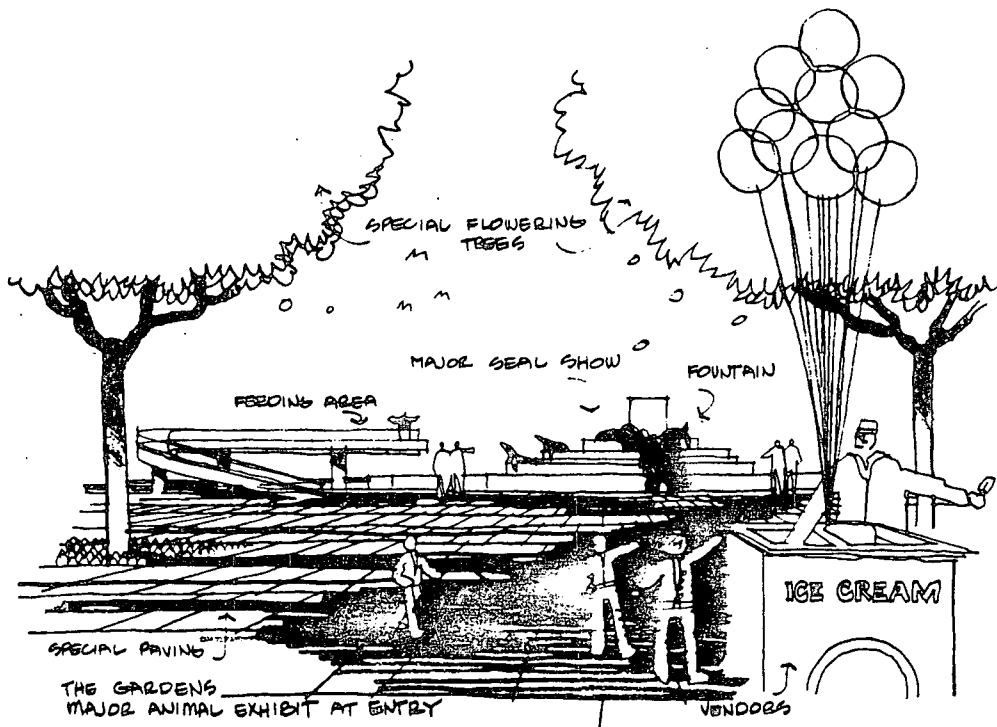
Throughout this process constant attention was given to the financial feasibility of each aspect of the plan to insure that the park will have the potential to be financially self sustaining. The result of this 15 month effort is a realistic Master Plan for a park unlike any other park in the world.

This report is a summary description of the Master Plan and the findings and recommendations of the planning team. The complete financial analysis, market study and site analysis can be seen at the Society's offices.

This is a long range Master Plan providing an overall concept and guidelines for implementation. It is not a

design document with which to begin construction nor is it an inflexible plan which must be implemented precisely as shown. The plan will undoubtedly take many years to achieve, time during which other ideas will surface and new directions will be determined. Care has been taken to insure that this plan can accommodate such changes without losing sight of the overall concept.

Many sketches such as the following have been provided to assist the reader in visualizing the planners concepts. These are not, however, an attempt to design structures or exhibit details.



More detailed design will have to precede each phase of construction.

Because Knowland Park is a rugged site including many individual areas, each with their own character, the plan can never be fully understood or appreciated in its two dimensional form. The planners qualitative notions about the "personality" of

each area of the site had a lot to do with shaping the plan and are an integral part of the many experiences which visitors will enjoy.

To really appreciate the plan, therefore, we encourage the reader to take this document and spend a day walking the site. In this context, the plan will take on some of the excitement of the final development.

The Site



Knowland Park consists of approximately 490 acres of rugged land stretching out for nearly two miles between Interstate 580 and Skyline Boulevard. There is an elevation change of nearly 500 feet. Thirty-six percent of the site has a slope of more than 30% and over sixty percent of the site has a slope in excess of 20%. The computer generated perspective on the following page accurately shows the character of the site.

A comprehensive environmental analysis was carried out during the initial stage of the project and is documented in the Preliminary Plan Report. Much of the data on the site came from the Environmental Resource Analysis and Planning Guideline completed for the Society by David Wm. Hansen in May, 1974.

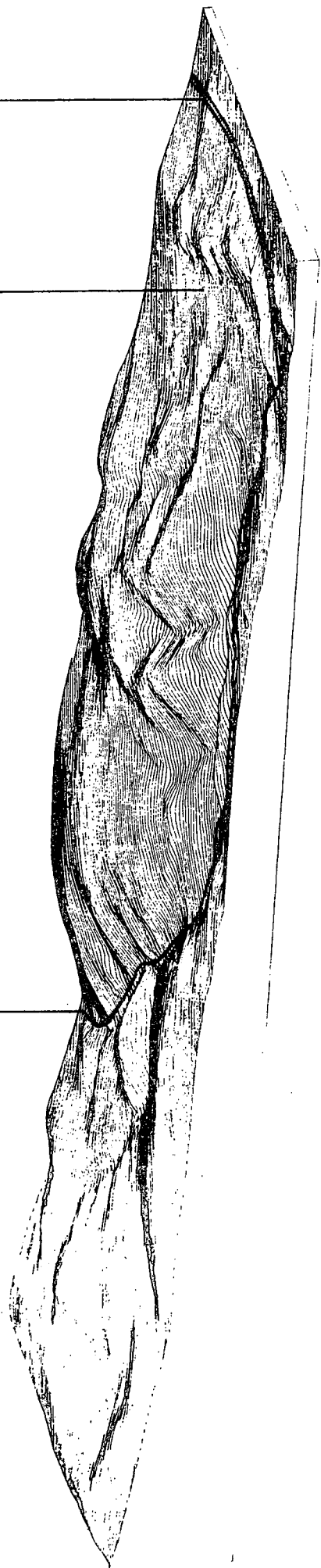
Part of the work done by Comarc Design Systems involved digitizing the data maps and creating a dynamic, computerized data base. The maps were then plotted by the computer at a common scale. Several models were then employed to enable the system to generate from the source data several other informational maps. Included in the interpreted data was slope, slope stability, sun exposure, perspectives and view exposure. The system then brought these maps together through overlay mapping to produce maps showing suitability for outdoor activities and suitability for buildings. Some of these are shown on the colored page near the end of this report. These maps were used as a guide for laying out a plan that would minimize environmental impacts.



Golf Links Road

Interstate 580

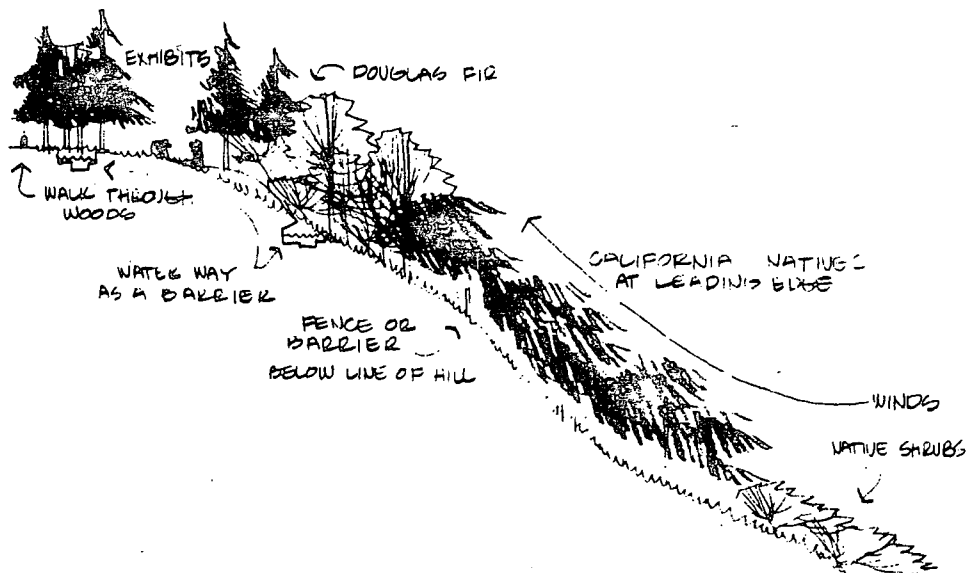
Existing Zoo



Topographic Perspective

In analyzing the site more from the aesthetic standpoint it was recognized that Knowland Park, like any site, has intrinsic qualities which should be "discovered" before the master plan could be sensitively developed. These are the more qualitative aspects such as "this area is intimate and warm" and therefore suitable for the most private of activities. These notions about each area were discovered and mapped through visits to the site and they had a significant impact on the final plan.

For example, the upper part of the site is largely unwooded and can be characterized as a series of high points linked to a saddle. Each of these high points is a relatively flat piece of land which has a modular quality and can accommodate large land uses.



LEADING EDGE CONDITION
KNOWLAND PARK ZOO

Also inherent in this land form is a self-phasing quality, i.e. the overall area will seem complete even if only a portion of it

is developed. The part of this area which becomes central to the higher points is the saddle area that links them together. This part of the site seems like an appropriate area to locate the main focus facilities including the education building and entry to the Biomes.

The following summary outlines the parks natural and cultural history. This summary was prepared by David Wm. Hansen for the Summer - Fall, 1976 issue of Trunkline, the East Bay Botanical and Zoological Society's newsletter,

DATES	OWNERSHIP/DEVELOPMENT	THE PARK SETTING
pre-1800	Costanoan Indian Land	Land essentially untouched
1770-1857	Part of Rancho San Antonio (66,000 acres) Don Louis Maria Peralta.	Extensive Cattle grazing devastated natural grasses.
1857-1888	Ellis A. Haines bought land from Senor Peralta	Continued heavy grazing European grasses introduced.
1888	Survey of land by Louis Castro	
1888-1919	Title passed to Fred Talbot (lumber, shipping) mansion, outbuildings and garden constructed in current picnic area.	Continued grazing (special stock) Exotic trees planted (many still growing)
1919	Title passed to Cliff Durant (automobiles)	Some grazing still in upper park area
1921	Mansion burned (loss, \$250,000)	
1926	Title passed to Norman Deveaux	Some grazing
1932	Deveaux financial problems	
1935	Bank of America agreement with Sid Snow to manage the property as Durant Park with admission to a new zoo.	Grazing stopped.

DATES	OWNERSHIP/DEVELOPMENT	THE PARK SETTING
1937	Alameda County Zoological Society formed. Property trusted and deeded to A.C.Z.S. As Durant Park and Zoo (sale price \$275,000)	Recreational horse-back riding ring, shooting and driving range constructed in lower park area.
1939-40	After a vote by the people of Oakland to upgrade the zoo, all animals were moved from Sequoia (Joaquin Miller) park to lower park area with animal budget of \$4,800. (Original Oakland Zoo was at 19th and Harrison then moved to Sequoia.)	
1947	A.C.Z.S. became the East Bay Botanical and Zoological Society and Snow suggested to Joseph Knowland that park become state property.	Volunteer hay program for Zoo started in upper park.
1948-49	453 acres of park purchased by the State for \$660,000, with a 50 year sublease to the Zoological Society.	Subdivision development beginning to surround park.
1950	Now officially the E.B.B.Z.s' 'Durant Park' became Joseph Knowland State Park and Arboretum.	Upper park area still essentially untouched.
1951	Bean, Goodspeed, Vaughn, Mott Master Plan report.	
1957-74	City Park Commission (Later Parks and Recreation) operated the park with the Society serving in advisory capacity.	
1957-58	Norris Gaddis plans and renderings for new Zoo completed with help from Amedee M. Sourdry, Park Dept. Landscape Architect. Construction begun on new Zoo. Clark Concessionaire contract agreement.	
1962	H. Gilkey plan for development of The Park Arboretum.	
1965	'Baby Zoo' opened by Ruhe Brothers, below new zoo.	Park area continues untouched.

DATES	OWNERSHIP/DEVELOPMENT	THE PARK SETTING
1966	Lovejoy Zoo Master Plan developed for 100 acres of the park. This was the legal zoo master plan until 1974.	Volunteer hay farming ended on plateau. Scouts plant exotic pines in this area.
1969	City of Oakland (Blanche/Wilkinson) Master Plan proposal for the Park and Zoo.	Visible vegetative changes since removal of cattle and hay program.
1970-74	Plans developed for new gorilla and tiger displays. Both not constructed.	Park coming under intense pressure from organizations interested in development.
1974	State returned Park to City of Oakland ownership. New contract being negotiated between EBBZS and City. New Master plan being developed to cope with entire park.	
1974	Hansen Resource Analysis and planning guideline on Knowland Park.	
1974	Trower - Virginia Polytechnic Institute Design Studies.	
1975-76	"Comarc" Masterplan under way for new zoo and park development.	

The Market



MARKET DEFINITION

The market for the proposed recreational attraction at Knowland Park will be comprised of virtually the entire population of Northern California, as well as non-business visitors to the San Francisco-Oakland Greater Metropolitan area arriving from both Southern California and beyond the State borders. Among these various categories, four segments are identified, which are expected to have varying impacts upon attendance according to their magnitude, geographic orientation to the park, financial capacity, and interest in outdoor recreational attractions. These are outlined below.

Resident Market - Primary

The primary resident market is defined to include those persons who live within an approximate one-hour drive from the site. Included within this area are Alameda, Contra Costa, Marin, San Francisco, San Mateo and Santa Clara counties. The combined population of these areas is estimated at 4.3 million and is projected to increase to 4.9 million in 1985.^{1/}

Recent surveys indicate that about 75 percent of Knowland Parks current visitors are from Alameda and Contra Costa Counties.

^{1/} California State Department of Finance

Greatest support for the park will continue to come from this area, however, with an expanded scope it should draw more than 12 percent (as is currently the case) from the remainder of the primary market.

A successful park will depend upon a heavy attraction of the primary residential market -- not only for an initial visit, but to include substantial return visitation. Therefore, the park should feature both seasonal and evolutionary changes to encourage locals to attend on a regular basis.

Resident Market - Secondary

This market comprises Northern and Central Californians beyond the Bay Area but within a half day's drive. It includes approximately 4.0 million persons and is projected to increase to 5.0 million by 1985.

Tourist Market - Southern California

On the basis of tourism studies conducted by the State, approximately 2.4 million visitors arrive in the Bay Area from Southern California each year for non-business purposes. This number should reach 3.2 million by 1985 at current 3 percent annual growth rates.

This will be a difficult market to capture at Knowland Park because of the vast array of competing attractions in Southern California. However, with a unique facility, some penetration of this market should be anticipated.

Tourist Market - Out of State

Approximately 4.8 million visitors arrive in the Bay Area each year from out of state (projected at 6.4 million in 1985).

Over half of these visitors stay in the homes of friends or relatives, thereby serving as a catalyst in stimulating visits to local attractions. Consequently, the out-of-state visitor market is expected to be an important source of visitation to Knowland Park. In San Diego, for example, over one third of out-of-state visitors go to the zoo.

FACTORS AFFECTING ATTENDANCE

In addition to the appeal of the park itself, a number of other elements play a key role in determining attendance potential.

- . Site and Access
- . Climate
- . Market Demographics
- . Competition

These factors have been reviewed relative to Knowland Park, and their combined impact offers a generally favorable environment for its success. While the recent opening of Great America represents a definite competitive force its relative high cost to visitors should serve to place Knowland Park in a strong competitive position.

The basic concept for the Knowland Park Master Plan entails a unique zoological exhibit, combined with related audio visual presentations and a commercial complex featuring major and minor rides, games and unique food and gift merchandising. The combined impact of these features, along with a relatively low admission structure should allow it to compete favorably in attracting the four market segments outlined above.

PROJECTED ATTENDANCE

On the basis of the anticipated improvements at Knowland Park, its attendance potential should range from 1.1 million to 1.4 million annual visitors. This assumes completion of a substantial portion of "the Biomes" area of the park.

Attendance estimates for Knowland Park are based upon comparisons of other outdoor recreational attractions and their drawing power relative to available markets. On this basis Knowland Park should experience a 15 percent annual attraction of the local resident market. Penetration of the other market segments should range from 3 to 6 percent annually.

Attendance will vary substantially throughout the year. About 40 percent of annual visitors will arrive during the summer months of June, July and August. Average daily attendance during the peak month of August will be about 6,000 (12,000 on weekend days and 4,000 on weekdays). The park should be designed to accommodate 12,000 daily visitors although this total may be exceeded on occasion.

The Plan



Man and his environment. A relationship which is evident in many forms, some of which show reverence and others which are destructive.

Man in his increasingly urban environment tends to forget about his impact, and dependence on nature. Knowland Park will be a place where one can rediscover this interrelationship.

But Knowland Park isn't just for people who want to walk along a stream, view gazelles bouncing across the grassland and watch a bear deftly scoop a fish from the stream. Knowland Park is for people who want to have fun! Chimpanzee shows, elephant rides, carousels, county fair games, sky rides, fun places to eat, musical groups and festivals. Knowland Park is large enough and well enough planned to comfortably accommodate all of these different but complementary activities.

There are two major factors which had a strong influence on the master plan concept. The first is the site itself. Composed of nearly 490 acres, most of which is in a near natural state, this site features rugged topography with its highest point towering nearly 500 feet above the lowest point, higher than the Transamerica Pyramid. The site is covered by a great variety of vegetation including beautiful oak trees and offers spectacular panoramic views of the Bay area. But, it soon became evident that these very features

which make this site so attractive also make it very difficult to plan and develop. Consequently, the site would have to be very carefully studied and a plan allowed to emerge which would complement the site; enhancing its attributes and minimizing potential impacts.

The second major factor was the Society's desire to develop a park which made a significant educational, cultural and recreational contribution to the Bay Area and, at the same time, had the potential to be financially self-sustaining.

During the site analysis it became apparent that the site naturally divides itself into four separate and distinct areas. They are: 1) the southern end of the park which is currently developed as a picnic area and zoo, 2) the central, high grassland or mesa area of the park, 3) the rolling hill area north of Golf Links Road, and 4) the rugged, tree-covered portion of the park which is bordered by Golf Links Road.

At the same time, during the development of a program to meet the Society's goals for the park, it became evident that separate and distinct activity areas would also be needed. The environment which is required for people to be able to experience a quiet stroll through a forest or a leisurely study of giraffes loping over the savannah is not really compatible with the festive air of an amusement area which is providing another form of entertainment as well as much needed revenue.

To this extent then, the site and the program are very compatible. The program demands a separation of activities and the site divides itself into separate areas. With this as a foundation, the master plan concept was further developed, with constant awareness of the very real constraints being

imposed by both the site and the Society's goals. It is the planners sincere belief that these constraints resulted in forced evolution of more exciting and innovative solutions, the result of which is a plan for a park unlike any other in the world. On the surface, it has an appropriate simplicity. Continued study, however, will offer many new discoveries giving the plan a depth which will typify the experience of the visitor: a wish to return again and again to learn and see and enjoy even more.

The master plan calls for two major activity areas, the Gardens and the Biomes. The Gardens are a concentrated, high activity animal entertainment area. The Biomes offer a spacious atmosphere where one can actually enter and be engulfed by a specific environment, experiencing the plant and animal life completely. Separating these two areas is a 1/3 mile transition zone, where the site naturally and completely separates the two distinct program activities.

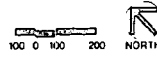
Recognizing that the Master Plan will take many years to complete, time during which new community needs and planning concepts will develop, the area north of Golf Links Road has been left unplanned and designated for future use.

The rugged terrain along the north west portion of the site bordering Golf Links Road has been designated as the Backcountry and left in its natural state. Trails in this area will be open to people not wishing to enter the park proper and will offer a beautiful walk through wooded slopes, deep ravines, and around large rock outcrops. There are also areas along the road which could accommodate tennis courts and other community facilities.

With the backcountry naturally enclosing the developed areas on three sides, special provision has been made in the plan to provide an equally desirable buffer on the southeast side.

Knowland Park
 General Development Plan
 East Bay Botanical and Zoological Society

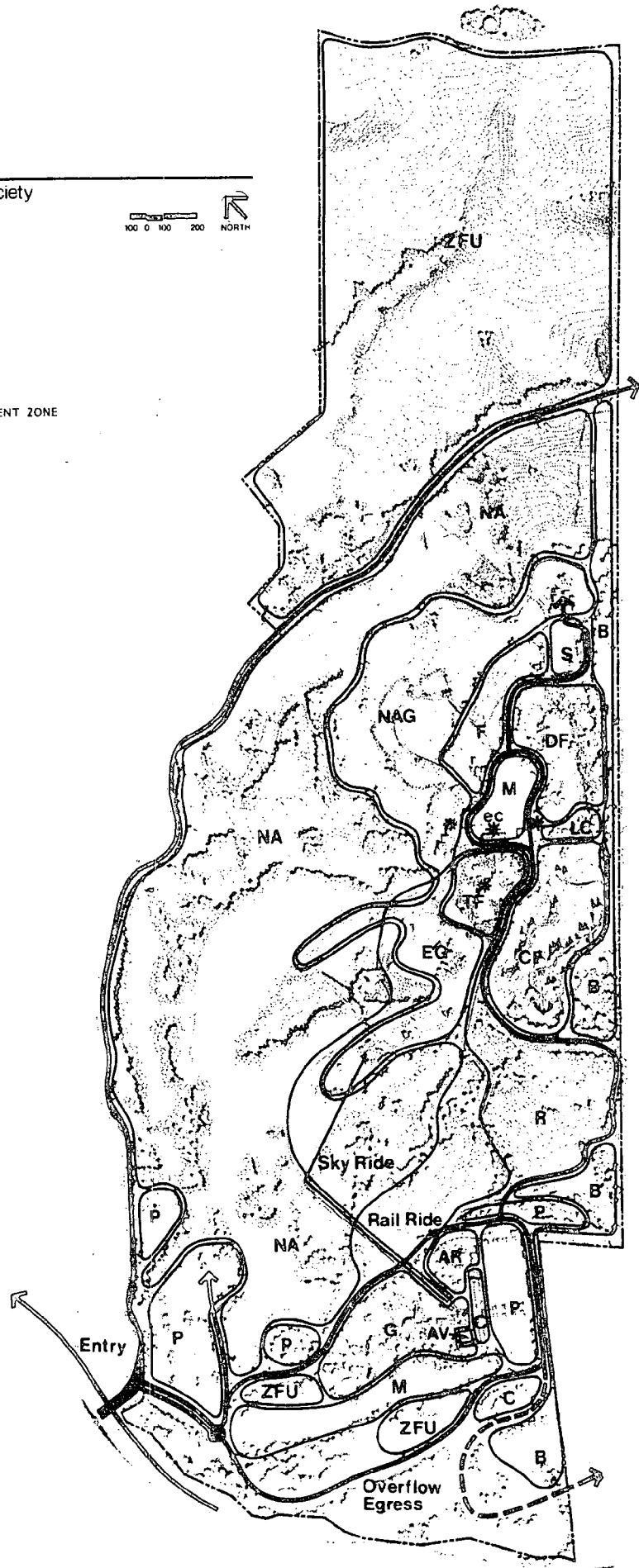
COMARC DESIGN SYSTEMS - Jerry M. Johnson, Inc.
 the SWA Group - Williams - Kuebeck & Associates



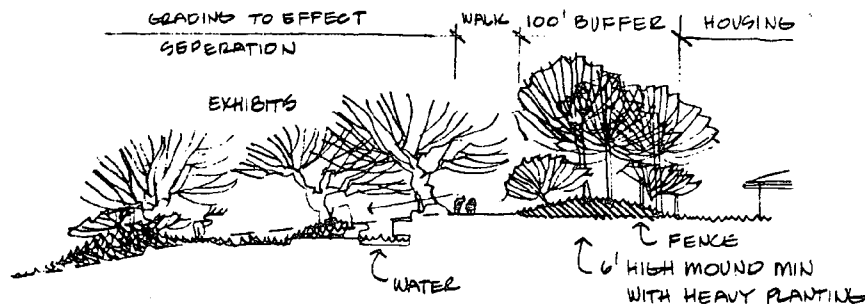
SCHEMATIC LAND USE PLAN

LEGEND

- G** GARDENS AREA - ANIMAL ENTERTAINMENT ZONE
- C** COMMERCIAL USE
- AR** AMUSEMENT RIDE AREA
- M** OPEN LAWN MULTI-USE AREA
- *** BIOME INTERPRETIVE CENTERS
- CF** CONIFEROUS FOREST BIOME
- DF** DECIDUOUS FOREST BIOME
- TF** TROPICAL FOREST BIOME
- NAG** NORTH AMERICAN GRASSLAND BIOME
- EG** EXOTIC GRASSLAND BIOME
- F** FARM
- LC** LUMBER CAMP AND LOG FLUME RIDE
- NA** NATURAL AREA (Back Country)
- ZFU** FUTURE USE AREA
- B** BUFFER
- R** LANDSCAPE REHABILITATION AREA
- P** PARKING
- EC** EDUCATION CENTER
- AV** AUDIO-VISUAL INTERPRETIVE CENTER



Here running along a hundred foot wide strip of land will be a six foot high tree covered ridge through which winds a protective but inconspicuous fence. This zone with its



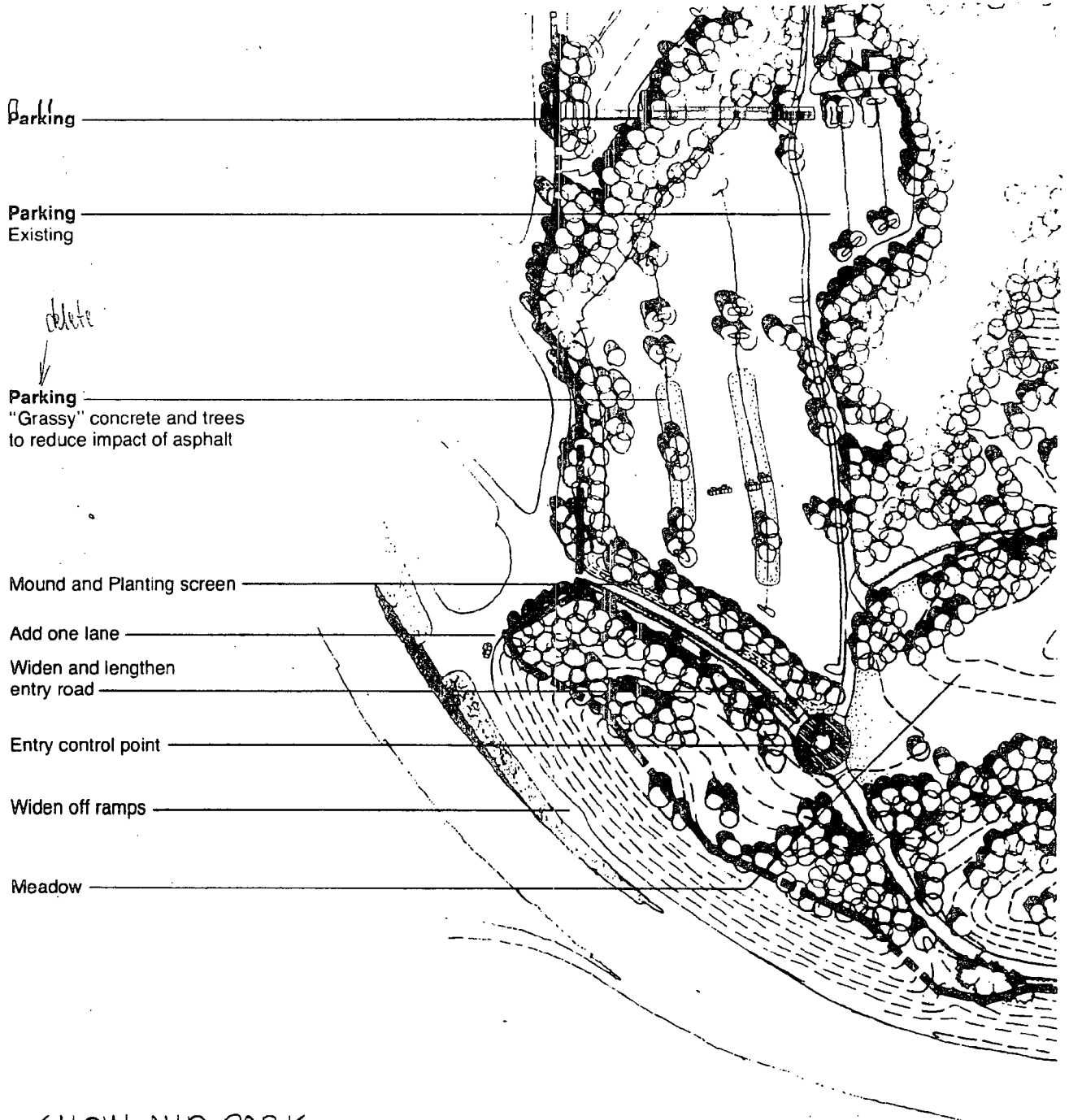
BUFFER EDGE CONDITION RESIDENTIAL
KNOWLAND PARK ZOO

ridge and plantings will provide both an effective visual and noise barrier as well as a very desirable linear park. Because of its width it would be possible to incorporate walks, jogging trails and small playgrounds outside the fence for use by the residents of the area.

ENTRANCE AREA

Access to the park will be at 98th Avenue. By moving the entry gate further into the park more space is provided for cars slowing to enter. As the park facilities and attendance expand, new traffic controls, roadways and ramps will have to be installed outside the gate to comfortably accommodate the additional traffic entering and leaving the park. Because of the sites proximity to freeway ramps, there are a variety of ways in which this traffic can be accommodated through the joint efforts of the City and Caltrans.

Upon entering the park autos will travel approximately 500 feet along a nicely landscaped two or three lane roadway to a kiosk which serves as a control point. During non-peak



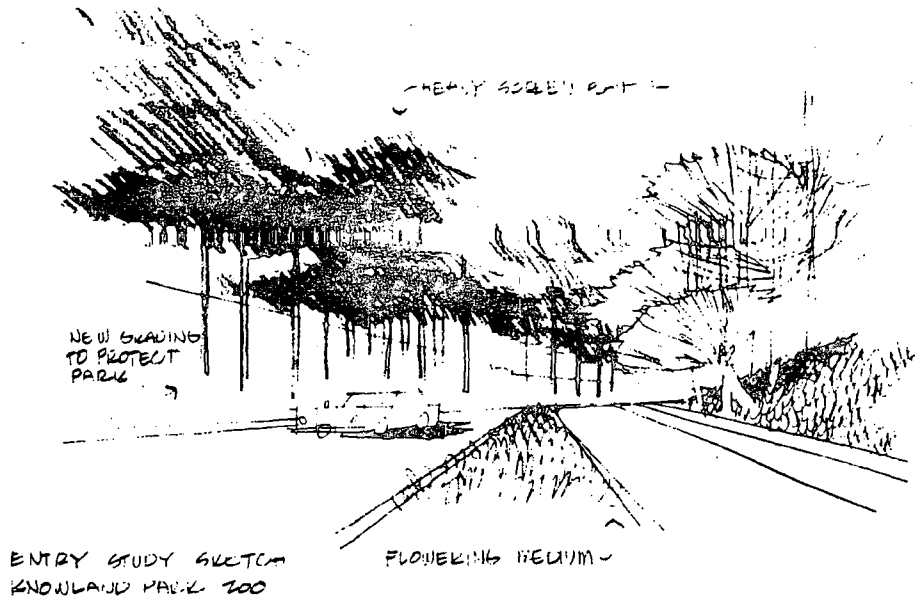
KNOWLAND PARK
 ENTRY AREA DEVELOPMENT PLAN
 EAST BAY BOTANICAL AND ZOOLOGICAL SOCIETY

COMARC DESIGN SYSTEMS - LERRY M. JOHNSON, INC.
 THE GWA GROUP - WILLIAMS KUEBELECK & ASSOCIATES

SCALE 1"=100'

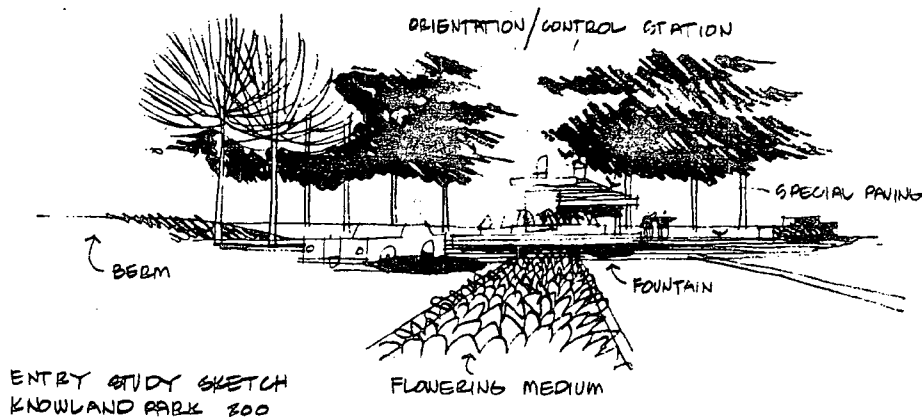


days, they will be allowed to move past this point and on up



the existing access road to the parking area near the main gate. Upon leaving the park these visitors will travel along the new northern portion of what now amounts to a loop road and exit the park near their point of entry on 98th Avenue.

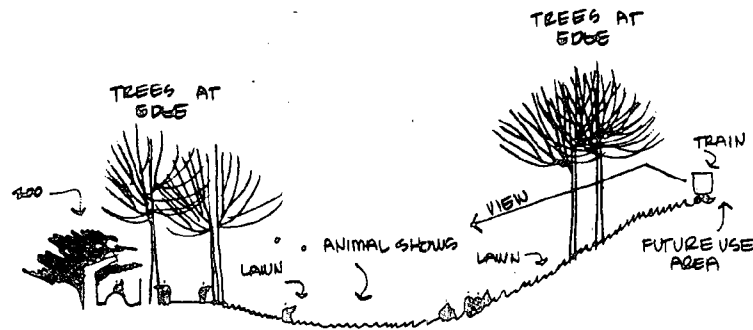
On days when the upper lot fills, the attendant at the kiosk can direct people to continue up the existing access road, loop around and park in the area north of the lower end of



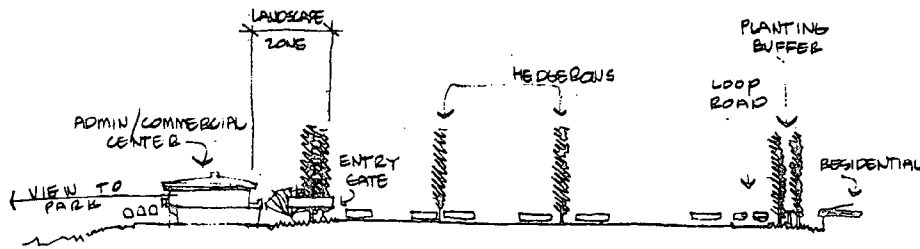
the loop. Or, a drive around the loop road can be avoided by directing people to turn into one of the large new lots provided at the lower end of the park. During the time that this is happening people leaving the upper area may be directed to exit via the existing egress road to 106th Street, thus eliminating a traffic conflict at the bottom of the loop road.

With this flexibility in parking, roads and traffic patterns, the park will be able to adequately handle the changing loads which will come from peak time visits, special events and park expansion.

One of the first really striking elements of the park which an arriving visitor will notice is the beautiful meadow spreading out beyond the kiosk. This leisurely meadow leads through the swale bordered by trees and past the baby zoo into the center of the Gardens area, where it eventually culminates into an active amphitheater.



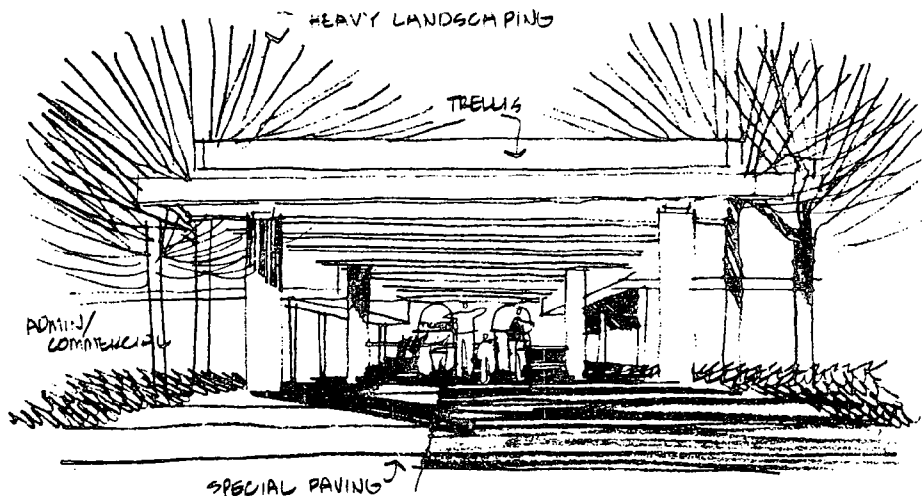
AMPHITHEATER STUDY SKETCH
KNOXLAND PARK 200



PARKING LOT LAYOUT CROSS SECTIONS
KNOWLAND PARK 200

The main entrance to the Gardens and the Biomes is off the newly landscaped upper parking area. Those parking in the lower lots may be transported to this point by tram.

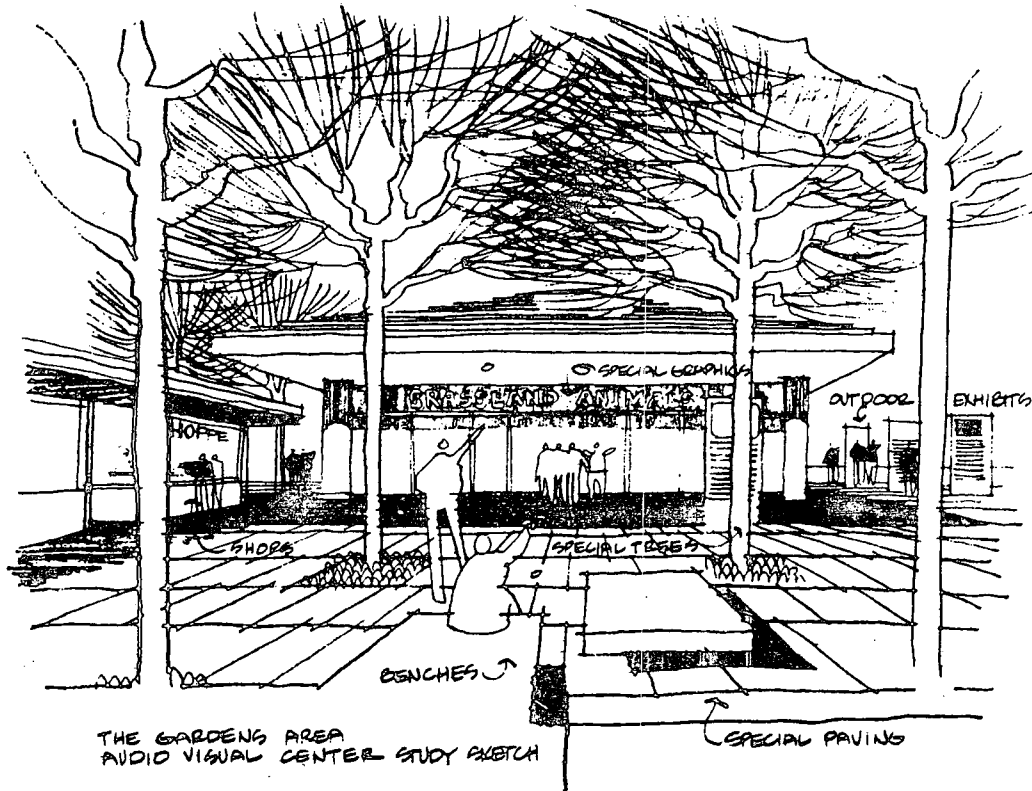
From the parking area the visitor passes through a nicely landscaped and well defined entrance to the zoo. Once inside



100 ENTRY
KNOWLAND PARK 200

a variety of opportunities immediately become available. For opening onto this entry plaza are fine shops and restaurants along with the administration offices. A focal point of the plaza is an active animal exhibit such as a sea lion and shore bird pool. From here the visitor can get his bearing with views

down over the Gardens and up the hill towards the Biomes.



The orientation center through the use of multi-media and static displays will show how Biomes, or environments are created. Through the study of California geologic history and experiencing an earthquake through multi-media, one can see how land forms change. New mountains affect the climate by stopping clouds and collecting more rain. This in turn produces lush vegetative cover which attracts new animal species. This unique combination of landforms, climate and plant and animal life is called a Biome. The environment somehow becomes more comprehensible with the recognition that for all of its complexity, there are only nine Biomes in the world. For a grasslands Biome, whether it is found in California or Iran is basically the same.

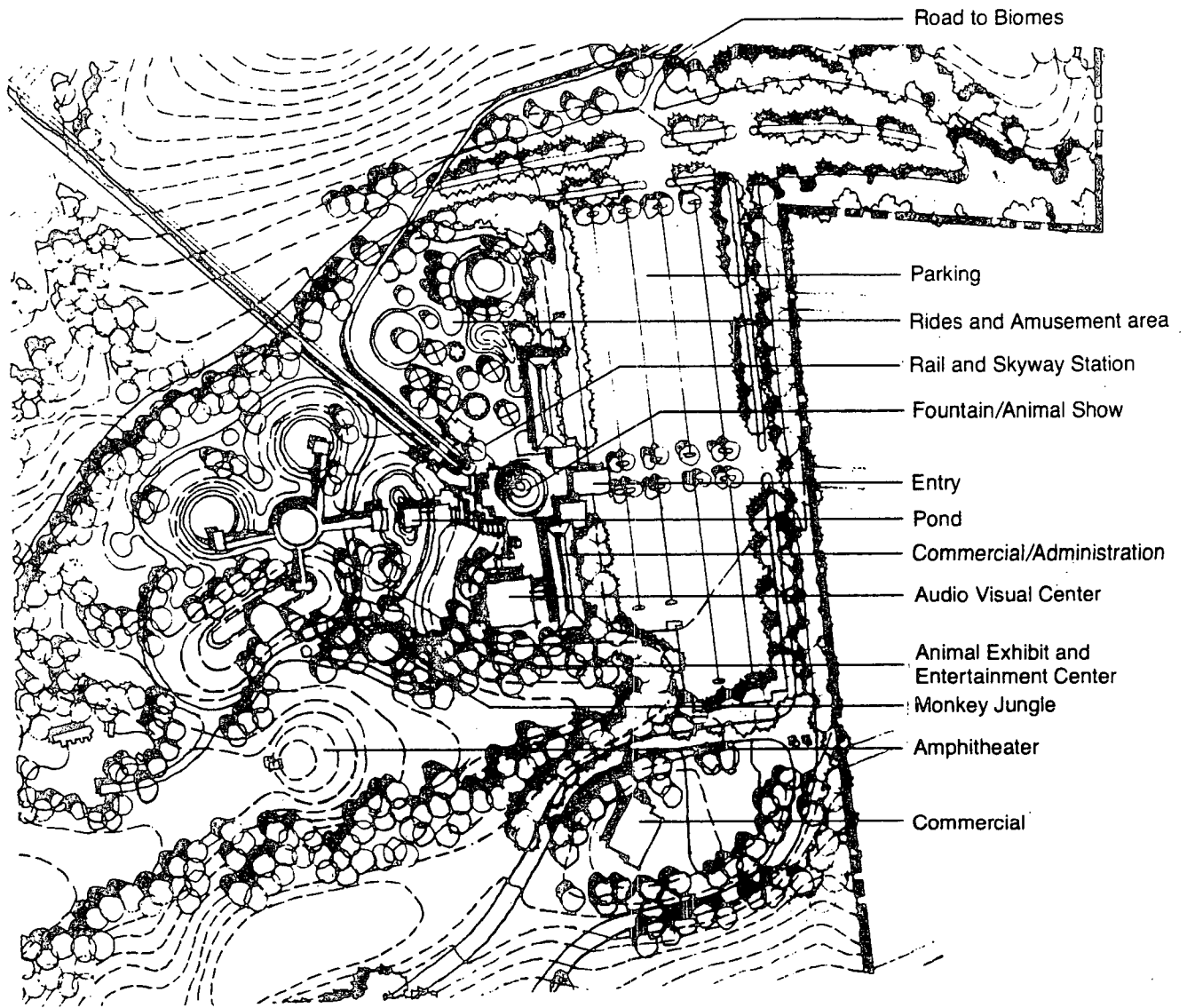
The study of how the elements of each Biome relates is ecology. To understand how man has survived and adapted to each Biome is to better understand our culture, our history and our world problems.

Because the orientation center incorporates the use of multi-media it can be dynamic, always offering some new program to the returning visitor. For example, programs could have seasonal variations or special shows on new animals in the park. This orientation center, like the park itself, will be more than something exciting to see, it will be something to be studied and explored.

The Gardens

The Gardens are an exciting and festive animal/entertainment center. No apologies needed for the fact that the animals must co-exist with amusements, games, musical groups and other activities. For the only animals which are in the Gardens are ones which are natural entertainers and receptive to human activity or ones which lend themselves to enclosed displays which will shelter out disturbing noises. Animal displays being recommended for consideration in the Gardens area are:

- 1) A sea lion/shore bird pool preferably incorporating a wave machine to more closely simulate a sea-shore environment.
- 2) A walk through monkey jungle where people wander through a jungle with dozens of squirrel monkeys casually swinging through the trees, scampering across the walk-ways and scolding the visitors and each other.
- 3) A gibbon exhibit, with these talkative primates carrying on a conversation with their brothers in the tropical jungle up on the hill.
- 4) A sun bear exhibit featuring these colorful and entertaining current residents of the zoo.



KNOWLAND PARK
 THE GARDENS AREA DEVELOPMENT PLAN
 EAST BAY BOTANICAL AND ZOOLOGICAL SOCIETY

COMARC DESIGN SYSTEMS-JERRY M. JOHNSON INC.
 THE END GROUP-WILLIAMS KUEBELECK & ASSOCIATES

SCALE 1/4" = 100'

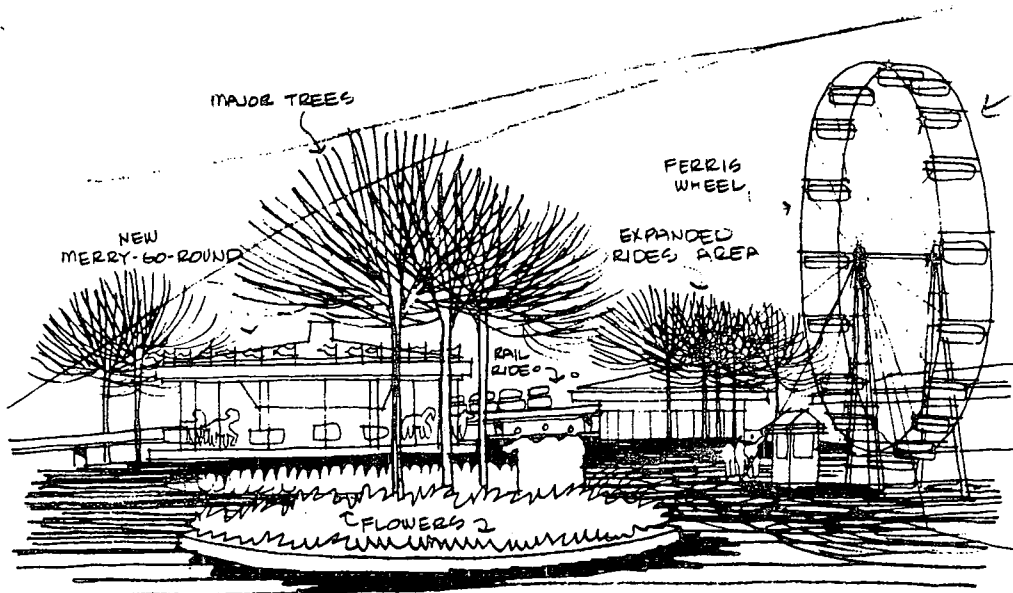


- 5) A penguin house where these stately creatures can demonstrate their humerous antics and amazing agility in moving from water to land.
- 6) Animal rides including a walk along a jungle trail atop a mighty elephant, a trek across a desert scene on a docile camel or a trip into the backcountry on a mule train.
- 7) A chimpanzee habitat where these loveable animals can mimic the funny antics of their human visitors.
- 8) A walk-through aviary where exotic birds can be seen in free flight among beautiful plants and trees.

Many of these exhibits could also be developed to feature periodic shows, using resident actors such as the sea lions, chimpanzees and penguins. In addition, an outside amphitheater is available for larger shows featuring animals, musical groups, drama or anything else which would contribute to making a visit to Knowland Park enjoyable and memorable.

*excluding rock
funds, other
mapprop.*

But the Garden also offers other activities to entertain and



*ignore station
"misleading"*

COMMERCIAL AMUSEMENT PARK STUDY SKETCH

amuse the visitor and provide needed income to the Society. The rides will be expanded with the emphasis on quality kiddie rides rather than adult "white-knuckle" rides. County Fair type of games can provide a guy the opportunity to win a panda bear for his girl or a piece of cut crystal for mom.

Shops, restaurants, interesting snack stands, animal shows, audio-visual centers, animal displays, rides, games, roving musical groups, works of art, specially scheduled festivals and concerts; all these are part of the vibrant and colorful Gardens area.

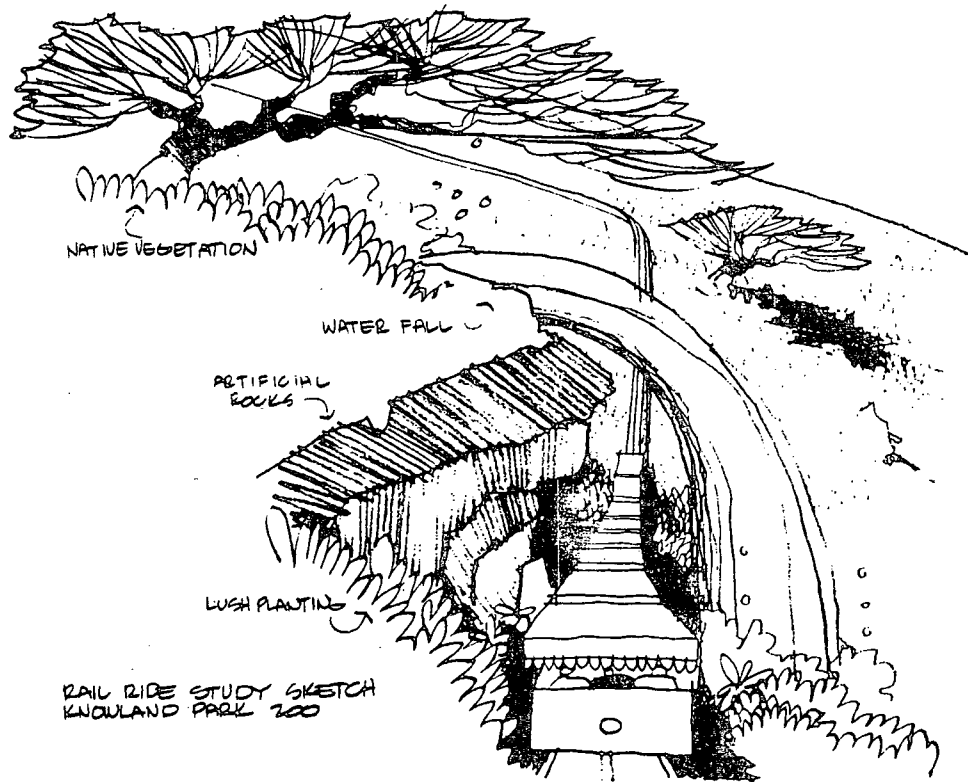
The Transition Zone - *Further study needed.*

The Gardens and the Biomes are separated by 1/3 mile of rugged terrain with the Biomes situated a full 400 feet above the Gardens. This natural zonation allows the very different atmosphere of both areas to comfortably coexist in the same park. But it also becomes, in and of itself, one of the most exciting aspects of the park.

Water, originating in lakes high up in the forest areas comes cascading down the hillside on its way to the Gardens forming gurgling rapids, shimmering ponds and roaring waterfalls. Water, a common link to every form of life will be the common thread linking the very different environments and experiences of Knowland Park. This water will be more than visually exciting, it will be an invitation to park visitors to hike between the gardens and the Biomes, exploring the ravines, winding through the beautiful live oaks and shrubs, watching as trout rise to feed on the evening hatch and catching a glimpse of an occasional deer on the hillsides. At many points along the way the vista opens up and lays the entire Bay Area at the hikers feet, with the bridges gracefully spanning the water and San Francisco's glistening towers on the far sky line.

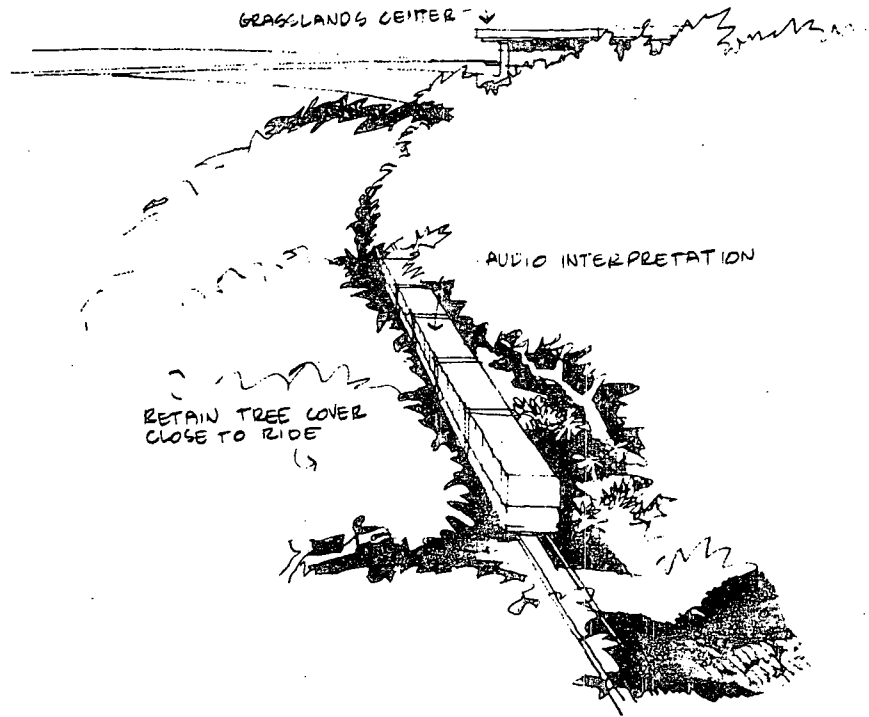
By night careful lighting turns the water into an incandescent ray of soft light visible for many miles.

But walking up the hill is only one of the ways to enjoy and appreciate this transition area. One of the most exciting

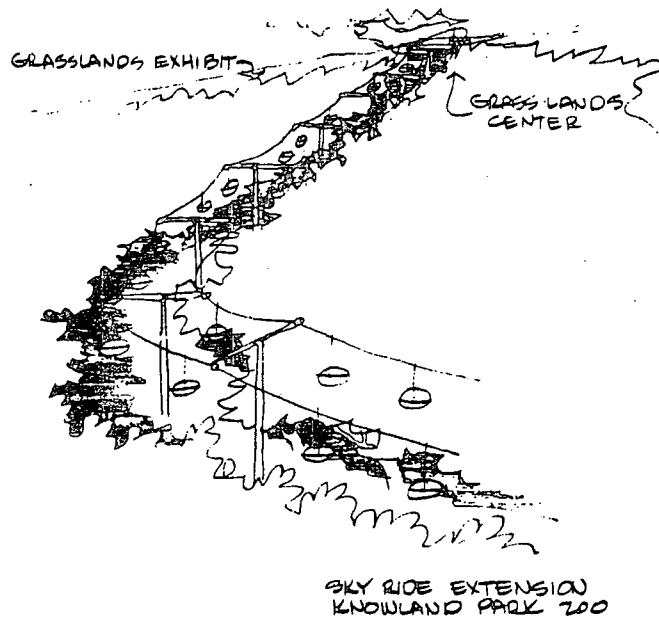


parts of anyone's visit to the park will be a ride on the Cog Railroad. This railroad will depart near the main entry and wind its way up the ravine, playfully intermingling with the water, sometimes passing over it, sometimes under the precipice of a waterfall. Upon reaching the top, passengers will disembark at the main Biomes/Educational Center to begin their tour of that area. A return to the Gardens via the Cog will treat the visitor to a different route down

the mountain, complete with its own views and excitement.



But yet another way exists to move up the mountain. A second stage will be added to the existing sky ride to provide an aerial route from the Gardens to the African area of the grasslands Biome. Here one can glide out of the clamor of the amusement park, over the tranquil hillside landscape, past



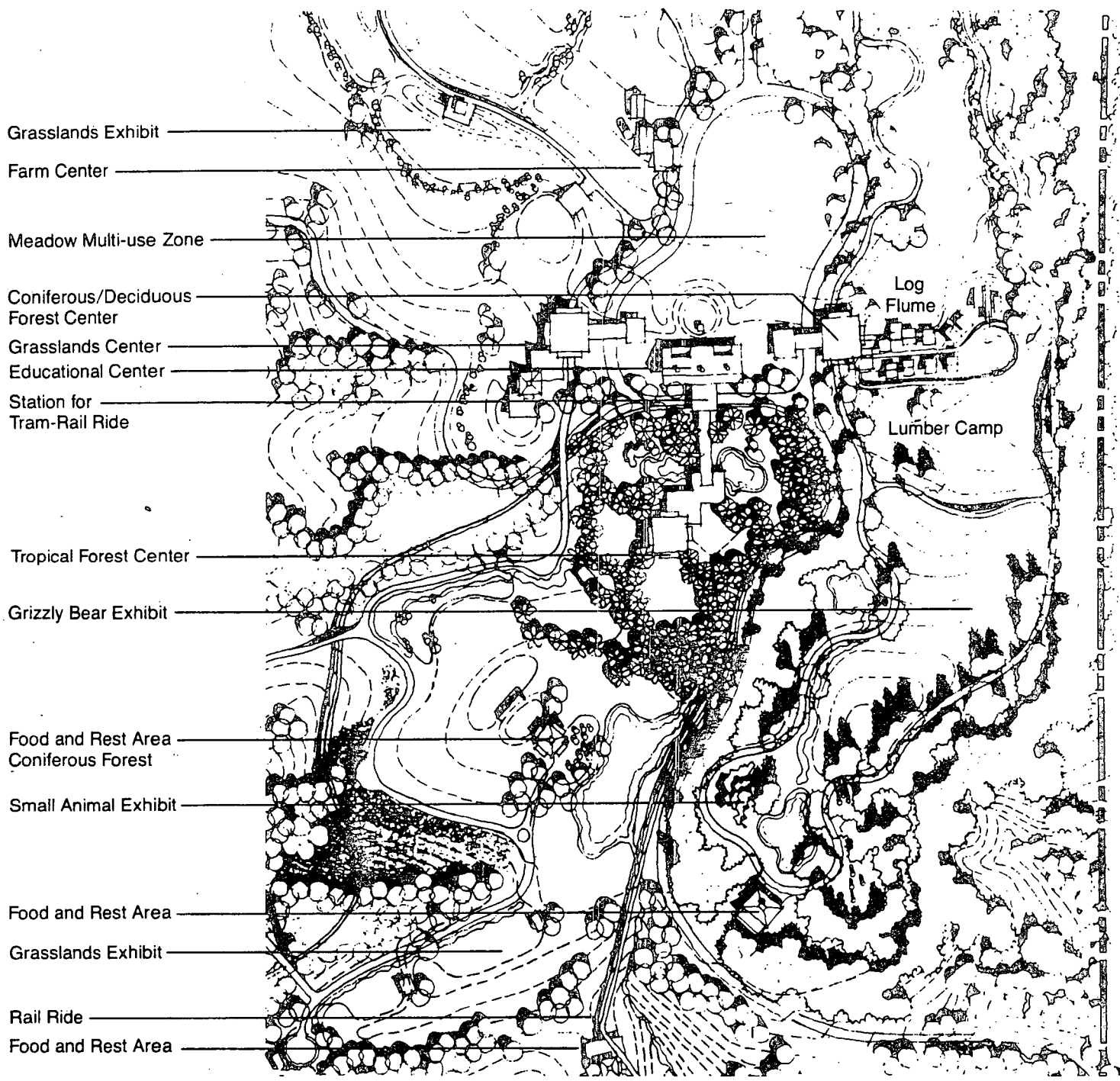
the water hole at the midway point and on over the oak trees to the grasslands above. The silence and the view combined with the apprehension of hanging high from a thin cable will provide a spine tingling experience.

For those wishing a more sedate route to the top, trams will be running up the road on the east side of the site. These trams will provide a fast, comfortable alternative for traveling to the Biomes and will be needed primarily on peak days to handle the overflow crowds.

So, traveling from the Gardens to the Biomes is not just a necessity, it is an exciting and significant part of a visit to Knowland Park.

The Biomes

The Biomes area is big. It offers the visitor environments, not displays. Environments which people can enter, study and become engulfed in. You will not walk by the coniferous

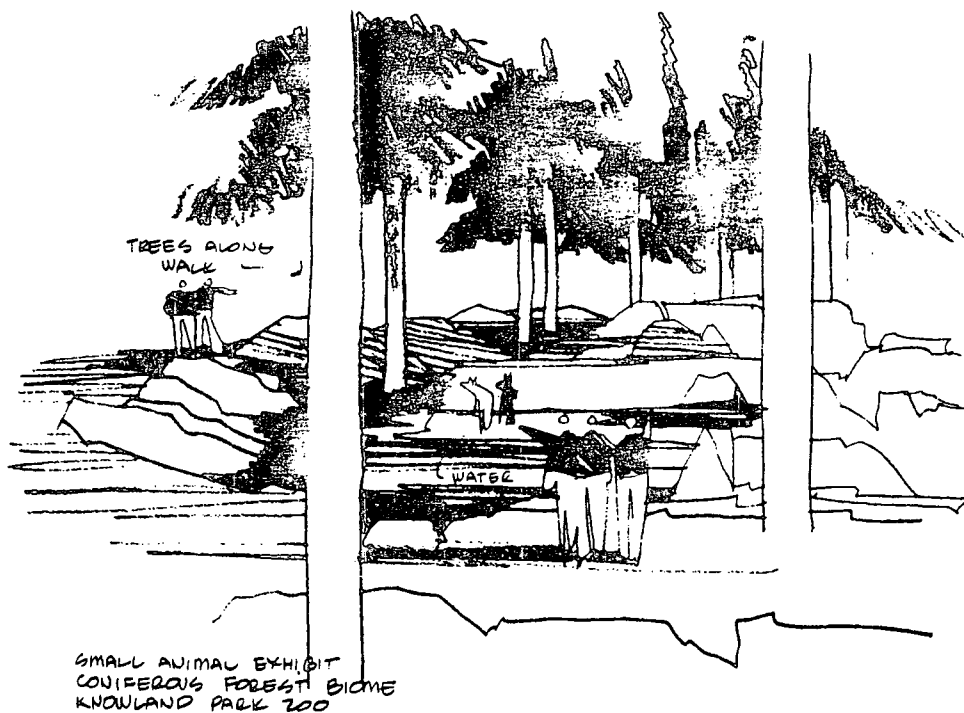


- Grasslands Exhibit
- Farm Center
- Meadow Multi-use Zone
- Coniferous/Deciduous Forest Center
- Grasslands Center
- Educational Center
- Station for Tram-Rail Ride
- Tropical Forest Center
- Grizzly Bear Exhibit
- Food and Rest Area Coniferous Forest
- Small Animal Exhibit
- Food and Rest Area
- Grasslands Exhibit
- Rail Ride
- Food and Rest Area

Log Flume
Lumber Camp

KNOWLAND PARK
 THE BIOMES DEVELOPMENT PLAN
 EAST BAY BOTANICAL AND ZOOLOGICAL SOCIETY
 COMARC DESIGN SYSTEMS - JERRY M. JOHNSON, INC
 THE SWA GROUP - WILLIAMS WEBBELECK & ASSOCIATES

SCALE 1" = 100'
 NORTH



forest set, you will dare to enter the coniferous forest. You will not go to see the grizzly bear, you will be unable to escape his presence. For now you have entered his environment, his Biome. You and the grizzly will both wander through the same trees and meadows and along the same stream while safely separated by inconspicuous barriers.

Many zoos have a zoogeographic organization (i.e., African animals together, Australian animals together) or a systematic arrangement (i.e., all the cats in an area, primates in another). But here a Biome organization was chosen because it is the way the world is ecologically classified and it offers great opportunities for ecological interpretation.

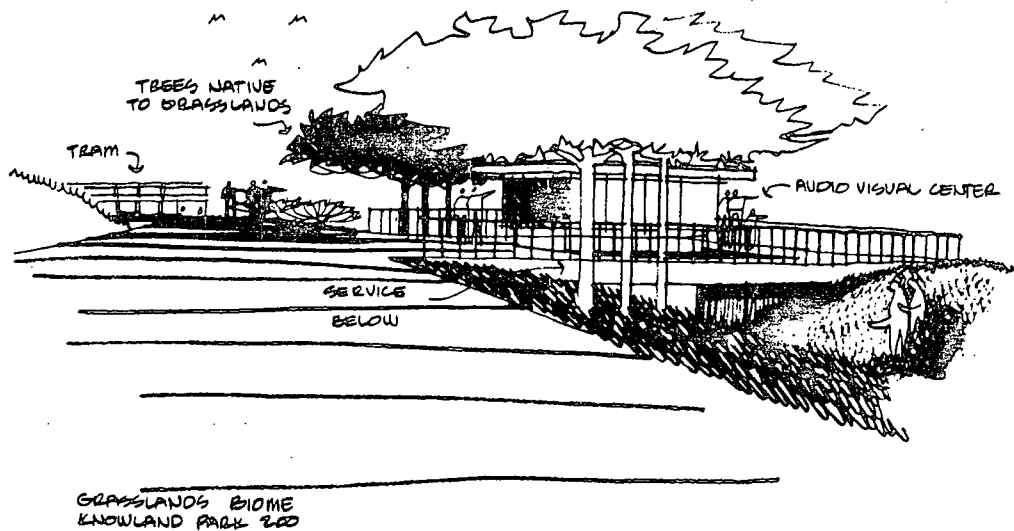
In their totality, the Biomes featured here encompass the forests of the world and the grasslands of the world. The forest area consists of deciduous, coniferous and tropical forests while the grasslands is broken into North American prairies, South American pampas and African savannahs.

Within these areas can be found a tremendous diversity, an exciting selection of animals and a significant opportunity to relate our different environments to better understand the cultural differences which have emerged from each as well as the inescapable link between our environments, which necessitates the world-wide concern over conservation of the species.

Upon entering the Biomes area by railroad or bus, the point of departure is the Biomes educational center. Here are permanent displays such as a Native American Center and a Black Cultural Center, as well as seasonal shows. Classrooms will be available where the docents can orient school groups visiting the park, and special classes can be held for school children and adults interested in some particular aspect of our natural environment or culture.

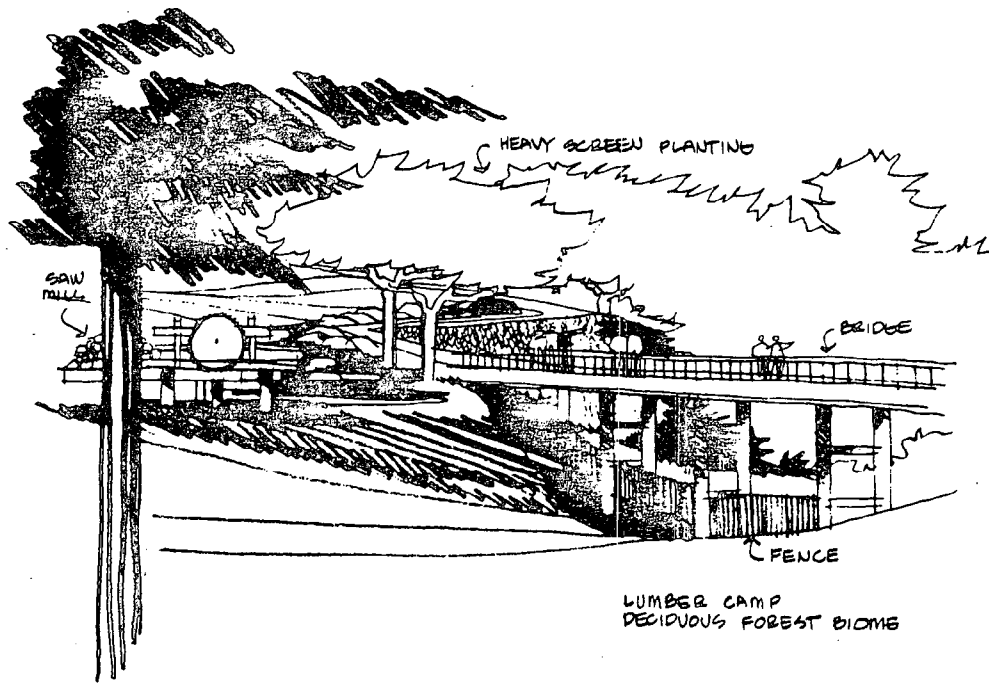
This education center is nestled in a kind of saddle and opens to the rear into a large meadow area. Here special programs can be scheduled from time to time and lectures presented in the grassy amphitheater.

From the education center the visitor can quickly get to three different audio-visual centers, each of which serves as the entrance to one or more of the Biomes. These centers will enable people to better appreciate the environment they are about to enter, and experience things which are difficult to duplicate in real life. For example, it is great to see a herd of buffalo grazing on the North American prairie, but how about being in the center of a buffalo stampede. This experience can be created in the audio-visual center. Or how about visiting the tropical forest and then entering a room where it gets completely dark, and the room fills with



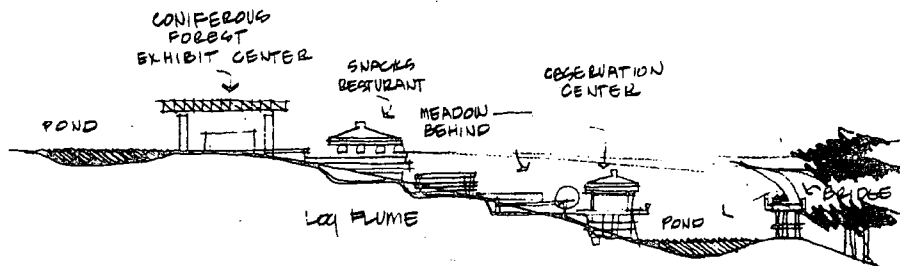
the night sounds of the jungle. Through programming changes these centers can be kept fresh, offering a new experience for the visitor each time they return to the park.

The coniferous and deciduous forests occupy the eastern half of the mesa area stretching out for nearly 1/2 mile. The coniferous forest occupies the cooler, northern facing slope and the deciduous forest the warmer, southern slope. The audio-visual center/entry area opens into the center of the forest where a logging camp occupies the low part of the saddle.



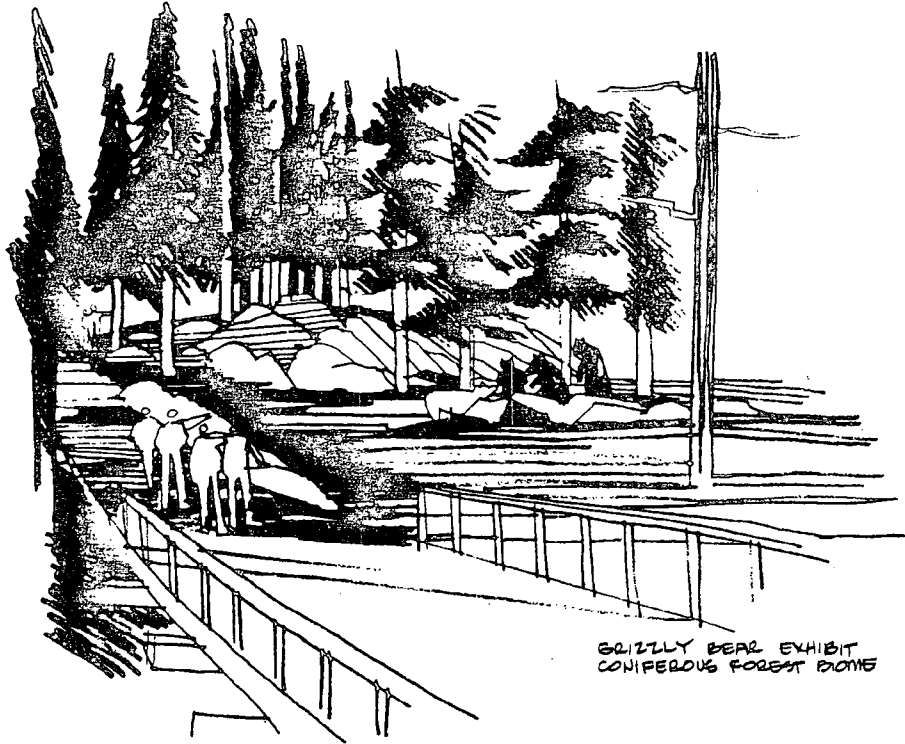
Here the visitor can see one way man has utilized the forest. While the theme of the logging camp and sawmill will be strictly 1800's, among the displays based here could be one on modern logging and reforestation and scientific management practices.

And you thought you had left all of the fun down in the Gardens. Not in your life. For here, winding down the hill and through the lumber camp is an authentic looking log flume, complete with hollowed out logs for you to ride in.



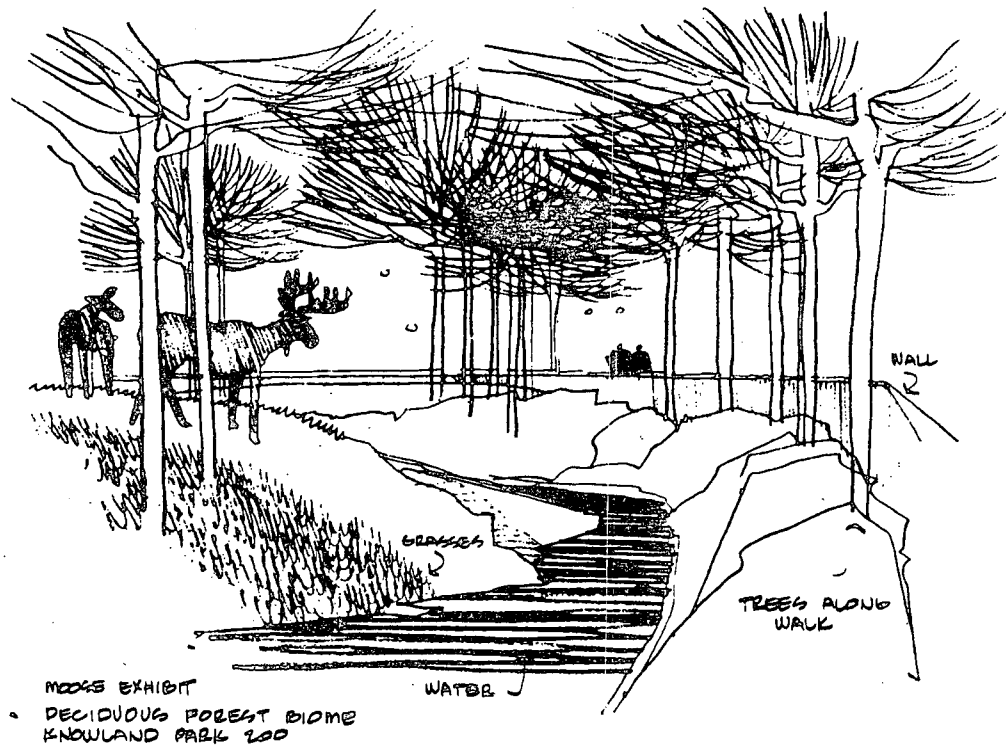
CONIFEROUS FOREST BIOME
KNOWLAND PARK ZOO

As one wanders into the coniferous forest the presence of the Grizzly is immediately felt, and persists for most of your stay. The Grizzly has become kind of a featured animal of the park not only because it is such a spectacular creature but it also really exemplifies mans' conflict with nature.



For in California, where the Grizzly was once so predominant that he is featured on our state flag, he can no longer be found.

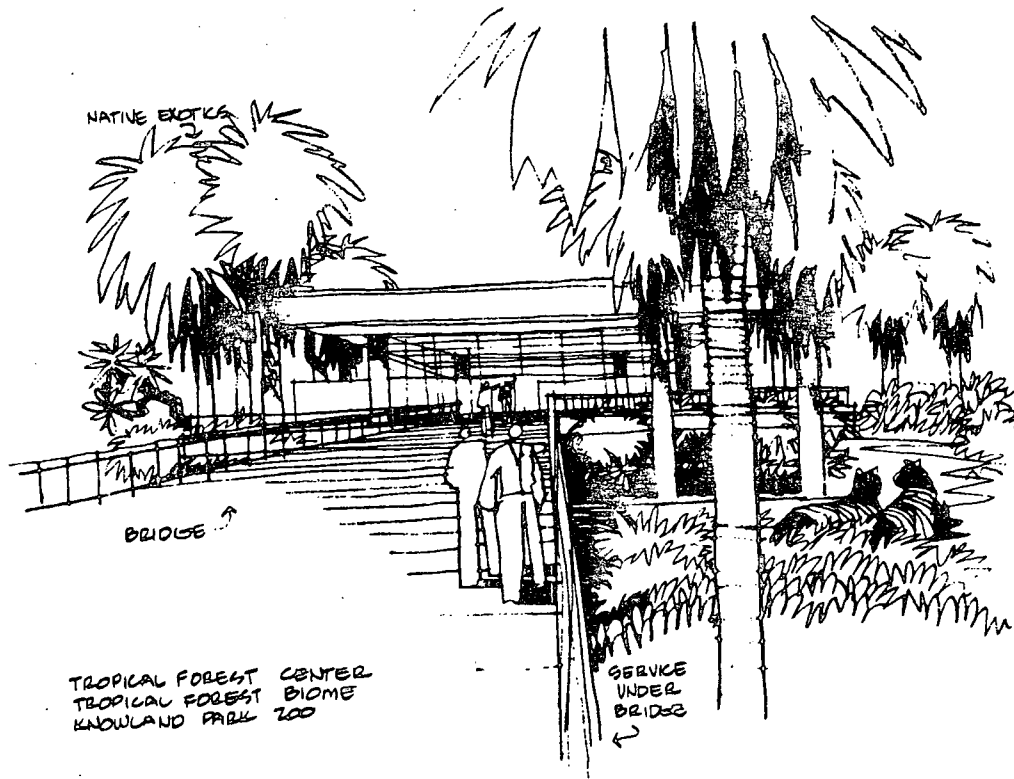
Throughout the forest area can be seen many other conspicuous animals such as Elk, Bald Eagle, Trumpeteer Swan, Moose, Beaver, Timber Wolf, Black-tail Deer, Mountain Lion and Fox. In addition many smaller less conspicuous animals will be



living in appropriate areas along the way.

Just south of the main Biomes education center is the tropical forest. Here are animals from Africa, Asia and South America, all of which have adapted to the same Biome.

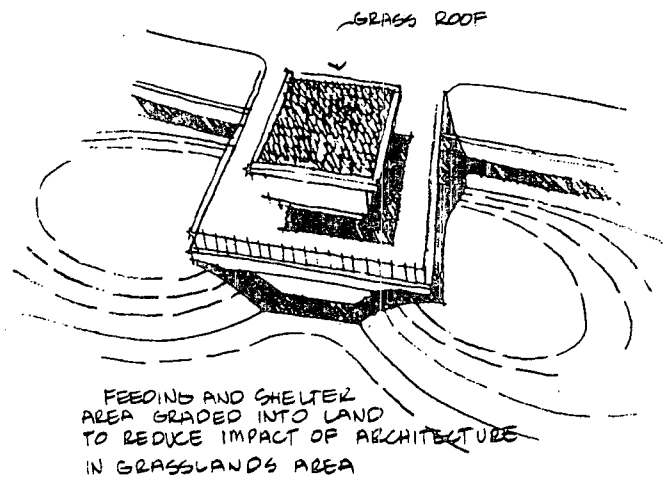
African animals which are found here could include the Sitatunga, the Colobus Monkey and the colorful but ferocious Mandrill Baboon. From Asia there could be the entertaining Orangutan which is so well suited for this climate. Two colonies of Gibbons situated at opposite ends of the tropical forest will encourage these talkative animals to establish some long distance chatter. A Tiger might be found wandering out on a large grassy area to take a swim in the pond. There can also be Gaur, Barasingha Deer, Hornbills and Sarus Cranes.



South America's contribution to the tropical forest could include the sleek Jaguar, the Harpy Eagle and the Black-neck Swan. There could also be a Tapir/Capybara/Macaw tree exhibit. And throughout the tropical forest could be free flight aviaries featuring the innumerable beautiful birds which are found in this Biome.

Running along the western side of the mesa area is the grasslands. This area stretches out for a half mile and includes several grassy valleys and knolls.

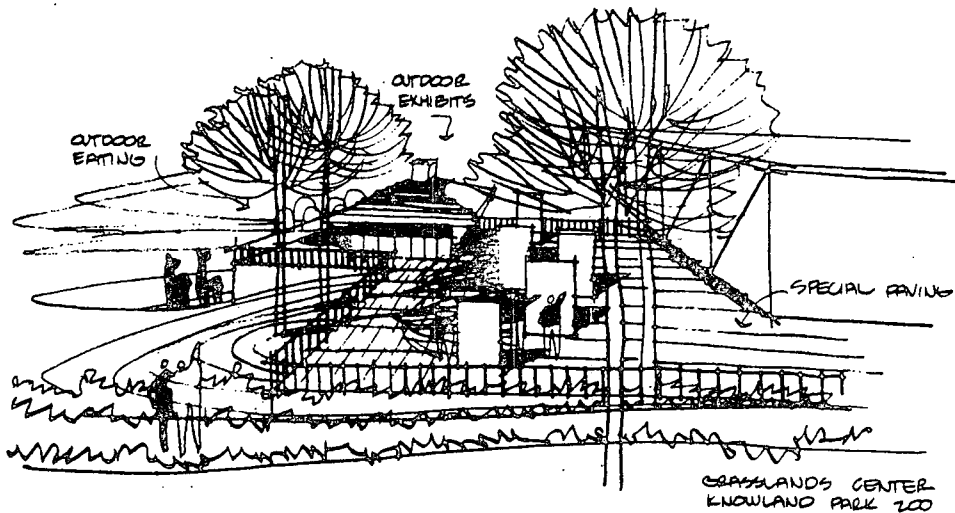
The northern portion of this area consists of the North American Grasslands where you will see groups of grazing Bison, Pronghorn Antelope and White Tail Deer being viewed by hungry-looking Coyotes and Bobcats. A walk through this area will also yield a Prairie Dog colony, Badgers and a Golden Eagle.



GRASSLANDS WALKWAY - OVERVIEW AREA
KNOWLAND PARK ZOO

One of the very distinct impacts man has had on the North American Grasslands is to convert them to farms. So included here is a family farm complete with milk cows, laying hens and plow horses to cultivate the fields. The corn is growing and as soon as the apples are ripe we'll make cider, and then we'll have a hoedown on the farm. This is one of those special events that keep the visitors coming back.

Further south in the grasslands, down near the entrance, is a South American display with Llamas and Rheas. And then several large savannah areas open up featuring the African animals. Included here could be herds of Giraffe, Ostrich Crowned Crane and Thompsons Gezelle, a large Baboon jungle and a Cheeta with room to demonstrate the speed he is known for. The Kudu, Zebras, the Baleleur Eagle and the Bustard can all wander through their area of the African Savannah while the Lion, the Cape Hunting Dog and the Hyena pace anxiously nearby.



At strategic points in the Biomes area, there are attractive eating areas featuring spectacular views of the Bay Area and enchanting, more contained views of particular animal areas. It will also be possible to purchase a snack from a portable stand along the path or buy a box lunch and wander out into a meadow to eat in semi-seclusion.

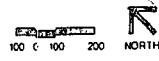
There can also be eating facilities with a direct tie to some aspect of the park. For example, a stand located next to a trout pond could prepare the catch of the lucky angler and make lunch a really exciting experience.

We would suggest that at the appropriate time the Renaissance Faire sponsors be brought in to research each area of the park and create a menu which relates to each theme. They have demonstrated an incredible ability for coming up with foods that are authentic, delicious and an event in themselves. They are excited about this project and have indicated a willingness to participate.








Knowland Park General Development Plan

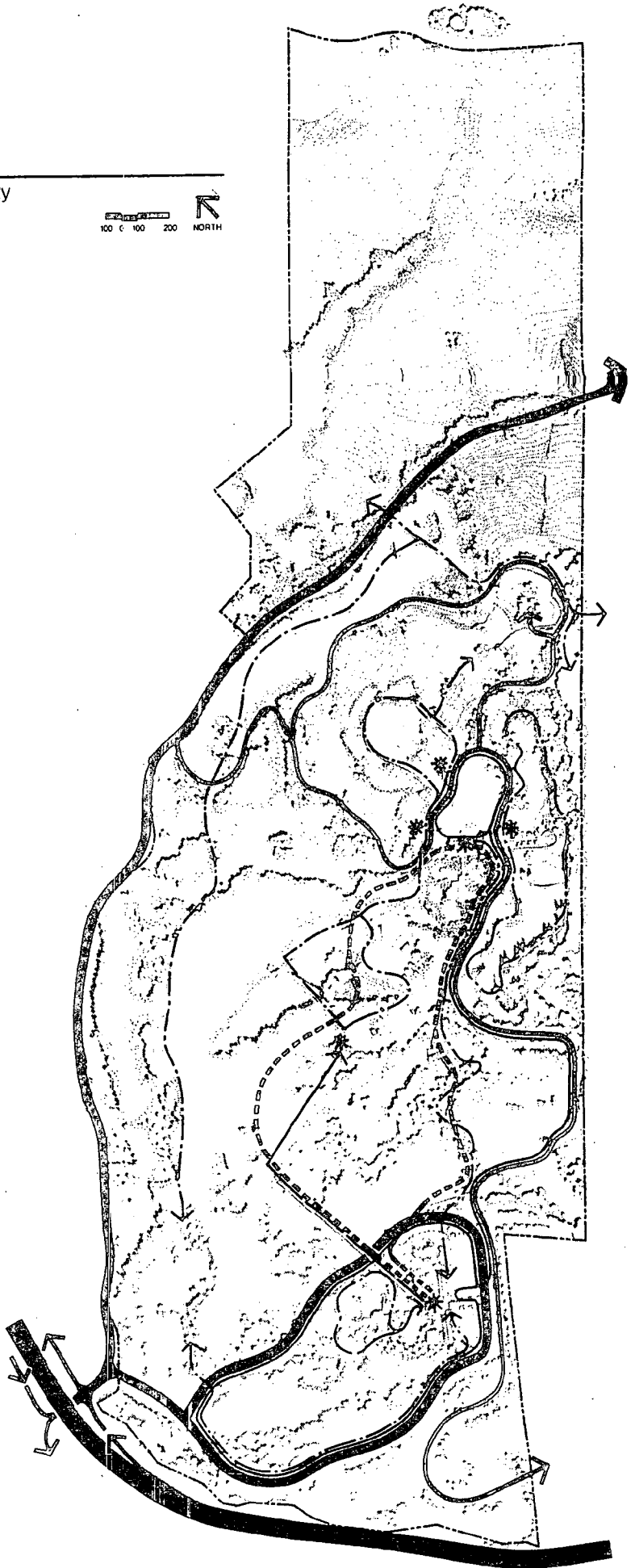
East Bay Botanical and Zoological Society

COMARC DESIGN SYSTEMS - Jerry M. Johnson, Inc.
the SWA Group - Williams - Kuebeleck & Associates



SCHEMATIC CIRCULATION PLAN LEGEND

-  MAJOR AUTOMOBILE
-  MAJOR SERVICE ACCESS
-  RAIL RIDE
-  SKY RIDE
-  TRAM ACCESS
-  WALKWAY AND MAJOR TRAILS
-  FOCAL POINTS



Circulation

As attendance increases, circulation improvements will have to be made outside the park to more efficiently move traffic the short distance from the freeway to the entrance. Discussion with both the City and Caltrans indicates that solutions are readily available depending on the extent of the problem. Some of the possible solutions include:

1. Add two lane off ramps from both directions to replace existing single lanes.
2. Modify north bound freeway exit to permit smooth entrance to Knowland Park by grading slopes back and eliminating stop signs.
3. Signalize intersections.

These modifications according to both Caltrans and the City of Oakland will increase off ramp flows by at least 100% assuming that flows now are about 600 autos per hour.

Auto traffic in the park will be limited to ingress and egress off 98th Avenue, egress onto 106th Avenue and the loop road around the Gardens. This provides a flexible traffic pattern allowing the attendant's to control parking and alter traffic flow to fit incoming and outgoing loads.

The parking shown in the Master Plan can accommodate approximately 2,460 cars. Of these, 1,000 can be parked in the upper lot adjacent to the entry to the Gardens Area. This will be sufficient to handle weekday crowds making it unnecessary to use the lower lots. Approximately 40 more cars can be parked in the Snow Building lot and 80 cars can be accommodated in the grove of trees north of the lower end of the loop road. Approximately 1,250 cars will be accommodated in the new lots at the lower end of the meadow near the auto entrance and the remaining 90 cars will park near the service area located in the Biomes. This area can be accessed using one of three major service roads and will probably be reserved for employee parking.

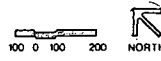
Once inside the park major transportation will be provided between the Gardens and Biomes via cog railroad, skyway and trams traveling up the access road. A tram will also be needed to carry visitors to the main entry from the lower lots when they are in use.

Main walks in the Gardens area will be wide enough to accommodate smaller trams or "elephant trains" to transport people who tire of walking. The tram route and major walks can be used as a service road before visitors arrive. In addition, a full time service road to the Biomes will originate on the north side off Golf Links Road. This follows an existing dirt road winding up the hill.

Knowland Park General Development Plan

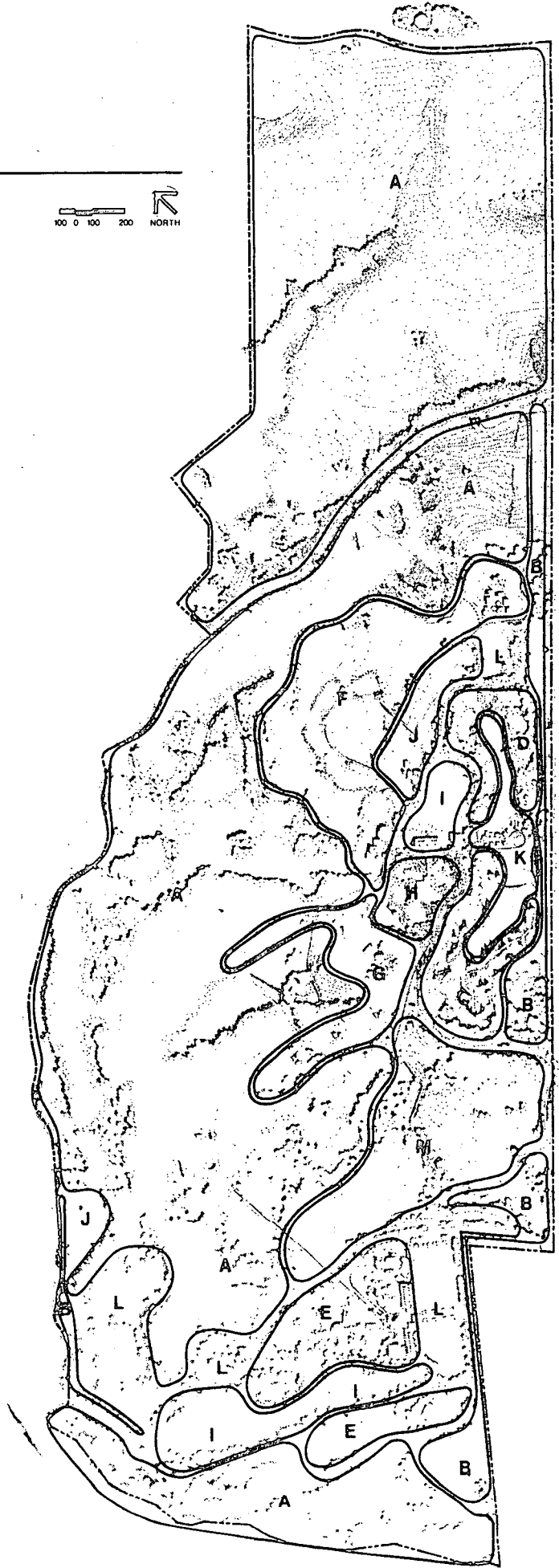
East Bay Botanical and Zoological Society

COMARC DESIGN SYSTEMS · Jerry M. Johnson, Inc.
the SWA Group · Williams - Kuebeck & Associates



SCHEMATIC LANDSCAPE PLAN LEGEND

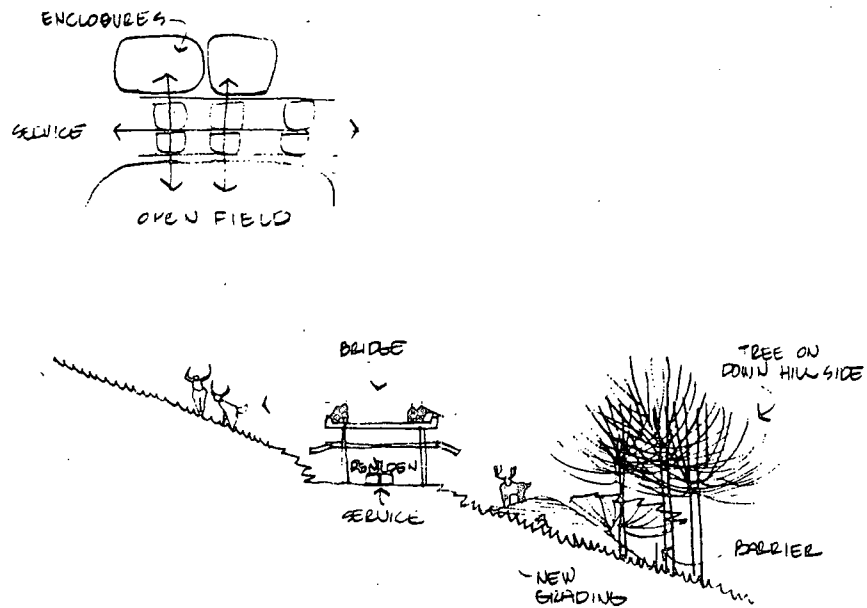
- A** NATIVE PRESERVE ZONE
Existing Vegetation Patterns Only
- B** BUFFER ZONE
Dense Vegetational Growth
Pines-Redwoods-California Natives
- C** CONIFEROUS FOREST ZONE
Douglas Fir, etc.
- D** DECIDUOUS FOREST ZONE
Oaks, etc.
- E** EXOTIC
Non-native Vegetation
- F** NORTH AMERICAN GRASSLAND
Hearty Grasses - Natives Preferred
- G** EXOTIC GRASSLAND
- H** TROPICAL FOREST
Native but Tropical
- I** OPEN LAWN
- J** FARM LANDS - LIMITED CROPS
- K** MEADOW GRASSLANDS
- L** PARKING LOT ENVIRONMENT
Landscaping to Break up Large Parking Areas
- M** LANDSCAPING REHABILITATION ZONE



Landscape and Grading

The emphasis on landscaping will be to complement the existing character of the site and create naturalistic settings for the animals. The one exception to this will be in the Gardens Area where formal plantings are appropriate.

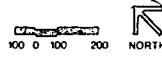
Grading will be minimized to maintain the dramatic character of the site. Bridges will be used in many areas to reduce the level of effort required to move about the site without effecting the topography. Bridges can also serve a secondary function with holding pens and service areas being housed underneath, out of view of the visitors.



GRASSLAND BIOME
KNOWLAND PARK ZOO

Knowland Park
General Development Plan
East Bay Botanical and Zoological Society

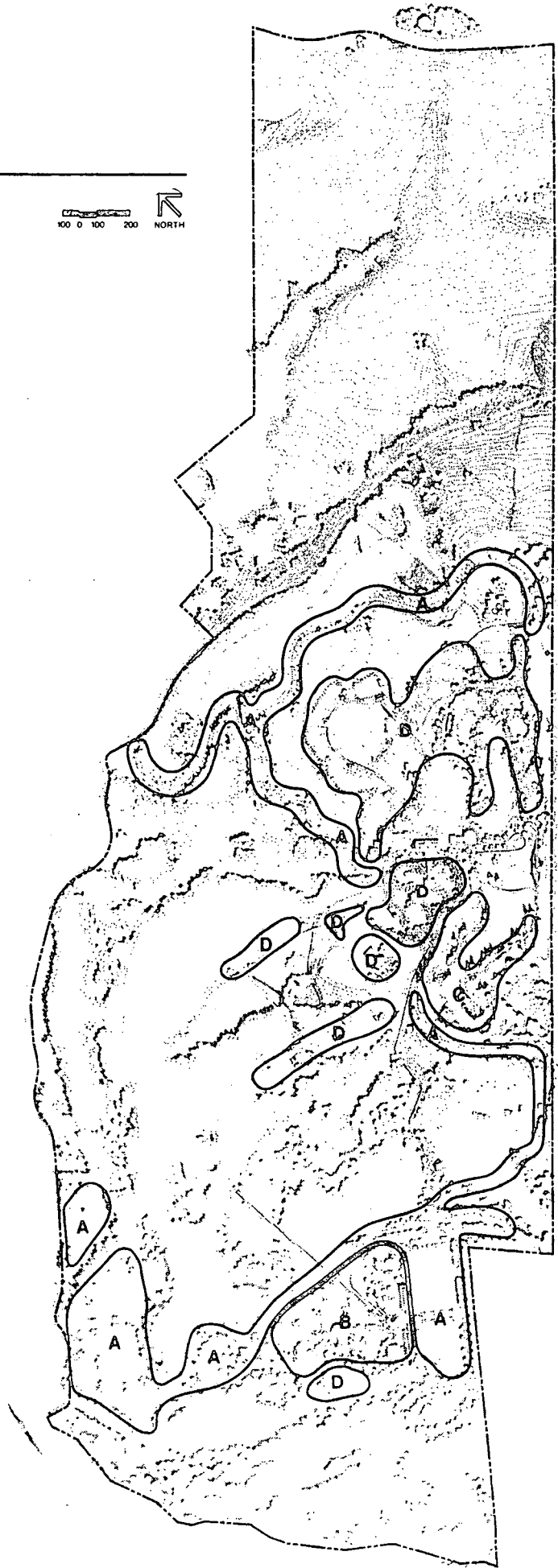
COMARC DESIGN SYSTEMS - Jerry M. Johnson, Inc.
the SWA Group - Williams - Kuebeleck & Associates

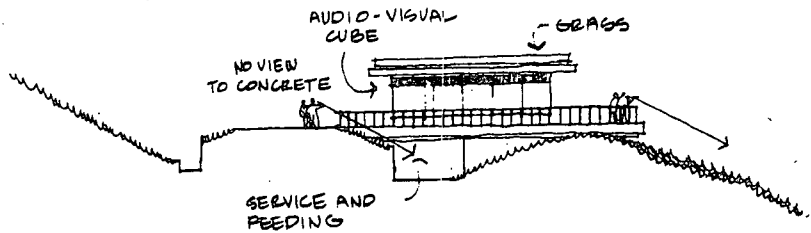


SCHEMATIC GRADING PLAN

LEGEND

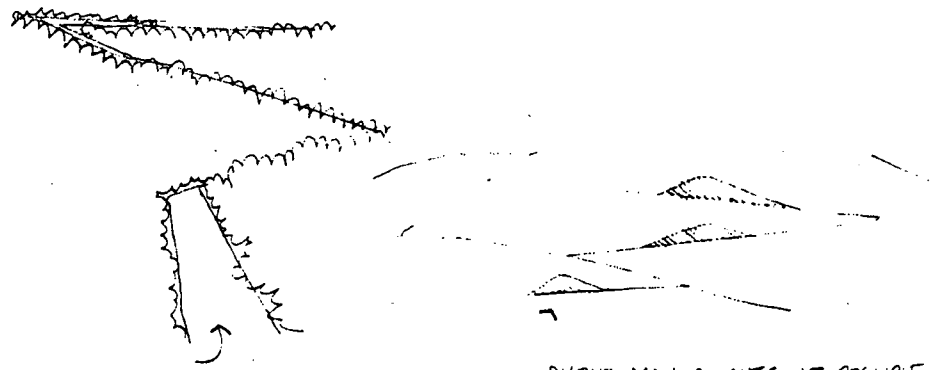
- A** GRADING FOR ROADWAYS
Moderate to Heavy Cut and Fill
- B** EXHIBIT GRADING
Careful Grading to Accommodate Existing
Tree and Utility Pattern
- C** EXHIBIT GRADING
Moderate to Light Cuts
Deeper Fills for Tree Growth
- D** EXHIBIT GRADING
Emphasis on Small Cuts
Precise Fine Grading





GLASSLANDS WALKWAY - OVERVIEW AREA
KNOWLAND PARK ZOO

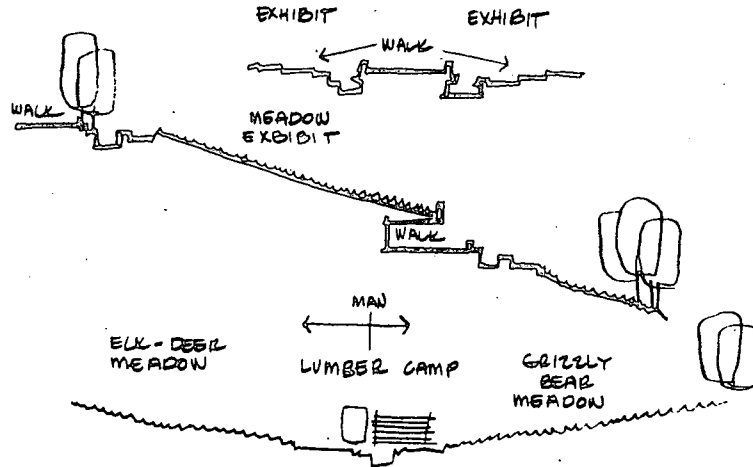
The following sketches serve to illustrate other important aspects of landscaping and grading designed to minimize impacts.



WALKS OR ROADS SHOULD NOT BE DESIGNED TO ALLOW LONG STRAIGHT RUNS OR VIEWS

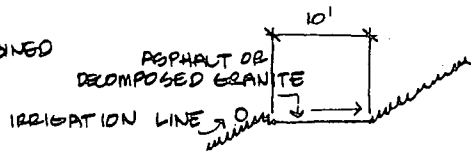
AVOID MAJOR CUTS IF POSSIBLE IF THEY ARE NEEDED THEN LANDSCAPE WITH GREAT CARE

TRAILS AND ROADS WITHIN PARK AND ZOO
KNOWLAND PARK ZOO



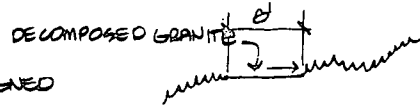
FIRE TRAIL

MIN. WIDTH 10' - MAY BE COMBINED WITH SERVICE ROAD WHERE POSSIBLE



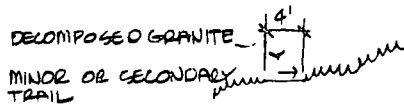
MAJOR TRAIL

SHOULD BE LOCATED IN ZONES WHERE GRADES IN THE RANGE OF 8-12% MAX. COULD BE DESIGNED

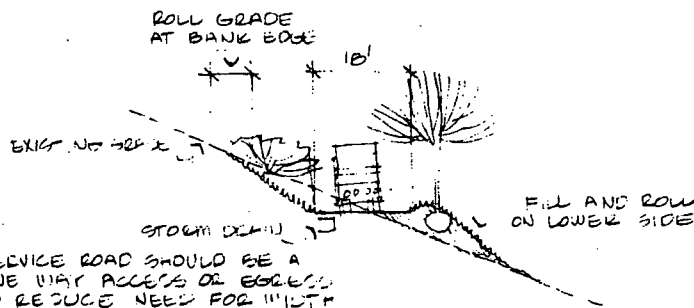


MINOR TRAIL

DESIGNED FOR THE MORE ACCOMPLISHED HIKER - SHOULD NOT BE PLACED IN ZONES OF HIGH FIRE DANGER.



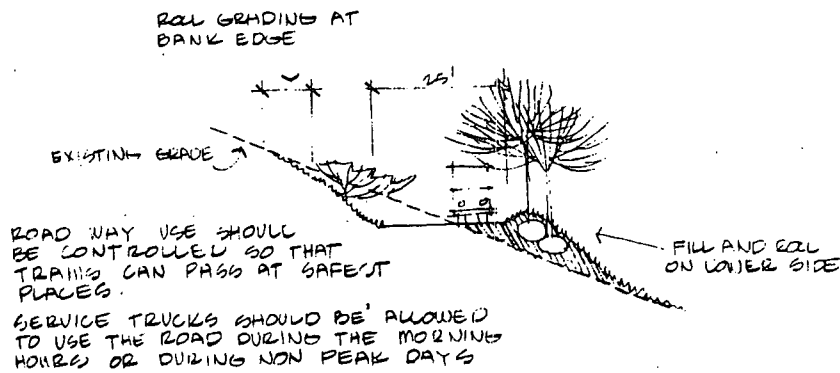
TRAILS WITHIN PARK AND 300 KNOWLAND PARK 300



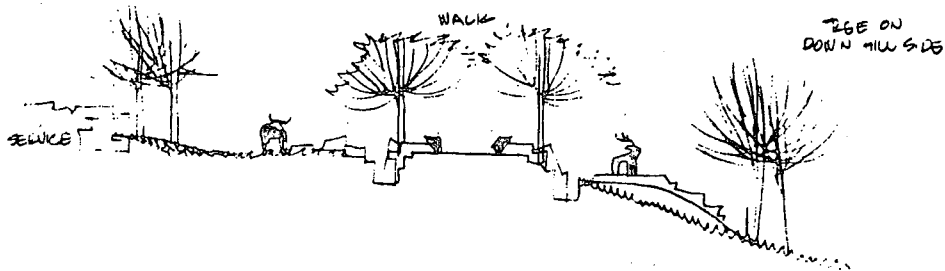
SERVICE ROAD SHOULD BE A ONE WAY ACCESS OR EGRESS TO REDUCE NEED FOR WIDTH

ROAD MUST BE LANDSCAPED AND IRRIGATED TO INSURE AGAINST EROSION

SERVICE ROAD TO BIOMES KNOWLAND PARK 300



ROAD TO BIOMES
KNOWLAND PARK ZOO



CONIFEROUS FOREST BIOME
KNOWLAND PARK ZOO

Water and Sewer

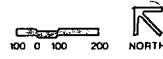
Water - The remodeled existing zoo area will continue to be served by meters located at the park perimeter at the 106th Avenue exit on the south and on Golf Links Road on the north. Water will be brought into the Biomes area by the East Bay Municipal Utility District from reservoirs higher up.

Waste Disposal - The waste disposal problem unique to zoological parks relates to the treatment of wastes from "permanent post-entry quarantined" animals. These animals are those born abroad and shipped to this country. They are quarantined for the rest of their lives and must be kept strictly separate from other animals and from all human contact.

Knowland Park General Development Plan



East Bay Botanical and Zoological Society

COMARC DESIGN SYSTEMS · Jerry M. Johnson, Inc.
the SWA Group · Williams - Kuebeck & Associates



SCHEMATIC UTILITIES PLAN

LEGEND

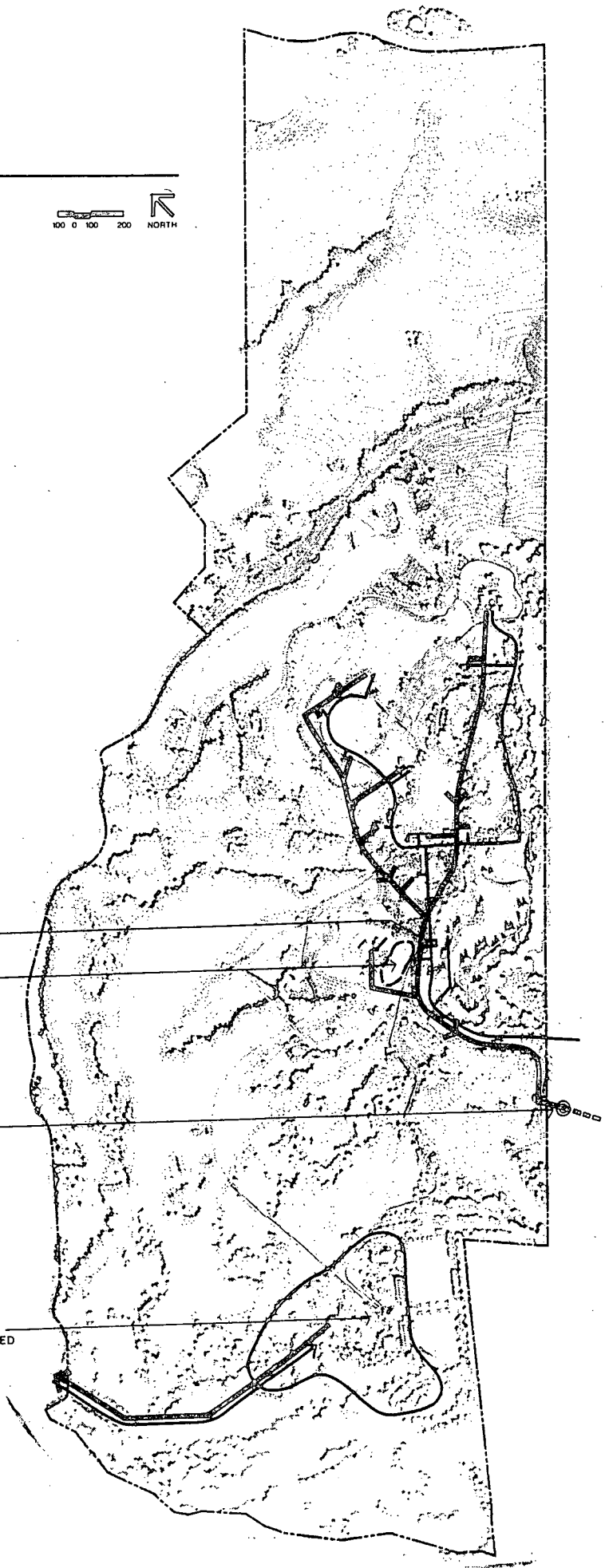
-  MAJOR SEWER LINE
-  MAJOR WATER LINE

NEW WATER SERVICE CONNECTION

PROPOSED EBMUD RESERVOIR

CONNECTION TO EXISTING
SEWER IN HELLMAN CT.

REBUILD EXISTING
SYSTEMS AS REQUIRED



Run-off water which could include animal wastes from post-entry quarantined animal areas should be disposed of in the sewage treatment plants. Animal waste disposal and feed waste disposal from permanent post-entry quarantined animals must be within the park by incineration, burial, or composting for not less than six months.

Domestic sewage from the remodeled park will continue to discharge via the existing connection at Golf Links Road. The new upper mesa area will be served by a main system discharging to an existing sewer manhole off site in Hellman Road.

Phasing

It has been recognized since early in the planning effort that it would be neither possible or desirable to undertake development of the entire park at one time. Consequently, careful attention has been given to generating a plan which lends itself to successful phasing. The phases being recommended are as follows:

1. At the earliest possible time, preferably in the spring of 1977, trees should be planted in the forest areas of the Biomes. Time will be needed for these trees to mature to the point that successful exhibits can be integrated. An irrigation system must be installed to insure proper watering for rapid growth. It is possible that all of this can be accomplished at little cost to the Society with trees being provided by timber companies and/or the State Forestry Department and planted by school groups or other volunteers.
2. Phase I development, which should occur in the first couple of years, must be initiated with the preparation of final design

and engineering drawings. Facilities which should be constructed during this phase are primarily those which will make the existing zoo somewhat more successful in a short amount of time at minimal cost.

These improvements include relocation of the entry kiosk (traffic control) further into the park and landscaping of the auto entry area. The amphitheater in the Gardens Areas should also be constructed to enable the staging of animal shows and other attractions. In addition, new and interesting food stands, minor rides, games and other amusements should be added to bolster the revenue producing capacity of the park and provide additional attractions.

With these improvements and new programing and promotional efforts the Society will have a successful facility which will serve as a springboard for moving on to larger phase 2 development.

3. Phase 2 development will involve opening up the Biomes. In that it is anticipated that this will occur before the coniferous and deciduous forest has had adequate growth, the recommendation is being made that those exhibits not be opened in this phase.

The Grasslands plant materials on the other hand will not require this amount of time to mature so they can be effectively presented in this phase. It is also felt that adequate growth can be achieved in the Tropical Forest by this time.

The Grasslands and Tropical Forest definitely provides enough attraction to comprise the "critical mass" needed to get people into this new area of the site and increase attendance and revenues. For within the grasslands are the African savannah exhibits, the North American prairies, the family farm and the South American pampas.

The Tropical Forest includes some of the most exciting species in the park including Tigers, Jaguars and Orangutans. Both the Grasslands and the Tropical Forest also include multi media centers and entry pavilions.

Even though the coniferous and deciduous forests will not be completed during this phase, it is recommended that a trail through them be opened at this time to allow visitors to stroll. It is also recommended that the log flume ride be included in this phase to provide an additional attraction and source of revenue.

In opening up the biomes it would also be necessary to construct the educational building, clinic and other service facilities, the biomes meadow and amphitheater, walks and access roads.

Another exciting and essential aspect of Phase II is developing the transportation links between the Gardens and the Biomes. This will involve building the cog railroad, constructing the waterfall and hiking trails, extending the skyride and acquiring trams to carry visitors up the access road.

Because the entrance to the Gardens is also in fact the entrance to the Biomes, it must also be completed at this time. This will include the orientation center, as well as the entry improvements. The additional crowds which will be attracted by the major Phase II expansion will also require the construction of the new parking lot near the auto entrance.

4. The completion of the forests and major developments in the Gardens can occur as funding becomes available.

Financial Analysis and Recommendations



The following section presents our conclusions and recommendations relative to organization and concept, phasing and implementation.

ORGANIZATION AND CONCEPT

We recommend that the East Bay Zoological and Botanical Society assume the operation of Knowland Park as soon as agreements can be completed with the City of Oakland. It is our understanding that the general nature of these agreements will be such that Oakland will continue to provide the level of support to the facility in terms of manpower that it has in the past. Once the Society has assumed this operation, it will generate revenue from collections at the parking gate, concessions, Snow Building revenues and membership drives. We recommend that the Society assume the operation of visitor services and facilities now operated by concessionaires. This will allow the Society to control the primary revenue source at the park. Furthermore, it will allow them to realize the full operating revenues from these facilities which should be substantially higher than the existing 10 percent of gross now received from concessionaires.

The master plan which has been developed over the past year encompasses a program of development which could ultimately cost almost \$35 million. However, we have identified a level of development which would provide most of the exhibits in the Biomes, a major access ride to the Biomes, expanded capacity

for food, merchandise, rides and games (including a flume ride) which could be developed for approximately \$14.2 million. The Society should focus upon this level of development as one which could be accomplished over an approximate ten year time frame. It would provide the basic concept of the "Biomes", thereby optimizing revenue potential relative to capital outlay.

Once the "Biomes" are open to the public, the Society can begin to charge a minor gate admission as well as enjoy added revenues from the increased visitor spending which accompanies longer stays in the park. We anticipate an attendance of approximately 1.2 million visitors on an annual basis. Further, with the appropriate array of rides, games, food stands and merchandise facilities, per capita visitor spending should approximate \$4.50. On this basis, the facility would gross over \$5.4 million annually, and net revenue to the Society would approach \$1.8 million.

PHASING

We recommend that the Society focus its initial efforts on developing facilities at Knowland Park which expand their potential to generate revenues. The following items are in this category:

1. Development of an outdoor arena for shows and special events.
2. Acquisition of existing concessions (this may not be a direct cash outlay but could be financed through the concessionaire under proper conditions).
3. Improvement and expansion of food service, merchandise outlets, and rides.

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3. Improvement and expansion of food service, merchandise outlets, and rides.

4. Addition of games.

5. Relocation of the entry facility to accommodate peak periods of visitor arrivals and to allow operation of the gate at a minimum cost.

These Phase I improvements can be accomplished for approximately \$750,000, of which almost half involves a cost which could be financed through the existing concessionaire. With these minor improvements, increased promotion and emphasis on membership drives, maximum public exposure of the master plan and its proposed implementation, the existing zoo can expand annual attendance by as much as 25 percent to 750,000 people. Likewise, per capita visitor expenditures can be increased by about 50 percent from the current \$1.25 to nearly \$1.90. On this basis, gross revenues would be expanded to over \$1.4 million annually. With an efficient operation, the Society could anticipate net revenues ranging from \$150,000 to \$200,000 annually. Once it has established the ability to operate the zoo on a profitable basis, the Zoological Society will have an easier time raising additional funds for Phase II (the Biomes) improvements.

Completion of Phase II with the major access ride will require approximately \$13.4 million in capital. This level of development provides a substantial portion of "the Biomes", allowing this area to be open to the public.

Additional improvements which would complete development of "the Biomes" and add to ride capacity entails \$3.4 million additional capital. We recommend these improvements be included in Phase III.

Finally, at later phases, we recommend an additional \$16.4 million worth of improvements which primarily involve the redevelopment of "the Gardens" exhibits (i.e.: the existing zoo).

While these improvements are desirable, they are not viewed as immediately essential to the master plan concept.

IMPLEMENTATION

We recommend that the master plan be used to immediately begin fund raising for the Phase II project. With proper promotion, it should receive the level of community support requisite for donations, corporate contributions and even bond issues. Once it has been publicized that changes are being made at the zoo, attendance should immediately increase. Displays should be established at the entry gate depicting features of the master plan and the phasing of initial improvements. Since admission to the park will remain essentially free for a number of years, even minor improvements will spur repeat visitation. To the extent animal shows and special events can be staged in the park, these should also boost attendance as well as awareness of future additions. This should, in turn, increase the effectiveness of membership drives and fund raising campaigns.

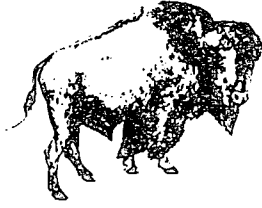
Other specific recommendations regarding project implementation are as follows:

1. Hire a top level person to oversee the implementation program. His experience should include promotion, fund raising and development of major publicly oriented projects. To attain the level of experience and dedication which will be required to implement the plan over a reasonable time frame, the Society should consider a salary level in excess of \$30,000 annually.
2. Improve security at the park. The Society should consider hiring a director of security to work with personnel provided by the City of Oakland. In addition,

he could train other park staff members in security procedures to expand the visibility of park personnel to visitors. Part of this solution may involve providing uniforms to everyone involved with the park. In this manner, even maintenance personnel can be readily identified as part of the park staff.

3. Expand membership drives. We recommend that memberships be approached more from the standpoint of support for the zoo rather than a purchase of prepaid ride tickets. Although allowance of free parking or gate admission is typical to members, adding on lists of other items detracts from the stature of the campaign.
4. The park should not be designed to be a USDA approved facility. The only restriction this places on the park is that animals may not be imported from foreign countries for display. In that most animals are now bred domestically and importation is nearly impossible for a myriad of other reasons, this is not really a very significant restriction. Having a USDA approved facility would in turn cost more to construct and substantially limit the movement of other non-imported animals in and out of the park.
5. Emphasis should be placed on an interesting and varied animal collection featuring appropriately sized groups of each species rather than a wide array of species.
6. Steps should be taken to insure that Caltrans and the City are notified each time there is traffic congestion near the auto entrance. Without a history of problems it will be difficult to convince them of a need to expand the traffic capacities.

Summary



The Master Plan outlined in this report is both exciting and achievable. It is exciting because it presents a concept for a park unlike any other in the world; a park which will bring a tremendous variety of new and important recreational, educational and cultural opportunities to all the people of the Bay Area. It is achievable because it has been carefully conceived; it has the ability to be financially self-sustaining and its development will enhance rather than degrade the environment.

Because of the exhaustive effort of the Society and its planning team a realistic plan now exists; a plan which calls for phased growth so as to accommodate the level of support which can realistically be attracted at any time. As this plan becomes a reality, it will itself stimulate new levels of interest which will accelerate the implementation program. But to become more than just a document, this plan immediately needs the enthusiastic support of many people. The Society, political leaders, service organizations, industry and school groups must all embrace this unique opportunity to add to the quality of life in this area.

Like any park, this one will grow and mature over time. Children who help plant the coniferous forest in the near future will proudly walk through the towering trees with their children twenty years from now. Just as Golden Gate Park is the irreplaceable contribution of a past generation, Knowland Park will be the heritage of those who support it at this critical stage.

The Biomes

- Grasslands of the World Center
- Educational Center
- Coniferous Forest Center
- Tropical Forest Center
- Log Flume Ride and Lumber Camp
- Rest and Food Center

The Transition Zone

- Waterfall
- Overlook
- Rail Ride
- Skyride
- Parking
- Rides

The Gardens

- Commercial-Administration
- Animal Entertainment Centers
- Audio Visual Center
- Amphitheater
- Commercial
- Overflow Egress

- Meadow
- Service Road
- Holding Area
- Farm
- Farm Center

Future Use

Service Entry

Golf Links Road

Service Road Trail

One Lane Added

Parking

Entry

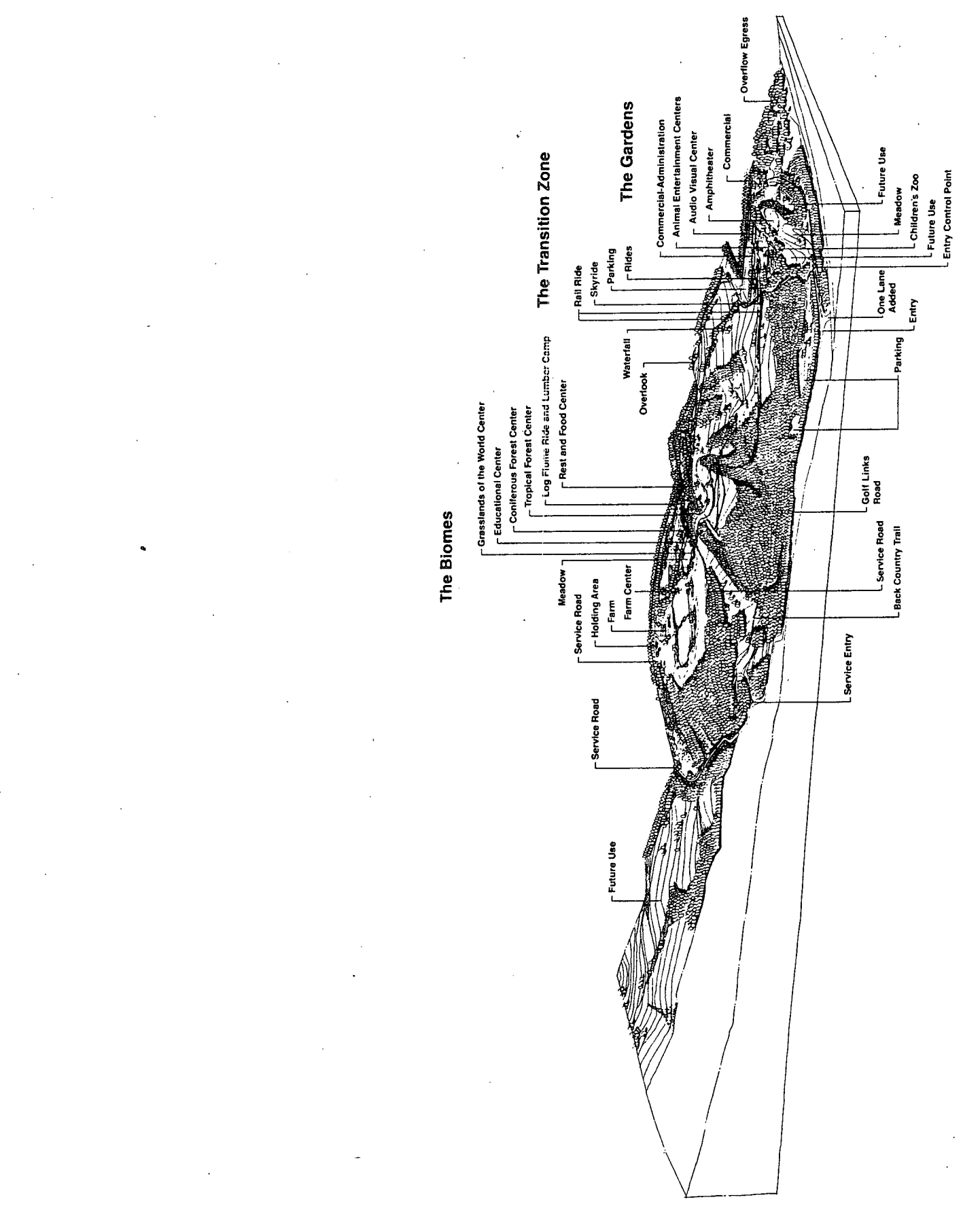
Future Use

Meadow

Children's Zoo

Future Use

Entry Control Point



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