

BOULDER COUNTY
RURAL RESOURCE PARK



BOULDER COUNTY, COLORADO

BOULDER COUNTY RURAL RESOURCE PARK

A Development Guide For A Multiple-Use Rural Technology And Recreation Park.

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Prepared for:

**The Board of County Commissioners
Boulder County, Colorado**

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PREFACE

For more than ten years interested citizens have been actively working to provide a major county-wide fairground facility. In 1971, the St. Vrain Recreation Committee was formed and incorporated to formalize the effort by surveying public attitudes and recommending potential sites. Their persistent efforts led to the formation of the Boulder County Fairgrounds Committee to officially review a number of sites for recommendation to the County Commissioners. The chosen site was purchased in June of 1976. After a competitive consultant selection process, master planning work was begun by a consultant team directed by Gage Davis and Associates and Everett/Zeigel Associates in December of 1976. The final report was presented at a public hearing before the County Commissioners in June of 1977.

Acknowledgements

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I. REPORT SUMMARY

REPORT SUMMARY

GENERAL DESCRIPTION

Since 1874 there has been an annual Fair in Boulder County serving the agricultural, social, and cultural needs of men and women with a specific emphasis on agricultural education.

For over 60 of those years, "home" for the Fair has been Roosevelt Park in central Longmont; the Park facilities being provided by the City with the funding for capital improvements and operation being provided by the Boulder County Commissioners.

For many years the Roosevelt Park complex served admirably the fair needs of the public, exhibitors, and participants. With increased popularity and attendance, however, pressures on the facilities and the surrounding community have resulted.

In response to these pressures, the St. Vrain Recreation Committee was formed in 1971 to formalize a survey of public attitudes and make recommendations concerning the feasibility of establishing a permanent facility at another location. Based on their recommendations, the County Commissioners appointed the Boulder County Fairgrounds Committee in 1975, and charged it to evaluate alternative sites for acquisition. Evaluation criteria included: acreage requirements, location, access, urban services, site constraints, and compatibility with existing plans and policies.

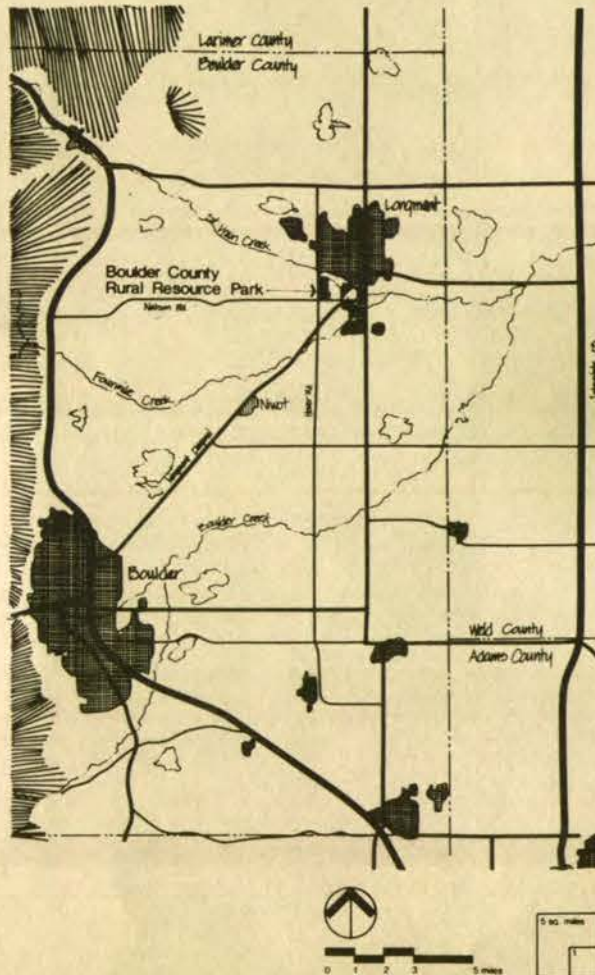
As a result of this evaluation process, the Committee, Boulder County Staff, and City of Longmont Staff, recommended a 130 acre site generally bounded by the St. Vrain Creek, Hover Road, and Nelson Road.

Following acquisition of the site in 1976, master planning for the complex was initiated in November by Gage Davis and Associates and Everett/Zeigel Associates. The final master plan for the property represents a detailed use program, facility requirements, and guide for decision-making and implementation over the next 10 to 15 years.

GOALS

The Boulder County Commissioners stipulated the following goals for the complex:

- Be responsive to County needs for fairground, educational, cultural, park and recreational activities.
- Serve the agri-business public in a central location.
- Maximize site development opportunities.
- Be responsive to business needs of the County and development of commercial activities compatible with governmental and non-profit organizations.
- Maximize multi-use of land and facilities.
- Meet floodplain management goals.
- Provide an aesthetically pleasing year round environment.
- Be responsive to conservation of energy and other natural resources.
- Provide "cost-effective," 12 month operation.
- Recognize constraints of phased development.
- The first phase for fair use is to be operational by August 1978.
- Minimize costs of development to the maximum degree possible without compromising the effectiveness of the complex.



VICINITY MAP

PLANNING METHODOLOGY

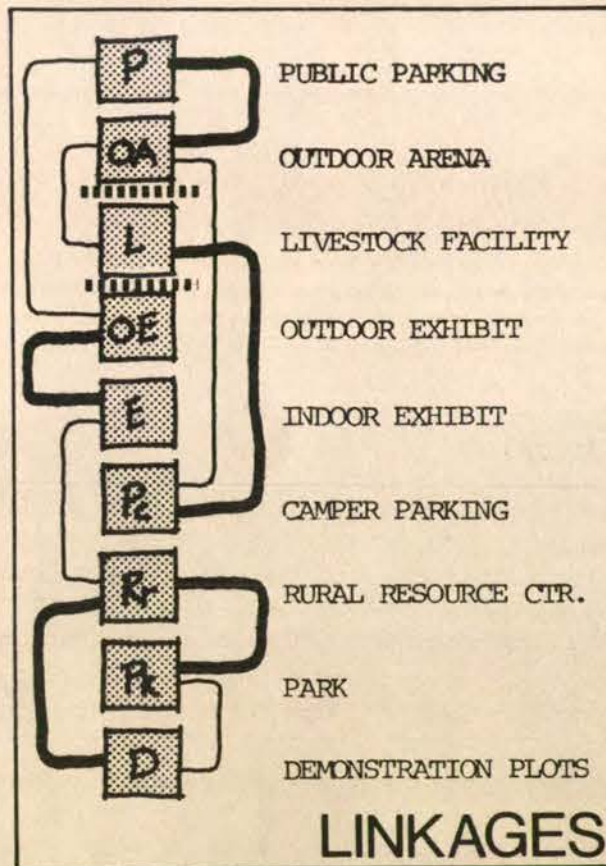
Recognizing that the ultimate facility should be multi-purpose in nature, cost-effective in terms of the maximum benefit to be derived for the capital investment made, and flexible with respect to phasing and development approaches; the consultant team endeavored to obtain the maximum amount of public involvement and public agency coordination throughout the planning process.

To ensure a positive consensus and adoption, each level of study was approached on a phased basis with tentative approvals required prior to proceeding with the next phase of the work program. To ensure user participation, questionnaires, surveys, and workshops were utilized. Careful consideration was given to not only coordination with many special interest groups, as well as governmental entities and agencies affected by the project.

The final master plan and recommendations reflect a facility which the users themselves deem appropriate, and which meets the goals established by the County Commissioners. The City of Longmont supports the plan and has incorporated it within their comprehensive plan.

MARKETING

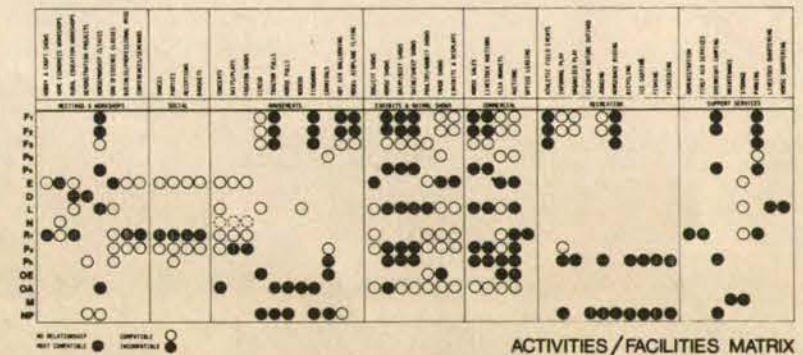
A market reconnaissance was conducted involving a comparative analysis of county fairground facilities in close proximity to urban centers and with year-round capability. Attendance projections were developed and non-fair activities which were compatible and revenue-producing were identified. In addition, management and budgetary structures were analyzed for their application to Boulder County.



USE PROGRAM

In coordination with various user groups, a Use Program was developed that included facility, area, and space requirements for fair activities. In addition, a variety of non-fair uses were identified to achieve multiple-use objectives. Various activities were analyzed in terms of operational, space, and design considerations. Functional relationships between facilities were identified which, with the Use Program, established a concept for the site. The following is a summary of principal program elements:

1. Rural Resource Center
2. Exhibition Hall
3. Livestock Show Pavilion
4. Sale Ring
5. Cattle Barns
6. Small Animal Pavilion
7. Indoor Arena
8. Horse Barns
9. Outdoor Arena
10. Camper Support Facility
11. Maintenance Shop
12. Caretaker Residence



CONCEPT

SITE ORGANIZATION

Prior to the development of a master plan concept, it was necessary to assess locational and site characteristics in terms of development constraints such as; flood potential, drainage, wind, reclamation, road capacities, infra-structure, etc.

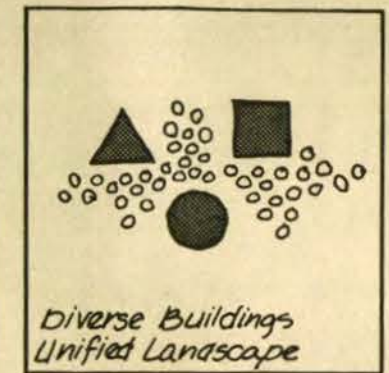
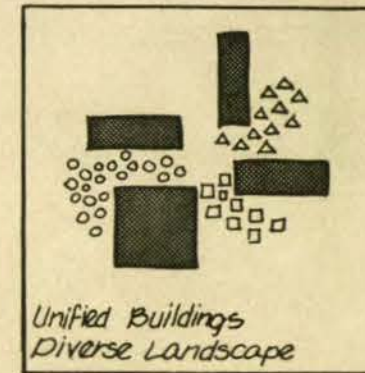
The potential was also apparent for creating assets from these site liabilities. For example, hydrologic problems could be used for demonstration projects with respect to drainage, water retention, and augmentation programs; lack of water could be responded to by innovative landscaping; wind hazards could be mitigated by wind abatement techniques; and potential reclamation problems could contribute to the demonstration of procedures and performance standards for the County.

The planning response to these constraints/opportunities is reflected in site organization requirements as a basic framework for the Concept Plan.

ARCHITECTURE

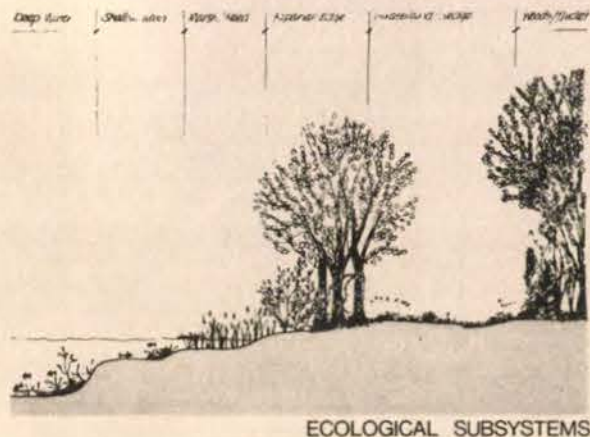
Just as the site imposes constraints with respect to site planning, it seems appropriate to seek an architectural expression based on local character. Scenes indigenous to the area include flat plains defined by hedgerows along irrigation ditches, isolated cottonwood stands, and ornamental trees around farmsteads.

The plains farmstead also reveals a certain simplicity, and clarity of intent in the ease with which many diverse activities and forms are accommodated in a seemingly unified setting.



In developing an architectural expression for the Rural Resource Park, two approaches were given careful consideration. The first approach, initially considered and subsequently rejected, envisioned "unified buildings" with a diverse landscape. The second and recommended approach, envisions diverse buildings and a "unified landscape" to accommodate varying functions, multiple phases, and financing and management considerations over time.





RECLAMATION

Integral to the successful development of the Rural Resource Park is the eventual disposition, treatment, and character of the gravel excavation area consisting of almost 1/3 of the site north of Boston Avenue.

This portion of the site has severe development constraints due to legal contracts, natural processes, and timing considerations. It, nevertheless, has substantial potential as a natural resource and passive recreation area if properly developed.

The careful development of both water and land-fill areas can establish a diversity of passive recreation opportunities, as well as heighten the visual or aesthetic experience. Equally important is the opportunity to develop and demonstrate County standards and expectations for reclamation and the development of practical techniques and experience.

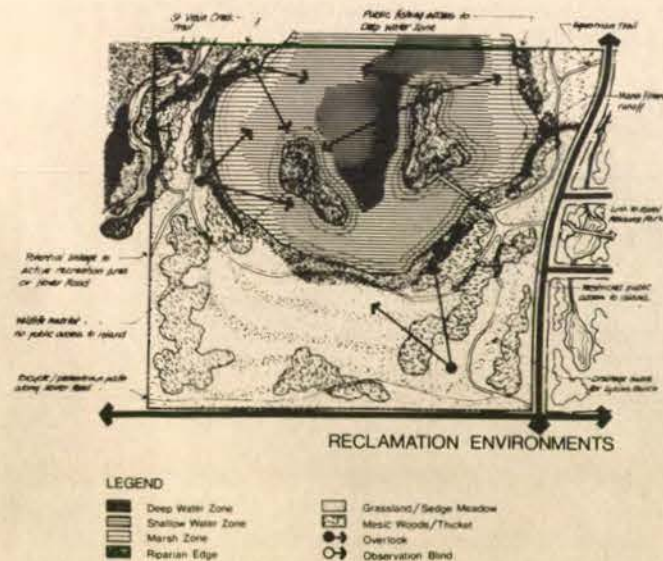
Detailed planning and development of this passive recreation area should carefully maintain its flood storage capability and runoff retention. In addition, it can achieve an adaptive 'fit' with the existing habitats of the St. Vrain Creek corridor, and establish a focal point for the natural preserve in the creation of water impoundment areas.

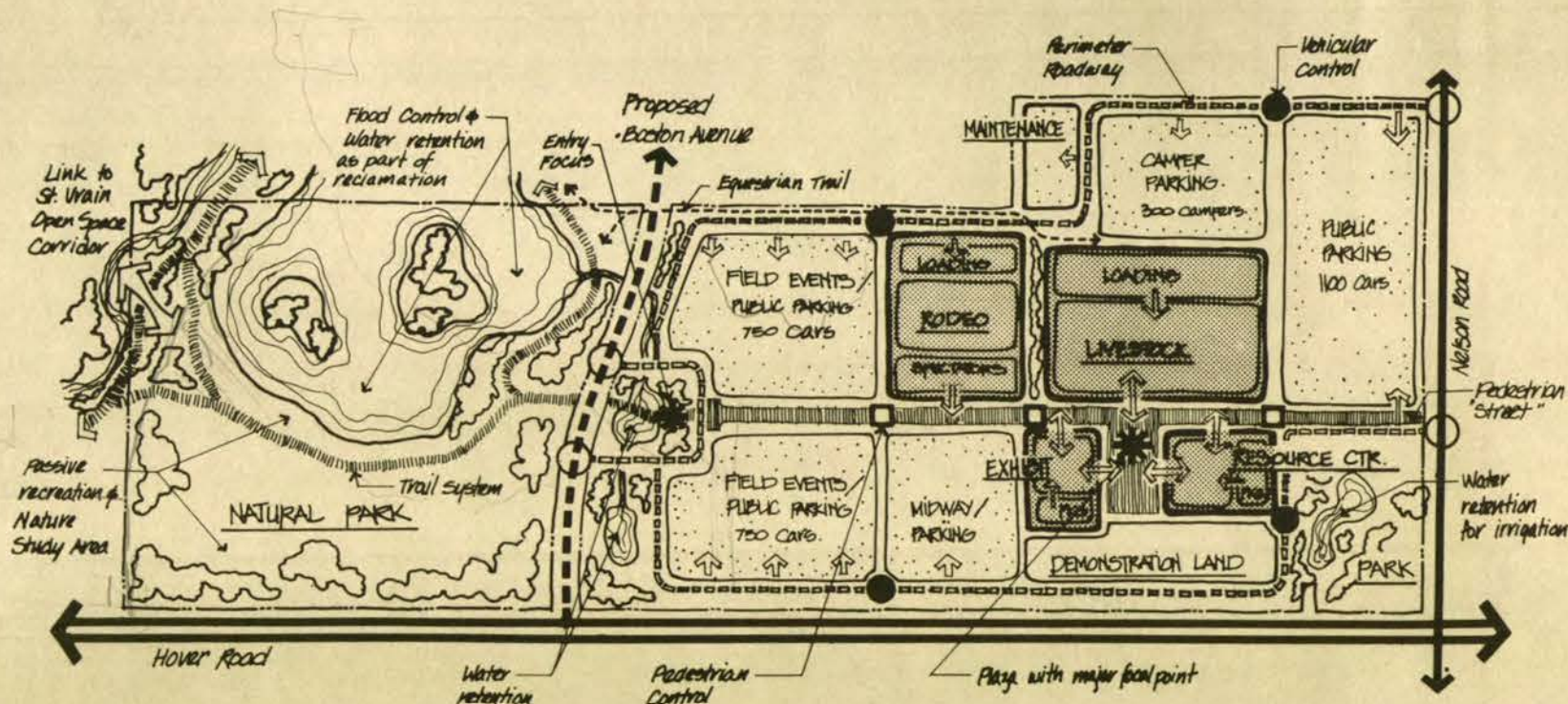
CONCEPT DIAGRAM

A concept plan evolved in which the site was divided into two use areas-north and south of Boston Avenue. North of Boston Road, approximately 46 acres of gravel pit will be reclaimed into a passive park and open space adjacent to the St.

Vrain Creek corridor to serve natural, recreational and flood control needs.

All of the built facilities have been consolidated on land lying out of the 100 year floodplain, south of Boston Road. Parking areas have been grouped as close as possible to vehicular entry from Boston and Nelson in approximately a 60% - 40% allocation respectively. Animal and non-animal uses that generate potential noise and odor nuisances have been located downwind from non-animal uses and distant from potential residential land adjacent to the site. The ordering element of the plan is a central pedestrian street which links the parking areas with the facilities and a major plaza focal point. A perimeter access road provides emergency access, as well as service to the loading and public parking areas on the periphery of the site, avoiding pedestrian conflict. While most of the site will be open to the general public, several control points add security and flexibility, enabling all or portions of the built facilities to be closed. The Resource Center, located near the day-use park, has its own local access off Nelson Road. Demonstration plots are nearby with adequate access to water.





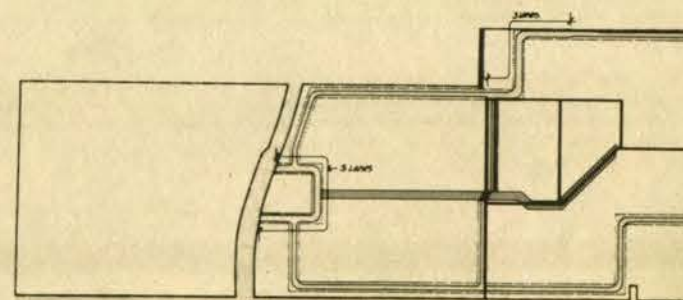
CONCEPT DIAGRAM

MASTER PLAN

In view of the fact that the Rural Resource Park will be implemented in a number of phases over the next 10 to 15 years in multiple phases, and due to the substantial task of administering the implementation of these diverse projects; the recommended "tools" for decisionmaking in guiding the ongoing development of the Park are the Fixed Elements and the Development Guide.

FIXED ELEMENTS

Fixed Elements are the infrastructure requirements which precede all other development and



LEGEND

- Road Right of Way
- Pedestrian Right of Way
- Ditch Easement
- Utilities Easement

FIXED ELEMENTS

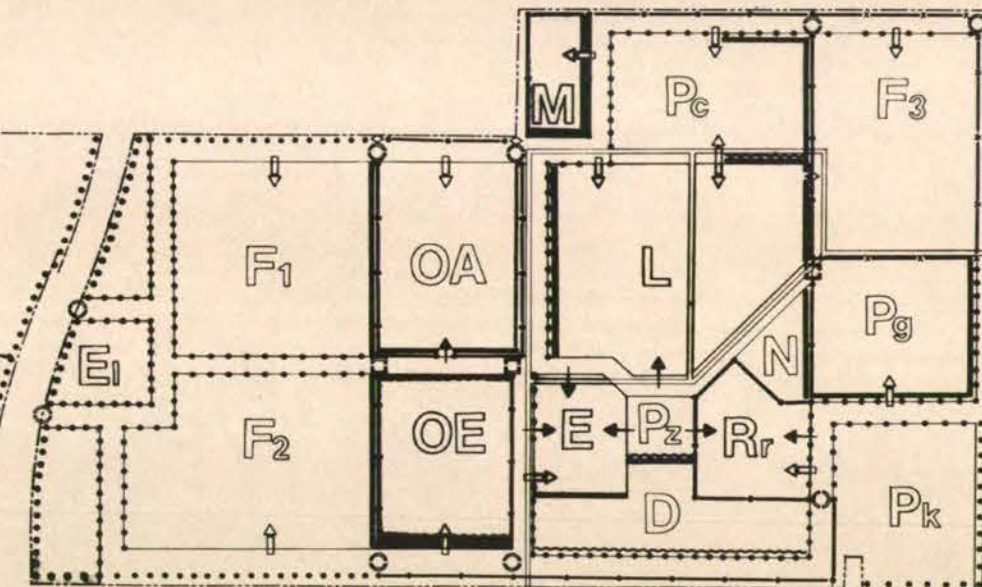
program and summarized in the Activities/
Facilities Matrix. The relative location of
each parcel is shown within the framework
established by the Fixed Elements.

The Guide identifies overall site relationships to be maintained, such as major edge conditions, significant points of pedestrian and vehicular access, and the location of necessary controls to regulate traffic. It also serves as a location key for the detailed Parcel Development Criteria.

The Development Guide identifies 17 individual parcels to be developed which meet the activity and facility needs as determined in the use

LEGEND

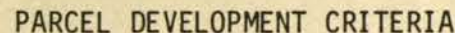
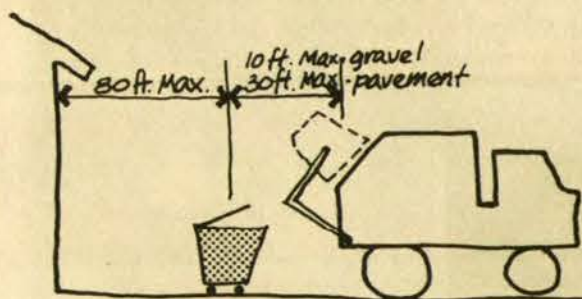
- | <u>EDGES</u> | | <u>ACCESS</u> | |
|--------------|-------------------|---------------|--------------------|
| | Vehicular Barrier | → | Pedestrian Entry |
| —x— | Animal Barrier | □→ | Vehicular Entry |
| —•— | People Barrier | | <u>CONTROL</u> |
| ===== | Visual Screen | ⊙ | Vehicular Control |
| ===== | Noise Control | ◇ | Equestrian Control |
| ~~~~~ | Wind Break | ⊠ | Pedestrian Control |



- | | | | | | |
|----------------|------------------------|----------------|--------------------------------|----|---------------------------|
| F ₁ | Grass Field | L | Livestock/
Horse Facilities | M | Maintenance
Facilities |
| F ₂ | Grass Field | N | Nursery/
Botanic Garden | NP | Natural
Park |
| F ₃ | Grass Field | R _r | Rural Resource
Center | EI | Entry
Landscape |
| P _g | Parking-
Gravel | P _z | Plaza | | |
| P _c | Parking-
Campers | P _k | Park | | |
| E | Exhibit
Facilities | OE | Outdoor
Exhibition | | |
| D | Demonstration
Plots | OA | Outdoor
Arena | | |



DEVELOPMENT GUIDE

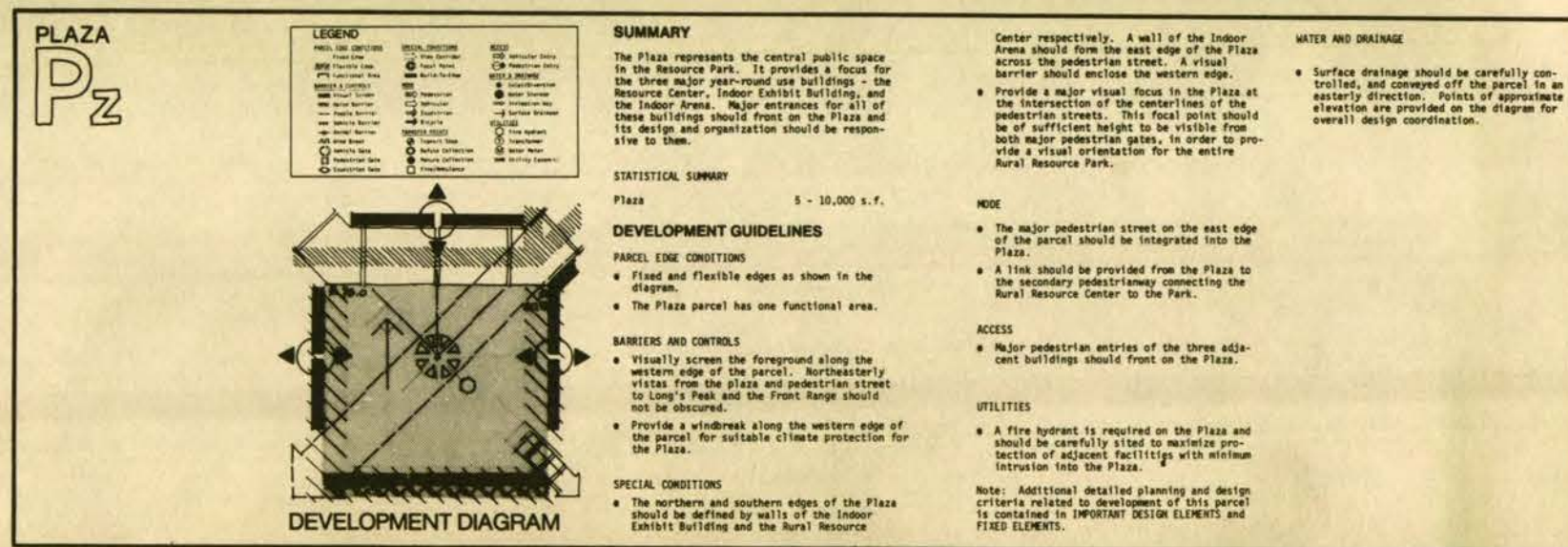


Parcel Development Criteria have been formulated as an extension of the Site Development Guide on a site-specific basis. Relevant criteria for each parcel, combined with general site and facilities development data establish a step-by-step process for planning and design, and conveys it in a form which can be readily applied by other planners and architects.

It is important to note that this approach does not dictate a specific plan or design, but rather describes the necessary framework within which the plan or design can evolve. The quality of the final solution for each parcel will still depend upon the talent and ingenuity of the individual designer.

The Parcel Development Criteria for each parcel includes a statistical summary of relevant programmatic data and establishes guidelines for development in terms of elements such as parcel edge conditions, special site conditions, access, transfer points, water and drainage factors, barriers, and controls.

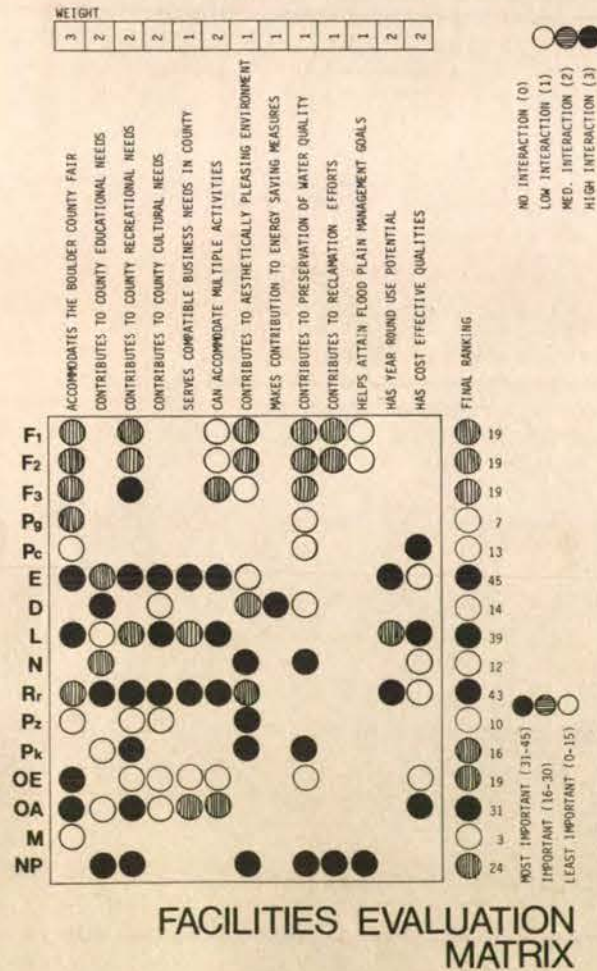
General data which is applicable to all or several parcels is identified in the Master Plan as other Important Design Elements and includes consideration of noise control, refuse collection, enclosure, etc. Reference to these elements is made in each Parcel Criteria.



IMPLEMENTATION

DEVELOPMENT SEQUENCE

The order of completion of various parcels will have a significant effect upon the interim success of the Resource Park and the realization of long-term goals and objectives. The development sequence must ensure, not only the orderly completion of various development parcels, but also the development of the necessary infra-structure to support that development. To provide phasing guidance, an assessment was made of the degree that each development parcel contributes to the attainment of major goals and objectives, which is summarized in the Facilities Evaluation Matrix.



FUNDING

Based upon today's costs, the entire Rural Resource Park, as conceived in the Illustrative Plan, is estimated at this time to be in the order of magnitude of \$8 to \$10 million. A preliminary estimate indicates that \$2.5 to \$3 million will be necessary to provide permanent facilities for relocation of the Boulder County Fair to the new site.

Initial analysis indicates that revenue generated by the complex should be sufficient to offset operating costs. However, the initial and on-going capital investments will require a separate funding source which should be carefully evaluated to include a bond issue retired from the Public Works Fund, an increased sales tax, EDA grants, and Land and Water Conservation Fund grants, to name a few.

ORGANIZATION AND MANAGEMENT

To insure that the objectives are met and to maintain flexibility in the future construction and use of the facilities, it is recommended that the County be the owner and that the facility be managed by a permanent manager under the authority of the Parks and Open Space Department, with the possibility of ultimately achieving department head status.

FURTHER STUDY

In the course of developing the Master Plan for the Rural Resource Park, a number of issues were identified requiring resolution prior to, or concurrent with, finalization of planning and completion of detailed design. Some of the issues suggested for further study and consideration are listed below:

- Identify the interim and long-term organizational structure for implementation and management.
- Develop an approach for detailed design and construction for Phase I.
- Develop a short and long-term funding strategy for construction of Phase I and future phases.
- Develop operational policies.
- Initiate a more detailed analysis of the St. Vrain Open Space corridor; particularly with respect to continued gravel extraction, reclamation, and hydrological aspects.

II. DETERMINATION OF NEEDS

GOALS AND OBJECTIVES

ORIGINAL GOALS OF THE STUDY

Goals are the special contributions a facility attempts to make to its environment. They are ends rather than means. At the outset of the study, the Boulder County Commissioners endorsed the following goals for the development of the Rural Resource Park:

- To be responsive to County needs for fair-ground, educational, cultural, park and recreational activities.
- To serve the agri-business public in a central location.
- To maximize site development opportunities.
- To be responsive to business needs of the county and development of commercial activities compatible with governmental and non-profit activities.
- To maximize multi-use of land and facilities.
- To meet floodplain management goals.
- To provide an inviting year round environment that is aesthetically pleasing.
- To be responsive to conservation of energy and other natural resources.
- To provide a "cost-effective" 12 month operation.
- To recognize the constraints of an integrated phased development.
- To develop under a "pay as you improve" budget.

Initial economic studies indicated that development under a "pay as you improve" budget was not a viable alternative and it was subsequently eliminated as a goal by the County Commissioners. However, early stages of the study indicated a need to include two additional goals:

- To move the Boulder County Fair out of Roosevelt Park by 1978.
- Minimize the costs of development to the maximum degree possible without compromising the effectiveness of the Resource Park.

An interpretation of the foregoing goals was undertaken. They were restructured as required, and specific objectives related to each goal were identified.

INTERPRETATION OF GOALS

Respond to Boulder County Needs for Fairgrounds.

The extreme limitations inherent in existing facilities at Roosevelt Park make it essential to move the fair to the new site at the earliest possible time. A target has been set for 1978. A need exists to identify future fair requirements and to establish an appropriate level of development to accommodate them. The following objectives would seem appropriate to this goal:

- Develop a program of facilities and a master site plan suitable to meet future fair needs.
- Provide Master Planning at a high level of detail in order to minimize design development and accommodate short time schedule.
- Master planning should establish a mechanism for coordinating the development of the site over time.

Respond to Boulder County Needs for Education and Cultural Activities.

Educational opportunities that contribute to the development of skills and/or knowledge relating to a rural way of life should be accommodated to the maximum degree possible. Facilities are needed that contribute to the preservation and transmis-

sion of the cultural products of rural work and/or thought. Objectives to this goal might include:

- Provide facilities that can accommodate indoor and outdoor classroom-type educational programs, as well as outdoor and indoor workshops.
- Provide facilities for the demonstration of both new and old rural techniques and methods.

Respond to Boulder County Needs for Park and Recreation Activities.

Boulder County policy is to provide parks for passive recreation uses such as hiking and picnicking. An additional benefit is maintenance of rural open space.

- Consider the non-fair recreation potential of facilities developed on the site.
- Maximize open space lands that can accommodate passive recreation activities.
- Relate parks and open space planning and development for the site to county-wide open space planning.

Serve the Agri-Business Public in a Central Location.

The agri-business public can be served in several ways by the project: through the provision of facilities available for their direct use, and by locating governmental and quasi-governmental service agencies on the site. The following objectives might be appropriate to this goal:

- Provide office spaces and supporting facilities on the site such as agencies like the County Extension Service, the Soil Conservation Service, the Farm Bureau, and the

Agricultural Stabilization and Conservation Office.

- Provide indoor and outdoor facilities that can accommodate business activities of the agri-business public that are compatible with governmental and non-profit activities. These could include activities such as grange meetings, auctions, tradeshow, machinery exhibits, etc.
- Provide indoor and outdoor facilities that can accommodate recreation activities of the agri-business public such as square dances, banquets, horse shows, etc.
- Avoid development of facilities that place the county in direct competition with activities in the private sector.
- Promote demonstrations and experimental projects of benefit to the agri-business community.

Maximize Site Development Opportunities.

Development on the site can be maximized in a number of ways. Site facilities and built facilities should accommodate as wide a range of appropriate activities as possible. Activities should occur over the entire year - both day and night. The maximum number of appropriate activities possible should be programmed for the site. Objectives related to this goal would include:

- Develop a management policy for the complex that insures optimum scheduling and operation.
- Develop the multi-use capabilities of all facilities wherever possible.
- Exploit the educational, demonstration nature of site development wherever possible.

Provide an Environment that is Aesthetically Pleasing Year-Round.

Provision of an aesthetically pleasing environment is dependent upon the level of finish of site and building elements, not only at final completion, but during each stage of development. The following objectives would seem appropriate to this goal:

- Master planning should establish a process for development that maintains aesthetic continuity over time.
- Unifying elements of the development should be identified and guidelines established for their implementation.
- Minimum levels of finish for site and buildings should be established.
- Visually significant areas of the site should be preserved.

Be Responsive to the Conservation of Natural Systems.

Natural resources will be effected in a number of ways within the development. Reclamation of the excavated gravel pit area can significantly effect water quality and wildlife habitats along St. Vrain Creek. Reducing energy consumption should be a planning consideration. Objectives appropriate to this goal include:

- Establish reclamation standards that preserve water quality, prevent erosion, preserve wildlife habitats, and maintain floodplain management goals.
- Minimize the impacts of development of the Resource Park upon air and water quality.

- Maximize the healthy functioning of natural systems.
- Reduce energy use in built facilities through the use of active and/or passive conservation measures.
- Promote energy conservation in the rural community through educational programs, demonstrations of energy saving measures, experiments with alternative energy systems, etc.

Provide a Cost-Effective Complex for Year-Round Use.

Cost-effectiveness is primarily concerned with minimizing the cost of facilities without reducing their capability to generate income. Utilizing county "in-house" capabilities for development where possible, can help reduce costs of development. Factors such as effective promotion of facilities, can significantly increase cost-effectiveness. This development goal suggests the following objectives to be appropriate:

- Maximize accommodation of income-generating activities.
- Minimize development costs for facilities to the greatest degree possible without reducing their income potential.
- Accomplish development of portions of the complex using "in-house" expertise and available county equipment where possible.
- Utilize available volunteer services to develop those portions of the site - the development of which offers an educational/demonstration opportunity.
- Provide professional management capable of successfully promoting use of all facilities.

Recognize the Constraints of an Integrated, Phased Development.

The phased development over time of facilities having a high degree of interdependence, points up the importance of the ability to respond to changes that may occur in the future. The flexibility of facilities to accommodate changes in use is important, as is the need to maximize multi-use capabilities. Objectives of this goal might include:

- Establish a development process that can be responsive to change.
- Provide for a phased development that minimizes any loss of utility for built facilities.
- Maximize flexibility of built facilities.
- Maximize multi-use capabilities throughout the site.

ACTIVITIES GENERATED BY OBJECTIVES

The interpretation of goals for the study has identified the important role of the Boulder County Fair in planning for the Resource Park. The need for facilities to house the fair is seen as the primary motivation for undertaking a capital development program for the site and represents an overriding goal for development. As such, it was realized from the outset that other goals such as multi-use, cost-effectiveness, and flexibility should be pursued within the context of those facilities necessary to accommodate the fair. The merits of developing facilities totally unrelated to the fair, regardless of the degree that they support other goals, should be carefully weighed. Educational/cultural facilities represent one such type. Goal analysis and interpretation identified the strong relationship educational/cultural facilities had to a large number of goals. Provision of educational/cultural facilities

that are not cost intensive, such as projects for educational demonstrations, experiments, and workshops represent important goal-serving opportunities for development of the site, and should be an additional important facet of its operation.

Upon completion of the goal interpretation analysis, an extensive group of non-fair activities was deductively formulated that potentially served the goals and objectives. Limiting factors were identified that further refined this extensive group of activities into a range of activities appropriate for inclusion on the site. These limiting factors included market limitations, cost and budget limitations, limitations related to county policy, and physical limitations imposed by the configuration and location of the site.

The resultant range of appropriate activities (fair and non-fair) is included within the following activity categories:

- Meetings and Workshops
- Social Events
- Amusements
- Exhibits and Animal Shows
- Commercial Activities
- Recreation Activities
- Supporting Activities

The following sections of the report discuss the analysis and determination of needs related to appropriate activities for the Rural Resource Park and the translation of those needs into a program for development.

USER GROUP NEEDS

USER GROUP SURVEY

Having determined a range of activities appropriate to the site, a survey of potential user groups was made to assess market demand and operational requirements necessary to accommodate those activities.

FAIR GROUPS

The Boulder County Fair is held each year in August. It is comprised of an open fair and a junior fair for members of 4-H clubs and vocational agriculture groups (FFA). The open class segment of the fair is made up of livestock exhibits, crops and garden exhibits, and home economics, art, and horticulture exhibits. The junior fair includes livestock exhibits, a horse show, small animal exhibits, plant sciences, home economics, and a number of general exhibits. Additional commercial exhibits and other concessions are also part of the fair. Local Boulder County organizations sponsor a number of other events in conjunction with the fair. These include the PRCA and Amateur Rodeos sponsored by the Longmont Jaycees, the parade and Little Wranglers Show sponsored by the Kiwanis Club, and a pancake breakfast sponsored by the Longmont Lions Club. Numerous other contests, displays, social events, and exhibitions make fair-time in Boulder County a festive occasion.

The Open Class Horse Show is held every spring in May.

Fair user needs were identified through extensive discussions and workshops with fair board members, the County Extension Agent and staff, and sponsors of fair-related activities such as the rodeo, carnival, etc. The following is a brief summary of facilities needed to accommodate the fair and related activities.

- Livestock quartering facilities to accommodate beef and dairy cattle, swine, sheep, and goats.
- Small animal facilities to accommodate poultry, rabbits, etc.
- Indoor exhibit facilities for showing a wide range of non-animal exhibits.
- Judging facilities for all types of livestock.
- Auctioning facilities.
- Outdoor exhibit space for commercial exhibitors.
- Midway space to accommodate the carnival.
- Outdoor arena facilities with spectator seating for rodeos, tractor pulls, horse shows, concerts, etc.
- First Aid facilities
- Fair headquarters facilities
- Large amounts of public parking
- Parking and overnight camping facilities for livestock exhibitors with hookups or central services.
- Supporting facilities such as maintenance shops, storage, and a caretakers residence will also be required.

Fair uses occur almost exclusively during a one week period in late summer. The provision of new accommodations will permit the Boulder County Fair to attain a higher level of service to the rural public of the county. Growth of the fair has been hampered in the past by limitations of available facilities in Roosevelt Park.

Because of the event specific nature of the fair, opportunities for multi-use of the facilities during other periods of the year should be explored.

COMMUNITY GROUPS

The possible users of the facility for meetings and large gatherings were identified by surveying the present available meeting and gathering space in Boulder County, particularly in the cities of Longmont and Boulder and then identifying those groups which could use the new facility as an alternative or could expand their activities as a result of the additional space. Those groups can be categorized into extension programs, other youth programs and adult nonprofit service and social organizations.

The following is a description of each of these user groups, their activities and the extent of their use of the meeting and conference facilities. A representative listing of potential users and alternative meeting places is included in the Appendix.

Extension Program-Related Groups. The Extension Service provides a county-wide service of educating and advising residents in the specialities of home economics, horticulture and animal husbandry, as well as providing the technical and organizational support of the 4-H youth program. The Extension Office's responsibilities include organizing and advising special interest groups which include 16 home demonstration clubs, 12 garden clubs, 84 4-H groups and numerous commodity groups such as sheep breeders and beekeepers. The Extension staff also acts as technical adviser and instructor through numerous workshops and ongoing projects as well as providing analysis to individual residents. The present Extension program serves over 150 different special interest groups and conducts hundreds of workshops each year. All these activities generate hundreds of small group meetings and workshops and numerous large group conferences, dances, pot lucks and demonstrations.

Other Youth-Related Groups. Youth-related groups other than the 4-H clubs include the Future Farmers of America, the Boy Scouts and Girl Scouts, the Campfire Girls, the High School Rodeo Association and some school-related groups. These groups' activities include meetings and special events such as arts and crafts fairs, dances, banquets, demonstrations and county-wide or regional conferences.

Adult Nonprofit Service and Social Organizations Those groups include hobby clubs such as the Coloradoans and model airplane clubs, the Granges, the various drama and music groups and the numerous other social, fraternal and service organizations. There are at least 200 such groups in the county. Most of these have small, monthly meetings at members' homes or at local churches or restaurants. Each also has two to three special events each year such as conferences, banquets, dances, displays and demonstrations.

Specific Needs of the Users

The groups size for a meeting ranges from 20-80. The physical requirements of the room varies with specific activities. For example, the Extension staff require some special equipment such as a demonstration kitchen and repeat users will need adequate storage space. Having the capability of varying the size of some rooms and having several meetings at the same time is essential to satisfy the physical needs of the Extension Service and of workshop-oriented conferences.

For special events a larger exhibition hall or a large open room is required and since many of the events are banquets, a kitchen and/or catering facility are also required. A fully equipped commercial kitchen is not as important as steam tables, ovens, refrigerators and storage adequate to support catered meals and the preparation of simple meals. There is a lack of such facilities

in other meeting space available in the community and the youth and Extension groups particularly have expressed such a need.

A major requirement of the community groups is the availability of space at a reasonable fee and with a minimum of restrictions. The cost of places presently used ranges from no charge or the cost of minimal custodial care for nonprofit activities to fixed commercial rates for dances, dinners and other large gatherings. Most users contacted felt a maintenance fee could be charged and that some money-making activities should be assessed according to profits.

A greater concern, however, is the availability of space with reasonable restrictions. A survey of the present meeting and large hall space available for use by public or quasi-public groups has one or more of the following restrictions:

- The user cannot charge an entrance fee or have any money-making activities;
- The user is prevented from serving food or drink or is required to use the banquet services of that particular place;
- All meetings and events must be open to the public; or
- Many places are not available on weekends; many others are not available during the day.

Although these restrictions are not seen as limitations by some user groups, other, particularly the Extension-oriented groups and the youth groups, have some major difficulties. For example, most of these groups rely on a few money-making projects a year in order to continue their other projects. Presently it is difficult to find space

which allows them to have concerts, dances, fairs or fashion shows, to charge an entrance fee and then to net the necessary profit.

The potential user groups of the meeting and large hall facilities represent a broad range of interests and activities. There is, however, some commonality in their physical/structural requirements and in their management policy requirements.

The structural requirements desired are:

- A number of rooms available at the same time;
- A variety of room sizes with capacity from 20 to 150 persons; and
- Some specialized features -- demonstration kitchen, storage, public address system, catering or warm-up kitchen, wet bar.

The management policy requirements desired are:

- A reasonable schedule of fees reflecting the needs of the user group and the activities scheduled;
- A set of use regulations which would allow money-making activities, the rental of the facilities for closed gatherings and allow food and/or alcoholic beverages on the premises; and
- A flexible and extensive schedule; particularly, availability on weekends.

COMMERCIAL USERS

Commercial activities are characterized as those activities sponsored by a group with the intent of making a profit from sales, entertainment

activities, entrance fees or space rental or the promotion of commercial sales or services. The potential commercial uses were identified through a survey of multi-purpose facilities capable of attracting trade shows and commercial conferences and conventions and through discussions with other fairgrounds managers and county agribusiness concerns. Such commercial uses include:

- Trade and industrial shows;
- Business-oriented conferences and conventions;
- Entertainment promotions; and
- Occasional fund raisers.

Trade and Industrial Shows

Trade and industrial exhibitions are generally associated with conventions or are located in high density people flow areas such as shopping center malls or centralized downtown areas. The minimum space requirements for the size of show most commercial promoters will sponsor is 35,000 square feet. This space needs to have a free-span flat floor with extensive lighting and electrical grids, loading docks within the building, concession facilities and acoustical and ventilation adaptations. Home and garden shows, farm equipment shows and commercial flea markets or swap meets are the most likely users of a facility at the site.

Business-Oriented Conferences and Conventions

Conferences and conventions sponsored by trade or professional groups or by individual firms require small meeting rooms, lecture hall size rooms, banquet facilities and other exhibition space. The off-site requirements include hotel/motel rooms and restaurants for the longer than one day

conferences. While local industries may make occasional use of the Resource Park facility for professional meetings, it is unlikely that conventions or meetings drawing from outside the Denver-Boulder area would find the site suitable due to the lack of nearby hotels and supporting activities.

Entertainment Promotions

Concerts, stage productions and dances as commercial ventures require a variety of special features. The seating capacity would depend on the specific activity and the attendance required by the individual promoter as adequate to make a profit. The special features include stages, lighting, audio equipment and quality acoustics.

Such activities could make use of the outdoor arena or for small events the exhibition hall.

In this case the size of the facility would determine the nature of the potential events. These events are too flexible in their location requirements and too infrequent to size the facility specifically to meet their needs.

Occasional Fund-Raisers

The fund raiser-type activity is sponsored by a nonprofit group as a social event or as part of its regular program. These activities include dances, bake sales, spring fashion shows, equipment swaps, bingo, art sales and any other activity at which they can make a profit. The space and special features needed vary with the activity but approximately 30,000 square feet would accommodate most activities. Some of the special considerations are electrical outlets, ventilation to minimize dust and odors, concession facilities, portable stage and tables for displays.

HORSEMEN'S ORGANIZATIONS

The users of the horse facilities were identified through a survey of other horse facilities and through numerous discussion with leaders of horsemen's organizations throughout Boulder County. There are nearly 50 different horse groups representing the various breeds, styles of riding and horse-related sports. These groups sponsor about 70 shows annually, mostly concentrated during the summer months. The user needs of all of these groups are very similar. The following paragraphs will summarize the specific physical facilities required by all of the groups and will also identify the particular needs of the rodeo groups, the show horse groups and the equestrian competition groups. A listing of horsemen's organizations in the county is included in the Appendix.

The Horsemen's groups participate in a variety of associated activities such as horse shows, gymkanas, roping competition, dressage, jumping and polo. These various activities require different space accommodations during the actual event but have the same support needs. The following is a list of these needs with any variation required of a particular group noted.

- Parking facilities for large camper and horse trailer combinations; close to arena and barns in a lot separated from the general public;
- Overnight camper facilities close to barns and with hookups or central services;
- Barns with at least 150 to 200 box stalls with additional temporary stalls totalling 300;
- Space between stalls for storage of tack and feed as well as convenient water spigets and wash racks;

- A separate veterinarian facility in or near barns;
- A warm-up or exercise arena adjacent to the main arena;
- An outdoor arena of at least 150 feet by 300 feet. This size would accommodate the roping events which require the greatest arena area. The arena should have some distance between the stands and fence so as not to distract the horses. There should be specialized rodeo furniture such as chutes and holding pens. A public address system, lights and concessions should be available.
- An indoor arena, although not required for the survival of any of these groups, would be extensively used during the winter and as an inclement weather backup.
- The hunter-jumper field events require one-half to one acre of open countryside.
- Both cowboy polo and English polo can be played in an area the same size as the arena, and the larger grassed areas adjacent to Nelson Road would also be available.
- Specialized equipment such as the jumps, dressage ring boundaries and markers, polo field boundaries and goals and individual tack and feed is supplied by the individual user groups.

Extensive utilization of the Rural Resource Park by horse-related activities is anticipated. There are no similar facilities within the county and local groups now hold a number of events outside of the county. Those facilities now used will continue to be used for small events. Most of the projected use at the new complex will result

from an expansion of activities because of the new facility, an increasing interest in horse activities, and the recapture of events now being held outside of the county.

EXPERIMENTAL AND DEMONSTRATION USES

During the course of identifying activities appropriate to the Resource Park, it became evident that opportunities existed to include a number of uses for which no obvious advocate group existed. These uses centered primarily around experimental and/or demonstration projects that would serve to strengthen the cultural and educational aspects of the Park as a resource to the rural community. Cultural and educational needs can be addressed in a number of ways: through experiments that demonstrate new agricultural methods and techniques, through demonstrations of existing agricultural methods and techniques that are not available elsewhere in the county, and through the preservation and/or restoration of past knowledge and practices both for historical benefit and future application.

NEW METHODS AND TECHNIQUES

American agriculture has traditionally been responsive to changing methods and techniques. Future changes in the availability of essential resources such as energy, water, capital, and land can be expected to intensify the importance of responding to changes in operational techniques. The Rural Resource Park can provide a testing ground where new techniques in such things as alternative energy systems, alternative technologies, and minor experimental agricultural projects can be demonstrated to the rural community. Such experimental demonstrations could include wind power projects, solar dryers, methane gas generation experiments, aquaponics, etc.

EXISTING METHODS AND TECHNIQUES

There presently exists a large and diverse amount of knowledge regarding agricultural methods and techniques for which there exists no available central demonstration area accessible to the rural community. Opportunities exist to accommodate on the site a large number of demonstrations of existing agricultural methods. These could include examples of plant species, plant disease prevention, windbreaks, soil conservation techniques, irrigation methods, moisture retention in soils, water impoundment, reclamation methods, and many others.

PRESERVATION OF PAST METHODS

Methods that have served the agricultural community in the past are potentially applicable to the future. The self-sufficiency of the family farm of a generation ago may become increasingly important again. Various agricultural techniques and methods of the past that were not dependent upon a highly evolved, energy-intensive technology may be applicable to the future. The Rural Resource Park can provide a focus for the preservation and dissemination of past knowledge and practices through workshops, classes and seminars, an information center, historic exhibits, etc.

The experimental and demonstration potential for the Rural Resource Park can best be accomplished through the following actions:

- Provision of flexible space of a rather high level of finish to accommodate classes and seminars. Some specialized features such as audio/visual and display areas will be required.
- Provision of flexible interior space that is

• durable and easily maintained to accommodate workshops and demonstrations.

- Provision of outdoor space in a variety of sizes and locations to accommodate outdoor demonstrations and experiments, and temporary outdoor historic exhibits.
- Provision of indoor space for temporary and/or permanent historic exhibits.
- Location of the Extension Office, Soil Conservation Service, Agricultural Stabilization and Conservation Office, and the Farm Bureau on the site will help to serve the agricultural business community in a central location as well as reinforce the experimental/demonstration function of the Park. Many of the projects mentioned in the preceeding paragraphs could be directly coordinated through the Extension Office. Significant opportunities exist for involving county 4-H groups in experimental and demonstration projects.
- The possibility of treating a number of site development issues such as reclamation and landscaping as demonstration projects should be investigated.

COMPARATIVE ANALYSIS OF SIMILAR COMPLEXES

The proposed Rural Resource Park is intended to serve the county as the site for the annual county fair, as a center for agri-business education and as a multi-purpose facility open on a year-round basis. In order to better understand the necessary facilities required of a fair and to identify possible usage the rest of the year, a survey of facilities at nearby counties was undertaken.

The fairgrounds surveyed were selected because of their proximity to urban centers, their year-round operation and because they are the sites of their respective county fairs. These facilities are the Adams County Regional Park, the Arapahoe County Fairgrounds, the Jefferson County Fairgrounds, the Larimer County Fairgrounds and the Weld County fairgrounds. Each of these facilities was visited and their managers were interviewed about the types and attendance of fair and nonfair activities, the level of use of the various structures and the fairground's financial and managerial policies. A summary profile of each fairgrounds characteristics is included in the Appendix.

The following is a composite of these complexes physical facilities, multi-purpose uses and management policies.

PHYSICAL FACILITIES

The dominating physical characteristics of a fairgrounds is a large site capable of containing a dozen or so structures and parking for the largest single activity, the fair. The site acreage and the parking capacity of each fairgrounds is summarized below.

Fairgrounds Sites

Site	Acres	Parking Capacity
Adams	90	5,000
Arapahoe	60	3,000
Jefferson	80	10,000
Larimer	15	400
Weld	80	2,500

The Larimer County Fairgrounds site has only capacity for parking 400 cars. During the fair, parking overflows into the City of Loveland's recreation fields, along the streets, and into open fields surrounding the site. All the fairgrounds have a combination of paved parking and dirt or gravel. The largest paved area is at Adams County with a 4,000 car capacity.

The physical structures on a fairgrounds typically include an outdoor arena with a covered grandstand, several exhibit buildings, a variety of livestock shelters for large and small animals, horse barns, holding pens, sale and show rings and loading or unloading structures.

The outdoor arenas and grandstand surveyed were of two different arrangements: those with an oval race track separating the grandstand from the rodeo arena and those with the grandstand close to the action with no race track. The Arapahoe and Adams arenas have a track arrangement; however Adams County sets up the rodeo furniture within the track area and hasn't used the track for several years. Jefferson County removed their oval track several years ago. Larimer and Weld counties once had oval tracks located in a different part of the fairgrounds, but these tracks have since been removed.

All the outdoor arenas surveyed have covered grandstands and additional open bleachers. Adams County has portable bleachers which can be moved into the outdoor arena, the indoor arena or the show ring area. The table below shows the grandstand and bleacher capacities of each fairground.

Fairground Arena Capacity

	<u>Grandstand</u>	<u>Bleachers</u>	<u>Total</u>
Adams	5,000	2,000	7,000
Arapahoe	3,200	2,000	5,200
Jefferson	4,000	4,000	8,000
Larimer	1,800	2,200	4,000
Weld	7,500	500	8,000

An Indoor Exhibition area at a fairgrounds can be typically described as a large open room or rooms with support features such as restrooms, offices and concessions. The buildings surveyed varied in size, acoustics and support features. The following is a brief description of the main exhibition buildings at each fairground.

Size and Seating Capacity
of Exhibition Buildings

	<u>Square Feet</u>	<u>Seating Capacity</u>
<u>Adams</u>		
Community Building Dome	11,000	900
Community Building Annex	6,600	300
Exhibition Building	25,000	
<u>Arapahoe</u>		
Arts & Exhibition Building	9,000	1,100
Floral Building	5,700	450
<u>Jefferson</u>		
Auditorium Building	12,000	1,200
<u>Larimer</u>		
McMillen Building	14,400	1,200
<u>Weld</u>		
Exhibition Building	21,000	
4-H Building	9,700	600

Each of these facilities also contain such other features such as offices, storage, acoustics, lighting, stages and smaller meeting rooms. All except Arapahoe have commercial kitchens, snack bars or demonstration kitchens. The interior design of these facilities range from a utilitarian metal or wood shell with forced air heaters at Arapahoe and the Exhibition Building at Adams, to a very finished interior at Jefferson, the 4-H Building at Weld and the Dome at Adams.

The livestock shelters surveyed ranged from the open-sided structures at Adams, Larimer and Weld to closed-in structures at Jefferson and Weld. Each of the facilities have evolved differently due to a changing emphasis on livestock at their respective fairs and an increasing emphasis of nonfair use of the structures. Parts of the Weld County Exhibition Building are used for livestock and as a show ring. The Jefferson County facility is seldom used for livestock.

In addition to open-sided, large animal barns, there are horse barns with permanent or portable box stalls, small animal barns with closed-in walls for poultry and rabbits holding pens for the rough stock used in the rodeos. Again, the size and placement of these features varies with each complex and is a function of their importance during fair time.

One other physical facility which two of the fairgrounds had and which two other managers said they would consider building is an indoor horse arena. Jefferson and Adams have such a facility -- it is a clear-span, dirt floor structure with enough heat for spectators but cool enough for animal comfort.

MULTI-PURPOSE USES

FAIR ACTIVITIES

The primary purpose of the construction of any fairground is for its use as the site of the annual county fair. The county fairs at the surveyed facilities are generally a week to ten days long and are organized and managed by the respective county extension offices and fair boards.

The activities at a county fair vary depending upon the interests of the residents and other competitive events within the area. All the fairs have the agricultural, home economics and 4-H competitions. The number of exhibitions and exhibits varies, as does the distribution of the exhibitions between 4-H or youth and open classes. The table below lists the number of exhibits in the various classes in 1976 fairs.

	<u>Live- stock</u>	<u>Horti- culture</u>	<u>Home Economics</u>	<u>Other</u>
Adams	885	N/A	NA	NA
Arapahoe	297	122	535	364
Jefferson	498	- - - -	1,200	- - - -
Larimer	1,706	664	967	1,845
Weld	2,135	681	766	159
Boulder	2,049	750	1,905	780
State Fair	8,495	2,143	1,647	1,697

Other activities such as rodeo, horse shows, tractor pulls, stage shows, carnivals and commercial exhibits are often associated with a county fair, but only Adams and Larimer counties (plus, of course, Boulder) have all of these activities. The Weld County Fair is held in Greeley the first week of August, and the City of Greeley holds a major rodeo and carnival celebrating the Fourth of July. The Jefferson and Arapahoe fairs are

essentially 4-H fairs. Both fairgrounds also have active rodeo and horse clubs which put on large shows at other times during the year. Entertainment-type activities such as tractor pulls, stage shows, barbeques and horse shows are scheduled at most of the fairs.

NONFAIR ACTIVITIES

Nonfair time use of the facilities occurs at all the fairgrounds. These uses include meetings, social events, horse activities, commercial ventures and large county-wide agricultural, horticultural and livestock shows.

One major nonfair user is the county Extension service. The Weld, Adams and Jefferson county extension offices are on the fairgrounds site. These agencies use the meeting room facilities for many of their workshops and programs in horticulture, livestock, home economics and 4-H. All the fairgrounds have 4-H program activities on their sites. Weld, Adams and Arapahoe have a separate building for exclusive 4-H use.

The types of activities occurring at the various fairgrounds are numerous; some activities are common to all or most of the fairgrounds and some are unique to a particular county. One such unique activity is the theatre productions which occur in the Jefferson County Auditorium. This structure has a completely equipped stage and adequate acoustics and seating arrangements. Another unique facility at Jefferson County is the one-fourth mile midget racing track, equipped with electrical timers and lighting used for nationally sanctioned races and for practice by county residents. Two activities which also have no counterpart in the other counties are the Garden Show and the Farm Show in the Weld Exhibit Building. These are week-long commercial and educational exhibitions emphasizing the landscaping/

garden industry and the agriculture industry in Weld County.

Other types of activities occurring at most of the fairgrounds are:

- Community group meetings, workshops and conferences
- Political rallies
- Trade shows
- Dog and cat shows
- Dances
- Banquets
- Scout activities
- Concerts -- bluegrass, "Up With People", rock, symphony
- Sales -- bake goods, antiques, guns, arts and crafts
- Dog training
- Archery
- Horse shows
- Gymkanas
- Bingo
- High school rodeos
- Little Britches Rodeo
- Livestock sales

● Hobby shows

Precise statistics on the extent to which each fairground is used for each of these types of events are not available; however, some general trends can be determined by analyzing usage of some of the major structures. The exhibit hall/meeting room space and the arenas/livestock shelters are the facilities which get the most use during the remainder of the year.

The arena/livestock facilities are used for horse-related activities such as rodeos, gymkanas, horse shows, training and practice sessions and for other events such as dog training classes, livestock sales, archery, football practice and outdoor concerts. The fairgrounds generally have these facilities completely utilized on weekends from beginning of May through September. The indoor arenas and even the outdoor arenas are used intermittently throughout the winter.

The exhibit hall/meeting room facilities are more intensively used year-round at most of the fairgrounds. The Jefferson County Auditorium is used nearly every day throughout the year. Often the large hall is partitioned into three areas with a capacity of 300 each. The Adams County facilities and the Weld County 4-H buildings are used on a daily basis as well.

As an example of the extent of nonfair usage, an analysis of the utilization of the individual facilities within the Adams County Fairgrounds during 1976 indicates that a total of 560 events took place over the year other than the fair. The Exhibit Hall and Community Building were used for 458 events or 81 percent of total nonfair events. The arena/livestock facilities were used for 88 events or 16 percent of total nonfair events. However, most of these arena/livestock events were two or three day horse shows or

rodeos, so the total days of activity for arena facilities was approximately one-third of all non-fair usage.

Adams County Fairgrounds Facilities
Events Usage, 1976

	<u>No</u> <u>Charges</u>	<u>Charges</u>	<u>Total</u>
Exhibit Hall	111	71	182
Annex Room	81	37	118
Conference Rooms	108	1	109
Dome	1	48	49
Outdoor Arena	15	38	53
Indoor Arena	8	7	15
Sale Barn	3	10	13
Poultry Barn	1	1	2
Practice Arena	5	-	5
Park-Nature Area	13	1	14
Total	346	214	560

The high percentage of events for which there was no charge reflects the county's policy of allowing free use of the facilities on weekdays by any youth group and county-based, noncommercial adult organizations.

While the other fairgrounds could not readily provide a detailed breakdown of facility usage, Arapahoe County reports having 950 nonfair events in their facilities and the calendars at Jefferson County suggests an average of more than one event per day.

MANAGEMENT AND BUDGET STRUCTURE

The five fairgrounds surveyed vary significantly in their size, budgets and management philosophy. At one extreme, Jefferson County considers the fairgrounds to be a public park and its facilities

are available at no charge to almost any resident or local group who wishes to make use of the facility. As noted earlier, Adams County, with perhaps the newest and most extensive complement of facilities, aggressively promotes its use by fee-paying activities. In Arapahoe County, the fairground itself is owned by a private, nonprofit organization.

Except for the privately owned Arapahoe County facility, the management and maintenance of fair facilities is the responsibility of the county government either through a department or through a director reporting to the county administrator or county commissioners. The fair operation is generally separated from the year-round management at the park with a Fair Board serving as an advisory body and working with the Extension Service to put on the fair. Only in Larimer County is the same person responsible for both the fair and the year-round operation.

In the paragraphs below a brief summary of the operating characteristics of each of the five surveyed fairgrounds is given.

The Adams County Fairground is part of the county's regional park system. The manager of the fairgrounds also supervises other county parks and the golf course. Excluding golf course expenditures, the 1976 departmental budget was \$357,000. While this included some minor capital improvements and the personnel costs for the entire parks system, it has been estimated that the nonpersonnel operating and maintenance expense of the fairground facility is \$40,000. The 1976 revenues from rental fees was about \$61,000 (and is expected to be much higher in 1977 due to increased fees and usage).

The Arapahoe County Fairgrounds is owned and operated by a private nonprofit association. The county government has in the past aided in the construction of some of the buildings and it now provides about \$30,000 annually in exchange for use of the facility during the fair period and for occasional use by the 4-H and adult extension programs. Other revenues to the Fairgrounds Association are about \$125,000 including fees for use of the facilities, profits from the Little Britches Rodeo, rental income from a drive-in theatre and year-round rental of horse stalls to residents of the county. It is estimated that the nonpersonnel operating and maintenance expense of the facility is \$40,000 a year excluding the cost of events which the association itself sponsors.

The Jefferson County Fairgrounds serves as a county-wide recreation facility. The 1976 budget (excluding maintenance of the ball field) was \$125,000 of which it is estimated that nonpersonnel maintenance and operating are \$22,000. Total revenues from rental fees was \$10,000; but it is county policy to allow all county youth and nonprofit organizations to use the facility for no fee and to give them priority over commercial activities or groups from outside the county. Such groups accounted for less than 10 percent of the events at the fairgrounds last year.

The Larimer County Fairgrounds had a total income in 1976 of \$55,400 including the rodeo and fair-related income. It is estimated that less than \$10,000 came from fees and rentals of the facility at other times in the year. The total expenses, again including the rodeo and fair awards, were budgeted at \$91,000, of which it is estimated that the nonpersonnel operating and maintenance expenditures amount to about \$19,000.

The Weld County Fairgrounds operation is a composite of facilities and agency responsibility. The City of Greeley owns and operates the park and rodeo arena while the county commissioners' office schedules the use of the exhibit building and the surrounding ground. The extension office is responsible for the 4-H building and the office area within the exhibit building and, of course, the operation of the fair itself. There is virtually no income from the rental of the exhibit building during the year. The operating and maintenance costs of the complex cannot be broken out from the county budget categories.

PROGRAM SUMMARY AND RECOMMENDATIONS

PROGRAM

As discussed above, the types of facilities and areas required for fair activities may also accommodate a variety of non-fair uses to achieve multiple-use objectives. The purpose of this section is to relate the range Park activities developed previously to various facilities, and develop space requirements for those facilities as well as operational and design considerations. The following program description also includes diagrams to illustrate functional relationships within a facility and between different facilities.

The facilities to be discussed are:

1. Rural Resource Center
2. Exhibition Hall
3. Livestock Show Pavilion
4. Sale Ring
5. Cattle Barns
6. Small Animal Pavilion
7. Indoor Arena
8. Horse Barns
9. Outdoor Arena
10. Camper Support Facility
11. Maintenance Shop
12. Caretaker Residence

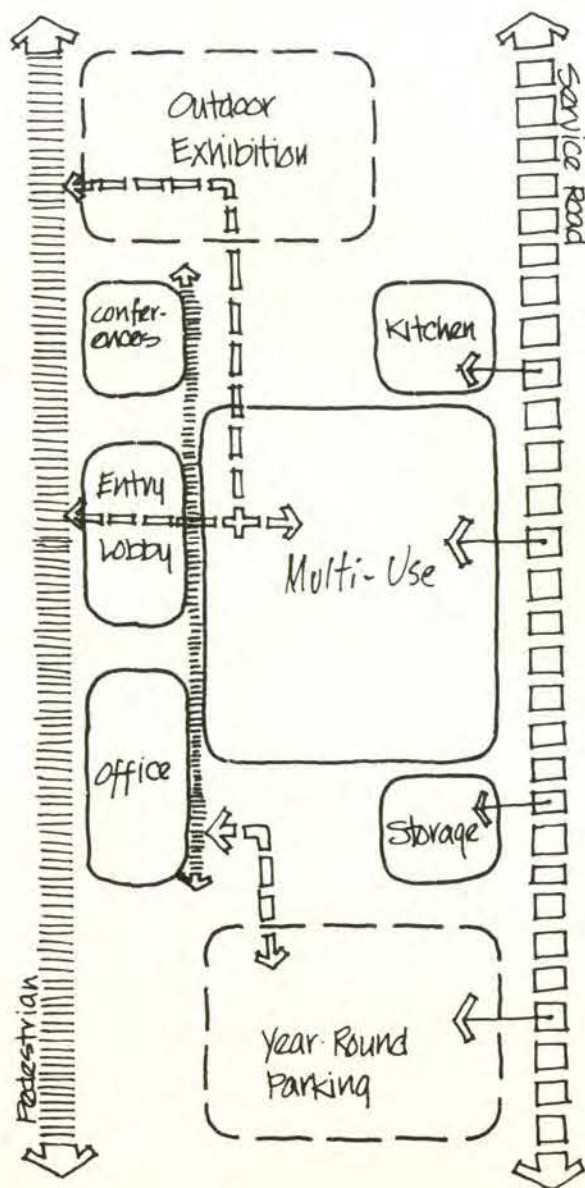
1. Rural Resource Center

The Rural Resource Center, as its name implies, has a complex use pattern and is probably the most used building on a day-to-day basis at the Park. It is a highly finished, year-round building. Typical events for this facility are:

Home Economics Workshops and Exhibits
Floriculture Workshops and Exhibits
Horticulture Workshops and Exhibits
Hobby & Crafts Workshops and Exhibits
Fine Arts Workshops and Exhibits
Red Cross Disaster Center
Business/Professional/Service Club Mtgs.
Conferences/Classes/Seminars
Agri-business Shows
Livestock Product Shows
Dances/Social Events
Banquets
Concerts
Theatrical Performances
Fashion Shows
Antique Exhibits
Historical Exhibits
Commercial Exhibits
Flea Markets
Trade Shows
Office Lease Space
Administrative Offices
County Offices
Conventions

Any of these events may or may not be Fair related.

Operational Considerations: The operation of this facility is concerned with office, educational, meeting and exhibition use. The office portion should relate well to the building's entry with provisions for controlled access to the offices. The space needs to be flexible in order to accommodate expansion and change in the agencies involved.



The meeting function should also relate well to the building's entry and to some extent to the offices.

The exhibition function would occur primarily in the multi-use portion of the Center. While the scale of the multi-use space within the Rural Resource Center is smaller than that of the Exhibition Hall, it shares many of the operational concerns. The two major concerns are the efficient movement of large numbers of people through the building (such as at Fair time), and the ease of exhibitor access to the building on a day-to-day basis. The use characteristics of the facility indicate a need for service road access and associated parking at the building. A close relationship to an outdoor exhibition space is also essential.

The building would be used on a daily basis during the week and on most weekends and evenings. Because of this high frequency of use, the building should be accessible when the Park is closed and be easily reached directly by automobile.

Design Considerations: The same division of office, educational, meeting and exhibition areas that applied to the operational characteristics of this facility also applies here. The design requirements for the office area are the same as for any functional, efficient and effective office space.

The meeting and educational space should accommodate groups from 4 or 5 up to approximately 100. The space should be divisible to accommodate the number of people involved.

The multi-use portion would be a relatively finished space with a clear height of 15 to 18 feet. It should be divisible space to accommodate the wide range of activities which would occur. Overhead doors might be used to accommodate the movement of exhibitions

or equipment in and out of the building as well as to move large volumes of people through the building.

Since the operation of this facility is more diverse than the Exhibit Hall, a semi-institutional type kitchen has been requested by several organizations. This could be used for large banquets, catering meetings or serve as a first-aid disaster center for large groups. The kitchen would not necessarily be concession oriented. The extension service would need a demonstration kitchen area. This building would also contain restrooms since it is a year-round facility and one of high pedestrian volume during Fair time.

Heating, ventilating and air-conditioning this building would be fairly typical of such a facility with the possibility of relying on a high degree of ventilation and no air-conditioning in the multi-use space during periods where the building is opened up to the exterior.

The only special requirement for lighting might be the introduction of several switching levels in the multi-use space. This space would also require special power distribution considerations for exhibitions and shows.

Space Requirements: In order to provide adequate exhibition space similar to that which exists in the Memorial Building at Roosevelt Park, approximately 20,000 square feet will be required for the multi-use space. In addition, a wet workshop area of 2,000 square feet and an equal amount of storage area would be required for tables, chairs, portable equipment and bleachers.

The semi-institutional kitchen facilities would require 2,000 square feet to accommodate both a service style and cafeteria line set-up.

Based upon an allowance of 10 square feet per person, the conference area would total 1,000 square feet.

By projecting the County Extension Service staff's requirements to 2,000 square feet and allotting 2,800 square feet to the other quasi-governmental and county related agencies, the 4,800 square feet.

Restrooms and employee lockers would be allocated at 400 square feet each. Due to the multi-use aspects of the building and its degree of comfort, another 3,000 square feet would be allocated for circulation space, mechanical equipment areas and other gross space.

The total building area is summarized as follows:

Multi-use Space	20,000 s.f.
Wet Workshop	2,000
Storage	2,000
Kitchen	2,000
Conference	1,000
Offices	4,800
Restrooms & Lockers	1,200
Circulation, Mechanical, etc.	3,000
TOTAL	36,000 s.f.

2. Exhibition Hall

The Exhibition Hall is a large enclosed year-round space which is heated, well ventilated and possibly cooled. Some events which typically might occur in this facility are:

- Home Economics Workshops and Exhibits
- Floriculture Workshops and Exhibits
- Horticulture Workshops and Exhibits
- Hobby & Crafts Workshops and Exhibits
- Fine Arts Workshops and Exhibits
- Business/Professional/Service Club Mtgs.
- Conference/Classes/Seminars
- Agro-business Shows
- Dog Obedience Shows
- Dances/Social Events
- Dog/Cat Shows
- Concerts
- Theatrical Performances
- Fashion Shows
- Vehicle/Machinery Exhibits
- Antique Exhibits
- Livestock Product Shows
- Historical Exhibits
- Commercial Exhibits
- Flea Markets
- Trade Shows
- Religious Revivals

Operational Considerations: The most critical aspects of this facility's operation appears to be the efficient movement of large numbers of people through the building (such as at Fair time) and the ease of access to the building by exhibitors and other tenants.

Due to the diversity of activities and numbers of occupants the facility should have durable wall surfaces and floor surfaces which are easily cleaned.

Operational requirements also dictate the need for flexible space possible related to the exterior area around the building, as well as the interior area. Storage is also critical. The facility should relate closely to both the service road system and a year-round parking area.

The Exhibition Hall would relate strongly to an outdoor exhibition space much as the Multi-use Center would.

The facility would probably be used weekdays, weekends and evenings, on the average of 2 or 3 times weekly. Due to the frequency, the same access provided the Rural Resource Center would be required here.

Design Considerations: The majority of the space in the Exhibition Hall should be high and clear. Ideally, some variation in the space, as well as a significant amount of natural light, will contribute a great deal to the character of this space and its energy efficiency. An adequate range for the clear height of the space is between 16 and 25 feet. A substantial portion of the building should be at the greater height. Large overhead doors would accommodate the movement of exhibitions or equipment in and out of the building.

Restroom and concession areas are required. They should relate to the exterior pedestrian traffic near the building.

The nature of the facility's occupancy and use requires minimal heating capability and maximum ventilation. The need for cooling would depend on the added cost involved.

Lighting requirements are of a general

nature, with switching to accommodate several levels of illumination. Electrical power distribution is important for the success of the show and exhibition type of activities in the building.

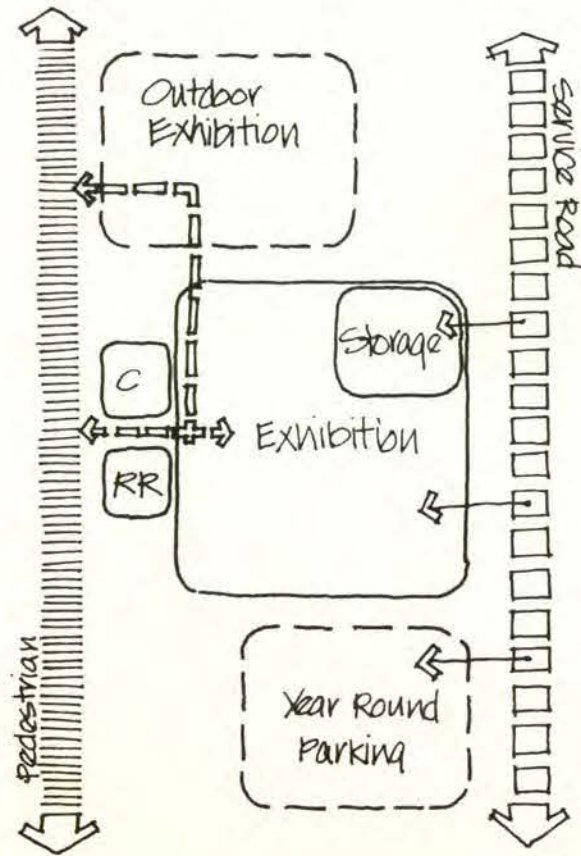
The necessity for a thorough clean-up after some events may even require the use of a floor drain system in the building.

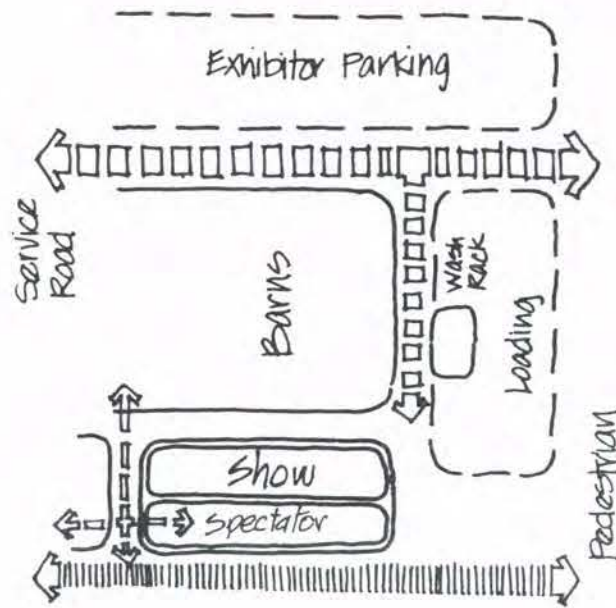
Space Requirements: Based upon projections by the Fair Board and investigations of similar facilities, the requirements for exhibition space of this type are on the magnitude of 35,000 square feet with possibly 2,000 square feet of the total amount used for storage.

Restroom requirements indicate a need for approximately 400 square feet for both men's and women's facilities. The concession area is of the 500 square foot magnitude.

The total building area is as follows:

Exhibition space (with storage)	35,000 s.f.
Restrooms	800
Concessions	500
TOTAL	36,300 s.f.





3. Livestock Show Pavilion

The Livestock Show Pavilion consists of an arena area surrounded by seating. While its primary purpose is to serve as a beef and dairy cattle judging ring during Fair time, it may also be used throughout the year for:

- Livestock Products Workshops
- Animal Husbandry Clinics
- Dog Obedience Clinics
- Non-fair Cattle Shows
- Rental Storage

Operational Considerations: Since the Pavilions's primary purpose is livestock showing, it requires a strong relationship to the livestock barns to allow easy access by the contestants and their animals.

It is anticipated that the frequency of use for this facility would typically be fairly light with concentrated use at Fair time.

Due to the relatively low frequency of use of this facility, the need for restroom and concession areas within the Pavilion is not mandatory. There may be a single, separate restroom and concession facility which serves the livestock portion of the Park or one provided in an adjacent structure.

This facility should be located directly off the main pedestrian circulation since it is an important Fair activity.

The relationship of the service road to the Pavilion is secondary to its relationship with the barn area.

Easy access to the Pavilion by Park pedestrians

is essential due to the importance of this facility at Fair time.

Design Considerations: Due to the light use characteristics, this facility could be covered and only partially enclosed on the exterior walls. Large overhangs should be incorporated into the design to protect against low morning and afternoon sun and driving rain.

The floor area would be dirt or fine gravel. Access to the arena by a small tractor is necessary for cleaning and grading for shows.

The seating would be open grandstand type with controlled access. The clear height of the arena would be a function of the height of the seating.

Since the majority of this facility's use would be during the day, extensive natural lighting is important. A general lighting level would be required for evening events and overcast days with some emphasis on the ring area.

There would be a portable announcer's stand and judges area located on the arena floor. Its exact location would depend on the the event. A public address system and a power source would be required for this.

Ventilation of this area would be important in the warmer weather. Heating, if provided, would probably be a minimal radiant type system only at the spectator locations.

Since the sanitary and storm sewer systems would not be designed to carry the solid waste from this facility, other provisions would have to be made for its removal and storage.

Due to the light usage of this structure, it might be advisable to combine it with another facility, in order to better justify its cost.

Space Requirements: The judging ring itself should accommodate about 60 head of cattle. This could be two rings of 30 or some other combination of 60. Allow 150 s.f. per head of a total of 9,000 square feet.

To this ring area, add 300 square feet for the judging and announcer area.

Seating should be provided for 300 spectators. Allowing 7 square feet per spectator, the total area would be 2,100 square feet.

The total facility is as follows:

Arena	9,000 s.f.
Judging	300
Spectator	<u>2,100</u>
SUB-TOTAL	11,400 s.f.
Add 10% \pm for gross	<u>1,100</u>
TOTAL:	12,500 s.f.

4. Sale Ring

The Sale Ring is a relatively small space used exclusively for the sale of livestock, horses, household goods and other items.

Operational Considerations: The two essential operational requirements are good visibility between the sale ring and the spectator seating and easy access to and from the barn area where the saleable items are kept.

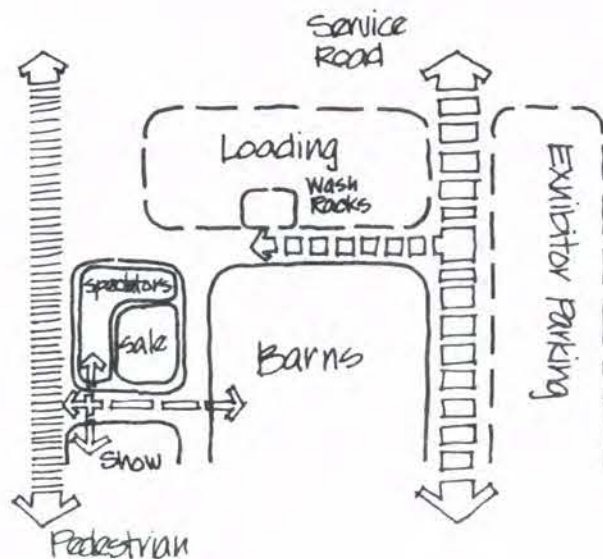
The Sale Ring can use the same barn area as the Livestock Show Pavilion and frequently is in the same structure. By sharing a common barn area and structure with the Show Pavilion, the same relationships with the service road and pedestrian area can be developed.

The frequency of use for this facility is anticipated to be on the average of once a month.

For proper control of the sale and ease of function, it is important that the cashier area be closely related to the auction ring and the main exit. Care should be taken to properly locate the cashier so that the flow of spectators exiting will no be impeded.

Design Considerations: Due to the intermittent use characteristics of this facility, it could be covered and only partially enclosed on the exterior walls. Like the Show Pavilion, large overhangs should be considered.

The seating would occur in a semi-circle or on three sides of the sales ring. The height of the structure is a function of the seating.



Extensive natural light is important. And a general lighting level with emphasis on the ring is also desirable.

Provisions for solid waste removal and storage are also required here.

A power supply and public address system would be required at the auctioneer's area. Due to the smaller nature of the sales ring, the power and PA outlets need not be as flexible as in the show ring.

The same considerations for ventilation and minimal heat as for the show ring would be allowed here.

Space Requirements: The sales ring requires an area about 30 feet square which includes the auctioneer's station.

Seating for about 300 spectators is required. At 7 square feet per spectator, that totals 2,100 square feet. Allow 200 square feet for the cashier.

A summary of the facility would be:

Sales Ring	900 s.f.
Seating	2,100
Cashier	200
SUB-TOTAL	3,200 s.f.
Add 10% + for gross area	300
TOTAL	3,500 s.f.

5. Cattle Barns

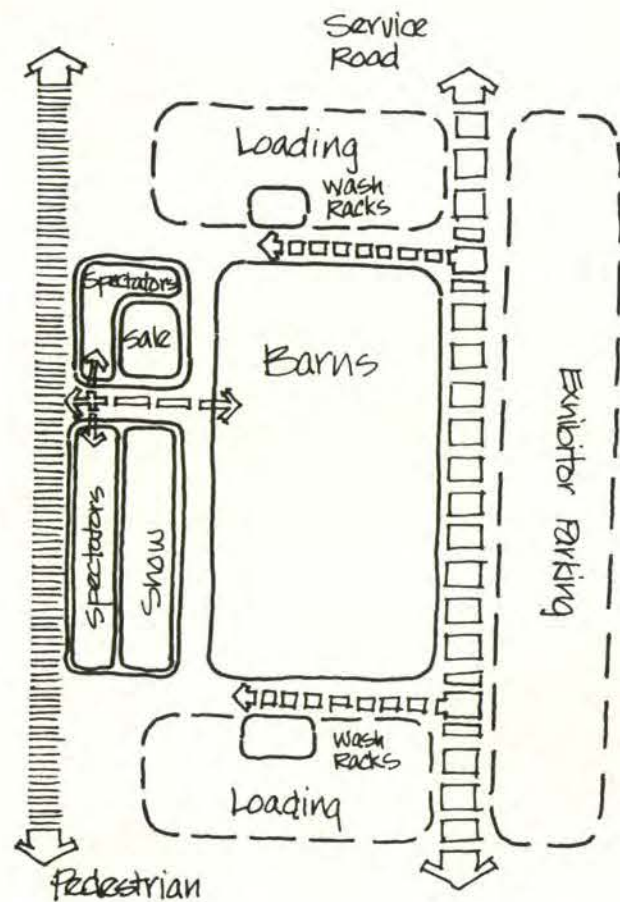
The Cattle Barns are relatively open shelters which serve as support facilities for the show and sale areas. With the exception of an occasional animal husbandry clinic, the function of the barn area is to board both beef and dairy cattle.

Operational Considerations: Operationally the barn area serves as an intermediate stop for the cattle between the time they are brought to the Park and the time they are shown or sold. Therefore, the movement of the stock from the point of delivery to the stall and from there to the show or sale ring is one of the more important considerations.

Other operational considerations include provisions for close in exhibitor parking and/or camping, ease of access to wash racks and daily cleaning of stalls during their use.

Design Considerations: Probably the most important design consideration for the barn facilities is adequate ventilation. While open side walls and openings at the top of pitched roofs aid greatly in a natural venting scheme, care must be taken in siting and providing large overhangs for the structure. The latter two considerations can minimize the effects of harsh, direct sunlight and driving rain on the animals. Care should also be taken to allow separation between buildings so that heat build up does not become a problem.

While only minimal lighting is required for the facility, an extensive power system is important to the exhibitors for grooming and



cooling their stock. Water hydrants should also be provided in the stall area.

Some appropriate network of cables should be provided above the stall area to accommodate the signage for the various exhibitors.

The stall area itself does not require paving of any sort. The aisle areas, however, may be paved with asphalt (with a fairly rough finish). This decision depends on many factors, such as, the economics of the situation, the character of the livestock facilities, the preference of the management and/or exhibitors, etc. Paving does allow for cleaner operations of the barn area.

Either portable or permanent tie stalls could be used. The portable stalls allow the flexibility to use the space for portable horse stalls, storage or other activities, if the need arises.

The solid waste removal and storage provisions also apply here. A potential for ground water pollution exists due to the nitrogen compounds contained in the solid wastes.

Orienting the longer direction of the barns in the east/west direction minimizes the effects of wind and sun on the animals.

Space Requirements: The average tie stall space is approximately 4x10 feet. Allowing for a double-loaded 12-foot aisle with a 6-foot exhibitor aisle at the head of each stall and a cross-aisle every 60 feet, the gross space per stall should be allocated at 90 square feet. For 500 stalls, this totals 45,000 square feet.

Assuming the unloading areas and wash racks are located on the grounds around the barns, the total structure would be sized at 45,000 square feet,

6. Small Animal Pavilion

The Small Animal Pavilion is the facility which provides space to board and show sheep, swine, rabbits, poultry, fowl and other small animals. In addition to these activities, it will also accommodate cat shows and animal husbandry clinics or could be used as rented storage area during the winter months depending on the type of stalls selected.

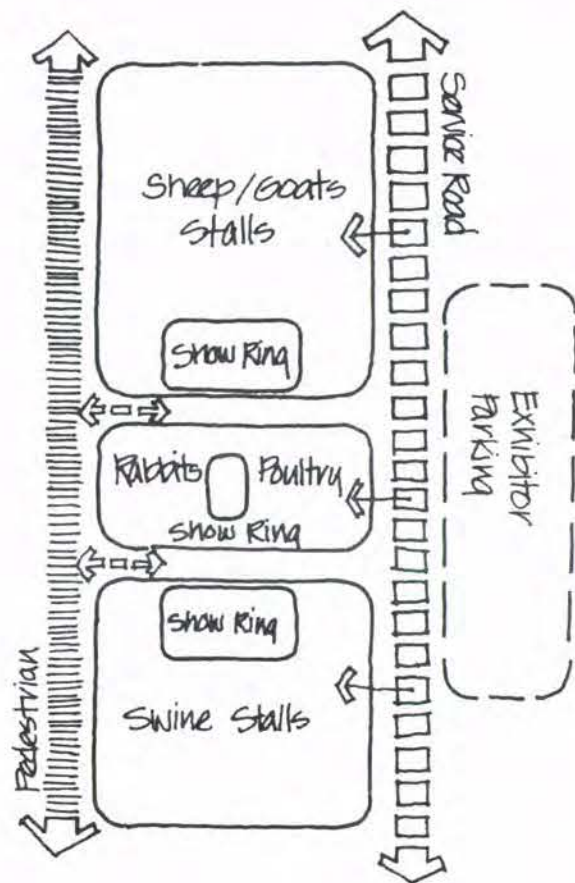
Operational Considerations: Operationally the animals may be grouped into three main classes; swine, sheep and small animals such as poultry, fowl, rabbits, etc.

The sheep and swine need pens for the animals and a judging ring. Both the service road access for exhibitors and pedestrian access for spectators is important.

The poultry/rabbit needs differ in method of operation, primarily due to the size of the animals involved. The animals are kept in cages on tables sometimes stacked two or three high, and they are judged on a table rather than in a ring. The same pedestrian and exhibitor access is important.

The sheep and swine sections could have the same frequency of use as the Livestock Pavilion, but the poultry/rabbit portion would be much less used.

Design Considerations: The Pavilion can also be divided into the three areas for design considerations corresponding to the same animal groupings. And again, the sheep and swine sections are very similar. They can be sheltered areas with large overhangs and relatively open exterior walls. The pens



themselves can either be permanent or portable. If portable, the space could be used as rental storage space for boats, campers, RV's etc. during a specified time of the year.

The floor can be paved or dirt. In either case, provisions for solid waste removal and storage (other than sanitary or storm sewers) must be made.

The area for poultry, fowl, rabbits and other small animals should be separated from the sheep and swine areas. It might, in fact, be an enclosed space and be used to separate the sheep and swine areas. If this were the case, it could be used as an indoor show area for a large sheep or swine show or sale during non-Fair time. The animals could be housed in the flanking pen areas and brought into the enclosed section for the specific activity.

In all cases there should be 9 to 12 feet of clear height in the Pavilion. Water, power and lighting should be provided throughout. The judging areas would require an additional level of lighting. Natural ventilation is important in any of the open spaces. In any enclosed space, good mechanical ventilation and minimal heating is required.

Space Requirements: Starting with the swine and sheep facilities, the pens require an area 6 feet square for two animals. Allowing for circulation in the pen area, an area of 60 square feet per pen is required. The current projections are for 300 sheep and goat pens and 200 swine pens. This translates into 18,000 square feet for the sheep and goats and 12,000 square feet for the swine pens.

The judging rings for these areas should accommodate up to 30 animals each. Allowing 64 square feet per animal requires 2,000 square feet per ring. Providing an 8-foot wide area for spectators around a 40x50 foot ring (2,000 s.f.) totals an additional 1,700 sq.ft.

The poultry/fowl projections are for about 250 cages approximately 2x2x2 feet. These would require 10 tables which are 4x12 feet. The rabbit/small animals projections are for 600 cages. These would require 25 tables.

Allowing 4 feet between tables and 12 feet for cross aisles, the area required per table is 144 square feet. For 35 tables 5,000 square feet is required. Allow 500 square feet for the judging area.

The total Pavilion projects as follows:

Sheep/Goats:	
Pens	18,000 s.f.
Judging	3,700
SUB-TOTAL	21,700 s.f.
Swine:	
Pens	12,000 s.f.
Judging	3,700
SUB-TOTAL	15,700 s.f.
Rabbits, Etc.	
Cages	5,000 s.f.
Judging	500
SUB-TOTAL	5,500 s.f.
PAVILION TOTAL	42,900 s.f.

7. Indoor Arena

The Indoor Arena is a year-round facility with a relatively unfinished interior. This type of utility space will accommodate such activities as:

- Horse Shows
- Horsemanship Clinics
- Rodeo Events
- Rodeo Clinics/Schools
- Athletic Competitions
- Livestock Shows

Operational Considerations: The key to the operation of the Arena is in maintaining it as a large, clear, indoor space which can be used year-round for a variety of activities. The combination of the type of space and the fact that it is usable year-round makes the Arena one of the more important facilities at the Park.

Since a major portion of the activities associated with the facility will be horse related, the horse barn, horse warm-up area, horse unloading area, exhibitor parking and service road should all relate to the Arena in a functional manner. Satisfying these requirements does not preclude the effective conduct of the other non-horse activities.

The Indoor Arena's frequency of use would probably average 4 or 5 times a week. Half of the use would be weekends and half would be late afternoon and evenings during the week.

Due to the anticipated demand on the Arena, restrooms and concessions should be included within the facility. If possible, these should also relate to the livestock area.

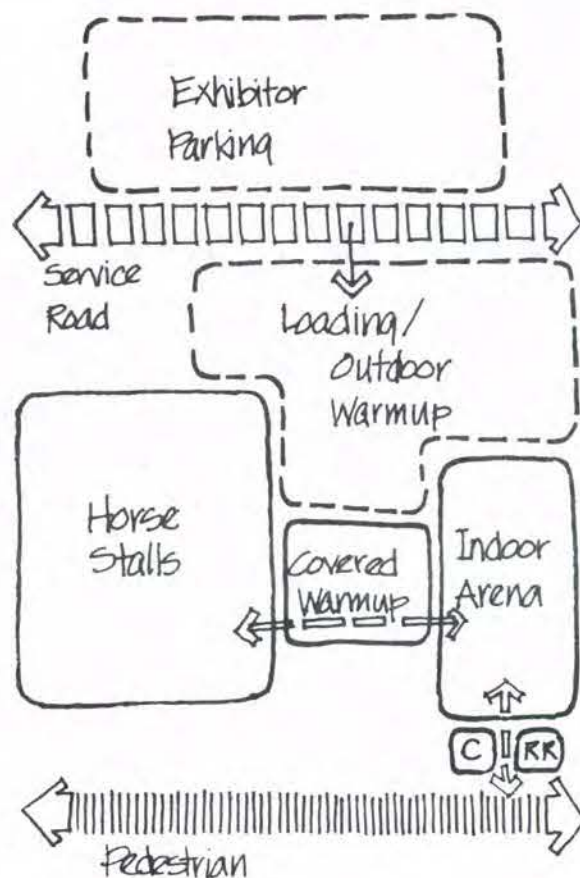
Design Considerations: The Indoor Arena is an open, airy structure with a dirt floor throughout and a clear height of 18 to 25 feet.

Large, horizontal sliding doors rather than overhead doors, for animal and equipment entrances provide for easier control of contestant/exhibitor traffic with a minimum of heat loss. The covered warm-up area should be adjacent to both the stall and arena areas, and should be protected from the winds.

While the structure should be insulated, the heating system would be of a minimal nature. The optimum temperature for the animals is in the 55°F to the 60°F range. Additional heating may be added at the periphery for spectator comfort.

Mechanical ventilation of the space is paramount. Strong emphasis should be placed on natural lighting, since the daytime use will possibly be even greater than the night use. A public address system is required to conduct the activities in this facility.

Space Requirements: Research has indicated that the greatest dimension required for the activities anticipated in the Arena is 200 feet. A common size for such structures is approximately 150x250 feet which seems appropriate for this facility. In addition to this 37,500 square feet, add 800 square feet for restrooms and 500 square feet in concessions. That constitutes a total of 38,000 square feet.



8. Horse Barns

As the name implies, this facility is used almost exclusively for horse boarding. The exception might be an occasional use as a livestock facility when a large event occurs in the livestock area which cannot be accommodated there.

Operational Considerations: The Horse Barns need an area to board and warm-up the animals during horse events in the Indoor Arena. The stalls and warm-up areas relate closely to the service road, exhibitor parking and the unloading area. The warm-up area should form a covered transition between the stalls and the Indoor Arena. This area can also be used for portable stalls in the event an activity occurs which requires more stalls and less warm-up space.

The use frequency for the Barns is directly associated with that of the Indoor Arena.

Design Considerations: The stalls, whether fixed or portable, should be approximately 7 feet high with either screened or solid walls. A clear height of 12 to 15 feet is required in the stall and warm-up area. Dirt floors are best throughout.

The covered structure would require only partial exterior walls and large overhangs to protect the stock from the elements. Natural ventilation should be developed.

Heating is not critical, as long as some protection from the wind is provided.

Lighting and power needs are minimal.

Provisions for solid waste removal and storage on the site are necessary, since the storm and sanitary sewers are not designed to carry such matter.

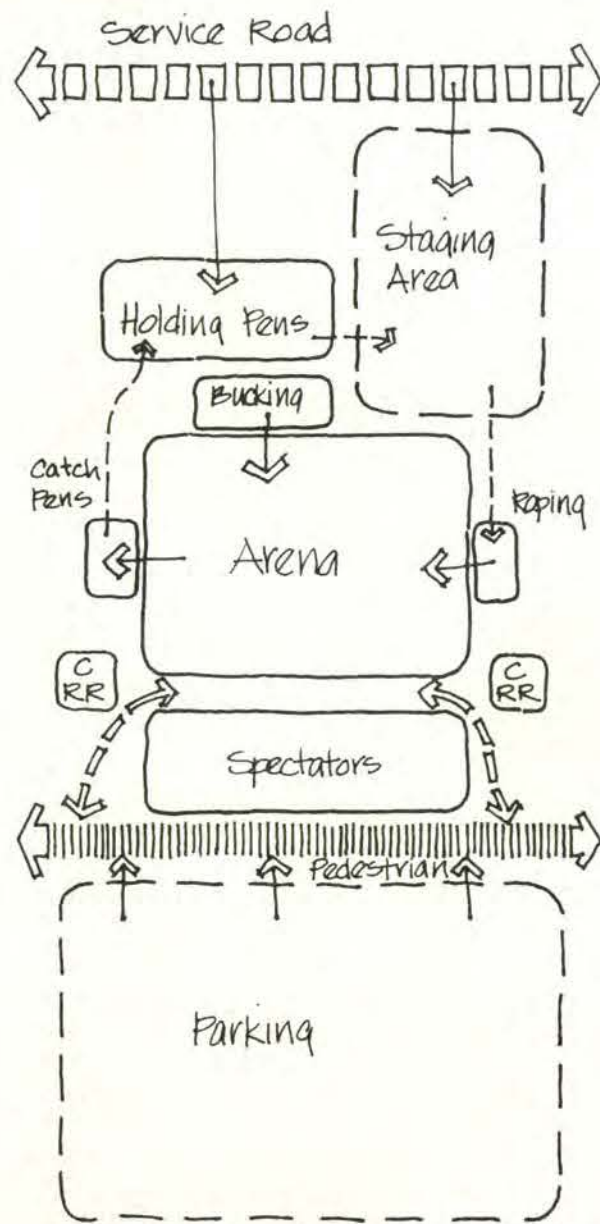
Space Requirements: The average 10x10 foot stall requires a total of 190 square feet when 12 foot aisles are considered with a 12 foot cross-aisle every ten stalls. This would total 76,000 square feet for the projected 400 stalls.

Wash racks required approximately 150 square feet each. Three would be adequate.

And the warm-up area should be on the order of 100x100 feet.

The Barns would total out as follows:

Stalls	76,000 s.f.
Warm-up	10,000
Wash Racks	450
TOTAL	86,450 s/f/



9. Outdoor Arena

The Outdoor Arena is the major outdoor events facility at the Park. While its major design considerations are determined by the rodeo activity, the following events would also be held in the facility:

- Horse Shows
- Horsemanship Clinics
- Rodeo Clinics
- Circus
- Concerts
- Dog Obedience Clinics
- Athletic Competition
- Tractor Pulls
- Horse Pulls
- Firework Displays

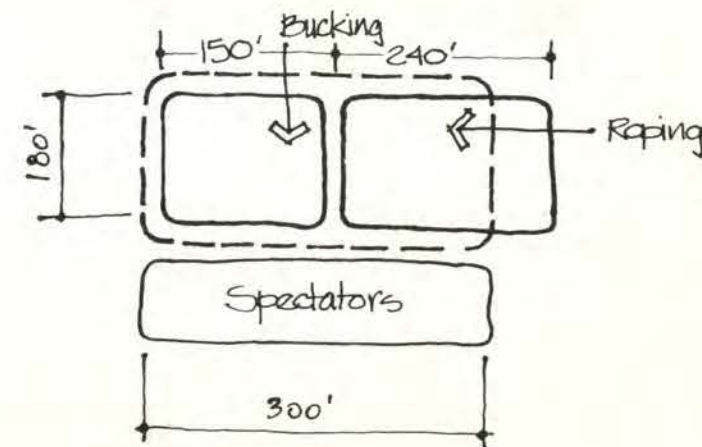
Operational Considerations: The primary concerns for this facility are based upon its outdoor spectator even activities. Ease of access by spectators and participants, proper location of concessions and restrooms, sun and wind orientation, security, flexibility to accommodate different types of events, and adequate close-in parking are all important factors for effective operation of the facility.

Although the horse related activities expected in the Arena are not its major function, there is a close relationship between the Horse Barns and the Outdoor Arena.

For amateur rodeos, the number of contestants is so great that the arena works best split into two smaller rings. One for bucking events and one for roping. This division allows the events to proceed at a faster rate.

Design Considerations: The basic rodeo requirements are that the major portion of the seating should not face into the late afternoon sun, roping events should occur across the spectators' field of vision and bucking events should move toward the spectator area. Ideally, a portion of the stands should be covered since some of the activities occur during inclement weather. An announcer's booth with a public address system should be located to service all activities. Lighting of the arena is also necessary.

Space Requirements: For professional rodeo events, the arena area required is between 135 to 180 feet wide and 240 to 300 feet long. For a double arena as used in the amateur contests, the bucking ring can be 150 feet wide and 180 feet long. The roping ring can be 180 feet wide and 240 feet long and would be perpendicular to the bucking ring as shown on the right. This configuration will accommodate the professional requirements also.



The 180x390 foot arena constitutes 70,200 square feet or 1.6 acres.

Attendance projections indicate an ultimate requirement for 7,000 spectator seats. Considering the lower frequency of need for the total 7,000 seats, only 4,000 of these would need to be permanent and 3,000 portable. Allowing 4 square feet per spectator, the fixed seating area is 16,000 square feet, with 12,000 square feet for portable seats. The total of 28,000 square feet is 0.6 acres.

The minimal requirements for pens and chutes is 16,000 square feet and could be as great as 50,000 square feet or a range of 0.4 to 1.2 acres depending on the managements preferences. The rough stock pens are permanent.

Any contestant staging area or additional pen area would be included in one of the overflow parking areas.

The total facility can be summarized as follows:

Arena	70,200 s.f.	or 1.6 ac.
Seating	28,000	0.6
Pens & Chutes (Min.)	16,000	0.4
Pens & Chutes (Max.)	50,000	1.2
<hr/>		
SUB-TOTAL (Min.)	114,200 s.f.	2.6 ac.
(Max.)	148,200 s.f.	3.4 ac.

The addition of 20% for circulation yields a total range from 3.12 to 4.08 acres plus the staging area. While the spaces required vary somewhat, there is a rather specific sequence of areas and flow of animals and contestants.

10. Camper Support Facility

This facility would be used primarily by exhibitors remaining on the Park grounds for longer than a day. It would be used year-round.

Operational Considerations: This facility should be located adjacent to or within the major exhibitor/camper parking area.

Design Considerations: Men's and women's toilets as well as individual shower rooms should be provided.

All utilities are required.

Space Requirements: The toilet facilities would consist of three water closets (and/or urinals) and two lavatories. Allow 120 square feet each for men and women.

The four individual shower rooms would be approximately 40 square feet each.

In summary:

Toilets:	2 at 120 s.f.	240 s.f.
Showers:	4 at 40 s.f.	160 s.f.
TOTAL		400 s.f.

11. Maintenance Shop

This facility would be the base of operation for the Park's grounds and maintenance crews.

Operational Considerations: The shops area should be located to provide easy access by the maintenance staff to the grounds, but need not hold a dominant position on the site that could be better used by a more public facility.

The office portion of this facility has a strong relationship to the outdoor yard or storage area and would serve as a control point for access to the yard.

Design Considerations: The office/storage area has a minimal ceiling height of 8 feet. All utilities for year-round use are required.

Space Requirements: Provide two office areas at 150 square feet each. Two restrooms of 25 square feet each; total 50 square feet.

Allow 250 square feet for parts and supplies and another 150 square feet for general circulation.

With two work bays at 15x50 feet, the facility can be summarized as follows:

Offices: 2 at 150 s.f.	300 s.f.
Restrooms: 2 at 25 s.f.	50
Parts	250
Circulation	150
Work Bays	1,500
TOTAL	2,250 s.f.

12. Caretaker's Residence

The Caretaker's Residence, if properly located near the daily entry to the park, can provide visual surveillance and oversee presence on a 24-hour basis. It may also be considered part of the caretaker's salary benefit.

PROGRAM/MARKET RELATIONSHIP

The forecast of the utilization of the programmed facilities on the Resource Park site by community and commercial organizations during the portion of the year when the fair is not in session is derived from a number of factors. One is the specific user groups identified who have need for such facilities for meetings and events. Knowledge of the number of such groups, the size and the frequency of their meetings and their facility requirements was a major input. It is, of course, assumed that the Resource Park's major facilities would be designed and constructed with the needs of these groups in mind so that maximum year-round usage can be achieved. Second, the experience of the other fairgrounds in terms of fees charged and utilization rates for various facilities has been utilized -- particularly the detailed figures from Adams County which is the most comparable among the fairgrounds surveyed to what is being proposed for the Boulder County site. And finally, it is assumed that the county will, as a matter of policy, backed up by aggressive promotion and professional management, encourage year-round usage of the fair facilities.

The conclusions reflect both direct input from potential user groups and consideration of the quality and quantity of competitive facilities in or near the county. It is also assumed that

the full complement of facilities outlined for the new complex are in place. That is, this is an end state forecast of utilization. If constructed in phases, the extent of utilization would, in some cases, match that projected for the specific facility; but in some cases, the interrelationships of facility usage would limit the use potential forecast here. For example, the rodeo arena would not achieve the forecast utilization rate if horse barns, or at least portable stalls, were not available.

The paragraphs below summarize the use, income and attendance characteristics of the outdoor arena, the sale ring, the exhibit hall, multiple-use building, the horse stalls and camper area.

OUTDOOR ARENA

Use of the outdoor arena is based on anticipated horse shows, gymkanas, youth rodeos and nonhorse activities such as concerts and tractor pulls. Of the 80 event-days usage forecast, 70 are expected to be horse-related functions. The extension groups themselves anticipate a usage of 24 days per year and 45 additional event days are forecast for other Boulder County horsemen's organizations. Note that these forecasts, as are others which follow, are in terms of event-days and since major horse shows are typically two to three days in length (some longer) the actual number of separate events forecast for the outdoor arena is about 45.

Outdoor Arena

Event Days	80
Average Fee	\$ 200
Total Income	\$16,000
Average Attendance	1,000
Total Attendance	80,000

The average fee in this forecast, and in the forecasts of other facilities which follow, reflects a sliding scale with lesser fees for 4-H and youth groups and greater fees for public-admission events or commercial organizers. In every case the fee reflects the competitive fee structure at Adams County and similar facilities and, in most cases, an expressed willingness on the part of the potential user groups to pay such a fee.

SALE RING

Although a specially constructed sale ring as such is not a part of the program, it is anticipated that a portion of the indoor arena would be set off with portable bleachers to serve a function for livestock auctions. The forecast operating characteristics are as follows:

Sale Ring

Events-Days	10
Average Fee	\$ 150
Total Income	\$1,500
Average Attendance	300
Total Attendance	3,000

INDOOR EXHIBIT AREA

A large enclosed space with a high ceiling and truck access is forecast to be utilized on an average of twice a week or 100 times per year for such events as dances, large meetings, banquets, trade shows, dog shows, flea markets and the like. The following operating characteristics are projected:

Indoor Exhibit Area

Event-Days	100
Average Fee	\$ 175
Total Income	\$17,500
Average Attendance	300
Total Attendance	30,000

RURAL RESOURCE CENTER

The Rural Resource Center would be the most extensively used in terms of events, but because of the small scale of the activity and the high concentration of meetings by the 4-H and extension groups and other local service clubs, the fee structure will be low. Of the total 355 events, 175 are expected to be extension and 4-H meetings and workshops. Although this structure is also anticipated to contain the offices of the Extension Service, the fair management and perhaps other related activities, the office rent is not shown as a source of income since this could not be considered an outside source of income to the county. The following characteristics are projected:

Rural Resource Center

Event-Days	355
Average Fee	\$ 20
Kitchen Income	\$2,500
Total Income	\$7,100
Average Attendance	30
Total Attendance	10,700

In addition to the basic fee, it is anticipated that an additional charge averaging \$50 would apply to use of the kitchen for luncheon meetings in the multiple use building or banquets held in the exhibit hall. A total of 50 of the events forecast for these two facilities are anticipated to require full kitchen services.

INDOOR ARENA

Use of the indoor arena is anticipated by 4-H groups, high school rodeo practice and training sessions during the winter months as well as winter horse shows, roping events and possibly a spill-over for trade shows and commercial exhibits. At least half of the use forecast is anticipated to be by 4-H horse groups. The following characteristics are projected:

Indoor Arena

Event-Days	200
Average Fee	\$ 75
Total Income	\$15,000
Average Attendance	100
Total Attendance	20,000

Another potential source of income not included in the above projection is the use of the facility for individual riding and practice on an hourly basis during the winter months.

HORSE STALLS

In keeping with standard practice at area horse arenas, it is assumed that the stalls would be available at no additional charge for day use to the organizations renting the indoor or outdoor arena. However, several events during the year would be of such magnitude and duration that it would be appropriate to lease out the stalls for overnight boarding. It is projected that there would be at least eight such major events each requiring 150 overnight stalls at \$15 per event, which is generally three days, for a total income of \$18,000.

CAMPER PARKING

The program provides ample space for day use of horse trailers and for loading and unloading. It also isolates 60 spaces suitable for overnight trailer parking with central shower and toilet facilities. It is forecast that these spaces would be fully occupied during the major horse events and during the fair itself and achieve sporadic occupancy throughout the rest of the year during major events. At a rental of \$3 per night it is projected that an income of \$9,600 can be achieved from this source.

CONCESSION INCOME

There are many ways of approaching the concession operation ranging from operation by the county itself to providing space to nonprofit organizations to contracting with commercial food service companies. The forecast of concession income is estimated at 25 percent of the gross concession sales to attendees at major events in the outdoor arena, sales ring, exhibition hall and indoor arena. This will produce a net income to the county of about \$16,000. This forecast does not include concession revenues during the fair itself although this would remain an option for additional income to the county.

SUMMARY OF INCOME AND ATTENDANCE

The total income from the forecast utilization is \$103,200 annually with a total attendance of 143,700 persons. The attendance figure does not include recreational park visitors or other outdoor activities not utilizing the income-generating facilities. And of course, it does not include the attendance of the fair itself which might be expected to be another 50,000 persons.

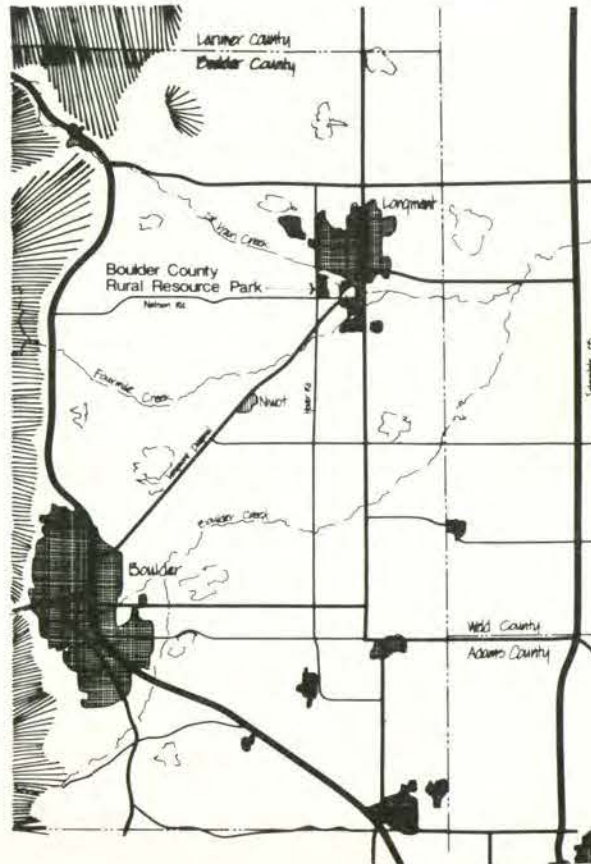
	<u>Income</u>	<u>Attendance</u>
Outdoor Arena	\$ 16,000	80,000
Sales Ring	\$ 1,500	3,000
Indoor Exhibit Area	\$ 17,500	30,000
Rural Resource Center	\$ 9,600	10,700
Indoor Arena	\$ 15,000	20,000
Horse Stalls	\$ 18,000	-
Camping	\$ 9,600	-
Concessions	\$ 16,000	-
Total	\$103,200	143,700

While the utilization and income forecasts assume aggressive promotion and well-designed suitable structures, they are conservative in that they do not include several additional potential sources of income -- sources that could be tapped should the management policies of the Rural Resource Park call for it. Among these additional sources are: concession income during the fair itself, parking fees charged at major events and/or during the fair, hourly use of horse facilities by individuals, monthly rental of horse stalls to residents of the area (Arapahoe County gets more than \$30,000 a year from such rentals), and possibly a reduction of the fair's deficit due to increased efficiency and size and the ability to charge admission if it is decided to do so.

The conclusions reflect both direct input from potential user groups and consideration of the quality and quantity of competitive facilities in or near the county. It is also assumed that the full complement of facilities outlined for the fairgrounds are in place. That is, this is an end state forecast of utilization. If constructed in phases, the extent of utilization would, in some cases, match that projected for the specific facility; but in some cases, the interrelationships of facility usage would limit the use potential forecast here. For

III. PLANNING CONSIDERATIONS

SUB-REGIONAL CONTEXT



VICINITY MAP

SETTING

The site for the Boulder County Rural Resource Park lies on the southwestern edge of Longmont, Colorado - a community of approximately 35,000 situated about 12 miles northeast of the city of Boulder. The Denver metropolitan area lies approximately 35 miles to the south.

Longmont is located in the extreme northeast corner of Boulder County and is central to an extensive agricultural area that includes portions of Weld, Larimer, and Adams Counties as well as Boulder County. It has historically performed the function of a service community for this agricultural area. At the present time, Longmont is experiencing growth pressures associated with rapid urbanization occurring in the Denver metropolitan area and its environs.

TRANSPORTATION

The Boulder County Rural Resource Park site is adequately served by nearby major regional highways. These include I-25, US 287, SH 119, and SH 66. Local access to the site is provided primarily by Hover Road, Nelson Road, and in the future, Boston Avenue. The expansion of Hover Road to a 4-lane status is presently being examined. Currently, there is no transit, bicycle, or pedestrian access provided to the site.

In general, regional highways serving the site are high-design, two- or four-lane facilities which currently have excess capacities.

RIVER CORRIDORS

St. Vrain Creek, the major tributary draining northeast Boulder County, passes through southern

Longmont and crosses the extreme northeast corner of the Boulder County Rural Resource Park site. Because of the flat nature of the terrain, a large portion of the site is within the 100 year floodplain as designated by the U.S. Corps of Engineers.

The banks and floodplains of St. Vrain Creek are underlain with rich deposits of commercially mineable sand and gravel. Gravel has already been extracted from the northern portion of the site, and reclamation has not yet been accomplished.

URBANIZATION

Longmont is experiencing considerable urban growth. The main corridor for this urbanization lies in a southwest direction along State Highway 119 which links Longmont with the major employment centers of Boulder and the IBM facility near Niwot.

The site for the Boulder County Rural Resource Park is located in the county, on the edge of the urbanized area of Longmont. Present land uses in and around the site are agricultural and industrial in nature. The general area is situated in the path of future urbanization and will continue to experience pressures for development.

PLANNING

While the Boulder County Resource Park site lies wholly in Boulder County, it also is within the designated Prime Urbanized Area of the city of Longmont. As such, planning for the site must respond to the requirements of both the Boulder County Comprehensive Plan and the St. Vrain Comprehensive Plan. Boulder County is also a member of the Denver Regional Council of Governments (DRCOG).

REGIONAL PLANNING

The "Parks and Open Space Development Program", developed by DRCOG, designates the St. Vrain Creek corridor as a lineal park from Roosevelt National Forest near Lyons through Longmont. The multi-use concept of this program would provide for picnic and recreation areas in rural sections and would relate to major city parks in urban sections.

The site offers an opportunity to fulfill the goals set forth under the DRCOG "Parks and Open Space Development Program" as they relate to city parks in urban sections. The site also meets the DRCOG size and service area standards for a District Park designation.

COUNTY-WIDE PLANNING

The Boulder County Comprehensive Plan reflects the fact that the site is within the Prime Urbanized area of the City of Longmont. County agricultural and general industrial zoning still are in effect, and any use permitted must comply with the county zoning ordinance. The county has recently amended their zoning ordinance to include Fairgrounds as a "use permitted by special review."

The viability of St. Vrain Creek as an open space corridor will be a result of the way in which valuable deposits of sand and gravel are managed. At the present time, the county has no standards for reclamation of gravel excavation which apply to this site. Under the auspices of H.B. 1529, Boulder County is in the process of identifying significant sand and gravel deposits and developing a Resource Preservation Plan for the management of these resources. Extraction of commercially mineable sand and gravel is subject to the

county special review process - during which the county can examine such issues as impact upon the floodplain, evaporation rates of ponds, possession of water rights to offset evaporative losses, proximity to residential areas, and demand for sand and gravel. In addition to the county special review process, a State permit for extraction is required for which a reclamation plan must be filed.

The Boulder County Parks and Open Space Department has designated the St. Vrain Creek corridor as an "Open Space Study Area." The purpose of such a study is to identify land in the county which has special significance as open space. The site for the Boulder County Rural Resource Park falls into four classifications of open space: water, floodplain, mining and disposal, and recreation.

THE ST. VRAIN VALLEY PLAN

The site for the Boulder County Rural Resource Park lies within the Prime Urbanized Area of the City of Longmont and is, therefore, subject to the planning processes of the city under the St. Vrain Comprehensive Plan. The city has recently amended the comprehensive plan to designate the site as a District Park.

No part of the site is contiguous with the Longmont city limits, however; the site is within the service areas for city water, sewer, and electrical services.

OTHER PLANNING STUDIES

Some 50 historical sites of importance have been compiled along the St. Vrain Creek by members of the St. Vrain Historical Society. None have been identified on the site.

NATURAL SYSTEMS

TOPOGRAPHY

The Boulder County Rural Resource Park site is located adjacent to Longmont at the western edge of the high plains; eight miles east of the foothills of the Rocky Mountains. The surrounding country is level with a slight downward slope toward the St. Vrain, typical of broad terraces which border major streams in eastern Boulder County.

Within the site itself, the southern portion maintains original topography, sloping gently from southeast to northwest at roughly 1%. Sand and gravel mining has extensively remodeled the northern portion of the site, leaving a steep-sided pit up to 12 feet deep with a nearly level floor. The precise configuration and topography of the excavation is changing due to continued excavation and stockpiling along the eastern edge of the site and an ongoing landfill operation.

GEOLOGY

The geologic unit considered bedrock in this part of the state is The Pierre Shale. It can be as thick as 3,000 to 4,000 feet in this area, and consists almost entirely of dark gray, marine, clay shale. The St. Vrain Creek eroded into the Pierre Shale leaving a valley with many bench-type, bedrock terraces. The depth to shale on the site varies from six to twelve feet beneath the land surface.

The Pierre Shale on the site is overlain by alluvial sand and gravel deposits varying upwards twelve feet in thickness. These sands and gravels were laid down anciently in broad bands extending along the St. Vrain Creek as floodplains in a gentle bedrock valley. Most recent deposits occur immediately adjacent to, and up to, two to five

feet above the creek; older floodplain terraces are found further from the Creek, as much as 13 to 14 feet above stream level, located primarily on the southern part of the property.

House Bill 1529 (C.R.S. 1973, 34-1-302), a resource preservation ordinance, defines the quality of gravel deposits by the overburden-to-gravel ratio and restricts development which would preclude eventual extraction on lands underlain by "commercial" gravel deposits. The gravel under the northern portion of the site has been removed entirely down to shale bedrock. The gravel under the southern portion has been evaluated and found not to be of "commercial" quality, and therefore, the area is not subject to development restrictions under H.B. 1529. Adjacent to the site is an extensive gravel excavation and several areas of unexcavated commercial gravel deposits. The probability of extraction varies according to accessibility and existing zoning and development, but it should be noted that excavation of these areas will potentially have a visual and hydrologic impact on the Park site; and planning, excavation, and reclamation should be carefully coordinated.

Pierre Shale is extremely hygroscopic - it expands greatly when wetted. It may be used as fill in open areas, but is not acceptable as structural fill for buildings, roads, or parking. However, in situ within the water table, Pierre Shale is a suitable bearing material for heavy structures on caissons. The upper level sands and gravels are considered adequate to bear light to medium structures.

HYDROLOGY

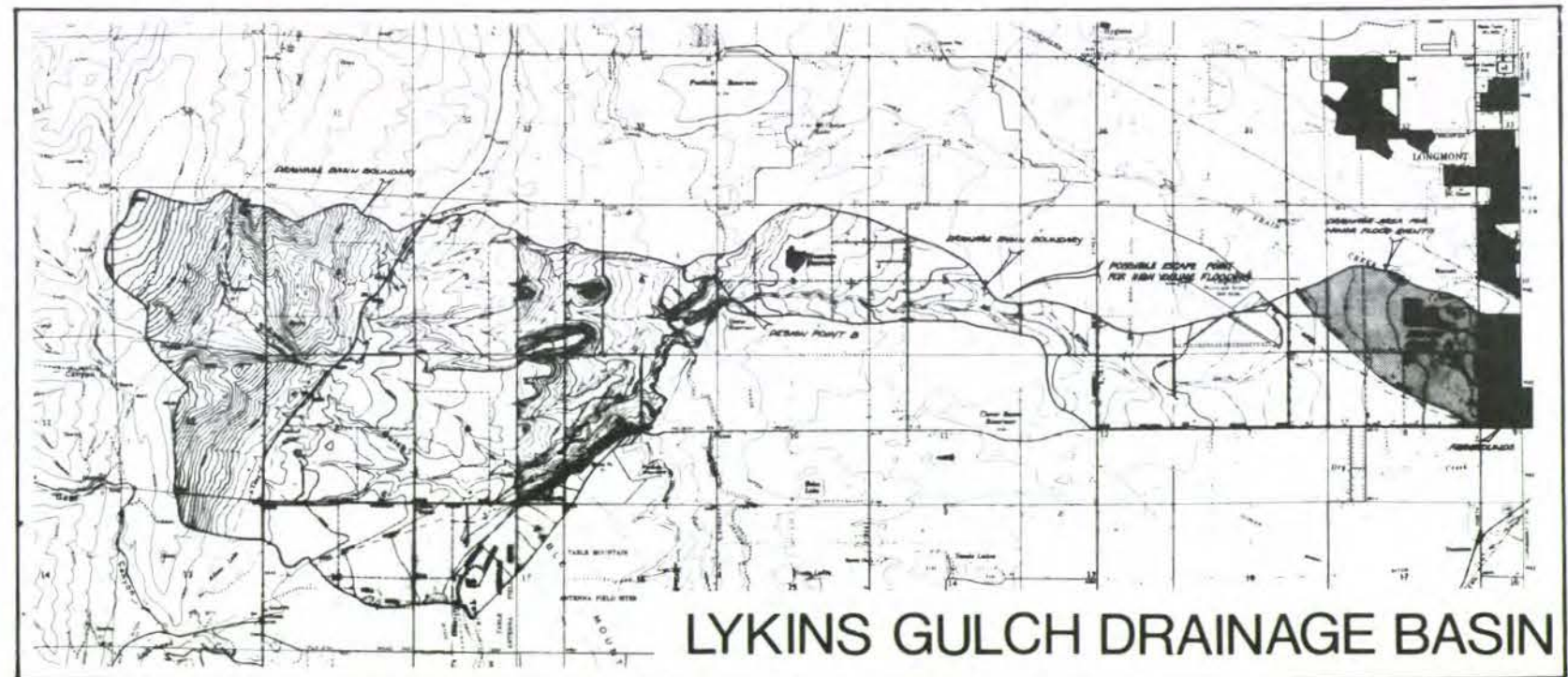
SURFACE DRAINAGE

Historically, the land in the southern part of

the St. Vrain drainage basin drained toward the Creek in an east-northeasterly direction. This general pattern still exists on the unexcavated portion of the Boulder County Rural Resource Park site, but has been modified by several irrigation ditches running across the site in an east-west direction which intercept average overland flows and carry them eastward. The excavated area collects overland flows (groundwater seepage) centrally from the north, west, and south, through a series of man-made and incidental channels which then convey the water eastward to merge with a settling pond circulation system operated by Golden Gravel Company. Excess waters in this system are pumped into the St. Vrain Creek.

An off-site drainage area of approximately 11

square miles drains towards the site from the west. This area is presently undeveloped, and the upper portion is drained by Lykins Gulch. In the lower portions, the natural water course of Lykins Gulch is no longer apparent, although it is believed that it historically passed through the northern portion of the site. Four ditches cross the narrow basin; two of which are in structures passing over or under the Gulch. Low overland flows would most likely be intercepted by the last two, the Niwot and South Flat ditches, and conveyed south-easterly out of the basin. Major flows, approaching the 100 year flood, will spill over these two ditches, pass over Hover Road, and pass through the northern portion of the site. A large drainageway would be required to convey this flow directly through the site and would require sophisticated inlet and outlet

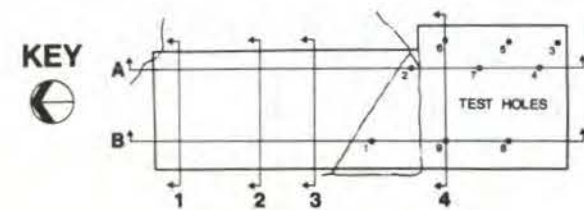
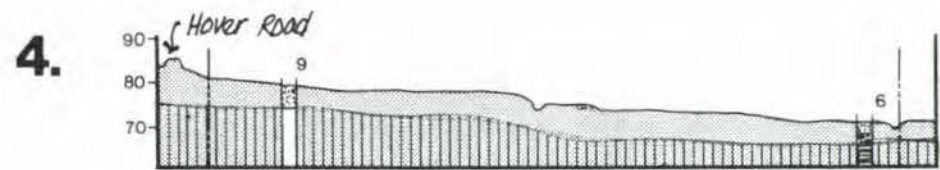
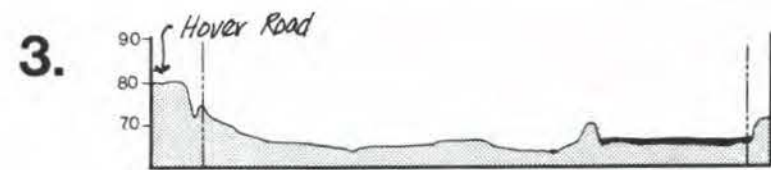
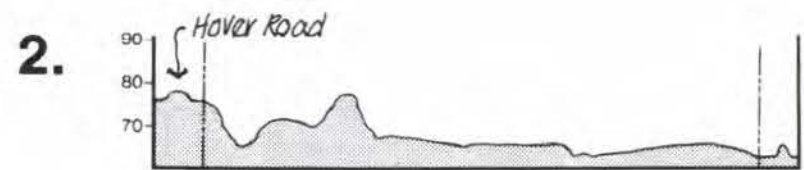
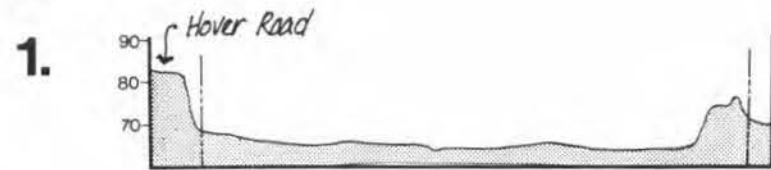
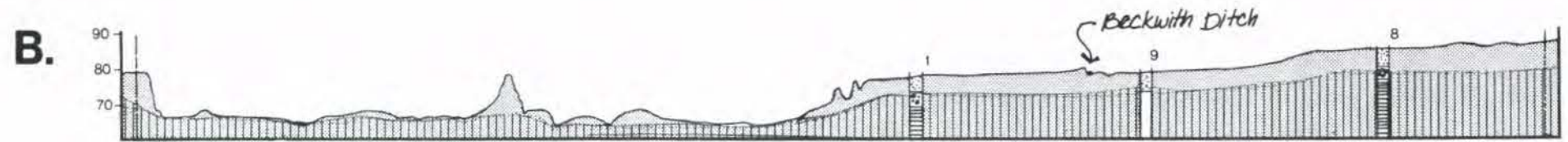
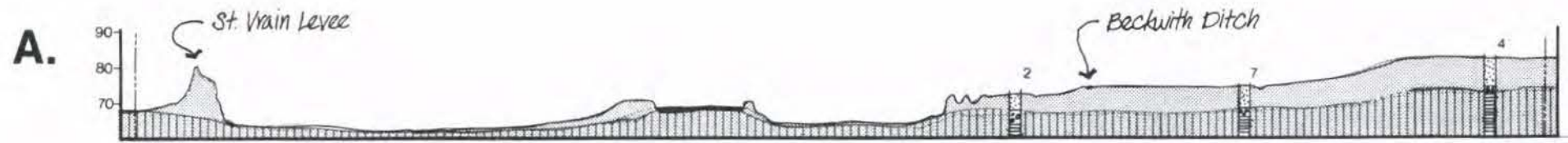




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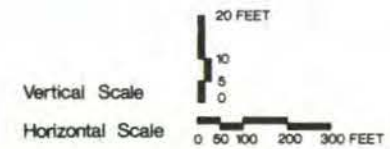


TOPOGRAPHY

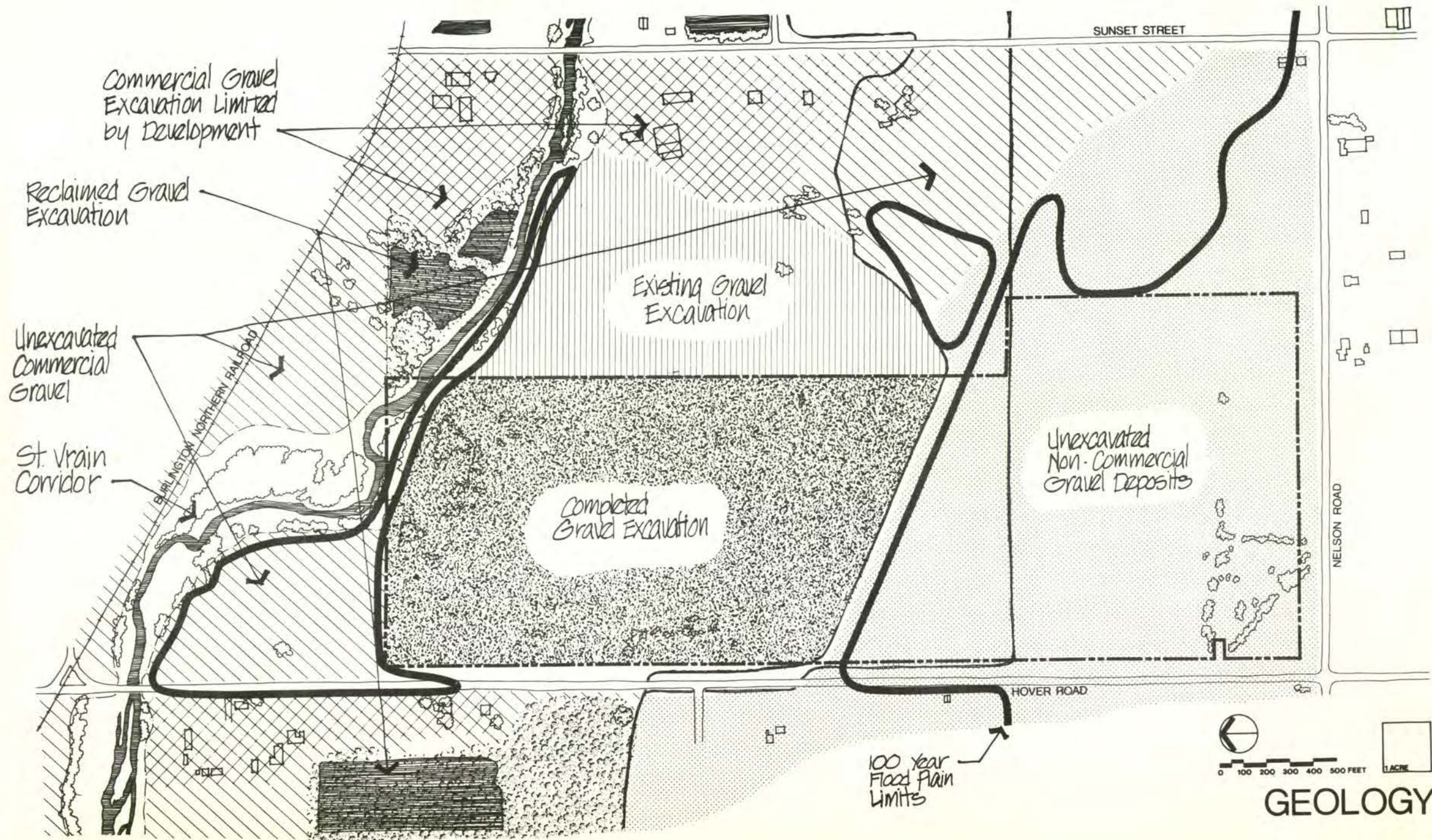


LEGEND

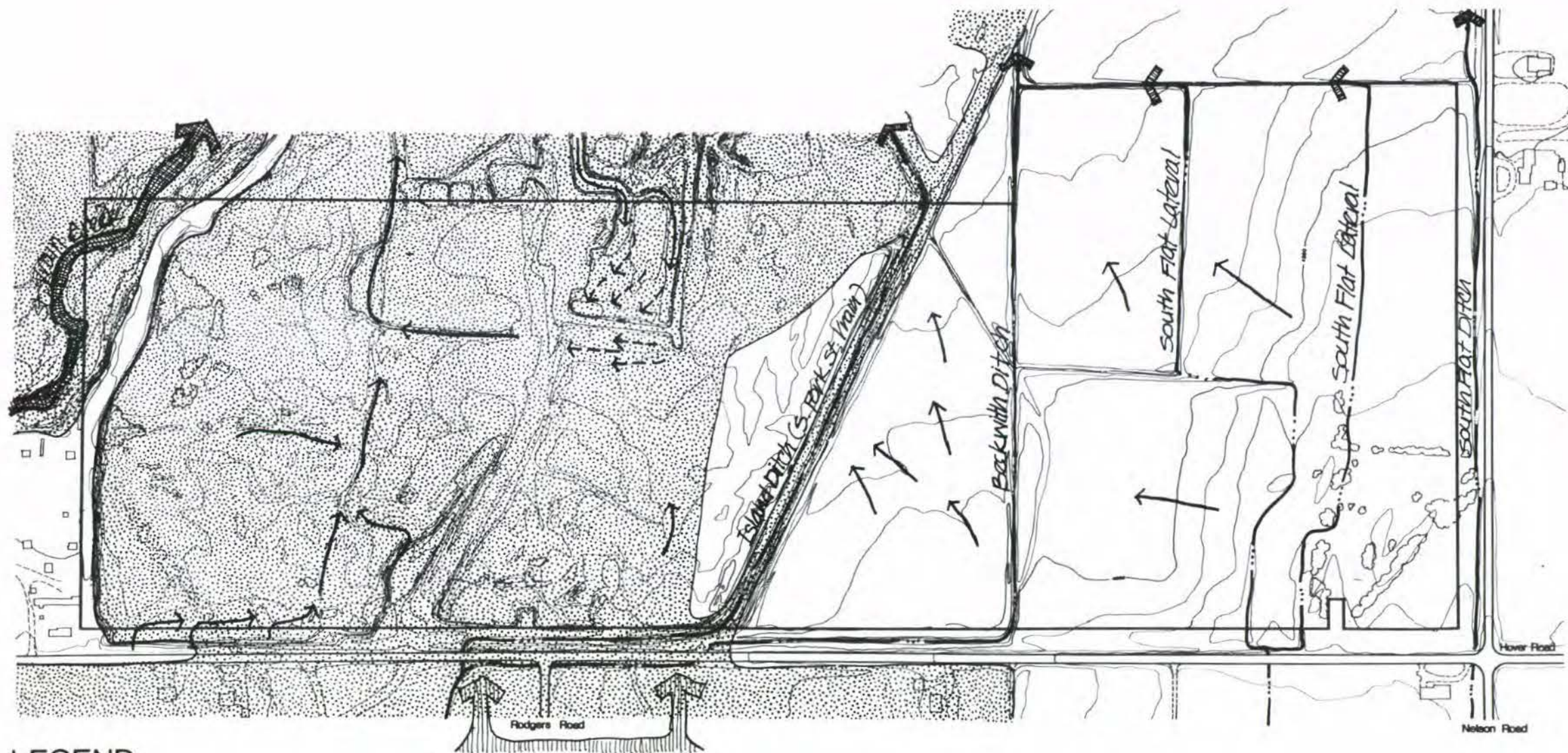
- Clay
- Gravel
- Shale
- Mean Water Table Level







SECTIONS




GEOLOGY



LEGEND

-  100 Year Flood Plain
-  Surface Flow
-  Subsurface Flow
-  Irrigation Ditches

-  Lykins Ditch Off Site Drainage
-  St. Vrain Creek



0 50 100 200 300 FEET



SURFACE HYDROLOGY

structures and would involve downstream liability considerations. Field inspection has revealed that a significant portion of the major flows from the off-site tributary area may escape before reaching the site. The flow escapes at the Peck Ditch and reaches the St. Vrain. It is impossible at this point to determine what portion escapes, but the severity may be less than the original calculations. A more moderate alternative would be for the general site and drainage planning to provide for the passage of this water through the site - avoiding planned structural facilities and downstream impacts. The precise evaluation of this flow in both impact location and quantity will require additional information, including design details of the future Hover Road improvements.

Notwithstanding, the smaller portion of this off-site tributary area (1.4 square miles) lies below the South Flat ditch and is not crossed by any other drainageways. This area will drain to the northern portion of the site on a frequent basis. Assuming medium density development in this area, a two-year-flood discharge of 324 c.f.s. is anticipated. Due to its frequency, minimum conveyance for this flow across the site should be provided and incorporated into the drainage plan for the Park.

Historically, runoff has occurred at two points on the east of the site; the ditch laterals and the lowland gravel area. Computations of the historic condition runoff rates for the site indicated that peak discharge of the 100 year storm events is 33 c.f.s. each, for a total of 66 c.f.s.

ST. VRAIN FLOODPLAIN

The 100-year floodplain of the St. Vrain Creek, as defined by the U.S. Army Corps of Engineers,

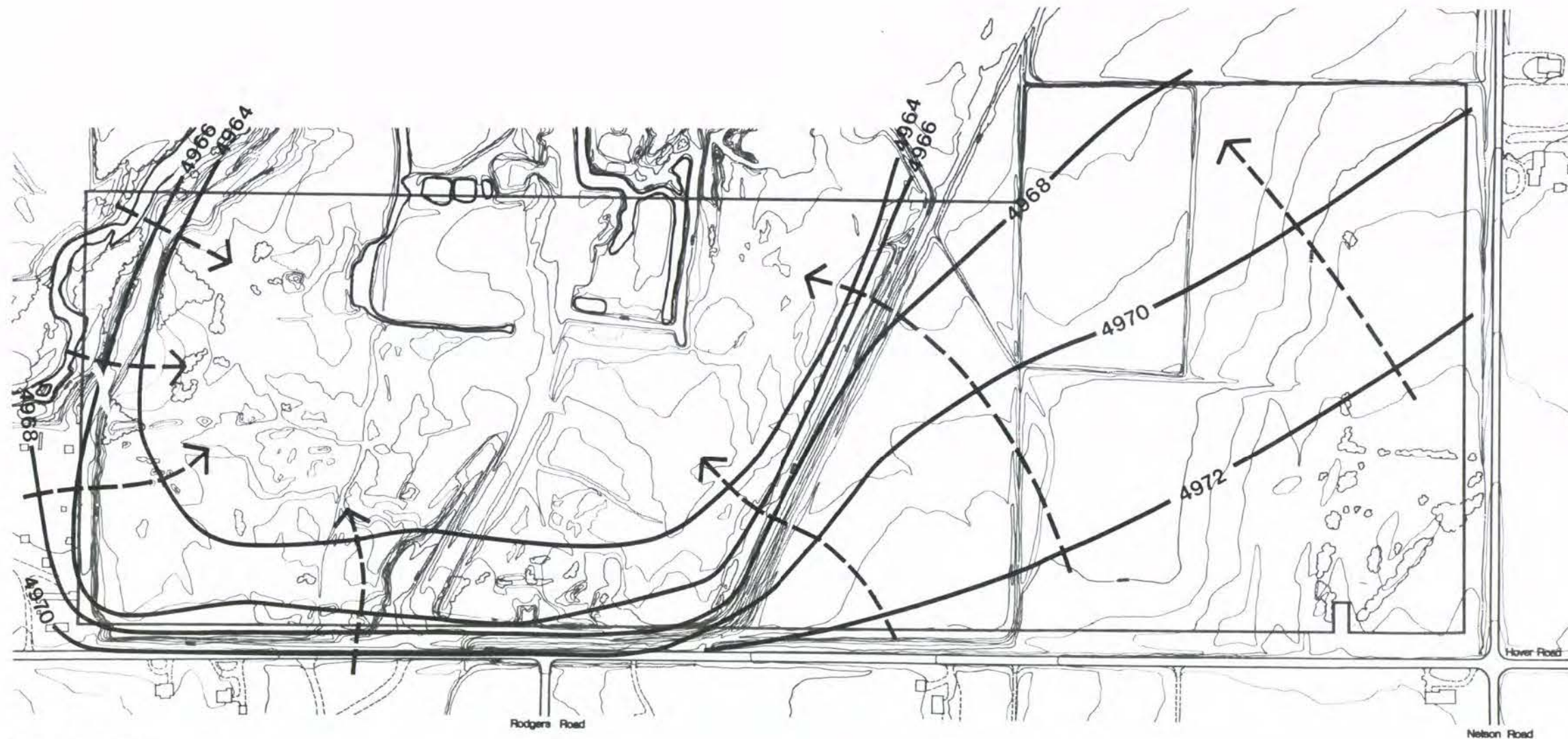
is shown on the Surface Hydrology map. The floodplain limit includes generally that area north of the diagonal alignment of the Island Ditch. The 100 year floodway has been estimated to follow approximately the same boundary through the site. This is an unofficial approximation by the consultants only; no floodway has been officially designated or recognized for the St. Vrain Creek in the area.

It is important to note that the present configuration of the floodplain is a result of existing channel capacities, bridge structures, and highway elevations in the vicinity of the creek. Future improvements to any of these elements will alter the floodplain configuration and its impact on development.

The floodplain development criteria for Boulder County permits a number of "open" uses including parking lots, recreation areas and agricultural uses, as well as structures with no human habitation and low flood damage potential. Many of the buildings and land uses associated with the Resource Park are special exceptions which may be permitted within floodplain regulatory areas. However, to minimize potential human hazard and property damage due to the erosion potential and re-channeling of the river at high flood flows, extensive landfill or development is not seen as appropriate for the northern portion of the site. All facilities should be sited outside the floodplain limits in order not to impact or be impacted by the 100-year floodplain of the St. Vrain.

GROUND WATER

Ground water occurs throughout the site, primarily in the sands and gravels resting on the Pierre Shale. The depth to water ranges from ten feet in the southern part of the property to less than



LEGEND

- Mean Water Table Elevations
- - -> Flow Line



0 50 100 200 300 FEET



GROUND WATER

one foot at the north end. The direction of ground water flow through the site is essentially to the northeast, to St. Vrain Creek. Ground water flow conditions in the southern part of the site are essentially un-disturbed.

In the northern part of the property, the gravel has been removed by gravel mining operations; ground water is exposed on the surface of the site, and its flow characteristics have been altered. Water moves towards the excavation from the south, west, and from the St. Vrain Creek to the north. A series of drainage channels in the bottom of the excavation moves water to the eastern part of the property where it is incorporated into a settling pond circulation system and eventually discharged into the St. Vrain.

The amount of base flow discharged into St. Vrain varies throughout the year, depending on the relative rate and amount of recharge. Recharge to the ground water system occurs by leakage from the Beckwith, South Flat, and wastewater ditches. Recharge also occurs by surface water infiltrating through the stream bed of St. Vrain Creek and percolating into the gravels under the site.

Ground water levels will be highest during spring months when the flow in the St. Vrain Creek is high, and water is released into the three ditches. As flows in the creek and the irrigation ditches decrease through the summer months, water levels decline and reach their lowest level during the winter months. Water table fluctuations, as much as two to three feet above and below average throughout the year, are generally associated with cycles of agricultural irrigation of the site and adjacent lands.

Ground water flow conditions on the property immediately south of Boston Road will be significantly affected by the characteristics of

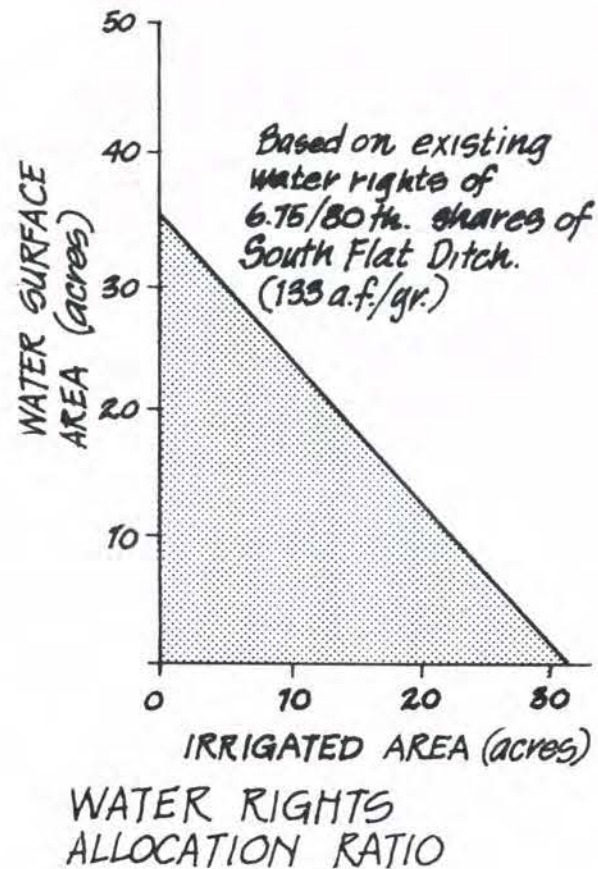
any fill used. Fill composed of soil materials typical of the area - clays and clay loam - as well as, washed clay and silt from adjacent gravel washing, will have much lower water-transmitting capabilities than the original sand and gravel deposits and will act as a barrier to ground water flow. The barrier may cause the water table to rise slightly in the area south of Boston Road.

An outflow at the eastern part of the property can control water elevations in the site. The stream surface elevation at the northeast corner of the property is 4966 feet above MSL. Outlet levels could be controlled to fluctuate between 4966 feet and 4968 feet above MSL, depending on the final land use plan. Ground water levels in the filled area will fluctuate accordingly.

There are few wells surrounding the project site. The low saturated thickness coupled with the relatively low values of permeability, do not permit high yielding wells to be developed in the area. Wells that are in the vicinity are permitted for domestic and stock purposes only. The operation of these wells will not significantly impact or be impacted by future ground water conditions on the project site.

WATER RIGHTS

The Boulder County Rural Resource Park site is traversed by several irrigation ditches; the Beckwith, the Island (south fork of St. Vrain), and the South Flat (and associated laterals) which run along the southern boundary. Boulder County presently owns 6.75 shares (of 80) decreed to the South Flat Ditch, which constitutes the entire source of irrigation water to the site. A review of diversion records for the years 1964 through 1973, shows an average total annual yield



to the site of 133.3 acre feet at the headgate. The actual quantity of water available for use on the site is legally determined by an involved and detailed examination of the historical consumptive use of water. This investigation reveals a net 75 acre feet available for consumptive use on the site. Normal precipitation for the area is 12.03 inches annually and average annual lake evaporation is 37.62 inches per year. Since the net water requirement to offset lake evaporation is 3.12 acre feet of water per year for each acre of lake surface, using all the water rights available, a maximum lake size of 35 acres could be created.

Water needs for irrigated grass at Longmont have also been computed similarly. Assuming an 80% sprinkler efficiency, the total water needed to irrigate grass areas is 3.06 acre feet per acre per year. The entire water rights for the site will thus support 30.5 acres of irrigated grass. A graph of the ratios of lake area to irrigated grass areas, possible within the available water rights budget, shows the potential range of opportunities.

SOILS

The gravel mining of the northern portion of the site has removed the soil and underlying gravels to the exposed Pierre Shale. A thin veneer of soil covering the shale is composed of foliated shale, wind and erosion deposited soil, sand, gravel, and concrete tailings; it is too immature to be classified or analyzed as a soil type. This area continues to be reclaimed by importing fill. The precise nature of this 'made land' will need to be confirmed by tests subsequent to the filling.

The soils on the southern part of the site have

been tilled extensively, but are otherwise intact. According to the USDA Soil Conservation Service, these soils are deep clay loams over sand and gravel and are described briefly below:

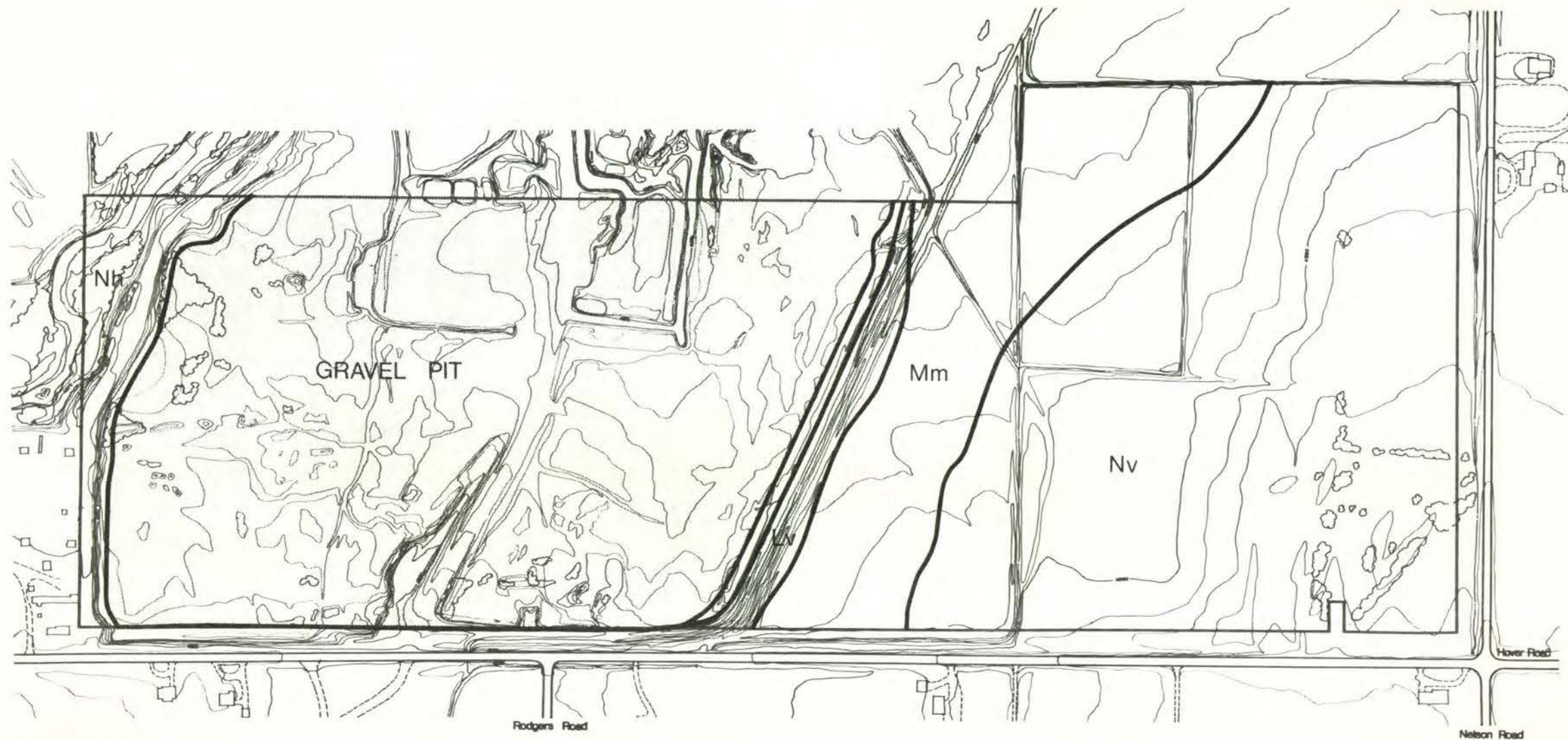
NUNN - The major portion (42 acres) of the existing soils are of the Nunn-Kim complex, primarily Nunn soils according to the Longmont Soil Conservation Service. This soil is well-drained with the water table at seven feet or deeper, as confirmed by test holes. Its neutral soil reaction poses no problems to using a wide range of plant materials.

McCLAVE - The second-dominant soil on the site (11 acres) is the McClave clay loam, a somewhat poorly drained soil with a seasonal high water table to within two to four feet of the surface. Test holes showed the water table to be in the five to six foot range. This soil also has a neutral reaction and fair topsoil.

LOVELAND - A minor amount of Loveland soils are found in the immediate vicinity of the Island Ditch. While these soils are indicated to be somewhat shallower, with a seasonal water table at two to four feet; it has been substantially disturbed by the construction of the ditches. Its characteristics will be greatly affected by the filling operation adjacent and the eventual design level of the water table.

All of these soils have a high available water capacity; they retain moisture well and overall irrigation demands are reduced somewhat. A moderate permeability indicates a moderate but adequate absorption of water with only minor erosion potential.

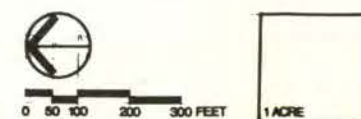
A development limitation shared by all these soils is shrink/swell capacities, which range from moderate to moderate-to-high. These are marginal designations which imply the need for



LEGEND

Lv Loveland soils
 Mm McClave clay loam
 Nh Niwot soils
 Nv Nunn - Kim complex (Nunn)

□ Excavated soils - Made land.



SOILS

special planning and design of foundations for buildings and roads. More detailed site-specific investigation is needed prior to design. Limitations other than previously noted are not considered to be substantial.

VEGETATION AND WILDLIFE

Although only a small portion of the St. Vrain Creek is found within the site (northeast corner), its importance far outweighs its area. This section of the St. Vrain represents one of the few unchannelized sections of a Plains Riparian Ecosystem in close proximity to an urban area. These ecosystems formerly bordered all the major streams in eastern Boulder County and were the only areas with deciduous trees on the plains. They provided a rich vegetation and wildlife habitat due to the ecotone transition from wet to dry, over a very short distance. Riparian ecosystems rarely exist in a natural state today, even when unchannelled, a number of introduced species such as Russian olive have mixed with cottonwoods, willows, wild plum, snowberry, cattail, sedges, and bulrushes of the original systems. In spite of changes, including faunal ones, this area still provides habitats for beavers, muskrats, and many other small land and semi-aquatic species, more than any other County ecosystem.

The gravel operation has completely removed the soil down to exposed shale in many areas. The slaked shale and remnant and imported soil and gravel have provided a thin soil base for a rich variety of invading vegetation species. Since the water table rests on the shale bedrock, this area has a shallow depth to water table and is traversed by numerous water channels and ponds. Therefore, most of the invading vegetation is wetland marsh, primarily salt tolerant, and in

very immature, early successional stages. A representative sampling of this area includes:

native cottonwoods	cheatgrass
Russian olive	wheat grass
red-stem willow	cattail
sunflowers	bulrush
sedges	millet
saltgrass	Russian thistle

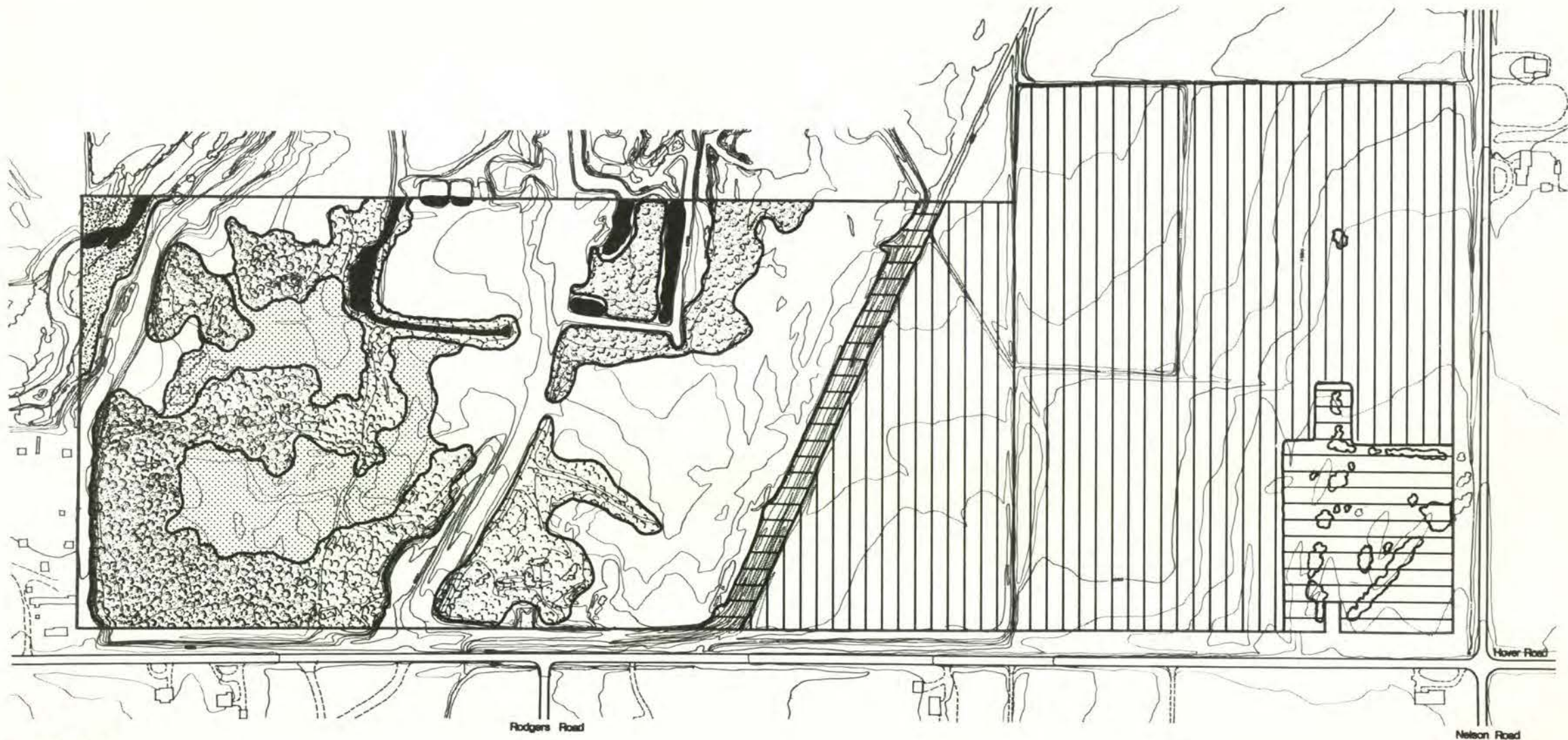
A surprisingly rich diversity of wildlife has also invaded the lowland area, primarily birds foraging for food. Twenty three species have been observed, including snipe, pheasant, great blue heron, bank swallows, and a variety of semi-aquatic birds and animals.

It should be noted that this lowland area, while seeming to recolonize rapidly, actually has a transitory, temporary future. It is dependent upon the drainage of the adjacent gravel processing area, which, when terminated, will allow the water level to rise, flooding most of the lowland and destroying the existing vegetation.





Typical of agricultural development on the plains, farmers usually planted trees and shrubs around farmhouses for windbreaks, shade, and limited produce (fruits, nuts). The farmstead on the southwest corner of the site contains a variety of mature native and introduced plant species, including:





white poplar	native plum
plains cottonwood	native hops
American linden	apple
Colorado spruce	dogwood
soft maple	bluegrass
black walnut	native grasses
green ash	

These trees and shrubs are more important for the mature, visual setting they provide, than for



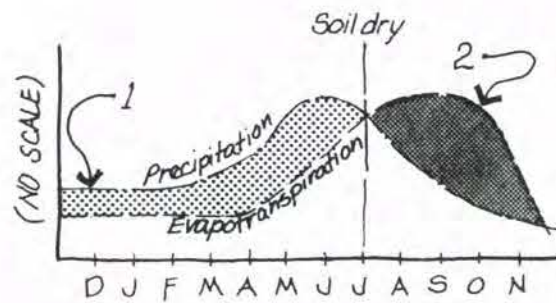
LEGEND

-  Unvegetated land fill
-  Bottomland grasses
-  Wetland invader species
-  Plains riparian eco-system

-  Native grasses
-  Irrigated Cropland
-  Farmstead trees & shrubs
-  Water Areas

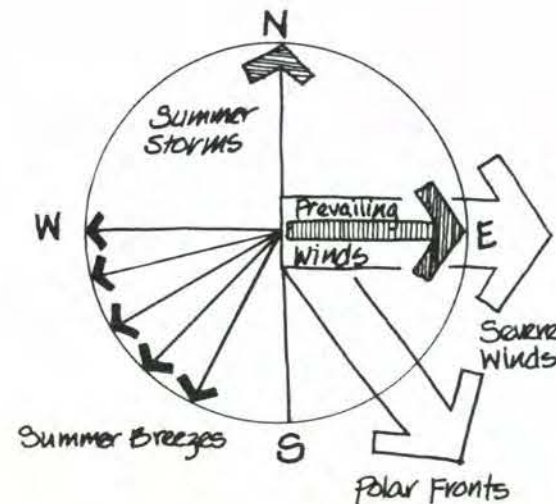


VEGETATION



NOTES:

1. Precipitation low but exceeds evapotranspiration; moisture stored in soil.
2. Precipitation higher but exceeded by evapotranspiration; soil drying out.



any particular uniqueness or ecological role. The size and density of these trees make them a dominant feature both within the site and as a significant landmark approaching the site from any direction. Remedial care such as pruning, protection, and replacement planting will be necessary to preserve them.

The rest of the unexcavated upland portion of the site is and has been under cultivation for irrigated agriculture. This land is devoid of any permanent vegetation (one large cottonwood), and provides only temporary cover for wildlife during the growing season. Harvesting probably provided food and cover in the stubble for migrating birds and local mammals and rodents. Due to yearly plowing, the only likely long-term habitants were small rodents.

CLIMATE

The average elevation of Longmont is 5100 feet MSL, and it is located only eight miles from the Front Range of the Rockies. However, Longmont's climate is classified as semi-arid; more typical of the Plains than the foothills. It receives only 12" of moisture annually (compared to Boulder which receives 18" annually.) Only 3.5" (29%) of Longmont's moisture falls as snow, while Boulder receives almost 43% as snowfall in a typical year. The majority of Longmont's rainfall (80%) falls in the spring and summer months and most of it is thunderstorm-related; falling in short, heavy patterns.

Typically, the annual hydrologic cycle shows that moisture is stored in the soil during the winter when precipitation is low, but evapotranspiration is even lower. The rise in precipitation during spring is matched and eventually over-compensated by the rise in evapotranspiration during the

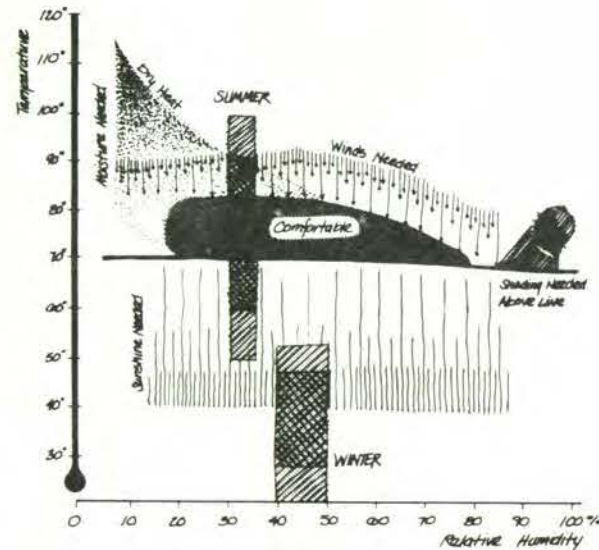
summer and fall. The result is storage of moisture during winter and spring and eventual drying out of the soil during summer. Moisture retention is, therefore, an important consideration in planning in this area; both to reduce irrigation demands and for ground water storage and delayed release to streams during drier times of the year.

The prevailing winds in Longmont, and along the Front Range generally, are from the west. These winds have lost most of their moisture in passage over the mountains, and as they descend become the warm, dry 'Chinook' winds which moderate the winter climate. Occasional polar fronts from the northwest can break this pattern and cause sudden temperature drops for short durations. These winds also cause extensive snow drifting and occasional soil erosion.

Spring and summer storms are generally southerly due to moist air circulating up from the Gulf of Mexico. Normal spring and summer afternoon/evening breezes are from the northeast, northwest, and west. This area along the Front Range is also noted for periodic severe winds, occurring primarily from December to April. These westerly winds are thought to be "katabatic" (downhill gravity drainage of cold air) since they usually occur at night but can often reach velocities of over 100 miles per hour. According to the Boulder County Engineering Division, the maximum wind pressure for Longmont is 110 mph, or 30 pounds per foot design load.

Comfort is affected by temperature, humidity, sun/shade, wind, and personal preference. Since it is personal and relative, and comprised of many variables, it is difficult to define very precisely. A graphic summary may be made, however, with the aid of the bioclimatic chart. (See diagram.)

Longmont's climate is not extreme. The yearly



temperature range is from 27⁰(F) to 71⁰(F), further moderated by low humidities. The monthly average, from April to September, is generally within a comfortable range, only occasionally exceeding 90⁰. During the hotter months, shade and breezes are important for both man and animals. Winters are mild, only getting lower than 32⁰ an average of six days per month. January is the coldest month, but has an average of over 42⁰ daily maximum temperature due in part to Chinook winds. Winter comfort in Longmont requires maximum insulation and wind protection.

The moderate average temperature belies the great diurnal range characteristic of this area. Temperature drops of 30⁰ to 40⁰ in several hours are not uncommon. Summertime temperatures in the evening may fall below 60⁰.

The climate in Longmont is, generally, quite comfortable; the primary needs being shade and breezes in summer, and sun and occasional protection from cold and high winds in winter. Consideration needs to also be given to maximum retention of moisture (both snow and rain), and the handling of heavy concentrations of runoff to prevent flooding.

MAN-MADE SYSTEMS

LAND USE

The project site occupies 119 acres of land near Longmont on the east side of Hover Road between St. Vrain Creek and Nelson Road. Approximately 52 acres nearest Nelson Road are currently being used for growing crops. The 61 acres on the north is an unreclaimed gravel pit excavated to shale. Southerly parts of this excavated area are presently being filled. Six acres on the corner of Nelson and Hover Roads is a farmstead.

All of the site lies in the county. The southeastern 10 acres of the site are zoned Industrial. The remainder of the site is Agricultural zoning.

Vacant land adjoining the site on the east is expected to continue to develop as Industrial and is expected to be compatible with uses anticipated in the Boulder County Rural Resource Park. Continued gravel extraction operations to the east of the site are potentially incompatible with some of the activities anticipated in the Resource Park and will require careful site-specific planning to minimize conflicts in adjacent uses.

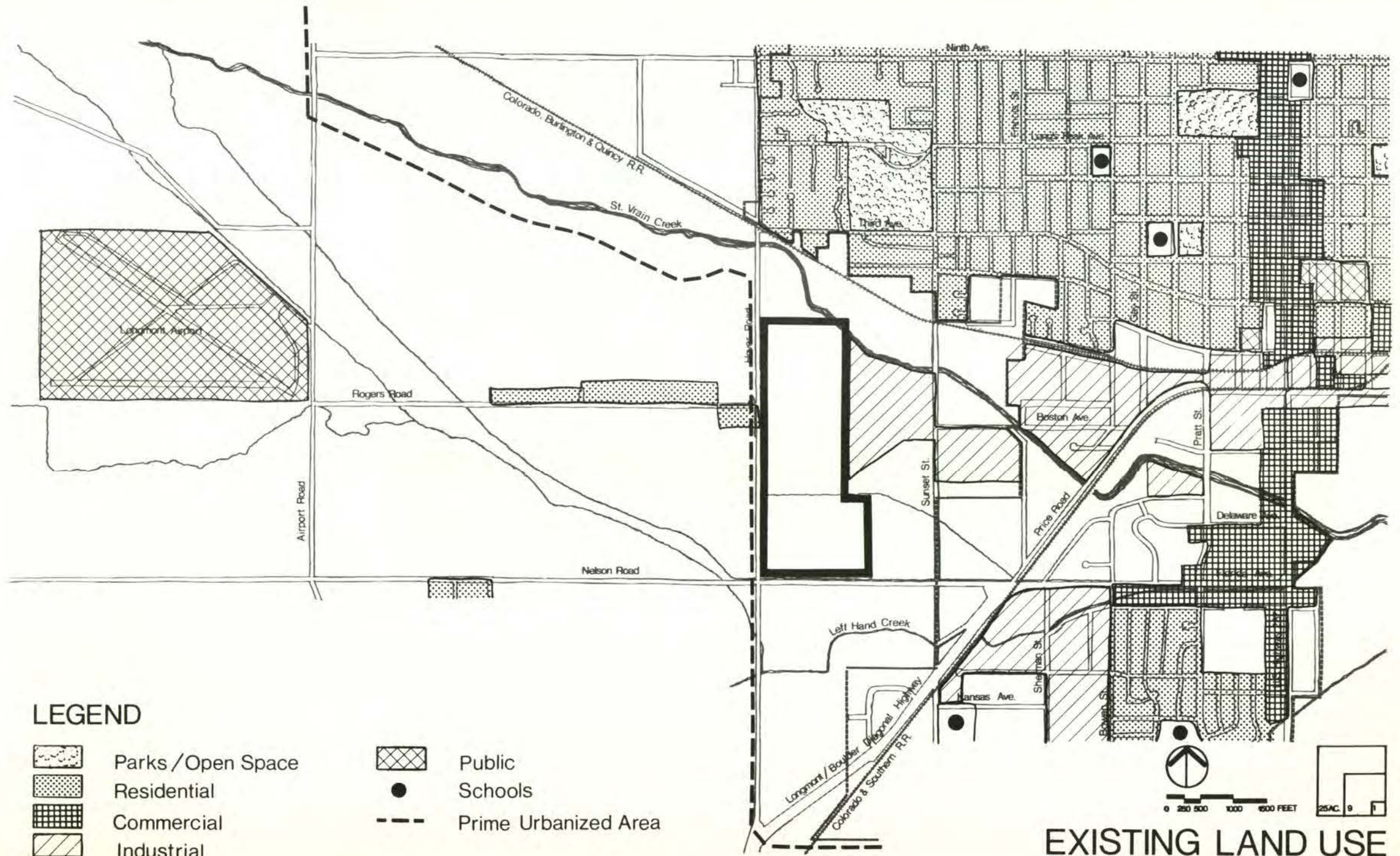
The land west of the site lies outside the Longmont Prime Urbanized Area. County zoning is Agricultural with a small amount of Rural Residential zoning along Rogers Road. Development of this land will not be dependent upon inclusion within the Longmont Prime Urbanized Area. Present policy of the city is to expand the Prime Urbanized Area only in neighborhood increments, and to do so only when existing developable land already within the Prime Urbanized Area has been significantly developed. For these reasons, the land lying west of the site is not expected to develop in the near term. However, the rate of growth of the Longmont area indicates that long-term planning should recognize the potential for residential development on these lands at some point in the

future.

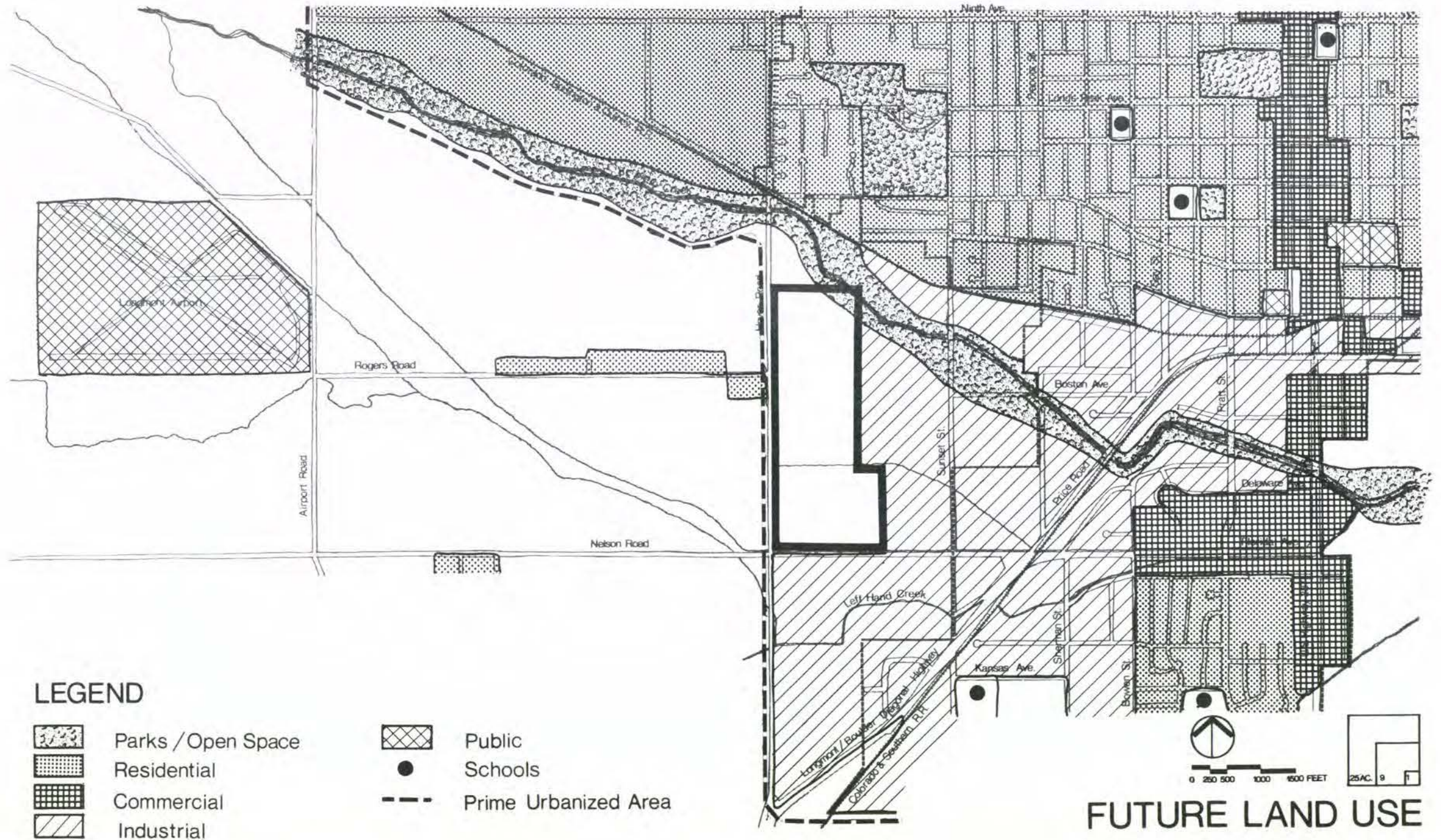
It is expected that a certain amount of additional pressure for development of adjacent vacant lands to the south of the site will occur due to development of the Boulder County Rural Resource Park. Commercial uses related to anticipated activity in the Resource Park may attempt to develop across Nelson Road from the site. That land will have access to utility services from the City of Longmont when they are extended to serve the site. Any potential negative development pressures are expected to be controllable through joint city-county cooperation.

Land directly north of the site, in the area of St. Vrain Creek, will probably take on new potential for development as a result of development of the Resource Park. Reclamation of the northerly portion of the site will enhance the potential of adjacent developable land. The present zoning of these lands is agriculture. However, because these lands are underlain by commercially mineable gravel deposits, they are subject to the provisions of Colorado House Bill 1529. As such, development of these lands is limited to uses by right within their existing zoning designation. Before a higher zoning designation can be obtained on these lands, the commercially extractable gravel must be removed. The potential for mining of these adjacent lands presents a significant consideration in master planning for the Resource Park, as well as the future development of a public open space system in the St. Vrain Creek corridor. Careful coordination between the city and county in managing the development of these lands will be required.

Development of the Boulder County Rural Resource Park can represent a significant first step towards the attainment of a St. Vrain Creek open



EXISTING LAND USE



space corridor between Hover Road and Sunset Street. A significant open space parcel can be developed on the site in direct relation to St. Vrain Creek. It is hoped that development of the site will act as a catalyst to initiate continuing action by county and city agencies to reserve the St. Vrain corridor as a significant visual and environmental resource for the public.

Development of the Boulder County Rural Resource Park additionally offers the opportunity to clearly define the Hover Road corridor as the physical edge between the Longmont urban area and the rural farmlands of the county. This clear visual definition is presently lacking.

A secondary benefit that will result from the development of the site accrues to the city of Longmont. Relocation of fairground activities to this site from their present location in Roosevelt Park, will free that 21-acre site to be redeveloped for needed city-wide recreation uses in conjunction with existing populations.

CIRCULATION

ACCESS ROADS

The subject site is well-served by regional and inter-regional roadway connectors. Local access to the site will be provided primarily by Hover Road, Nelson Road, and Boston Avenue.

Hover Road is a major north-south arterial providing direct access to northern and southern sections of western Longmont, as well as, to regional highways SH 119 and SH 66. Several good arterials (17th Avenue, Ninth Avenue, Third Avenue) connect Hover Road to central Longmont and to other regional highways. In general, Hover Road is 24' wide and in good condition. Current and projected average daily traffic (ADT) volumes are

shown below. Comparing these ADT's to the general functional capacities noted in Table indicates that Hover Road, in the immediate vicinity of the site, is experiencing traffic volumes approaching Level of Service C. Without improvements, Hover Road, north of Nelson Road, will begin to experience some traffic congestion by 1980. These projections, coupled with accident statistics and the importance of Hover Road to the newly developing areas in northwest Longmont, make Hover Road a candidate for widening to four lanes in the near future. Two recent studies have recommended this project, and there appears to be general support for such a project in both the city and county engineering departments. Current and projected traffic volumes on Hover Road indicate that site users from northwest Longmont may be subject to some congestion. Non-project-related traffic during peak hours may be considerable, and traffic on weekends and off-peak hours while not as severe as the peak hours, will be significant.

Nelson Road is a major east-west arterial providing direct access to southern Longmont and SH 119 and access to south US 287 via Florida Avenue. In general, Nelson Road is 24' wide with good lateral clearance and sight distance. The condition of the pavement east of Hover Road is poor. The city engineering staff views the rehabilitation of this section of Nelson Road as a desirable, but low priority project over the five to ten year planning horizon. Widening to four lane status is a possibility in the long range. Current ADT shows significant excess capacity on Nelson Road.

Year 2000 projections for high growth indicate traffic on Nelson Road will pose a problem in a two-lane configuration, and widening to four lanes may be merited.



Boston Avenue is a minor east-west arterial and a designated truck route (incorporating sections of Price Road, Pratt Street, and Second Avenue) that provides direct access to the Longmont CBD, SH 119 east, and US 287. Its importance as a truck route, linking the central industrial area to the developing areas in northwest Longmont, will increase significantly with the completion of the extension to Hover Road through the site. The extension of Boston Avenue to Hover Road will provide a good access point from the east; and from a transportation point of view, will aid site accessibility and lessen the impact of site-related traffic on other roads and intersections. Currently, the Boston Avenue truck route is in good condition with many sections newly paved, signed, and in excess of 24' wide. However, the route is not a direct one; and the curve at Pratt Street and the Pratt Street-Second Street intersection are problems. Traffic counts have indicated current excess capacity along this route (Table). Year 2000 traffic projections do not exceed Level of Service C criteria. However, the high proportion of truck traffic expected on this road should be recognized in final site plans - grade-separated pedestrian crossing(s), high berms for noise abatement, etc.

Roads west of the site (in particular Rogers and Airport Roads) will most likely cause few access repercussions at the site. Both roads currently have, and are projected to have, excess capacity through year 2000. The pavement on Rogers Road is in poor condition and will need repairing before it can handle more significant volumes of traffic.

Certain other roadways will provide secondary access to the site. These include: Florida Avenue, Third Avenue, and Sunset Street.

CURRENT & PROJECTED ADT'S*

	1975 ADT	1980 ADT	2000 ADT
Hover Road	7500	9700	32,300
Nelson Road	5400	6300	16,300
Boston Avenue	2250	3600	7,000

* Assumes high growth rates year 2000

FUNCTIONAL 24 HOUR ROADWAY CAPACITY*

FUNCTIONAL TYPE	NO. OF LANES	FUNCTIONAL CAPACITY
Major Arterial	2	9,200
Major Arterial	4	21,600
Minor Arterial	2	7,500
Collector	2	6,600

* Level of Service C

INTERSECTIONS

The previous section discussed future and existing access roadway conditions. Equally important to site access are the roadway intersections. Those most pertinent to this review are discussed below:

Hover Road and Nelson Road: Currently, there are stop signs on Nelson Road. This is a hazardous intersection due to the volume of traffic on each street and the high speed on Hover. This intersection is most likely inadequate in its current configuration. Projected traffic levels on Hover Road and Nelson Road indicate that this intersection will probably require signalization in the near future regardless of development on

the site.

Hover Road and Rogers-Boston Avenue: This intersection should be designed to anticipate site needs. Signals may be warranted, based on non-site-related traffic within a few years after the completion of the Boston Avenue extension.

Sunset Street and Boston Avenue: This intersection should be designed to anticipate site needs. Signals are not warranted, even with Boston Avenue extended, due to the low level of use by daily non-site traffic.

Hover Road and Third Avenue: Currently, a Y-intersection with stop signs on Third Avenue. The railroad running through the intersection poses problems to any major redesign. However, this intersection is generally adequate.

Sunset Street and Nelson Road: This intersection is presently a four-way stop and is generally adequate for daily traffic due to low traffic volumes. However, the suitability of this corridor for site egress in particular is severely limited by the stop signs at Nelson - SH 119 and Sunset - SH 119 intersections. (See preceding discussions.)

Hover Road and Ninth Avenue: Currently, a four-way stop. The increasing traffic volumes and the grade on Hover Road south of Ninth Avenue make this a hazardous intersection. It is expected that these pressures will force a change in the intersection. In its present configuration, it will be difficult and possibly dangerous for site users.

Nelson Road and SH 119: Currently, Nelson Road is stop sign controlled. While traffic from Florida Avenue (WB) to Nelson Road (WB) is able to move adequately, the reverse movement is

difficult and this may pose problems to site egress traffic. Signal control and grade separation are currently not considered to be feasible improvement alternatives and, in any case, no treatment favoring Nelson Road is likely due to the large traffic volumes on SH 119. In general, this intersection will be less than adequate and there will be little recourse available other than to discourage vehicles exiting the site from using it.

Sunset Street and SH 119: Currently, there are stop signs on Sunset Street. This intersection is adequate for low daily traffic volumes, but cannot accommodate site egress load. Signalization is warranted within the next few years.

Sunset Street and Third Avenue: Currently, there is four-way stop control. There is a slight alignment problem on Sunset Street as well as a grade difficulty. This will be a difficult intersection for site users to negotiate. By encouraging through-users to avoid both these streets, the adverse effect of this intersection will be mitigated.

OTHER ACCESS CONSIDERATIONS

Hover Road, Sunset Street, and Boston Avenue all cross St. Vrain Creek on bridges that are 24' wide. These bridges are of adequate width regarding current roadway dimensions, and pose no problems to site access.

Hover Road, Sunset Street, and the Boston Avenue truck route all have an at-grade crossing of the Burlington Northern spur track to Lyons. This track is used by one train a day to and from Lyons five days a week. Normal usage is in the morning and the early afternoon. Although currently no unit gravel trains operate on this

track, they have run in the past and may run again in the future (up to two round trip trains per day.) Because of the low level and general times of usage, it is not expected that the rail-road crossings will pose a major problem to site access.

The site is not currently served by transit, although it does lie within the bus service area defined in the Joint Regional Planning Program. It is not anticipated that the site itself will warrant scheduled transit service. However, transit access should be provided as a special service tailored to suit specific events and a specific area for bus loading/unloading operations should be recognized in the final site plans.

While specific bikeway routes for both the City of Longmont and Boulder County are not currently fixed, certain general observations can be made. At some time in the future, there is likely to be a county bikeway along SH 119 and a city/county bikeway along St. Vrain Creek. Based on the expanding population of northwest Longmont, a north-south bikeway along Hover Road also seems to be a good possibility, particularly in light of the probable widening of Hover Road. Consequently, bicycle access to the site is a reasonable possibility within the next ten years.

Pedestrian access to the site may be a less critical item. There are few residences within a half-mile radius of the site, and even at a mile radius the only significant population concentration is to the north and northeast. Consequently, the prime areas of concern for pedestrian access would lie north along Hover Road and east along Boston Avenue or St. Vrain Creek. Consideration should be given to the integration of on-site pedestrian facilities

with the potential pedestrian opportunities of the St. Vrain Creek open space. Providing access for equestrians should address similar concerns.

BACKGROUND TRAFFIC

Background traffic levels on access roads surrounding the site will vary during the time of day or the week. However, maximum seating events anticipated at the Boulder County Rural Resource Park are expected to occur primarily during evenings or weekends - periods of low traffic volume. A traffic level of 4% of average daily traffic (ADT) is typical of evenings, both during the week and on weekends. For design purposes, 4% ADT has been used to determine estimated background traffic levels during a maximum event at the site. Using 4% ADT from the above tables, background traffic on Boston Avenue and Nelson Road during a maximum event is projected to be approximately 400 vehicles/hour (250 v/h Nelson Road - 150 v/h Boston Avenue) in 1980.

ACCESS ROAD CAPACITIES

The capacity of the roadways surrounding the site is limited not by the roadway section, but by the capacity of the various intersections. Because of safety limitations on Hover Road, all egress from the site should, necessarily, occur on Boston Avenue and/or Nelson Road. Projected traffic levels indicate that the Hover/Nelson and Hover/Boston intersections may be signalized. The signalization is expected to favor Hover Road. The Boston/Sunset intersection will probably not merit a signal due to low level daily traffic volumes. While the intersection at Nelson Road and Sunset Street is

adequate for the low levels of daily traffic, this corridor is less than adequate for site egress traffic and utilization by site users during a maximum event should be discouraged. It is assumed that manual control (police) of all four intersections will be merited during egress from a maximum seating event on the site. Manual control would maximize the capacity of the intersections. Utilizing manual control as a representative site egress case, the capacity of intersections and, therefore, access roadways serving the site is estimated to be as follows:

<u>Nelson Road - 1700 v/h</u>	<u>Boston Road - 2450 v/h</u>
Nelson Rd/Hover Rd Intersection 1,000 v/h	Boston Rd/Hover Intersection 1,250 v/h
Nelson Rd/Sunset St Intersection 700 v/h	Boston Rd/Sunset Intersection 1,200 v/h

These figures indicate that the combined capacity of the access roads to the Boulder County Rural Resource Park is approximately 4,150 vehicles per hour. Approximately 60% of this capacity (2,450 v/h) will exist on Boston Avenue and 40% (1,700 v/h) on Nelson Road.

Since the total background traffic of these roads is 400 vehicles per hour (see preceeding section), a surplus capacity of approximately 3750 vehicles per hour exists to accommodate a maximum seating event at the Boulder County Rural Resource Park

TRIP MAKING

Trip generation on a daily basis to and from the site is estimated to be insignificant compared to background traffic. Major traffic impact is associated with a maximum seating event. Traffic generation

is not postulated on a 24-hour basis, but rather upon the peak hour of a maximum seating event. This peak hour is assumed to occur at the conclusion of the event. Based upon the program as developed, the maximum seating event is assumed to occur on Friday evening of the Boulder County Fair, and includes a rodeo, as well as continued fair operations. Maximum traffic generation is based upon parking space provisions. Parking requirements for such a maximum seating event are assumed as follows:

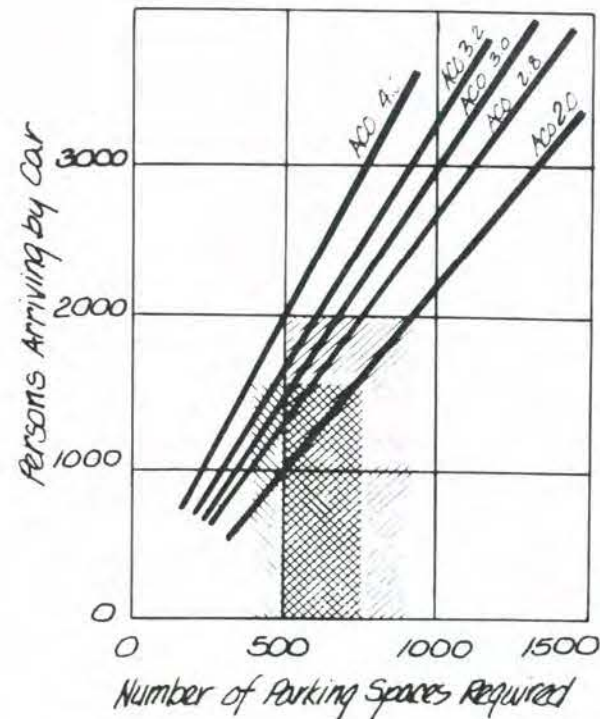
Rodeo Spectators	7000 @ 3.2/v = 2185 vehicles
Other Fair Visitors	1000 @ 3.2/v = 315 vehicles
Rodeo Participants	100 @ .5/v = 200 vehicles
Commercial Exhibitors	225 @ 1.5/v = 150 vehicles
Agricultural Exhibitors	350 @ 1.0/v = 350 vehicles
Total Parking Demand Maximum Event	3200 vehicles

It is recognized that the majority of vehicles leaving the site will not be distributed evenly over a one hour period. It is expected that there will be a peak period which may cause localized congestion; however, this congestion period will be of short duration.

DISTRIBUTION

Traffic generation for activities at the Boulder County Rural Resource Park is event-specific in nature. Events of large magnitude will potentially draw attendees from beyond the Longmont area, including the rest of Boulder County and potentially outside areas as well. Consequently, the pattern and amount of traffic generated is expected to be variable.

Because of the foregoing, distribution of traffic is considered to be variable with probable but indeterminant demand from each



Note: Typical Average Car Occupancies (ACO)
 Boulder County Fair 3.2
 Concert 3.0
 Boulder Valley Social/Recreational Trip 1.05

access "quadrant."

Because a certain number of people will desire to remain on the grounds at the conclusion of the rodeo, the maximum egress demand is estimated to be between 2500 (80%) and 3000 (90%) vehicles within one hour of conclusion. The preceding section indicates that sufficient excess capacity (3750 v/h) exists to accommodate this demand provided that access is allowed to BOTH Boston Avenue and Nelson Road.

SUMMARY

In summary, it is expected that the proposed Boulder County Rural Resource Park will not adversely impact roadways in the vicinity of the site, provided the following conditions exist:

- 1) Intersections at Boston Avenue/Hover Road and Boston Avenue/Sunset Street are designed to recognize site needs.
- 2) Vehicular egress from the site for a maximum seating event is generally balanced on a basis of 60% to Boston Avenue and 40% to Nelson Road.
- 3) Manual control (police) of all four intersections occurs during egress from a maximum seating event.

UTILITIES

Utility services to the Boulder County Rural Resource Park will be provided by the City of Longmont. These include sewer, water, and electrical power. Community services include fire, police, ambulance service, and solid waste disposal.

WATER SERVICE

Water for domestic purposes will be supplied by the City of Longmont, subject to the successful negotiation of a suitable agreement regarding the transfer of water rights between the county and the city. The moderate water demands expected for the site can be adequately offset through the transfer of a portion of the existing water rights to the City of Longmont.

The City of Longmont has also agreed to extend water service lines from their present mains at Sunset Street and Nelson Road, to a point on Nelson Road in the middle of the site. Present plans anticipate extending water service into the site from that point. The city has indicated that the supply, treatment, and distribution systems are adequate to provide water services to the site.

Based upon programmatic data developed, the average daily domestic water demand for the Boulder County Rural Resource Park when fully developed, is estimated by Drexel-Barrell Consultant Engineers to be approximately 80,000 gpd to meet human and animal demands. This figure represents a demand when all facilities are experiencing an average level of use. Peak demands can be expected to slightly exceed this figure. Because the level of use of planned facilities is a function of both management policy and market demand, it is extremely difficult to assess water usage on a yearly basis with any degree of accuracy. For this reason, estimates for yearly water use are not given. However, overall water demand for the project is expected to be modest for the following reasons:

- 1) All irrigation needs are expected to be accommodated from water impounded on the

site - thereby placing minimum demands on the domestic water system.

- 2) Occasions where all facilities on the site will experience an average level of use simultaneously are expected to occur very rarely.

SEWER SERVICE

Sewer services to the Boulder County Rural Resource Park will be provided as an extension of City of Longmont's sanitary sewer system. The city has agreed to extend sewer service lines from their present collector at Nelson Road, midway through the site. Present plans anticipate extending sewer service into the site from that point. Because of the expected depth of city lines in Nelson Road, a drop manhole will probably be required.

Based upon programmatic data, Drexel-Barrell, Consultant Engineers, estimates the sewage treatment demands for the fully developed facility are to be approximately 40,000 gpd. This figure represents a one day demand when all facilities are experiencing an average level of use. Unlike domestic sewage generation, this demand can be expected to occur in a generally even manner over the entire course of the demand day, rather than experiencing a surge during a "peak hour." Because of this, a 40,000 gpd sewer demand for the Boulder County Rural Resource Park is not directly comparable to an equivalent demand from a residential area. Impacts associated with treatment requirements from the former will be less than from the latter.

It is assumed that no animal wastes will enter the public sewer system, and that floor drains

located in animal areas will be equipped with adequate clearable traps.

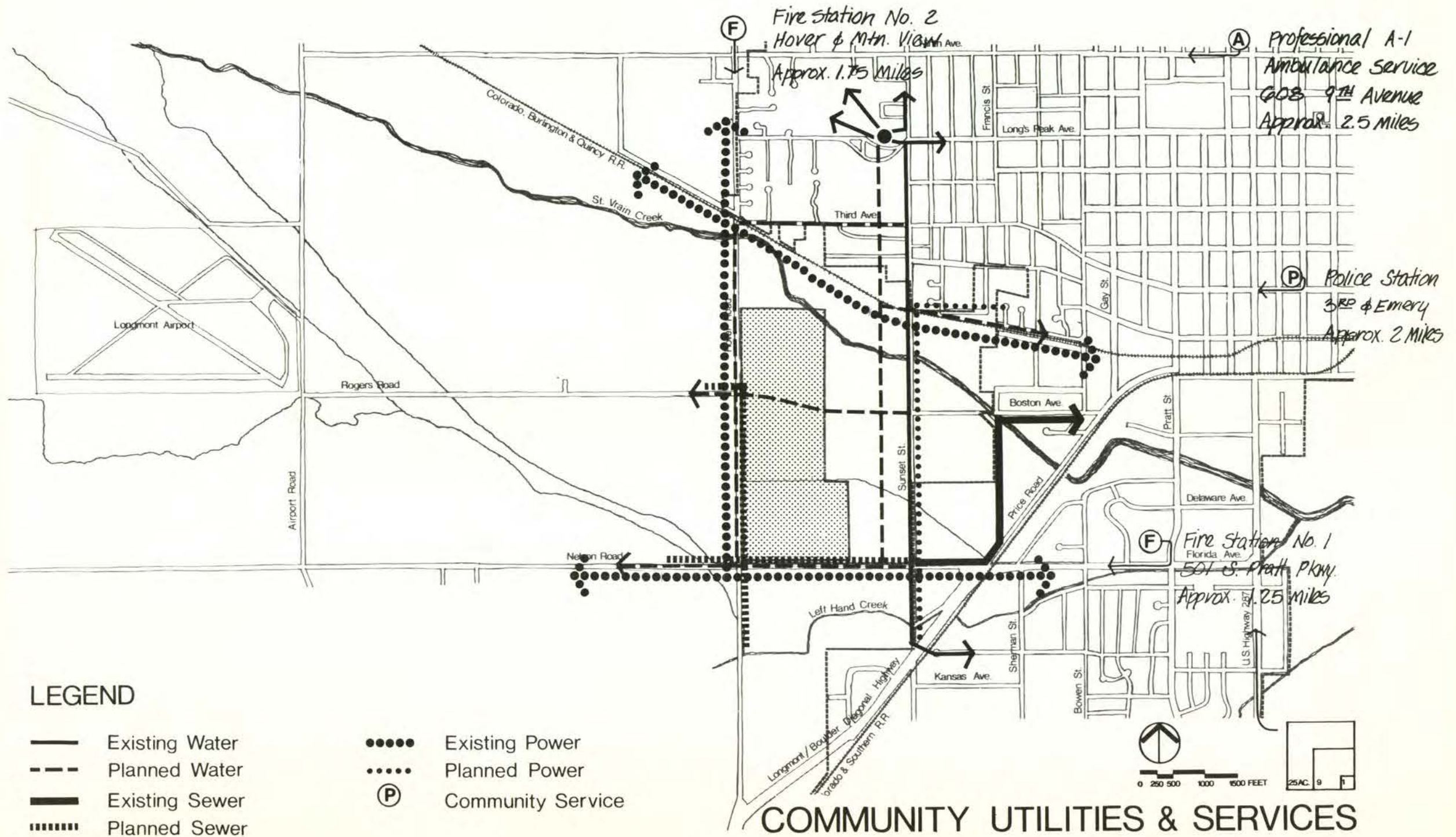
As noted with water requirements, it is extremely difficult to predict level of usage of the facilities with any degree of accuracy. However, occasions when all facilities on the site will experience an average level of use simultaneously are expected to occur only rarely; and overall sewer demands will seldom, if ever, reach the projected level of 40,000 gpd.

While an analysis of the City of Longmont's sewer treatment capabilities has not been undertaken, it is recognized that a treatment demand of 40,000 gpd is somewhat less than equivalent to the demand generated by approximately 75 dwelling units. It is not expected that a treatment demand of this magnitude would present a significant impact upon treatment facilities servicing a population of 35,000 people. Because of the foregoing, and because sewage demands of 40,000 gpd are expected to be reached only on rare occasions, no significant adverse impact upon the City of Longmont's sewage treatment capabilities is expected to occur.

ELECTRICAL SERVICE

Electrical service to the site will be provided by the City of Longmont. Distribution facilities exist at present along Nelson Road, and present plans anticipate extending electrical service into the site from Nelson Road.

Based upon programmatic data, Gambrell Engineering estimates the anticipated electrical demand at Unity Power Factor to serve the site to be approximately 2170 KVA. This figure represents the electrical demand level that can be anticipated during events when all facilities are



experiencing a normal level of use simultaneously. Peak usage for individual facilities can be expected to be higher, but a situation where all facilities experience a peak electrical demand at the same time is considered unlikely.

As noted with sewer and water requirements, occasions when all facilities on the site will experience an average level of use simultaneously, are expected to occur rarely and overall electrical demands will seldom reach the levels projected above. Because of the foregoing, no significant adverse impact associated with provision of electrical service is expected to occur. The City of Longmont has indicated a willingness to extend electrical service into the site from their distribution system on Nelson Road.

OTHER UTILITY SYSTEMS

No natural gas service for the site is anticipated.

Telephone service to the site will be provided by Mountain States Bell Telephone. Service lines presently exist adjacent to the site on Nelson and Hover Roads. Mountain States Telephone Company has indicated a willingness and a capability of extending telephone service into the site. Telephone demands for the site are minor and represent little or no significant demand.

COMMUNITY SERVICES

Law enforcement for the Boulder County Rural Resource Park is provided by the Boulder County Sheriff's Department. Fire protection is provided by the Longmont Fire Protection District from its fire station located on County Line Road. The Professional A-1 Ambulance Service

in Longmont provides ambulance service to hospitals in adjacent Longmont or nearby Boulder. Response distance to site from its offices at 9th and Coffman is approximately 2.0 miles.

Demand for more than minimal law enforcement service for the site is expected to occur only during large attendance functions such as FairWeek, sports events and/or concerts. Because of the proximity of the site to the City of Longmont, cooperative agreements should be explored between the county and city police departments for the provision of day-to-day surveillance. The site is approximately 1 3/4 miles from the Longmont Police facilities at Third Avenue and Emery Streets. On-site police surveillance for specific events can be contracted on an individual basis.

Response time for fire protection to the site from the Longmont Fire Protection District fire station on County Line Road could present some problems because of distance (approximately five miles.) Because of the proximity of the site to the City of Longmont, fire response to the site by the Longmont Fire Department would enhance the level of fire protection. Longmont Fire Station No. 1 at 501 South Pratt Parkway, is less than one mile from the site. Fire Station No. 2 at Hover Road and Mountain View, is approximately 1 1/2 miles from the site. At the present time, tacit cooperative agreements do exist between the Longmont Fire Protection District and the City of Longmont Fire Department. Formal agreements should be pursued - at least to the extent that they involve the Resource Park. On-site fire protection for specific events can be contracted on an individual basis.

Ambulance service from the site to nearby hospitals is considered to be adequate. During

large crowd events and/or dangerous events (rodeos, etc.), ambulance service can be contracted on an individual basis. The Longmont Chapter of the American Red Cross anticipates locating on the grounds. Their facility will include first aid facilities and can perform an additional minor medical treatment function during major events at the site. The Red Cross facility during major events would be supervised by Red Cross personnel, but actual staffing would be a county responsibility.

The Boulder County Rural Resource Park will generate little solid waste and will have essentially no impact upon existing solid waste disposal facilities for the Longmont area.

LEGAL AND GOVERNMENTAL CONSIDERATIONS

ZONING

While the site for the Rural Resource Park is in the Longmont Prime Urbanized Area, county zoning and control are still in effect.

All zoning on the site is Agricultural except for a ten acre parcel zoned General Industrial located in the extreme southeast corner. Zoning to the north and south of the site is Agricultural, as is all land to the west of the site except for a few parcels above Rogers Road that are zoned Rural Residential.

USE BY SPECIAL REVIEW

Fairgrounds uses are permitted as a Use by Special Review in all zoning districts provided that all animal-type uses associated with Fairgrounds activities are located at least 660 feet from schools, churches, and dwellings on other lots.

A Use by Special Review application for the Boulder County Rural Resource Park was filed with the County on March 9, 1977. Analysis and planning suitable to meet the requirements set forth with county zoning regulations were completed concurrent with Master Planning efforts for the site.

OTHER ZONING CONSIDERATIONS

Of major importance to the success of both the Rural Resource Park and any potential open space corridor along St. Vrain Creek, is the manner in which land along the Creek is developed. Zoning designations of land parcels in this area is one of a number of issues that relate to the manner in which development of these lands will occur. Other issues include: State Legislation (H.B. 1529), floodplain and floodway designations, future urban growth, recreation needs and standards, etc. In order to assure the viability of the Rural Resource Park, as well as to promote the attainment of

local and regional open space objectives along St. Vrain Creek - a continuing coordinated guidance effort by Boulder County and the City of Longmont is essential in the area surrounding the site.

ANNEXATION

The Boulder County Rural Resource Park will develop in the County. During the site selection process by the County, one of the stated criteria was that any site selected must be capable of being served by urban services from the City of Longmont. These criteria can be construed to indicate an expectation on the part of Boulder County that the site will ultimately become annexed to the City of Longmont.

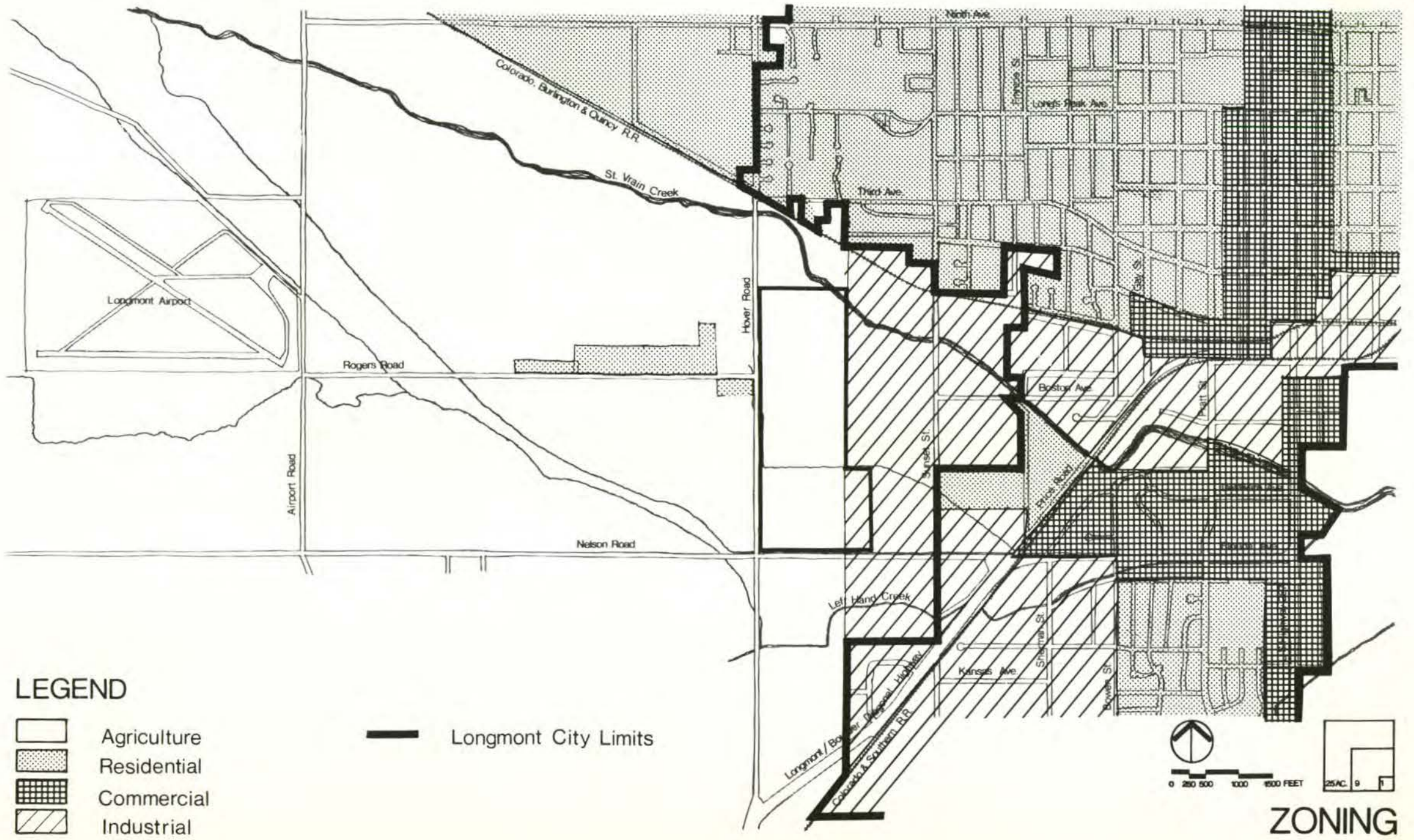
The site at the present time is not eligible for annexation - lacking any contiguity with the present city limits.

Discussions with members of the Longmont Planning Staff indicate that the City anticipates annexation of the site and the surrounding area at some point in the future.

Annexation to the City of Longmont would help to clarify responsibilities for streets, utilities, etc. on and adjacent to the site. Upon annexation, the site would be eligible for city fire and police protective services. The City of Longmont would be able to address planning and policy decisions in the area of the site in a more comprehensive manner.

Because annexation is a result of the owner's desire to become part of the city, Boulder County should initiate or join in annexation proceedings when that opportunity presents itself.

In the interim, development of the Rural Resource



Park site should meet the City of Longmont standards for streets, utilities, etc., where they are more restrictive than Boulder County standards.

POLITICAL AND LEGAL AGREEMENTS

A number of agreements need to be accomplished as a condition of any successful development of the Rural Resource Park. These agreements are discussed below:

UTILITY AGREEMENT

While a number of elected and appointed Longmont officials have indicated a willingness by the city to provide sewer, water, and electrical services to the site; official action regarding utility services needs to be taken.

At the earliest possible date, Boulder County and the City of Longmont should enter into an official agreement that commits the City to extend City services to the site. This agreement should recognize County timing requirements for development of the site and insure that they are coordinated with Longmont capital budget requirements.

WATER RIGHTS TRANSFER AGREEMENT

An agreement will be required between Boulder County and the City of Longmont regarding the transfer of a portion of water rights existing on the property to the City to offset anticipated water usage. Successful negotiation of the Utility Agreement mentioned in the preceding section will probably hinge upon the development of a mutually satisfactory agreement on transfer of water rights.

It is important to recognize that the size and amount of any anticipated water impoundment areas on the site are directly affected by a water rights transfer agreement with the City, as sufficient water rights must be retained by the County to offset evaporation from these areas. Consequently, any water rights agreements with the City of Longmont will have a direct affect upon site planning decisions as they relate to plans for site irrigation and reclamation.

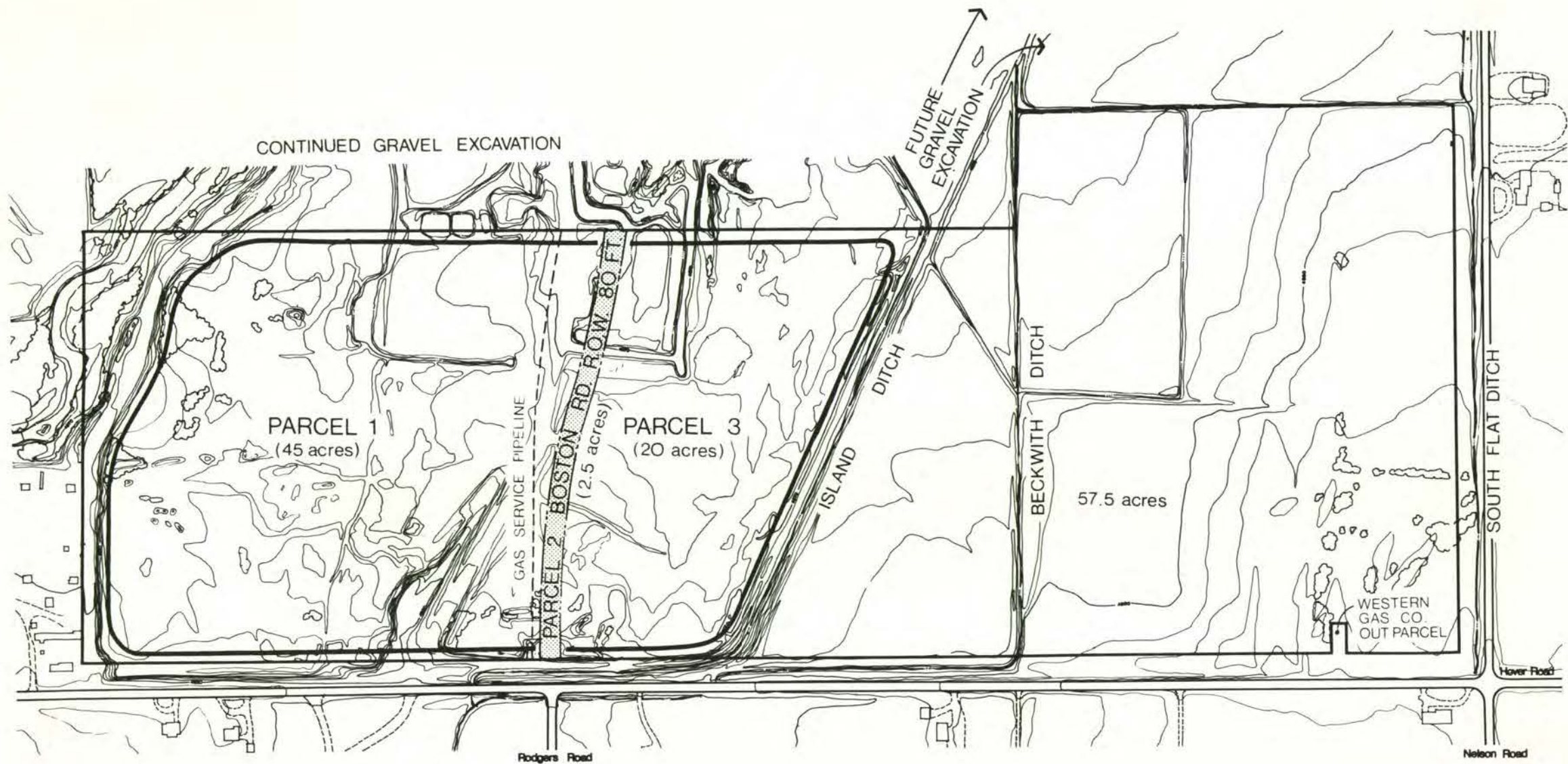
FIRE/POLICE PROTECTION

While initially the Boulder County Rural Resource Park will be developed in the County, ultimately it is expected to be annexed to the City of Longmont. City of Longmont police and fire protective service areas do not extend outside the city limits. Because of the proximity of the site to Longmont, City protective services are in a better position to respond to an emergency on the site than are the County Sheriff's Department or the Longmont Fire Protection District.

Boulder County should explore the possibility of initiating cooperative agreements with the City of Longmont for police and fire protective services to the site in a non-event emergency. It is expected that County sheriff personnel and Longmont Fire Protection District personnel can provide on-site protective services during major scheduled events at the Park - thereby reducing the protective services provided by the City of Longmont while the Resource Park is still in the County.

BECKWITH AND ISLAND DITCHES

Two irrigation ditches presently cross the site; the Island and Beckwith Ditches. There is no



legally dedicated right-of-way for these ditches, but they have an historically vested right-of-way which dictates that while their precise location may be varied, the water must be carried from existing inlet and outlets at the boundaries of the site. Final location and design of the conveyance ditch must meet the approval of the respective ditch companies.

GOLDEN GRAVEL COMPANY LEASE

In June of 1976, Boulder County entered into a lease agreement with Golden Gravel Company, stipulating among other things that Golden:

- a) Fill Parcel 1 with dirt and sanitary landfill by 1985, in return for user fee charges. The County reserved the right to develop a Master Plan by August 15, 1977, to determine where and how much filling would be appropriate.
- b) Be able to continue to use the concrete batch plant and gravel screening and washing located on the eastern portion of the site until 1985.
- c) Fill Parcel 3 to its original ground level by August, 1977, with dirt and construction debris.
- d) Dedicate an 80 foot right-of-way for Boston Road from Sunset to the east property line of the site by 1985, or when the batch plant and screening are terminated.

Subsequent to this lease agreement, discoveries were made of severe water pollution problems in St. Vrain Creek related to both sanitary landfill and decomposable construction debris. Both forms of fill have, therefore, been determined inappropriate to the site. The ensuing re-negotiations, which are continuing at the time of this report, will probably affect both the timing and the quantity and quality of fill available for filling

Parcels 1 and 3. The contract appears to preclude any development or reclamation of Parcel 1 before 1985. Boston Road (Parcel 2), an important element of the Master Plan, will be built at County expense but may be delayed as a through road until 1985 when Golden is required to complete the dedication to Sunset Road.

The Master Plan must, therefore, respond to several contractual constraints which may defer development for much of the northern portion of the site and preclude addressing the circulation problems of the Park until 1985.

IV. MASTER PLAN

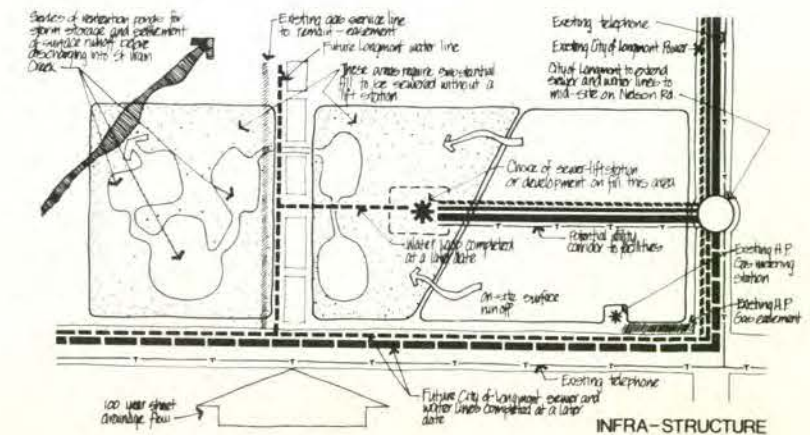
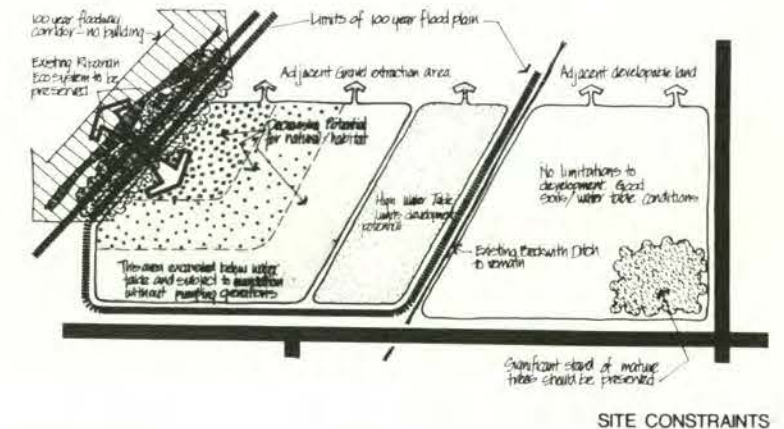
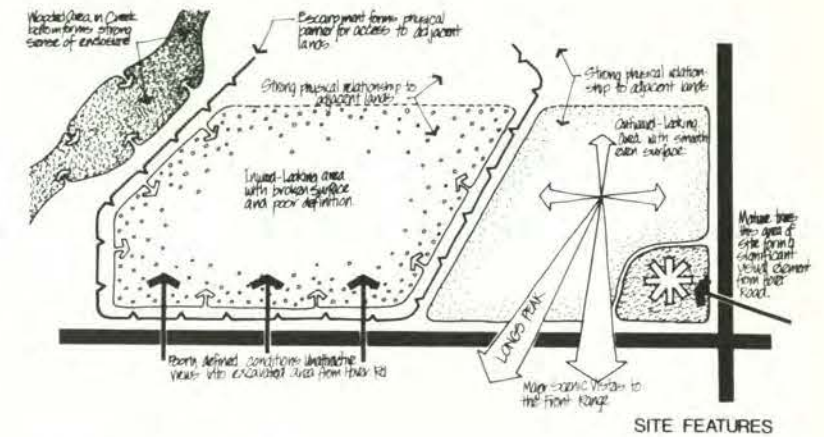
CONCEPT

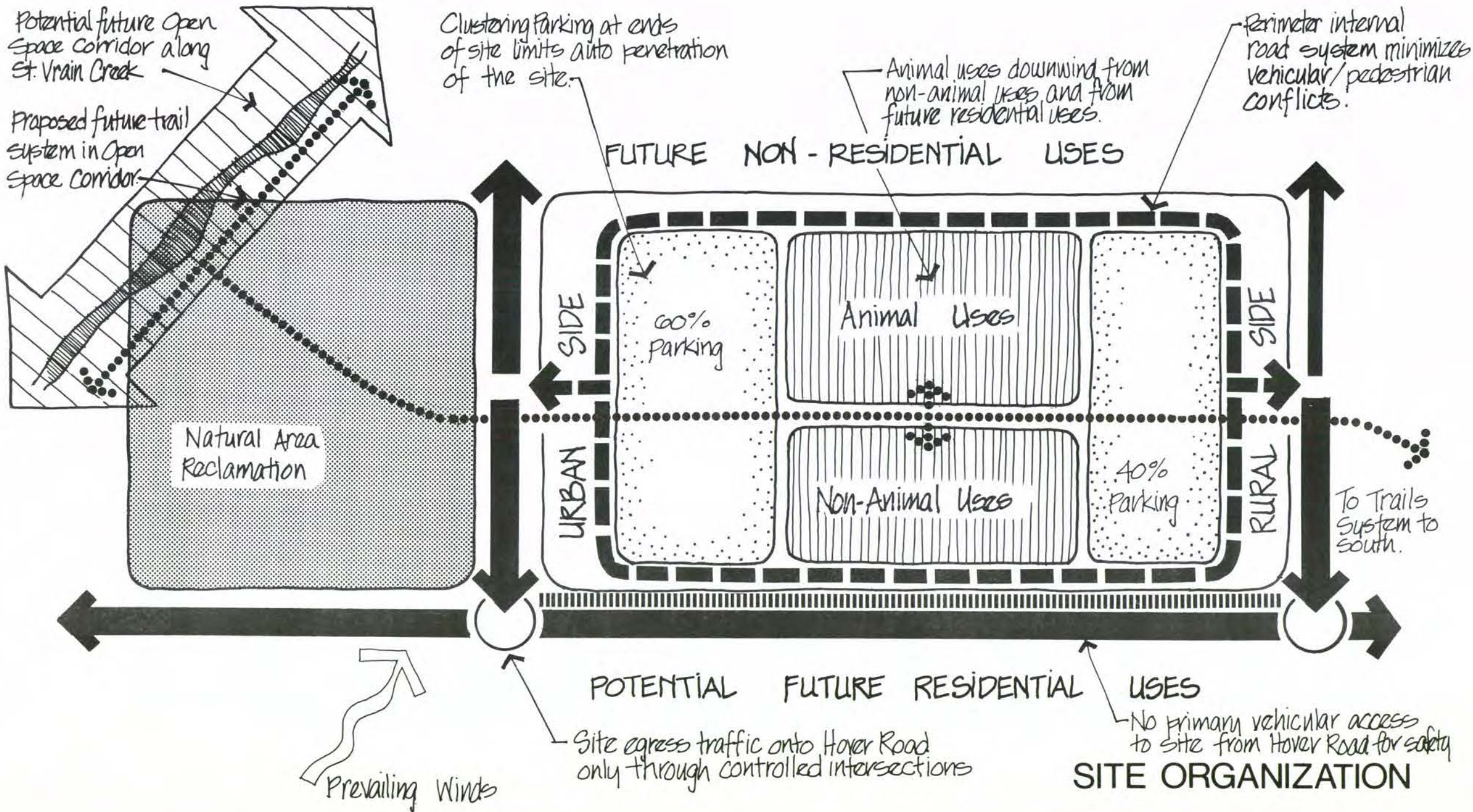
The foregoing analysis has identified activity needs and planning considerations (natural and man-made) which need to be reconciled to create a master plan for a 130 acre park which will become a genuine resource for County residents. The initial incentive for the project stemmed from a need to provide a new exurban location for the County fair, presently held for ten days each year in Roosevelt Park in central Longmont. Since the facilities required to accommodate a county fair represent a substantial capital cost, an additional major goal of the project was to provide as much flexibility and multiple-use potential as possible to contribute to a number of other cultural, educational, and recreational needs, particularly of rural County residents.

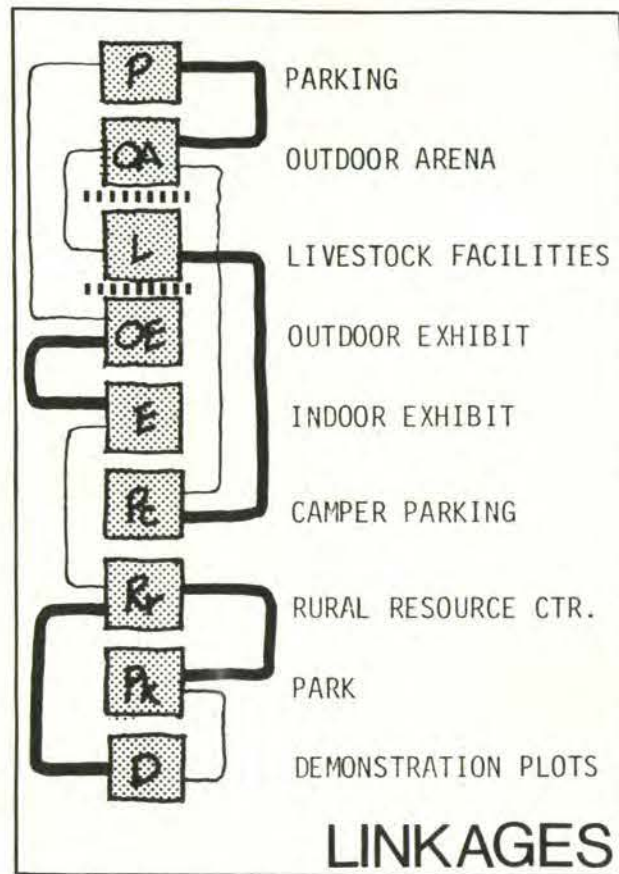
SITE ORGANIZATION

In assessing the suitability of the site to accommodate these activities, a number of factors were identified as incompatibilities or constraints to development. These factors are summarized in the accompanying diagrams and briefly include: drainage, winds, road capacities, adjacent development, flooding, and the need for reclamation of a major portion of the site.

The planning response to these constraints has been to use them as organizing principles, both for the infrastructure (utilities, drainage, etc.) and use areas (parking allocation, built facilities (animal/non-animal), etc.) The potential has also been evident to turn a number of constraints into an opportunity to develop a demonstration/resource aspect of the Park, as a further educational and technical contribution to the rural lifestyle. Examples might include: demonstrations of drainage and water retention, irrigation and horticulture, energy supply, material recycling, wind abatement, and a major effort to set a standard for gravel reclamation at the north end of the site.







In addition to the planning opportunities and constraints, there are also a number of interfacility relationships, necessary connections between facilities, which also influence the specific organization of the site. Since outdoor arena events (rodeo, horse shows, etc.) are the largest single events, with a surge of spectators arriving before and exiting afterward, it is important that the outdoor arena be in close proximity to the major parking areas. An additional security concern is to be able to provide access to the outdoor arena without necessitating general access to the rest of the facilities. Because of its potential supporting role for many activities (e.g., quartering of horses for horse shows), the livestock area should also be within proximity to the outdoor arena, but also maintaining a degree of separability. For convenience, trailer and camper parking should be provided for participants near the livestock area.

While an outdoor exhibit area should be related to any indoor exhibit spaces, it may also serve a Midway function. This use is generally considered, due to light and noise, to be incompatible with livestock quartering areas and should be located somewhat remotely from them. Since it also draws major crowds, it is efficient adjacent to parking areas and may in fact be used as an extension of parking areas when not otherwise in use. The office/conference/community facility, due to its heavy use, needs a location near its own entrance, the day-use park, and the agricultural demonstration areas of the Extension Service - one of the major occupants. Convenience would also dictate the need to locate the agriculture demonstration area near a ready source of irrigation water in the southern portion of the site.

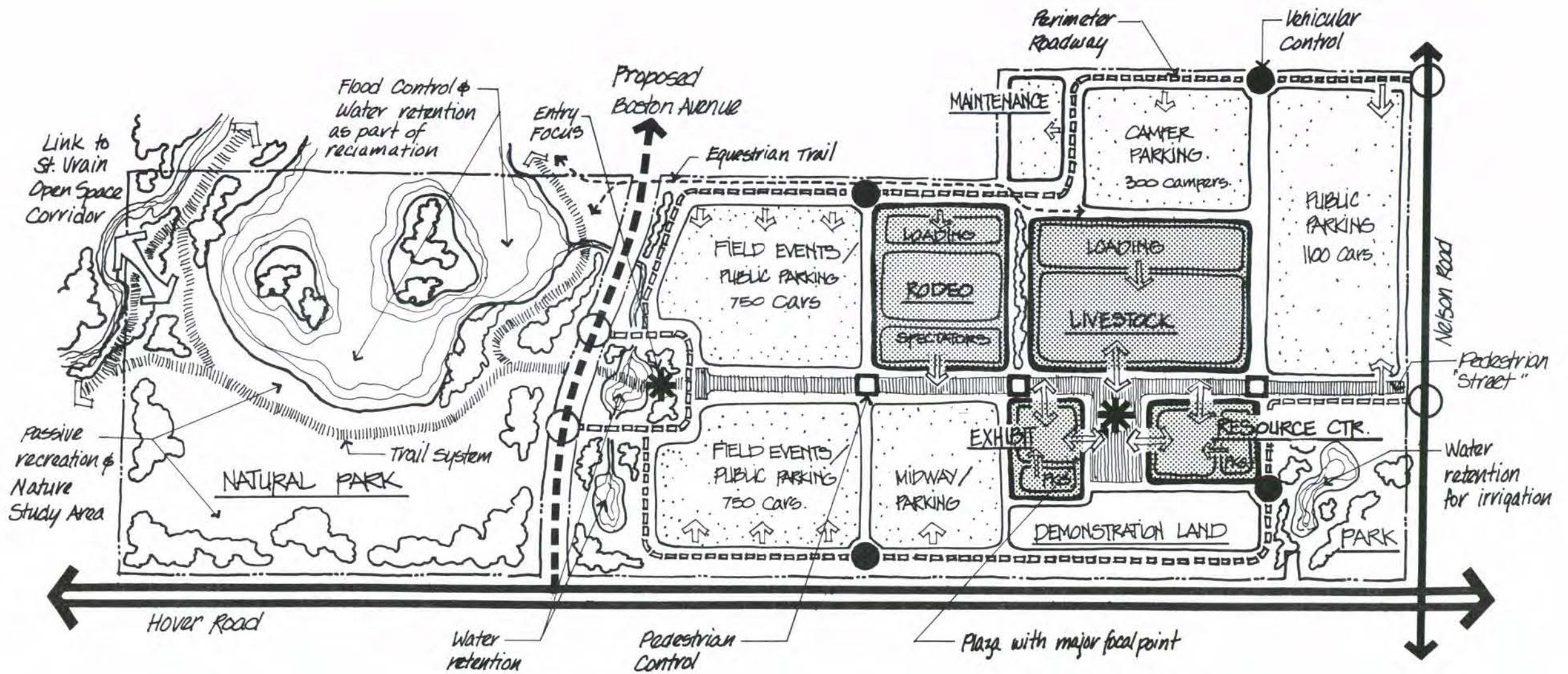
Due to its physical separation from the most active area, and its proximity to the St. Vrain Creek wildlife and open space corridor, the reclamation

of the gravel pit can best be seen as comprised of a more natural area for passive and nature-oriented activities. It forms a transition and buffer from an intense, active area to the quiet habitats of the Creek environment.

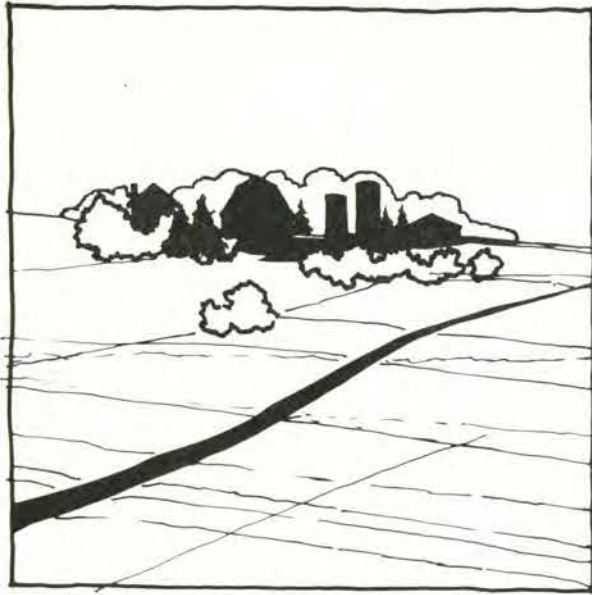
CONCEPT PLAN

From the foregoing criteria, a concept plan evolved in which the site was divided into two use areas - north and south of Boston Road. North of Boston Road, approximately 46 acres of gravel pit will be reclaimed into a passive park and open space adjacent to the St. Vrain Creek corridor to serve natural, recreational and flood control needs.

All of the built facilities have been consolidated on land lying out of the 100-year floodplain, south of Boston Road. Parking areas have been grouped as close as possible to vehicular entry from Boston and Nelson in approximately a 60% - 40% allocation respectively. Animal and non-animal facilities have been separated; animal uses that generate potential noise and odor nuisances have been located downwind from non-animal uses and distant from potential residential land adjacent to the site. The ordering element of the plan is a central pedestrian street which links the parking areas with the facilities and a major plaza focal point. A perimeter access road provides emergency access, as well as service to the loading and parking areas on the periphery of the site, avoiding pedestrian conflict. While most of the site will be open to the general public, several control points add security and flexibility, enabling all or portions of the built facilities to be closed. The Resource Center, located near the day-use park, has its own local access off Nelson Road. Demonstration plots are nearby with adequate access to water.

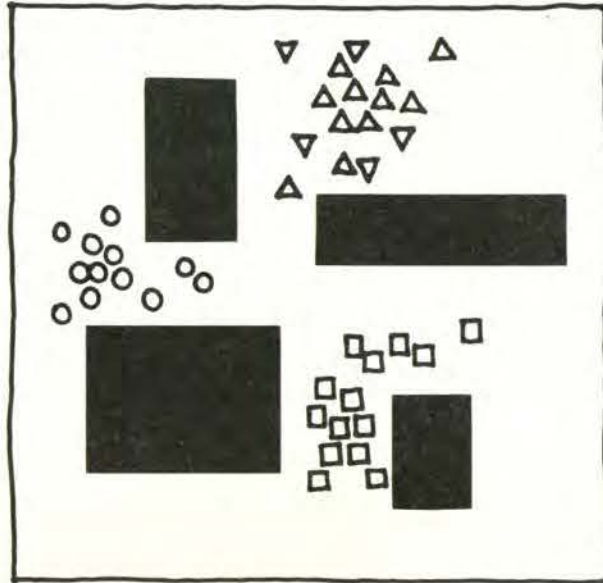


CONCEPT DIAGRAM



IMAGE

As an adjunct to the concept of the Park, its image (how it appears to the public), if carefully conceived, can do much to reinforce the concept and contribute to its acceptance and success. It is appropriate to look for an image for the Park in scenes indigenous to this area. Typical of the agricultural areas of the county, the flat plains landscape is broken only by hedgerows along irrigation ditches and large stands of cottonwoods and ornamental trees around farmsteads. The familiar farmstead complex is visible for miles and recalls familiar images and expectations. On closer inspection, the farmstead also reveals a certain simplicity and clarity of intent, in the ease with which many diverse activities are accommodated. A key to achieving an appropriate image for the Park is to capture the essence of this special quality of rural design.



UNIFIED BUILDINGS

Like the farmstead, the Resource Park has many varied activities which need to be harmonized to some degree. This desired sense of unity may be achieved in basically two different ways; unifying the buildings, and unifying the site.

The "building unity" approach unifies the site by setting absolute standards for the development of buildings. All buildings are strictly similar in their building systems; colors, roof pitches, materials, site relationships, etc. Within this building regimentation, landscaping may be developed somewhat independently from the buildings for relief and counterpoint.

In this approach, one must also consider the means of implementing the Park master plan. There is a strong likelihood that the Park complex will be developed over a number of years under different management personnel. Since material

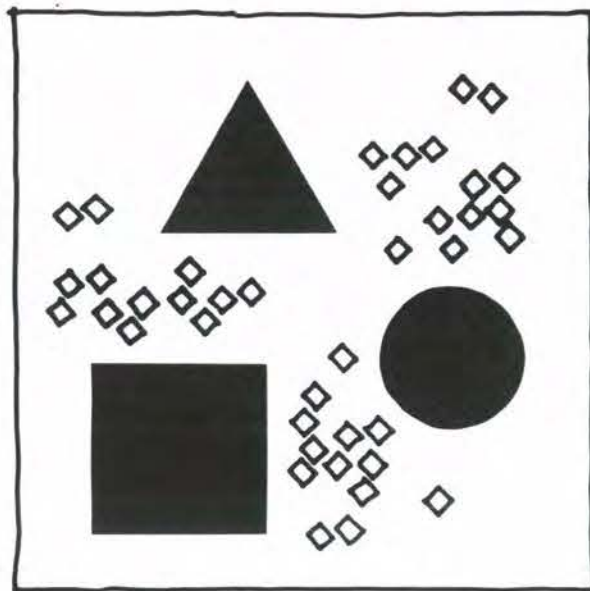
preferences and technologies may vary considerably over time, it seems unwise to commit to a specific building system or material which may be outdated, inefficient, or exorbitantly costly in the future.

The second approach to unifying the site is to let the building format vary and place controls on the site's organization and landscaping. In this way, buildings may take on a character appropriate for the functions they serve. Here, the landscape and setting becomes the unifying factor in the overall design. The site develops interest with a variety of buildings set into a consistent organizational pattern and backdrop. The landscaping may be developed sequentially with the rest of the project, but if carefully designed and implemented in early phases, its effect will gain strength over the years and will provide a mature setting for later construction.

The recommended design philosophy to achieve the concept and image of the Park is primarily to emphasize a unified setting and landscape, and, within certain guidelines, allow the buildings to vary within the site. Within this general design approach is the specific development plan for the Resource Park which is intended to make the Park a place for people of diverse interests and talents to gather and exchange ideas, to recognize achievement, and to enjoy.

The following sections of the Master Plan address the need for a management tool to guide development over time. In developing such a tool, specific development criteria for the site and its facilities are established.

Because the site is divided, physically and functionally, into two rather distinct areas; they are addressed somewhat separately in the Master Plan. The reclamation of the area north



UNIFIED SITE

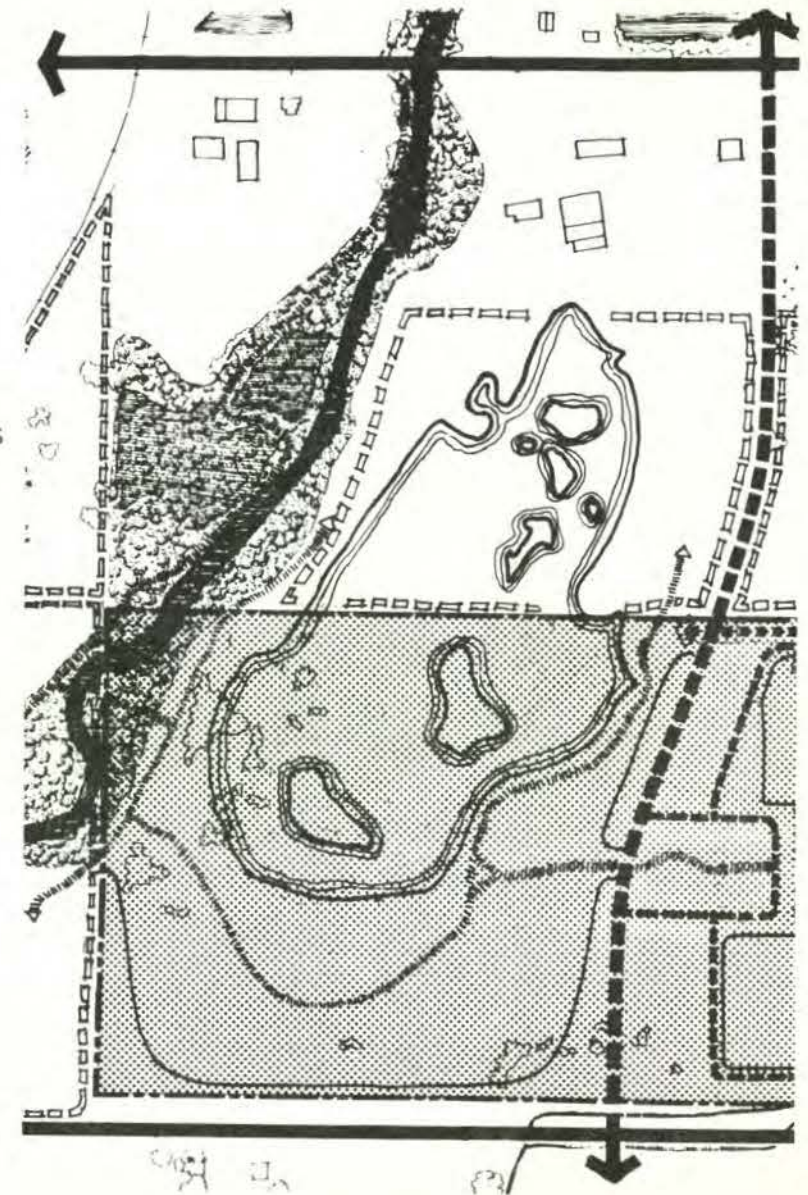
of Boston Road is developed in the following section, followed by the Fixed and Important Design Elements for the area south of Boston Road. Finally, the Development Guide and Parcel Development Criteria summarize and combine the important development criteria for the entire site.

RECLAMATION

BACKGROUND

Integral to the successful development of the Rural Resource Park is the eventual disposition of the gravel excavation area, almost 1/3 of the site. The area south of, and including Boston Road (Parcels 2 and 3, Legal Constraints Map) is projected to be returned to original grade with controlled fill for use as parking and arterial roadway. Several development constraints have been identified which preclude the area north of Boston Road (Parcel 1) from being intensively developed; but its proximity to the major facilities area and the St. Vrain Creek corridor give it the potential to serve both a natural resource and passive recreation function. At the present time the gravel and soil have been removed to bedrock shale. Some revegetation of primarily non-successional weedy characteristics is taking place. The resulting visual qualities are generally negative. Forced drainage adjacent to the site is presently keeping the water table low, but it will eventually be terminated which will inundate much of the area. There is also a substantial flooding hazard to the area from the St. Vrain Creek, as well as the Lykins Gulch drainage basin. Certain contractual agreements may affect the timing and materials available for reclamation.

Since the entire gravel excavation extends to the land east of the site, the eastern property line is not a natural boundary for a reclamation effort. An adequate, comprehensive reclamation plan should include much of the area immediately eastward. A formal study of adjacent lands was beyond the scope of this project and not authorized, therefore, a brief reconnaissance was made to establish a context for site-related planning. In the absence of precise data very general assumptions were made as a basis for this reclamation.



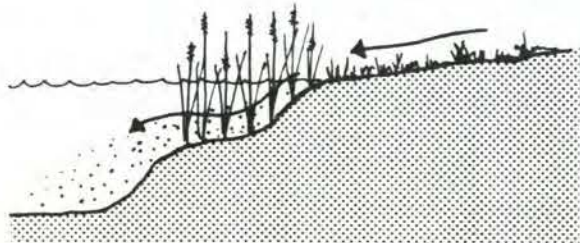
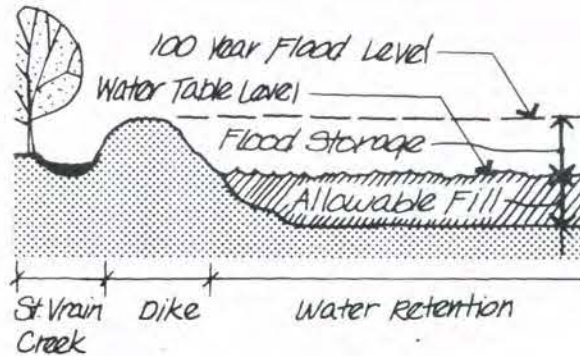
POTENTIAL LAKE
CONFIGURATION

mation plan. These assumptions need verification in the course of a wider planning effort prior to actual design of Parcel 1. It is the intent here only to develop some organizing principals that are compatible with existing conditions and overall development of the Resource Park.

DEVELOPMENT CONCEPTS

FLOOD STORAGE

As drainage pumping ceases, the rising water level in Parcel 1 will require some landfill to provide a usable area for passive recreation, to provide a new base for revegetation, and to reduce the resultant water surface to an area for where evaporation can adequately be offset with available water rights. Complete filling of Parcel 1 is precluded by the floodplain regulations as well as the potential cost to the county. Within Parcel 1, designated as a flood storage area for the St. Vrain, some landfill is possible but only to the extent that the flood storage capacity is not reduced. Floodplain storage capacity is determined by the Corps to be the storage capacity in excess of assumed natural ground water levels at the time of flooding. The majority of Parcel 3 was unexcavated at the time of the Floodplain study; it is, therefore, assumed that it can be returned to original grade without adversely affecting the flood storage capacity. The natural ground water level in Parcel 1 will, presumably, rise to an average uniform depth of four feet or more. An equivalent volume of filling may be undertaken without adversely affecting the flood storage capacity. It, therefore, appears feasible to include both filled land and open water surface within the reclamation plan for Parcel 1.



RUNOFF RETENTION

In addition to 100 year flood storage, a second historical function of Parcel 1 has been to receive and store for delayed release to the St. Vrain Creek over land drainage flows from the site and the Lykin's Gulch drainage basin. The quality of the water released back to the Creek is a second and important justification for providing a lake in Parcel 1. A lake receives runoff and allows impurities to settle out before introducing the water back into the stream. The appropriate area for a lake is best assessed by looking at the potential balance between water rights available for irrigation and lake evaporation in the Water Rights Allocation Ratio. Within the Concept Plan approximately 10 - 15 acres of irrigated landscape are foreseen south of Boston Road which suggests that an appropriate lake size is also 10 to 15 acres. A lake of this size is adequate to handle required site drainage (5 acre feet) with a surcharge of .5 feet. These figures are subject to change as the site is actually designed and water rights transfer agreements are negotiated with Longmont.

ENVIRONMENTS

It should be noted that the objective of the reclamation plan is not to restore or reconstruct an original ecosystem because, by its very nature, the excavated area will be very different from any natural conditions in the County. The intent rather, is to seek an adaptive 'fit' with the existing habitats of the St. Vrain Creek corridor.

Associated with the lake and filled land areas discussed previously, a range of wildlife habitats and ecozones are potentially developable within Parcel 1. The Plains Riparian Ecosystem within



MESIC WOODS/THICKET - In the plains, indigenous trees are usually restricted to waterways. Large cottonwood trees and flowering shrubs form dense thickets along stream banks. Due to the moderate amount of filling expected in Parcel 1, a high water table is expected over much of the area, particularly where ground water reaches the site from the west under Hover Road. Much of the filled land will be able to support these trees as well as a number of introduced species. The resulting pattern is one of densely wooded thickets with trees locating in intermittent drainage ways.

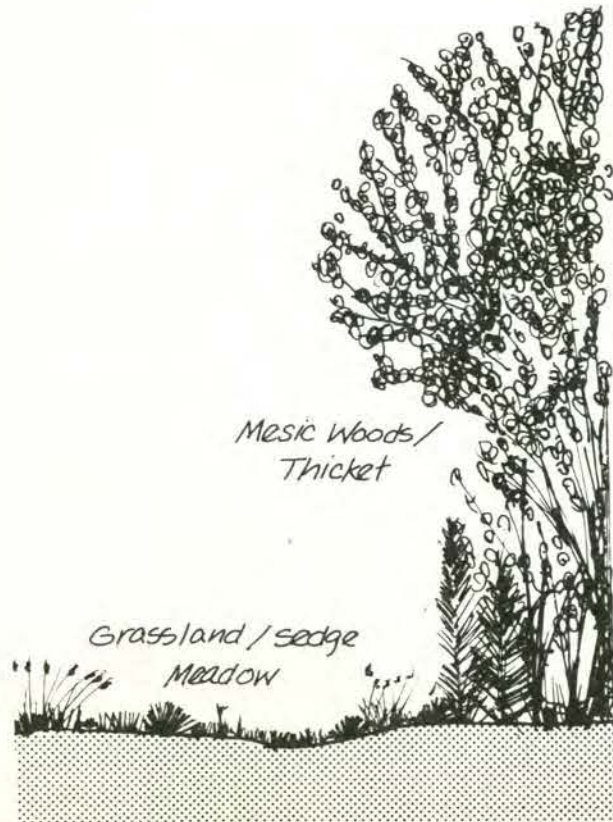
cottonwood	<u>populus angustifolia</u>
juniper	<u>juinperus scopulorum</u>
willow	<u>salix amygdaloides</u>
hackberry	<u>celtis occidentalis</u>
hawthorn	<u>crataegus succulenta</u>
wild plum	<u>prunus americana</u>
russian olive	<u>eleagnus angustifolia</u>
snowberry	<u>symphocarpos</u>
currant	<u>ribes spp</u>
gooseberry	<u>ribes inerme</u>
wild rose	<u>rosa woodsii</u>
big bluestem	<u>andropogon gerardi</u>
blue gramma	<u>bouteloua gracilis</u>

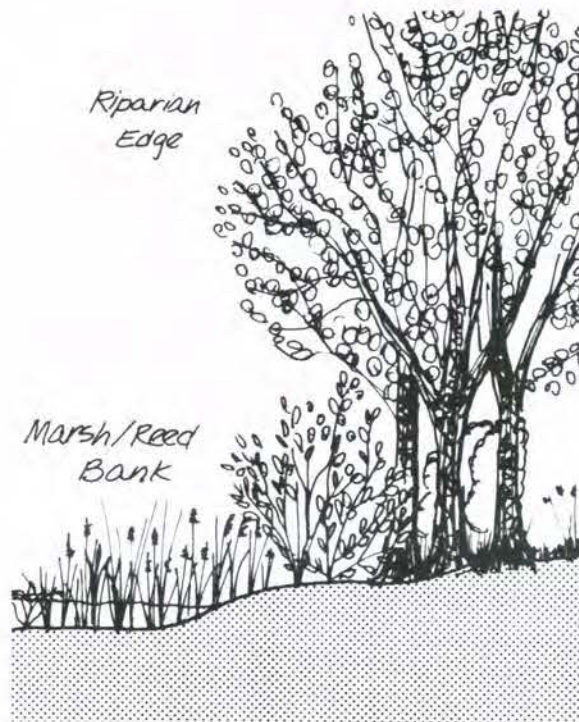
which the site is located contains a number of identifiable sub-systems - upland terrace grasslands, woods, marshes, streams, shallows, and deep pools. These areas provide both forage habitat and essential cover for a variety of waterfowl shorebirds, terrestrial and semi-aquatic mammals, and fish. The richness of this Riparian area is largely due to this diversity of habitats (from wet to dry) over a very small distance. Rather than having specifically defined boundaries, these subsystems or communities form a gradient from one to another, a mosaic pattern determined by minute variations in sun, soil, water, etc.

GRASSLAND/SEDGE MEADOW - Open fields adjacent to the wooded thickets should include a variety of native grasses: short grasses in drier areas, tall grasses lower as ground moisture increases. The tall grasses eventually give way to sedges and cordgrass in very moist areas. The diversity is lower than other riparian types but at least 20 - 25 species occur in these grassland/sedge meadows.

sedges	<u>carex spp.</u>
prairie cordgrass	<u>spartina pectinata</u>
bentgrass	<u>agrostis sp</u>
big bluestem	<u>andropogon gerardi</u>

A number of subsystems potentially developable within the reclamation area are listed below with brief descriptive characteristics and species list:





RIPARIAN EDGE - While not actually a separate subsystem this zone is worth mentioning to stress the importance of a natural shoreline. Typically, a wetland shoreline is composed by elements of grassland, sedge meadow, marsh, and should include wetland trees, tolerant of flooding, to provide shade over the water. Shoreline vegetation filters runoff into the lake, provides cover for wildlife access to water and provides shade for water circulation and fish habitat. Fluctuating water levels may attract wading birds to areas of mud exposed along the shoreline. For wildlife access areas the shore should have less than a 5:1 slope.

peachleaf willow	<u>salix amygdaloides</u>
sandbar willow	<u>salix exigua</u>
shrub willow	<u>salix spp.</u>
cottonwood	<u>populus sargentii</u>
sedges	<u>carex spp.</u>
cordgrass	<u>spartina sp.</u>
bentgrass	<u>agrostis spp.</u>
shrub varieties	

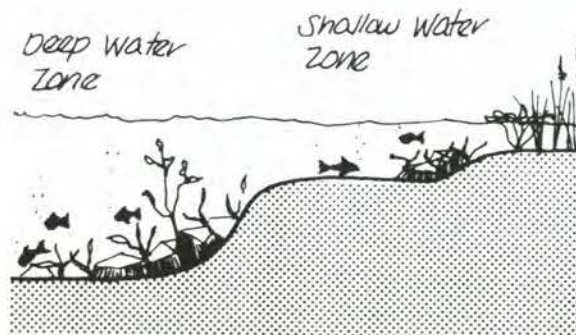
MARSH/REED BANK - Marsh vegetation usually occurs only in shallow waters around existing ponds or lakes. There is little evidence of original marsh in this area, although they are now common in many places where there is standing water. The marsh environment provides nesting, cover and forage for ducks and wading shorebirds and habitat and spawning ground for fish and other aquatics. Reed bank vegetation (bulrushes, etc.) also act as an effective filter for impurities and silt carried in runoff. It should be 0'-3' in depth at a gentle gradient to maximize the growth of littoral vegetation.

cattails	<u>typha latifolia</u>
bulrushes	<u>scirpus paludosus</u>
pondweed	<u>potamogeton</u>

duckweed	<u>lemna spp.</u>
sedges	<u>carex spp.</u>
arrowhead	<u>sagittaria cuneata</u>

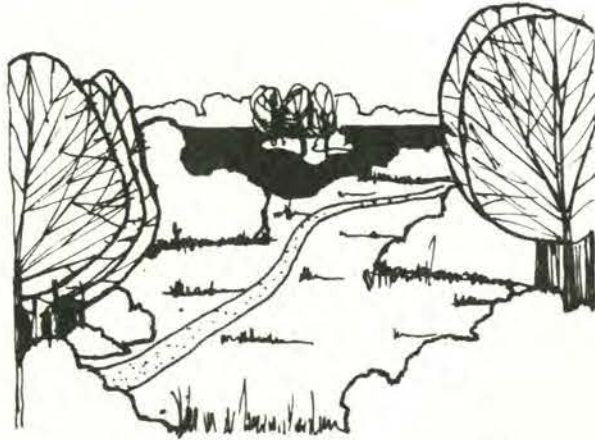
SHALLOW WATER - Fish habitats fall into two general categories: warm water ponds and cold water ponds both of which, by nature, are usually open water surfaces. Fish which will inhabit shallow open water areas include: catfish, bass, and bluegill. Shallow open water surfaces are also important for several species of diving ducks such as canvasbacks, mergansers, etc. The shallow water areas should be 3'-7' deep to minimize the growth of aquatic vegetation and should have a pH range of 6.5 to 9.0. Part of the shallow water system should also include islands where ducks and migratory birds can roost with security. These islands should be large (1/2 acre minimum), at least 2' above the water table, and should have bank slopes of 5:1 minimum for accessibility for water fowl.

DEEP WATER - To provide a habitat for trout, which prefer water temperatures below 70°F, and to prevent winter fish kill a water area of 12'-15' minimum depth is required. Since cold water accumulates at the bottom, outflow structures should skim the warm water off the top of the pond. The sill slopes of the deep area can be steeper, up to 3:1. Some public shoreline access is desirable for fishing. In these areas a shallow water 'shelf' should be provided as a safety precaution. Other considerations include a pH range of 6 to 8, minimum oxygen content of 5 parts per million, and careful control of pollutants and siltation which can lead to alge growth and high turbidity. The presence of the other water environments above should provide an adequate food supply, but monitoring should be carried out to determine if any food supplements are required.



RECREATION

The development of both water and landfill areas make a diversity of passive recreational opportunities possible. Due to the flood storage function, the potential of a seasonably high water table, and vehicular inaccessibility; active recreation facilities are not deemed appropriate - particularly with respect to potential conflicts with wildlife habitats.



Passive activities possible on the filled land areas include: informal field grasses, horse exercise, jogging, picnicing, etc. All of these activities are enhanced by the nearby presence of water. They can be further complemented by the judicious use of trees and shrubs to create attractive settings. The St. Vrain Creek, a designated regional trail, passes through a corner of the site, suggesting a linkage among the site and bicycle/pedestrian and horse trails, the Park facilities and developable areas to the south and west.



Fishing has the highest national participation rate of any water-based sport. In addition to the public demand for fishing, the county has undertaken a senior citizens fishing program, restricting access to only senior citizens on certain lakes on county lands. This program provides both recreational and nutritional benefits for elderly residents. The creation of a lake for runoff retention makes viable, with little additional effort, the development of very popular fishing areas.

VISUAL QUALITY

An essential element of value and appeal in any area is the visual or aesthetic experience. This experience is difficult to define or classify,

but its quality (or lack thereof) is immediately recognizable by almost anyone. The visual quality of a setting is composed of many factors - variety, unity, rhythm, texture, scale, color change, water reflections, animation of wildlife - to name but a few. It is not practical or appropriate to attempt here, to determine all the aesthetic details to be adhered to in the reclamation of Parcel 1. That process is best undertaken during the actual design of the parcel. For master planning purposes, however, it is important to identify three considerations:

VIEWS FROM WITHIN - In keeping with the natural character of the reclaimed environments, it is desirable that adjacent land uses and activities which are incompatible, such as gravel extraction, residential development, highway traffic, etc. be screened from viewers within the site. To obtain maximum advantage from the site, vegetation should frame important views and maintain a sense of enclosure within the site which allows a variety of activities without mutual disruption.

VIEWS FROM OUTSIDE - One of the major advertisements to encourage use of the site will be the views and perceptions from Hover Road. While screening the road from the site, it will be important also to permit several glimpses from the road into the site; glimpses that reveal some of the scenery and diversity within.

CONTROLLED WILDLIFE VIEWING - As the reclamation is completed, a major activity will be the observation of wildlife and fragile natural areas. To encourage these activities and, to at the same time, minimize their potentially disruptive impact; controls may be required. These could include fences, board walks, and blinds as well as more passive controls such as waterways, berms, thorn bushes and grade separations.

It is impossible to divorce the aesthetic value

of an area from the value of its other functions—particularly those of recreational attraction and wildlife habitat. It is, therefore, essential for both the functional and aesthetic quality of the Park, to create a healthy, regenerative environment. Within this mandate there is still a need for thoughtful and creative design of the visual environment to complement natural functions.

RECLAMATION SEQUENCE

The lease agreement with Golden may be a contractual development constraint to delay total reclamation of Parcel 1, possibly until 1985. It is important, however, not to defer all reclamation efforts until that time. Since almost all of the present vegetation will be displaced by either the land filling or the rising water level as pumping is terminated, if no reclamation is undertaken until that time, an opportunity for substantial plant growth in the interim will be lost. It is, therefore, expedient that once the reclamation plan is designed in detail, a coordinated approach be undertaken with Golden Gravel as to the timing, quality, and location of fill placement.

One development objective for the Resource Park is to provide access to the site from Boston Road as early as possible. Construction of only a portion of Boston Road will be initially required to accomplish this objective; the balance of Boston Road may be deferred until complete right-of-way dedication after 1985. The initial development of Boston Road and the widening of Hover Road will require substantial filling in the western portion of Parcel 1.

A second factor in the reclamation sequence is ground water. Since the natural ground water movement is to the northeast, where it is removed by

pumping, the northeast corner is a natural location for the lake. Pursuant to final design of the lake area, development could proceed from west to east, gradually defining the lake boundaries without interfering with the pumping and gravel operation.

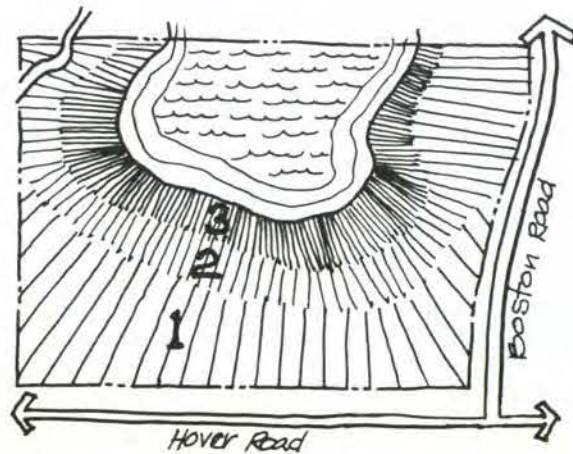
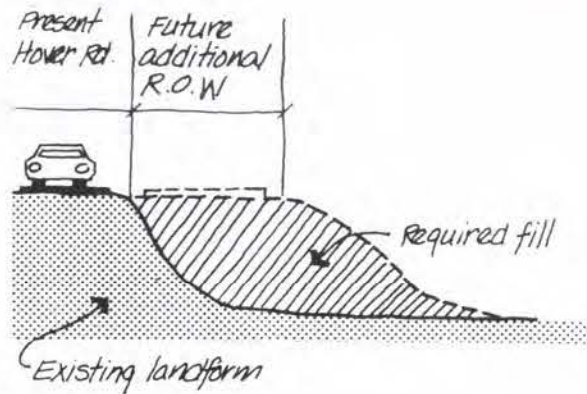
A third consideration is vegetative succession. Most plant communities in nature are in a state of constant change. They are continually modifying their own environments, replacing one another in a directional way, evolving toward the stable condition represented by climax communities. The process of succession is one of the strongest in nature, it happens inexorably unless resisted by management methods such as plowing, weeding, etc.

Notwithstanding its inevitability, succession takes a very long time with severe disruption. One objective of the reclamation effort is to shorten that time, aiding the natural processes by forming the land and establishing plant material which, with some interim maintenance, will eventually develop stability and sustain themselves.

ILLUSTRATIVE RECLAMATION PLAN

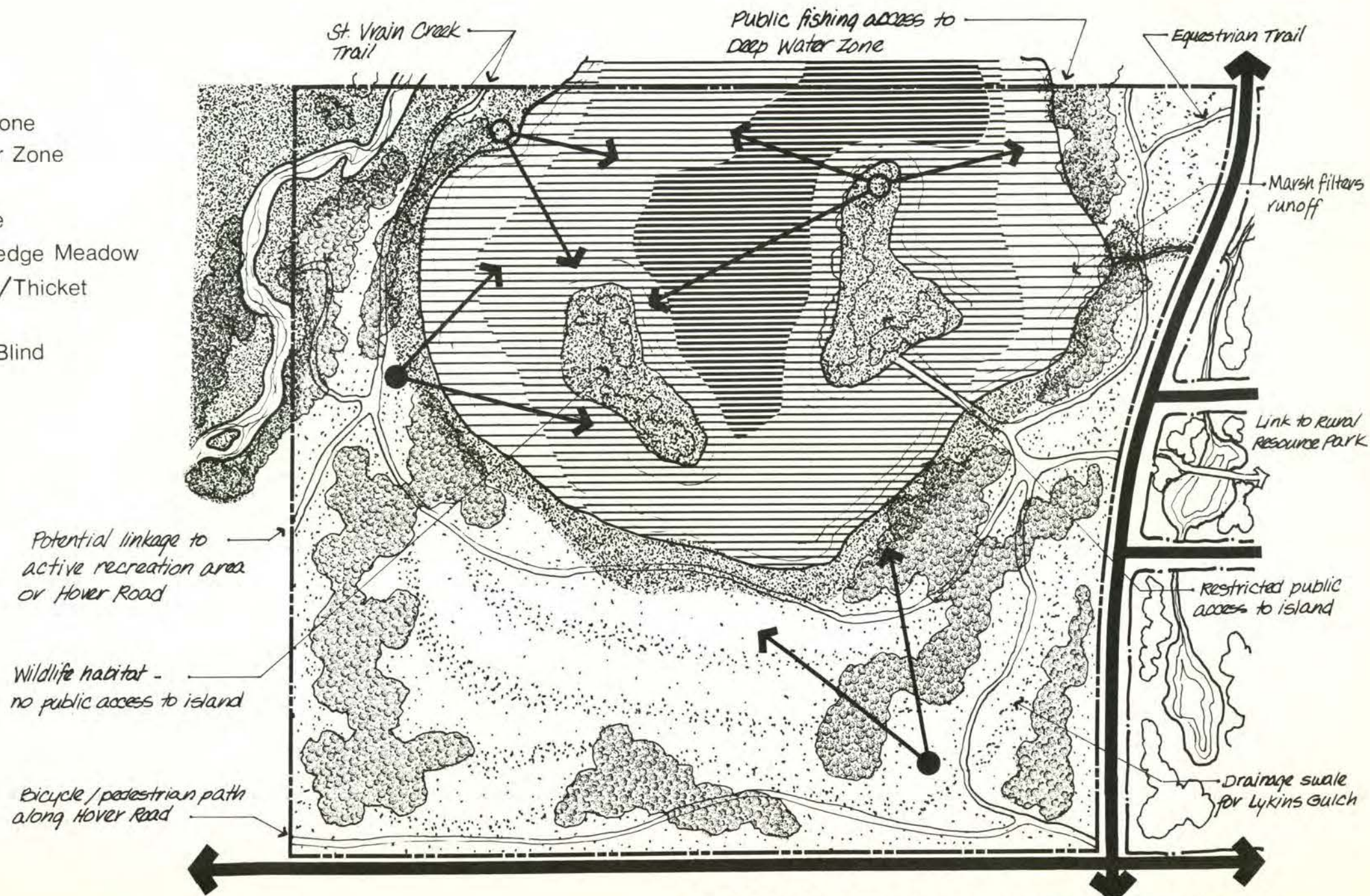
The reclamation program above has been adapted to the site for illustrative purposes in the accompanying plan. While it is not a detailed design, it is based on careful study of existing conditions—which are exploited as much as possible in the lake configuration and depths and general landforms. As such, it does illustrate some of the potential of the area for reclaimed environments.

One of the demonstration aspects of the Park then will be to provide a needed focus for professional academic, and other inputs over time to develop practical techniques for reclamation. An additional benefit will be to develop and demonstrate standards for reclamation for application in the County.



LEGEND

-  Deep Water Zone
-  Shallow Water Zone
-  Marsh Zone
-  Riparian Edge
-  Grassland/Sedge Meadow
-  Mesic Woods/Thicket
-  Overlook
-  Observation Blind



RECLAMATION ENVIRONMENTS

DEVELOPMENT GUIDELINES

DEVELOPMENT OVER TIME

As planning studies for the site have progressed, the scope and character of the Rural Resource Park have become broader and more encompassing. Development of the Park is now seen as being accomplished under the auspices of the County over a long range period of up to ten years. The successful development of any plan over such a period of years will be dependent upon how well it can respond to changes that will become necessary as time passes. Persons involved with development of the Park will come and go; methods of building and development may change due to technological advances, material shortages, etc.; presently identified needs may become intensified or obsolete. Since this long-range Master Plan for the Boulder County Rural Resource Park is to guide development of the site to successful completion, it must develop a mechanism for controlling development over time, rather than a specific building plan. These development controls can insure that the spirit and intent of the whole Park is not lost during the detailed design of one facility.

Because Boulder County is a large and stable organization, is able to exercise long-term control and direction, and owns the whole site outright - it possesses the necessary characteristics to successfully undertake long-term site development planning for the Rural Resource Park.

The Master Plan establishes controls for continuity and the prevention of duplication in the development of the Resource Park. These controls are of four types and are discussed in the following sections of this report. They are briefly summarized below:

1) Fixed Elements - Elements that are fixed in

both their location and their design requirements. These include roads, pedestrian-ways, utility corridors, and irrigation ditches. It is important to note that these elements represent front-end cost items that must be installed at the outset of development of the Park.

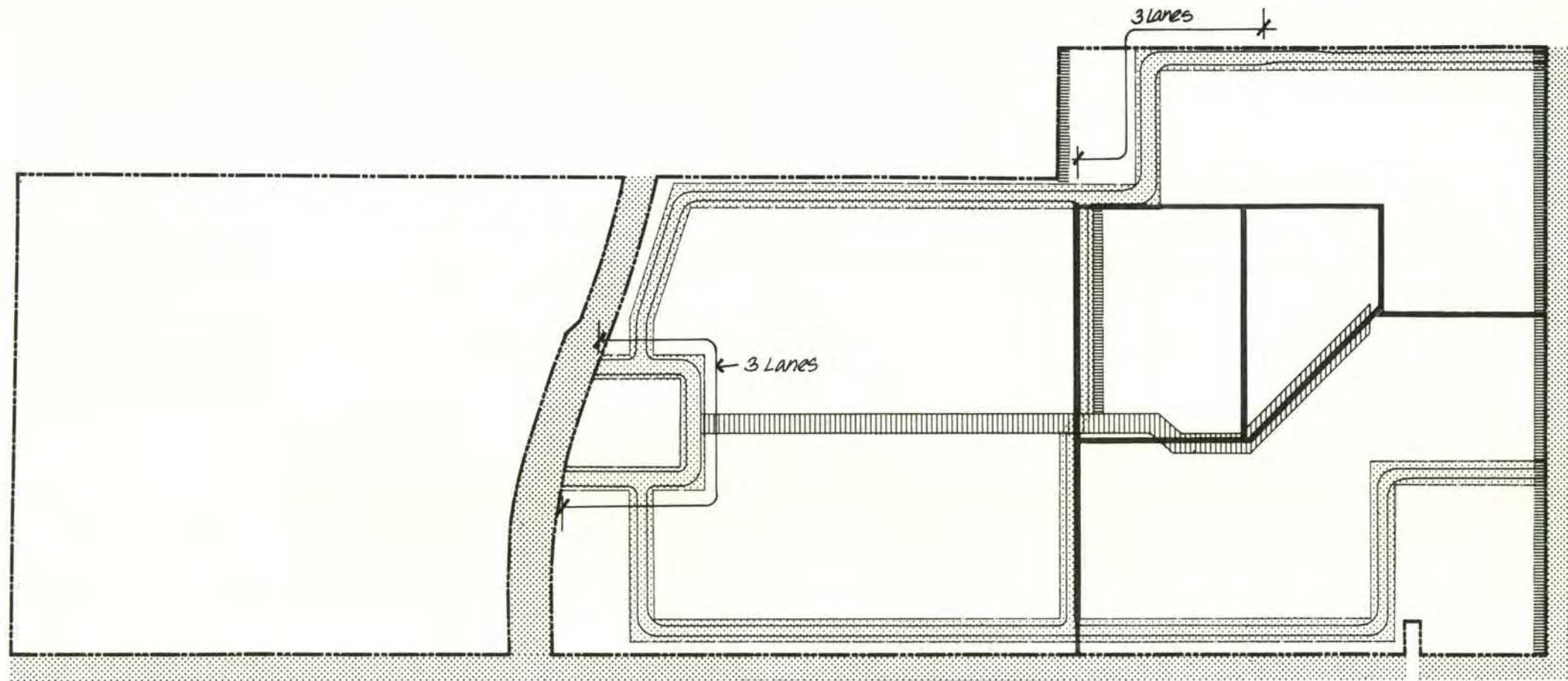
- 2) Other Important Design Elements - Elements that are fixed in their design requirements but occur repetitively in several locations on the site. These include such things as fire hydrants, power transformers, lighting levels, boundary conditions, architectural systems, etc.
- 3) Development Guide - Establishes through a parcel designation the relative location of various facilities on the site and the edge conditions that exist between them.
- 4) Parcel Development Criteria - Sets forth performance criteria that can act as guidelines for the development of each parcel in harmony with the overall site.

FIXED ELEMENTS

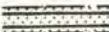



The fixed elements are represented by various networks; i.e., roadways, pedestrian-ways, utility corridors and irrigation ditch easements. These elements should be established at the outset of development in the Park, as they represent a fixed framework within which various development parcels are designated.

ROADWAYS AND INTERSECTIONS

The circulation analysis established the need for Boston Avenue to cross the site, as well as the need to expand Hover and Nelson Roads.



LEGEND

-  Road Right of Way
-  Pedestrian Right of Way
-  Ditch Easement
-  Utilities Easement



0 50 100 200 300 FEET

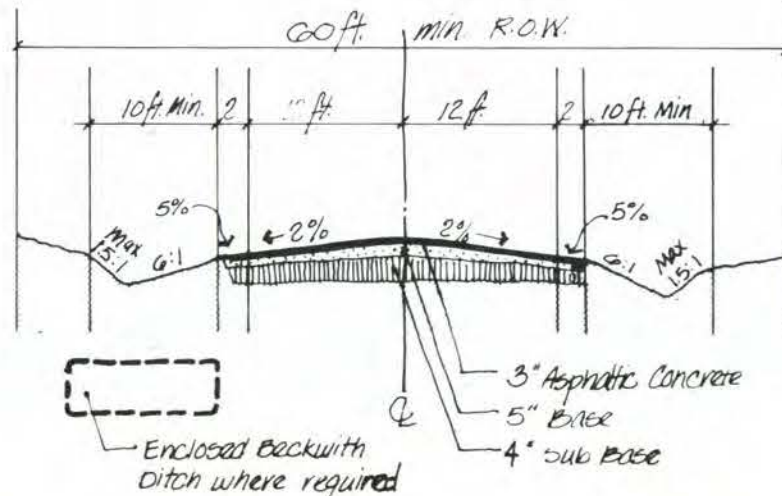


FIXED ELEMENTS

A right-of-way for Boston Avenue is provided across the site. This right-of-way must align with Rogers Road where that road intersects Hover Road. Boston Avenue will function as a minor arterial in the Longmont street system. As such, the minimum right-of-way is 80'. Consideration should be given to increasing the minimum right-of-way as necessary between Hover Road and the site entrance to accommodate expanded pavement widths for site-related egress traffic. Roadway sections for Boston Avenue should be designed to meet City of Longmont standards.

Future traffic levels anticipated on both Hover and Nelson Roads indicate a future expansion to four-lane status. The designated right-of-way for a four-lane major arterial is 120'. All of the additional right-of-way needed (60 feet) has been provided from the site adjacent to Hover and Nelson Roads. This

Typical Road Section

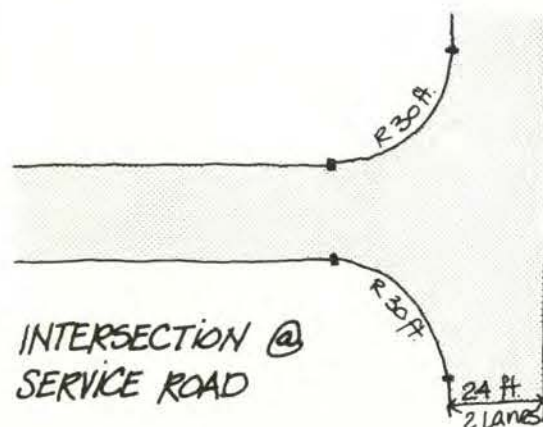
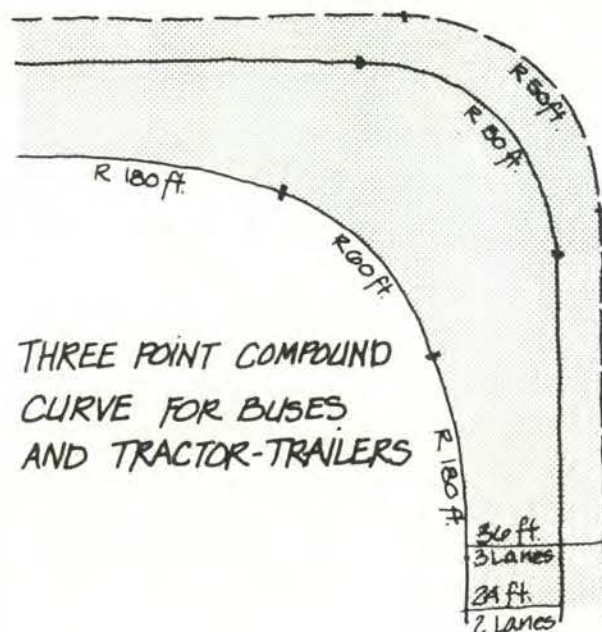


would offset the need for condemnation of additional future right-of-way on lands opposite the site and would facilitate utilizing the existing Hover and Nelson road beds for two-lanes of the four-lane facilities.

Internal roads serving specific site facilities are accommodated in a 60' right-of-way. Keeping the internal roads on the perimeter of the site will provide access for service and emergency vehicles during a major event. Parking will be prohibited on this road and access can be provided to any facility without conflicting with pedestrian movement. These internal roadways should be built to meet Boulder County roadway standards. Typical road sections are shown below. Because of anticipated heavy truck usage of the roadways, road sections are proposed to be 3" asphaltic concrete on 5" gravel base and 8" sub-base. Where Beckwith Ditch is enclosed within the right-of-way, engineering design and ditch company approval are required.

Typical lane widths are 12 feet. Internal roadways should all be a minimum of two lanes wide. This will provide two lanes in one direction for maximum event egress or one lane in each direction for normal everyday use. The roadways leading to the drop-off area at the main entrance will require three lanes since counterflow operation will be required at all times. Three lanes should also be provided on the internal roadway between both entry points to the livestock facilities. Provision of three lanes will allow exhibitors and participants to have counterflow capability, provide better emergency access, and provide for vehicles pulling trailers to negotiate 90° turns side by side in opposite directions.

Weaving distances need only be minimal. At



anticipated egress speeds, a distance of 100' is adequate. This means that 100' minimum should exist for weaving between entry to the site and entry to a parking lot. On the north end of the site, where bus traffic is expected to use the drop-off, a 200' setback should be provided.

Both two-lane and three-lane roadways occur on the site. It is necessary that all turns on the perimeter roadway accommodate buses (40' wheelbase) and/or tractor-trailers (50' wheelbase.) Minimum AASHO design standards for a WB-50 vehicle will accommodate both types and should be used for all turns on the perimeter roadway. A typical three-point compound curve is shown in the accompanying diagram.

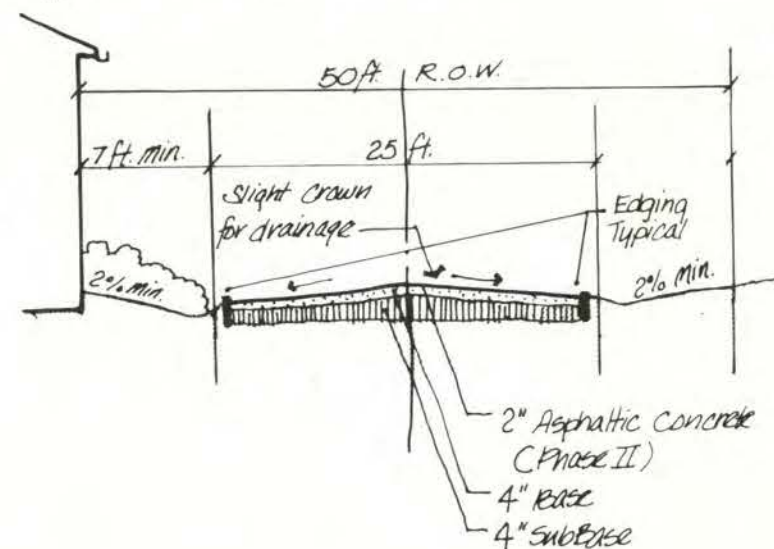
The service road that bisects the site in an east-west direction is not intended to accommodate buses or tractor-trailers, and need not be designed to the foregoing standards at points where it intersects the perimeter roadway. A 30' internal radius will accommodate all vehicles that will use this roadway. (See accompanying diagram.)

PEDESTRIAN STREET

The major north-south walkway through the center of the complex is a pedestrian street that connects the parking and entry gates with all the buildings and public spaces. Its alignment varies; both to correspond to the utility core (for access), and to provide a varied series of perspective views as one moves through the site. The pedestrian street is the place to walk between activities, meet people or just watch; it can be festive or quiet, and should be enjoyable when filled with thousands of people or just a few. It is the heart and unifier of the Park.

The pedestrian street should accommodate light service vehicles, as well as pedestrians. In early phases, to accommodate repairs due to new construction and equipment damage, the surface should be gravel fines. Eventually, it may be paved with 2" of porous asphalt on a 4" gravel base and 8" subbase (due to soil shrink/swell). The walkway should be a minimum of 25' wide and slightly crowned in the center for drainage. An edge should be made to help define the street and prevent unraveling. Runoff should be channeled along both edges of the walk in shallow grass swales and retained where possible for recharge into the ground.

Typical Pedestrian Way Section



The pedestrian street should be held a minimum of 7' away from building edges to allow for drainage away from the building and to provide a landscaped transition area to avoid a sense of crowding.

A slight rise in grade and berms should be used in the planting strip where possible to help define the walkway and drainage swales, reduce the scale of the buildings and add interest and informal planting along the way. Streetscape planting should include major canopy trees, understory ornamental trees and shrubs and ground covers. Major canopy trees (such as native cottonwoods) will provide shade and structure to the walkway, as well as the major overstory background of the farmstead image desired for the Park complex. The smaller ornamental trees and shrubs will add color, variety, and a personal scale to the walkway experience. Ground covers are necessary for erosion control, moisture retention, and visual continuity. To obtain maximum future benefit, at least the major trees should be planted in the earliest phases of development.

For further design considerations refer to: Important Design Elements.

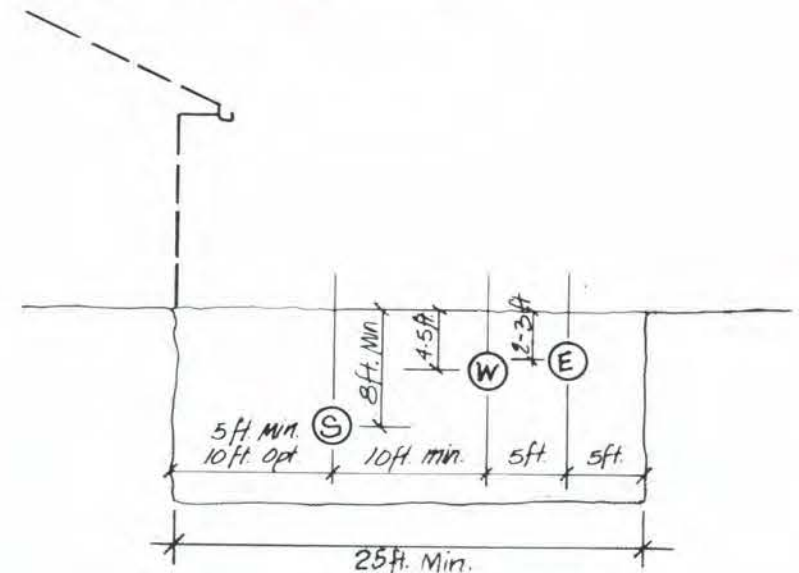
UTILITIES EASEMENT

A utilities corridor is provided that is capable of providing a full range of necessary services to all facilities on the site. A typical utilities easement is shown below. Provision is made within the easement for sewer collection lines, water main (domestic and fire), and primary electric service (including telephone cable).

Sewer collection lines have not been engineered to determine size. Rate of fall is a function of pipe diameter and, as such, is also unknown. However, using .4% rate of fall as a rule of thumb (8" diameter line), it appears that all facilities can easily be sewered. Connection to the City of Longmont sewer main in Nelson Road will probably

require a drop manhole at the main line in Nelson Road and is expected to be a great deal deeper than collection lines on the site. A 10' lateral distance must be maintained between sewer and water lines. Adequate clear space should be allowed on both sides of the sewer line to permit repair efforts without interrupting any other utility services. Minimum depth of sewer lines should be 8' rather than 6'. While this requires a slightly higher trenching cost, this depth allows sewer laterals to the buildings to pass under the water main - thereby avoiding the cost and inconvenience of collared concrete crossings. Where sewer collection lines cross irrigation ditches they should be carried 1 to 2 feet below the ditch.

Typical Utilities Easement



Water mains have not been engineered, however, they are expected to be 8" minimum diameter to provide for fire flow. Water service on the site should

involve separate meters for the facilities rather than a single meter. While slightly higher installation costs may occur, a single meter may indeed be more costly as tap fees are based on the size of the water tap. Individual water meters offer a great deal more flexibility and efficiency. Fire protection would be facilitated as the system could function as a loop. Loop operation with a single meter would be difficult to achieve. Water losses associated with fire, leakage and blow-off of stub lines and hydrants would register on the meter and be subject to charge in a single meter design. Separate meter design for the water mains should be developed to standards established by the City of Longmont and meet with their approval. Water lines must be laid below frost line, usually 4 - 5' deep. Adequate clear space should be allowed on both sides of water mains to permit repair efforts without interrupting other utility services. Cut-off valves should be located in such a manner to permit isolation of various facilities for repair. Maximum distance between cut-off valves should not exceed 1,000 feet.

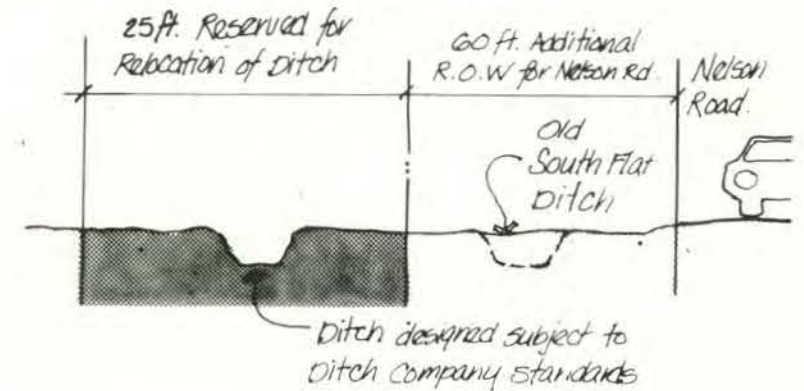
Primary electrical service is brought in on high-voltage lines and then is stepped down at transformers to enter secondary low-voltage lines going to points of use. Secondary runs should be kept as short as possible to reduce power loss. Transformers are planned at each facility and should be placed close to the center of the load.

IRRIGATION DITCHES

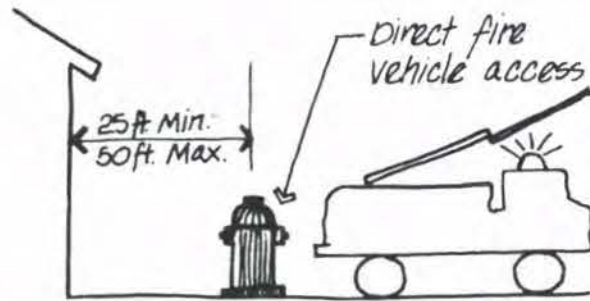
Several irrigation ditches cross the property, and their needs must be accommodated in the Master Plan. Corridors are, therefore, provided across the site for the Beckwith and South Flat Ditches. The South Flat Ditch is

presently located along Nelson Road. Expanded right-of-way for the Nelson Road expansion will include the South Flat Ditch, necessitating its removal. A new 25' right-of-way for the ditch has been reserved along the southern edge of the site. This right-of-way is shown in the accompanying illustration.

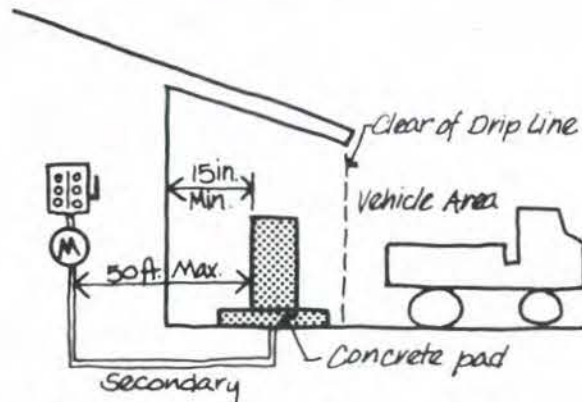
South Flat Ditch Easement



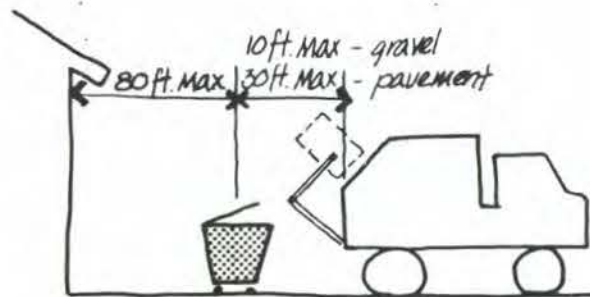
Beckwith Ditch has been accommodated across the middle of the site, and picks up its existing right-of-way at the extreme eastern edge of the site. The western half of the ditch is partially covered within the service road right-of-way (See illustration under ACCESS ROADS); and the eastern half is open and adjacent to the service road right-of-way. The open ditch should be fenced as a safety measure. A typical illustration of the uncovered portion of Beckwith Ditch is shown below.



FIRE HYDRANT LOCATION

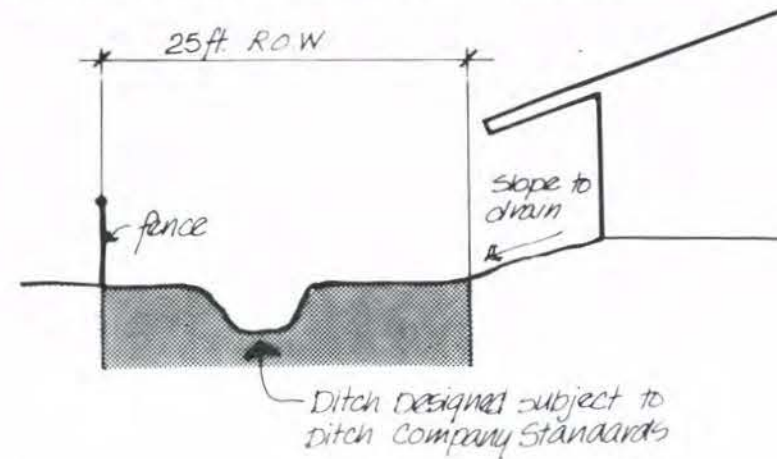


TRANSFORMER LOCATION



REFUSE COLLECTION

Uncovered Beckwith Ditch Easement



IMPORTANT DESIGN ELEMENTS

In addition to the fixed elements described above, there are a number of other design elements which occur repetitively in various areas (Development Parcels). These elements are identified and discussed here for several reasons: to avoid excessive repetition in the Development Criteria for each parcel, to identify and discuss in detail those aspects of elements which are important to achieving the goals and concept of the plan, and to identify and emphasize interrelationships.

Several of the elements are purely functional concerns such as fire hydrant spacing and turning radii in service areas; others are related to more aesthetic concerns, such as the character of the major focal points and the nature of site furnishings. Many of the discussions include, to some degree, both levels

of concern. The elements discussed are:

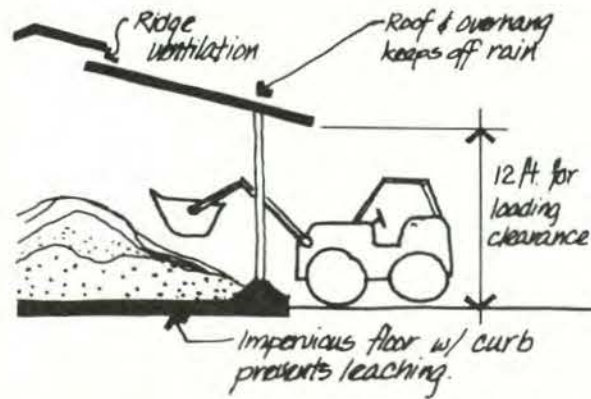
BUILDING SERVICES	SITE FURNISHINGS
SURFACES	FOCAL POINTS
DRAINAGE	ARCHITECTURAL SYSTEMS
LIGHTING	ENERGY
BOUNDARIES	

BUILDING SERVICES

A number of functional services need to be provided to various built facilities on the site. Building services include utility accessories such as fire hydrants and transformers; and vehicular services such as emergency vehicle maneuvering, loading/unloading areas, refuse collection areas, and manure storage and collection.

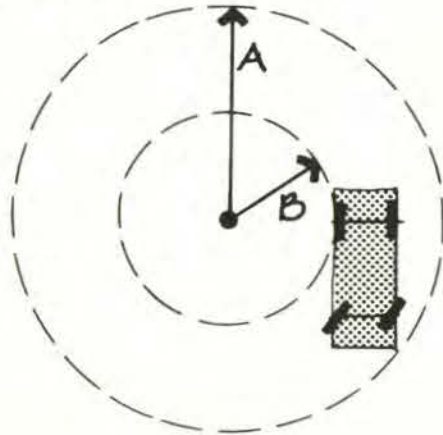
FIRE HYDRANTS should be carefully located to maximize fire protection on the site. At a minimum, all areas within built facilities should be accessible from at least one fire hydrant. Optimum fire hydrant spacing is 300' and should not exceed 500'. Hydrants must be directly accessible to fire trucks. They should be located a minimum of 25' from structures and a maximum of 50'.

PRIMARY STEP DOWN TRANSFORMERS should be located as central to the electrical load as possible. The maximum length of secondary service from the transformer to the meter and panel distribution box should not exceed 50'. Transformers may be placed within 15' of buildings but should be clear of roof drip lines. They require access by service vehicles and are mounted on a concrete pad. Transformers should not be located in or near public pedestrianways.



MANURE COLLECTION & STORAGE

APPROXIMATE MANEUVERING REQUIREMENTS



	<u>A</u>	<u>B</u>
Auto	27'	17'
Ambulance	30'	19'
Fire Truck	48'	33'

REFUSE COLLECTION AREAS for noncombustible wastes occur throughout the site. Collection stations must be visually screened and well drained. Location should be within 80' of the facility being served, to limit carrying distances from within the facilities. Of more importance, however, is the need to locate collection stations directly accessible to refuse trucks. Dumpsters can be moved up to 30' across level, paved areas by collection personnel but can be moved little or no distance across gravel or grassed surfaces.

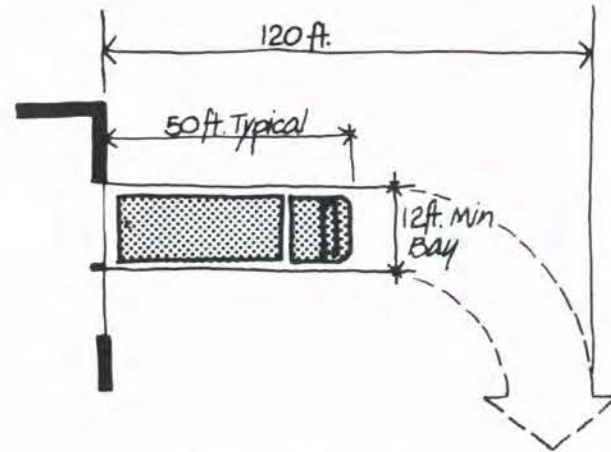
MANURE STORAGE AND COLLECTION requires at least one and perhaps several locations to store animal wastes generated on the site. Such an area provides central storage of wastes for collection and reuse as fertilizer, methane generation demonstrations, etc. The manure storage area should be readily accessible to service trucks and should be located as central to animal waste generation areas as possible. Complete separation from public areas is an obvious requirement. Well-protected and carefully preserved manure is higher in available plant nutrients, and storage facilities should be built to maintain nutrient levels. The facility must have an impervious floor surface with curbing to prevent leaching. This flooring surface must be capable of accommodating a front-end loader or small truck. A roof and overhangs are required to prevent dilution from rainwater. Clear heights to accommodate loading vehicles should be maintained. Roof ventilation should be provided, and walls are also desirable.

EMERGENCY VEHICLE MANEUVERING accommodation must be made throughout the site for the maneuvering of emergency vehicles (police, ambulances, and fire trucks.) Maneuvering requirements for these vehicles are as shown. Figures represent maximum estimated maneuvering requirements.

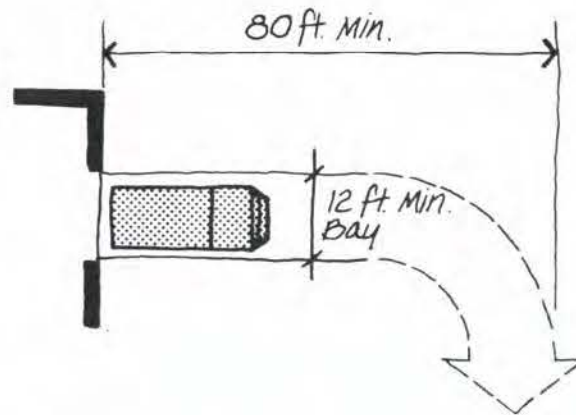
LOADING/UNLOADING AREAS for animals and equipment will be required for various built facilities on the site. Loading/unloading space includes both parking and maneuvering space for service trucks. Minimum width of a loading/unloading bay should not be less than 12'. Minimum depth required for the loading/unloading function is dependent upon the size of trucks to be accommodated. Single unit trucks up to 35' in length require an 85' minimum depth for loading and unloading. Tractor-trailer combinations up to 55' in length require approximately 120' depth. In cases where additional truck traffic and/or other traffic is not regularly expected to occur, it is possible to utilize the access roadway as part of the loading/unloading area; however, this approach is not acceptable if the potential for a blocked roadway, interrupted traffic, or compromised safety conditions exist. In areas where large livestock is loaded and unloaded, portable unloading ramps should be provided.

SURFACES

PARKING - Since parking surfaces represent almost 50% of the land area south of Boston Road, their construction will have a major impact on the appearance and function of the Resource Park. Functionally, there is a wide variation in intensity and frequency of use of the parking areas on the site. The Resource Center lot will be used several times a day while the large entry parking areas south of Boston will be used fully only 10 days a year and partially from 20 to 35 times a year. These variations suggest that several surfaces might be appropriate to reflect different use character.



TRUCK LOADING/UNLOADING
(TRACTOR TRAILER COMBINATION)



TRUCK LOADING/UNLOADING
(SINGLE UNIT TRUCK)

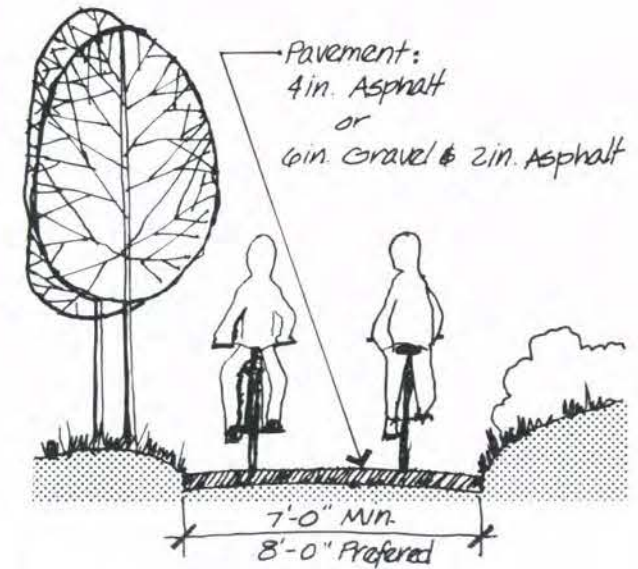
A second functional consideration is moisture retention and maintenance. In order to retain moisture on the site for recharge and to reduce or delay runoff, hard surfaces should be avoided in favor of porous ones. With the shrink/swell potential of the soil and the small counteractive pressure from low use, flexible paving surfaces are much preferred over more rigid ones. Non-binding surfaces are more maintenance-free, particularly in areas of substantial landfill.

A third consideration in the construction of the parking is the implementation of the spirit of the development image - the prairie farmstead - which suggests that the parking surfaces be as natural in appearance as possible.

ROADS - The internal service road will also be subject to use levels which will vary throughout the development of the site. To meet the variety of use levels for each road, minimum county road standards are used.

WALKS - The major pedestrian street should have a flexible, flowing quality and yet be substantial enough to support service vehicles. It will also be subject to damage, excavation, and repair as the complex is developed. For these reasons, early surfacing should be non-binding on a solid gravel base. Near completion of development, a binding coarse may be added to increase wearability, inhibit dust, and improve appearance.

The pedestrian/bicycle paths can be either gravel fines or asphalt. Initial costs of gravel are less than asphalt, but maintenance cost and wear on bicycle parts are higher with gravel. Installation efficiency of asphalt is best with an 8' width.



FREQUENCY	TYPE	TRAFFIC	SURFACE	BASE & SUBBASE	NOTES
I High	Parking	Car/Bus	2-3" Asphalt(porous)	8-10" gravel on well-compacted soil	Open graded mix makes pavement porous.
	Roads	Car/Truck	3" Asphalt(porous)	13" gravel on compacted soil	Minimum county road standards to be observed.
II Medium	Parking	Car/Truck	2" Gravel fine open-graded	8" gravel	Maintain porosity of gravel surface.
III Low	Parking	Car	Native Grass	Top soil or silt, grade and fill with peat moss. Controlled coarse landfill sub-base.	Buffalo grass & native blue grama. Water 6 weeks to start.
	Walks	Ped/Light Truck	2" Asphalt(porous) or 2" gravel fines	8-10" gravel	Use gravel early phase for repair ability. Complete with asphalt.
	Paths	Ped/Bicycle	2" Asphalt or 4" Asphalt(no base) or Gravel fines(no base)	6" gravel base	Long-term cost best on asphalt. 8'

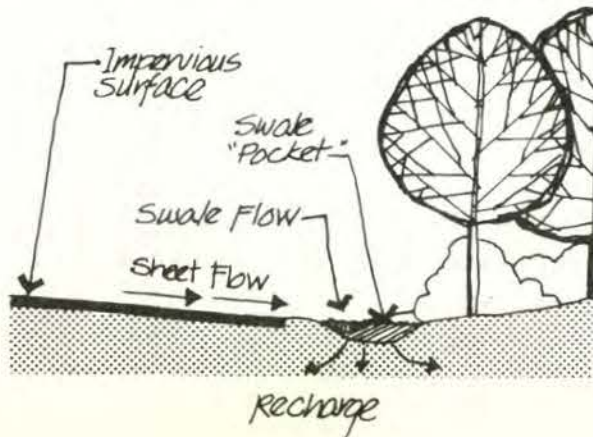
SURFACE TYPES

DRAINAGE AND WATER AUGMENTATION

The extreme flatness of the sight requires that site drainage be graded at a very gentle gradient (.5%) and to very close tolerances. Channeling the water into flat surface swales with native grass surfaces will result in slower runoff. This becomes an advantage, however, for maximizing moisture retention on the site. During low volume rainfalls, water will be percolated into the ground in the swales. High volume rainfall will gradually develop enough head to overcome surface friction and flow as needed to avoid flooding. To assure positive drainage around buildings, pad elevations should be at least 1'-2' above existing grade. Preliminary spot elevations are given in the Parcel Development Criteria as a guide to overall drainage planning.

Since development of the lake will not be completed at the beginning of the project, an interim drainage system is desirable. Preliminary investigations show that the Beckwith Ditch may be suitable to carry off runoff in early phases of development. Detailed design studies and approvals will be required, however. The quality of runoff from the site as planned is expected to be more than adequate to meet desirable standards.

Controlling surface drainage for moisture retention is an important demonstration for a semi-arid climate such as this is. In addition to water retention in swales, porous surfaces should be used wherever possible throughout the site, particularly on typically large runoff areas such as parking lots and roads. Porous surfaces might include native grasses (tolerant of occasional compaction), gravel and porous asphalt. To increase porosity, gravel by itself or in asphalt should be of the open-graded type; i.e. of fairly uniform size without using fines to fill in pore spaces.



Even when an asphalt binder is added it retains a degree of porosity.

An additional moisture retention method to be used where relatively impervious materials are required, is to avoid curbs and direct street flow to swale pockets in vegetated borders for percolation and use by plants.

An additional water-related design element is the requirement to compensate the irrigation system for water lost from evaporation as a result of the creation of large permanent open-water areas, such as the lakes considered in the Nature Park. The specific quantities of water required have been developed in the Hydrology discussion in Section III.

There are several acceptable strategies available for offsetting this water loss. Since the water is basically lost to downstream users on the St. Vrain, one approach is to leave the water in the Creek and not divert it at all into the South Flat. This approach presents some delicate problems in adjudicating the precise balance of water to be left in the ditch so as not to adversely affect downstream users on the ditch. However, since most of the downstream South Flat water is owned by the City of Longmont, it does seem that an agreement could be reached amicably.

A second strategy is to recharge the lakes directly with a lateral from the South Flat ditch. Due to the extreme flatness of the site, and the need to traverse its entire length, the problems with this approach are largely of a technical engineering nature. Not only will grading be critical but there may also be some tricky design problems in crossing the Beckwith ditch. It may be possible to reach an agreement allowing water to be introduced into the Beckwith at one point and withdrawn at another, resolving several problems.

A third alternative is to trade water rights or transfer them to another ditch which can more easily augment the lake. Somewhat legally involved, it nevertheless makes direct augmentation possible.

Since all of these alternatives are problematical to some degree, it is recommended that the County explore the latter two in preference over the first. As a demonstration of reclamation techniques, the visible direct augmentation of the lake water will be a much more effective educational tool to convey principles, County standards and practical implications.

LIGHTING

Outdoor lighting should be designed to meet certain criteria of visibility, security and aesthetic quality. Usually these criteria can be achieved by adherence to accepted national standards (Illuminating Engineers Society.) For some of the activity areas in the Resource Park, standards have been developed; for others, comparisons can be made to area types with similar characteristics for which standards do exist. There are several areas, however, with no comparables for which judgements must be made. The parking fields, F1, F2, and F3, will be heavily used during the fair but very infrequently during the rest of the year. If no lighting is provided, car headlights could probably satisfy the visibility requirement, but security (protection and deterrent aspects) will be largely absent. On the other hand, full lighting to shopping center standards is prohibitively expensive for such low-frequency use. Compromise lighting levels have been developed to reconcile these issues - reducing hardware costs while providing an acceptable security lighting level. For the parking fields, a .25 footcandle level was de-

AREAS	INTENSITY (foot candles)
Parking	
a. low use (grass)	0.25
b. mod. use (gravel)	1.0
c. high use (asphalt)	2.0
d. camper parking	0.25
Loading	
a. low/intermittent use	5.0
b. active loading yard	10.0
c. platform	20.0
Roads and Intersections	
a. service vehicle roads	.6-1.0
b. public access roads	1.0
c. intersections	3.0
Pedestrian "Street"	3.0
Buildings	
a. security surrounding	1.0
b. low use entrance	1.0
c. main entrance	5.0
Events (Outdoor)	
a. outdoor exhibit	10.0
b. rodeo	50.0
c. other	portable as needed
Park	
a. general lighting	0.5
b. pathway	1.0
c. focal points	10.0
d. background	2.0
Entrances and Gates	
a. with light surroundings	20-25
b. with dark surroundings	10.0

SUGGESTED LIGHTING LEVELS

terminated appropriate (for comparison - a full moon = .01 footcandles.)

The aesthetic character of lighting is determined by its height, fixture and color. It is suggested here that the color of various light sources (incandescent, fluorescent, sodium, mercury, etc.) be exploited to reinforce design concepts within the Resource Park.

Listed below are suggested lighting levels for the Resource Park. They are suggestions only and should be reviewed and studied further before acceptance in a final design.

BOUNDARIES

In order for the use areas or parcels to function adequately, there are a number of edge conditions that must be created between parcels and within the parcels themselves. These edge conditions or boundaries are identified on The Development Guide in a later section of the report. As identified, they can serve a number of purposes and can be made in a variety of ways. For discussion purposes, they are generally divisible into three functional categories: traffic control, visual control, and environmental control.

TRAFFIC CONTROL

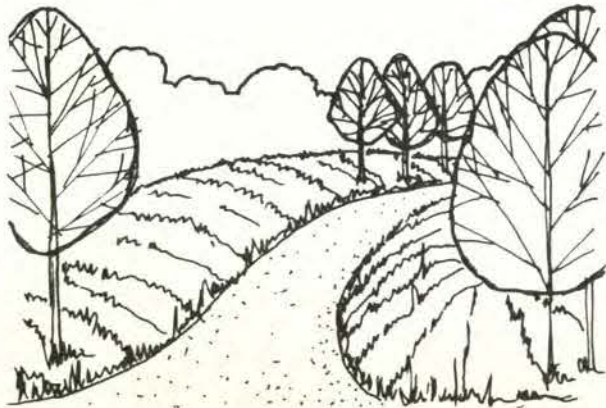
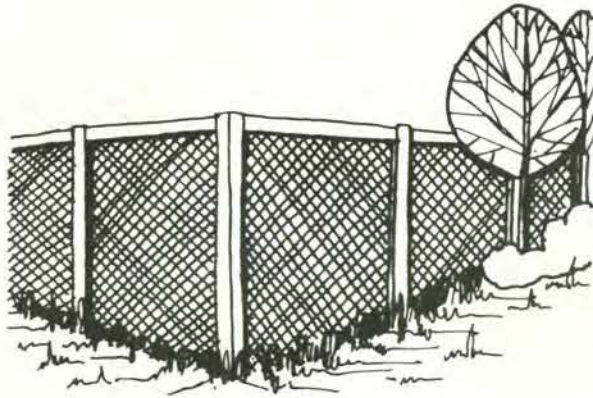
Security and maintenance considerations, as well as the desire for maximum multiple use, make it necessary to allow (and encourage) certain modes of access and use in some areas of the Park while selectively restricting access in other areas. Generally, three kinds of traffic are regulated:

PEOPLE - The majority of the unbuilt areas should be freely open to people on foot for open space uses: ballooning, field games, nature walks,

model airplane flying, etc. For security reasons (vandalism, theft, etc.) and the potential of accidents to humans and animals, access to the main complex should be restricted and controllable. The flexibility to open the outdoor arena to the general public without allowing access to the other facilities is desirable. Within the facility area some further people restraints are needed in the livestock areas, but the remoteness of the major hazard areas (loading and unloading zones) reduces the need for extensive barriers. Some passive controls may be needed internally to direct pedestrian movement. Active security restraints are relatively few - primarily fall fences or walls. Passive restraints are more numerous - berms, hedges, ground material, level changes, meads, railings, etc.

ANIMALS - Event-related animal activity will be largely confined to the livestock area and outdoor arena. Certain horse-related activities, such as field jumping, have been programmed for a grass-field (F3) and will require fencing with gates or cattle-guards at roads to contain the horses. Leisure horseback riding by the public should also be accommodated and encouraged, either in the same grass field (F3) or in the Nature Park. Due to the potential for horse waste to interfere with other activities programmed in fields F1 and F2, horse activities should be discouraged there. The provision of an enclosed but accessible area (F3), perhaps with jumping and training apparatus left in place, may be adequate to suggest and encourage its use as the prime outdoor horse area.

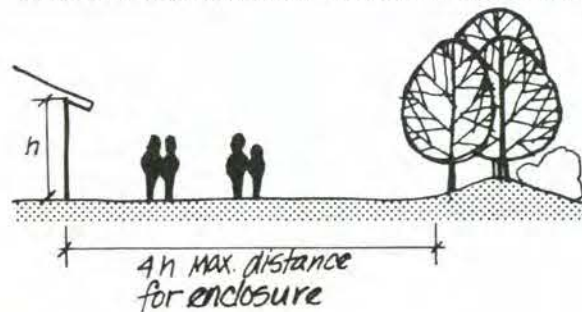
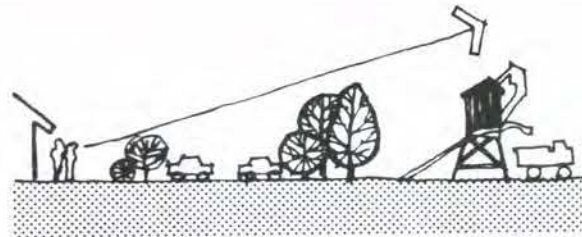
VEHICLES - The only area which will demand free vehicular access on a daily basis is the Rural Resource Center. All other areas, including parking fields, should have strictly controlled vehicular accessibility. The potential problems associated with car abandonment, long-term park-



ing and surface damage from auto and motor-cycle activities suggest that vehicular access only be permitted for specific events and for required service needs. Barriers are also needed within the complex to distinguish service vehicle roads from the pedestrianway.

VISUAL CONTROL

To enhance the visual qualities within the site, a number of visual controls are needed to screen, define, and enclose various areas:



SCREEN - There are a number of views from both inside and outside the site which need to be totally or partially screened to block visual distractions. Gravel parking lots and loading and refuse areas are typically unkempt and unattractive, while highway traffic and industrial development external to the site can detract greatly from the enjoyment of the Resource Park. The camper parking area will also benefit greatly from screening for privacy control. Screening along Hover Road should also be provided to buffer anticipated residential development from the most active, noisy and lighted areas of the Park. Walls, fences, trees, hedges and berms can be effective screening devices when properly used.

DEFINE - To help suggest traffic and movement patterns, define and reinforce uses and limits of certain areas, a variety of means may be employed including changes in surface textures and materials, hedges, low walls, bollards, level changes, etc.

ENCLOSE - Enclosure creates a "sense of place" and provides background and an identifiable context for special activities within the Park. For many areas of the

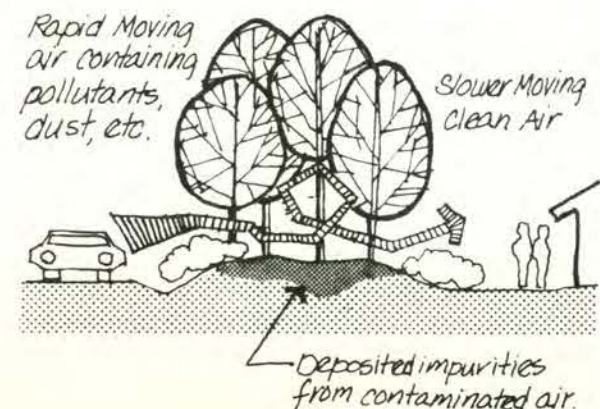
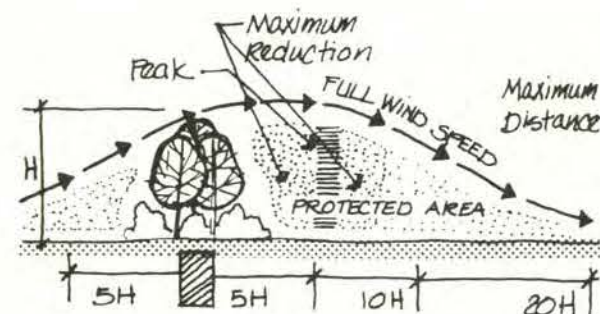
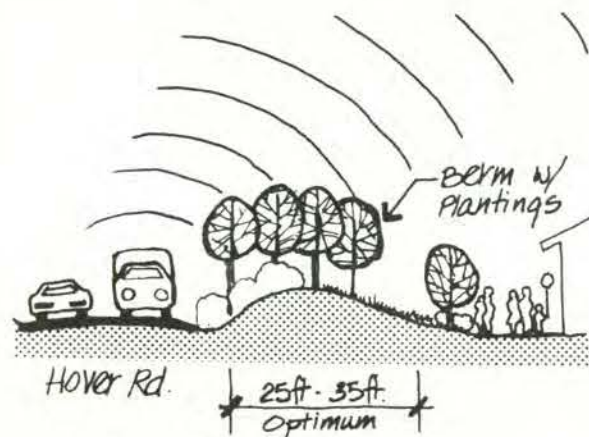
site, enclosure is provided by the buildings. A number of other areas such as the main Plaza, camper area, and outdoor exhibit area are only partially enclosed by buildings, and additional enclosing elements are needed. Since the height of the enclosure is proportioned to the size of the space, the enclosing elements should be substantial such as walls, high fences, trees, etc.

ENVIRONMENTAL CONTROL

Certain kinds of barriers can be effective in modifying some noise and climatic conditions identified earlier in the study as areas of concern.

- **NOISE** - The impact of noises emanating from the site (Midway/Carnival, P.A. system in the outdoor arena, and animals in livestock area) will be primarily on residential development along Hover Road. Noise impacting the site from outside is primarily traffic noise from heavily travelled Hover Road. For a number of reasons, the impact of traffic noise on the site from Hover Road is expected to be the greater problem: 1) The traffic noise will likely equal or exceed the dB level of noises from the site, 2) Noise sources on the site are further from the residential area than is the traffic noise source, and 3) The site noise sources are downwind from the residential area resulting in noise reduction generally. On-site monitoring and computer modeling should be undertaken to determine to what extent control measures are needed. If needed, the control for both sources will be located along Hover Road, south of Boston Avenue, and any mitigation measures for the site will also benefit the residential area.

Basically, sound is alleviated by either distance



or the introduction of some element between the source and the impact. Since site planning dimensions are relatively fixed, berms and plants are the only mitigation elements that are even remotely cost-effective relative to the magnitude of the problem. Of the two, creation of earth berms is probably the most effective since it tends to deflect sound upward as much as depressing the road would. Plants can also absorb, deflect, and refract sound. For most effective noise attenuation, planting width should be 25 to 35 feet and consist of densely planted trees, shrubs, and ground cover.

Noise attenuation in closer quarters, over a shorter distance, such as between the livestock area and outdoor arena, is probably most effectively resolved by including a fairly opaque fence or wall.

CLIMATE - Solutions to many of the climate-related problems: wind discomfort, wind erosion or soil and moisture retention can be addressed by reducing wind speed to which a familiar barrier, the windbreak, is well suited. Effectively designed windbreaks can reduce wind speed both in front and behind resulting in reduced wind erosion and evaporation, increased comfort, and the deposit of snow and rain for an increase in localized moisture retention.

Studies have shown that the most effective windbreak (i.e., Effective over the greatest distance proportion to its height) is somewhat narrow (doesn't fill up the protected lie area with trees), of a moderate density (50% - 60% optimum), moderately closed below the tree canopy (a shrub/small tree layer), and is composed of a mixture of species.

For such a windbreak, 30' - 40' high, wind speed

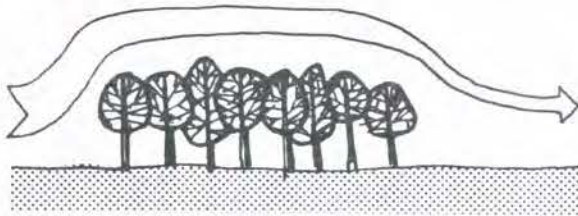
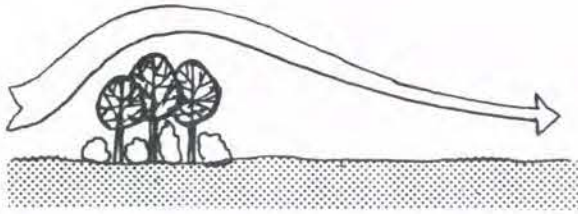
is reduced for a maximum of 300 yards (900') down-wind! The area of most protection (40% - 50% wind speed reduction) extends for up to 10 times the height or 300' with the maximum occurring 150 to 200' from the face of the windbreak. Subtle design variations may be developed for particular adaptations such as increasing lower penetrability to create scouring adjacent to the windbreak (keeping roads clear.)

Many of the research studies about windbreaks have been done in Europe and Russia under conditions somewhat different from those locally. Development and monitoring of windbreaks could be an important research and demonstration function of the Resource Park.

CONTROL	PHYSICAL			VISUAL			ENVIR.		# effective + passive o little value
	PEOPLE	ANIMALS	VEHICLES	SCREEN	ENCLOSE	DEFINE	NOISE	WIND	
BOUNDARY MATERIAL									REMARKS:
TREES	o	o	+	#	#	#	+	#	spacing, br. ht
HEDGEROW	+	+	#	#	#	#	+	#	width
SHRUB HEDGE	+	o	#	o	+	#	o	o	height
FENCE. solid	#	#	#	#	#	#	#	#	
rail	+	#	#	+	+	#	o	o	
wire mesh	#	#	#	o	o	+	o	o	
RETAIN. WALL	+	o	#	o	+	#	o	o	
BOLLARD	o	o	#	o	o	+	o	o	
BERM	+	o	#	+	+	#	+	o	height
DITCH	+	+	#	o	o	#	o	o	
CATTLE GRID	o	#	o	o	o	+	o	o	
MATERIAL CHANGE	+	o	+	o	o	#	o	o	

BOUNDARY SUMMARY									
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BOUNDARY SUMMARY



FURNISHINGS

For comfort, convenience, security, and overall enjoyment of the public spaces in the Park complex (walkways, plazas, and building entrances), development should include amenities such as lights, benches, signs, trash bins, fountains, etc. Other site elements, such as gates and fences should be included in this category of site furnishings. While each element is incidental by itself, cumulatively they are an important part of the overall setting and landscape character.

Each element has its own particular function which is reflected in a number of different designs and materials. In order to realize the strength of the setting and minimize visual chaos, a means of obtaining unity and consistency should be adopted.

A number of alternative approaches to furnishings selection should be considered, ranging from commercially manufactured products to items custom built. A wide range of selections is available commercially, including totally coordinated systems at an equally wide range of costs. Since design styles change, there may be problems in long-term consistency. Custom built furnishings offer the flexibility to use discreet elements or to build continuity into other landscaping elements such as retaining walls, planters, etc. Custom designed and built furnishings can also be more responsive to local site conditions and can reflect materials indigenous to the area. Attractive combinations of commercial and custom furnishings are also possible, such as framing chain-link fence in wood to reduce its austere and institutional character. The particular design or character selected may either reflect new technologies and materials, or be more reminiscent of local character, such as farm

yard lighting and rustic furniture. The overriding design consideration is that the result be harmonious, inviting, and enjoyable.

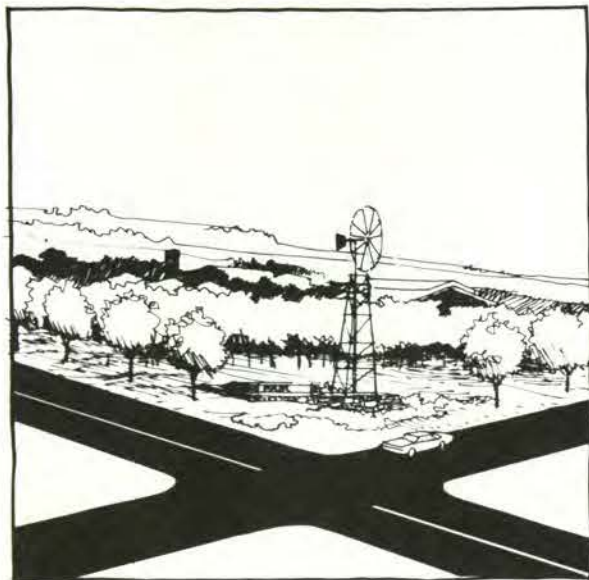
Equally as important as the specific character is consistency throughout the site over time. To attain this objective, several specific guidelines are recommended:

- Elements serving similar functions should be similar in design and appearance.
- The design of all elements should be as simple and straightforward to facilitate duplication and replacement throughout the development of the Park.
- The consistent use of colors and/or materials should be emphasized over and above exact design details. This is not to discourage the use of either height or quiet colors or materials, but rather to call attention to the need to consider the affect of any particular action on the whole of the site. Too many highlights will result in no highlights. In general, site furnishings should blend with overall setting.

FOCAL POINTS

Most successful public spaces have certain identifying features or areas, which serve to draw attention, gather people, and contribute to the spirit and character of the place. These elements, or focal points, may range from a shady sitting area to fountains, sculptures, clock towers, etc. There are several potential focal points to be identified in the Rural Resource Park.

CORNER OF NELSON ROAD AND HOVER ROAD - This area is one of the most prominent of the site. Its background of mature trees is visible for several miles along Hover and Nelson Roads and adds an



immediate sense of duration to the rest of the site. As a result, it is an opportune location for a major symbol to announce the Rural Resource Park. This symbol should display the name of the Park and also, by its nature and construction, should convey the demonstration and resource functions of the Park.

BOSTON AVENUE ENTRY - When built, this area will become the front door to the Park; it will also be a transition area from the structured Park complex to the nature area. As such, it offers the opportunity for a landscaped statement which, including the drainageway parallel to Boston, will capture both the natural qualities of the Park, as well as a degree of formality to convey "entry." Recognizing or relating to it should be the landscaping of the entry walk which will receive people from the parking areas and lead them to the entry gate.



ENTRY GATES - There are three pedestrian entry gates to the Park; a major gate at either end of the pedestrian street and a lesser one near the Resource Center area. Beyond the functional aspects of physical control of public access to the complex, entry gates may be seen as a further expression and advertisement of the Park's character. At any level, they are an important focal point for orientation and entry. The gates should be strongly visible yet in keeping with the style and character of the Resource Park.

PLAZA - The major public space of the Park complex is the Plaza. It will eventually be enclosed on three sides by buildings and on the west side by a visual screen. Views of the Front Range and Long's Peak should be preserved while screening undesirable views. The Plaza is anticipated to potentially be quite large- 20,000 to 25,000 square feet. Its dimensions, however, are restricted by the degree of enclosure provided

by the surrounding buildings. The ratio of width to height of an enclosed space is generally considered to be ideally 2:1 with 4:1 being considered the minimum.

Large open areas such as this one can tend to be cold and uninviting when not full of people unless articulated or subdivided in some way. To help break up this large space and to add life, a major central element or feature is suggested which could easily cover up to 1500 square feet of area. It should introduce sculptural or movement qualities to the Plaza and be large enough to be visible for some distance. Its location is further defined by the convergence of the axes of the pedestrian streets so that it can be an attraction and orientation throughout the complex. Additional elements within the Plaza might include kiosks, benches, a bosque of trees, etc.

BUILDING ENTRIES - As minor focal points, some consideration should be given to making the area around the entry to a building an inviting place to be. This area can be widened to create a place to meet, wait, or just sit and watch people. The surrounding planting should contribute to the enclosure and pedestrian scale of the area.

ARCHITECTURAL SYSTEMS

Since the development concept allows some flexibility in the facility design, a comprehensive discussion of the architectural features and details unique to this project is in order. The intent is not to design each building, but rather to develop certain guidelines for design and construction of the various facilities.

The design elements to be discussed can be grouped into five major systems. These include:

1. Structural
2. Mechanical
3. Wall Treatment
4. Floor Treatment
5. Roof Treatment

1. Structural Systems

The structural system has the most long range impact on the Park's development in terms of cost and flexibility. While it is impossible to anticipate the future trends of costs and technology, this discussion is based upon normally accepted levels of advancement over the time frame of the Park's implementation.

When considering structural systems, certain aspects, such as types of material, spanning efficiency and flexibility, cost ramifications, maintenance and aesthetics, are important. Material selection should consider primarily sound, well-proven materials which have been, and apparently will continue to be available - either steel, concrete, or wood.

The spans required for the types of structures represented range from 30 feet up to 150 feet. Additionally, some structures will require open side walls and all will require consideration for future expansion. Any of the materials mentioned above can span the distances required, the only difference being the structural depth involved, which does not seem to be a critical factor. The flexibility for expansion and the open side walls suggests a rigid frame system would be the most practical.

Steel ranks high as a cost effective, rigid frame solution of relatively shallow structural depth. Concrete displays its best cost effectiveness and depth characteristics in a precast, solid load-bearing wall system, which is not the optimum application for the types of structures being

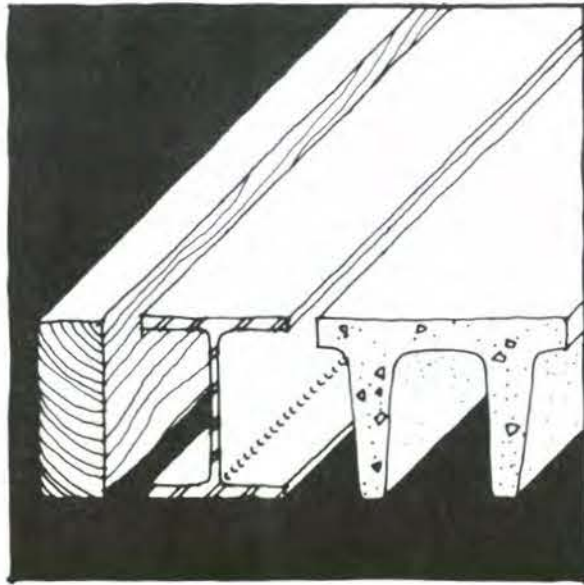
proposed. The cost of a poured-in-place concrete rigid frame solution could not compete with its steel counterpart. Wood shares the same limitation as concrete with added structural depth.

Aside from the obvious front end costs associated with each structural system, there are other cost ramifications such as insurance premiums and fire protection systems costs. Obviously, the materials which are less combustible or susceptible to damage by fire will command a lower insurance premium. Also, less restrictions are placed upon the building's area when the more non-combustible systems are utilized. This produces a savings in the cost of area separation walls and automatic fire extinguishing systems. In terms of these second costs, concrete rates the most favorable consideration.

When addressing the maintenance aspects of the materials, durability and up-keep are the two major factors to consider. Durability in terms of withstanding the abuse delivered by animals, equipment and the public. And the up-keep associated with maintaining finishes over a period of time, discouraging and correcting vandalism and ease of repair. While steel and concrete can withstand the abuse described more effectively than wood, steel alone out performs the other two materials when up-keep is considered.

Aesthetically, the materials must be capable of reflecting the rural, almost light industrial, character of the farmstead image. The precedent for both steel and wood has been well established in this case.

While none of the materials discussed appear to be unreasonable to consider for the Resource Park complex, steel demonstrates a consistently positive solution to the criteria investigated.



Steel's cost effective application to the spans present, combined with its aesthetic and maintenance values, qualifies it as the material which warrants major consideration at the Park. While their characteristics are not as totally applicable, concrete and wood will no doubt be appropriately used in certain instances.

2. Mechanical Systems

This discussion will serve to identify those aspects of the mechanical systems which require special considerations in their application to the Resource Park facilities. These systems include heating, ventilating and air conditioning (HVAC), plumbing and electrical.

When discussing the HVAC systems, the Park facilities can be grouped into three categories. These are the open shelters (primarily for stock), enclosed event spaces (for stock and people) and year-round enclosed spaces (primarily for people). Each space has its own unique set of requirements.

The open shelters are structures which, due to cost, frequency of use or type of use, are roofed but are opened to the weather on the sides. The prime example for this classification is the stock barns.

The most significant problem to overcome here is heat build-up within the structure. This problem is created by a combination of body heat given off by the animals and solar heat gain from the sun's rays striking the roof's surface. Since the barns sides are open, a natural ventilation system is most appropriate. Based on the principle that warm air rises, the details of achieving this flow with the roof and wall designs will be included under their corresponding treatment discussions.

The enclosed event spaces possess two unique

requirements due to their combined use by both animals and people. First, the level of comfort required varies tremendously. Second, the presence of animals in an enclosed space places an added burden on the ventilation system.

As far as the participation of the stock and the contestants, their comfort requirements are much less than that of the spectator who is typically quite inactive. The best solution to this problem is to provide a zoned radiant heating system. In this way, the localized nature of the heating system could then be directed at the spectators, regardless of where they are placed for any particular event. The radiant heat is also effective in a highly ventilated area.

The ventilation system, already burdened by the necessarily large space with a high occupant load, must also deal with the problem of odor created by the presence of the stock. There are no "tricks" to this solution. A well designed ventilation system which can meet all of the parameter involved is required.

The last of the areas to be explored, the year-round enclosed space, displays the more or less typical considerations encountered in any HVAC system designed for shirt-sleeve comfort, except in one instance. The exhibition type spaces can expect the movement of large volumes of people through them at various times in warmer weather. This occurrence would preclude the use of air-conditioning at those times. Since this is the very time that cooling would be most helpful in creating a pleasant environment, an alternative to air-conditioning should be provided. This alternative could be provided by a large volume ventilating system.

Plumbing systems at the Resource Park display

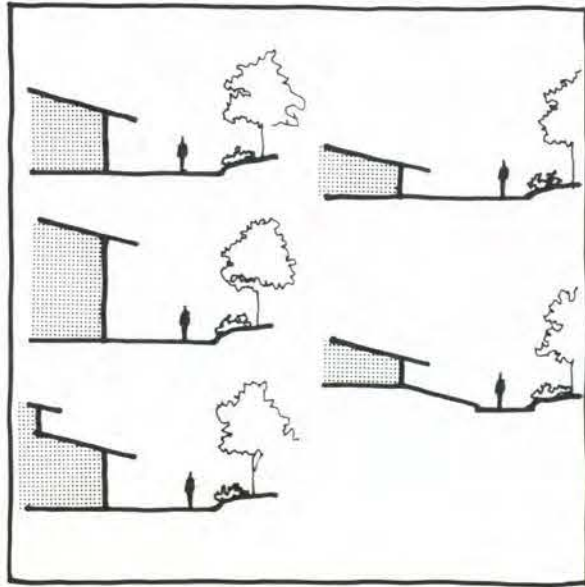
two unique requirements. The first relates to the availability of water in the stock areas and the second to floor drains in the stock and exhibition areas.

Water is necessary for grooming and watering the stock, as well as cleaning the stall areas. The generous location of faucets throughout the stock areas provides easy access for exhibitors and maintenance personnel, who are often working under tight schedules and cannot afford to be delayed by others tying up the equipment.

While the use of water is important in maintaining clean facilities, it also creates a problem with the drainage system. The solid animal wastes, bedding materials and debris from exhibition areas cannot be introduced into the drains, without creating major problems for both the immediate and down line systems. Care must be taken to provide a means of intercepting such solids. This can be accomplished either by screening each drain or creating a settling tank at each facility. In either case, the success of the method depends on careful maintenance by Park personnel.

Electrical systems are fairly typical, except for the power grid and public address systems in certain areas.

The power grid considerations are given to areas, both interior and exterior which display a requirement for an unusually high density of power users. Some typical areas to consider are the camper area, midway, stock facilities and exhibition spaces. The exterior installations require weather tight power outlets appropriate for the particular situation. While a carnival normally maintains its own portable power supply, there are other community groups, service clubs and concessions which would require a power source at the site.



In the case of the livestock facilities and exhibition spaces, the demand for power outlets is excessively high. Stockmen typically require a great deal of drying and cooling equipment to insure the proper grooming and comfort of their animals.

Due to the varying sizes of exhibitions, these areas require an extremely adequate, yet flexible power grid. A combination of a perimeter wall system with an overhead and/or floor grid appears to be the most appropriate solution to insure proper distribution.

Consideration should be given to a variety of approaches for the public address system at the Park. In addition to the PA system in the indoor and outdoor event spaces, which should be extended into the participant preparation areas, the Park itself should have a zoned system. These zones would divide the grounds into separate areas, which could be operated singularly or totally. Areas such as the midway, central plaza, livestock, maintenance, parking, outdoor arena and outdoor exhibition, could all be controlled centrally and opened or closed according to the activity or announcement.

3. Wall Treatment

Wall systems have the unique ability, along with the landscaping, to create the character and scale of exterior spaces at the Resource Park. The majority of an individual's psychological reaction to the Park will be derived from the nature of the exterior spaces created. While the discussion of these spaces will occur in other sections, it is important to note the role of the wall system.

Several common situations occur which warrant some discussion. One of the more

critical situations is next to the large indoor event and exhibition areas which require a high interior space. When located adjacent to more intimate exterior spaces, the impact of large buildings can be reduced by stepping down, or breaking the perimeter wall into two heights. In addition to enhancing the exterior space, the building's interior character is improved by the spatial articulation.

Conversely, structures with low perimeter walls can be raised and bermed to avoid exposing vast roof areas which would tend to distract from the pleasantness of the exterior spaces.

Functionally, the wall treatment becomes very critical at the stock shelters. As much of the wall as possible should be open for natural ventilation in warm weather. Some provision must also be made to shield stock from harsh winter winds. Depending on the frequency of winter usage, this may be accomplished by careful siting of the building, portable wall sections moved into place as required or canvas sections at the leading walls.

The lower portion of the wall must provide a durable wearing surface to withstand the abuse provided by the stock. It must also maintain an effective barrier for animal and crowd control. If possible, air should be able to pass through this lower portion also.

Finally, a curb should be provided at the base of the wall to prevent animals from rooting and waste from spilling over onto the grounds.

4. Floor Treatment

The unique requirements for the floor treatments involved with the facilities at the Park are minimal. The surfaces to be considered deal with the stock, indoor event and exhibition areas.

In each case, the concern is to maintain an appropriate surface, for the activity involved, which is easily cleaned and prepared.

The stock floors work best as hard surfaces with some roughness to prevent the stock from slipping. The hard surface allows for quick cleaning and wash-down without creating a muddy condition. It also permits the use of a variety of bedding materials which can be removed and replaced easily.

The indoor event spaces require a layer of fine gravel which can be compressed to a dense surface or plowed to a somewhat looser consistency, depending on the requirements of the particular activity.

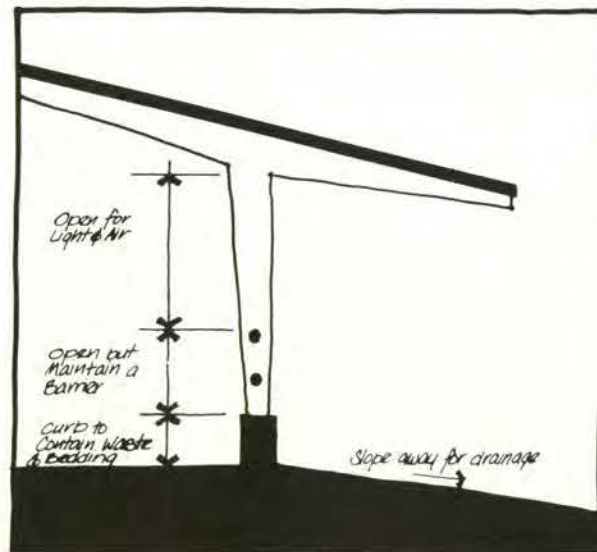
Floors in the exhibition areas require both the impervious finish for maintenance and extra strength to withstand the loads of any heavy equipment brought in for display.

5. Roof Treatments

Since the roof planes of the buildings at the Park will be one of the more visibly obvious features, their treatment is a critical aspect of any image created. In addition to their aesthetic dominance, they serve functionally to provide shelter from the elements, provide natural ventilation where required and admit natural light as desired.

The major factors to consider regarding visibility are color, form and pitch. The brighter colors, while good for heat reflectance, make the roofs more dominant visually. The more subdued colors lessen the roofs' visual impact.

Another means of reducing the appearance of a great quantity of roofs in a complex such as this is to vary the shapes of the roofs. Some may be flat, others pitched, still others with

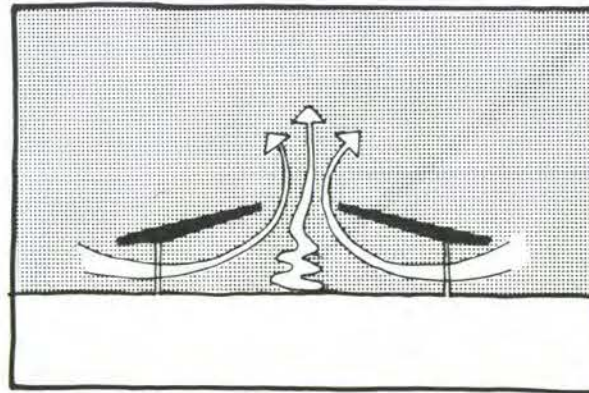


open ridges or a combination of these forms. The situation to avoid is one in which all the roofs are the same color, pitch and form, creating a monotonous appearance.

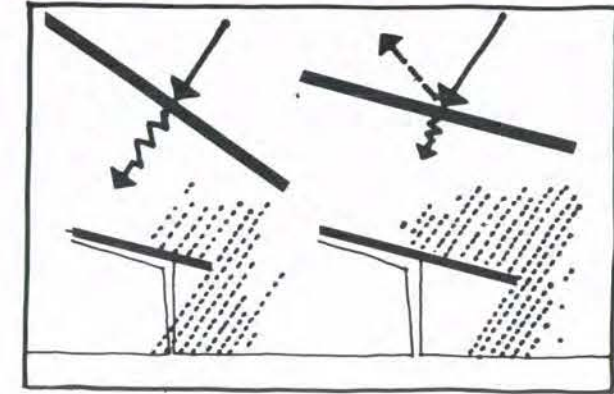
While these criteria for design have important visual effects, they are based upon established principals developed for the proper performance of the roofs. For example, the roofs of the stock shelters have specific criteria to insure their proper function. The two greatest concerns are prevention of heat build-up and protection from the elements.

Heat build-up, as previously discussed, is caused by emission of body heat from the stock and solar gain from the roof surfaces. Therefore, a means of naturally venting the internal heat build-up and minimizing the external influences is required. Since hot air rises, the internal heat build-up can be relieved by opening the sides and top of the shelter as much as possible to allow a natural draw off of the heat.

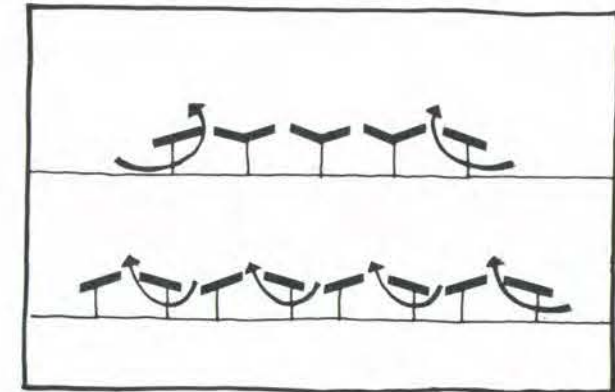
When a series of shelters are adjacent to each other, it is important to separate them as much as possible. Large roof expanses with a minimal amount of open perimeter wall do not vent well.



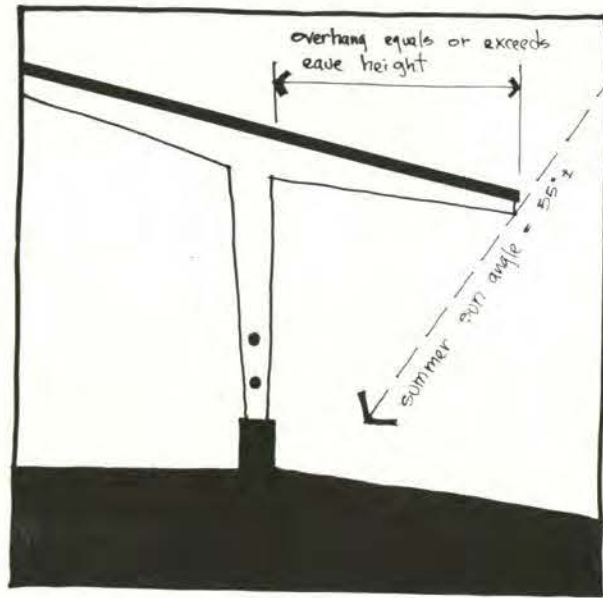
Once the roofs and walls are broken up, the venting becomes more effective.



To minimize solar gain, the roof must be at an obtuse angle to the sun's rays. In this way, more of the heat is reflected and less is absorbed. The steeper pitches which are more normal to the sun's rays absorb more heat than is reflected.



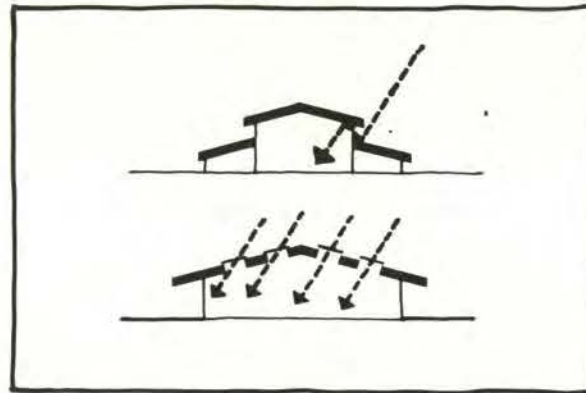
While the roofs quite obviously serve as protection from the elements, certain details, such as overhangs, ventilation ports and treatment of natural light require specific attention.



Overhangs are critical to the well being of the stock. Early morning and late afternoon sun and driving rain are natural elements controlled by larger overhangs. An effective overhang is a direct function of the eave height and sun angle.

Previously, the opening of roof ridges has been discussed in regards to natural ventilation. Quite naturally, if the ridge is opened, sun and moisture will penetrate the shelter. To prevent this, the ridge must remain open to air movement, but closed to moisture and sun. This can be accomplished by using a variety of canopies.

Natural lighting is both a very pleasant design feature and a significant energy conservation method. Provision for natural lighting can be accomplished by either applying skylights directly on roof surfaces or creating a clerestory in higher walls.



The directly applied skylight can add significantly to solar gain if not properly glazed, tinted and sealed. The clerestory, however, can be designed to allow only indirect light to enter.

In short, roofs are not only a very visible

element at the Resource Park, but their design features are important for the comfort of participants, spectators, and stock.

ENERGY

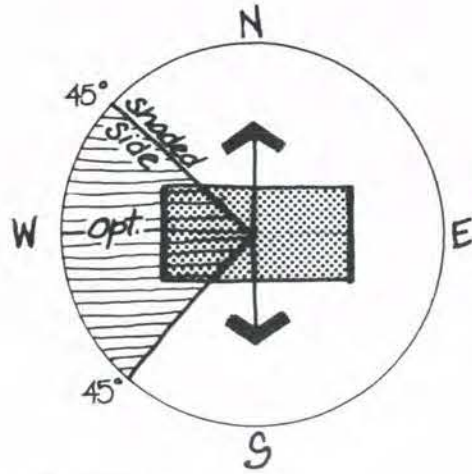
One of the more puzzling questions to answer about the Resource Park is "What is the best source of energy for heating and cooling the buildings?" Who can say for sure what the direction of energy supply will be in the future?

Perhaps the best way to discuss energy is to present the choices, make recommendations based on today's thinking, and establish some general guidelines to conserve energy - whatever the source.

The most obvious choices for energy selection are natural gas and electricity. At this time, the future of natural gas seems limited. Its cost and availability are both in serious doubt.

Electricity, on the other hand, appears to have a more secure future. Being a by-product of a primary energy source, electricity can be generated by coal, oil, water, solar, wind or nuclear fuels. Its cost in some areas of the country has limited its competitiveness with natural gas. This trend seems to be reversing, however, with the decreasing natural gas supply and the advent of nuclear power generating plants.

Another group of "common" energy sources includes coal, propane, and fuel oil. While coal is being heralded as a rediscovered solution, the residual costs associated with meeting air quality standards, the ramifications of transporting, storing and handling, and its still questionable future; its consideration as an alternative should be discounted.



ORIENTATION FOR
UNPARTITIONED STRUCTURES

Both propane and fuel oil, with their safety and storage problems, drop quickly on the list of considered choices.

New sources of energy being explored are considered natural and inexhaustible, but have not stood the test of large scale application.

Turning to the "new" group of energy sources, such as solar, wind, methane, and geothermal; one faces a dilemma. On one hand, these are "inexhaustible", self-perpetuating sources, but they are also the early stages of development and represent expensive front-end costs with a substantial payback period. While all of these sources has been around as long as man himself, the level of technology related to them is in its infancy. Solar energy systems have been modeled, tested, and developed for 35 years, yet they are still at a primary level of development.

The reason for the added front-end costs stems from the fact that these sources are interruptable (cloudy days, no wind, etc.), and they require back-up systems fueled by alternate energy sources. The costs of the extra system and the interfacing controls are significant.

Based on the above discussion, these recommendations have been developed with regards to the consumption of energy at the Rural Resource Park. These are:

1. Initially, the primary source of energy should be electricity. It has the most stable future.

Its application should be determined on an individual project basis. The diverse schedule of usage, type of occupancies and

comfort requirements of the facilities, and the strong possibility of a phased construction schedule, minimize the benefits of any central heating/cooling plant, and suggest a variety of mechanical systems in the facilities themselves.

As the "new" energy sources discussed prove their feasibility, the facilities can be retrofitted and the original electrical systems can revert to a back-up status.

2. Regardless of the energy source employed, an extensive passive approach to conservation should be incorporated into all facilities. Energy is no longer the plentiful, inexpensive commodity it once was.

Standards such as the ASHRAE 90-75 Report should be adopted as the required guideline for all structures. Additionally, the siting of buildings should take advantage of any natural phenomena which may decrease the building's energy consumption. For example, the livestock barns can be staggered to open the walls to the natural breezes available and positioned so that the low summer morning and afternoon sun meets the narrowest profile of the barn. In this way natural ventilation can serve to reduce the heat build-up in the structure, thus avoiding the need for a mechanical ventilation system. Each facility, as it is designed, will require this same type of scrutiny.

3. Though new energy systems may not presently be cost-effective as primary systems, their use in research and demonstration projects, particularly for rural applications, is well within the purview of the Rural Resource Park, and should be explored fully. The costs involved must be seen in their educational

context.

There is one other aspect of electrical consumption which relates to conservation. Lighting is also a significant energy consumer. The importance of natural lighting in all of the buildings cannot be over-emphasized. The extensive use of the facilities during daylight hours, and the nature of the activities, in most cases, establishes a strong case for extensive natural lighting as an important energy conservation measure.

With the great uncertainty which exists over the future of energy, the County must demonstrate a leadership role in the sensitive use of our natural resources. The immediate costs of any course of action must be weighed against the long-term benefits to us all.

SITE DEVELOPMENT GUIDE

The location on the site and the approximate size of 17 development parcels is established in the Development Guide. The relative location of each parcel is shown within the framework established by the roadways, pedestrianways, utility easements, and irrigation easements in FIXED ELEMENTS. The Development Guide also serve as a parcel location key for the Parcel Development Criteria which follow.

Activities identified at an earlier stage of the study have been allocated to the appropriate parcels throughout the site. The degree of compatibility of these activities with the site parcels is illustrated in the accompanying matrix.

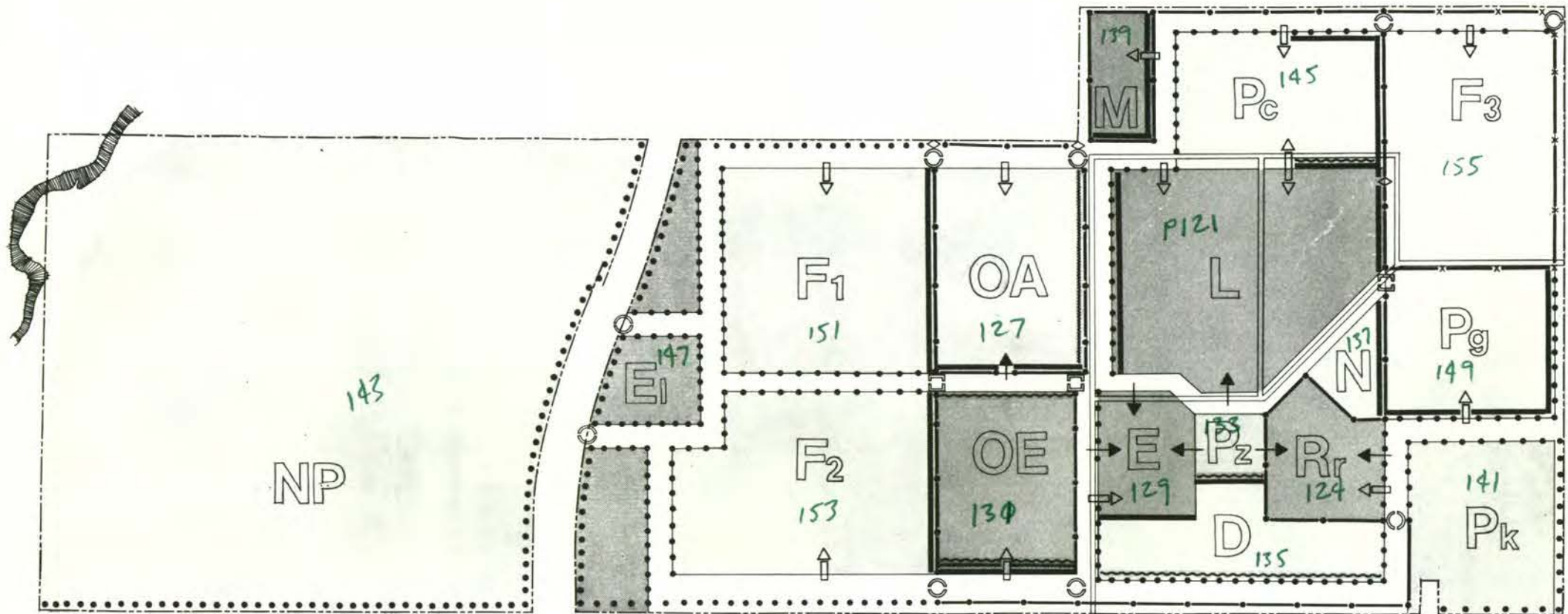
EDGE CONDITIONS

The Development Guide indicates the location of the major edge conditions that must be maintained between the various parcels. While specific edge conditions are addressed in detail in the individual Parcel Development Criteria, they are presented here in context of the total site to help establish a continuity of approach to their design. Similar or identical solutions to edge conditions should be selected where those conditions form a continuous edge across several parcels. For instance, a wood split rail fence used for an animal barrier at the edge of one parcel should not be joined by a barbed wire fence serving the same function at the edge of an adjacent parcel.

	Hobby & Craft Shows Home Economics Workshops Rural Education Workshops Infrastructure Projects Horse/Park/Clubs Dog Obedience Classes Business/Professional Mtgs Conferences/Seminars	Dances Parties Receptions Banquets	Concerts Sketches/Plays Fashion Shows Circus Tractor Pulls Horse Pulls Rodeos Fireworks Carnivals Hot Air Ballooning Model Airplane Flying	Dog/Cat Shows Horse Shows Dairy/Deer Shows Swine/Sheep Shows Poultry/Rabbit Shows Trade Shows Exhibits & Displays	Horse Sales Livestock Auctions Flea Markets Auctions Office Leasing	Athletic Field Events Tent/Pop Play Organized Play Discover Nature Outings Jogging Horseback Riding Bicycling Ice Skating Fishing Picnicking	Administration First Aid Services Overnight Camping Maintenance Storage Parking Livestock Quarters Horse Quarters
	MEETINGS & WORKSHOPS	SOCIAL	AMUSEMENTS	EXHIBITS & ANIMAL SHOWS	COMMERCIAL	RECREATION	SUPPORT SERVICES
F1							
F2							
F3							
Pg							
Pc							
E							
D							
L							
N							
Rr							
Pz							
Pk							
OE							
OA							
M							
NP							

NO RELATIONSHIP
MOST COMPATIBLE
COMPATIBLE
INCOMPATIBLE

ACTIVITIES/FACILITIES MATRIX



LEGEND

EDGES

- Vehicular Barrier
- x— Animal Barrier
- People Barrier
- Visual Screen
- Noise Control
- ~~~~~ Wind Break

ACCESS

- Pedestrian Entry
- ◻> Vehicular Entry

CONTROL

- Vehicular Control
- ◇ Equestrian Control
- ◻ Pedestrian Control

F₁ Grass Field

F₂ Grass Field

F₃ Grass Field

P_g Parking-Gravel

P_c Parking-Campers

E Exhibit Facilities

D Demonstration Plots

L Livestock/Horse Facilities

N Nursery/Botanic Garden

R_r Rural Resource Center

P_z Plaza

P_k Park

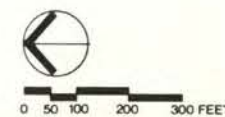
OE Outdoor Exhibition

OA Outdoor Arena

M Maintenance Facilities

NP Natural Park

E_i Entry Landscape



DEVELOPMENT GUIDE

ACCESS POINTS

Significant points of pedestrian and vehicular access to the parcels are shown on the Development Guide.

Throughout the site vehicular entry points have been physically separated from areas of heavy pedestrian use. Pedestrian access deals only with major entry into built facilities. Vehicular access points represent all manner of vehicles - passenger cars, service vehicles, tractor trailers, etc. Specific pedestrian and vehicular access needs, unique to each parcel, are further discussed in the Parcel Development Criteria.

CONTROLS

The Development Guide illustrates the location of necessary controls as they relate to vehicular, pedestrian, and equestrian movements.

While fencing of the total site is not required, some means of excluding vehicles from the site is necessary. Consequently, vehicular controls are shown at all site entries except the day-use entry for the Rural Resource Center. Additional vehicular controls are needed on the perimeter roadway to separate service traffic needing access to internal areas of the site, from event traffic needing access only to parking reservoirs on each end of the site. Additional vehicular controls permit the Outdoor Arena area to be utilized in conjunction with the large public parking areas while the facilities to the south can remain secured.

Pedestrian entry gates are needed at north and south points along the pedestrian street to convey pedestrians into the site from the large parking reservoirs. An additional internal pedestrian gate contributes to flexible use of the Outdoor Arena as already mentioned.

Equestrian control gates are necessary at a number of locations to permit horse access from the horse barns to various use parcels lying outside controlled areas of the site.


































PARCEL DEVELOPMENT CRITERIA

To implement development and achieve continuity over time, performance standards or development criteria have been established for the site.

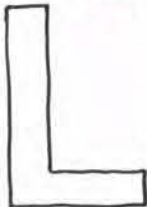
The method employed on the following pages is structured to identify and summarize relevant development data for each parcel in a form which can be readily applied by other planners and designers. Specific data contained in this section, when carefully combined with general site and facilities development data included in FIXED ELEMENTS, IMPORTANT DESIGN ELEMENTS, and the SITE DEVELOPMENT GUIDE establish a step-by-step process for planning and design of a specific parcel.

Given the data and the procedure outlined above, future administrators and/or consultants who employ the method can produce a variety of designs - all of which will satisfy the objectives of the Master Plan. This method does not dictate a specific plan or design - rather, it describes the framework within which the plan or design will evolve. In this way, the process can be more responsive to future change. The quality of the final solution for each parcel still depends upon the ingenuity of the individual designer.

The Parcel Development Criteria on the following pages provide development data in a number of ways. A Development Diagram illustrates the relationships of various criteria important to the development of the parcel. A statistical summary is included of relevant programmatic data developed in other sections of the report. Finally, guidelines for development are provided that discuss development criteria related to the elements shown in the following key.

LEGEND	
PARCEL EDGE CONDITIONS	UTILITIES
 Fixed Edge	 Fire Hydrant
 Flexible Edge	 Transformer
 Functional Area	 Water Meter
SPECIAL CONDITIONS	 Utility Easement
 View Corridor	WATER & DRAINAGE
 Focal Point	 Inlet/Diversion
 Build-To-Edge	 Water Storage
MODE	 Irrigation Way
 Pedestrian	 Surface Drainage
 Vehicular	BARRIER & CONTROLS
 Equestrian	 Visual Screen
 Bicycle	 Noise Barrier
ACCESS	 People Barrier
 Vehicular Entry	 Vehicle Barrier
 Pedestrian Entry	 Animal Barrier
TRANSFER POINTS	 Wind Break
 Transit Stop	 Vehicle Gate
 Refuse Collection	 Pedestrian Gate
 Manure Collection	 Equestrian Gate
 Fire/Ambulance	

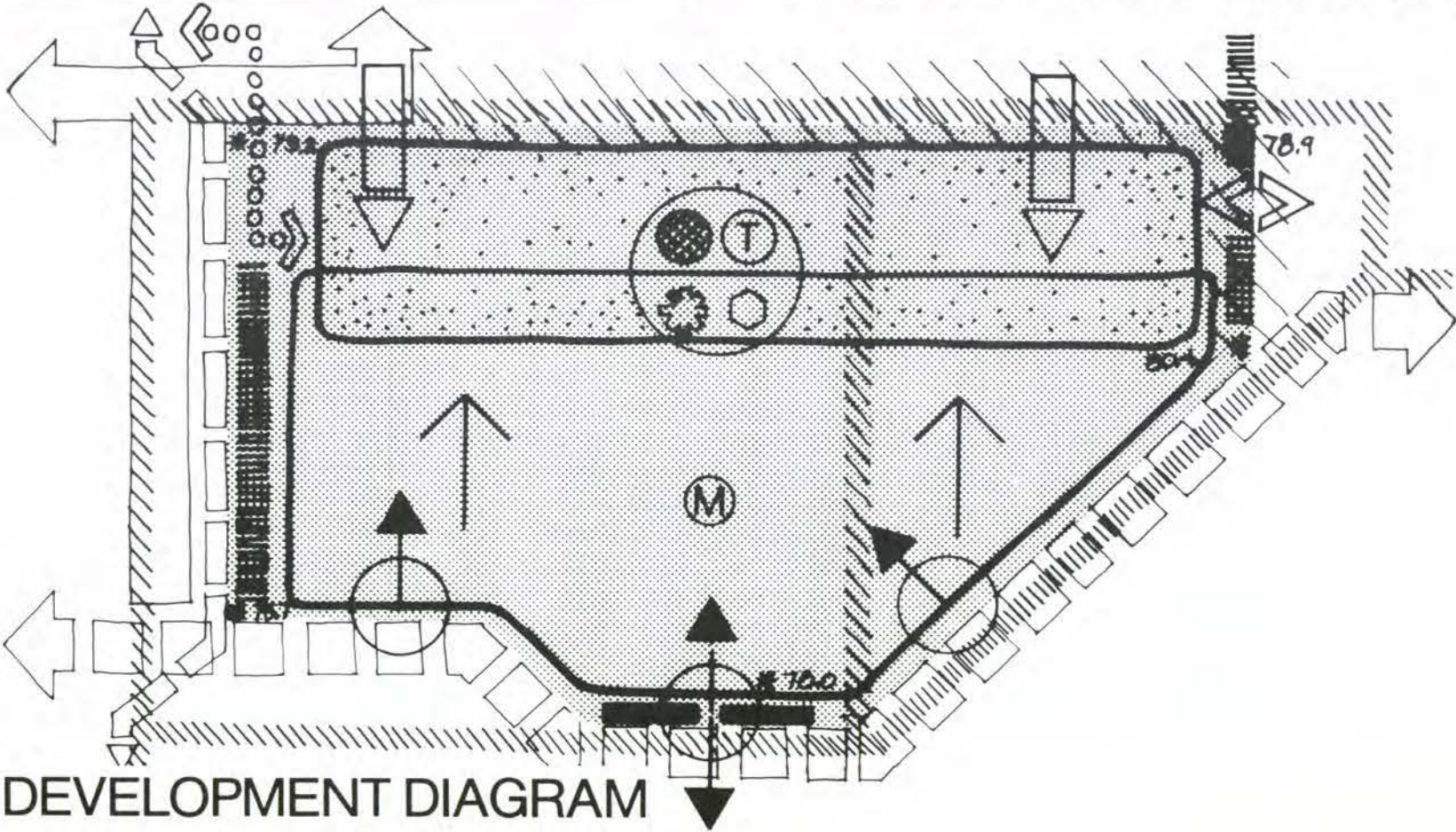
LIVESTOCK / HORSE FACILITIES



LEGEND		
PARCEL EDGE CONDITIONS	SPECIAL CONDITIONS	ACCESS
Fixed Edge	View Corridor	Vehicular Entry
Flexible Edge	Focal Point	Pedestrian Entry
Functional Area	Build-To-Edge	WATER & DRAINAGE
BARRIER & CONTROLS	MODE	Inlet/Diversion
Visual Screen	Pedestrian	Water Storage
Noise Barrier	Vehicular	Irrigation Way
People Barrier	Equestrian	Surface Drainage
Vehicle Barrier	Bicycle	UTILITIES
Animal Barrier	TRANSFER POINTS	Fire Hydrant
Wind Break	Transit Stop	Transformer
Vehicle Gate	Refuse Collection	Water Meter
Pedestrian Gate	Manure Collection	Utility Easement
Equestrian Gate	Fire/Ambulance	

SUMMARY

The Livestock/Horse Facilities provide a complete multi-use complex of facilities to accommodate livestock activities during fair time and horse-related activities during non-fair periods. It can also accommodate other miscellaneous activities. The Livestock aspect of these facilities is related to the Camper Parking Area. Noise separation should be maintained between this facility and the Outdoor Arena. All built facilities on the parcel should comply with



DEVELOPMENT DIAGRAM

detailed operational, space, and design considerations set forth in the Program. (See Section II).

STATISTICAL SUMMARY

Livestock/Horse Facilities

Quarterming Facilities

500 cattle or 235 horses	45,000 s.f.
500 small animals or 165 horses	30,000 s.f.
rabbits and poultry	5,500 s.f.
Indoor Arena 150' x 250' min	38,000 s.f.
Warm Up Area	10,000 s.f.
Loading/Service Area	60,000 s.f.
(tractor-trailers)	min.

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown.
- The Livestock/Horse Facilities parcel has two major functional areas: a built facilities area adjacent to the pedestrian street, and a loading/service area served by the perimeter road. Within the built facilities area are a number of subareas. These include: facilities for a wide range of livestock including horses; an indoor arena that can be multi-used for livestock judging and/or sales; rabbit and poultry facilities; and a warm-up area for horse events.

BARRIER AND CONTROLS

- An equestrian gate, separate from pedestrianways, should be provided on the south edge of the parcel to permit horses to enter the Grass Field parcel to the south.

- Visually screen all livestock facilities on the north of the parcel from the Outdoor Arena.
- Visually screen all livestock facilities on the south of the parcel from the adjacent parking areas and Nelson Road.

SPECIAL CONDITIONS

- The Indoor Arena building must form one edge of the Plaza.

MODE

- Provide an equestrian trail that links the Livestock/Horse Facilities with the equestrian trail at the Maintenance area.

TRANSFER POINTS

- A manure storage and collection station should be located in the service area and a refuse collection station should be near the Indoor Arena.

ACCESS

- The primary pedestrian entry to the Indoor Arena should front on the Plaza.
- Provide main vehicular access to the loading/service area from the perimeter roadway with additional access/egress possible through the Camper Parking area.

WATER AND DRAINAGE

- Surface drainage should be conveyed off the parcel in an easterly direction. Points of approximate elevation are provided in the diagram for overall design coordination.

- Built facilities must not unduly obstruct general flow patterns.

UTILITIES

- A minimum of two fire hydrants are required on the parcel and, if carefully sited, can provide additional fire protection for facilities on adjacent parcels.
- All subareas in the Livestock/Horse Facilities can be served by a single water meter.
- For large amounts of power and phasing needs over a period of years, multiple power transformers will provide the most effective and efficient power to facilities on the parcel due to expected demand.
- Maintain the accessibility of the utility corridor crossing the parcel.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

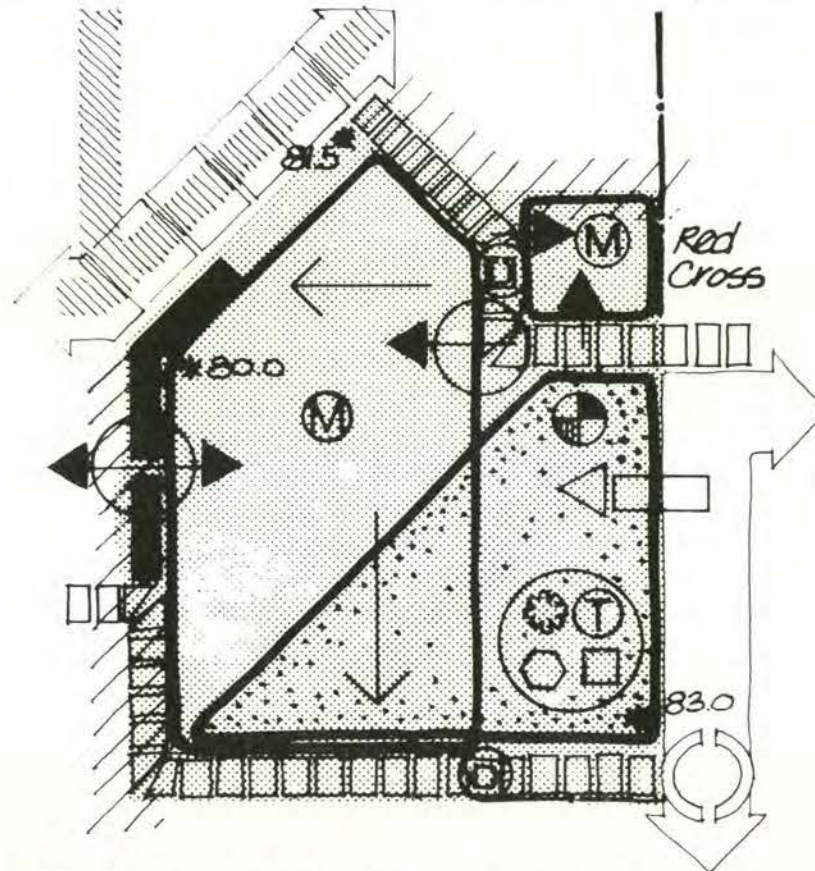
ARCHITECTURAL CONSIDERATIONS

- Covered access from all barns to warm-up and arena areas.
- Barns have gravel floors. Arena and warm-up areas have dirt floors.
- Barn design should encourage natural ventilation. Provide well developed mechanical ventilation, but minimum heating for Indoor Arena.
- Provide for partial enclosure of barn walls in winter.

- Adequate overhangs (8' min) and proper siting can minimize direct sun and blowing rain on stock.
- PA system for Arena tied into barn areas.
- Adequate electrical power grid for barns.
- Unobstructed clear-span required for Arena. Bay spacing in barns should accommodate portable horse and cattle stalls.
- Minimal clearance of 12 feet required in barns; 16 feet in Arena.
- Effective use of natural lighting is encouraged.
- Include restrooms and concessions within the complex.

RURAL RESOURCE CENTER

Rr



DEVELOPMENT DIAGRAM

SUMMARY

The Rural Resource Center has the highest level of year-round use expected for any facility in the Resource Park. During Fair time, it serves as a fair headquarters, as well as an indoor exhibition space. The facility requires a year-round entry and should relate to the Plaza and the day-use Park. Parking on the parcel will be used intensively each day. All built facilities on the parcel should comply with detailed operational, space, and design considerations set forth in the Program. (See Section II). For large events, additional parking for the Rural Resource Center will be provided on other parcels.

STATISTICAL SUMMARY

Rural Resource Center		36,000 s.f.
Multi-use Space	20,000 s.f.	
Multi-use Support	6,000 s.f.	
Conference	1,000 s.f.	
Offices	4,800 s.f.	
Other	4,200 s.f.	
Red Cross Disaster Center	As Required	
Parking	50 cars min	
Emergency Vehicle Parking	1 ambulance/ 1 fire truck	

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed or flexible edges as shown in the Development Diagram.
- The Rural Resource Center parcel has three functional areas: the Resource Center, the Red Cross Disaster Center, and the parking/service area.

BARRIERS AND CONTROLS

- Within the parcel, pedestrian entry must be directed to either a public entry to the building from Nelson Road or to entry gates into the Park complex.

SPECIAL CONDITIONS

- The Rural Resource Center should provide a visual focus from the Nelson Road entrance.
- The Rural Resource Center building must form one edge of the Plaza.

MODE

- A pedestrian/bicycle way must be provided across the parcel from the Park to the Plaza.

TRANSFER POINTS

- The parcel must accommodate a transit pick-up and drop-off station - accessible to Nelson Road.
- A single refuse collection station should be provided that serves both the Rural Resource Center and the Red Cross Disaster Center.
- Parking for emergency vehicles should be closely related to the Red Cross Disaster Center with unobstructed access to the perimeter roadway and Park exit.

ACCESS

- Pedestrian access should be provided to the Rural Resource Center and the Red Cross Disaster Center from both the Plaza and Nelson Road/Park sides.
- Vehicle access to the parcel must be provided from Nelson Road.

WATER AND DRAINAGE

- Surface drainage must be carefully controlled due to the extremely flat nature of the terrain. The parking area should drain to the west and the building sites should drain to the north. Points of approximate elevation are provided on the diagram for overall design coordination between parcels.

UTILITIES

- Because the Red Cross Disaster Center will be developed as a separate facility from the Rural Resource Center due to differences in timing, both should have independent water meters.
- A single power transformer can serve all facilities in the parcel. It should be located as central to the load as possible.
- A single fire hydrant is required to serve the parcel.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

ARCHITECTURAL CONSIDERATIONS

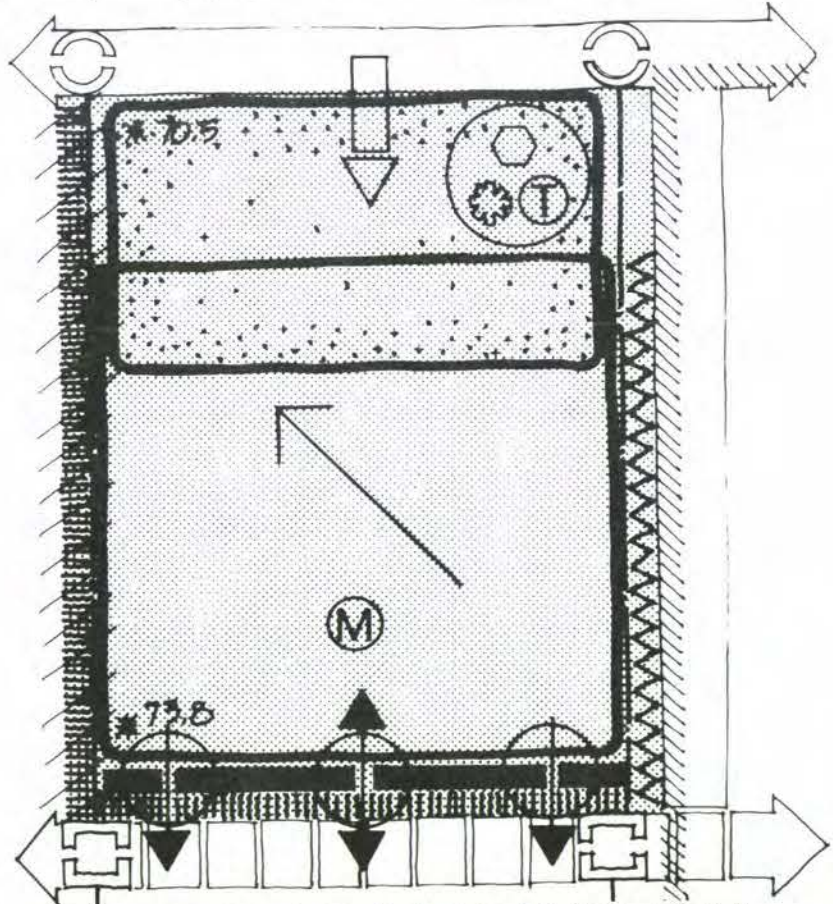
- Multi-use space should be divisible with 15 to 18 foot ceiling height.
- Offices and divisible conference space should relate to both the pedestrian plaza and year-round entrance.
- Supporting facilities include wet workshops, kitchen, storage, restrooms, and locker rooms.

- Air-conditioned and heated buildings. Switch to ventilation system when multi-use space is opened up.
- High potential for energy conservation features.
- Control center for Park's PA system, lighting, security, and administration.
- The multi-use space requires electrical power grid. Similar to that in the Exhibition Facility.

OUTDOOR ARENA

OA

LEGEND		
PARCEL EDGE CONDITIONS	SPECIAL CONDITIONS	ACCESS
Fixed Edge	View Corridor	Vehicular Entry
Flexible Edge	Focal Point	Pedestrian Entry
Functional Area	Build-To-Edge	WATER & DRAINAGE
BARRIER & CONTROLS	MODE	Inlet/Diversion
Visual Screen	Pedestrian	Water Storage
Noise Barrier	Vehicular	Irrigation Way
People Barrier	Equestrian	Surface Drainage
Vehicle Barrier	Bicycle	UTILITIES
Animal Barrier	TRANSFER POINTS	Fire Hydrant
Wind Break	Transit Stop	Transformer
Vehicle Gate	Refuse Collection	Water Meter
Pedestrian Gate	Manure Collection	Utility Easement
Equestrian Gate	Fire/Ambulance	



DEVELOPMENT DIAGRAM

SUMMARY

The Outdoor Arena is the major outdoor event facility at the Resource Park. It accommodates rodeo and horse events during the fair, and a variety of other spectator events during non-fair periods. The Outdoor Arena is primarily related to large public parking areas. A degree of noise separation must be maintained between the Outdoor Arena and the Livestock/Horse Facilities. All built facilities on the parcel should comply with detailed operational, space, and design considerations set forth in the Program. (See Section II)

STATISTICAL SUMMARY

Outdoor Arena	Approx. 3.5 acres
Spectator Seating	7,000 seats
Arena	150' X 180' min/ 180' X 390' max
Service Area	1.0 acres min
Rough Stock Load/Unload (tractor-trailers)	7,500 s.f. min
Participant Parking (includes horsetrailer)	60 spaces min

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown on diagram.
- The parcel has two functional areas: the Outdoor Arena area, and the Service area which includes loading/unloading and participant parking.

BARRIERS AND CONTROLS

- Provide a barrier that prevents uncontrolled pedestrian access on the north, south, and west sides of the parcel and on the east side of the service road. The structure can form part of this control barrier.
- Visually screen the north edge from the adjacent parcel.
- Provide a visual screen on the west edge of the parcel to reduce the scale of the Outdoor Arena structure as it relates to the pedestrian street.
- A noise barrier is required on the south side of the parcel between the Outdoor Arena and the Livestock/Horse Facilities.

SPECIAL CONDITIONS

- One side of the Outdoor Arena forms an edge along the pedestrian street.

TRANSFER POINTS

- A refuse collection station should be provided close to the spectator area for convenience.

ACCESS

- Controlled access should be provided from the pedestrian street and should be coordinated with entry into the Outdoor Exhibition area.

WATER AND DRAINAGE

- Surface drainage must be carefully controlled due to the extremely flat nature of the terrain. The Outdoor Arena area should convey excess drainage in a northeasterly direction.

Points of approximate elevation are provided on the diagram for overall design coordination.

UTILITIES

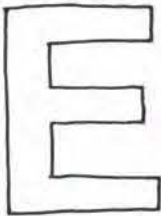
- A single water meter will serve all facilities in the parcel.
- A minimum of two fire hydrants are required. Careful siting can provide additional fire protection to facilities on adjacent parcels.
- A single power transformer will serve all facilities on the parcel.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

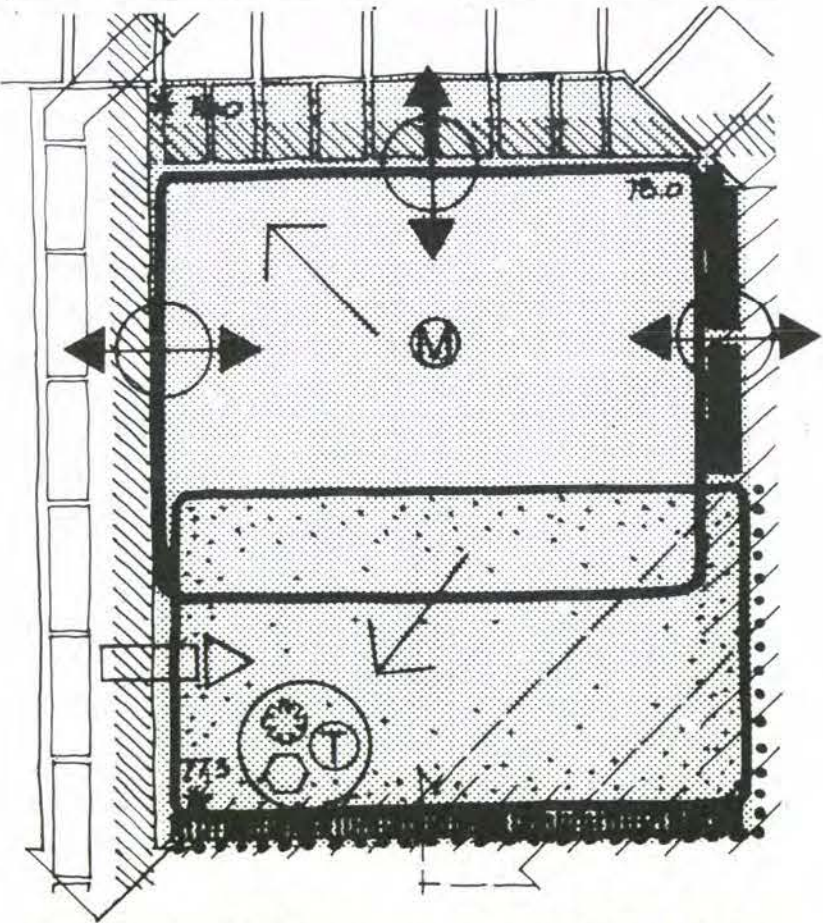
ARCHITECTURAL CONSIDERATIONS

- Arena sized for both professional and double amateur rodeos.
- The major portion of permanent seating should face east.
- Announcer's booth and PA system required.
- Pens and staging areas adjacent to service road and separated from public pedestrian areas.
- Restrooms, concession, and gate areas provided.

EXHIBIT FACILITIES



LEGEND		
PARCEL EDGE CONDITIONS	SPECIAL CONDITIONS	ACCESS
Fixed Edge	View Corridor	Vehicular Entry
Flexible Edge	Focal Point	Pedestrian Entry
Functional Area	Build-To-Edge	
BARRIER & CONTROLS	MODE	WATER & DRAINAGE
Visual Screen	Pedestrian	Inlet/Diversion
Noise Barrier	Vehicular	Water Storage
People Barrier	Equestrian	Irrigation Way
Vehicle Barrier	Bicycle	Surface Drainage
Animal Barrier		UTILITIES
Wind-Break	TRANSFER POINTS	Fire Hydrant
Vehicle Gate	Transit Stop	Transformer
Pedestrian Gate	Refuse Collection	Water Meter
Equestrian Gate	Manure Collection	Utility Easement
	Fire/Ambulance	



DEVELOPMENT DIAGRAM

SUMMARY

The Indoor Exhibit area is a large enclosed multi-use space that fulfills a major fair function and accommodates a wide-range of activities on a year-round basis. The Indoor Exhibit area, the Livestock Facilities, and the Rural Resource Center are the nucleus of fair facilities. During non-fair periods, the Indoor Exhibit area may be used with the Outdoor Exhibition area. All built facilities on the parcel should comply with detailed operational, space, and design considerations set forth in the Program. (See Section II)

STATISTICAL SUMMARY

Indoor Exhibit	
Indoor Exhibit Building	36,300 s.f.
Loading/Service Area	12,000 s.f. min

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown.
- The Indoor Exhibit parcel has two functional areas: the exhibit building area and a loading/service area served by the perimeter access road.

BARRIERS AND CONTROLS

- Edges adjacent to the Demonstration Plot parcel should have a vehicle barrier.
- The loading/service area should be visually screened from adjacent parcels.

SPECIAL CONDITIONS

- Maintain a view corridor across the southwest corner of the parcel from the major pedestrian street to Long's Peak and the Front Range.
- The Indoor Exhibit building must form one edge of the Plaza.

TRANSFER POINTS

- Provide a refuse collection station in conjunction to the loading/service area.

ACCESS

- Pedestrian access must be provided to the Indoor Exhibit building from the pedestrian street, the Plaza, and the Outdoor Exhibit area.
- The primary pedestrian entry to the Indoor Exhibit building should be from the Plaza.
- Provide vehicular access to the Indoor Exhibit building from the loading/service area.
- Provide vehicular access to the parcel from the north-south service road.

WATER AND DRAINAGE

- Surface drainage should be carefully controlled due to the flat nature of the site. The Indoor Exhibit building area of the parcel should drain in a northeasterly direction. The loading/service area should drain in a northwesterly direction. Points of approximate elevation are provided in the diagram for overall design coordination.

UTILITIES

- A single fire hydrant is required to serve the parcel.
- A separate power transformer for the Indoor Exhibit building will also provide temporary power to the Outdoor Exhibit area.
- Maintain the accessibility of the utilities corridor crossing the western edge of the parcel.

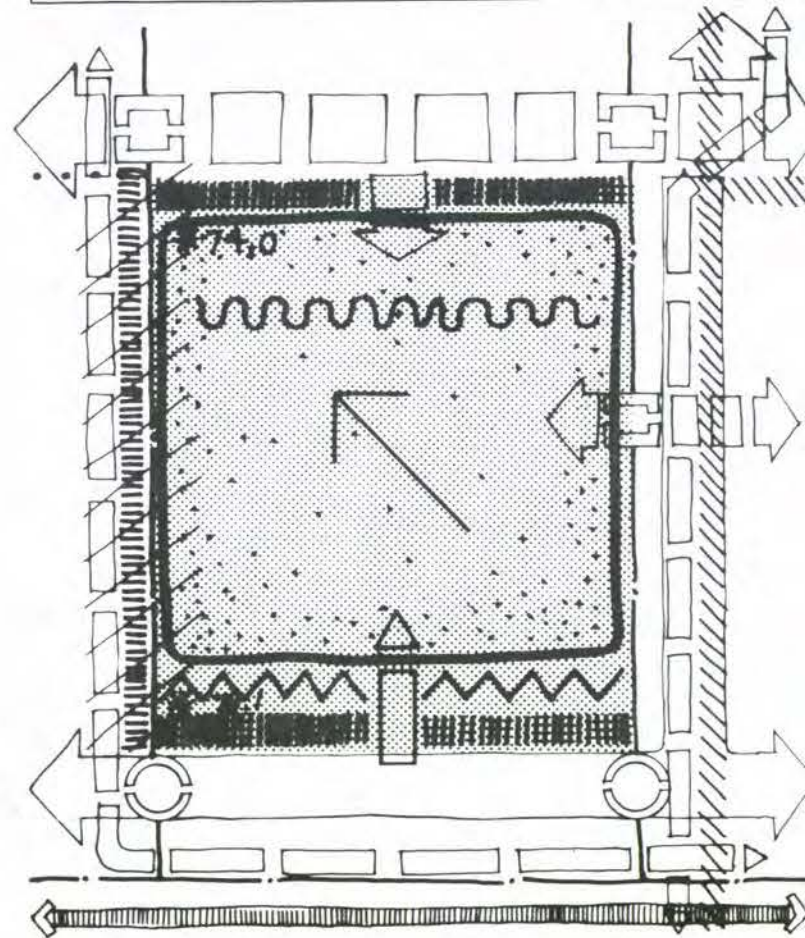
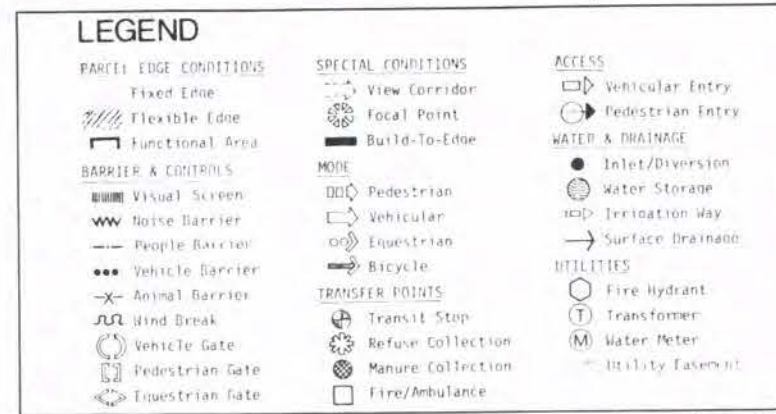
Note: Additional detailed planning and design criteria related to development of the parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

ARCHITECTURAL CONSIDERATIONS

- Concrete floor with floor drain system for cleaning.
- Well developed mechanical ventilation and heating system.
- Adequate electrical power system for exhibitors.
- Portion of hall should have high ceiling (30+ feet).
- Large overhead doors to move equipment through.
- Set up for high-volume pedestrian flow at fair time.
- Include restrooms and concessions within building.
- Provide ample storage area.
- Effective use of natural lighting encouraged.

OUTDOOR EXHIBITION

OE



DEVELOPMENT DIAGRAM

SUMMARY

The Outdoor Exhibit area provides exterior space for large scale exhibits and shows, and relates functionally to the Indoor Exhibit area. During the fair, it accommodates the carnival activities, as well as outdoor commercial exhibits. A third function is to provide overflow parking for non-fair events at the Outdoor Arena.

STATISTICAL SUMMARY

Outdoor Exhibit Area	
Carnival Area	2.0 ac min/3.5 ac. opt
Commercial Fair Exhibits Area	20,000 sq. ft. min
Non-fair Trade Shows and Exhibits	As Required

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown.
- The Outdoor Exhibit area has a single functional area.

BARRIERS AND CONTROLS

- Provide a people barrier on the north and south parcel edges and west side of service road to direct pedestrian movement into the parcel and into the controlled areas of the site.
- Visually screen the parcel on the north, east and west.
- Provide a noise barrier on the west edge of the parcel to reduce intermittent impacts

(carnival, etc.) upon lands adjacent to the site.

- Establish a windbreak(s) across the parcel to protect the pedestrian street on the east of the parcel and to aid dust and wind protection and moisture retention within the parcel.
- Provide a controlled pedestrian gate on the south edge of the parcel to link to the Indoor Exhibit building.

ACCESS

- A vehicular entry to the parcel must be provided from the perimeter roadway.
- Primary access from the pedestrian street should also be coordinated with the pedestrian access into the Outdoor Arena.

WATER AND DRAINAGE

- Surface drainage must be carefully controlled due to the extremely flat nature of the terrain. Surface drainage should be conveyed off of the parcel in a northeasterly direction. Points of approximate elevations are provided on the diagram for overall design coordination.

UTILITIES

- Power requirements should be met with temporary services utilizing the power transformers at the Indoor Exhibit area.

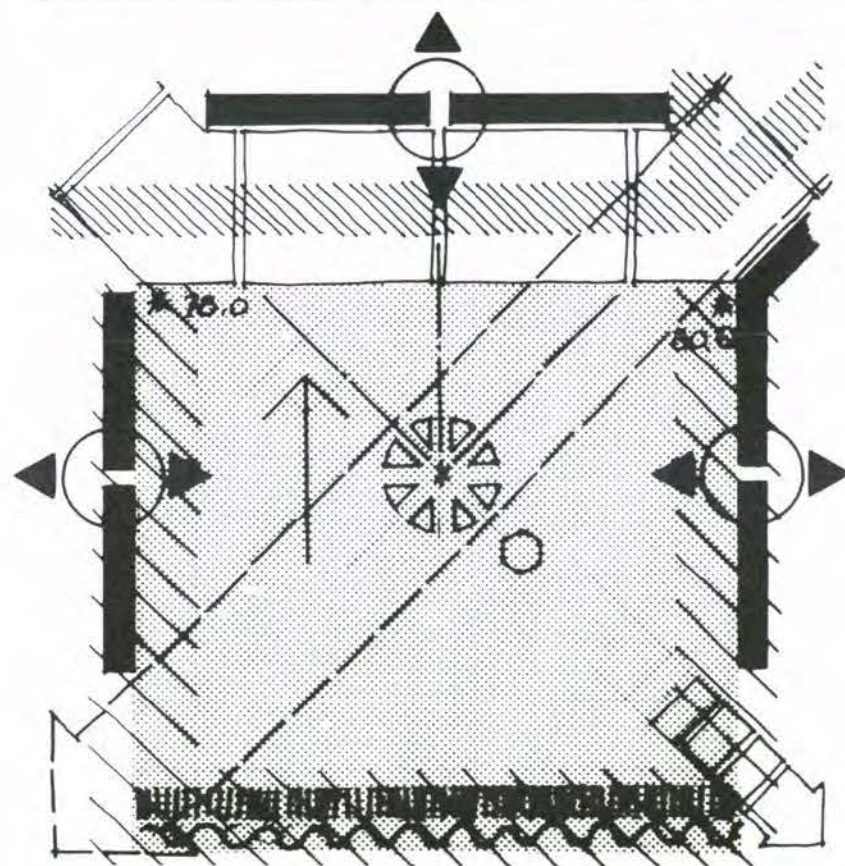
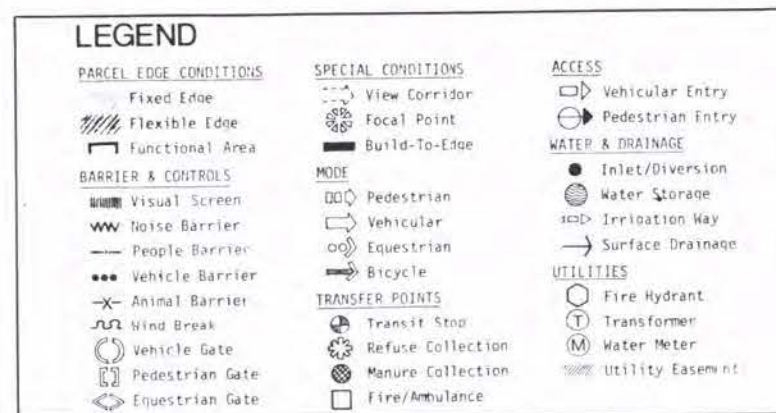
Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

ARCHITECTURAL CONSIDERATIONS

- Provide electrical power source for exhibitors and concessionaires.

PLAZA

Pz



DEVELOPMENT DIAGRAM

SUMMARY

The Plaza represents the central public space in the Resource Park. It provides a focus for the three major year-round use buildings - the Resource Center, Indoor Exhibit Building, and the Indoor Arena. Major entrances for all of these buildings should front on the Plaza and its design and organization should be responsive to them.

STATISTICAL SUMMARY

Plaza 5 - 10,000 s.f.

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown in the diagram.
- The Plaza parcel has one functional area.

BARRIERS AND CONTROLS

- Visually screen the foreground along the western edge of the parcel. Northeasterly vistas from the plaza and pedestrian street to Long's Peak and the Front Range should not be obscured.
- Provide a windbreak along the western edge of the parcel for suitable climate protection for the Plaza.

SPECIAL CONDITIONS

- The northern and southern edges of the Plaza should be defined by walls of the Indoor Exhibit Building and the Rural Resource

Center respectively. A wall of the Indoor Arena should form the east edge of the Plaza across the pedestrian street. A visual barrier should enclose the western edge.

- Provide a major visual focus in the Plaza at the intersection of the centerlines of the pedestrian streets. This focal point should be of sufficient height to be visible from both major pedestrian gates, in order to provide a visual orientation for the entire Rural Resource Park.

MODE

- The major pedestrian street on the east edge of the parcel should be integrated into the Plaza.
- A link should be provided from the Plaza to the secondary pedestrianway connecting the Rural Resource Center to the Park.

ACCESS

- Major pedestrian entries of the three adjacent buildings should front on the Plaza.

UTILITIES

- A fire hydrant is required on the Plaza and should be carefully sited to maximize protection of adjacent facilities with minimum intrusion into the Plaza.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

WATER AND DRAINAGE

- Surface drainage should be carefully controlled, and conveyed off the parcel in an easterly direction. Points of approximate elevation are provided on the diagram for overall design coordination.

DEMONSTRATION
PLOTS

D

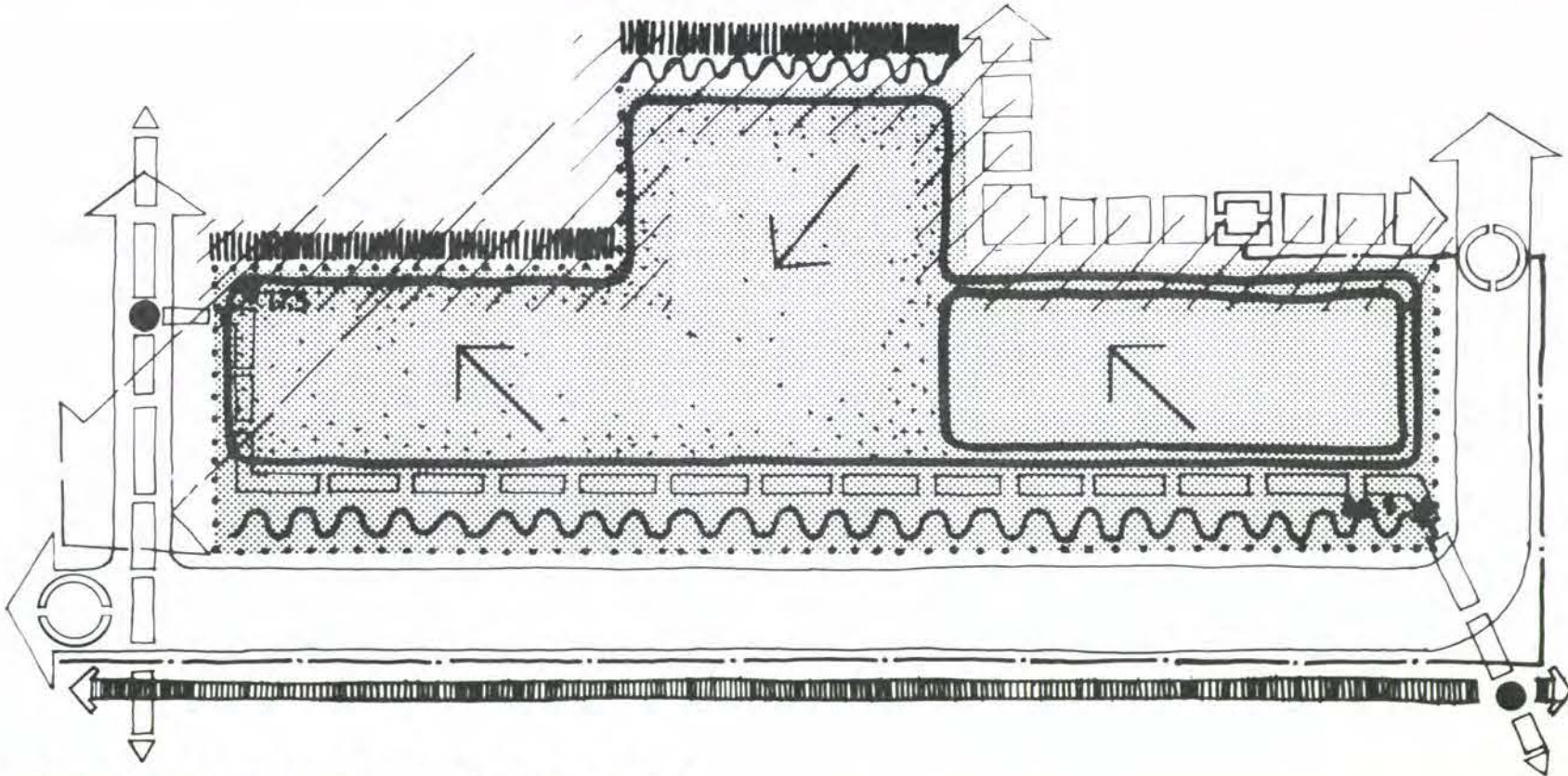
LEGEND		
PARCEL EDGE CONDITIONS	SPECIAL CONDITIONS	ACCESS
Fixed Edge	View Corridor	Vehicular Entry
Flexible Edge	Focal Point	Pedestrian Entry
Functional Area	Build-To-Edge	
BARRIER & CONTROLS	MODE	WATER & DRAINAGE
Visual Screen	Pedestrian	Inlet/Diversion
Noise Barrier	Vehicular	Water Storage
People Barrier	Equestrian	Irrigation Way
Vehicle Barrier	Bicycle	Surface Drainage
Animal Barrier		UTILITIES
Wind Break	TRANSFER POINTS	Fire Hydrant
Vehicle Gate	Transit Stop	Transformer
Pedestrian Gate	Refuse Collection	Water Meter
Equestrian Gate	Manure Collection	Utility Easement
	Fire/Ambulance	

SUMMARY

The Demonstration Plot parcel sets aside land for various on-going demonstration and experimental projects. It is directly related to the Rural Resource Center and receives irrigation water from the South Plat ditch through the Park area.

STATISTICAL SUMMARY

Not applicable



DEVELOPMENT DIAGRAM

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown.
- The Demonstration Plot parcel has two functional areas: open land area for demonstrations and experiments requiring no structures, and an area in the southwest corner of the parcel for demonstrations and experiments that require structures.

BOUNDARIES AND CONTROLS

- A people barrier is required in the southeast corner of the parcel between the secondary pedestrian entry gate and the vehicle control gate; and on the south and west edges of the perimeter roadway, to restrict pedestrian movement into the parcel and the interior areas of the site.
- A vehicle barrier is required between the parcel and the perimeter roadway on the south, west, and north edges.
- Provide a windbreak along the west edge of the parcel as a demonstration for wind and dust protection and moisture retention within the parcel.

SPECIAL CONDITIONS

- Maintain a view corridor across the parcel from the Plaza to Long's Peak and the Front Range.

WATER AND DRAINAGE

- Provide a water diversion out of the South Flat Ditch and convey irrigation water in a northerly direction along the west edge of the parcel to an inlet in the Beckwith

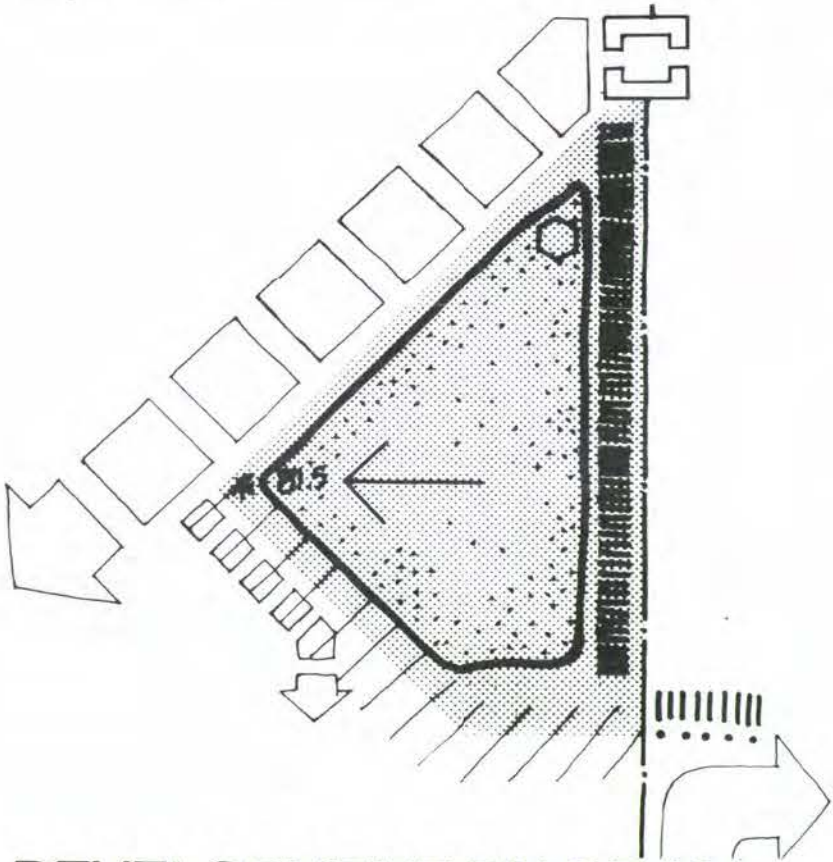
Ditch. Irrigation of the parcel is accomplished with this irrigation way.

- Surface drainage must be carefully controlled due to the extremely flat nature of the terrain and to parcel irrigation requirements. Surface drainage should be conveyed off the site in a northerly direction and delivered into the Beckwith Ditch inlet. Points of approximate elevation are provided on the diagram for overall design coordination between parcels.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

NURSERY/ BOTANIC GARDEN

LEGEND		
PARCEL EDGE CONDITIONS	SPECIAL CONDITIONS	ACCESS
Fixed Edge	View Corridor	Vehicular Entry
Flexible Edge	Focal Point	Pedestrian Entry
Functional Area	Build-To-Edge	
BARRIER & CONTROLS	MODE	WATER & DRAINAGE
Visual Screen	Pedestrian	Inlet/Diversion
Noise Barrier	Vehicular	Water Storage
People Barrier	Equestrian	Irrigation Way
Vehicle Barrier	Bicycle	Surface Drainage
Animal Barrier		UTILITIES
Wind Break	TRANSFER POINTS	Fire Hydrant
Vehicle Gate	Transit Stop	Transformer
Pedestrian Gate	Refuse Collection	Water Meter
Equestrian Gate	Manure Collection	Utility Easement
	Fire/Ambulance	



DEVELOPMENT DIAGRAM

SUMMARY

The Nursery area provides for an initial demonstration function within the Resource Park. Vegetation can be used to implement landscaping throughout the grounds. As the Resource Park approaches completion, the Nursery can be converted to a featured landscape area along the pedestrian street; such as a botany garden, an outdoor amphitheater, etc. The Nursery has little essential relation to other parcels, but could relate to the pedestrian street.

STATISTICAL SUMMARY

Not Applicable

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown on diagram.
- The Nursery parcel has one functional area.

BARRIERS AND CONTROL

- Visually screen parking lot on the south edge of the parcel.
- Provide a people barrier along the south edge of the parcel to direct entry into the controlled portion of the site through the year-round entry gates.

WATER AND DRAINAGE

- Irrigation water for this parcel should be provided by a piped system from the water storage

in the Park area when that becomes available.

- Surface drainage must be carefully controlled due to the extremely flat nature of the terrain. Surface drainage should be conveyed off the parcel in a northerly direction. Points of approximate elevation are provided on the diagram for overall design coordination between parcels.

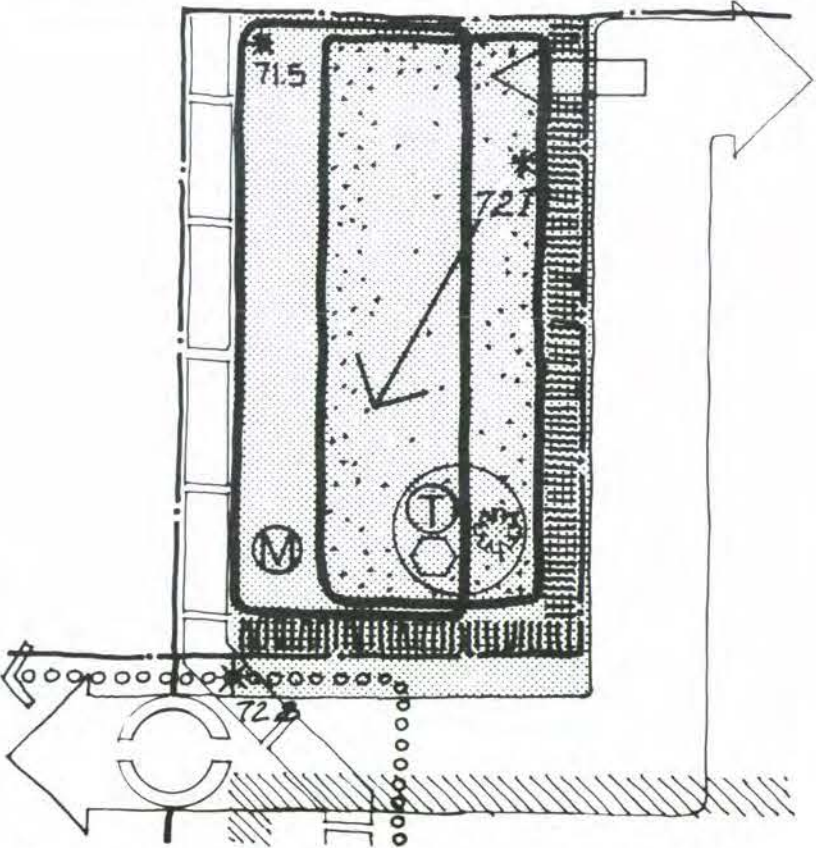
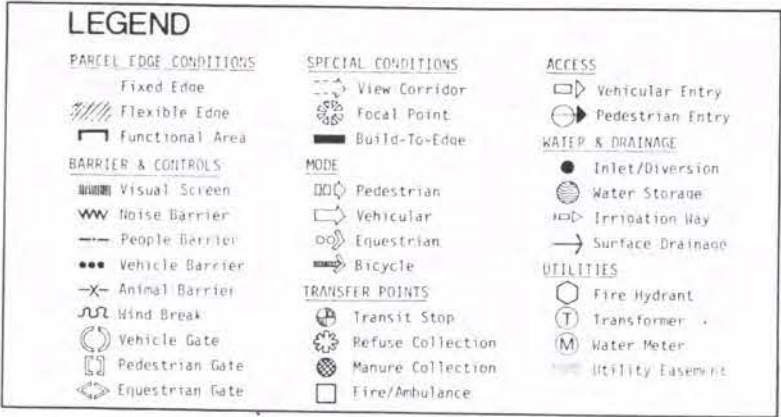
UTILITIES

- A fire hydrant is required on the parcel to serve both the Livestock/Horse Facilities and the Rural Resource Center. Careful siting of hydrants can provide additional protection to other facilities on the site.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

MAINTENANCE FACILITIES

M



DEVELOPMENT DIAGRAM

SUMMARY

The Maintenance Area provides a necessary base of operations for the Park grounds and maintenance operation. Secure storage is provided for portable equipment used throughout the Park. The Maintenance area should relate to the service areas for all major facilities in the Park and requires separation from public areas.

It should comply with detailed operational, space, and design considerations set forth in the Program. (See Section II0)

STATISTICAL SUMMARY

Maintenance Area	
Maintenance Shops and Offices	2,250 s.f.
Secure Outdoor Storage	As Required

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed edges only on this parcel.
- The Maintenance parcel has two functional areas: the maintenance shops area, and the storage/service area.

BARRIERS AND CONTROLS

- All sides of the parcel should have a people barrier for the security and accident prevention.
- Visually screen the Maintenance Area from the perimeter roadway.

MODE

- Provide an adequate corridor along the west edge of the parcel for an equestrian trail which forms a linkage between the Livestock parcel and the equestrian trail along the east property line.

ACCESS

- Provide at least one entry to storage/service area for trucks. If maneuvering space is limited, an additional exit may be required.

WATER AND DRAINAGE

- Control of surface drainage requires careful grading due to the flat nature of the terrain. Drainage should be conveyed off the parcel in a westerly direction. Points of approximate elevation are provided on the diagram for overall design coordination.

UTILITIES

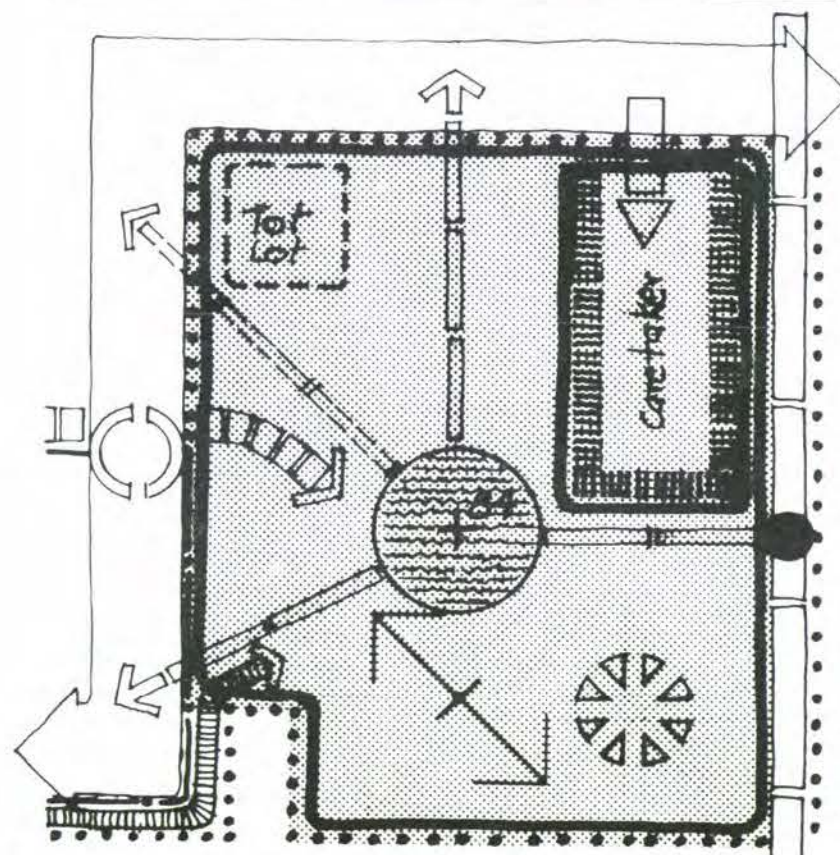
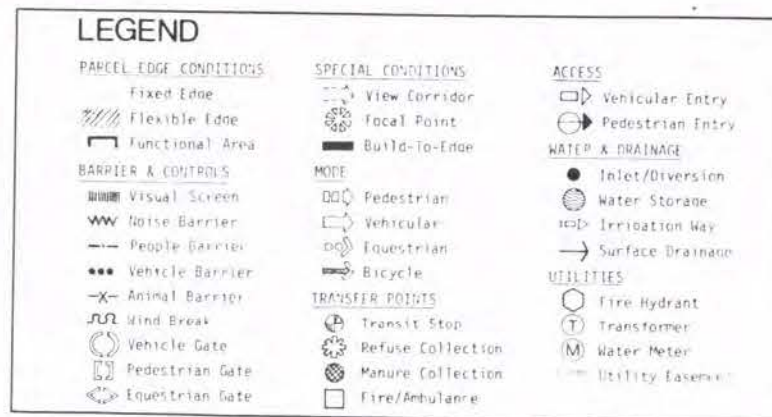
- One fire hydrant is required which, with careful siting, can provide additional fire protection to facilities on adjacent parcels.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

ARCHITECTURAL CONSIDERATIONS

- Consideration should be given to moving the existing metal shed (with bolted connections) from Roosevelt Park, if it can be appropriately enclosed.

PARK Pk



DEVELOPMENT DIAGRAM

SUMMARY

The Park provides an open space and recreation area that is open for public use on a year-round basis. The parcel can also accommodate various demonstration projects and the caretaker's residence at such time as they are developed. The Park area should visually relate to Nelson and Hover Roads, and functionally relate to the Rural Resource Center. All built facilities on the parcel should comply with detailed operational, space, and design considerations set forth in the Program. (See Section II)

STATISTICAL SUMMARY

Park

Caretaker's Residence	As Required
Totlot	2,500 s.f.min
Irrigation Water Storage	2 ac.ft.min
	4 min depth

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed edges only on this parcel.
- The Park has two functional areas: the recreation area which includes a totlot, and the caretaker residence area.

BARRIERS AND CONTROLS

- All sides of the parcel should have a vehicular barrier that prevents uncontrolled vehicular access to the parcel from surrounding roadways.
- Provide a people barrier as needed on part of the north side of the parcel to prevent uncontrolled pedestrian movement into the Demon-

stration area and other controlled areas on the site.

- Visually screen the caretaker's residence from Nelson Road and from activity areas in the Park.
- Provide visual control of the Nelson Road entrance for the caretaker's entrance.

SPECIAL CONDITIONS

- Preserve existing stands of trees.
- Provide major focal point visible from Nelson and Hover Roads. This focal point should become a major symbol for the entire Resource Park.

MODE

- A pedestrian system within the Park should link to the pedestrianway in the Rural Resource Center.
- Provide a bicycle trail through the Park to link the bicycle trail along Hover Road to points south.

ACCESS

- Provide private vehicular access to the caretaker's residence from the perimeter roadway.

WATER AND DRAINAGE

- Maintain existing surface drainage patterns on the parcel.
- Provide water storage area of sufficient size to meet anticipated irrigation needs for the main complex and Demonstration Plat.
- Provide a well to augment water storage in

non-ditch flow periods.

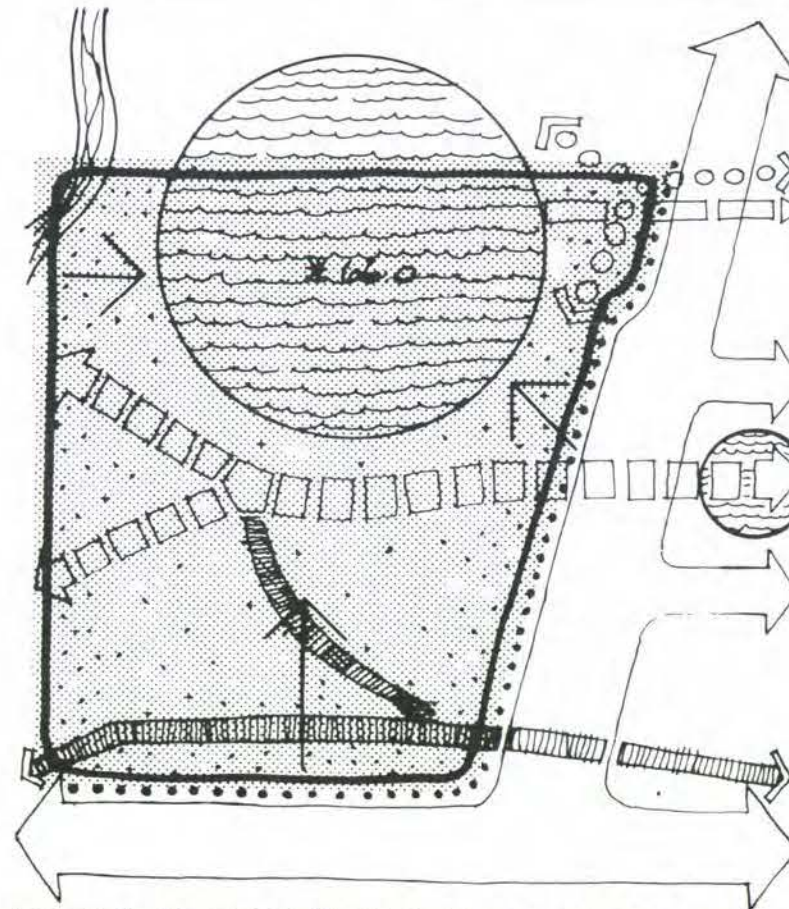
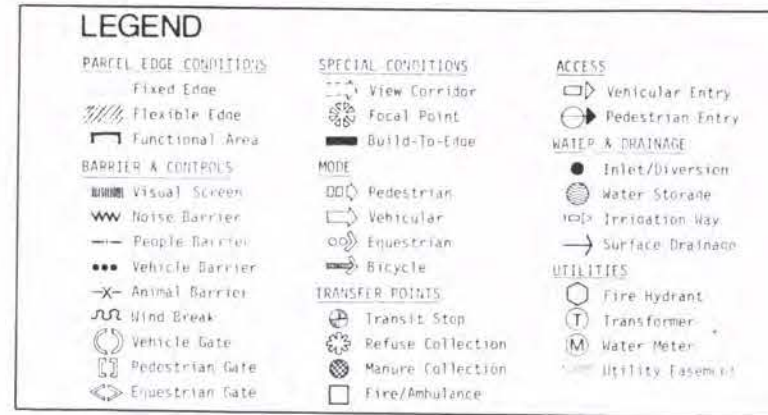
- Develop a diversion out of South Flat ditch and above and below ground irrigation laterals as required for irrigation of the site and to supplement all lakes.

UTILITIES

- Utilities as required for the caretaker's residence should be provided from Nelson Road.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

NATURAL PARK NP



DEVELOPMENT DIAGRAM

SUMMARY

The Natural Park area represents a significant open space parcel developed adjacent to the St. Vrain Creek open space corridor. It has extensive opportunities for providing nature-oriented educational experiences, as well as passive recreation. The entire Natural Park represents a demonstration project in reclamation of a gravel pit.

STATISTICAL SUMMARY

Natural Park	
Land Area	30-35 acres min
Water Area	10-15 acres max

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed edges only this parcel.
- The two functional areas are a land-filled passive recreation area, and a lake not to exceed 10 - 15 acres in surface area.

BARRIER AND CONTROLS

- This parcel should have free and open access to all but vehicular traffic.
- Barriers to restrict vehicular traffic into the site should be provided.

SPECIAL CONDITIONS

- The reclamation program should include development of natural habitats and compatible passive recreation areas.

ACCESS

- Vehicular access to the site should be restricted to maintenance vehicles.

MODE

- Bicycle and pedestrian paths should connect through the site to the St. Vrain Corridor, the Hover Road bicycle path, and the main entry to the Park complex south of Boston Road.

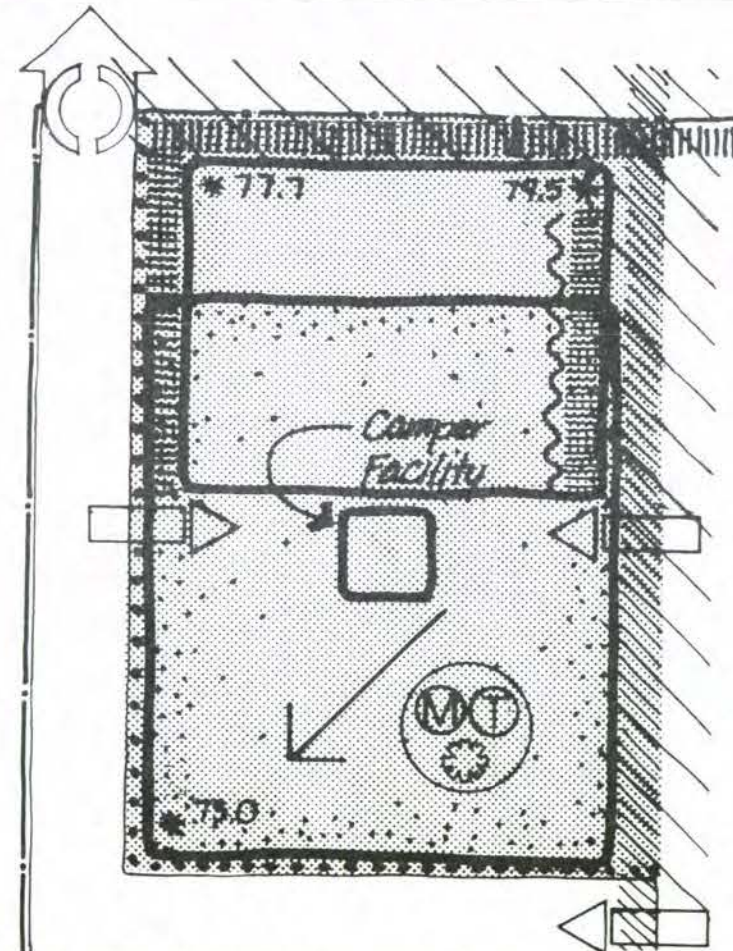
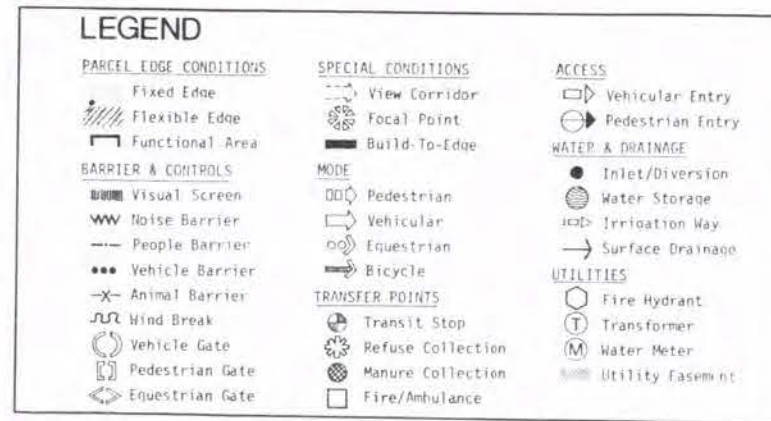
WATER AND DRAINAGE

- The lake is to serve a runoff retention function for the whole Park site - five acre feet of storage capacity is required.

Note: Additional detailed planning and design criteria for this parcel is contained in RECLAMATION, and IMPORTANT DESIGN ELEMENTS.

PARKING-CAMPERS

P_C



DEVELOPMENT DIAGRAM

SUMMARY

The Camper Parking area also provides a year-round facility for Park users. Exhibitors parking space can accommodate additional camping during fair time. The Camper Parking area is related to both the Livestock Area and the Outdoor Arena. It requires a degree of separation from public parking areas. All built facilities on the parcel should comply with detailed operational, space, and design considerations set forth in the Program. (See Section II)

STATISTICAL SUMMARY

Camper Parking	
Camper Facility (toilets & showers)	400 s.f.
Year Round Camping Spaces	50 spaces min
Parking/Camping Spaces	150 spaces min

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown.
- The Camper Parking parcel has two functional areas: a permanent year-round camping area, and an exhibitor parking area that can serve as additional camping area during the fair.

BARRIERS AND CONTROLS

- Edges of the parcel abutting the perimeter roadway should have a vehicle barrier to order vehicular access to the parcel.
- The year-round camping area should be visually screened on all parcel edges.
- The western edge of the year-round camper area should have wind protection.

TRANSFER POINTS

- Provide a refuse collection station in close conjunction to the Camper Facility.

ACCESS

- Vehicular access to the parcel should be provided both from the perimeter roadway on the east and from the service area of the Livestock/Horse Facilities parcel. These two access points should be connected to provide a secondary means of egress out of the Livestock/Horse Facilities parcel during periods of heavy use.

WATER AND DRAINAGE

- Control of surface drainage requires careful grading, particularly in year-round camping area. Drainage should be conveyed off the site in a northeasterly direction. Points of approximate elevation are provided on the diagram for overall design coordination.

UTILITIES

- A separate transformer should be provided, which will also serve any temporary power hook-ups in the year-round camping area.
- Maintain the accessibility of the utilities corridor crossing the parcel.

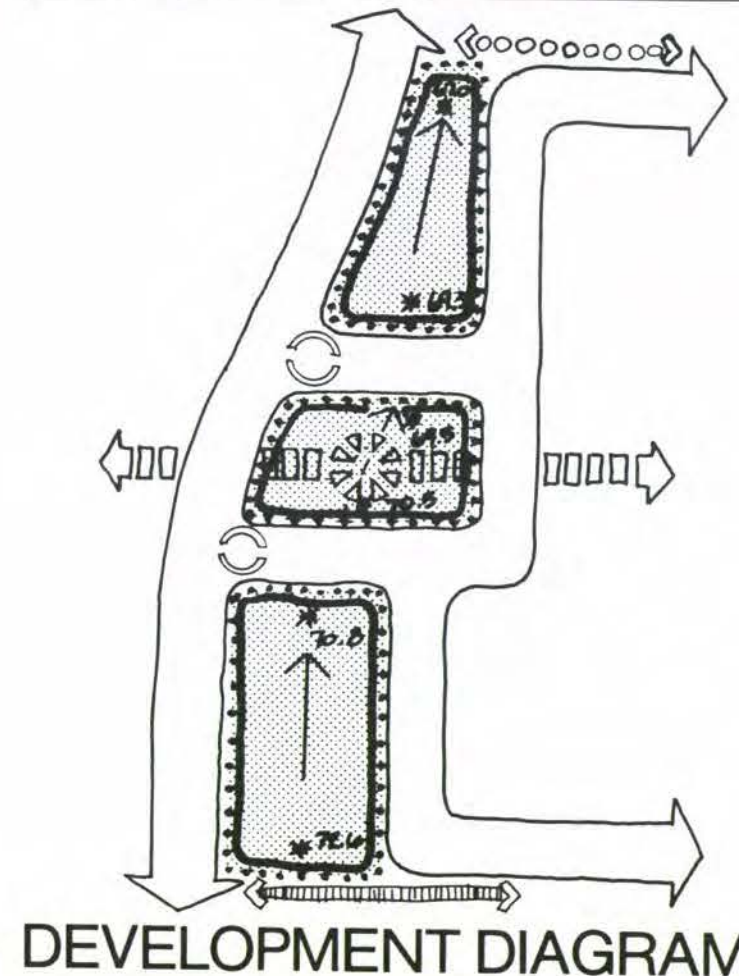
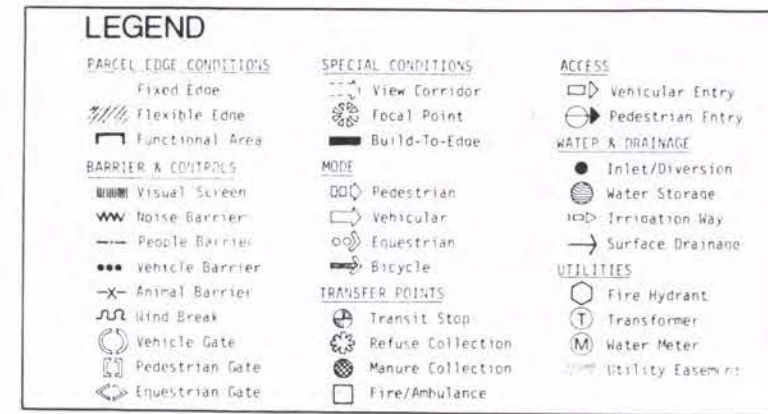
Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

ARCHITECTURAL CONSIDERATIONS

- Provide toilet and shower facilities for campers.

ENTRY LANDSCAPE

E₁



SUMMARY

The Landscaped Entry represents a "front door" feature of the Resource Park. Through its use of landscape materials, it forms a visual transition from the more informal areas of the Natural Park to the high-use areas of more formal organization south of Boston Avenue.

STATISTICAL SUMMARY

Not applicable

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed edges only on these parcels.
- The Landscaped Entry parcel(s) has a single functional area.

BOUNDARIES AND CONTROLS

- All edges of the Landscaped Entry parcel(s) are adjacent to perimeter roadways or to Boston Avenue and should have vehicular barriers.

SPECIAL CONDITIONS

- Provide a focal point that establishes the Landscaped Entry as the "front door" of the Rural Resource Park. The focal point should not obscure views to the developed Park facilities beyond.

MODE

- A pedestrianway must be provided across the parcel linking the Natural Park area to the main pedestrian street.

WATER AND DRAINAGE

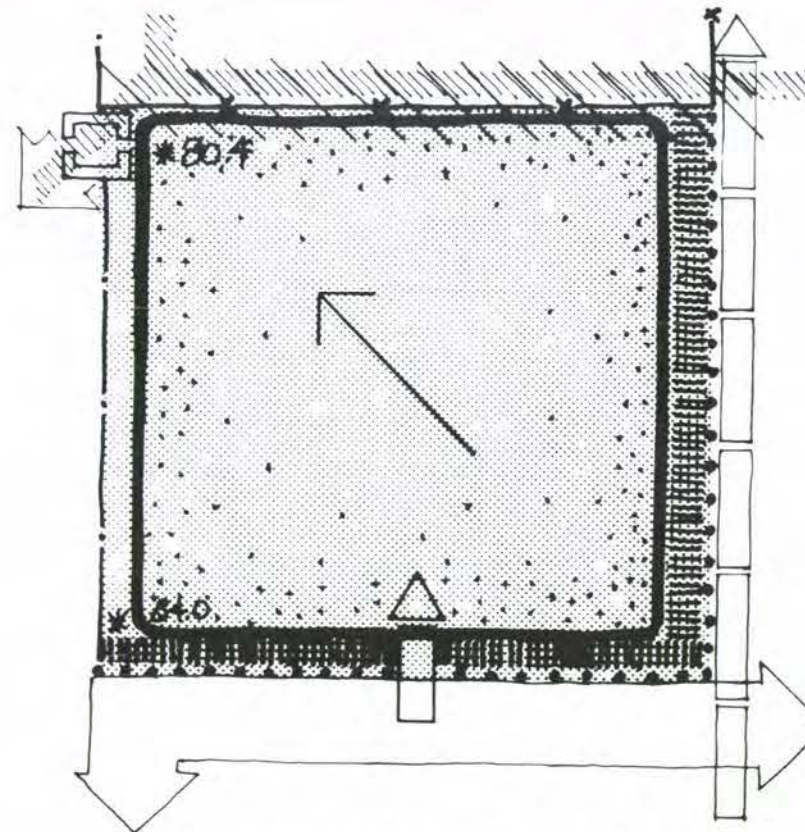
- All areas are to be reclaimed by filling and must be carefully compacted and graded to accommodate surface drainage.
- Excess surface drainage from the site and the Lykins Gulch drainage area should be conveyed through the parcel in an easterly direction. Points of approximate elevation are provided in the diagram for overall design coordination between parcels.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS, FIXED ELEMENTS, and RECLAMATION.

PARKING-GRAVEL

P_g

LEGEND		
PARCEL EDGE CONDITIONS	SPECIAL CONDITIONS	ACCESS
Fixed Edge	View Corridor	Vehicular Entry
Flexible Edge	Focal Point	Pedestrian Entry
Functional Area	Build-To-Edge	
BARRIER & CONTROLS	MODE	WATER & DRAINAGE
Visual Screen	Pedestrian	Inlet/Diversion
Noise Barrier	Vehicular	Water Storage
People Barrier	Equestrian	Irrigation Way
Vehicle Barrier	Bicycle	Surface Drainage
Animal Barrier		UTILITIES
Wind Break		Fire Hydrant
Vehicle Gate	TRANSFER POINTS	Transformer
Pedestrian Gate	Transit Stop	Water Meter
Equestrian Gate	Refuse Collection	Utility Easement
	Manure Collection	
	Fire/Ambulance	



DEVELOPMENT DIAGRAM

SUMMARY

The Gravel Parking area serves as a moderately large, year-round parking reservoir that will receive medium frequency of use. It provides public parking to accommodate most large attendance events at the Indoor Arena, the Rural Resource Center, and the Indoor Exhibit Building.

STATISTICAL SUMMARY

Gravel Parking Area

350 spaces min.

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown.
- The Gravel Parking area has one functional area.

BARRIERS AND CONTROLS

- Visually screen the Gravel Parking along the south and west edges of the parcel.
- Establish a vehicular barrier along the south and west edges of the parcel to prevent uncontrolled vehicular access and egress.
- Provide a people barrier along the north edge of the parcel to direct pedestrian entry into the controlled portions of the site through the year-round entry gates.

ACCESS

- Provide vehicular access to the site from the

perimeter roadway. Access should be limited to a single entry/exit point.

WATER AND DRAINAGE

- Surface drainage should be carefully controlled due to the extremely flat nature of the terrain. Excess surface drainage should be conveyed off the parcel in a northeasterly direction. Points of approximate elevation are provided in the diagram for overall design coordination between parcels.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

GRASS FIELD

F1

LEGEND

PARCEL EDGE CONDITIONS

- Fixed Edge
- Flexible Edge
- Functional Area

BARRIER & CONTROLS

- Visual Screen
- Noise Barrier
- People Barrier
- Vehicle Barrier
- Animal Barrier
- Wind Break
- Vehicle Gate
- Pedestrian Gate
- Equestrian Gate

SPECIAL CONDITIONS

- View Corridor
- Focal Point
- Build-To-Edge

MODE

- Pedestrian
- Vehicular
- Equestrian
- Bicycle

ACCESS

- Vehicular Entry
- Pedestrian Entry

WATER & DRAINAGE

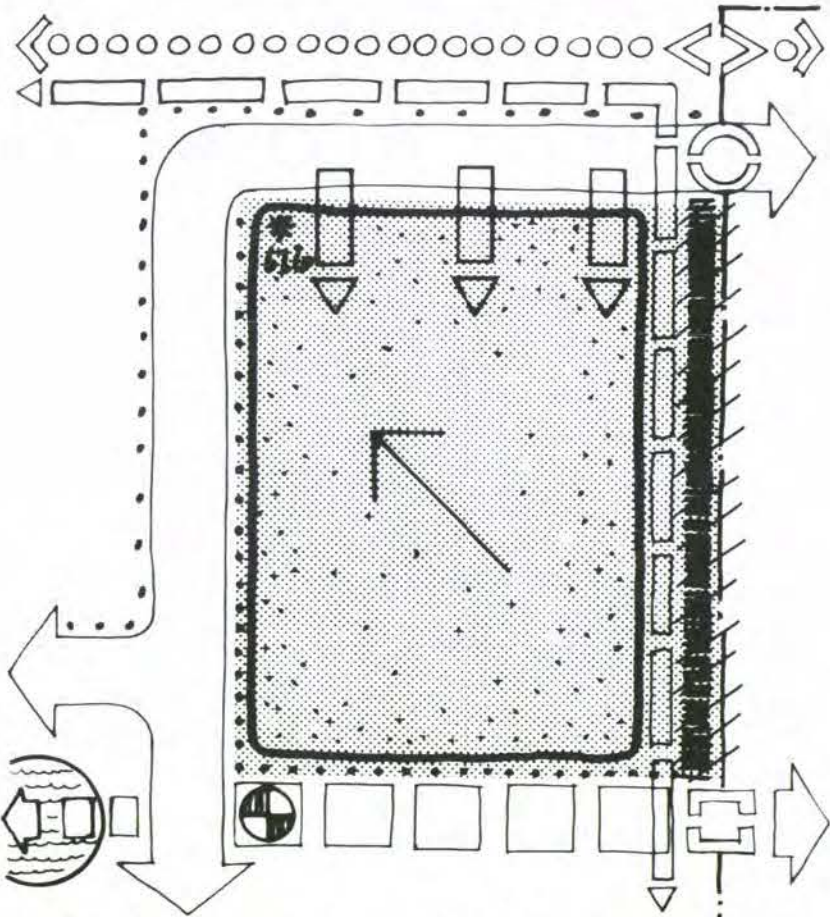
- Inlet/Diversion
- Water Storage
- Irrigation Way
- Surface Drainage

UTILITIES

- Fire Hydrant
- Transformer
- Water Meter
- Utility Easement

TRANSFER POINTS

- Transit Stop
- Refuse Collection
- Manure Collection
- Fire/Ambulance



DEVELOPMENT DIAGRAM

SUMMARY

The Grass Field area provides a large, open field to accommodate recreational activities not involving animals or vehicles. During fair time and other major spectator events, this field provides a large parking reservoir in close proximity to the major entry gate.

STATISTICAL SUMMARY

Grass Field	
Parking (fair and major events only)	775 spaces min

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown on the diagram.
- The Grass Field parcel has a single functional area.

BOUNDARIES AND CONTROLS

- Provide a vehicular barrier between the parcel and perimeter roadway on the north, and between the parcel and the pedestrian street on the west.
- Provide a vehicular barrier on the north and east sides of the perimeter roadway.
- Visually screen the parcel on the south.
- A people barrier must be provided on the south edge of the parcel to direct pedestrian movement into the controlled areas of the site to designated pedestrian entry gates.

ACCESS

- Vehicular access from the perimeter roadway should be continued to the east edge of the parcel. Multiple entry/exit points are suggested.

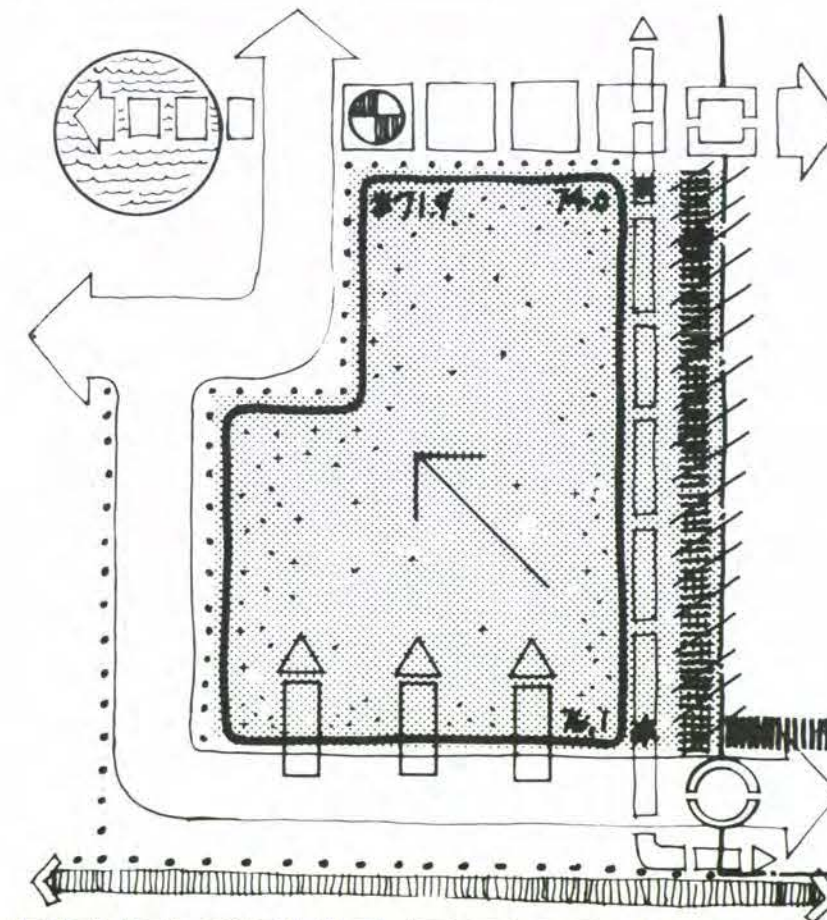
WATER AND DRAINAGE

- For intermittent irrigation needs a lateral may be provided along the southern edge of the parcel, connected with a similar lateral on the parcel to the west.
- Surface drainage must be carefully controlled. The reclaimed portion must be filled, compacted, and graded to conform with adjacent undisturbed areas and overall drainage and irrigation patterns. Excess surface drainage must be conveyed off the site in a northeasterly direction. Points of approximate elevation are provided in the diagram for overall design coordination between parcels.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

GRASS FIELD

F₂



DEVELOPMENT DIAGRAM

SUMMARY

The Grass Field area provides a large, open field to accommodate recreational activities not involving animals or vehicles. During fair time, and other major spectator events, this field provides a large parking reservoir in close proximity to the major entry gate.

STATISTICAL SUMMARY

Grass Field	825 spaces min
Parking (fair and major events only)	

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown on the diagram.
- The Grass Field parcel has a single functional area.

BOUNDARIES AND CONTROLS

- Provide a vehicular barrier between the parcel and the perimeter roadway on the north, and between the parcel and the pedestrian street on the east.
- Provide a vehicular barrier on north and west sides of the perimeter roadway.
- Visually screen the parcel on the south.
- A people barrier must be provided on the south edge of the parcel to direct pedestrian movement into the controlled areas of the site to designated pedestrian entry gates.

ACCESS

- Vehicular access from the perimeter roadway should be confined to the west edge of the parcel. Multiple entry/exit points are suggested along this edge.

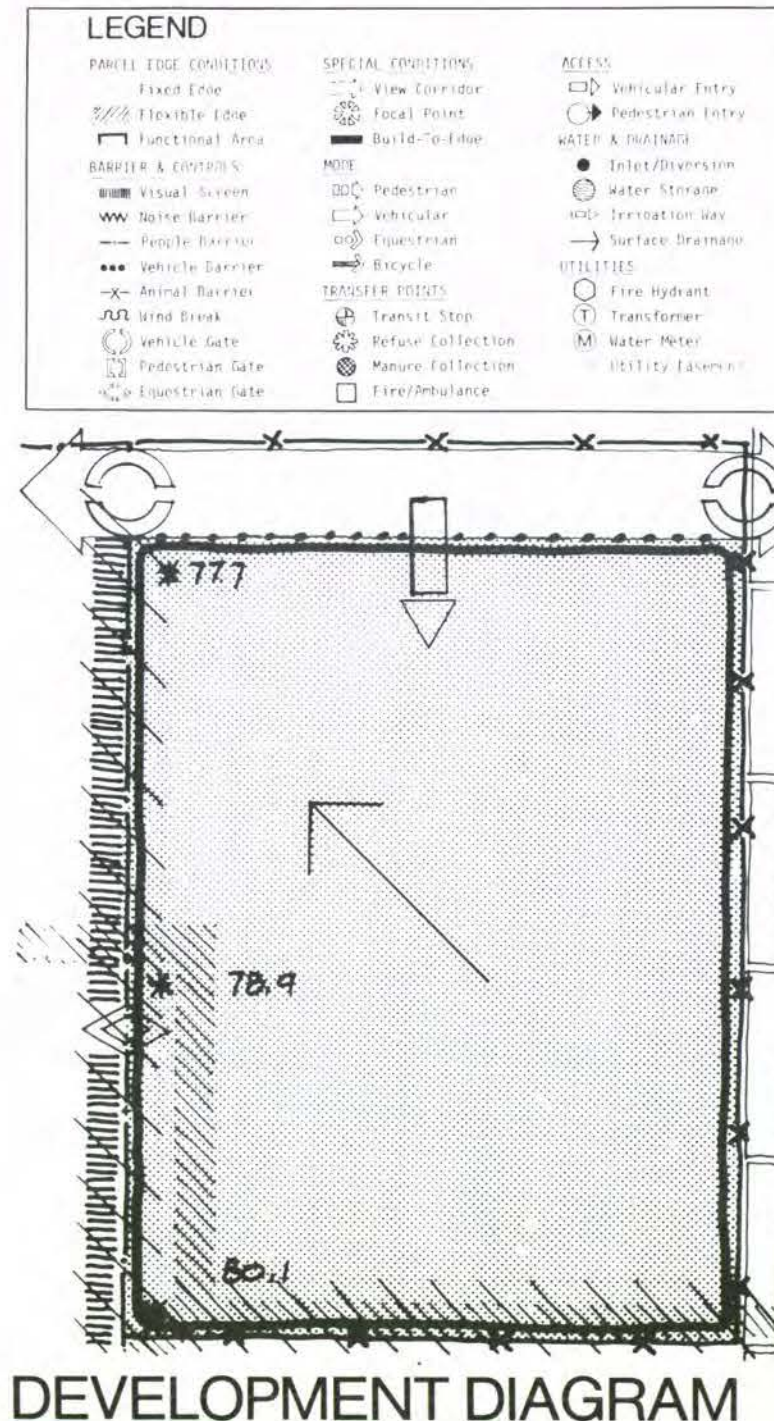
WATER AND DRAINAGE

- For intermittent irrigation needs, a lateral may be provided along the southern edge of the parcel that connects with the nearest available lateral from the South Flat Ditch.
- Surface drainage must be carefully controlled. The reclaimed portion must be filled, compacted, and graded to conform with adjacent undisturbed areas and overall drainage and irrigation patterns. Excess surface drainage must be conveyed off the parcel in a north-easterly direction. Points of approximate elevation are provided in the diagram for overall coordination between parcels.
- Fill should be quality controlled to minimize high ground water potential by maintaining subsurface porosity.
- Surface should require minimal maintenance and irrigation.

Note: Additional detailed planning and design criteria related to development of this parcel are contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

GRASS FIELD

F₃



SUMMARY

The Grass Field area provides a large open area for structured and unstructured outdoor horse related activities that occur during non-fair periods. During the fair, this area provides additional public parking well-related to the south pedestrian entry gate.

STATISTICAL SUMMARY

Grass Field
Public Parking (fair only) 700 spaces min

DEVELOPMENT GUIDELINES

PARCEL EDGE CONDITIONS

- Fixed and flexible edges as shown on diagram.
- The Grass Field area has a single functional area.

BARRIERS AND CONTROLS

- Provide an animal barrier on the south and west edges of the parcel and on the east edge of the perimeter road.
- Provide a people barrier on the north edge of the parcel to direct pedestrian movement from the parcel into the controlled areas of the site through the designated pedestrian entry gates.
- A vehicle barrier should be provided between the east edge of the parcel and the perimeter roadway.

ACCESS

- Vehicular access to the parcel must be pro-

vided from the perimeter road and should be limited to a single entry/exit point.

WATER AND DRAINAGE

- Surface drainage must be carefully controlled due to the extremely flat nature of the terrain. Surface drainage should be conveyed off the parcel in a northeasterly direction. Points of approximate elevation are provided on the diagram for overall design coordination between parcels.
- Intermittent irrigation needs should be met by the South Flat ditch which flows along the south edge of the parcel.

UTILITIES

- Maintain accessibility of the utility corridor crossing the parcel.

Note: Additional detailed planning and design criteria related to development of this parcel is contained in IMPORTANT DESIGN ELEMENTS and FIXED ELEMENTS.

ILLUSTRATIVE PLAN

THE PLAN

As a means of illustrating the implications and composite effect of the Development Guidelines and the specific Parcel Development Criteria for each parcel, the Concept Plan has been further refined into an Illustrative Plan. This Plan represents one of many potential responses to the planning guidelines, and is intended primarily to convey the spirit, intent, and overall character achievable with the Rural Resource Park. Notwithstanding, in order to meet an early study objective, it represents a detailed level of planning considerations in order to provide a plan upon which initial development of the Park could begin.

ELEMENTS

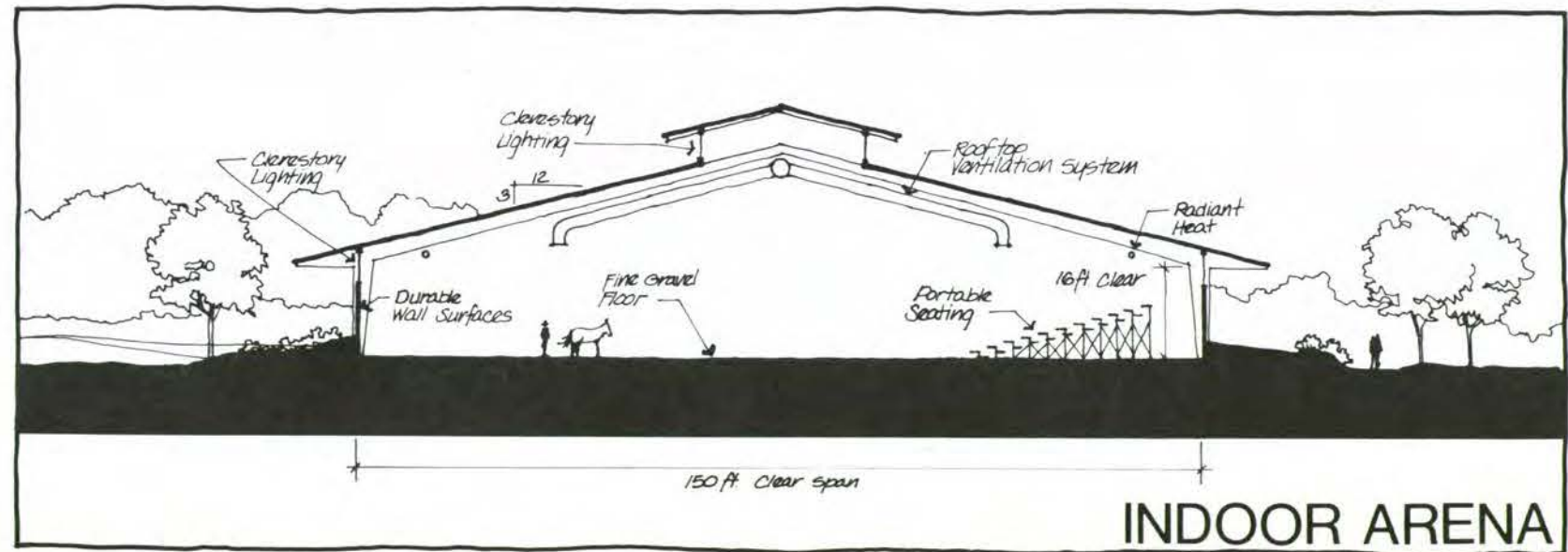
The Illustrative Plan has also been dissected into a number of composite elements such as facilities,

circulation, landscape, drainage, etc. to further illustrate overall relationships implied in the Development Guidelines and Criteria.

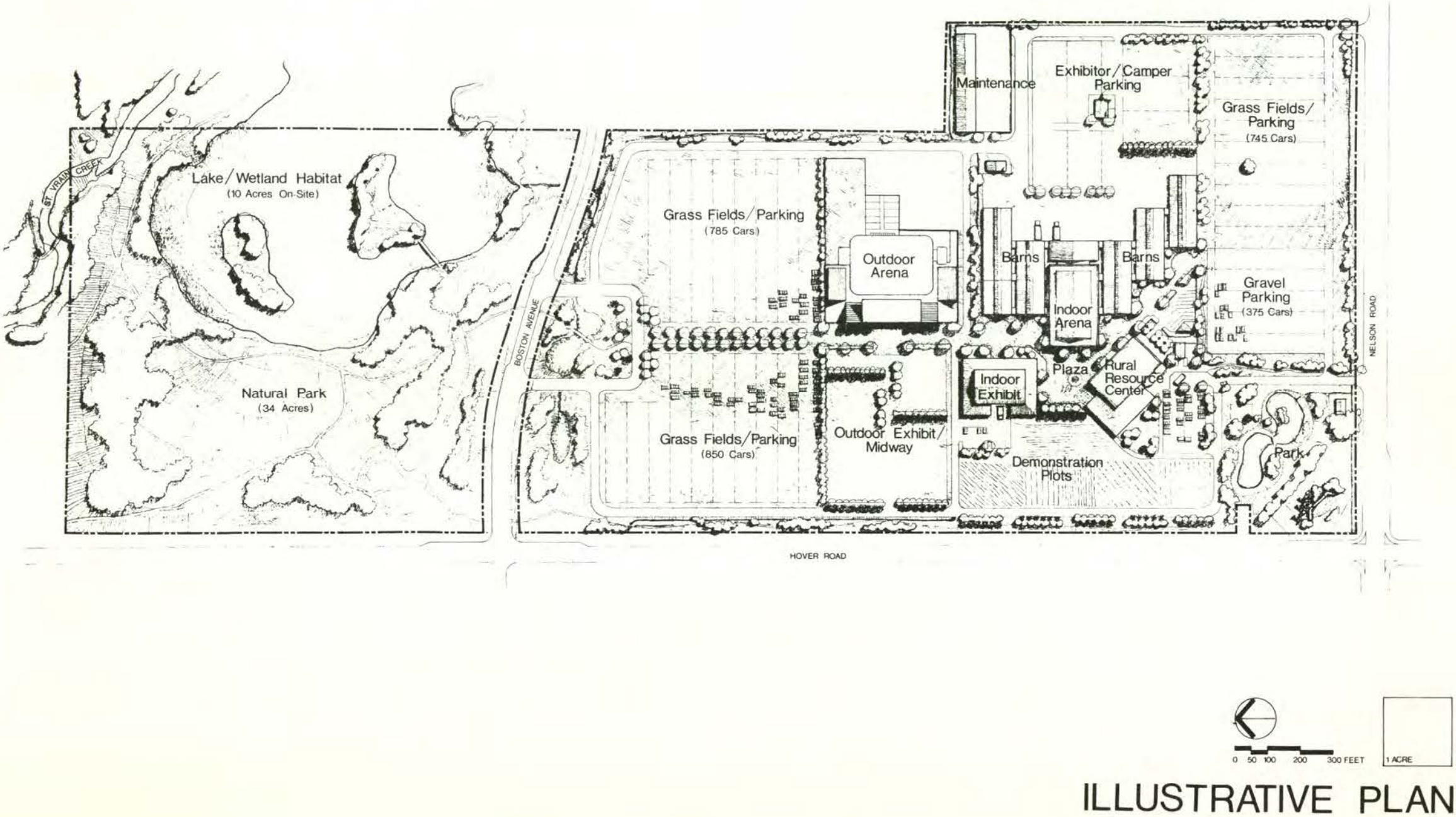
FACILITIES

The Indoor Arena incorporates the Sales Ring and Livestock Show Pavilion which were originally programmed as individual facilities. This combination not only provides a more cost-effective solution, but also affords the sale and show activities a larger, enclosed space. Since the sale/show activities occur primarily at fair time, and the horse activities are non-fair related, scheduling conflicts would be minimal throughout the balance of the year.

The gross area of the Indoor Arena is unchanged at 38,000 square feet; governed by the space required for horse activities. This provides more than twice the area required for the sale and show functions.



Boulder County Rural Resource Park



The sketch section of the Indoor Arena illustrates the various architectural systems discussed in the Development Guidelines.

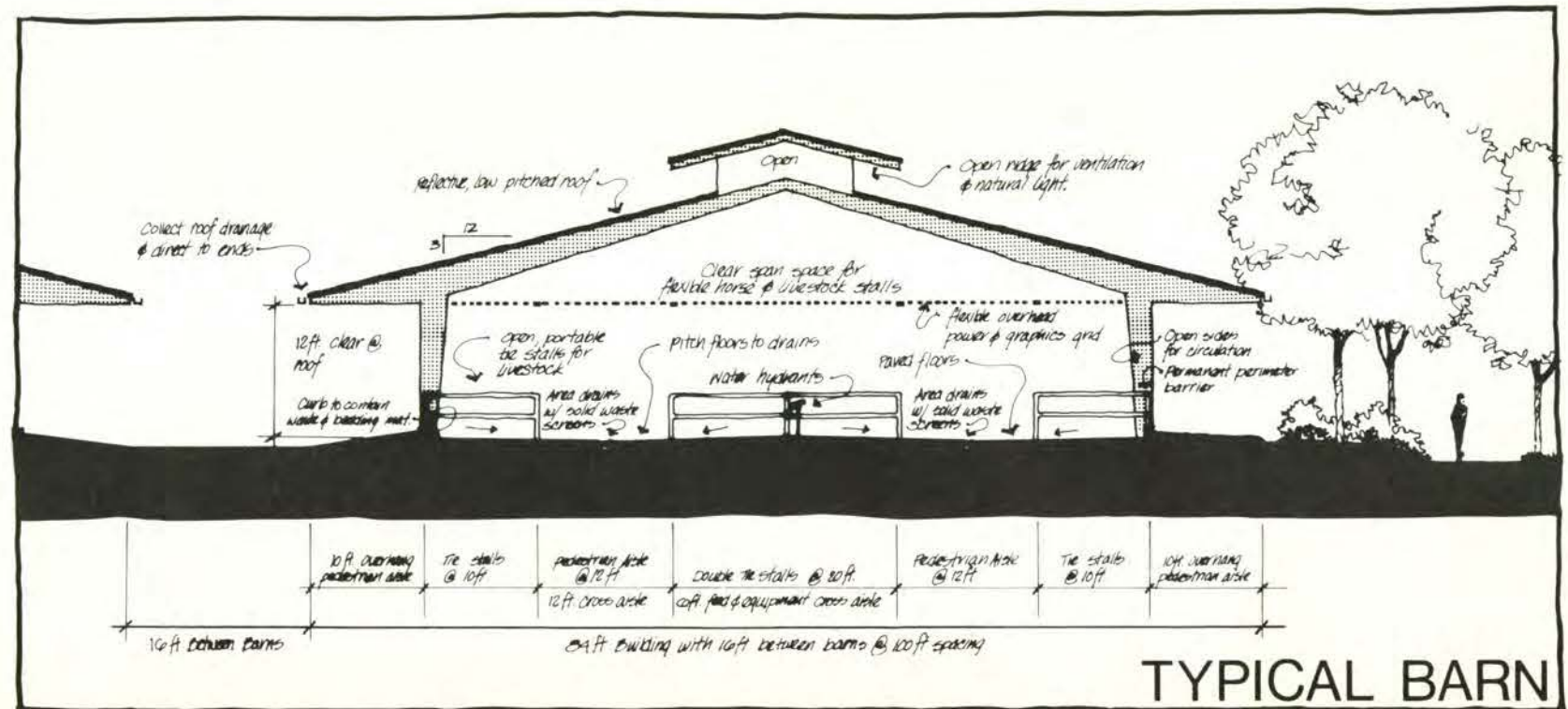
The Barns shown combine the functions of both the livestock and the horse facilities identified in the program. By using portable horse stalls and cable ties, the Barns achieve a high multiple-use flexibility with a wide-range of efficient uses. Since the Barns, like the Indoor Arena, are used for livestock during fair time, and horse uses are primarily non-fair related, scheduling does not represent a significant obstacle to such an interchangeable use.

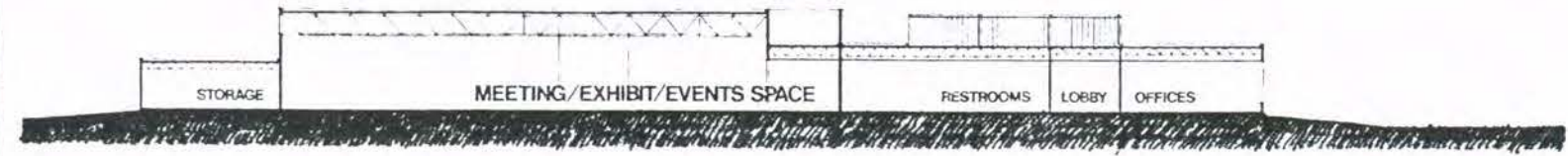
The economy of combining functions is demon-

strated by the reduction in total areas involved. The livestock and horse facilities together were programmed at over 140,000 square feet, while the Barns shown are approximately 80,000 square feet. On a scheduled basis, this represents more space than either facility had by itself.

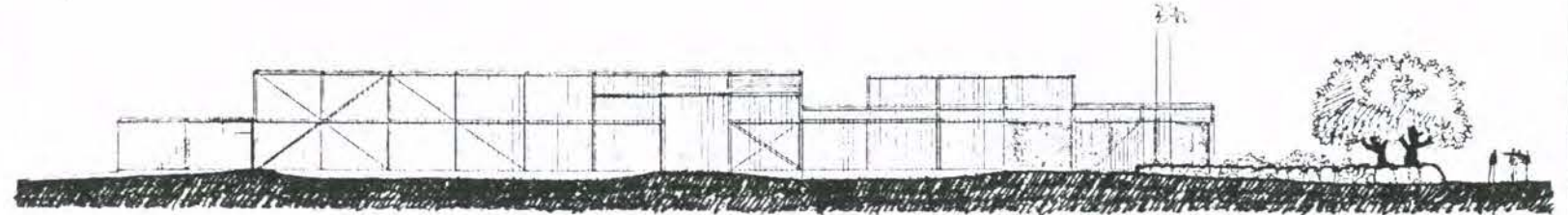
The Barns are stepped back from each other to maximize the exposure of exterior walls to prevailing breezes for natural ventilation. They are linked directly to a covered warm-up area of about 10,000 square feet, which also serves as a staging area for the sale and judging operations.

The sketch section below demonstrates the application of the various Architectural Systems principles to the Barns.





Section



Elevation

RURAL RESOURCE CENTER

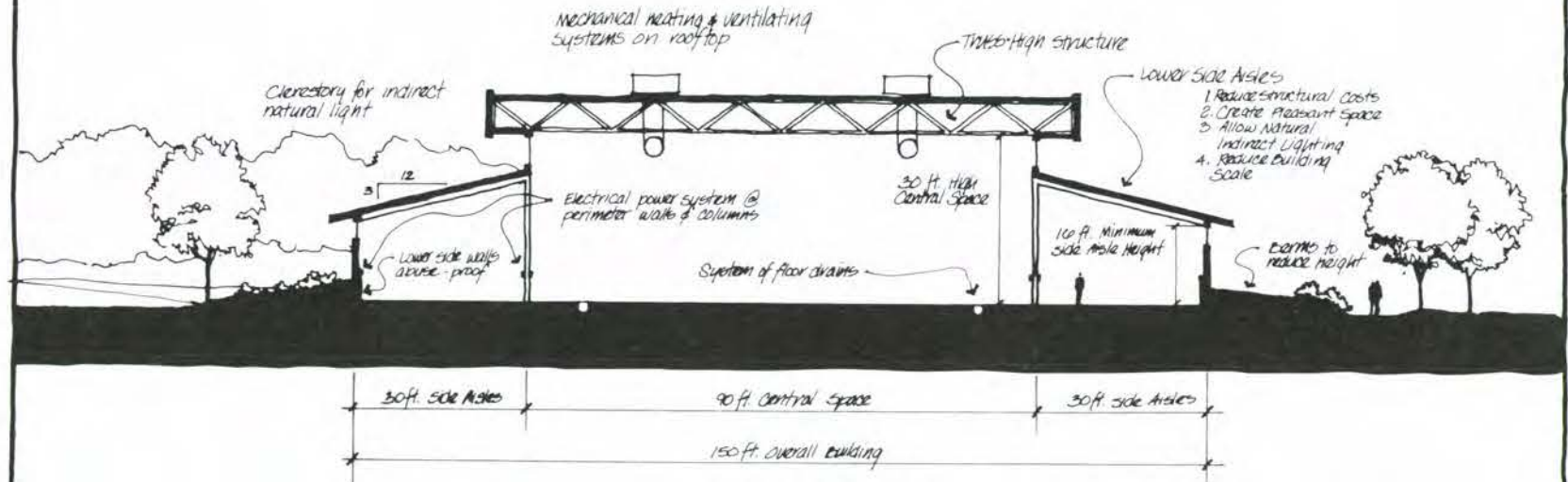


EXHIBIT HALL

The siting of the Rural Resource Center sets it apart as the major year-round facility at the Park. A shaded outdoor patio-court has been added to the program to accommodate smaller group activities that would be overwhelmed in the Plaza. The drawings of this facility below were prepared for a grant application and illustrate the variety of spaces in the facility, as well as its potential character if designed with industrial components.

The Exhibit Hall is developed with a lower ceiling area around the perimeter of the large exhibit space. In addition to its interior function, this space faces the exterior pedestrian street, with a shorter wall height more in keeping with the scale of the walkway. The sketch section illustrates architectural considerations.

LANDSCAPE

A framework of major canopy trees reinforces the central pedestrian street; beginning with a formal alley leading from the entry area and parking lots to the front gate, and then through the complex in a regular, but less formal, pattern. Major canopy trees also highlight the two entries from Nelson Road, and provide shade and silhouette in the livestock loading area. Hedgerows visually screen the camper and gravel parking areas. Wind-breaks are located west of the service road to protect the Demonstration Plots with minimal intrusion, and are used to protect, as well as define spaces and provide a backdrop within the Outdoor Exhibition area and main Plaza. A bosque of trees shades the Resource Center's patio-court, and entry walk to the pedestrian street.

To minimize runoff and visual impact, the only hard surfaced parking area is the highly-used lot at the Resource Center. Ornamental and native planting is shown around building entrances,

along the walkway, and in the day-use Park to supplement existing vegetation. Native planting in the Nature Park is further detailed in the Reclamation Environments map.

WATER AUGMENTATION

A series of lateral ditches carry water out of the South Flat ditch to irrigated areas and to augment the lake. The Grass Fields and Camper Parking will need water initially to establish native grasses such as Buffalo grass - beyond that only intermittently in the driest years.

Direct augmentation of the lake from the South Flat is not the most efficient strategy, nor applicable until reclamation is completed; but in the absence of alternative agreements, it is shown here for demonstration purposes. Conveying flows across the site in the Beckwith ditch is shown as an option. Culverting the Beckwith ditch will be required through approximately half the site.

A secondary irrigation system supplies water to the lake in the day-use Park to be stored for irrigation of the demonstration plots and for sprinkler irrigation of the pedestrian street planting. Preliminary estimates indicate that between 100-200 GPM/4 hour pumping capacity will be required for regular sprinkler watering.

DRAINAGE

A series of surface swales, coordinated with the preliminary gradings data, convey runoff along the pedestrian street and through the livestock loading area, along the eastern service road and eventually under Boston Road to the Nature Park lake. Irrigation water from the Demonstration Plot area will empty into the Beckwith ditch, as this area drained historically. Until the reclamation and lake are completed,

LIGHTING

The lighting levels recommended in the Guidelines has been applied faithfully to the site. Sodium lighting, with its warm color, is utilized to differentiate and reinforce the pedestrian street as the main activity area, while the colder, more efficient mercury vapor source is used for the large parking and service areas. Special effects incandescent landscape lighting is used to highlight background features at the two major entry areas. Bright sodium lighting is used to highlight focal points.

CIRCULATION

Parking provided on-site is expected to be more than adequate to meet the Park's needs for the foreseeable future. Parking spaces are allocated within the site in the following manner:

<u>Public</u>			
Boston entrance	1585	(2010 overflow)	
Nelson entrance	1120	(1315 overflow)	
Total	2705	(3325 overflow)	
<u>Exhibitor</u>			
Campers	65		
Livestock area	200		
Rodeo participants	100		
Other	85		
Total	450		

Public parking is distributed between Boston and Nelson Roads on approximately a 60%-40% basis respectively. Based on typical car occupancy levels, the projected parking spaces will accommodate a fair crowd of 8,650 people.

Since parking lot surfaces will not have spaces marked, attendants will be required to direct parking for all maximum events. Attendant parking greatly increases the effective utilization

of land, as well as that of roads and intersections for peak ingress/egress periods.

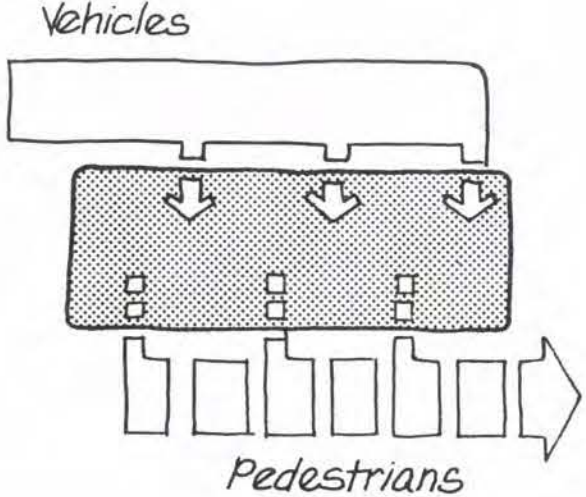
Vehicular access into the parking lots is designed to avoid, or at least minimize, conflicts with pedestrian movements between cars and walkways. The accompanying diagram illustrates the optimum internal movement within a parking lot.

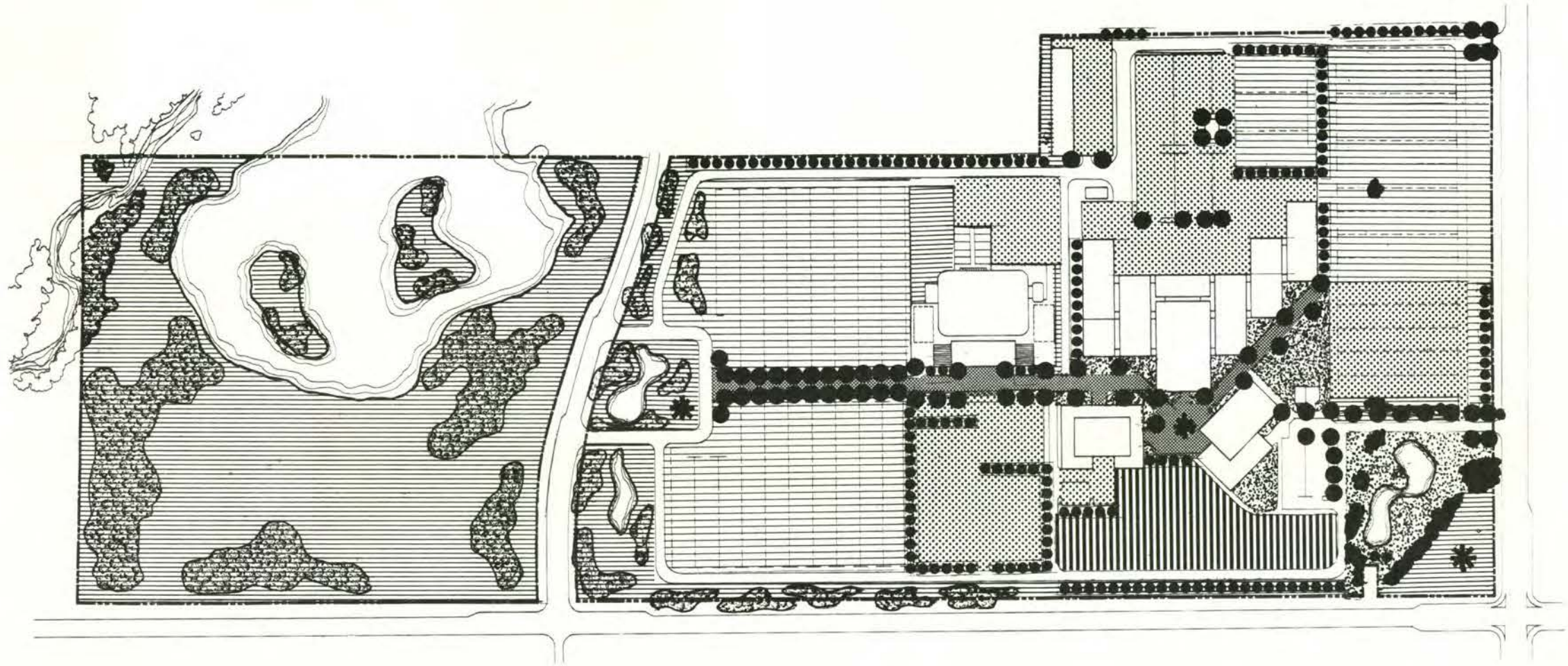
ELECTRICAL POWER

Transformers located near the utility corridor provide power to buildings, or groups of buildings. In outdoor areas, power for lighting and other needs is provided by a transformer and a control in the building most related to the use of that area.

SEWER AND WATER

Water main cut-off valves add flexibility to the system in case of disruptions. A minimum number of fire hydrants are located to provide maximum coverage of all facilities and areas of greatest need.





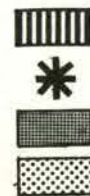
LEGEND



Major Canopy
Major Canopy-Existing
Native Plantings
Native - Existing



Screen-Buffer
Ornamental Plantings
Native Grasses
Short Grasses



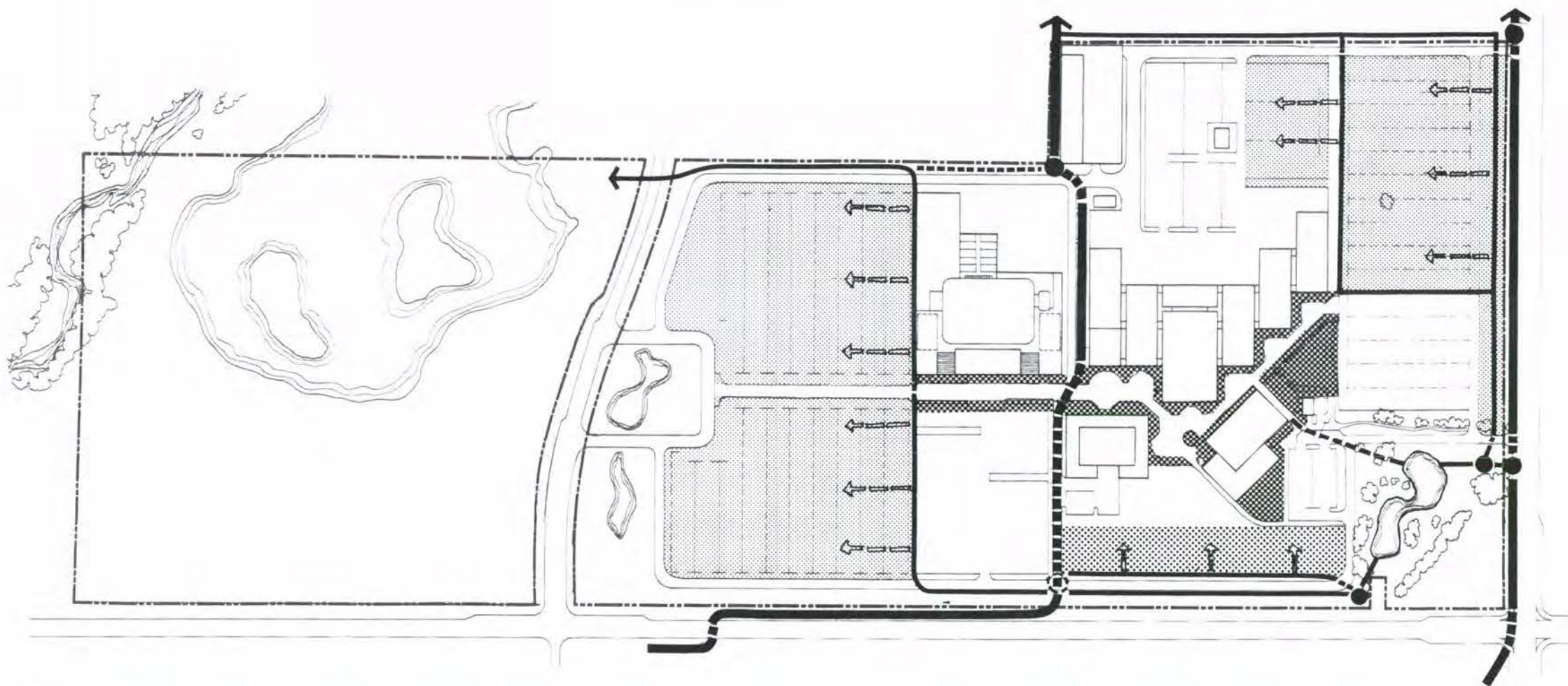
Agri-Demonstration Area
Feature Area
Fine Gravel
Gravel














0 50 100 200 300 FEET



LANDSCAPE

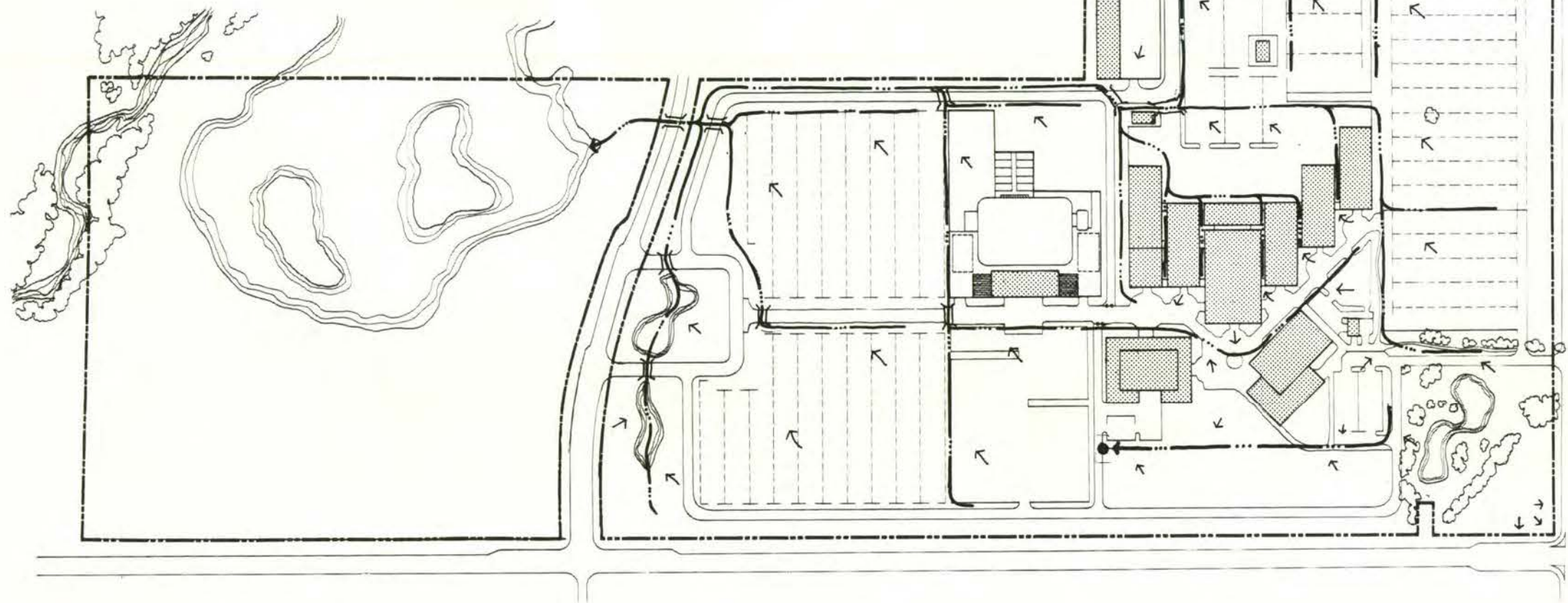


LEGEND





	Major Ditch		Lateral Ditch		Potential Ornamental Irrigation
	Culvert		Culvert		Grass- Intermittent Irrigation
	Diversion		Sprinkler Supply		Cultivation- Irrigation
	Crossover		Irrigation Flow		



WATER AUGMENTATION

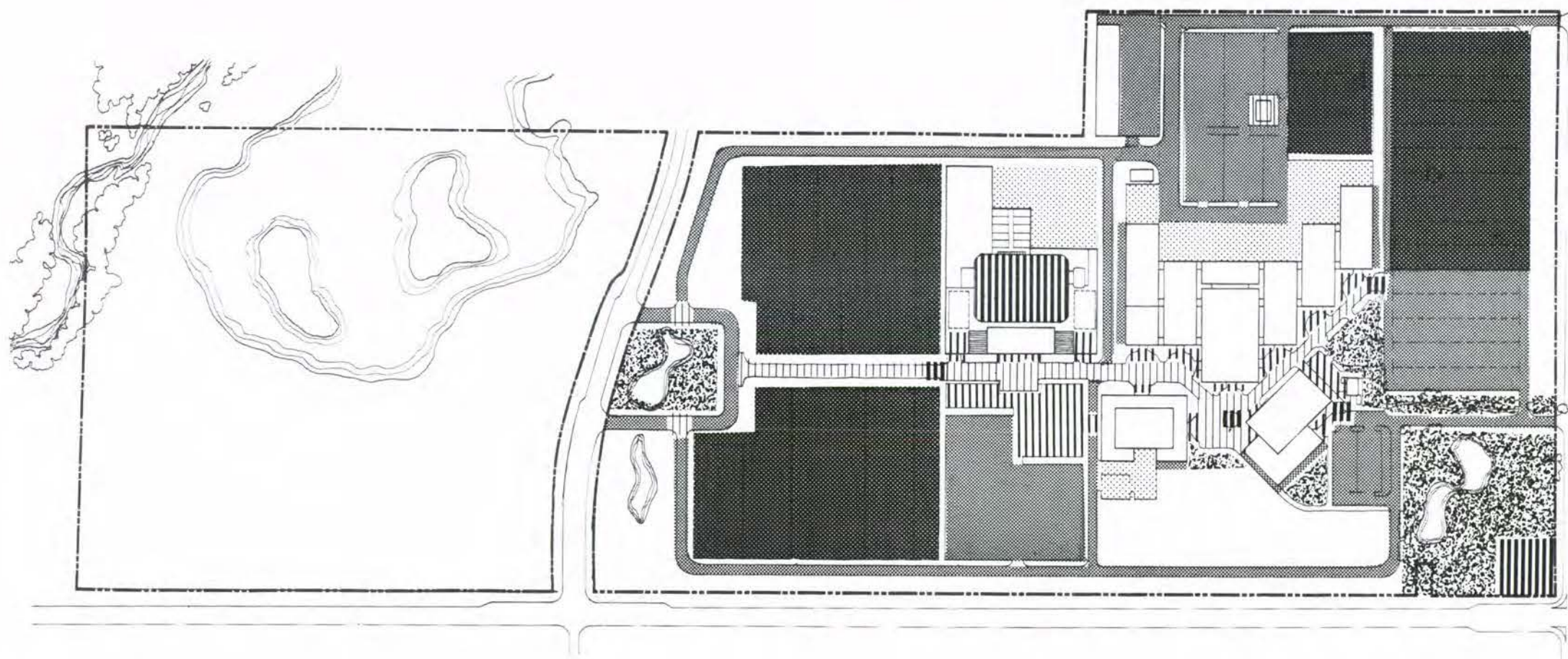


LEGEND

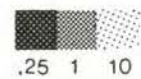
-  Surface Swale
-  Direction of Overland Flow
-  Road Crossing (Culvert)
-  Inlet to Beckwith Ditch



DRAINAGE



LEGEND



Mercury Vapor



Sodium



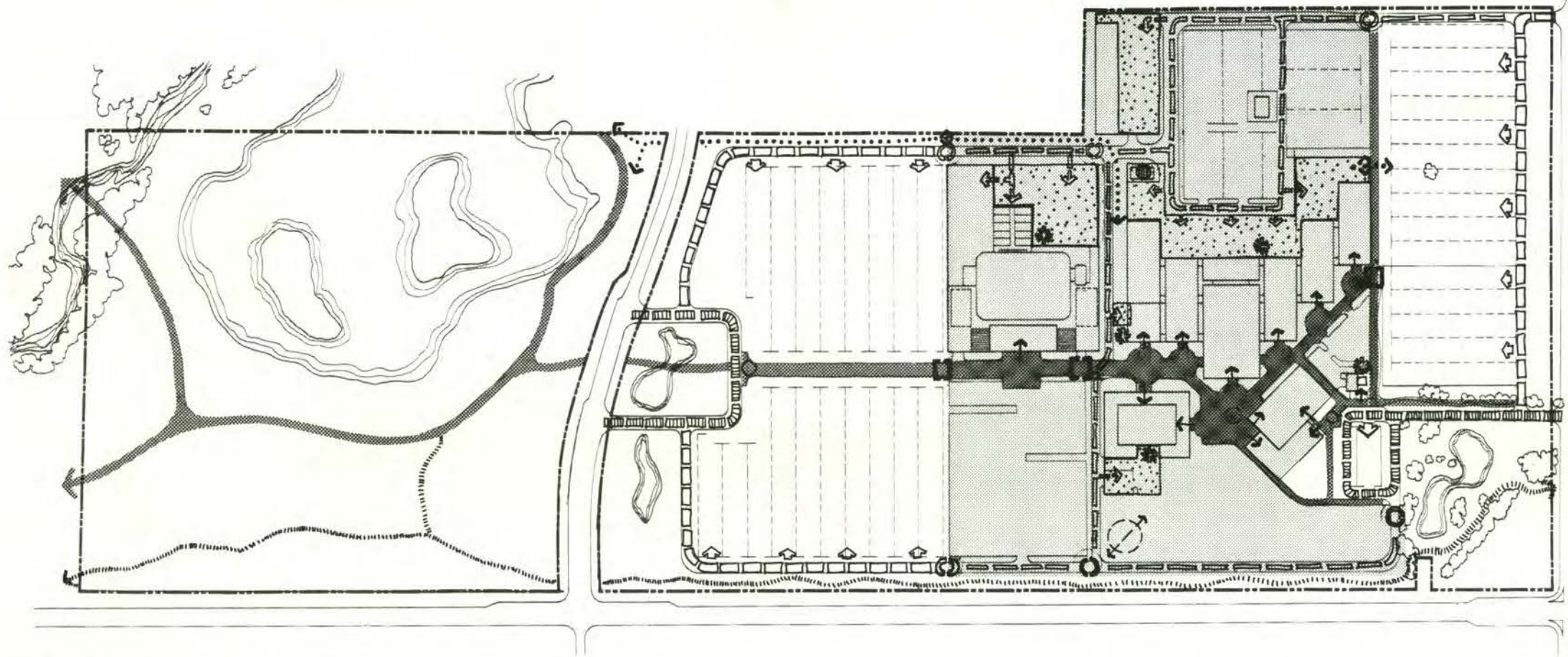
Incandescent - Special Effects



0 50 100 200 300 FEET

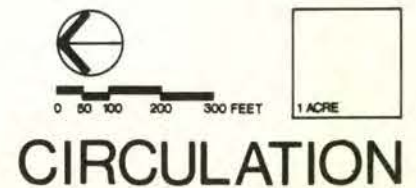


LIGHTING

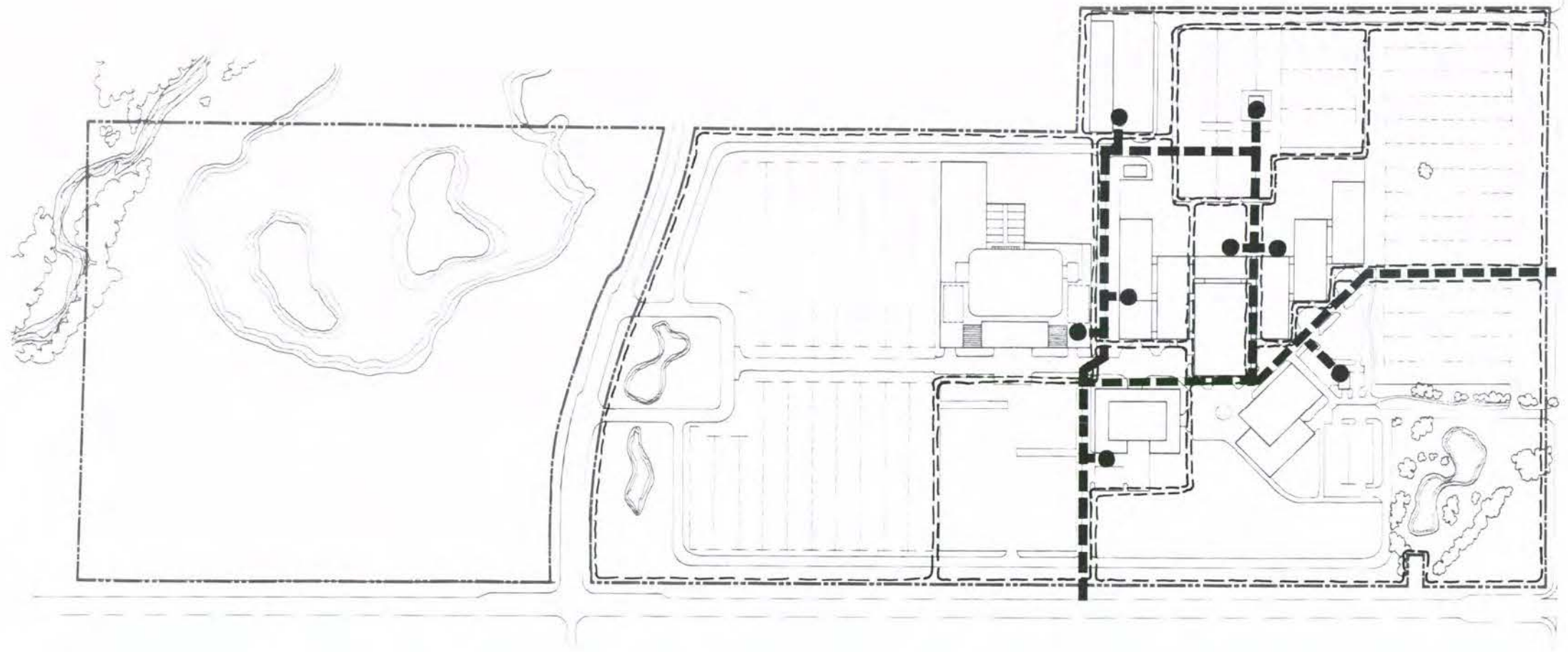


LEGEND

MODE	ACCESS	CONTROL	TRANSFER POINTS
Auto/Bus	Parking	Auto Gate	Transit Drop Off/Pickup
Auto	Service	Pedestrian Portal	Refuse Collection Point
Service/Emerg.	Pedestrian	Equestrian Gate	Manure Collection Point
Bicycle	Load/Unload	Control Area	Fire Ambulance Parking
Equestrian			Emerg. Heliport
Pedestrian			



CIRCULATION

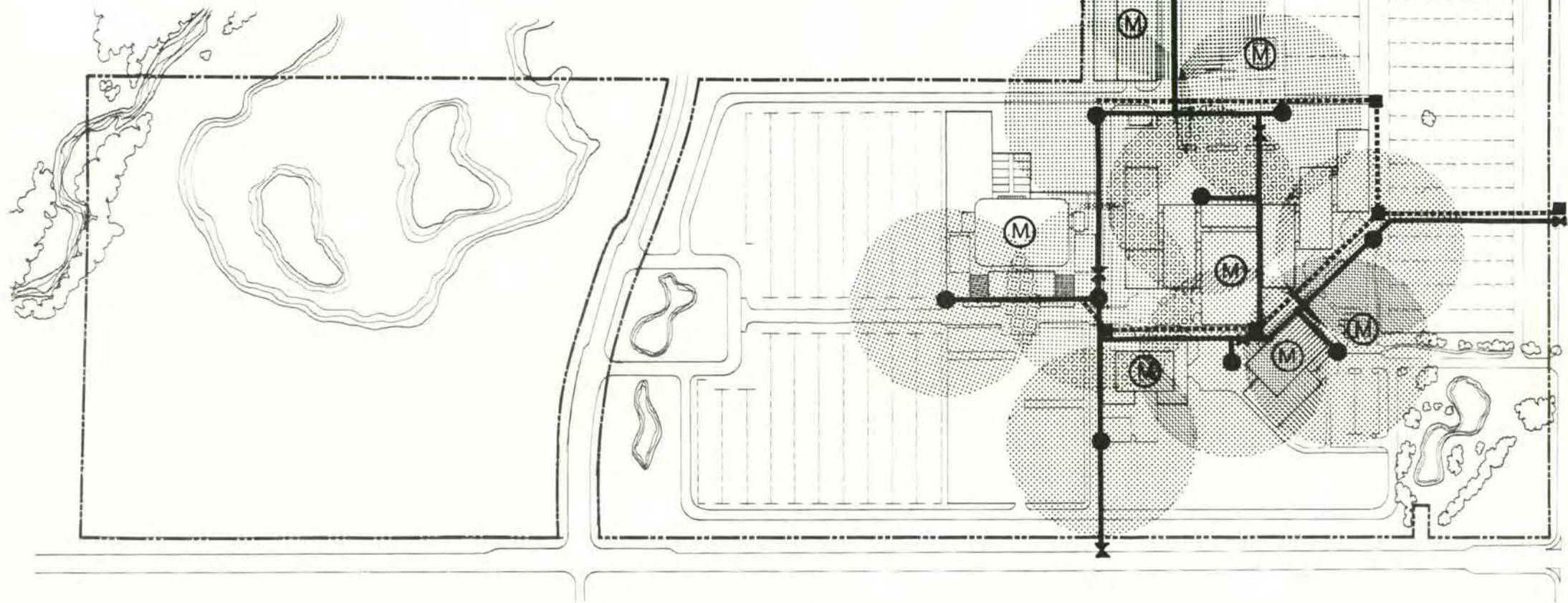


LEGEND

- ■ ■ Primary Distribution & Communication Corridor
- Approximate Transformer Location
- Transformer Service Area





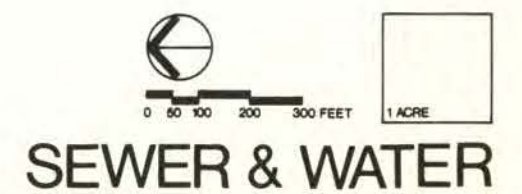
ELECTRICAL POWER



LEGEND

- Sewer Collector
- Water Main
- Sewer Manhole or Cleanout
- Fire Hydrant
- ⋈ Water Main Cut-Off Valve

 Water Meter
 Fire Hydrant Service Area



V. ACTION PLAN

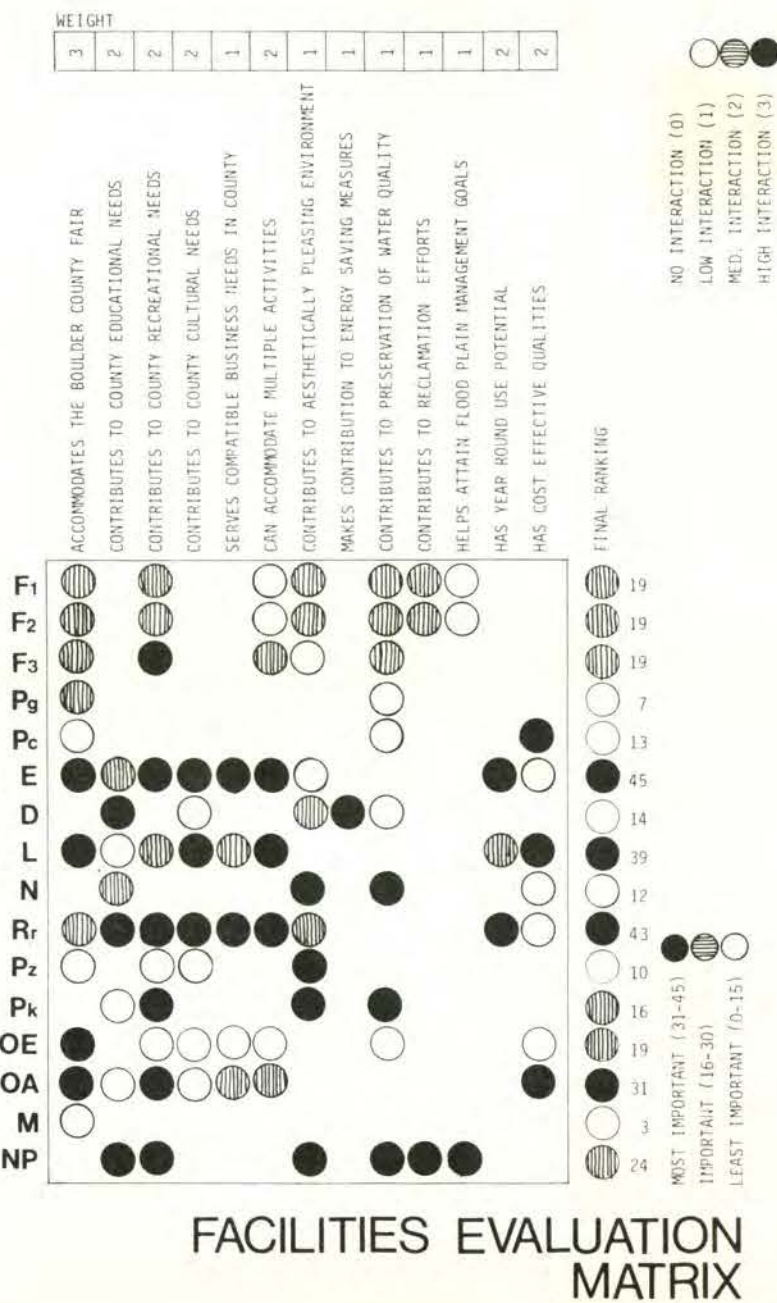
DEVELOPMENT SEQUENCE

The development of the Boulder County Rural Resource Park will occur over a period of years. The relative order of completion of the various components in the Park can have a significant effect upon both its interim success and the realization of long-term goals and objectives. The interim success of the Park in performing its necessary functions as well as the ability to generate income for its continued operation, will be dependent upon the order in which various facilities are completed. Less obvious, but of equal importance, will be the success of the Park in generating a strong "sense of place" in the early stages of its development. The manner in which development occurs is critical to the creation of this "sense of place" and relates strongly to the need for an overall approach to development rather than an approach that is building-oriented. Because a sense of place is achieved by careful attention to the total development of the site, building facilities should not be developed separate from the development of landscaping, lighting, parking, service areas and other site features related to their use.

A development sequence for the Resource Park must concern itself with two broad categories: the orderly completion of various development parcels, and the development of fixed elements such as access roads, utilities, etc. necessary to support them.

DEVELOPMENT PARCELS

An assessment was made of the degree that each development parcel contributed to the attainment of major goals and objectives for the Resource Park. The degree that each parcel interacted with each goal or objective was scored on a low to high basis. A weighted value was attached to



each goal and objective in order to obtain a ranking of the relative importance of all development parcels as they relate to the major goals and objectives.

While the subjective nature of the preceeding assessment is recognized, it serves to make explicit the process of ranking the importance of various development parcels. Based on the foregoing assessment, the development parcels can be ranked in the following order of importance:

Most Important

1. Indoor Exhibit Area (E)
2. Rural Resource Center (Rr)
3. Livestock Facilities with Indoor Arena (L)
4. Outdoor Arena (OA)

Important

5. Natural Park (NP)
6. Outdoor Exhibition Area (OE)
7. Grass Fields (F1/F2/F3)
8. Park (Pk)

Least Important

9. Demonstration Area (D)
10. Camper Parking (Pc)
11. Nursery (N)
12. Plaza (Pz)
13. Gravel Parking (Pg)
14. Maintenance Facilities (M)

While decisions regarding the overall sequence of development must necessarily be made on an ongoing basis by the county in the context of county-wide policy, the foregoing assessment can contribute to the determination of those facilities that merit construction in the initial phase of development.

While second only to the Indoor Exhibit Area in

contributing to the attainment of major goals and objectives, the Rural Resource Center represents the single most expensive facility expected to be built on the site. If faced with a limited initial construction budget, deferring construction of the Rural Resource Center to a later date would permit available funds to be more effectively utilized than would deferring the construction of any of the other most important facilities. Additionally, since the accommodation of the Boulder County Fair represents an overriding goal, deferring construction of the Rural Resource Center in the initial development stage will have less effect upon the functioning of the fair than would the elimination of any of the other most important facilities.

Full utilization of those facilities considered most important may be dependent upon the provision of less important facilities as supporting components. For instance, while the grass fields (F1/F2/F3) are not of primary significance in themselves, they are important to the initial success of the fair as public parking lots. Although the development of the northern fields cannot be accomplished until reclamation is accomplished, the grass field on the southeast (F3) should be developed in the initial construction phase to provide parking capability during the fair. The same holds true for the gravel parking area (Pg).

The development program for the initial stages of the Resource Park is recommended to include the following development parcels:

INDOOR EXHIBIT AREA (E)
LIVESTOCK FACILITIES WITH INDOOR ARENA (L)
OUTDOOR ARENA (OA)
GRASS FIELD (F3)
GRAVEL PARKING (Pg)

It should be stressed that development of these parcels should include complete site finishing.

Levels of finish and design set forth in the Development Guide should be considered as the minimum acceptable. Phased development of built facilities within parcels is possible, but the long-term merits should be carefully assessed. Developing an open-air arena in lieu of an indoor arena in the Livestock Facilities will serve to reduce initial costs, but will limit the year-round utilization of the entire Livestock Facility to accommodate activities and generate income.

Because the complete development of the site is so dependent upon over-all county policy, no attempt has been made to develop a phasing sequence subsequent to initial development. The county should reassess the relative importance of the remaining unbuilt portions of the site on a year-to-year basis as funds are made available for development.

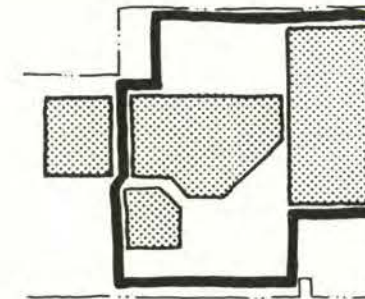
FIXED ELEMENTS

Equally important to the initial phase of development parcels is the provision of the necessary fixed elements that support their use. These include site preparation requirements as well as access roads, pedestrianways, utility easements, and irrigation ditch provisions.

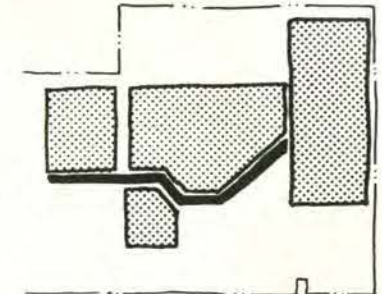
Based upon construction of the foregoing development parcels, the requirements for fixed elements necessary to support the initial development phase are discussed below and shown in the accompanying diagrams.

ACCESS ROAD - Completion of a portion of the access roads will be required in the initial phase to serve developed portions of the site. Because connection of the internal road system to Boston Avenue cannot be completed until land

south of Boston Avenue has been reclaimed, the east-west service road bisecting the site can provide an interim loop capability.



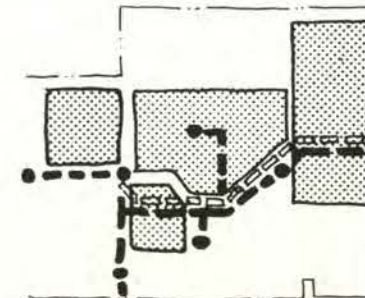
ACCESS ROAD



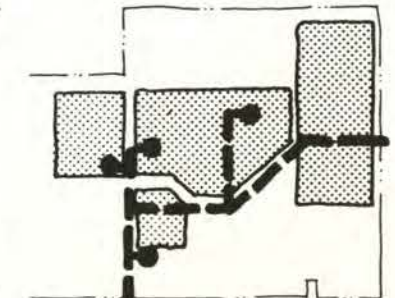
PEDESTRIANWAY

PEDESTRIANWAY - In the initial development phase, the pedestrianway links the built facilities to the parking areas on the south part of the site. Construction of this element should extend from its southernmost edge to at least the pedestrian entry for the outdoor arena.

UTILITIES EASEMENT - Initial construction of the utilities easement should include carrying the utilities from their entry on Nelson Road to the



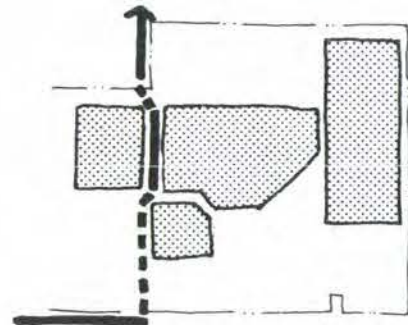
WATER & SEWER



ELECTRICAL

Hover Road boundary of the site in anticipation of connecting to utilities in Hover Road in the future. The utilities easement loop on the eastern portion of the site serving the maintenance and camper areas can be deferred until those areas are developed.

IRRIGATION DITCHES - Re-alignment of the Beckwith Ditch to accommodate development on the site is necessary during the initial development stages. This includes enclosing those portions of the ditch necessary for safety and/or maintenance reasons, as well as unenclosed areas. Re-alignment of Beckwith Ditch must be carefully coordinated with the development of the east-west service road and the utilities easement.



IRRIGATION DITCHES

FUNDING

CAPITAL COST

Any discussion of capital costs must recognize the limitations inherent in cost estimates that can, at best, reflect data developed to only a preliminary level. There are a number of other variables that can significantly effect the costs of facilities at the Resource Park. The amount of work the county elects to do "in house" rather than contract out will effect total cost. Economies of scale, future inflation rates, changes in technology, and the future availability and relative costs of various materials all represent indeterminable factors that make cost projections over time difficult to assess. Capital costs should, therefore, be regarded as an order of magnitude rather than a precise estimate.

Based upon today's costs, the entire Rural Resource Park, as conceived in the Illustrative Plan, is on the order of magnitude of an \$8 to \$10 million project.

Utilizing available data, some preliminary cost evaluation was made of the initial Phase I development program discussed in the foregoing section. Preliminary indications are that it will cost \$2.5 to \$3 million to provide adequate permanent facilities to relocate the Boulder County Fair to the new site.

OPERATING COSTS AND INCOME

Estimates of the annual cost of operating the new complex are based on staffing assumptions and the nonpersonnel operating and maintenance expenses of the surveyed comparable fairgrounds. In terms of staff, it is necessary that the facility be given full time, professional management if the previously described revenue projections are to be achieved. For this we have

shown a full time manager and an assistant with combined salaries of \$32,000 per year. In addition, three full time equivalent (FTE) maintenance personnel at \$10,000 each are recommended. While the new complex could receive specialized supplemental assistance from the county's building maintenance department or road crews, an on-site staff is necessary for routine maintenance, and set-up and tear-down of equipment at events. It is further anticipated that one of these maintenance employees would be resident on-site and serve a security function as well. Not included in this estimate is specialized security personnel and parking attendants required for specific events. Such costs would be justifiably passed directly to the event organizer in addition to the facility rental fee described earlier. Personnel costs also include a factor of 15 percent to cover payroll taxes and other indirect salary-related costs.

The nonpersonnel operating and maintenance expenses at comparable fairgrounds ranged from about \$20,000 to \$40,000 at the five nearby fairgrounds surveyed. Since the Boulder County Rural Resource Park will rival the largest of these in terms of facilities and activity level but will, presumably, be more efficiently designed, it is forecast that the operating and maintenance expenses would be \$35,000 per year. Again, this does not include the expenses of the fair itself or any program-related expenses of the Extension Service or events held on the premises. The table below summarizes the components of the projected annual operating costs of the facility.

The projected annual operating cost of \$106,300 is quite close to the potential revenue of \$103,200 which was projected earlier. Given the fact that the income estimate excluded several

Annual Operating Costs

Manager	\$ 20,000
Assistant	12,000
Maintenance (FTE)	30,000
Wage & Salary Cost	62,000
Plus 14% Indirect	9,300
Total Personnel	\$ 71,300
Nonpersonnel O&M	35,000
	\$106,300

categories of potential revenue and there is some flexibility in the fee schedule to be established, it is safe to say that the completed Rural Resource Park described above can reasonably be expected to break even on an operating basis.

That is all that can be expected. Even with the most optimistic assumptions of revenues and costs, it is clear that the facility cannot be expected to cover the capital costs of its development. Furthermore, if the new complex were constructed in phases, some operating deficit could occur in the early years. However, the horse-related facilities, which are called for in the first phase, are more productive in terms of the revenue generating potential in relation to costs than the more expensive indoor space which would be developed later.

FUNDING ALTERNATIVES

The county has indicated a willingness to spend \$1.9 million from the Public Works Fund for construction of the new complex in 1977 and 1978. Based on the above estimates, an additional \$1.1 million would be needed for the minimum Phase I requirements. While every potential outside funding source, such as the Federal emergency public works program, should be explored, the

county must be prepared to meet this additional cost from general revenues if the minimum Phase I facility is to be in place in 1978.

Beyond that, a longer term funding strategy must be developed in order to complete the entire development program, estimated to cost an additional five to seven million dollars. There are two basic approaches to funding the development program:

1. Build and expand facilities in a staged manner consistent with the ability to fund annual increments. For facilities whose costs exceed an affordable annual increment, a "sinking fund" should be established.
2. Construct all or a major portion of the program early through a bond issue or lease commitment which would then be retired through affordable annual increments.

Of course, through either approach, the critical factor is the size and the source of the annual funding whether it is used to retire a debt or is used for construction in the future. It is recognized that there are significant political and policy implications in initiating a bond issue or making long-term lease commitments. However, this approach has the clear advantage of providing the needed facilities early and at today's costs. Paying off such costs in the future would become increasingly less burdensome as inflation will be reflected in increased tax revenues and the annual payment would remain constant. In contrast, if construction were delayed until a future date, the impact of inflation would be to raise the cost of the facility itself.

Whichever approach is taken, the most likely sources of a continuing, annual funding are the

county's own tax mechanisms. The principal alternatives are as follows:

- The Public Works Fund is the source of the current allocation of \$1.9 million for the first phase. The mill levy applied for this fund has varied in recent years and was 1.6 mills on the 1976 tax base (1977 collections). On the 1977 tax base, one mill will produce revenues of \$550,000; therefore a levy of about 1.82 mills would produce \$1,000,000 initially and more in subsequent years as the tax base rises. The statutory limit of three mills for the public works fund can be levied without specific approval by the voters. There obviously are and will continue to be additional public works needs, but only partially tapping this fund could provide a continuing, stable contribution to the development of the Rural Resource Park. Although a public vote would be required to issue bonds for the fairgrounds construction, it is likely that the bond issues could be retired from this fund without increasing the authorized mill levy.
- A sales tax imposed by the county is another potential source of revenue. A one percent sales tax would produce annually about \$6 million county-wide or \$2.5 million if the City of Boulder were not included. This is not to suggest that the county would impose a sales tax solely for the benefit of the new complex. But it does identify the magnitude of this vehicle and demonstrates its potential for providing a continuing and stable method of financing.

Given the county-wide, year-round orientation of the facilities and activities outlined in previous sections of this report, it is certainly a defensible position that it should be sup-

ported by the residents of the entire county. Of course, from time to time, funds may become available from various federal and state programs to fund specific facilities within the complex. These should be vigorously pursued by the county as they become known. Two of the most promising programs at the present time are the emergency public works program and the Land and Water Conservation Fund Grant.

The county made application under the emergency public works program last December for a multiple use building on the Resource Park site. While that application was not successful, the Economic Development Administration is now preparing for a second round of applications under an extension of the program. It is not known at this time if new projects will be eligible or only that previous submissions will be reconsidered. But in either case, the proposed Rural Resource Center would be an eligible and appropriate facility for that program.

The Land and Water Conservation Fund Grants are administered by the Department of the Interior through the state. This fund provides 50-50 matching grants for the acquisition and development of outdoor recreation facilities which are consistent with and meet high priority needs identified in the Statewide Comprehensive Outdoor Recreation Plan. The eligibility of the project and the potential funding level available to the county should be discussed by county staff with the State Division of Parks and Outdoor Recreation. Funds from this program would more appropriately be used for the development of the park area north of Boston Avenue as opposed to the fair facilities themselves.

ORGANIZATION AND MANAGEMENT

Recommendations concerning the operating philosophy and management structure of the Rural Resource Park are dictated to a great extent by the objectives outlined for the project and the concept and image developed in this study. Specifically, if the project is to be utilized year-round and generate sufficient income to cover the operating expenses, it must be conceived, promoted and structured as more than just a fairgrounds. Indeed, although the fair activities were the starting point of design and defined the core facilities needed, the fair itself is but one use among hundreds during the course of the year.

OWNERSHIP

To insure that the objectives are met and to maintain flexibility in the future construction, modification or use of the facilities, it is recommended that the county itself construct and own all of the buildings on the site. Under this concept, all users of the facility would be treated as "tenants" occupying and using the facilities under a contractual relationship with the county -- whether or not any "rent" were actually received. This would include the Extension Service as a tenant of office space and/or user of meeting space and the grounds for its program activities; the Fair Board and Extension Service jointly for operation of the fair itself; organizations who would contract to use the facility on a recurring, scheduled basis; and organizations and sponsors using the facility for special events and occasional meetings and activities.

Other relationships are possible. The facilities could be leased to and operated by a private nonprofit association. Individual facilities could be constructed by special interest groups for their own use. The site could be zoned into

areas for the exclusive use of certain groups with other zones identified for public activity. These approaches and variations of them are used at other fairgrounds. But such relationships can ultimately cause conflict among the operating entities, lead to disputed responsibility for maintenance, expansion and operating decisions, and preclude efficient and professional promotion and scheduling of year-round activities.

OPERATING AUTHORITY

As stressed earlier, Resource Park management should ultimately be vested in a full time professional manager who would be responsible for all aspects of the management, renting and maintenance of the facility. The manager should operate within policy guidelines set or approved by the county commissioners, but in the day-to-day operation and in the enforcement of pre-established fee schedules and contractual terms and conditions, he must have a high degree of autonomy. For example, fees should not be waived (although a differential fee structure can and should be developed initially) and a group booked into the facility should not be "bumped" once the manager has made a commitment.

The policy variables under which the Resource Park can operate are diverse and ultimately the decision is for the county commissioners to make. We have not attempted here to make firm recommendations on what choices should be made but several areas for policy guidance can be identified. There is, by the way, no uniform approach among other fairgrounds to these issues.

1. Some parameters could be set on the types of groups and organizations who are eligible to use the facility. In this regard it should be noted that the income projections envision a wide range of users including commercial

show organizers, closed club events, banquets, dances, etc. and general public-admission events.

2. A differential fee structure would be appropriate recognizing the different financial capability and public-service orientation of different groups. It is common among fair-grounds to have minimum or no fee for county-based youth groups, higher fees for county-based adult groups and the highest fees for commercial activities or those for which a public admission is charged. Once the categories are established the fees themselves should be proposed (and revised annually) by the manager for approval by the commissioners.
3. The way in which concessions and catering activities are handled is an important policy variable. The county could contract with an exclusive caterer or each group can be free to make its own arrangements. While the county might receive greater revenues if it established an exclusive relationship with a caterer for banquets, dances and luncheons, the maximum level of public service and usage by local groups would be achieved if they were free to provide their own food prepared by members if they wanted to. Certainly, in no case should an agreement with a caterer preclude use of the facilities for pot luck dinners, bake-sale fund raisers or food-oriented trade shows.
4. The operation of concession facilities can be a separate question from catering organizations' events. Here the choices are primarily contracting with a food service firm on an annual basis or leasing space to service clubs and organizations for fund raising activities. In either case, the county can expect an income of approximately 25 percent of the gross concession revenues. A major policy question is whether the county would be in charge of and financially benefit from concession activity during the fair itself.
5. A general policy should be established as to whether or not alcoholic beverages can be sold, served and/or consumed on the premises. While this is ultimately a policy matter, we would suggest that liquor be permitted at closed dinners and dances of private organizations leasing the facility and that 3.2 beer be provided by the concession operation at adult public attendance events.
6. Whether and when to charge for parking is another policy question. Generally it would not be economical to provide attendants to collect parking fees at routine day-to-day meetings and activities. And for private and special events, the fee structure could be deemed to include parking privileges. However, for large events which are open to the public, such as rodeos, concerts and the fair itself, it would be appropriate to charge for parking since attendants will be needed in any case to direct traffic into an efficient parking pattern.
7. Whether or not admission is charged for the fair itself should be decided with the advice of the Fair Board. While there has been no charge made in the past, the design and layout of the facility described above would allow this to be done in the future. Charging admission provides a measure of control, accountability by the fair-goer and a means of tallying attendance. Clearly the questions of fair admission and parking charges need to be coordinated as it is unlikely that two separate fees would be

acceptable to the fair-goer. A charge only for parking during the fair time has the advantage of encouraging car pooling and reducing total traffic demand at the expense of crowd control and an accurate count of fair attendance.

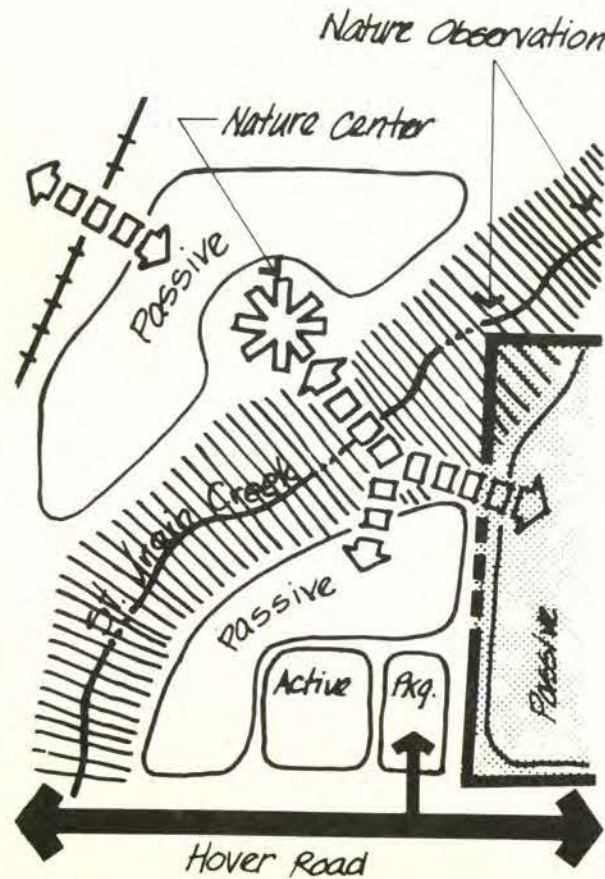
ORGANIZATIONAL STRUCTURE

The position of the Resource Park operation within the county organizational structure is also dictated somewhat by the objectives for the facility and the concept outlined above. The planning for the facility has been undertaken to date by a committee and administered through the public works and planning departments. The Parks and Open Space Department, in conjunction with the Extension Service and the Fair Board, have taken on operational responsibility for some activities on the site already. In the longer term, the developed facilities south of Boston Avenue could be separated from the park activity north of Boston for purposes of administration and maintenance responsibility. This latter portion could remain under the authority of the Parks and Open Space Department. However, the operation and administration of the new complex facilities themselves deserves departmental status ultimately. The degree of professionalism sought in the Resource Park manager, his personal responsibility for promotion and efficient utilization of the facilities and the total budget he would be handling suggests a degree of professional competence and a salary level commensurate with that of a department head.

Until the new complex reaches the stage of development where such a full time staff is justified, however, it would be appropriate to keep it under the Parks and Open Space Department, particularly if funding for the project were to

come in part from a sales tax increment earmarked for parks, open space and recreation activity. The responsibility for capital improvement, design and construction supervision could rest with other appropriate departments within the county with the operating agency, of course, providing informed advice on the priority and nature of capital improvements.

POLICY PLANNING CONTEXT



Development of the Resource Park will both affect and be affected by development on adjacent land. It is, therefore, important to explore the planning context of the site in order to identify potential impacts to be mitigated, opportunities for expansion or compatible development, and areas where coordinated planning should be pursued. For this discussion, land adjacent to the site is grouped into several discrete parcels. Each parcel represents an area with similar characteristics, but may not necessarily be in single ownership.

PARCEL a - This area immediately north of the site consists of land on both sides of the St. Vrain Creek. The western portion is high, out of the floodplain, and commands views and access from Hover Road into the Creek and into the north end of the Park. The entire parcel is underlain by commercial quality sand and gravel. Presently located in the County, and zoned Agricultural, any upgrading of the zoning may require extraction of the gravel under H.B. 1529. Once annexed to the City of Longmont, gravel extraction will not be required or permitted, and at least that portion fronting on Hover Road will be a prime location for industrial or commercial development.

Due to its accessibility, proximity to the Park, and its control of the St. Vrain corridor, it is also desirable land for public open space; particularly for a combination of active and passive recreation utilizing the upland area, bank top and Creek bottomland. It may provide a future link to future pedestrianways in southwest Longmont.

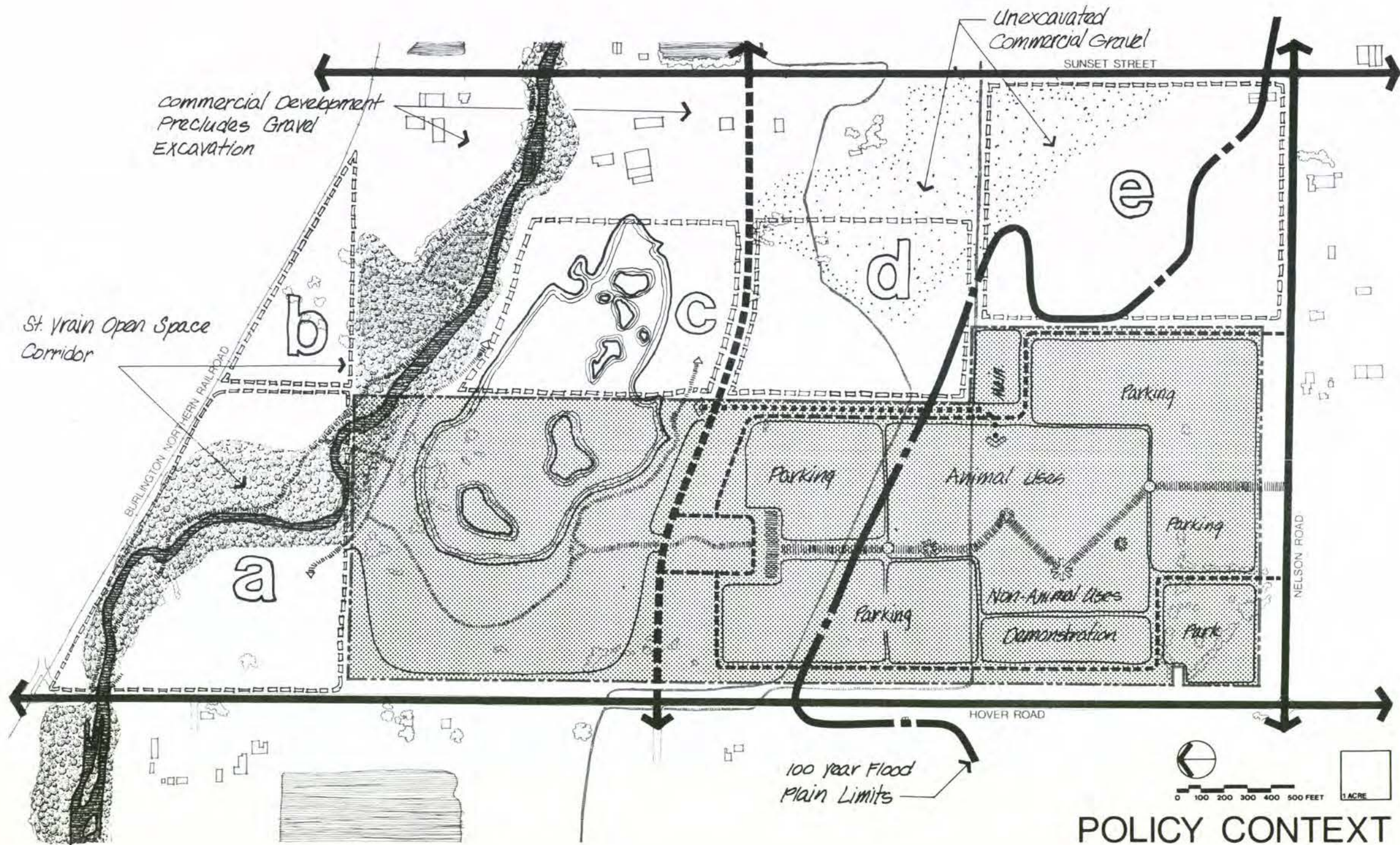
Although the County does not provide or maintain active recreation facilities, and the City of Longmont does not acquire land outside its limits; it would, nevertheless, appear to be in both interests to undertake a joint evaluation of the future potential of this parcel and make a policy or action determination.

PARCEL b - This parcel is not contiguous with the Park, but is physically and visually adjacent. It is also out of the floodplain, underlain by gravel, zoned Industrial, and potentially developable or extractable. Though not as accessible as Parcel A, and therefore not as desirable for active recreation, its role in the St. Vrain Corridor and potential visual impacts, if developed, demand consideration.

PARCEL c - The excavated portion of the site extends into this parcel. The two areas are interrelated visually, geologically, and hydrologically; and should logically be considered together in any reclamation planning. The boundaries of the lake in the Nature Park, and its elevation are largely dependent on the reclamation of this Parcel. It is recommended that joint planning be initiated, as well as long-term monitoring, in order to further develop and refine a comprehensive reclamation plan for the area.

PARCEL d - The presence of unexcavated commercial gravel makes gravel extraction imminent on this parcel immediately to the east of the Park - south of Boston Road. The excavation, and the nature of any reclamation will have potential negative or positive impacts on the site, and should be respected in the development of the east edge of the Park. This Parcel holds the most likely potential for future expansion of the Park, should it be desirable.

PARCEL e - Although much of this Parcel lies within the floodplain; it is prime, developable industrial land. Land cost probably precludes any future Park expansion into this Parcel. A variety of land uses, compatible and incompatible, are possible and any development should be monitored for mitigation of negative impacts.



ISSUES FOR RESOLUTION

In the course of developing the Master Plan for the Rural Resource Park, a number of issues have been identified which require resolution prior to, or concurrent with, finalization of planning and completion of detailed design. These issues are listed below as tasks, and generally revolve around internal county policies with respect to the Park and agreements with interested private and public parties.

1. Identify the interim and long-term organizational structure for implementation and management of the Park over time.
2. Develop an approach for detailed design and construction documents for Phase I with regard to:
 - engineering
 - architecture
 - landscape architecture/ecological design
3. Develop a detailed cost estimate for construction and operation of Phase I and future phases.
4. Develop a short and long-term funding strategy for construction of Phase I and future phases.
5. Develop operating policies with regard to:
 - user group qualifications
 - criteria and collection method for fees
 - concessions
 - alcoholic beverages
6. Negotiate an agreement with the City of Longmont with respect to power, water and sewer connections, and the transfer of supplementary water rights.
7. Negotiate fire and police service agreements between the City of Longmont Fire Protection District and the Boulder County Sheriff's

Department for event and non-event emergencies.

8. Formalize an agreement with the Beckwith Ditch Company with respect to:
 - combining the Island and Beckwith Ditches through the site
 - the design of a covered ditch through the site
 - interim and final storm drainage and water augmentation cooperation
9. Negotiate an agreement with Golden Gravel Company with respect to:
 - quantity and quality of fill due for each parcel
 - timing and placement of fill
 - combining the Island and Beckwith Ditches through the site
 - joint planning and design for reclamation of adjacent land along the St. Vrain, including the lake boundary and level, and supplementary water rights.
10. Install, for design feedback, test wells throughout the site to monitor seasonal fluctuations in the ground water table before and during construction.
11. Pursue the development of an overall plan for the St. Vrain Creek corridor to more closely define the role of the Park reclamation, and to assure the future of the Creek against the threat of development by identifying needs for sensitive environmental planning throughout its length.