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A Flight Into Technology: An Investigation of Building and telecommunication Technology

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Introduction

Introduction:

A new physical infrastructure to support activities based on communications and the transmission of information is being developed. Part of this infrastructure includes the construction of "intelligent" buildings that are seen to play as important a role in improving of office workers as automation has played on the shop floor of manufacturing industry. The term "intelligent" is used to describe buildings which provide an adaptive environment of high quality, energy efficiency, security and safety, permitting optimized information flows- both internally and externally- so that its functionality is largely independent of location. The main physical systems comprise building control, office automation and telecommunications (Gann 469).

The developments in Modern Japan point toward a decentralization of the workplace as a solution to their urban problems. The future of buildings is connected to the development and use of new "intelligent" equipment and systems. These systems are installed in buildings which function as nodes in telecommunication networks- stations on information highways. Issues concerning the construction, location and use of such buildings are of critical importance to the future development of the information economy. These buildings are experimental forms of "intelligent" buildings and while some circumstances giving rise to such experiments are particular to Japan, lessons from this Japanese experience may provide an indication of future developments in the rest of the world (Gann 471).

The construction of "intelligent" buildings is proliferating in large Japanese cities. Such buildings function as both relay and central stations at the node points of the new communication networks. The objective is that these stations should become the access points for information coming from dealing rooms and for shared supercomputers; technological, business and administrative databases; videoconferencing rooms; and optical fiber and satellite communication networks. The developmental pace is being driven by economic restructuring, including:

- the liberalization of telecommunication with increased competition to provide more diversified and comprehensive services;
- deregulation of financial services creating demands for new high- speed digital communication networks;
- increasing demands by large corporations for swift national and global communication facilities;
- government sponsorship and promotion through the various programs discussed above;
- promotion by large contractors and real estate companies.

Government programs aimed at restructuring the economy and resolving problems of urbanization, together with the development of technologies in the construction of "intelligent" buildings, have opened new possibilities for developing decentralized office working (Gann 475). Projects began with experimental offices constructed and operated by a consortium of private companies. Firms wanted to find new ways to improve office work through utilization of intelligent systems such as telecommunications including voice, text/ message, facsimile, graphics, data and video and the development of value- added services in the form of Integrated Service Digital Networks (ISDN). (Gann 475).

The two experimental programs are neighborhood and resort offices. The neighborhood office concept involves telecommuting from offices in residential areas permitting people to live closer to their workplace. The program focuses on new technology and working practices required for effective neighborhood offices. The objectives of the project were to:

- reduce commuting time;
- reduce commuting costs;
- reduce office maintenance and management costs;
- improve productivity of office workers by providing better office space;
- permit the partial or total relocation of duties previously performed in a downtown office.

The second type of experimental program is the resort office. Resort offices are hotels providing advanced communications to permit short periods of telecommuting of one to three weeks in pleasant locations providing sports and leisure activities such as skiing or golf. The emphasis is on providing a better working environment to improve productivity of highly skilled white collar workers. Current pilot studies include evaluation of the impact of natural environments and amenities on workers productivity (the effects of humidity, sunlight, the quality of air and water, climate and scenery); and intelligent telecommunication requirements (telephone networks, the need for modems, personal computers, teleconferencing, office automation facilities etc.). (Gann 479).

The development of neighborhood and resort offices are examples of two attempts by Japanese firms and government departments to overcome some of the problems which are causing poor performance in office work. These are particularly suited to Japan because of the special problems brought about by intense urbanization, the need to restructure the economy and the nature of the Japanese work culture (Gann 481). Inherently, the idea of this program may provide lessons for future developments of this building typology on a global scale.

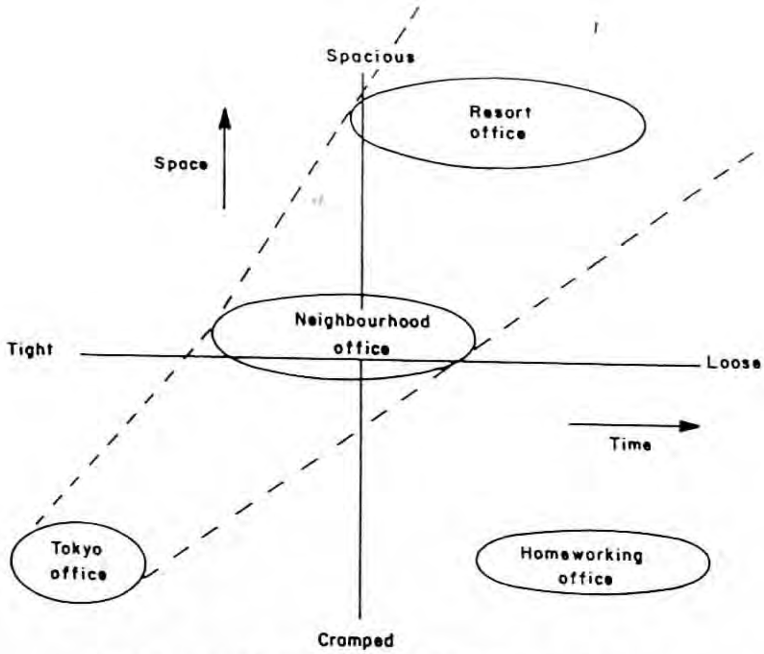


Figure 1 Space and time gained by neighbourhood and resort office workers.

TABLE 2 KAWASAKI NEIGHBOURHOOD OFFICE

40 000 of Kawasaki's 1.1 million population commute to Tokyo
verage daily travelling time 2.5 hours/person
t least 100 000 commuters are office-based information workers
satellite office accommodating 1000 workers would require:
–200 fax terminals,
–200 speech and data ISDN circuits,
–200 data only circuits,
–50 personal dial-up picturephones,
–10 wideband facilities for videoconferences, CAD/CAM etc
single optical fibre highway to Tokyo would support 20 such offices

rce: Newstead, *op cit*, reference 2.

TABLE 3. EXPERIMENTAL AND COMMERCIAL NEIGHBOURHOOD OFFICES

&C Neighbourhood Office (1984–87 experimental)
ponsor: NEC
usasino City—distance from Tokyo: 60 minutes
usasino Community Office (1989–90 experimental)
ponsors: Fuji-Xerox, Mitui Real Estate Dev Co, Japan
Architectural Design Co
usasino City—distance from Tokyo: 60 minutes
hiki Neighbourhood Office (1988–89 experimental; 1989– commercial)
ponsors: Sumitomo Trust Bank, Fuji-Xerox, Uchida Yoko Co,
Recruit Co, Kajima Co
hiki New Town—distance from Tokyo: 90 minutes
umiya Neighbourhood Office (1989– commercial)
ponsor: Mitsubishi Metal Co
umiya City—distance from Tokyo: 60 minutes
ono Neighbourhood Office (1989– commercial)
ono City—distance from Tokyo: 60 minutes

TABLE 4 RESULTS FROM NEIGHBOURHOOD OFFICE PILOT STUDIES

- *Sectors from which firms are most likely to benefit*
  financial services
  computing (especially software)
  office equipment
  other IT and high-technology industries
- *Type of activity found to be most suitable*
  R&D
  design and planning
  report writing
  computer programming and software design
- *Advantages to employers*
  improved concentration by employees
  potential increases in productivity and quality
- *Type of employee found to be most suitable*
  entrepreneurial/self-motivated
- *Suitable types of work*
  individual work rather than teamwork
  work suitable for contracting out, to be completed within time and budget, ie work which shows clear results
  work requiring a degree of outside contact
  work where results reflect individuals' qualities
  work where the process can be divided into separate parts
- *Advantages to employees*
  greater free time
  changes in personal and family life
  possibilities of choosing between different types of employment
  provision of new employment opportunities within regional communities
  more creative work environment
- *Problems experienced by employees*
  lack of efficient time management skills—giving rise to investigation into new management methods
  lack of communication with head-office supervisors and colleagues creating new burdens
  confusion at home over changes in work patterns
- *Problems with technologies*
  improved office automation technologies are required to increase the automation of paperwork duties
  technologies within buildings were underdeveloped and did not meet the needs of multi-access shared services
  more research is required to develop interface and gateway technologies
  lack of interconnectivity between LANs and WANs
  type of common carrier required to link neighbourhood offices with downtown offices depends on number of users and type of communications required; for heavy usage and full voice/data/video communications, optical fibre is necessary
  standards are crucial if satellite offices are to be used by a wide range of companies with different internal office communication protocols; operating protocols and standards need to be agreed with MITI's Agency of Industrial Science and Technology Committee
- It was originally hoped that sharing space would stimulate mutual interests between employees from different companies—this did not arise partly due to work culture in Japan, ie close ties and loyalty to one company

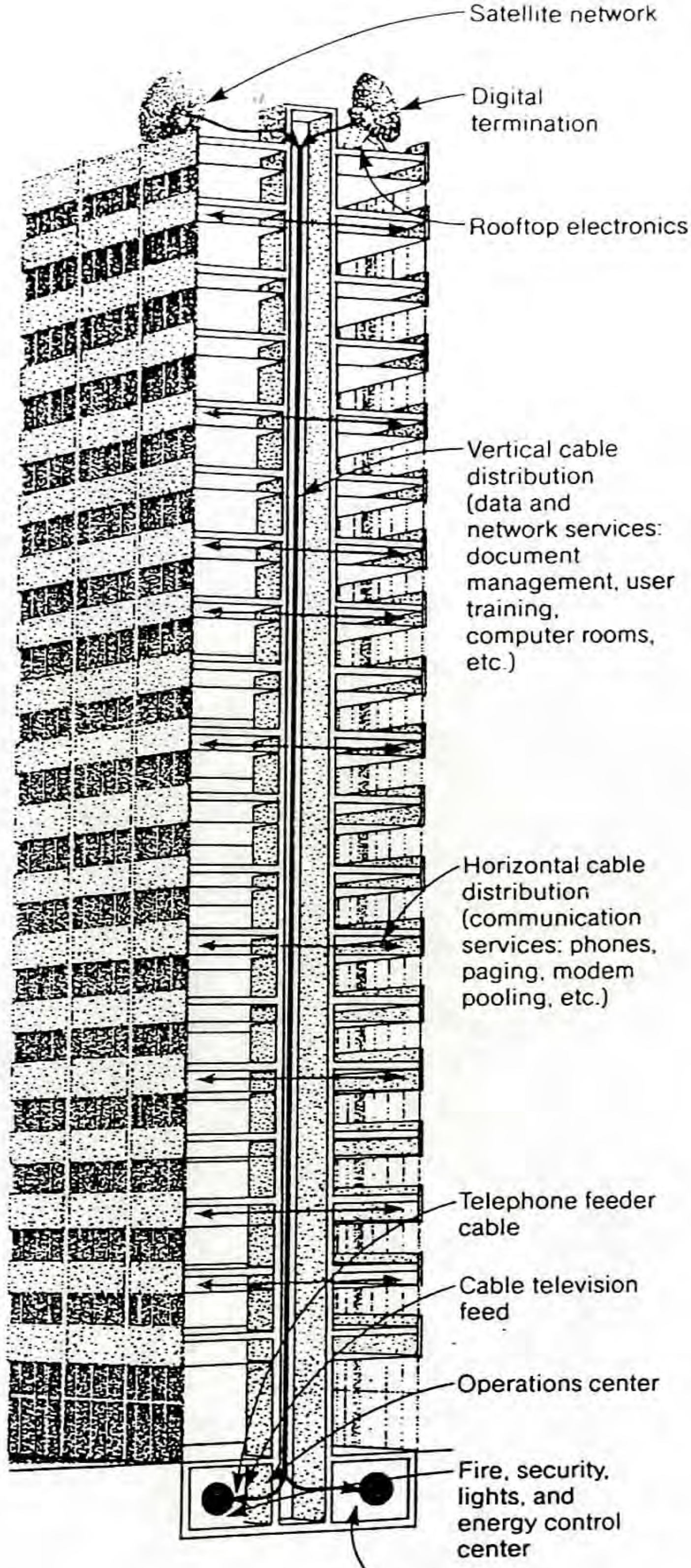
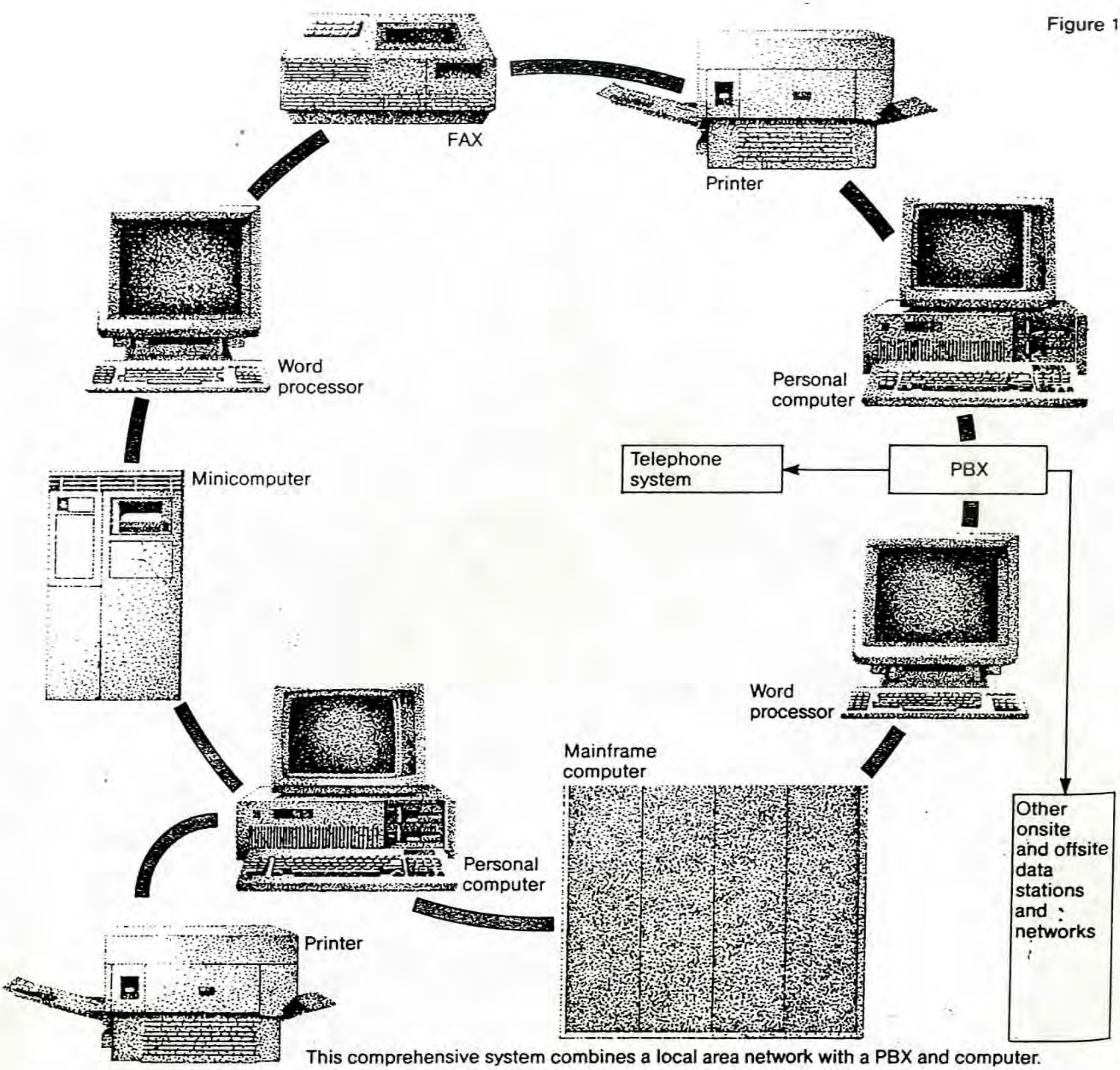


Figure 2

Controlled by the operations center, a complete horizontal and vertical system distributes information received by satellite, through cable or fiber hookups, or generated in-house.

Figure 1



This comprehensive system combines a local area network with a PBX and computer.

Control/signal transmission media

Today, data is sent over many different types of cable, such as twisted-pair, coaxial, fiber, and twinaxial. These different cable types exist because each is best in its own particular network environment. Transmission lines play an important role in most phases of control/signal work. Types of transmission lines include simple two-conductor configurations such as the familiar coaxial cable and TV parallel-wire line. Those types of lines can be used from the power region of the frequency spectrum well into the microwave region.

Coaxial cable. Coaxial cable is normally used in industrial environments to transmit video signals to remote monitors and CRT terminals. Both coaxial and twinaxial cables are common choices among control system manufacturers for various types of data/information transmissions. Twinaxial cable is two coaxial wires with a common shield and a protective cover. It offers balanced signal transmission, long cable runs, and high speed.

Coaxial cable probably is one of the best known electronic types of cabling. It consists of a single-wire conductor centered within a cylindrical outer conductor or shield. The two conductors are isolated from one another by means of various nonconductive materials. The outer conductor may consist of one or more layers of metallic braid or a rigid solid metal tube. This outer conductor usually is surrounded by a protective plastic jacket. Coaxial cable is inherently an unbalanced line. A line is known to be balanced where each conductor has the same capacitance to ground. Coaxial cable is popular because of its usefulness within a frequency bandwidth range from direct current through the radio frequencies, with relatively low cost, small size, and a variety of styles and impedances available.

The most common impedance standards for coaxial cables are 50, 75, and 93 ohms. Of those three, 75-ohm cable is the most popular for video, data transmission, and other industrial applications. Coaxial cable is supplied in sizes from microminiature to several inches in diameter, and with a variety of conductors, shields, and jackets. Coaxial cable also is used successfully for high frequencies, digital information, and wide bandwidth applications.

There are two basic forms of coaxial cable: high-voltage and RG/U type for electronic signals. High-voltage coaxial cable is designed primarily for laboratories and pulse discharge systems. It is not normally used for signal transmission because the semiconducting sheath used to reduce corona levels and to lower voltage stresses on insulation affects the cable's capacitance and signal transfer characteristics. Conversely, RG/U signal cables should not be used at excessively high voltages because no semiconducting sheath is present. RG/U type signal-carrying coaxial cables are insulated with solid, foamed, or semisolid polyethylene; solid or foamed polypropylene; or polytetrafluoroethylene (TFE). RG/U cables are used primarily for low-level signals.

Coaxial cable must be handled more carefully than other types of wire and cable. Squeezing, hitting, or stepping on it can deform the cable, changing its impedance and causing degradation of carried signals. Bending coaxial cable too sharply also causes decreased performance. Coaxial cable connections require more skill and care to install than twisted-pair electrical connections.

Twisted pair. The twisted pair has been around about as long as the need for transmission of analog signals. Twisted-pair wire consists of individually insulated pairs of conductors enclosed in a common protective jacket. Each pair is twisted with varying numbers of turns to minimize crosstalk between pairs. Each individual pair is wrapped with a metallized polyester material to shield the wires. This shield is terminated with a drain wire for connecting the metallized layer to a ground location. Multiple twisted pairs often are wound into the same cable. Although cables can consist of as few as two pairs, most of the time there will be eight, 12, 24, or more pairs.

Whereas coaxial cable is used generally in multiservice applications and always in broadband networks, the twisted pair is a single-service wire and usually is used in department systems or networks that do not require video.

Plenum cable. In some cases, the National Electrical Code allows cable insulated with a material, rather than sheathed in metal conduit, to be installed in ducts or plenums. Prior to specifying plenum-type cable, the designer should reference NEC to ensure that the design complies with NEC's most recent issue and also with, as the code books state, "the authority having jurisdiction." Usually, materials having low-flame, low-smoke characteristics are allowed to be substituted in Class 2 and 3, remote control signaling circuits, fire-protective signaling circuits, communication circuits, and coaxial cable for community antenna television systems (CATV).

The materials that first exhibited the low-flame, low-smoke characteristics necessary to pass UL-910 tests were fluoropolymers. The best known fluoropolymer is Du Pont's Teflon. The next products approved were fluorinated ethylene propylene (FEP) and TFE, which are varieties of Teflon. Although Teflon has many advantages for plenum installation, it does have disadvantages. One is its high cost. Secondly, TFE flows under mechanical stress, and it is difficult to mark and color code. TFE is limited to relatively short lengths because of the noncontinuous nature of extrusion-sintering process (the material forms a mass without melting). Furthermore, copper conductors must be silver- or nickel-plated to withstand the high sintering temperatures. FEP-insulated wire permits longer wire lengths because FEP is applied to wire on conventional extrusion equipment. Teflon-insulated cable is more expensive per foot than PVC; however, its installed cost could be much less.

Fiber optics. Fiber-optic cable has become an option during the past decade and is becoming more prevalent in its usage as building installation standards are developed and its cost continues to fall. Fiber-optic cable is an excellent choice in electromagnetic environments such as in close proximity to an arc welder or a radio transmitter. Electromagnetic fields do not disturb the flow of light through the glass conductor. However, interface equipment must be specified carefully because it can be susceptible to radiation.

Security applications are another area in which fiber-optic cable can be used. Because electrical signals are not transmitted through the cable, sensitive data cannot be tapped through electromagnetic induction. Currently, it is extremely difficult to cut into fiber and tap off information without being detected.

Fiber optics can be used in applications where electrical isolation is necessary, such as an interbuilding link. Since each of the buildings is on a different electrical current, high differences of potential can exist causing damage to the attached network devices. With optical fiber, complete immunity to damage is realized because it is not an electrical conductor. It is an excellent choice as an isolation mechanism.

Fiber-optic (FO) cable is an alternative to conventional coaxial cable, twin lead, or TV lead-in wire. The interest in FO cable results from the truly new capabilities offered to system or product designers by this technology. It is now possible to transmit analog or digital signals over many miles via optical radiation at rates equaling those of premium electronic transmission cables without problems such as electromagnetic and radio interference (EMI and RFI), lightning surges, ground looping, radiation leakage, and the task of obtaining FCC licenses. In addition, FO cables are constructed and installed similarly to coaxial cable while being lighter in weight, smaller in diameter, and capable of working over longer distances between repeaters or terminals.

A simple fiber-optic communication link consists of an optical transmitter and receiver connected by a length of optical cable. FO cable is composed of glass fibers surrounded by dielectric buffers (nonconductors of direct electric current). The fibers transmit optical instead of electrical signals. Optical signals do not require grounding connections; therefore, the transmitter and receiver are electrically isolated. Advantages include safety from sparking and shock, increased reliability due to lack of terminal-to-terminal ground potential shifts, and safe operation in hazardous or flammable environments. FO cable has been used for some time as longline telecommunications links, but now it appears that FO transmission lines are feasible, both technically and financially, as part of building services systems.

FO cable is an ideal transmission medium for audio, video, and data signals, both analog and digital. It allows more channel capacity than coaxial cable and is capable of longer cable runs between repeaters and higher bandwidths. One of the inescapable properties of coaxial cable is that, as interconnect distances increase, video systems fall victim to distributed capacitance. This results in a nonlinear attenuation curve, with higher frequencies having greater attenuation. The usual way to deal with this problem is to equalize the video signal at the source, that is, distort it to compensate for the cable's attenuation characteristics. For longer cable runs, any amplifiers or repeaters along the line must also include equalization circuitry. These equalizers must be adjusted to the length of cable involved, often a major inconvenience.

Glass optical fibers, on the other hand, have flat-ruler attenuation curves over the frequency range required for video. Thus a half-mile length of typical step-index waveguide introduces only about eight decibels of simple attenuation into the system. Digital computing, telephone, and video broadcast systems require new avenues for improved transmission, and fiber-optic systems often are more cost effective than metallic systems.

One way of classifying glass optical fibers is by their refractive index profiles and the number of modes they support. A mode is the stationary wave pattern of an individual light wave. The two main types of index profiles are step and graded. In a step-index fiber, the core has a uniform refractive index, with a distinct change, or step, between the indexes of the core and cladding. In a graded-index fiber, the core's index is not uniform—it is highest at the center and decreases until it matches that of the cladding, and there is no sharp break in the refractive index continuum. There are three basic types of fiber-optic cables: multimode step-index, multimode graded-index, and single-mode (also called monomode) step-index. Currently the latter two types of cable are relatively expensive.

Multimode step-index. A multimode step-index fiber, the simplest type, has a core diameter in the range of 50 microns to more than 1,000 microns. The large core allows many modes of light propagation. Because light reflects differently for different modes, some rays follow longer paths than others. The lowest-order mode, the axial ray traveling down the center of the fiber without reflecting, arrives at the other end of the fiber first, before the higher-order modes that strike the core-to-cladding interface at close to the critical angle and therefore follow longer paths. Thus, a narrow pulse of light spreads out as it travels through the fiber. This spreading of a light pulse is called modal dispersion. Typical modal dispersion values for multimode step-index fibers are 15 to 40 nanoseconds per kilometer (ns/km).

Single-mode step index. One method of limiting modal dispersion is to use a fiber with a core diameter small enough that the fiber propagates only one mode efficiently. A single-mode fiber with a core diameter in the order of two to 10 microns is very efficient and suitable for very-high-speed, long-distance applications. Because of its small size, however, it is difficult to make fiber connections; mechanical connections must be tested thoroughly, while fusing fibers together requires a microscope. While single-mode fibers will probably find use in telecommunications and CATV, they are now used mainly in experimental and undersea trial applications.

Multimode graded-index. A graded-index fiber also limits modal dispersion. Its core is a series of concentric rings, each with a lower refractive index. Since light travels faster in a lower-index medium, light furthest from the fiber axis travels fastest. Because high-order modes have a faster average velocity than low-order modes, all modes tend to arrive at any point at nearly the same time. Modal dispersion typically is well under 10 ns/km and at times is less than one ns/km. Rays of light are not sharply reflected by the core-to-cladding interface. They are refracted successively by the differing layers of the core. The path of travel appears nearly sinusoidal. Multimode graded-index cable is the FO cable commonly used in building projects today.

Although a utility company typically brings services into a building complex, responsibility for the telecommunications equipment and selection of wiring or other media within the project belongs to the building designer. The proper selection of a telecommunications medium depends on the proposed network. For instance, if a high-speed data link is needed between buildings in a campus type environment, then fiber optics is a possible choice. Of course, the architect specifying a particular cable must be sure that the cable meets or exceeds all building and local codes. Where a cable is to be installed in an open ceiling or plenum, Teflon or other suitably coated wire probably is required. However, if the cable is to be installed in conduit, fire-protected cable is not necessary.

Cost is always a factor in any decision and usually plays a major part in the final selection. A properly specified cabling system will last for many years. Trying to cut corners in the design phase will only lead to headaches later because recabling can be very costly.

Thesis Statement

Thesis Statement:

Our view of history is colored by an awe and appreciation of technology as agent of change and a support for the culture. In the age where high- tech telecommunication systems are being developed, architecture maintains a duty to solve some of society's rapid urbanization problems by experimenting in "intelligent" buildings located in rural areas outside the urban context. This project will focus on the appreciation of global technologies, specifically investigating the relationship and combination of telecommunications technology and related equipment with building technology and materials associated with modern day building fundamentals and techniques.

Vehicle Description

Vehicle Description:

The vehicle for the investigation of the thesis will be a structure that will explore the fundamentals of modern technology in both building and building systems and telecommunications and their related systems. The telecommunications or "intelligent" building will be based on the Japanese model described in the introduction.

The site is an open expanse of land located on the Suffolk County Airport in Westhampton. It provides an interesting connection with the Long Island Railroad and maintains no influential, neighboring context. The railway can be observed as a boundary between the public function of the town of Westhampton and the semi-private function of the telecommunications building.

The telecommunications building will provide "state of the art" electronic equipment for all data based information enabling the occupants to communicate globally through either video or telecommunications accouterments. The fixed resident or "neighborhood" offices, in the building, will allow an urban based corporation to expand or relocate to a rural setting without sacrificing a communication network while providing the "employee" with an improved working and commuting opportunity. Part time or summer residents to the area will be able to occupy the "resort" or rental office spaces during the "season" again without sacrificing the communication network common in an urban setting. The site, being located on the airport grounds and adjacent to the Long Island Railroad, will allow for the convergence of businessmen from different geographical areas without the need to encounter New York City and the vehicular traffic. It will be important to understand that technology is an ever evolving condition where equipment of today can be easily "outdated" tomorrow. The building will have to respect the evolution of technology and will have to be easily adapted to future technological advances in building techniques and telecommunication products.

In current airport design trends the incorporating of elaborate retail facilities have benefited both the airport and the consumer. This type of facility can attract consumers who have no interest or intention of flying as has been observed at Milwaukee's General Mitchel Field. The incorporation, to the airport structure, of retail stores and bookstore are bringing people to the site just " to shop". The Palm Beach International airport has also included, in the building, a six- hundred foot barrel vaulted concession mall which contains upscale shops and a "white table cloth" restaurant which reflects the Florida resort city's high toned image. This program type, in this thesis project, will allow for public or community interjection. The complex will be located on the South side of the railroad tracks related toward the public realm of the town.

Site Description

Site Description:

The Suffolk County Airport is located within the Eastern portion of Suffolk County about 75 miles east of New York City. The airport is within the town of Southampton, just outside the Villages of Westhampton Beach and Quogue. The northern boundary of the airport is Sunrise Highway (state route 27), the Long Island Railroad is the Southern boundary, to the West, Old Riverhead Road (County Road 31) and to the East, the airport is bounded by the Quogue wildlife refuge.

The airport facility was built on County owned land in 1943 and served as an air base for the U.S. Air Force. The Suffolk County Airport comprises 1,250 acres and is the last significant acreage zoned for commercial and industrial purposes on Eastern Long Island. The majority of the 1,250 acres is maintained for the primary purpose of aviation traffic, including the runways and their respective clear zones.

Adjacent to the airport, land uses mainly consist of open land to the north and to the east of the airports boundaries. This open land use also continues to the west. Industrial land use extends to the south, with also an intense development of residential and commercial highway use. This land use stretches past the Village of Westhampton Beach to the shoreline. The area experiences an influx of population during the summer months when tourists and summer home activities increase. The population influx consists mainly of white-collared workers traveling from New York City to the area on the weekends.

The airport is situated at the leading edge of the pine barrens in a relatively undeveloped area. The close proximity to the populated settlements requires that the future development and uses of the airport take into consideration the potential impact on these areas. The airport location also must consider protective measures for three primary natural environmental features; the wildlife habitat adjoining the property, the water recharge acquifer beneath the property which provides the major source of water to the eastern end of Long Island, and the pine barrens also adjacent to the property.

Vehicular traffic to and from the airport must use Old Riverhead Road to access the arterial roads to the north, Sunrise Highway, and to the South, Montauk Highway. The Long Island Railroad provides limited rail service along this Montauk Branch consisting of only five daily trains in each direction between Montauk and New York City (Penn Station). Additional trains are added in the summer months to handle the increased demand during that time. The bus service to the airport is also limited. The Suffolk County Bus Route S-90 "Center Moriches to Riverhead" stops at the airport twice daily. The lack of service is due to the sparse population and automobile orientation.

The airport site is located on a flat sandy region adjacent to the pine barrens and over the proposed Central Suffolk special ground water protection area (SGPA). The sandy soil forms an extremely porous substrate which accommodates rapid percolation of surface water into the acquifer. The pine barren zone encompassing 100,000 acres and covering much of central Suffolk County is visually dominated by the single species of pine tree, the pitch pine. Other species found among the pitch pine are the "scrub oak" and taller species of the oak, where the sandy soil merges into productive neighboring soil types. The pine barrens is dominated, however, by the scattered low pines, in some places only 6 to 12 feet, as well as the unique species of dwarf pine, only 3 to 6 feet, and the understory of oak.

The airport presently has the least negative impact upon the natural environment of any other existing commercial or industrial land use facility requiring this amount of acreage. Of its 1,250 acres only 125 acres (10%) are in active use. The runways and taxiways add another 96 acres for a total of 221 active use acres, which comprises only 17% of the total site.

In a social role, the Suffolk County Airport serves as an important link within the regions transportation network. Traveling to or from the Westhampton area or eastern Long Island can be done much quicker by air and with a lot less hassle.

Transportation by air in general aviation flights and business flights represents an ever increasing proportion of the nations total transportation volume. A community without access to air transportation through a regional airport is a community devoid of the fastest growing form of transportation in the modern day.

Westhampton Climate:

The climate of Eastern Long Island is influenced greatly by the Atlantic Ocean. As a result the area is more "temperate" than other nearby land masses.

Temperature:

Average high (July) = 80 degrees F
Average low (January) = 23 degrees F
Average of 240 freeze free days

Sun:

Maximum percentage of sunshine = 68% in August
Minimum percentage of sunshine = 53% in January

Wind:

Summer: winds range from 10-20 MPH and are predominantly from the Southwest
Winter: winds are strongest, ranging on average from 12-25 MPH and are predominantly from the North
Storms: major storms have winds up to 75 MPH
hurricanes fall between 100-125 MPH
"Northeasters" fall between 50-75 MPH

Precipitation:

Averages 46" per year, which is distributed evenly throughout the seasons
The area is prone to heavy fog
Relative humidity averages 76%

Program

Program:

Telecommunications Building:	
Lobby	600 sq.ft.
"Neighborhood" offices (private)	12 @ 150 sq.ft.
waiting/ reception	150 sq.ft.
secretary	100 sq.ft.
"Resort" offices (rentable)	12 @ 150 sq.ft.
waiting/ reception	150 sq.ft.
secretary	100 sq.ft.
Videoconference Room (seat 4-10)	400 sq.ft.
private teleconference room	2 @ 100 sq.ft.
Videoconference Room (seat 10-20)	700 sq.ft.
private teleconference room	4 @ 100 sq.ft.
Conference Room (seat 4-10)	300 sq.ft.
Conference Room (seat 10-20)	600 sq.ft.
Electronic Publishing Center	400 sq.ft.
Banquet Room/ Meeting Room (seat 30-150)	2000 sq.ft.
Auditorium	3500 sq.ft.
Theater	450 sq.ft.
Gymnasium	
racquetball court	2 @ 800 sq.ft.
weight room	900 sq.ft.
locker rooms	2 @ 500 sq.ft.
Bar/ Cafe	500 sq.ft.
Waiting area/ Lounge	900 sq.ft.
Galleria/ Exhibition	4000 sq.ft.
Kitchen	1200 sq.ft.
storage	200 sq.ft.
refrigerated storage	150 sq.ft.
Guest Facilities (rooms)	6 @ 300 sq.ft.
reception	150 sq.ft.
storage	150 sq.ft.
Mechanical (15% of building)	2800 sq.ft.
Circulation (20% of building)	4000 sq.ft.
Building total	33,000 sq.ft.

Aircraft (Apron Area):

Primary "tie down"	10 aircraft	55,000 sq.ft.
Secondary "tie down"	12 aircraft	66,000 sq.ft.
Support facilities		2,000 sq.ft.
Mechanical		500 sq.ft.
Circulation		200 sq.ft.
	Total	123,700 sq.ft.
	Building total	2,700 sq.ft.

Helicopter (Landing Area):

Touchdown pad	6 @	3,600 sq.ft.
Air Rescue pad		3,600 sq.ft.
Support facilities		1,200 sq.ft.
Mechanical		400 sq.ft.
Circulation		200 sq.ft.
	Total	27,000 sq.ft.
	Building total	1,800 sq.ft.

Train Station:

Ticketing		300 sq.ft.
Waiting / Lounge		900 sq.ft.
Cafe/ News stand		400 sq.ft.
Information Center		400 sq.ft.
Employee facility		700 sq.ft.
Platform	2 @	4,000 sq.ft.
Mechanical (15% of building)		1,600 sq.ft.
Circulation (20% of building)		2,100 sq.ft.
	Total	14,400 sq.ft.
	Building total	6,400 sq.ft.

Retail :

Individual stores	10 @	400 sq.ft.
Theater (Cinema)	2 @	1,500 sq.ft.
Restaurant		1,000 sq.ft.
Atrium/ Indoor Courtyard		2,500 sq.ft.
Mechanical (15% of building)		1,500 sq.ft.
Circulation (20% of building)		2,100 sq.ft.
	Total	14,100 sq.ft.

Additional:

Parking	10,000 sq.ft.
Bathrooms (in all buildings)	A.R.
Courtyard/ Exterior space	A.R.
Additional aircraft service	A.R.

Site Total:	**197,900 sq.ft.**
Building Total:	**58,000 sq.ft.**

Program Description

Program Description:

The program is derived from a combination of sources and necessities required for the function of the building. The primary piece is the telecommunications building which contains five major components; the videoconference space, the banquet space, the offices, the auditorium and the point of departure- the aircraft apron and helicopter pads. The program also contains a train station for transport to and from New York City and connections to the major international airports and commercial space for retail.

Telecommunications Building:

The videoconference and conference spaces are the focus of this building. They will provide communications equipment which will enable world wide communication networks. Associated with these rooms will be individual spaces where the businessmen can break away from the formal meeting and converse, privately, with their corporate leader in the "downtown" office through either video or telecommunication.

The banquet/ meeting space will be a large multi- purpose space that will allow for the opportunity of corporate or community functions as well as serve as an evacuation space in the event of a natural disaster.

The auditorium and theater are specific use spaces which will provide the opportunity for corporate seminars, conferences, private lectures and community related events.

The gymnasium and guest facilities are incorporated for the private use of the businessmen who either have an office within the building or are using the facilities for business purposes.

The offices serve the private use of the businessmen as either a temporary "resort" office during the summer season or as a permanent "neighborhood" office.

The offices will contain all the communication and data resource equipment needed to maintain a communication network with the urban based corporation.

Aircraft and helicopter tie down areas with support facilities will provide the businessmen the convenience and speed of air travel.

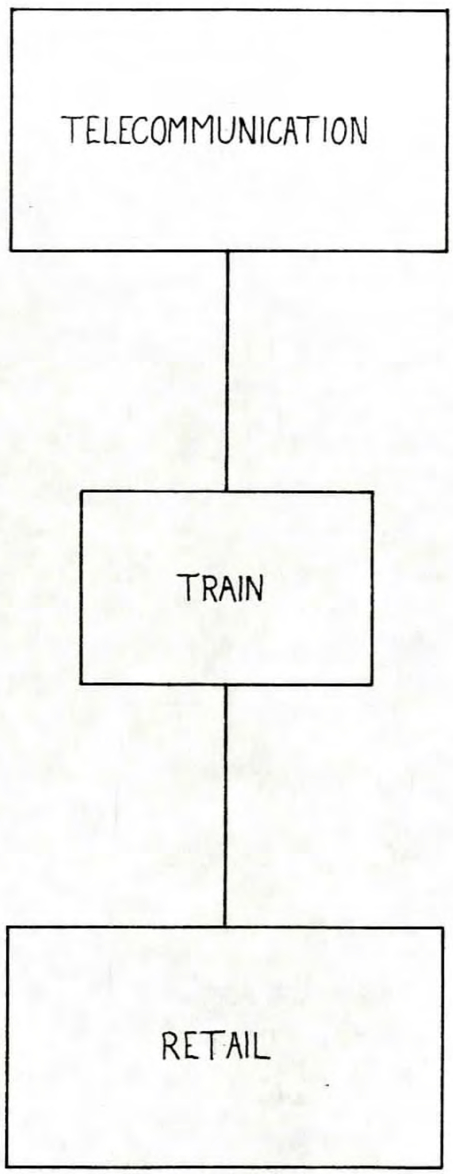
Train Station:

The station will be used by both the public community traveling to and from the East End and by the businessmen connecting the facility to either New York City or Kennedy, LaGuardia, Newark or Islip airports.

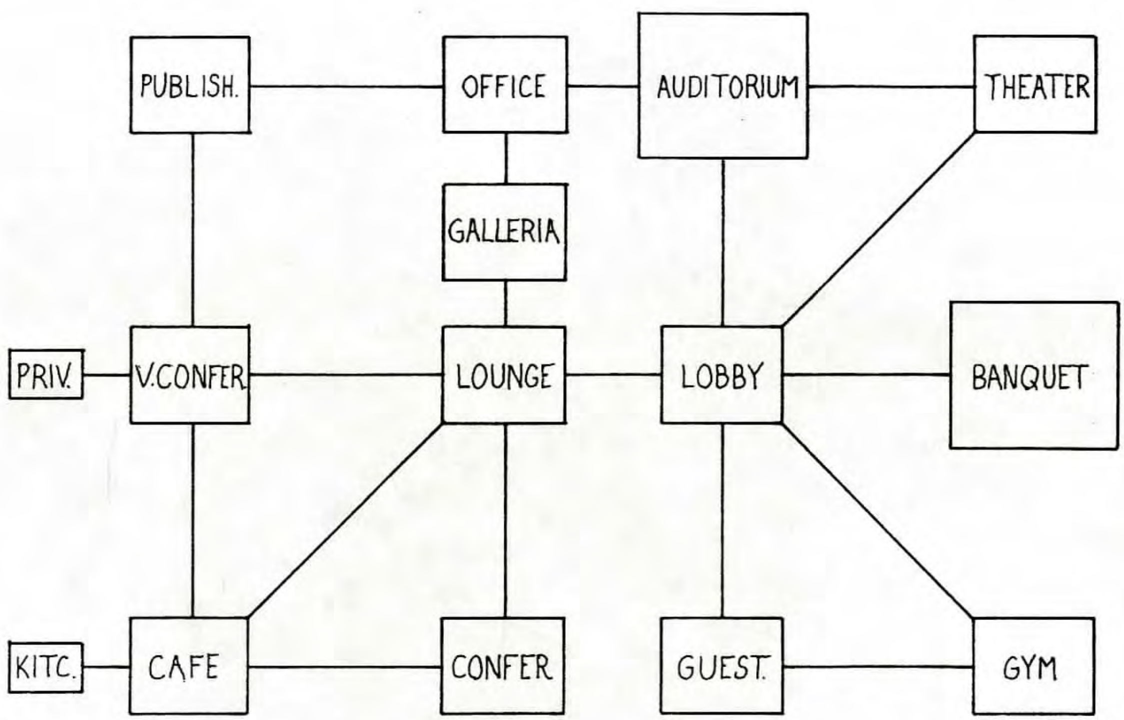
Retail facility:

The retail shops are provided for the use of the railroad passengers, the people who work at the "complex" and the residents of the Town. The incorporation of a restaurant and movie theater will encourage utilization and community intervention.

Program Analysis



Telecommunications Complex



Telecommunications Building

General Aviation

General Aviation:

General aviation is the term used to designate all flying done other than by commercial airlines. For statistical purposes general aviation, in the United States, is usually divided into business flying, that is, transportation not for hire, commercial flying, instructional flying and personal flying. Some concept of the size of the general aviation activities can be gained from the fact that in 1980 general aviation accounted for about 55 times the number of planes, accumulated nearly twice the mileage and flew more than four times the number of hours as the scheduled airlines. It also accounted for 75 percent of all civil aircraft operations at airports with FAA control towers (Horonjeff 9). The comparison of the air carrier fleet with general aviation can be observed in the U.S. Civil Air Fleet Chart, table 1-9.

In 1980 about 67 percent of the air-carrier fleet was turbojets, this percentage being dramatically reduced due to the addition of smaller airlines in certified scheduled service as a direct result of deregulation of the industry. About 80 percent of the general aviation fleet consists of single-engine aircraft. In 1980 the use of general aviation aircraft for business purposes was slightly larger than that for commercial, instructional and personal uses in terms of hours flown, as shown in Table 1-10. It is predicted that the use of general aviation aircraft will increase on the average by about 4 percent per year through 1990. Although the aviation fleet has not changed materially in recent years, there has been a marked increase in the number of aircraft equipped for instrument flying. Federal Aviation Administration (FAA) records indicate that in the 4-year period from 1975 to 1979 general aviation instrument operations over the nation's airways have increased by more than 67 percent. At the present time, general aviation represents nearly one-half of all instrument operations monitored by the FAA (Horonjeff 10).

TABLE 1-9 **U.S. Civil Air Fleet**

Calendar year ending	Air carrier: Jet	Air carrier: Piston, turboprop, rotary wing	Air carrier: Total	General aviation: Single-engine	General aviation: Multi-engine	General aviation: Total*
1960	202	1,933	2,135	69,306	7,243	77,297
1965	725	1,400	2,125	81,134	11,422	95,442
1970	2,136	543	2,679	111,100	16,300	134,000
1975	2,114	381	2,495	136,639	24,106	168,049
1980	2,526	1,279	3,805	168,390	31,313	210,339
1985†	2,641	279	2,920	202,100	38,400	254,500
1990†	2,869	249	3,118	234,000	46,000	298,100

* Total includes rotorcraft and others not listed in table.

† Projections

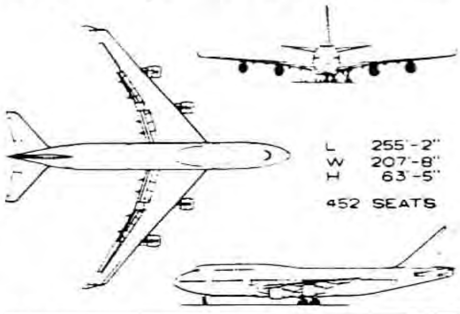
TABLE 1-10 **Hours Flown in General Aviation by Type of Use, Thousands**

Year	Total hours	Business		Commercial		Instructional		Personal		Other	
		Hours	%	Hours	%	Hours	%	Hours	%	Hours	%
1940	3,200	314	10	387	12	1,529	48	970	30	135	1
1951	8,451	2,950	35	1,584	19	1,902	23	1,880	22	57	1
1960	13,121	5,699	44	2,365	18	1,828	14	3,172	24	75	1
1965	16,733	5,857	35	3,348	20	3,346	20	4,016	24	106	1
1970	26,028	7,182	28	4,582	18	6,798	26	6,936	27	530	2
1975	34,165	9,545	28	6,480	19	8,174	24	9,244	27	722	2
1980	43,340	13,980	32	8,064	19	10,668	25	9,471	22	1,052	2
1985*	51,600	15,500	30	9,800	19	12,300	25	11,400	22	1,600	2
1990*	60,900	18,300	30	11,600	19	15,200	25	13,400	22	2,400	2

* Only the total hours flown are projected by the FAA for the years shown. The breakdown by use type is based upon recent trends.

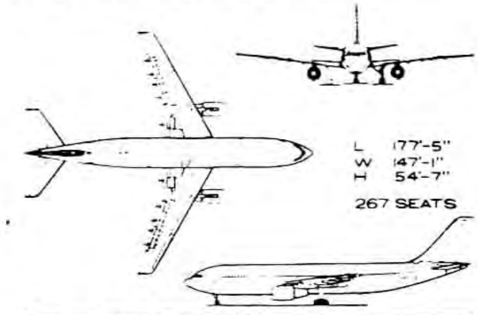
Aircraft Dimensions

DATA KEY: L-Length overall   W-Wingspan   H-Height overall   SEATS-Normal passenger accomodations



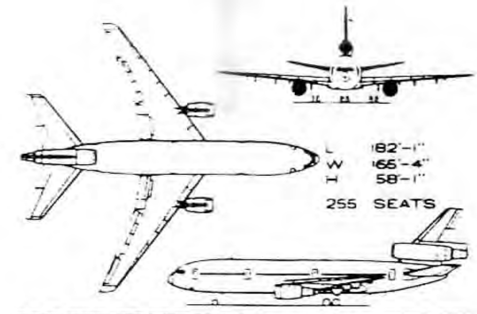
L 255'-2"
W 207'-8"
H 63'-5"
452 SEATS

BOEING 747



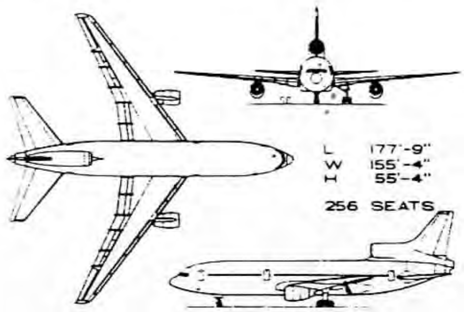
L 177'-5"
W 147'-1"
H 54'-7"
267 SEATS

AIRBUS A-300



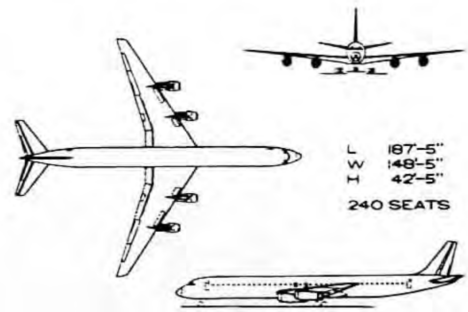
L 182'-1"
W 165'-4"
H 58'-1"
255 SEATS

McDONNELL-DOUGLAS DC-10



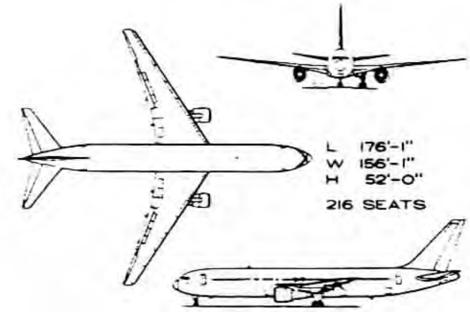
L 177'-9"
W 155'-4"
H 55'-4"
256 SEATS

LOCKHEED L-1011



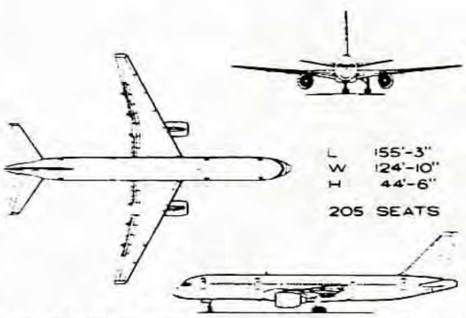
L 187'-5"
W 148'-5"
H 42'-5"
240 SEATS

McDONNELL-DOUGLAS DC-8-70



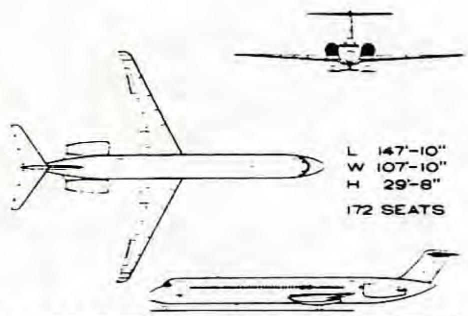
L 176'-1"
W 156'-1"
H 52'-0"
216 SEATS

BOEING 767



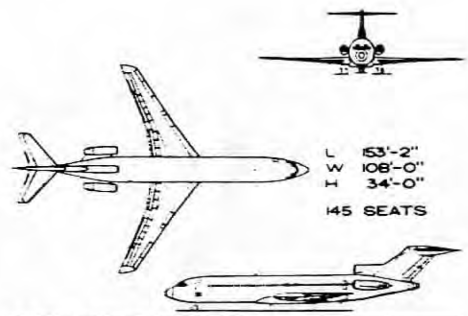
L 155'-3"
W 124'-10"
H 44'-6"
205 SEATS

BOEING 757



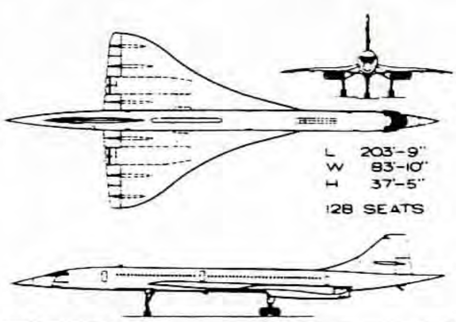
L 147'-10"
W 107'-10"
H 29'-8"
172 SEATS

McDONNELL-DOUGLAS MD-80 (DC-9)



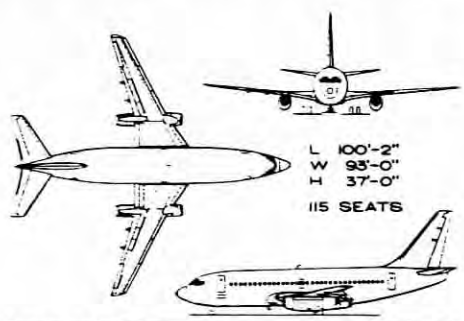
L 153'-2"
W 108'-0"
H 34'-0"
145 SEATS

BOEING 727



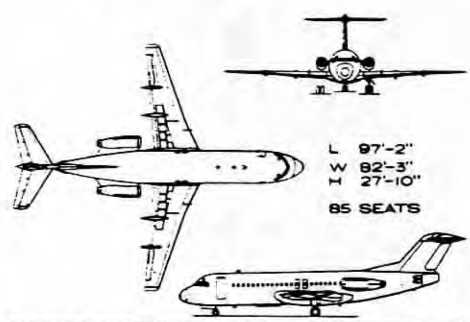
L 203'-9"
W 83'-10"
H 37'-5"
128 SEATS

CONCORDE



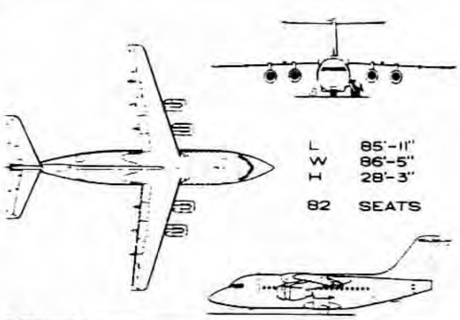
L 100'-2"
W 93'-0"
H 37'-0"
115 SEATS

BOEING 737



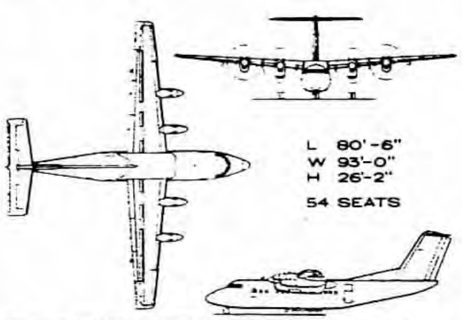
L 97'-2"
W 82'-3"
H 27'-10"
85 SEATS

FOKKER F-28



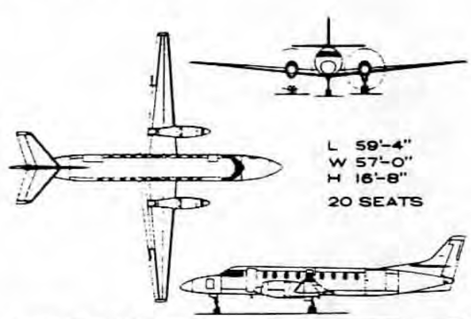
L 85'-11"
W 86'-5"
H 28'-3"
82 SEATS

BAE-146



L 80'-6"
W 93'-0"
H 26'-2"
54 SEATS

DE HAVILLAND DHC-7



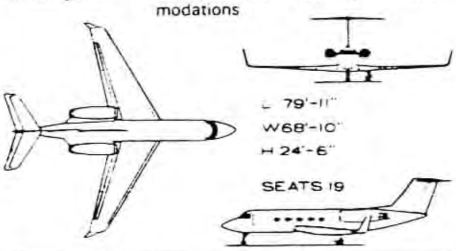
L 59'-4"
W 57'-0"
H 18'-8"
20 SEATS

FAIRCHILD METRO III

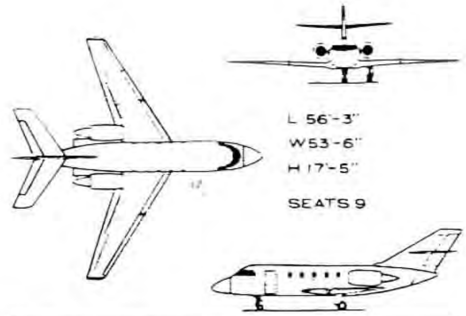
Aircraft

DATA KEY

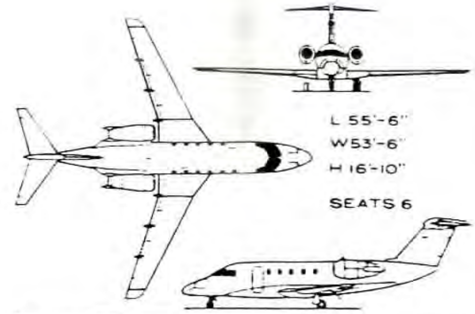
L-Length Overall H-Height Overall
W-Wingspan SEATS-Normal Passenger Accommodations



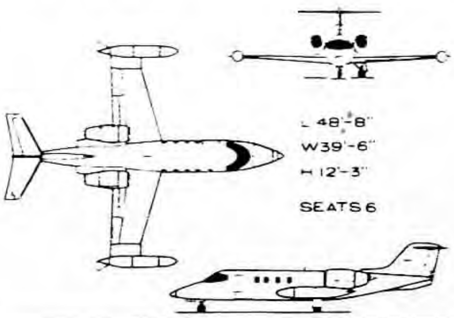
GULFSTREAM II



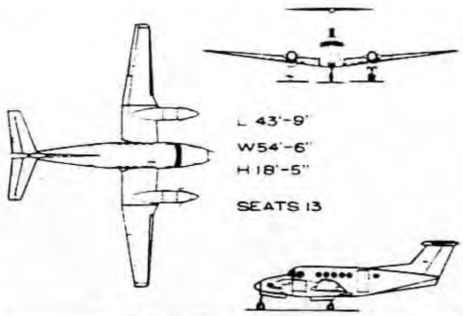
DASSAULT FALCON 200



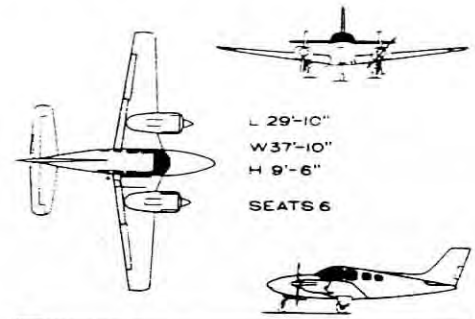
CESSNA CITATION III



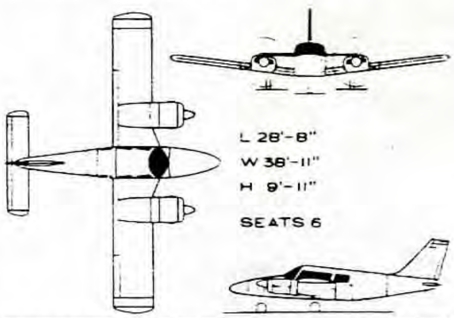
GATES LEARJET 36



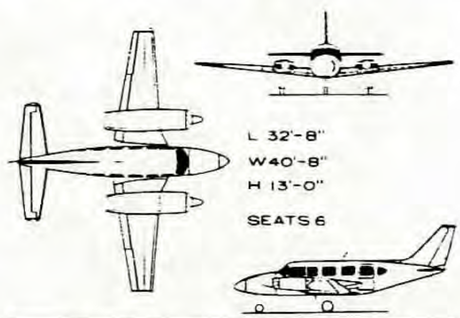
BEECHCRAFT SUPER KING AIR



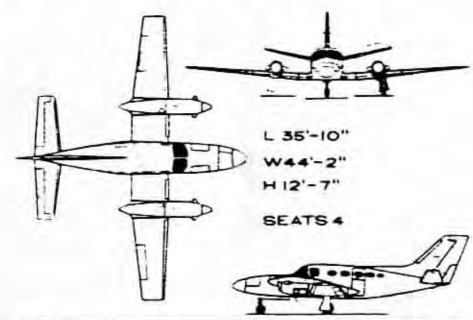
BEECHCRAFT BARON



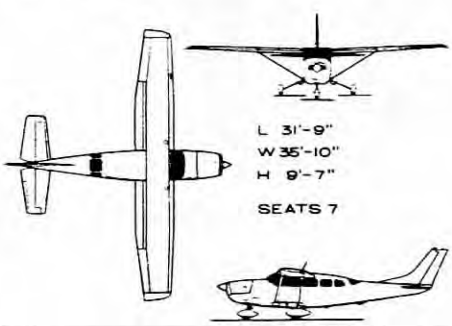
PIPER SENECA



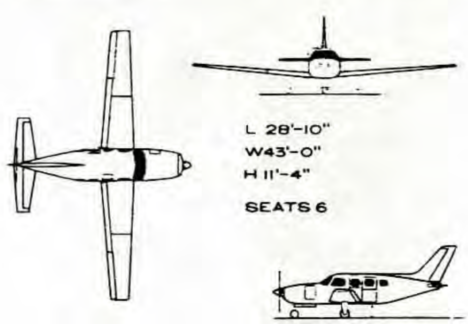
PIPER NAVAJO



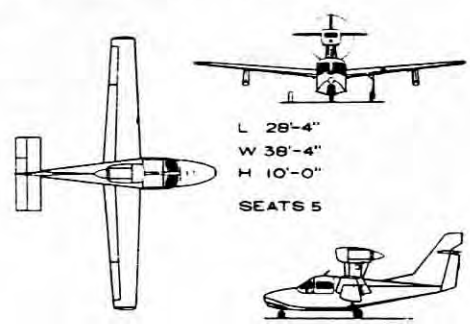
CESSNA CONQUEST I



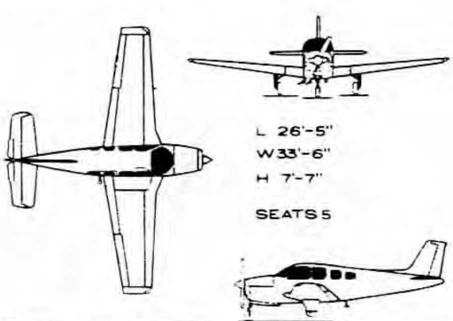
CESSNA 207



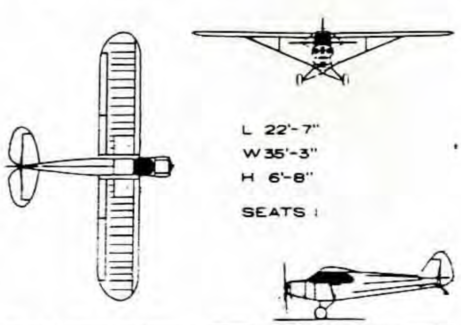
PIPER MALIBU



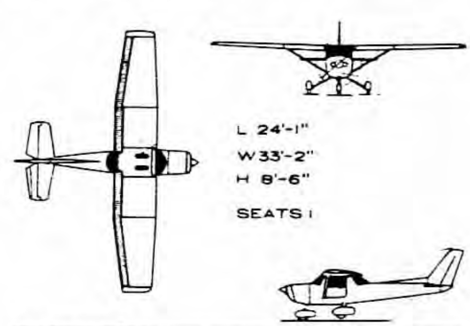
LAKE RENEGADE



BEECHCRAFT BONANZA



PIPER SUPER CUB



CESSNA 152

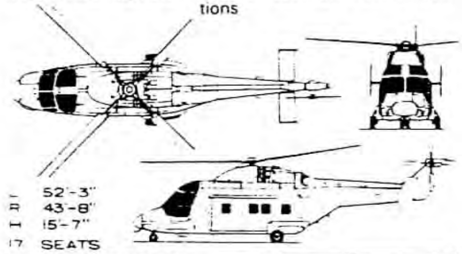
Aircraft

Aircraft Dimensions:

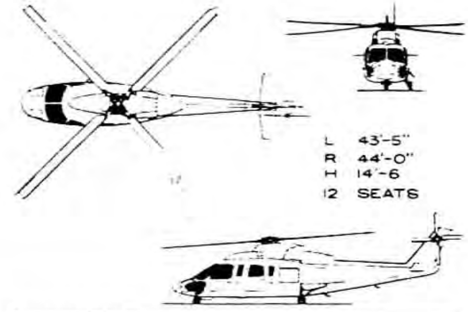
Aircraft	Wing Span	Fuselage length	Number of Seats	Number and Engine Type
Gulfstream II	68' 10"	79' 11"	22	2 TF
deHavilland Twin Otter	65' 0"	51' 09"	22	2 TP
Lockheed Jet Star	54' 05"	60' 05"	12	4 TJ
Dassualt Falcon 200	53' 06"	56' 06"	9	2 TF
Cessna Citation III	53' 06"	55' 06"	6	2 TF
Metroliner II	46' 03"	59' 05"	22	2 TF
Beech C99	45' 10"	44' 07"	17	2 TP
Sabreliner 60	44' 05"	48'04"	12	2 TJ
Gates Lear Jet 36	39' 06"	48' 08"	6	2 TF
Beech 58 Baron	37' 10"	29' 09"	6	2 P

DATA KEY

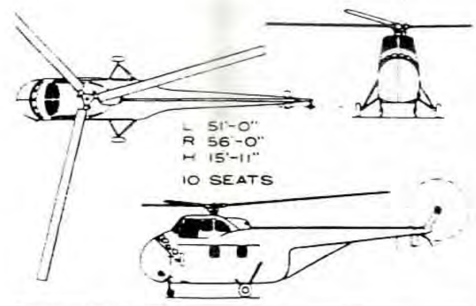
L-Fuselage length
R-Main rotor diameter
H-Height to top of rotor head
SEATS-Passenger accommodations



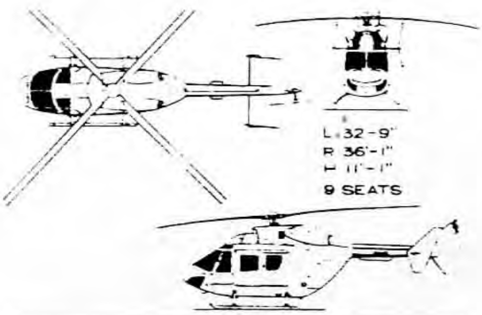
WESTLAND 30



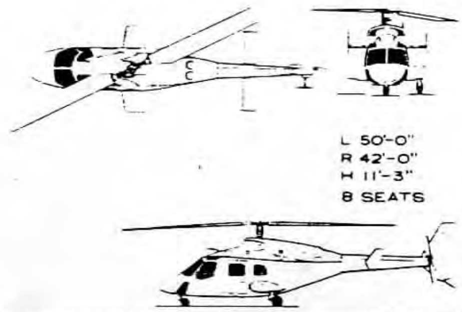
SIKORSKY S-76



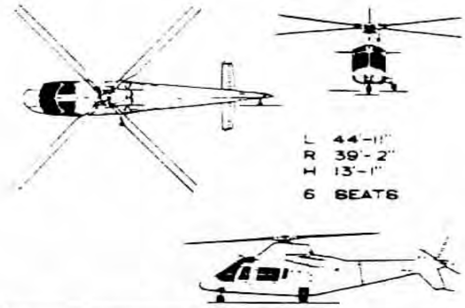
SIKORSKY S-58



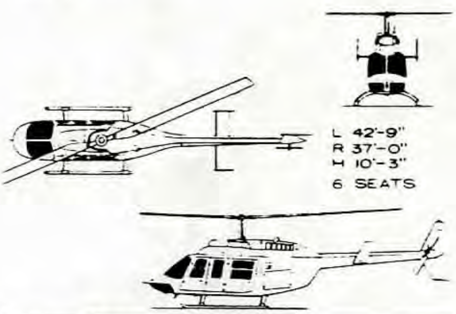
MBB BK-117



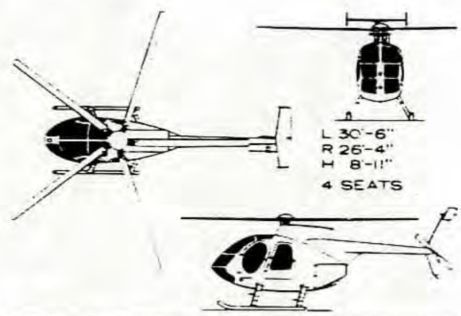
BELL 222



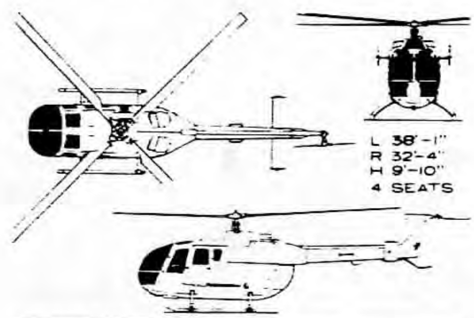
AUGUSTA A 109



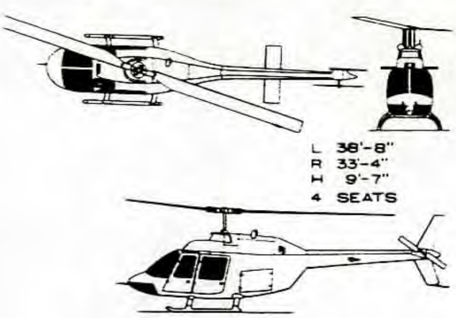
BELL 206L LONGRANGER



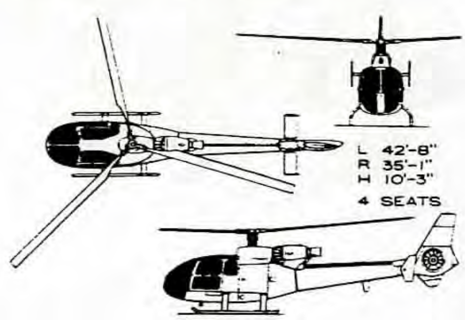
McDONNELL-DOUGLAS 500



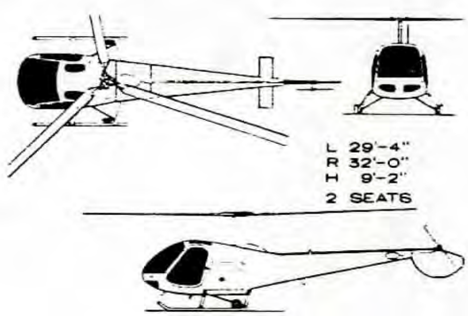
MBB BO 105



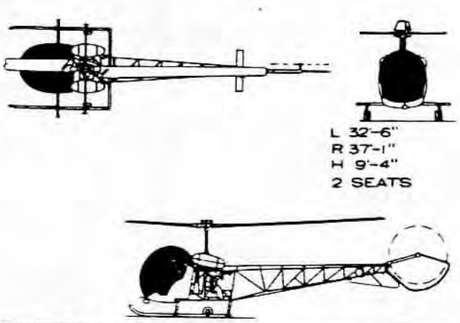
BELL 206 JETRANGER



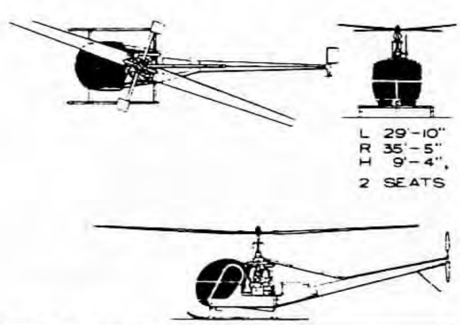
AEROSPATIALE AS-350



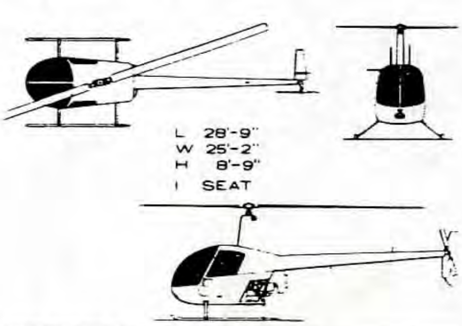
ENSTROM F-28



BELL 47



HILLER UH-12



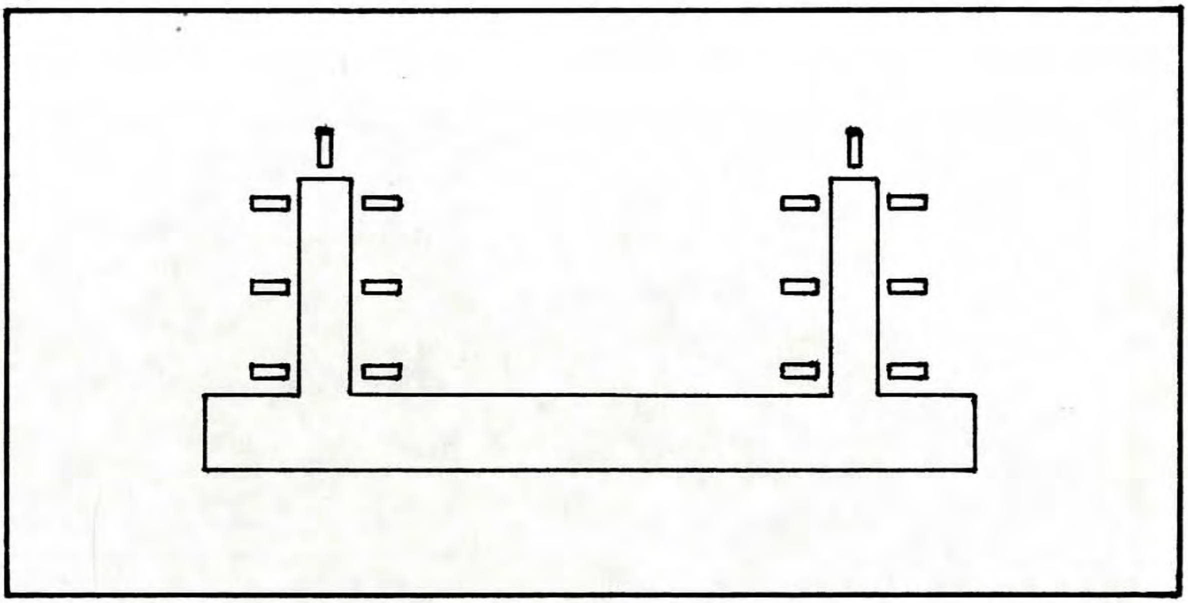
ROBINSON R22

Helicopter Dimensions:

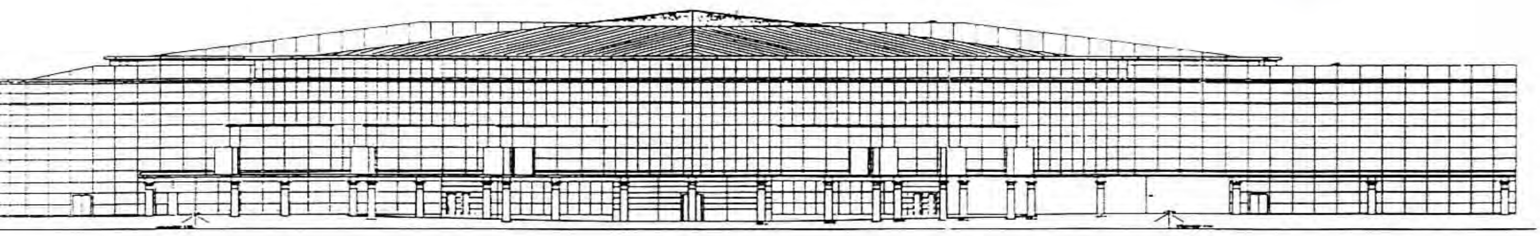
Helicopter	Rotor Diameter	Overall Length	Height	Passengers
SA-330J	49' 06"	59' 10"	16' 10"	8-20
Bell- 204B	49' 10"	57' 00"	14' 06"	9
Bell- 205A	49' 10"	57' 02"	14' 06"	14
Sikorsky S- 76	44' 00"	43' 05"	14' 06"	12
Westland 30	43' 08"	52' 03"	15' 07"	17
Bell 222	42' 00"	50' 00"	11' 03"	8
Augusta A-109	39' 02"	44' 11"	13' 01"	6
Bell 206L	37' 00"	42' 09"	10' 03"	6
MBB BK-117	36' 01"	32' 09"	11' 01"	9
Aerospatiale AS-350	35' 01"	42' 08"	10' 03"	4

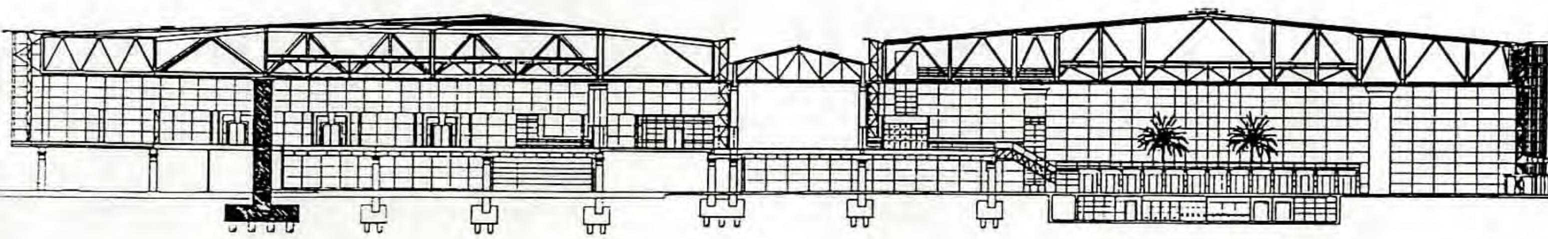
Precedents

Precendents: Airports

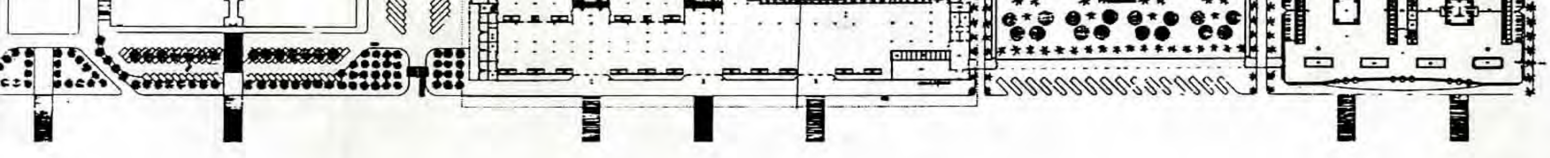


Central Terminal with Piers



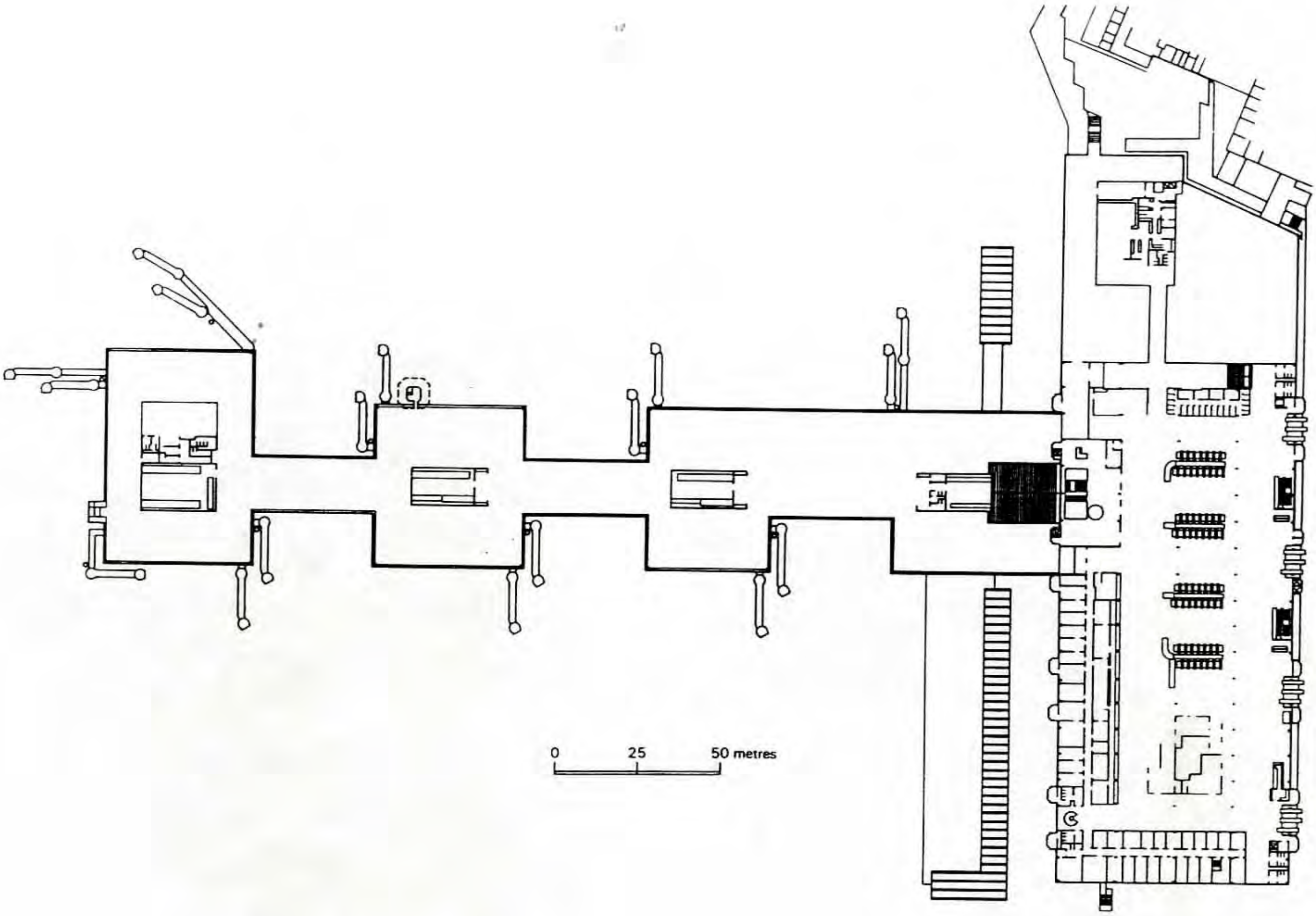


0 5 10

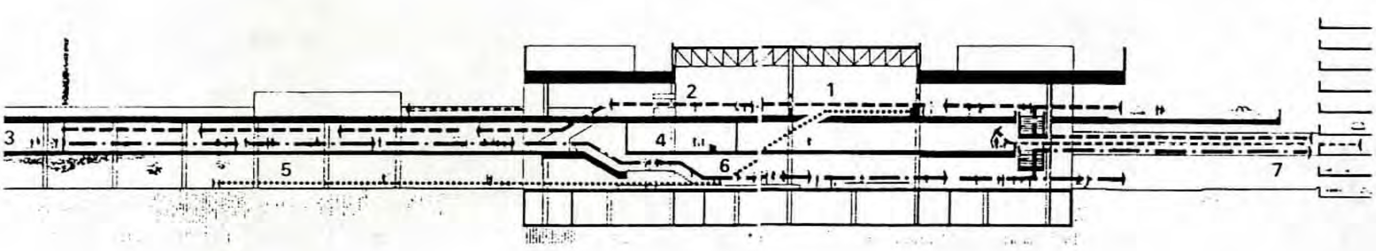


0 50 100 MT

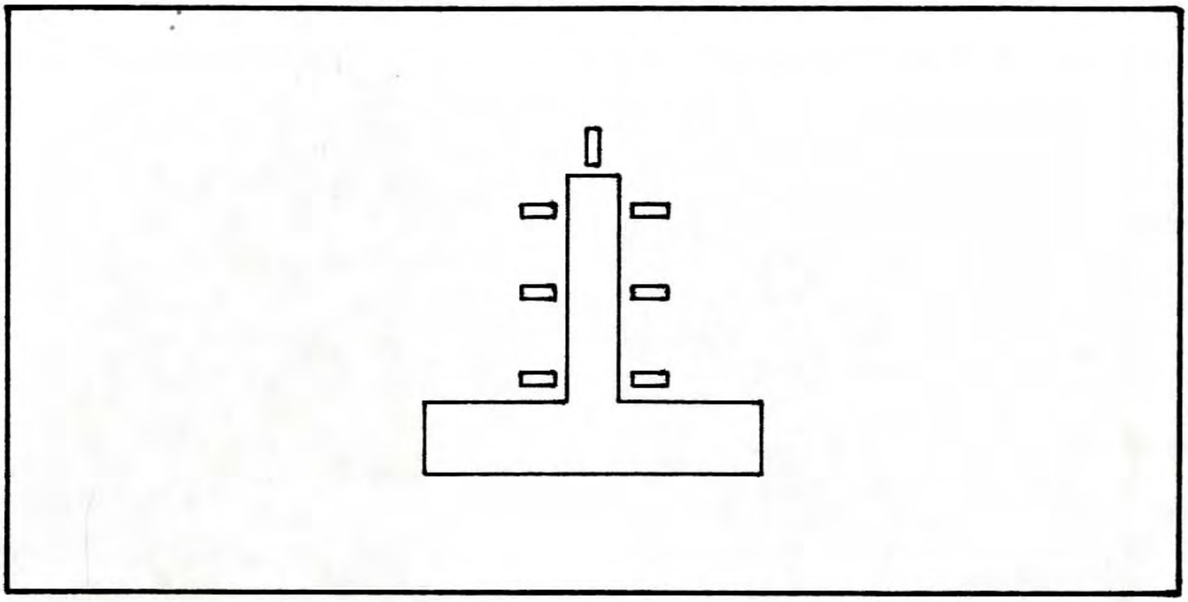
El Prat Airport Extension, Barcelona
Ricardo Bofill



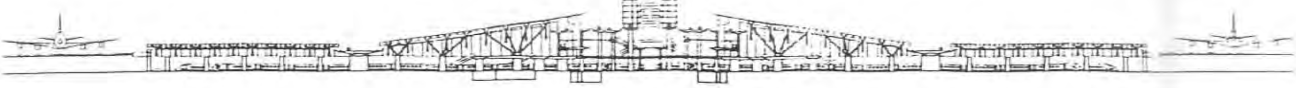
Key to sectional drawing:
1 Check-in desks
2 Passport control
3 Gate lounge
4 Transit area
5 Service roads
6 Baggage reclaim
7 Bridge to multi-storey car park

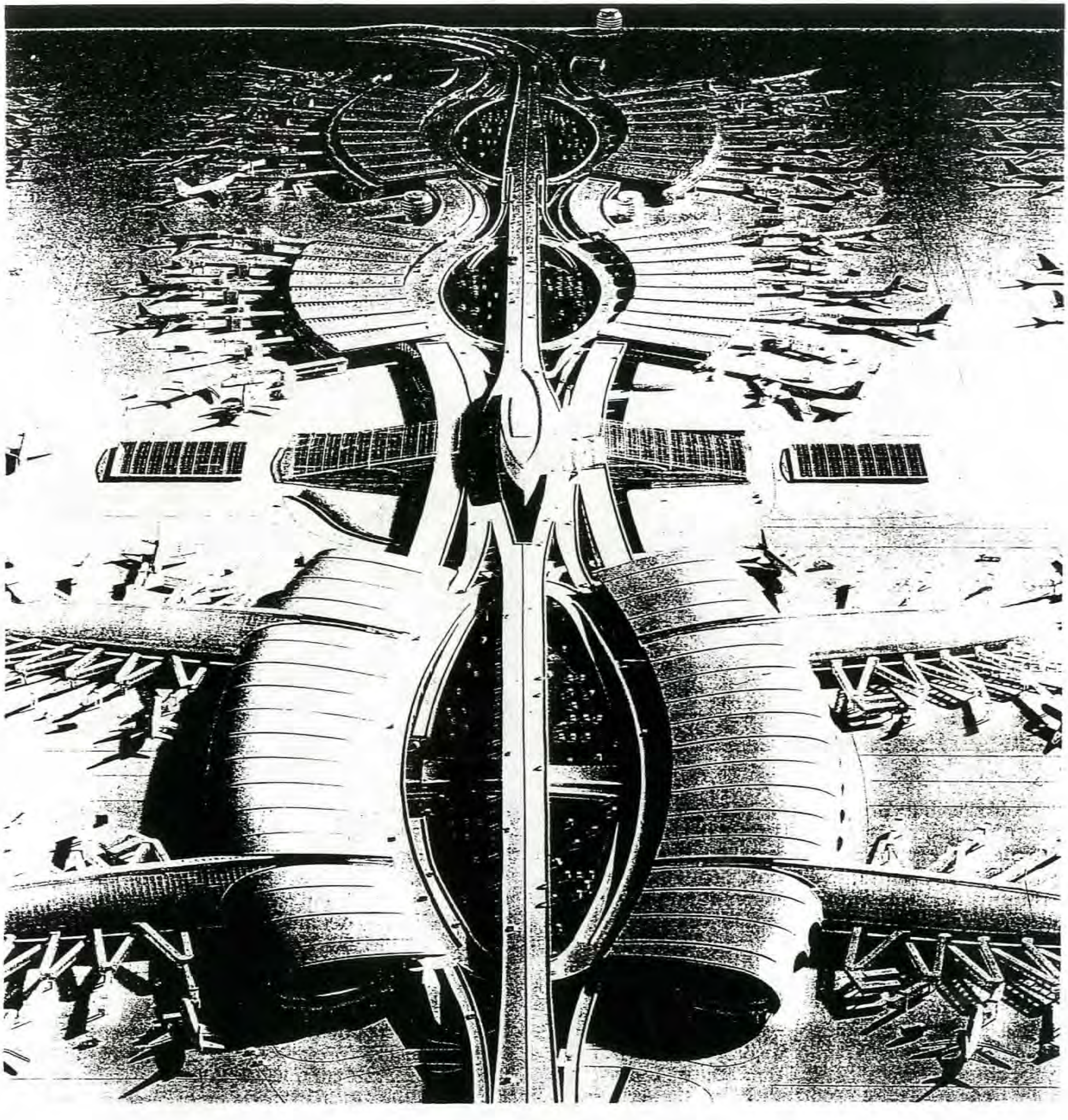


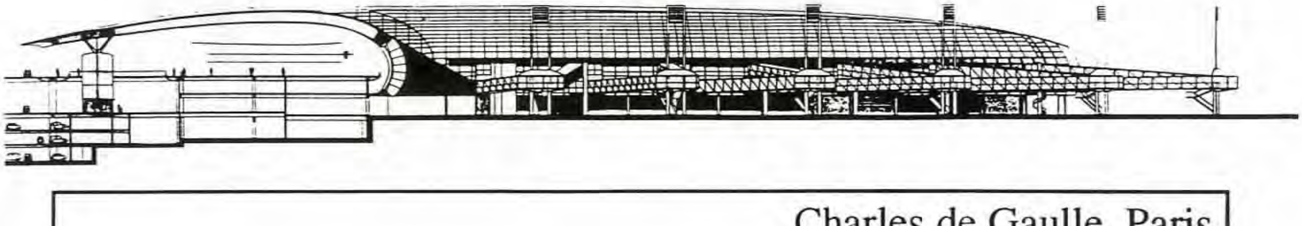
Kloten B, Zurich



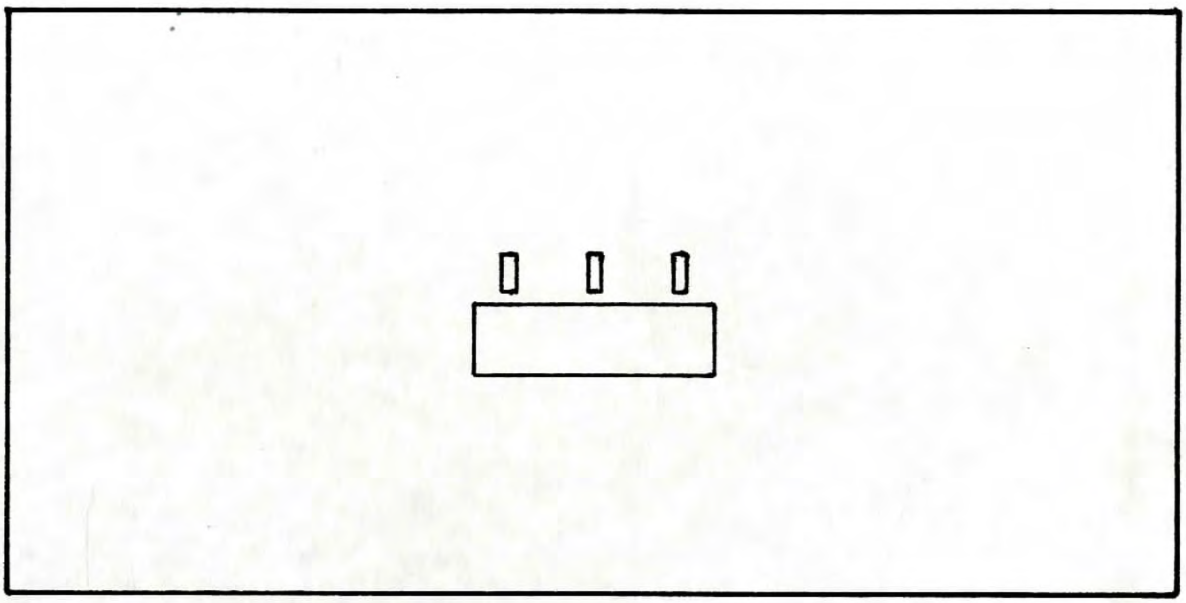
Unit Terminal with Piers



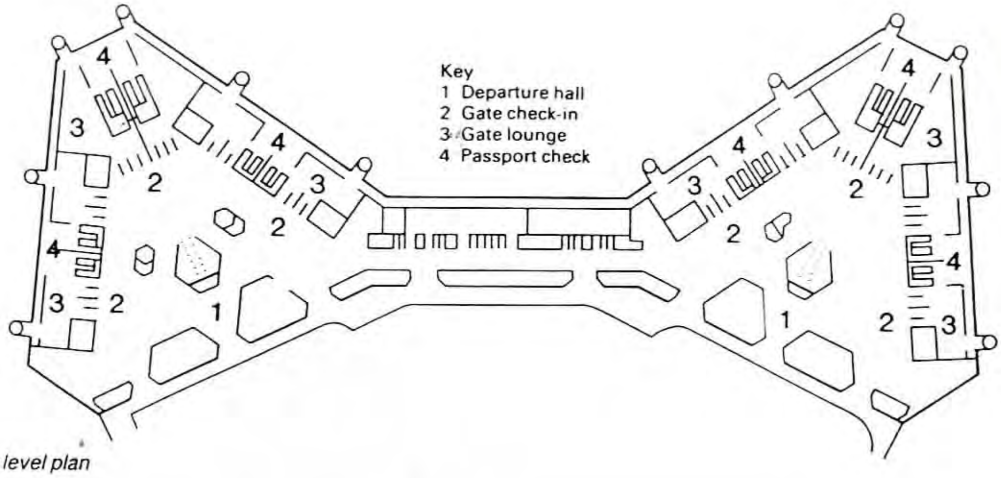




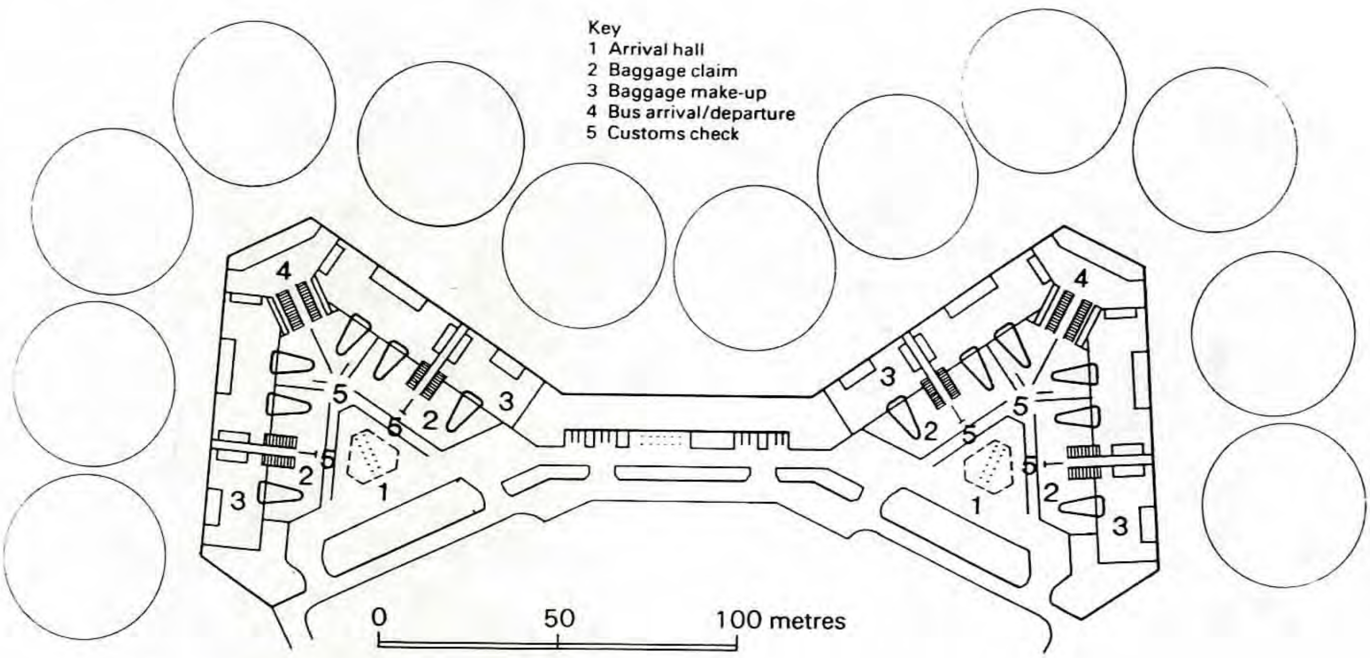
Charles de Gaulle, Paris
Paul Andreu



Multiple Linear Units

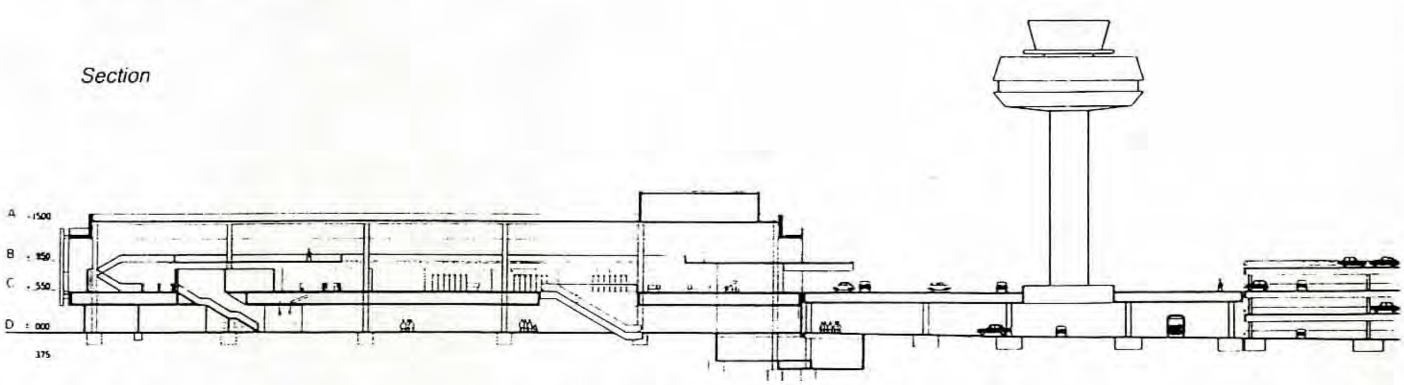


Departures level plan

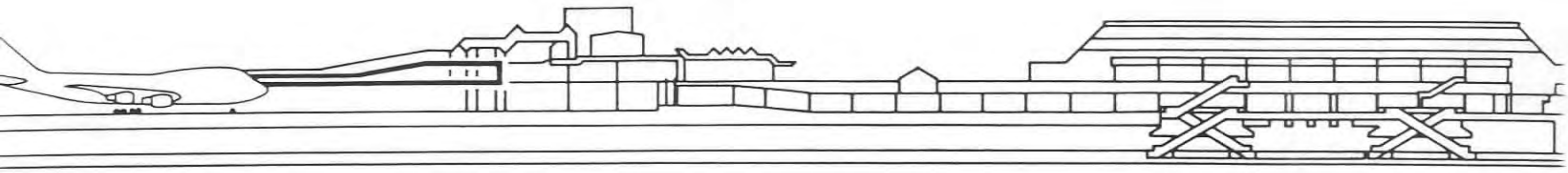


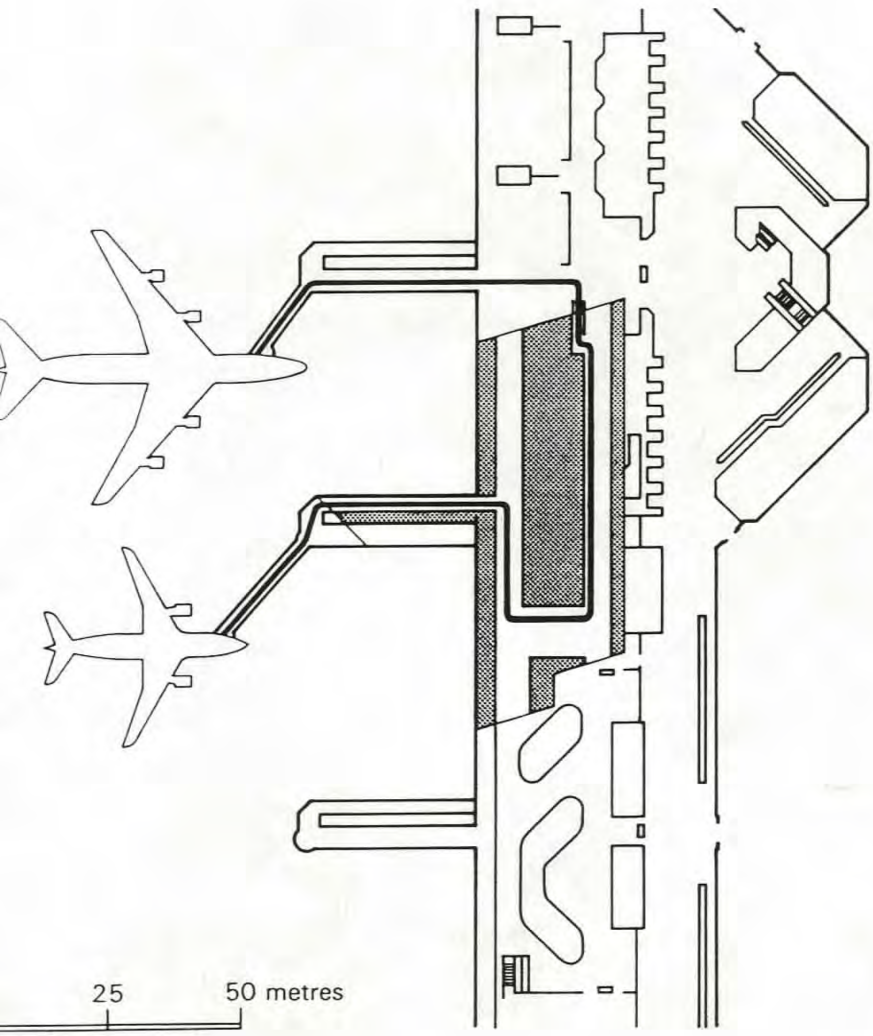
Arrivals level plan

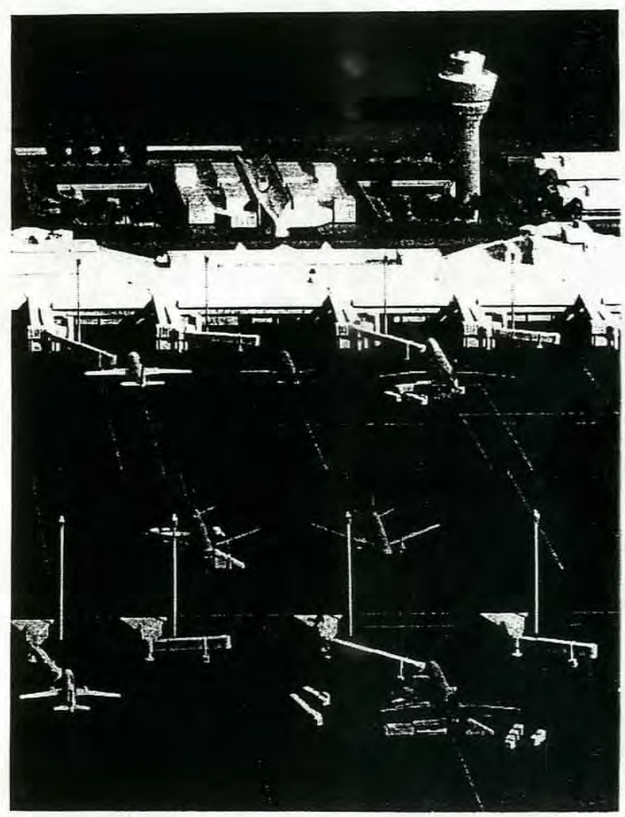
Section



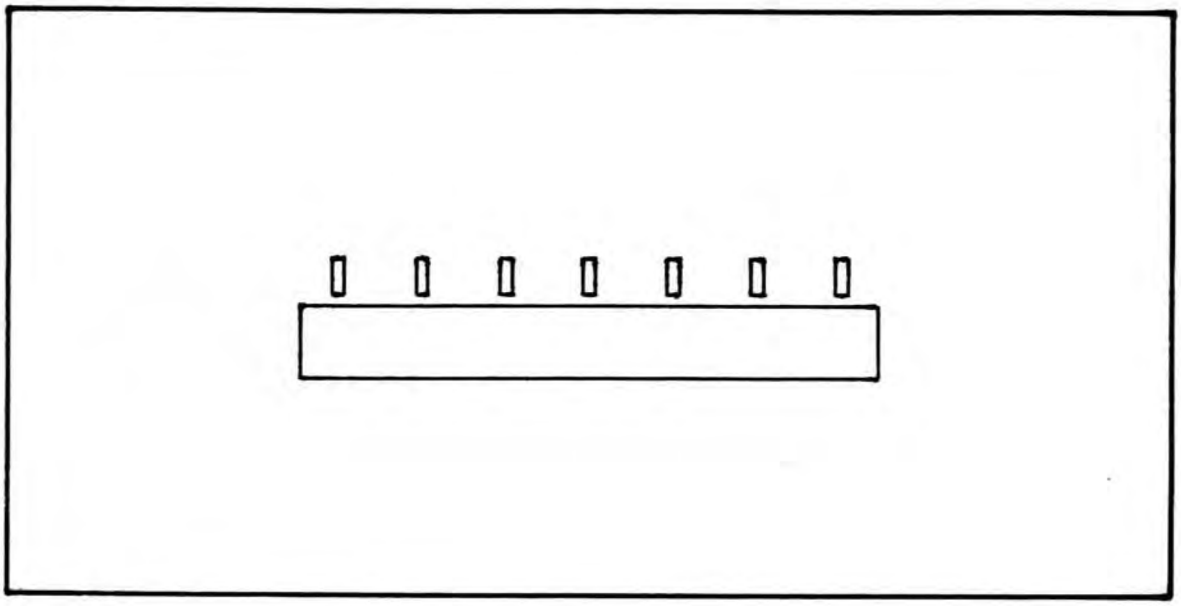
Hanover Langenhagen, Germany
Dr. Heinz Wilke



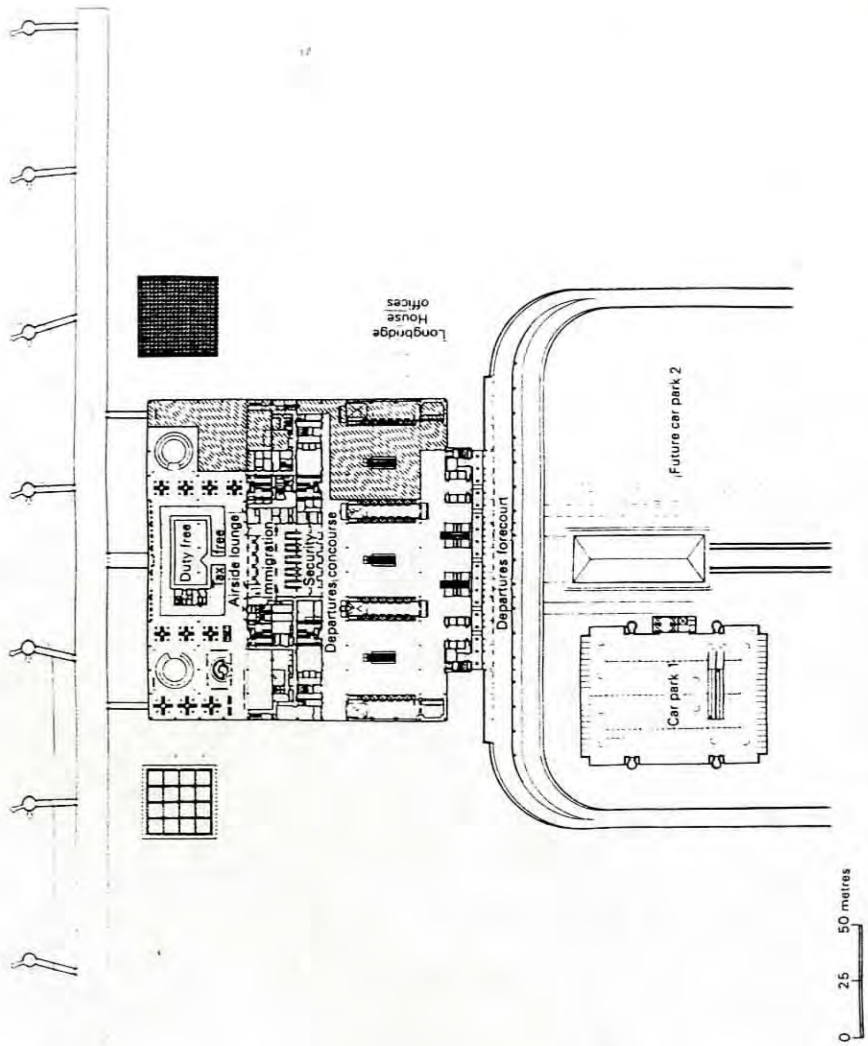




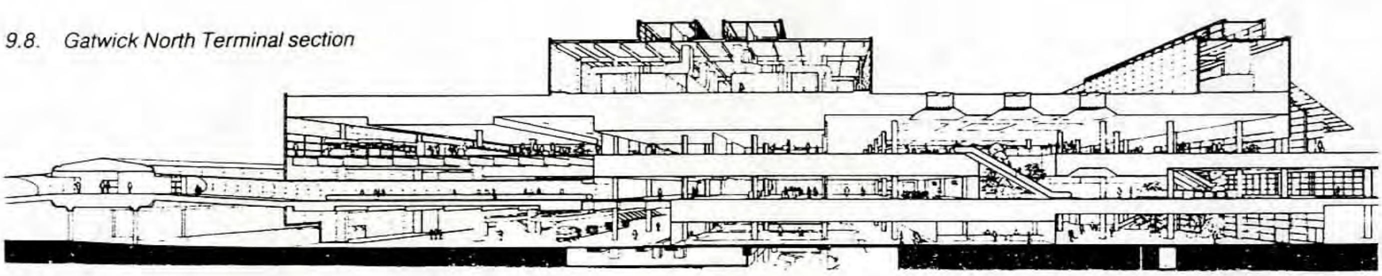
Munich 2, Germany
Busse and Partners



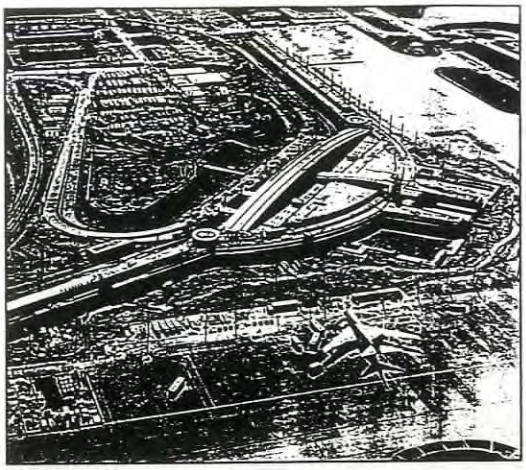
Linear Terminals



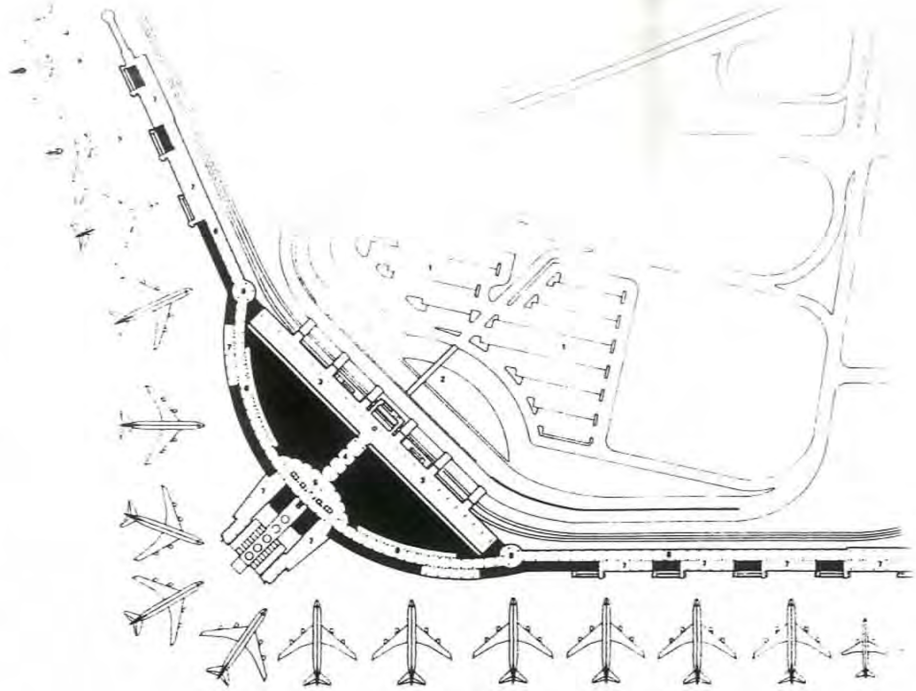
9.8. *Gatwick North Terminal section*



London Gatwick North Terminal
YRM Architects and Planners

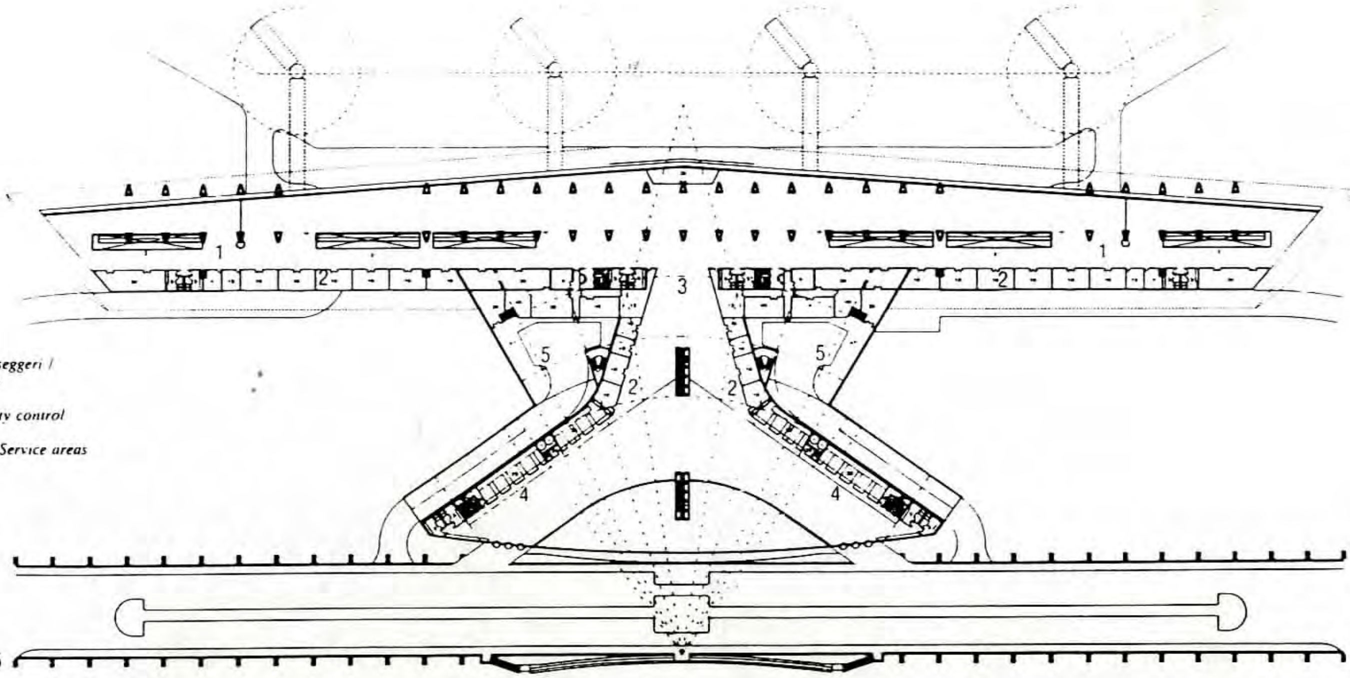


CONSTRUCTION PHOTO



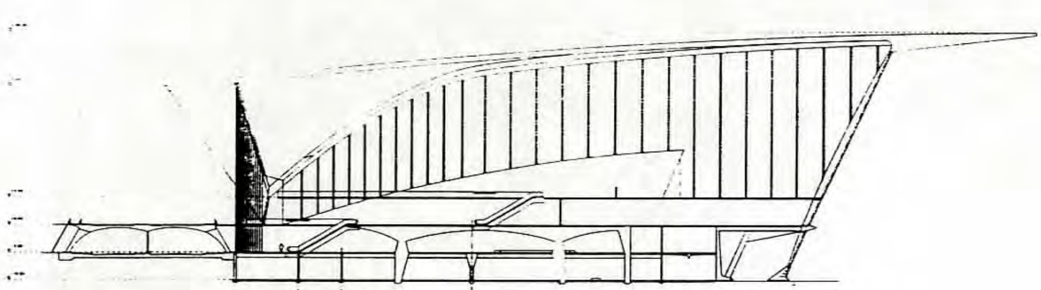
UPPER LEVEL PLAN

International Terminal O'Hare, Chicago
Group One Design

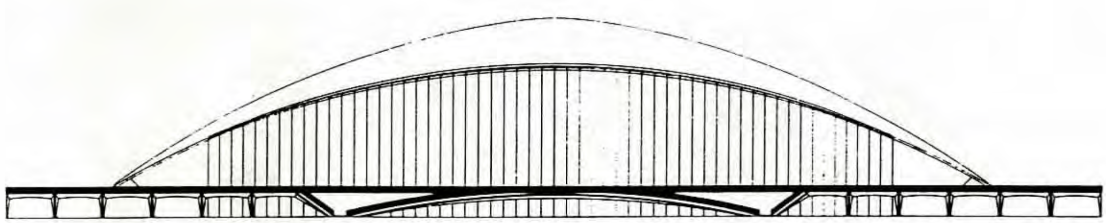


5

…e d'aspetto passeggeri /
…senger lounges
…ozi / Shops
…trollo / Security control
…ck-in
…e di servizio / Service areas

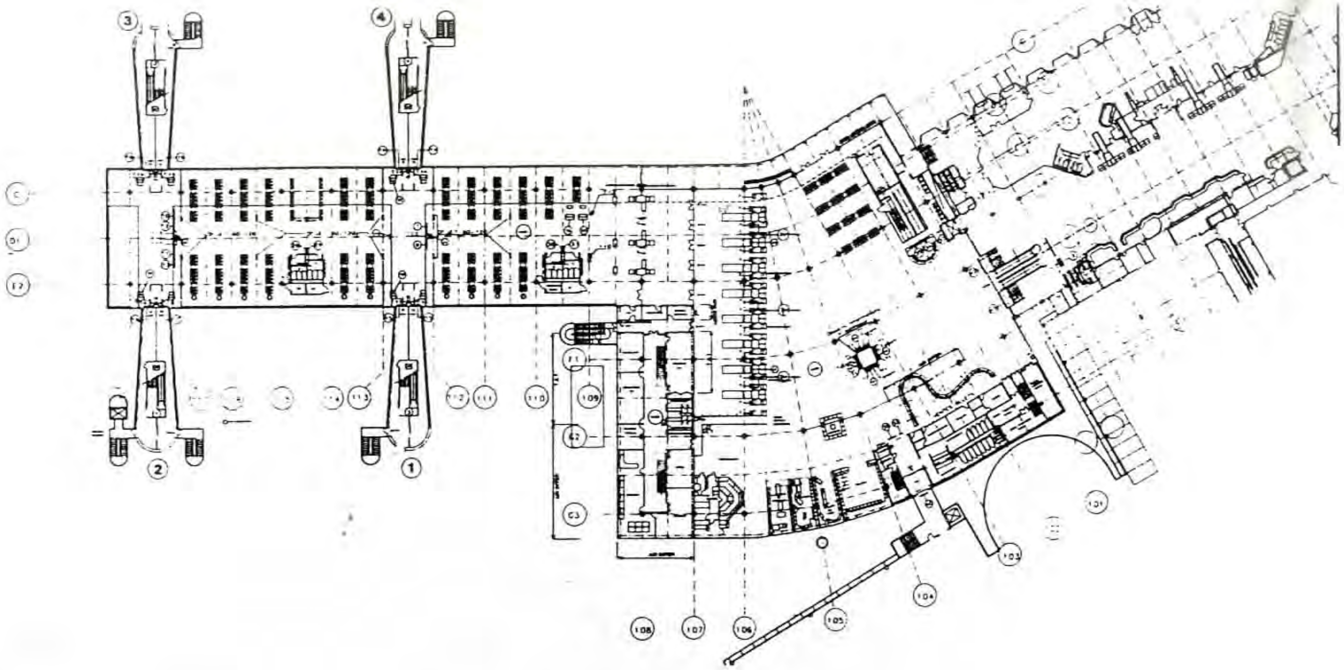


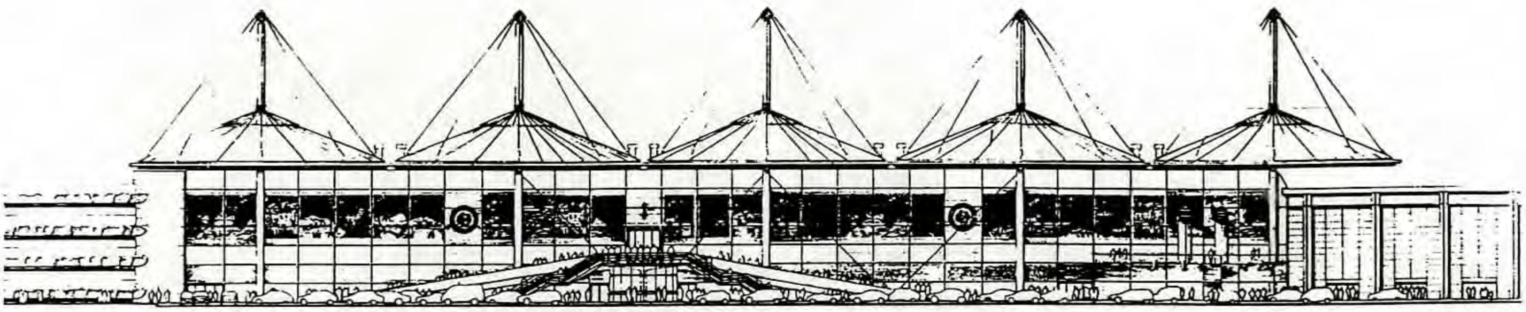
3



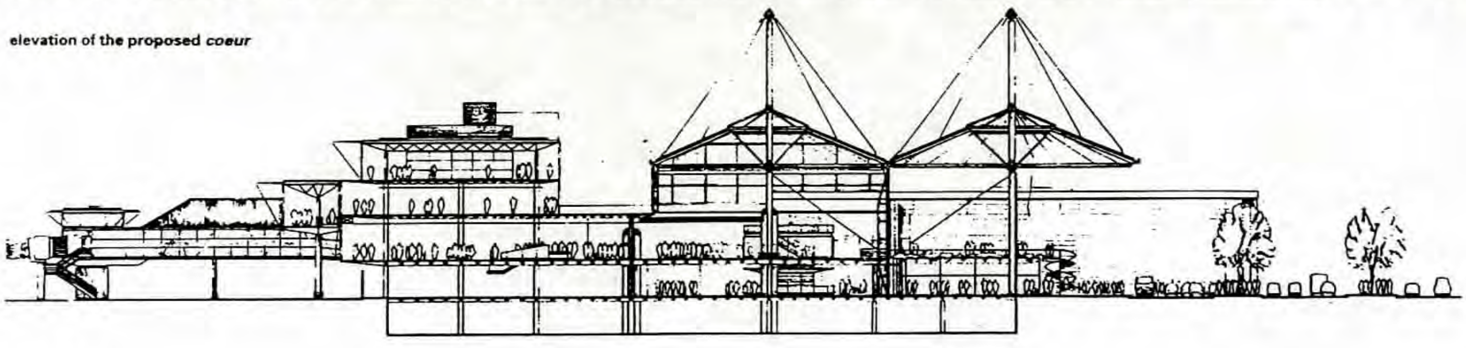
4

Sondika Airport, Bilbao
Santiago Calatrava

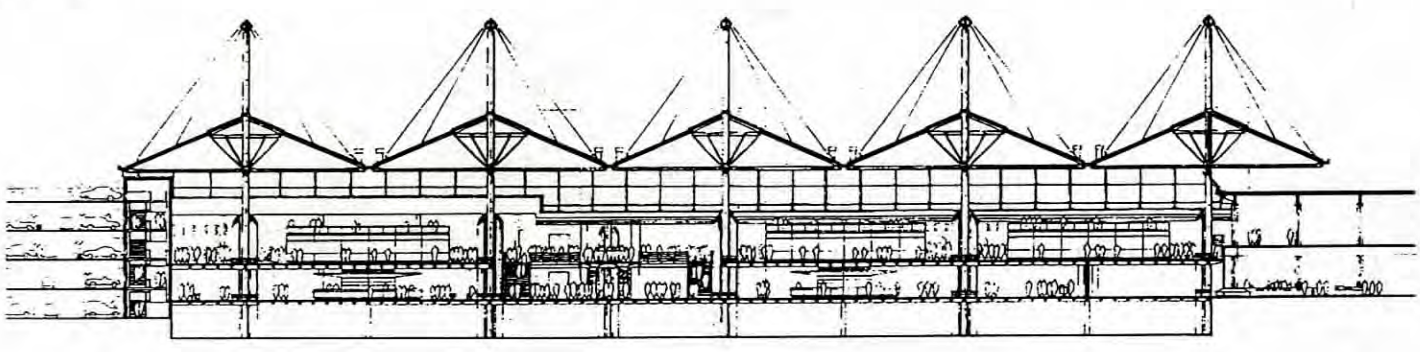




elevation of the proposed *coeur*

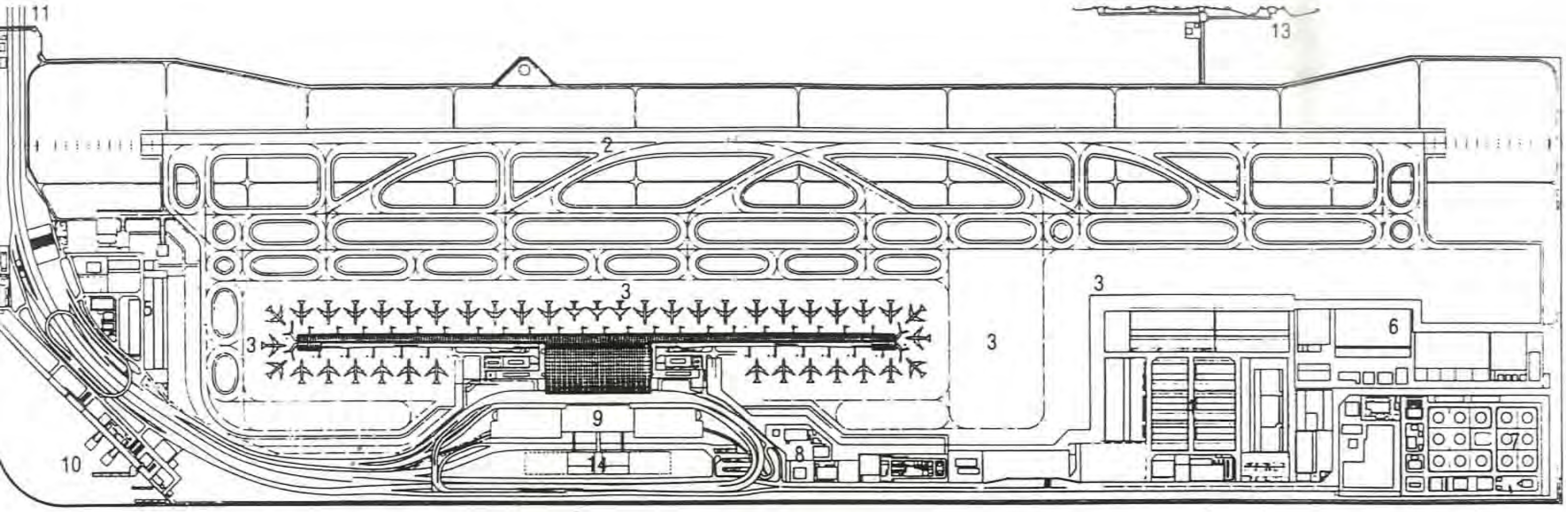


cross section

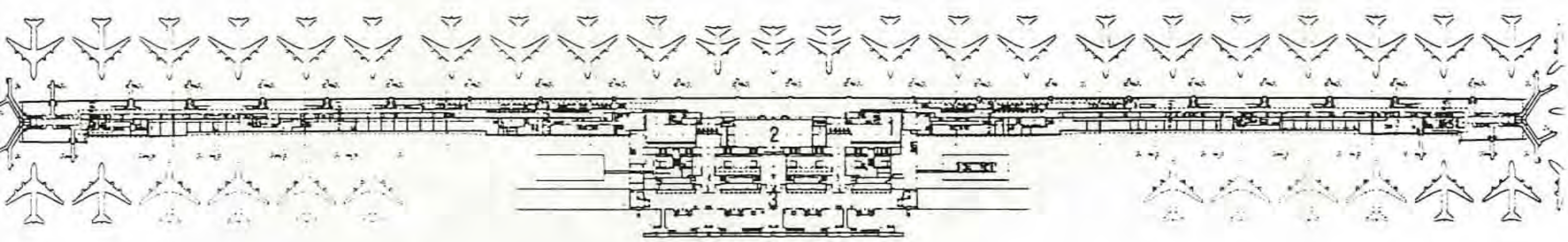


long section

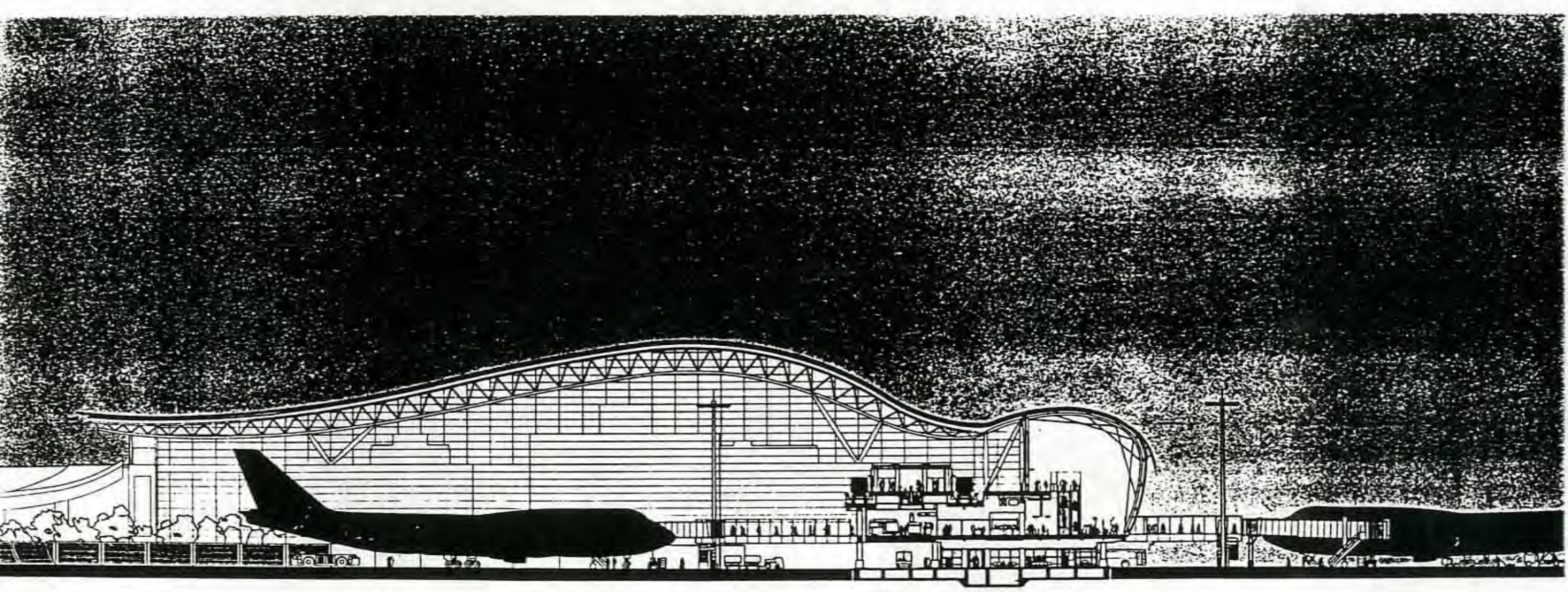
Marseille Airport Extension
Richard Rogers



1, Terminal
2, Pista / Runway
3, Piazzale aerei / Aircraft apron
4, Terminal merci internazionali / International goods terminal
5, Terminal merci nazionali / National goods terminal
6, Servizi di manutenzione / Maintenance services
7, Zona rifornimenti / Supply zone
8, Amministrazione / Administration
9, Stazione ferroviaria / Railway station
10, Porto / Port
11, Ponte di collegamento alla terraferma / Causeway to mainland
12, Luci di riferimento / Runway reference lights
13, Rifornimento carburante / Fuel s
14, Servizi annessi al terminal / Services to terminal

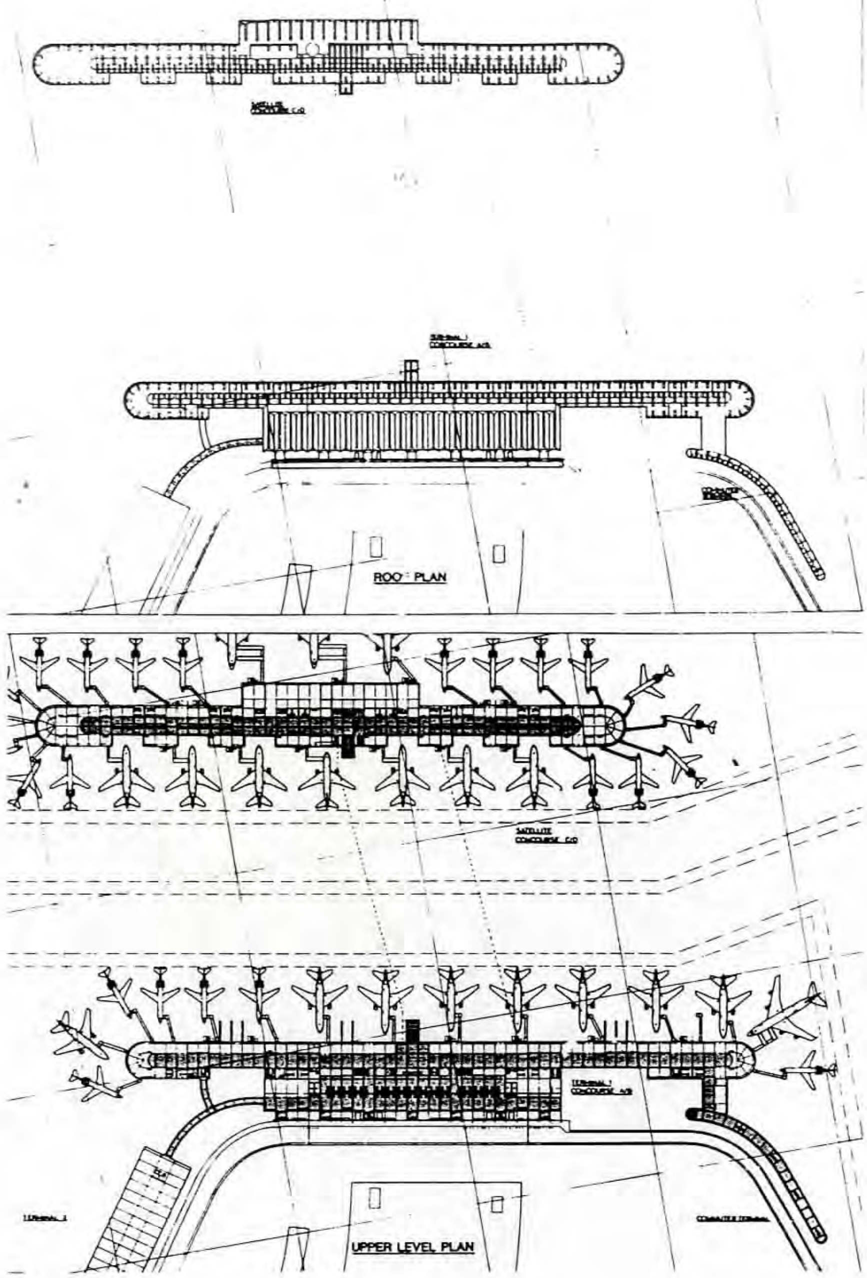


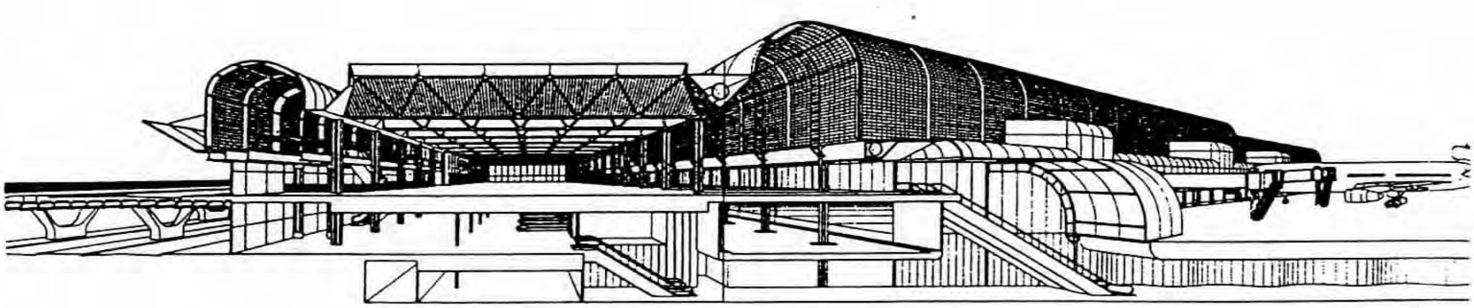
1, Uffici / Offices
2, Consegna bagagli / Baggage del
3, Check-in



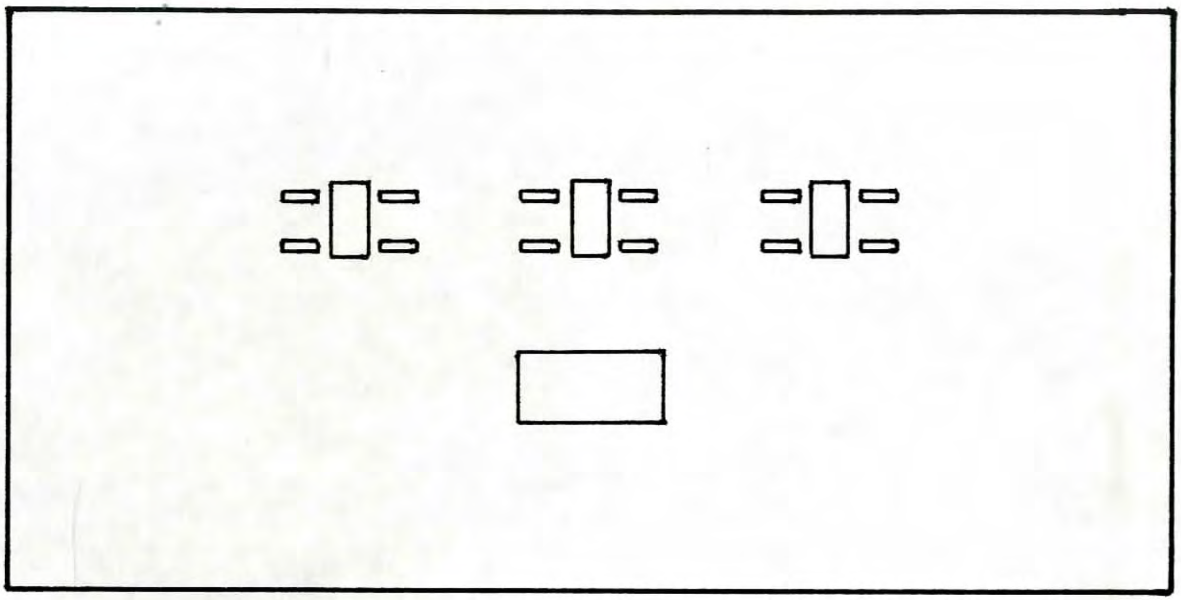
Kansai International Airport, Osaka
Renzo Piano

Hybrids: Combinations of Forms

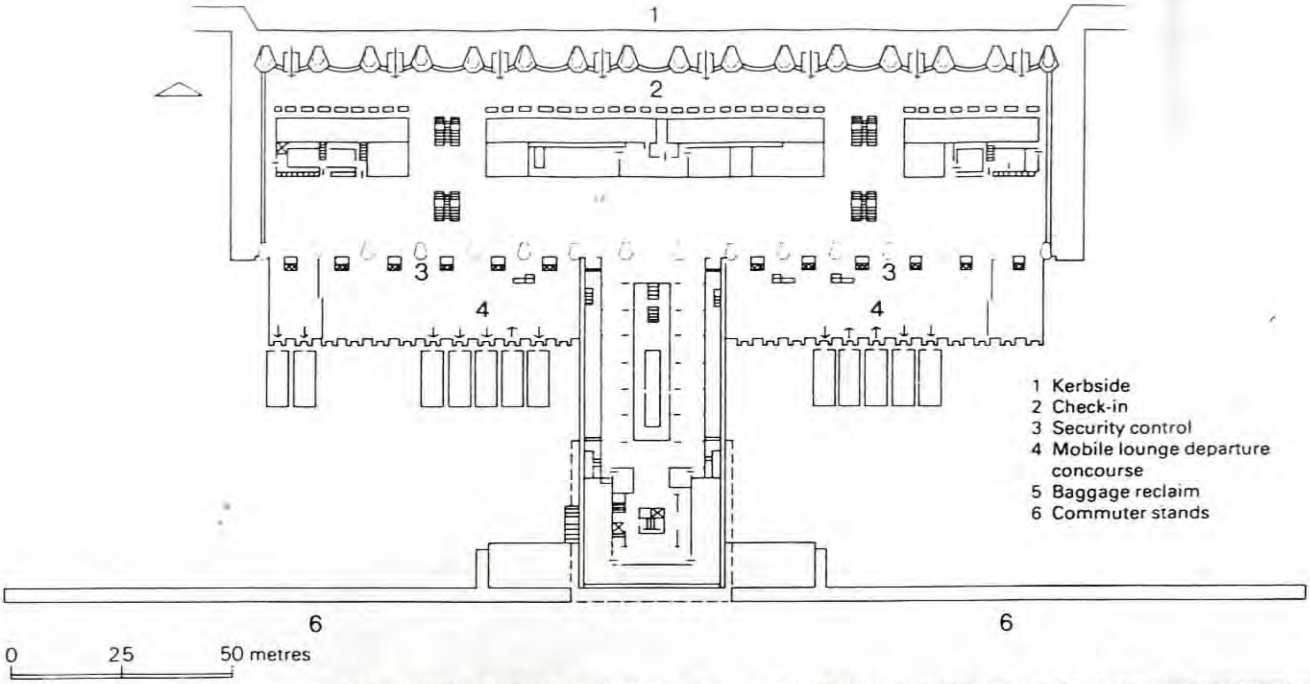


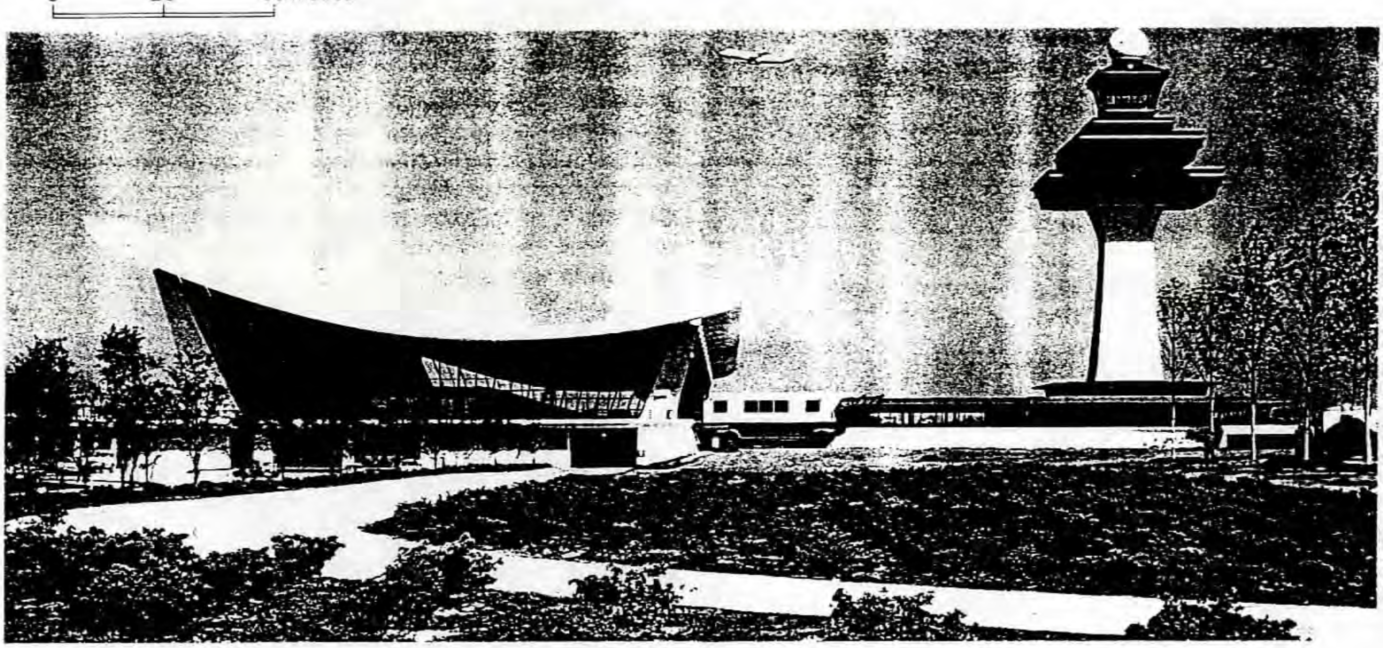


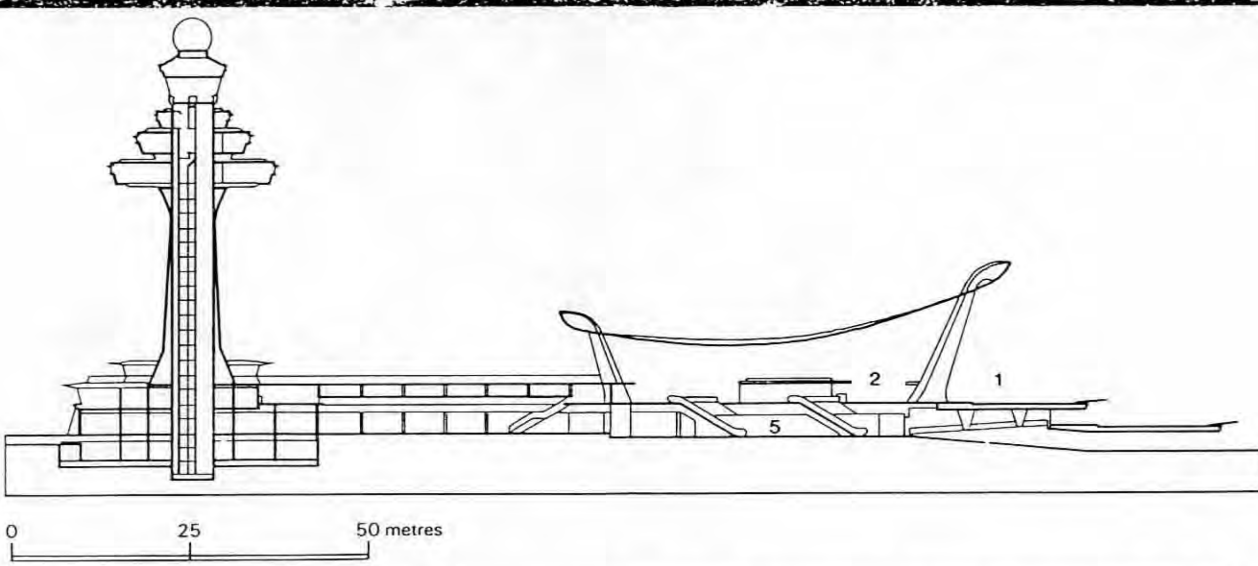
The United Airlines Terminal at O'Hare, Chicago
Murphy/ Jahn



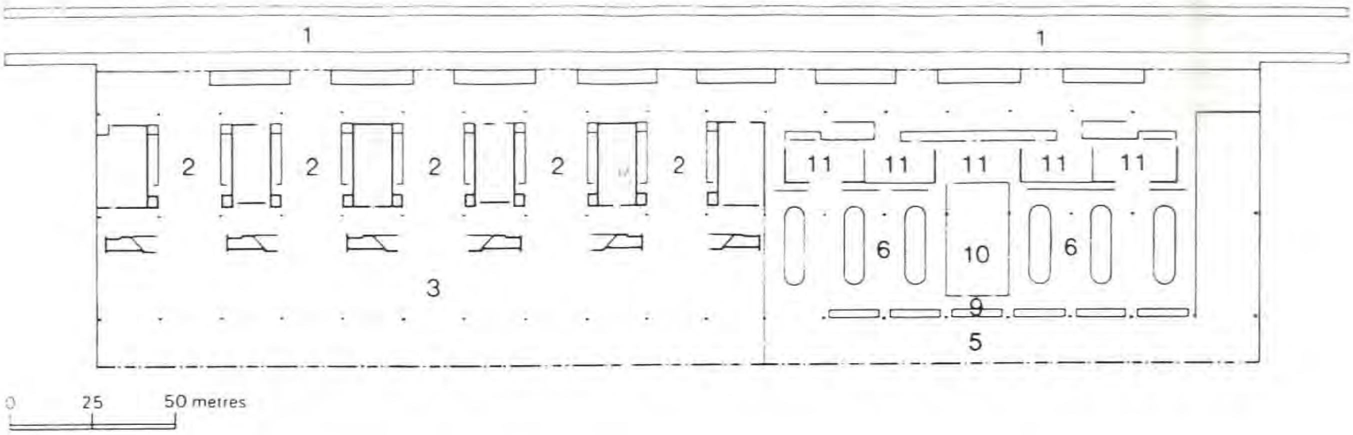
Central Terminal with Satellites



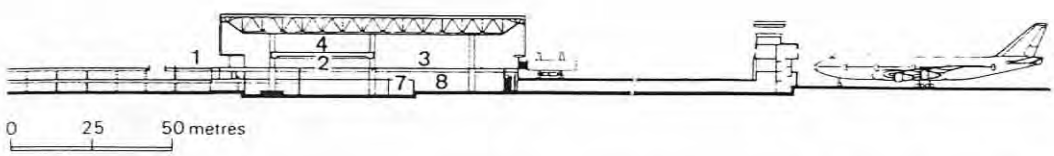




Dulles Terminal, Washington D.C.
Eero Saarinen

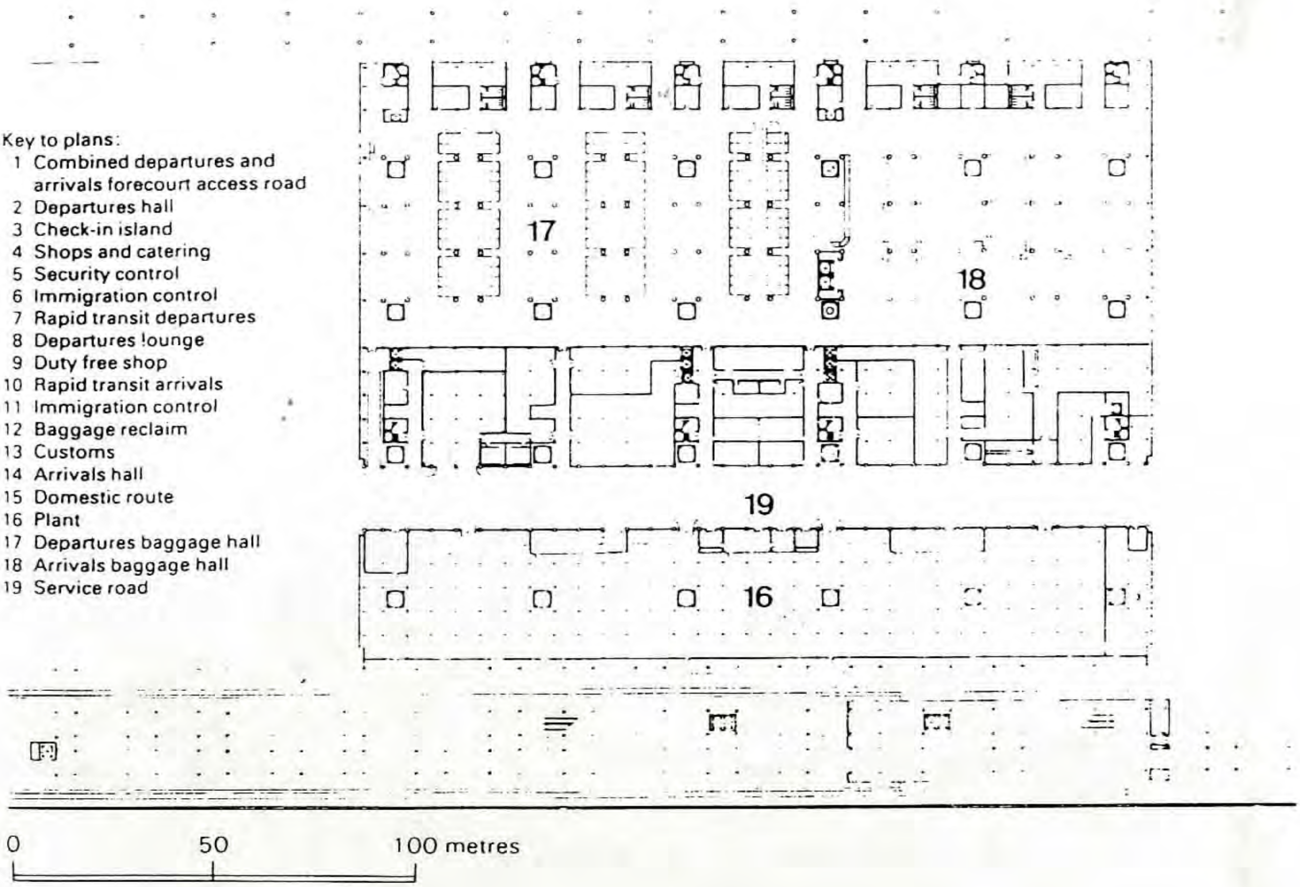


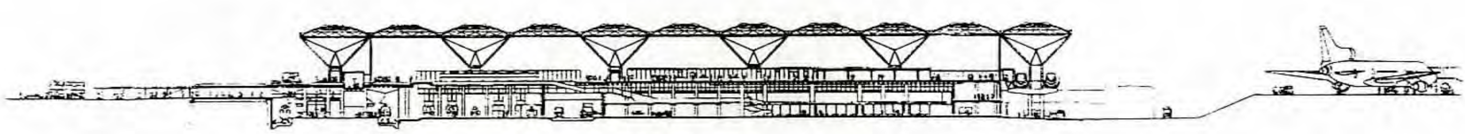
1 Kerbside
2 Check-in
3 Mobile lounge departure concourse
4 Shopping and catering
5 Arrivals
6 Baggage reclaim
7 Service road
8 Baggage handling area
9 Primary inbound immigration and customs control
10 Secondary immigration control
11 Secondary customs control



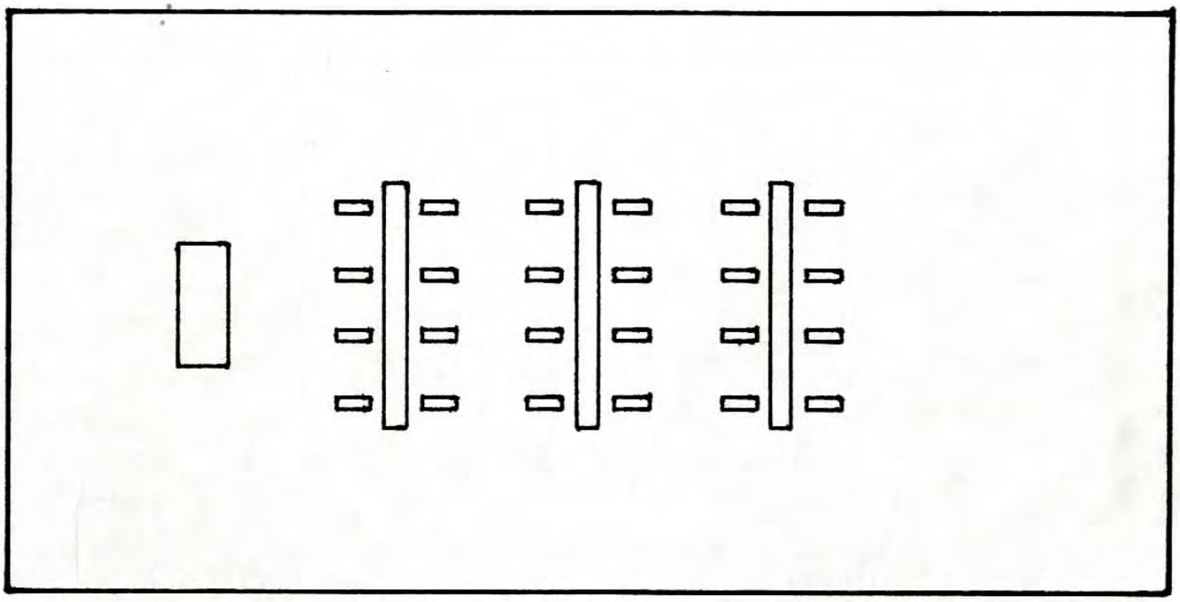
Montreal Mirabel, Canada
Bland LeMoyne Shine and Victor Prus

Key to plans:
1 Combined departures and arrivals forecourt access road
2 Departures hall
3 Check-in island
4 Shops and catering
5 Security control
6 Immigration control
7 Rapid transit departures
8 Departures lounge
9 Duty free shop
10 Rapid transit arrivals
11 Immigration control
12 Baggage reclaim
13 Customs
14 Arrivals hall
15 Domestic route
16 Plant
17 Departures baggage hall
18 Arrivals baggage hall
19 Service road

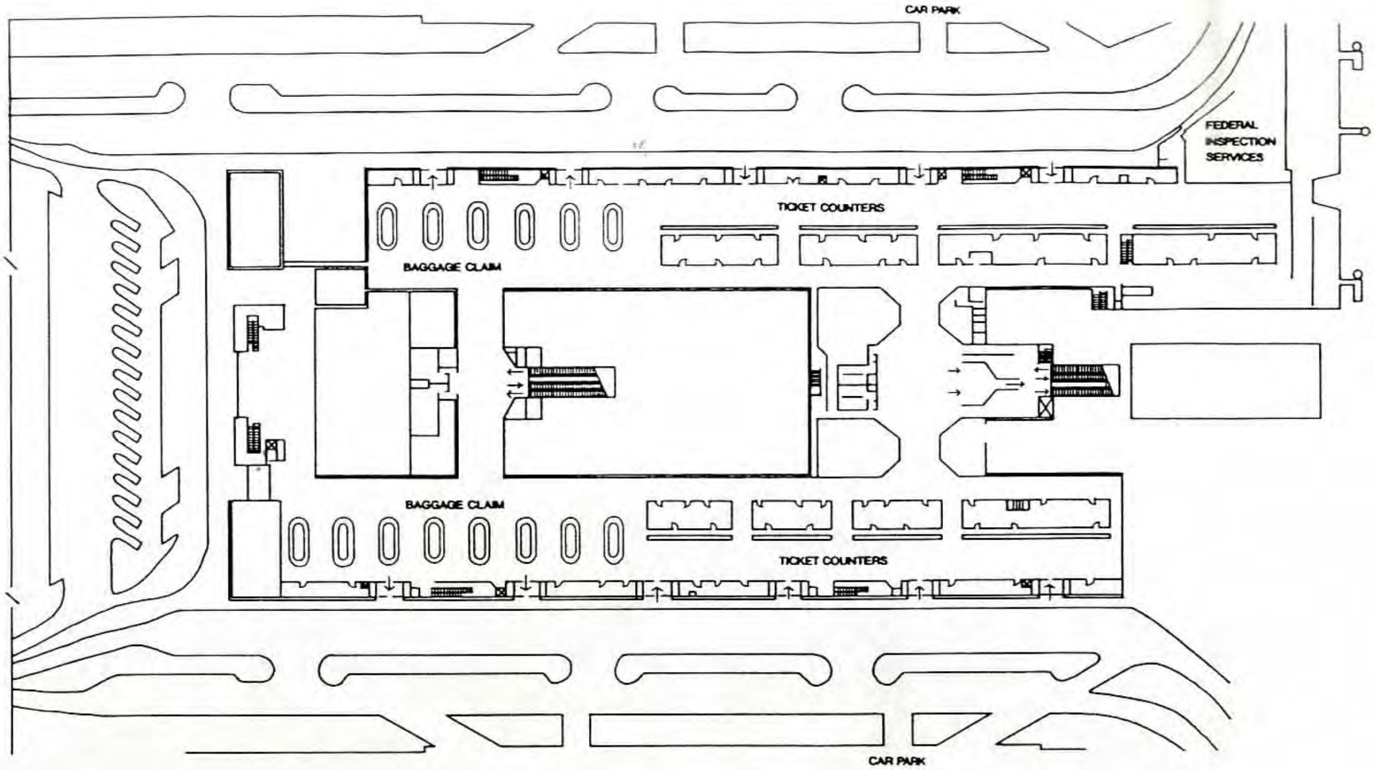




Stansted Airport, London
Foster Associates

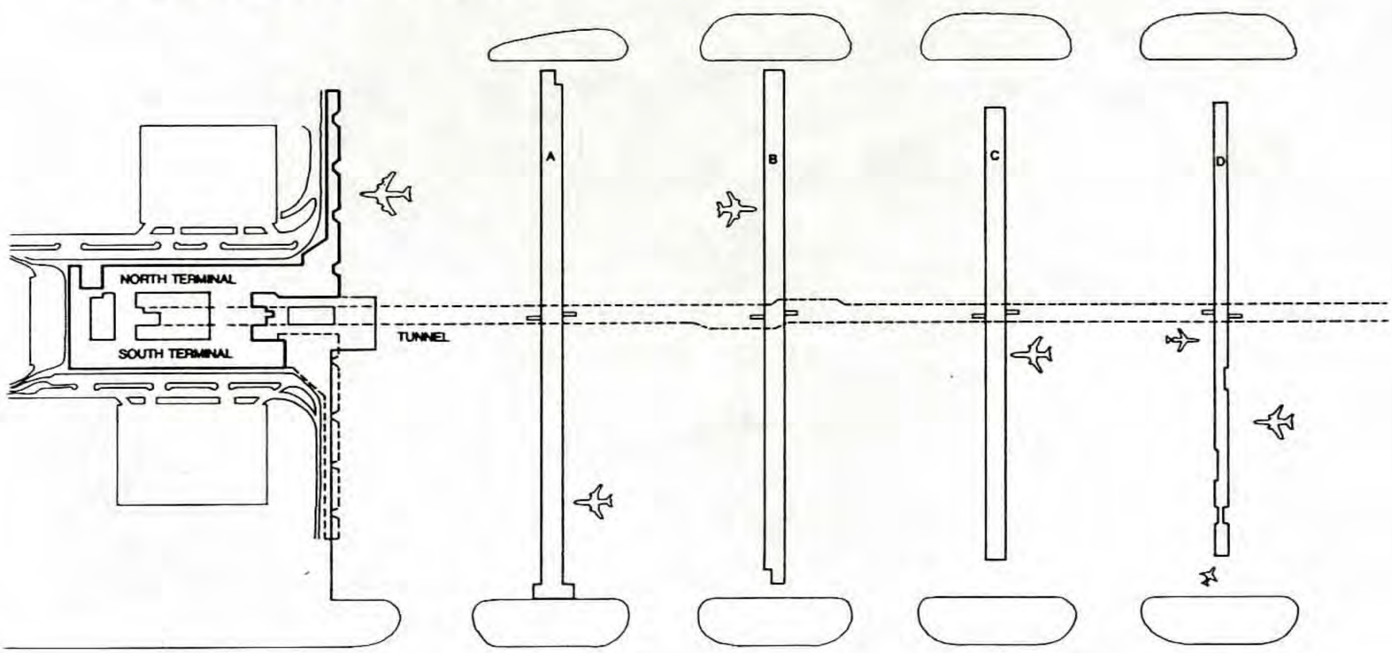


Multiple Island Piers

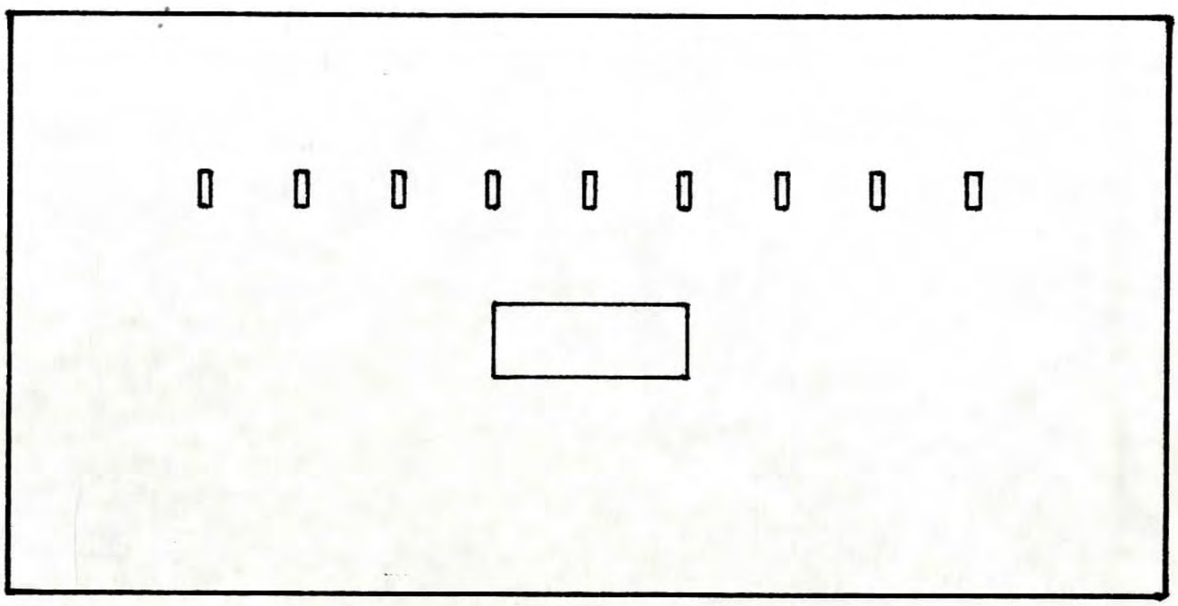


Landside terminal building, main level plan

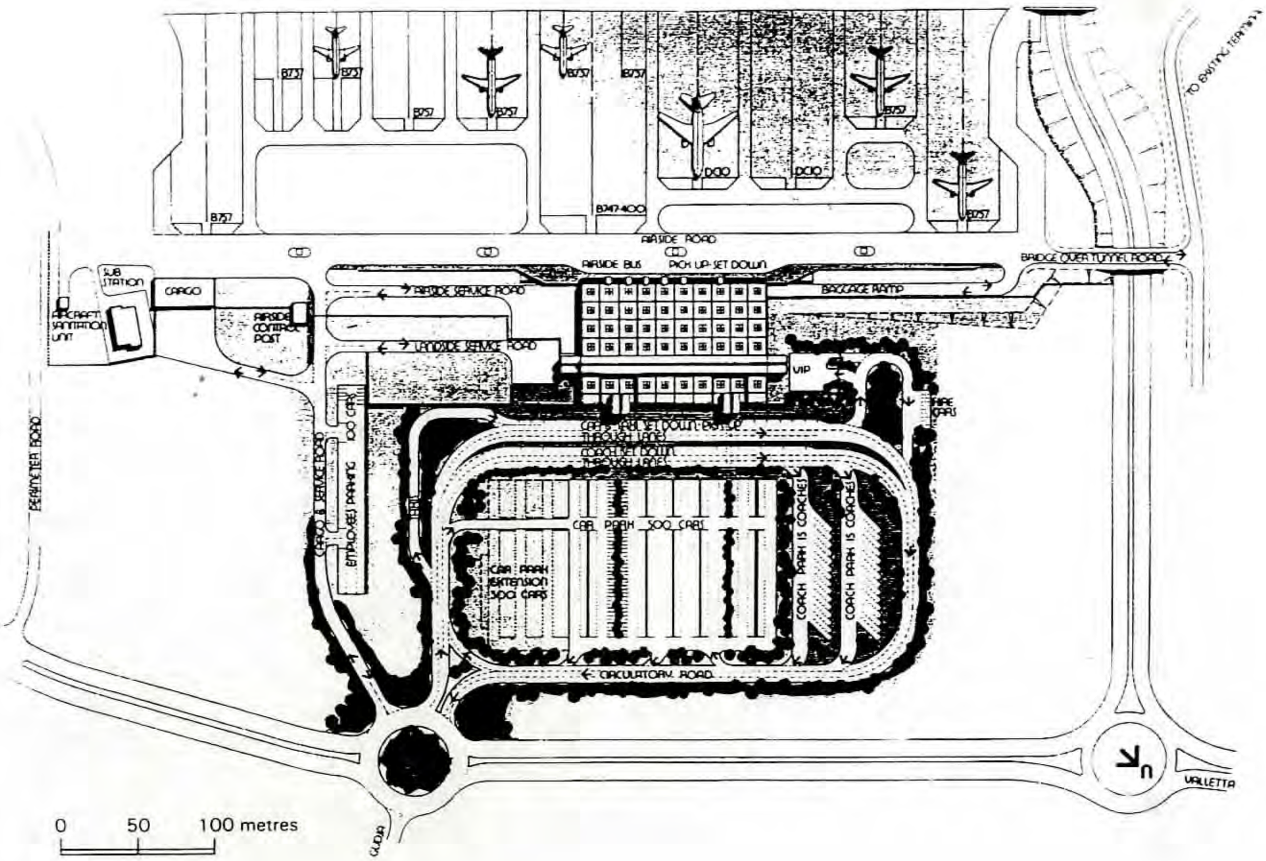
Atlanta, William B Hartsfield International, site plan

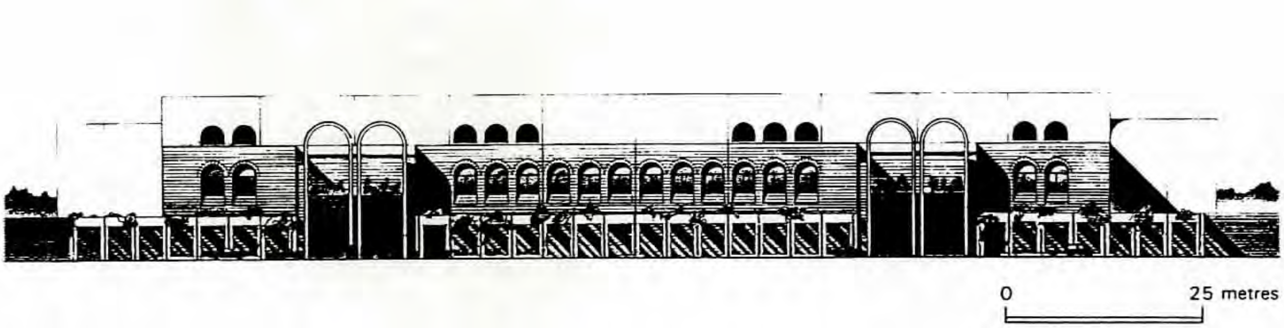


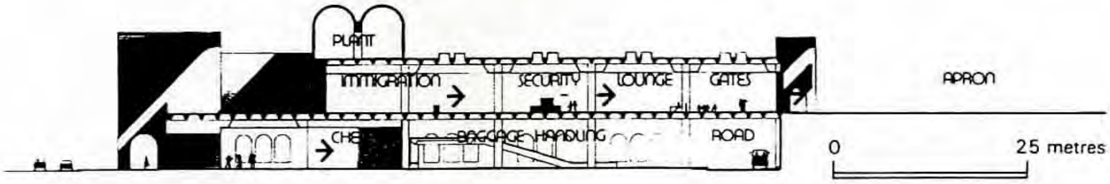
William B. Hartsfield Airport, Atlanta
Stevens and Wilkinson



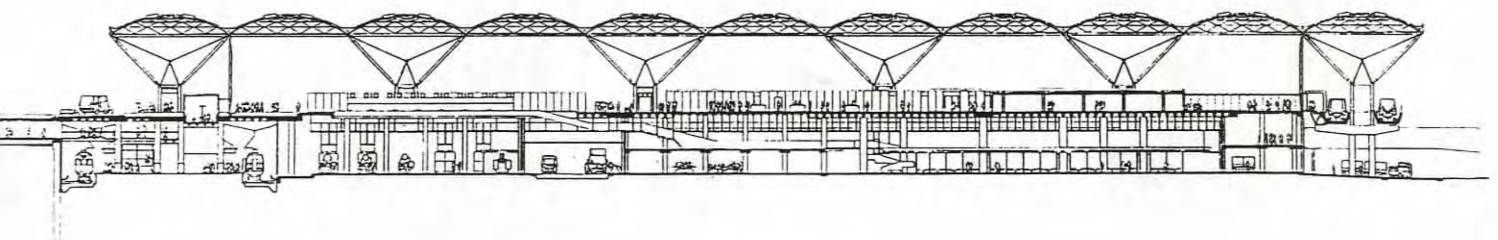
Basic Terminal with Remote Aircraft



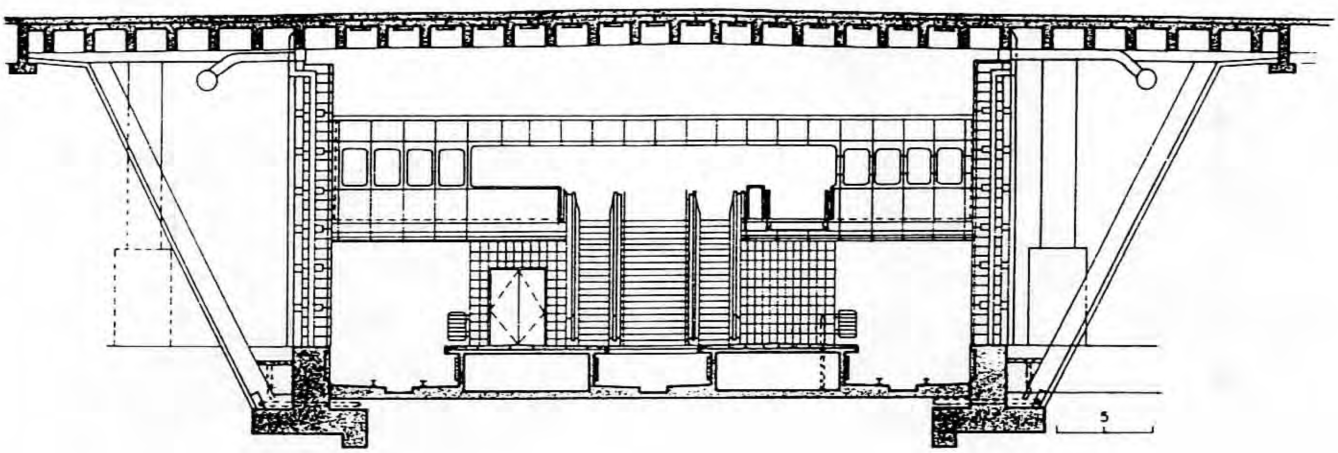




Malta Luqa Airport
Scott Brownrigg and Turner

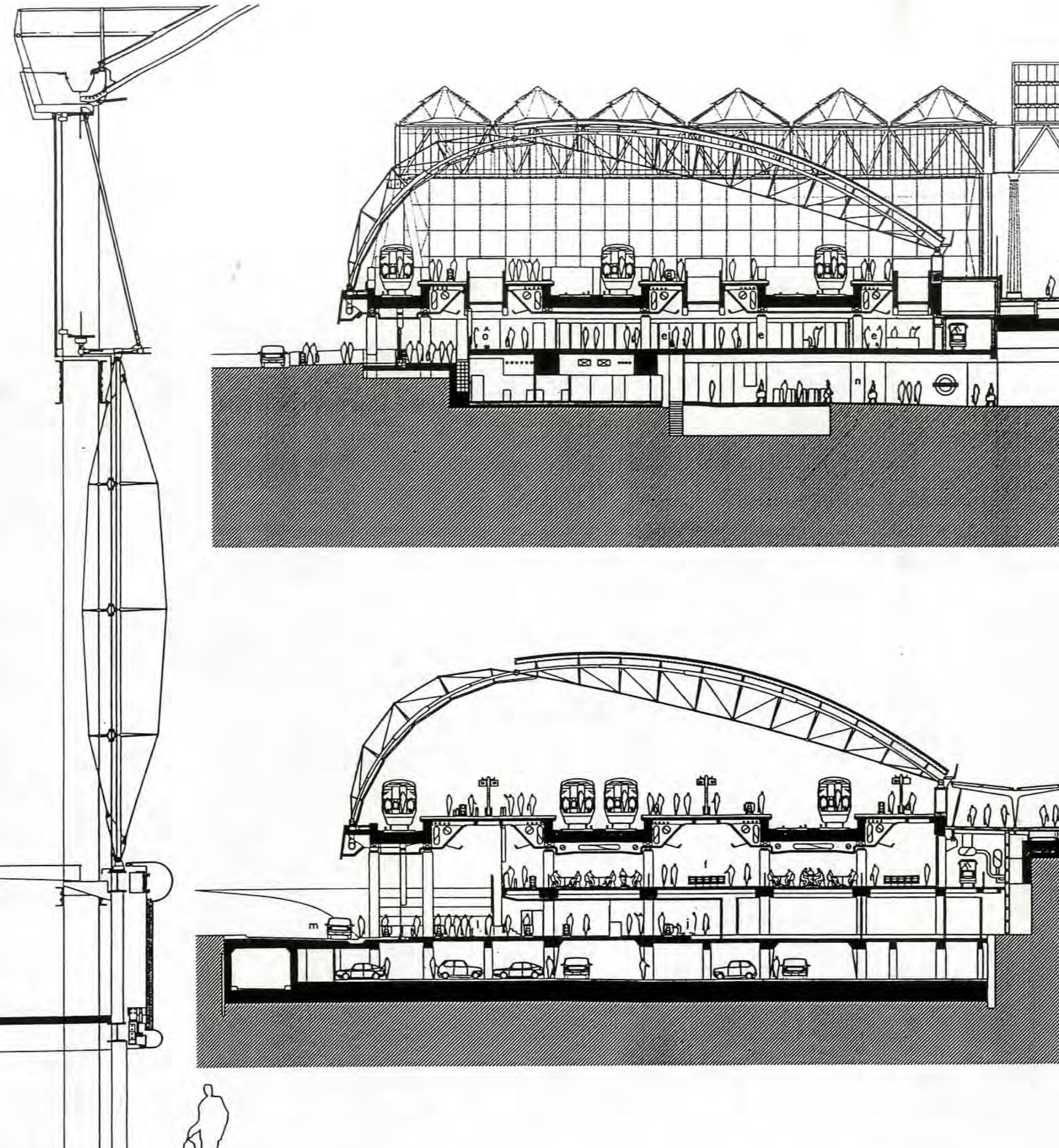


Stansted Airport, London
Foster Associates

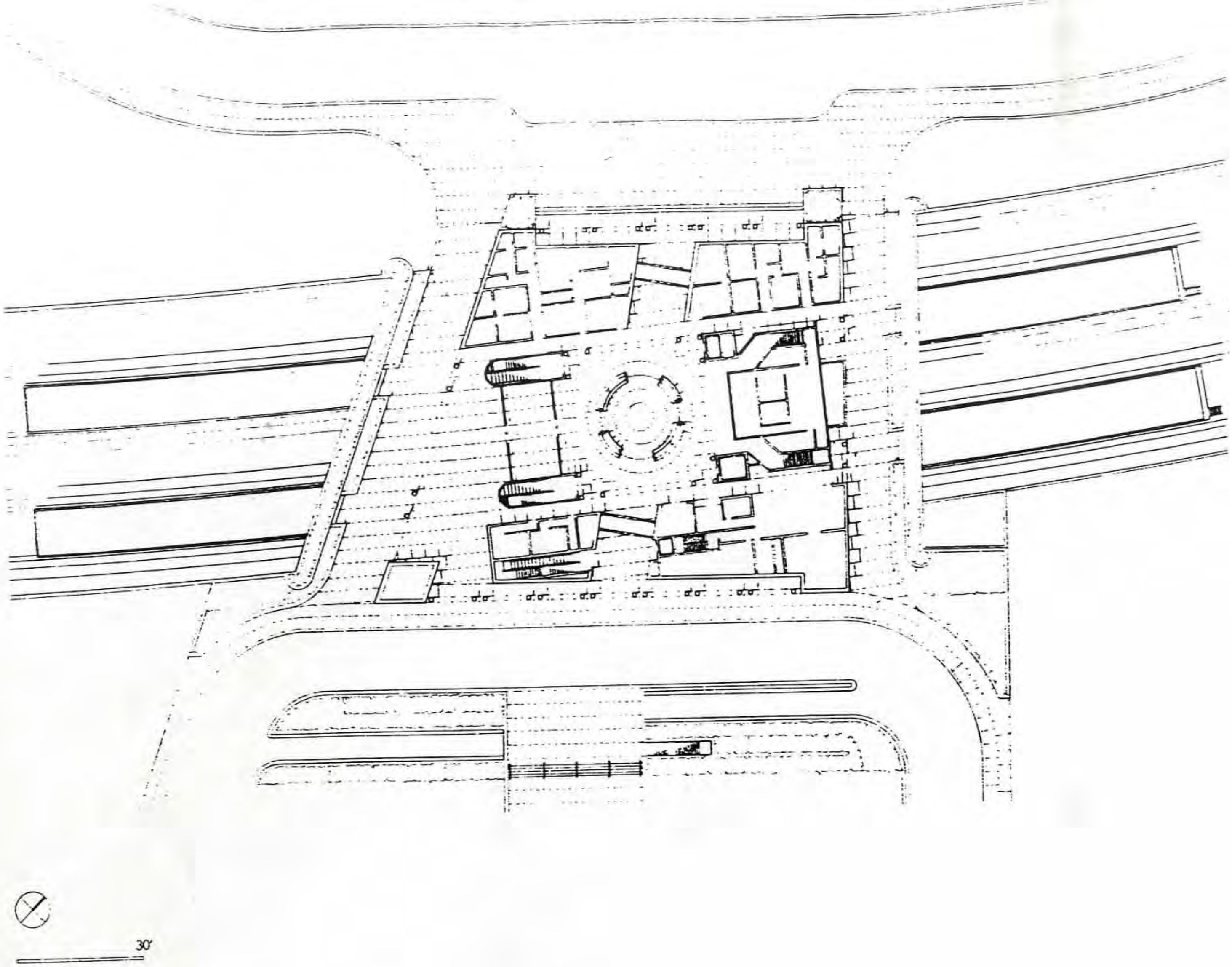


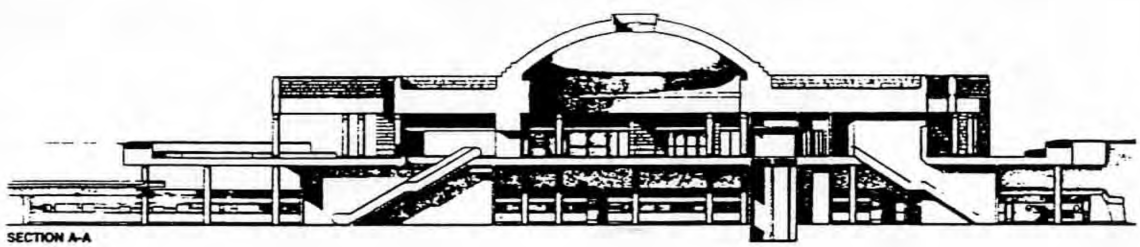
United Airlines Terminal 1
Murphy/ Jahn

Train Terminals



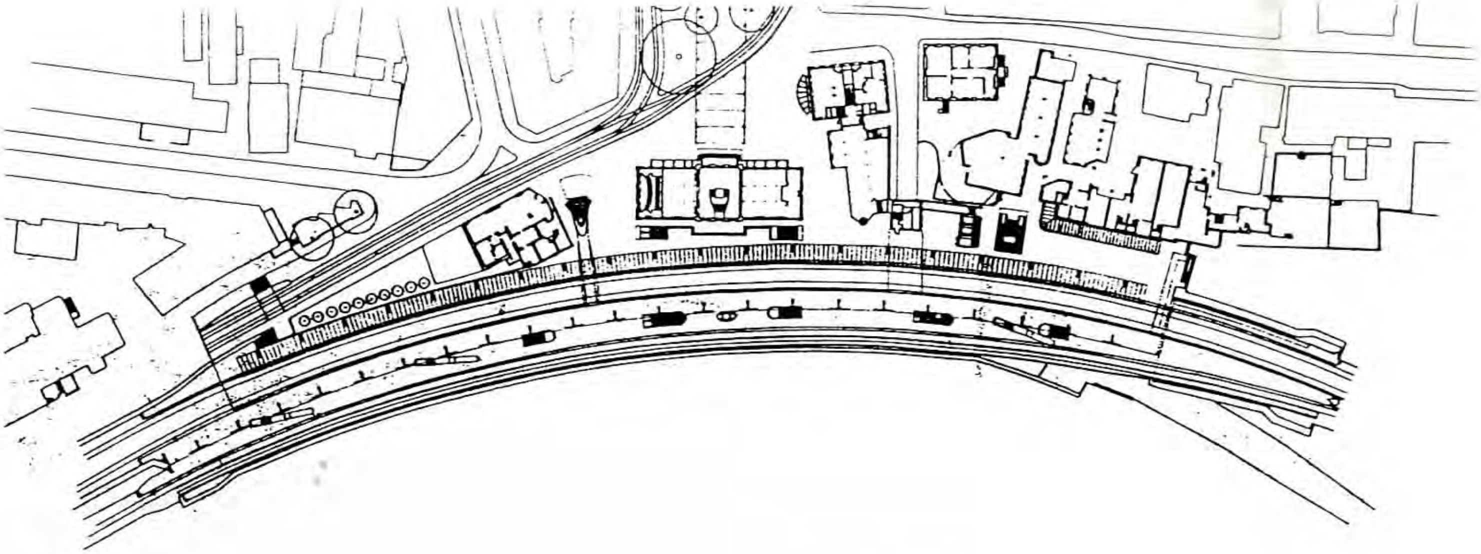
Waterloo International Terminal, London
Nicholas Grimshaw

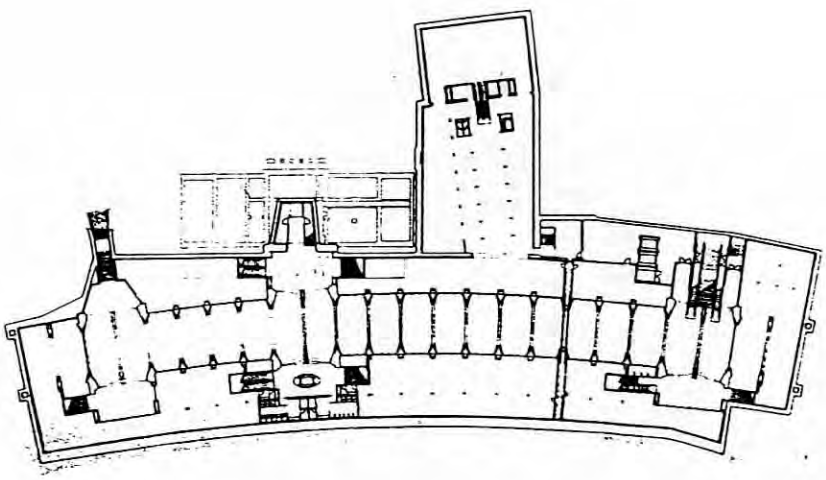


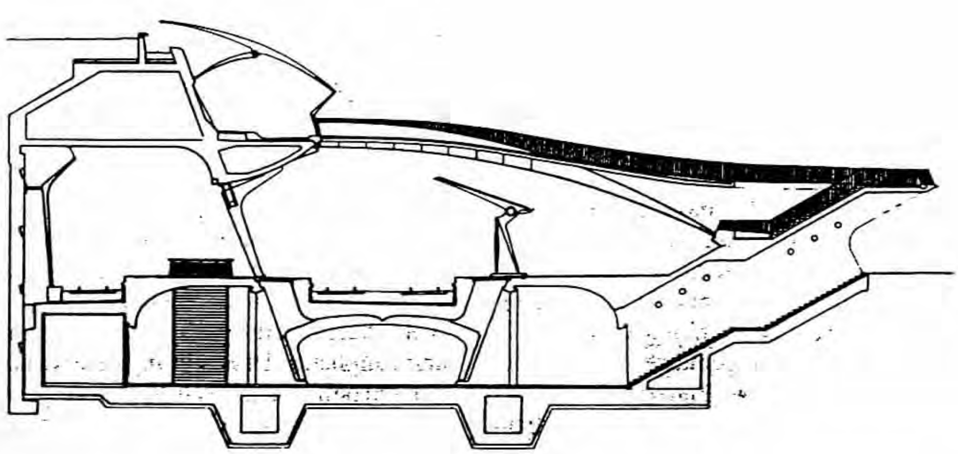


SECTION A-A

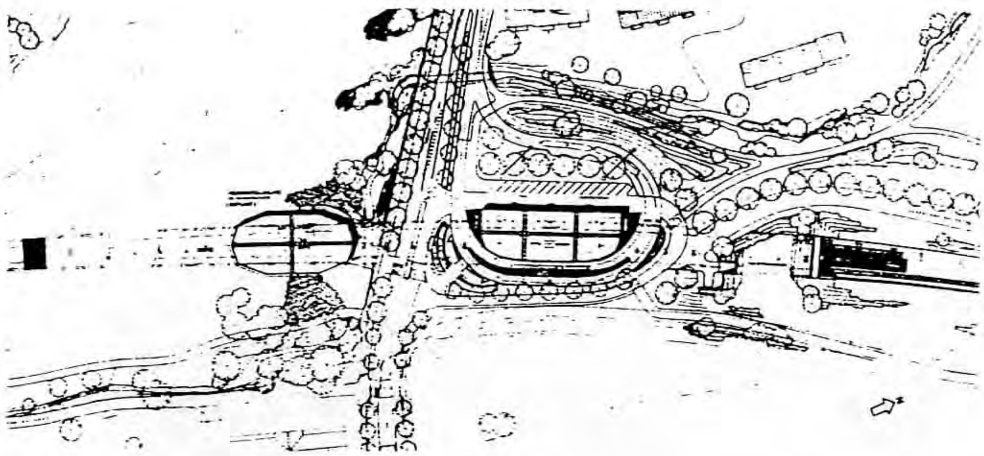
Providence Train Station, Rhode Island
Skidmore, Owings and Merrill

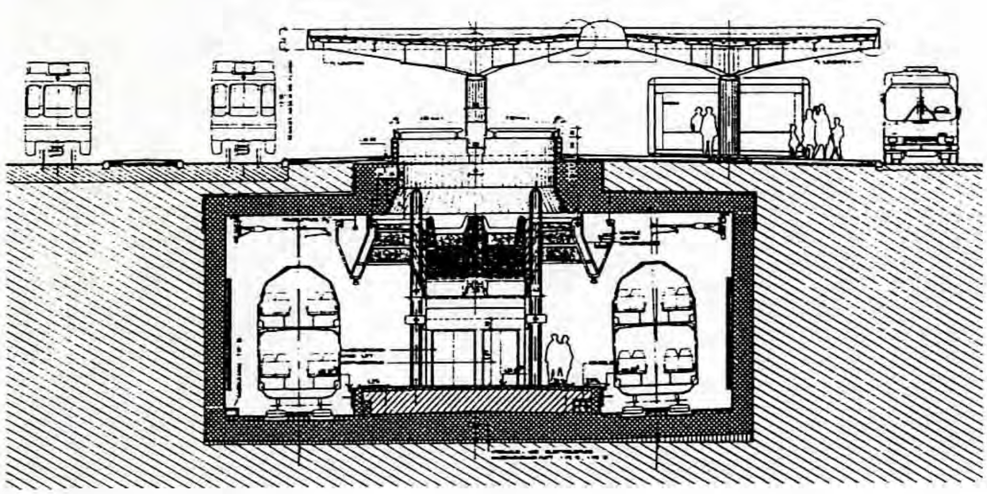




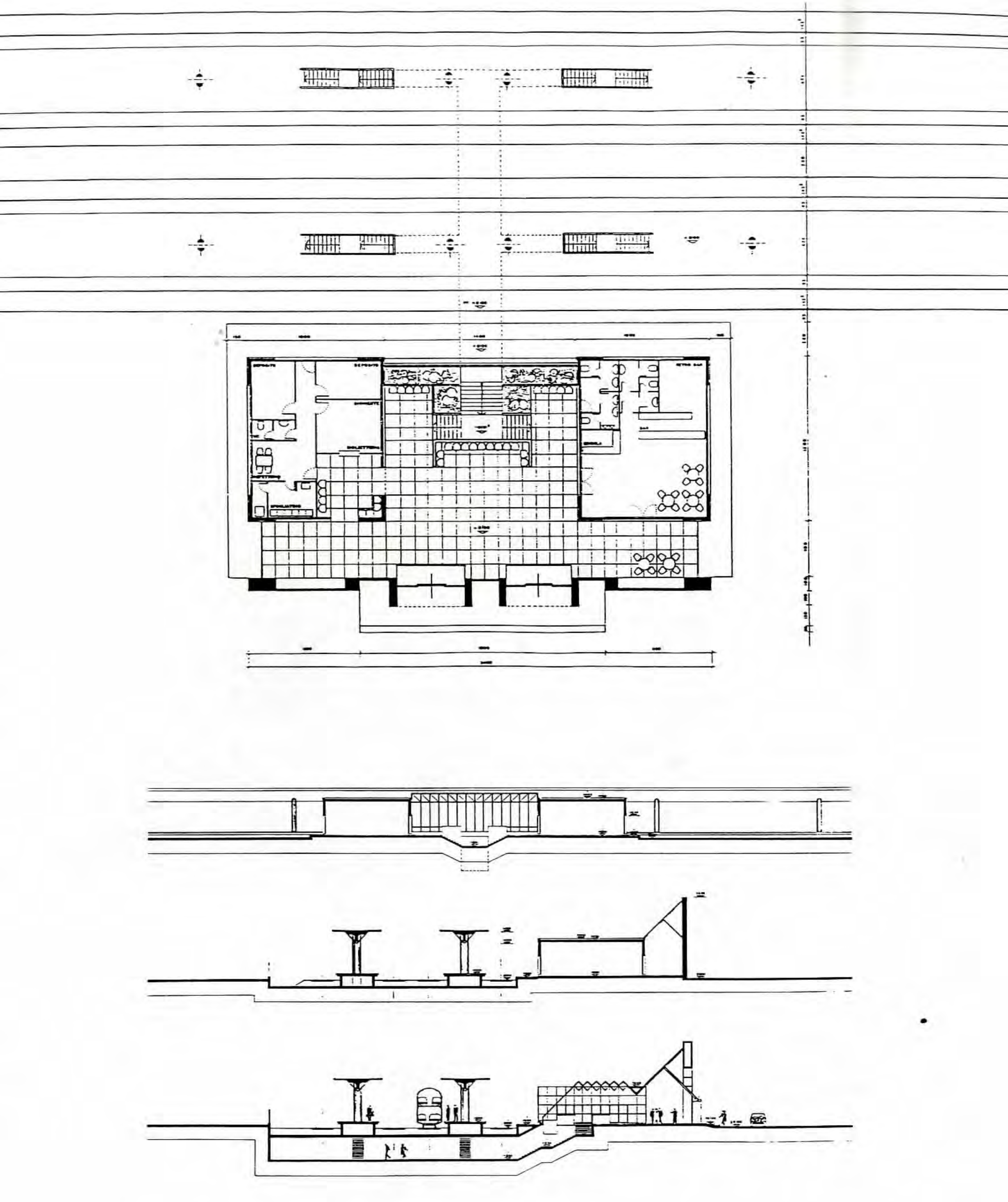


Erweiterung Banhof Stadelhofen, Zurich
Santiago Calatrava

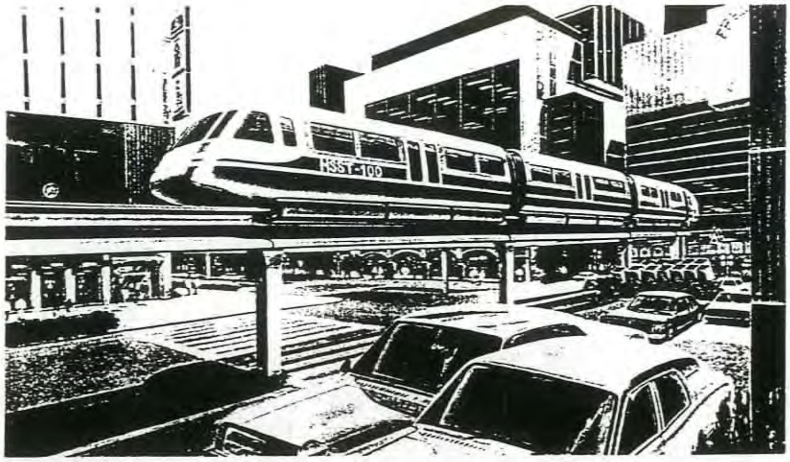


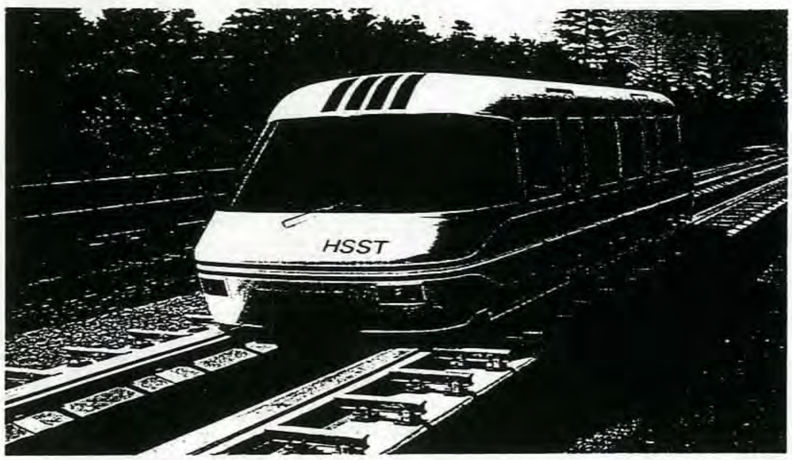


S-Bahn Station, Zurich
Ueli Roth



North Milan Railway System


HSST-100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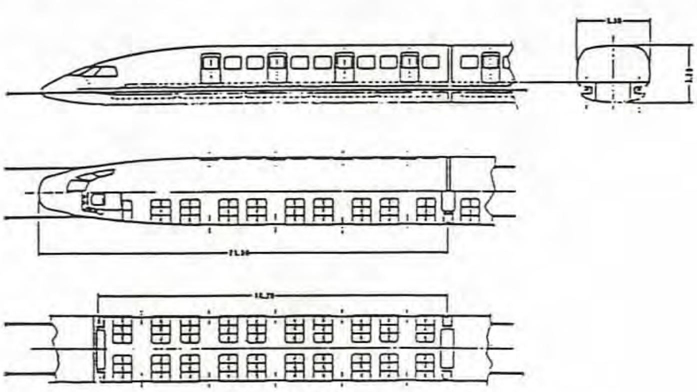
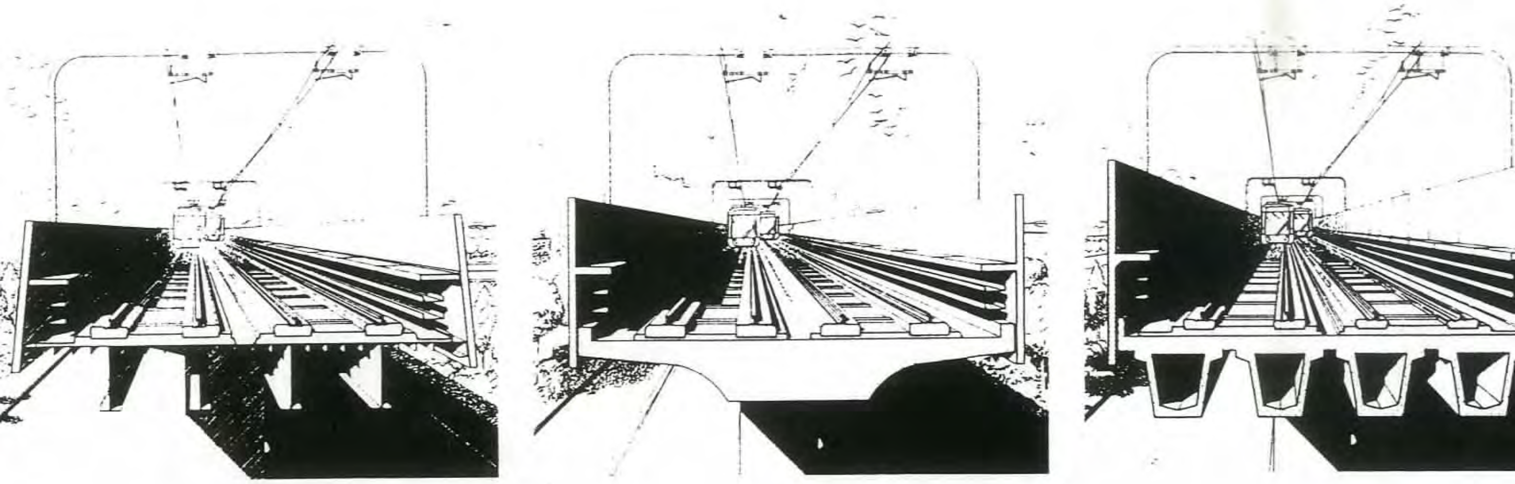
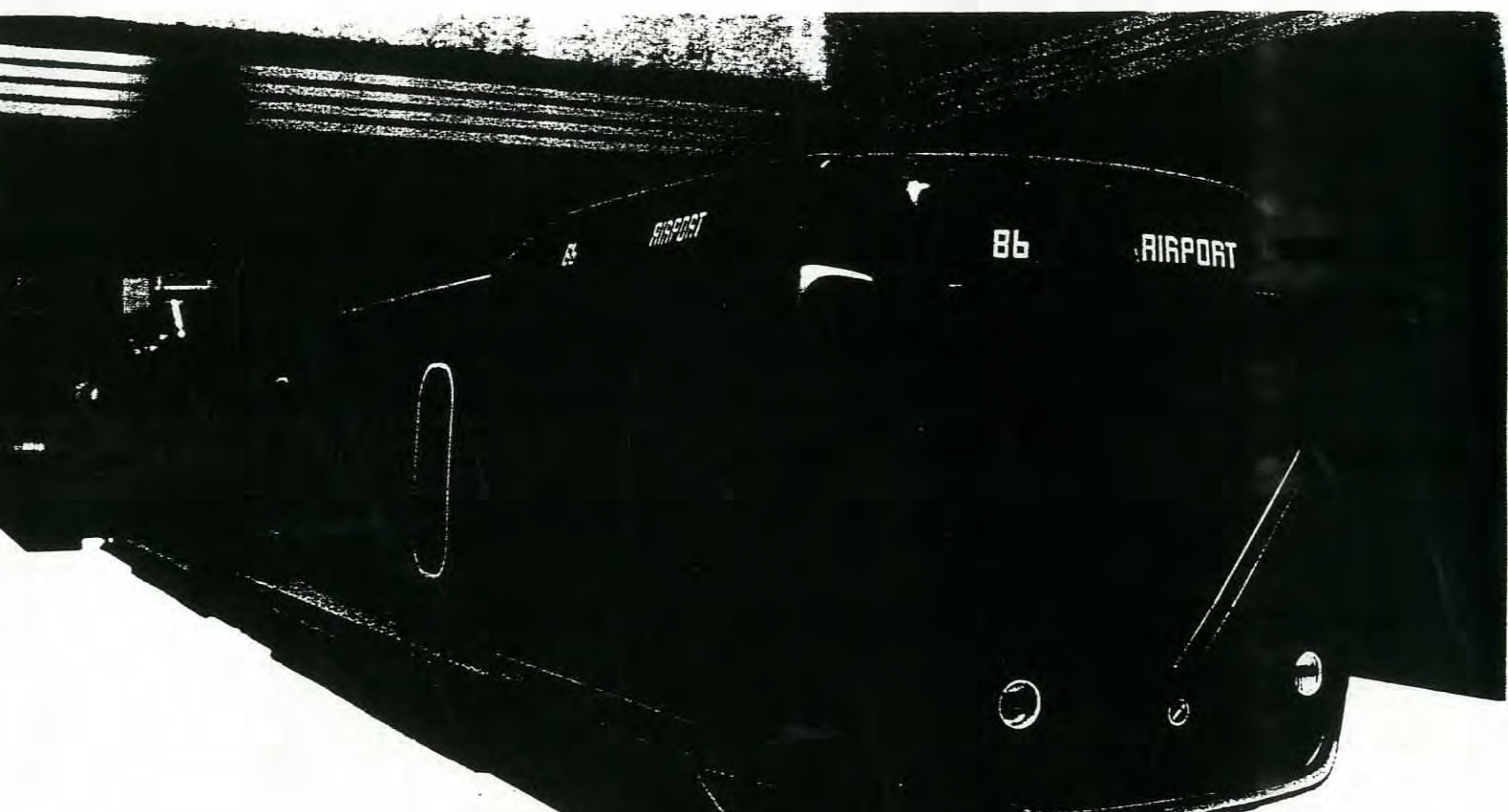
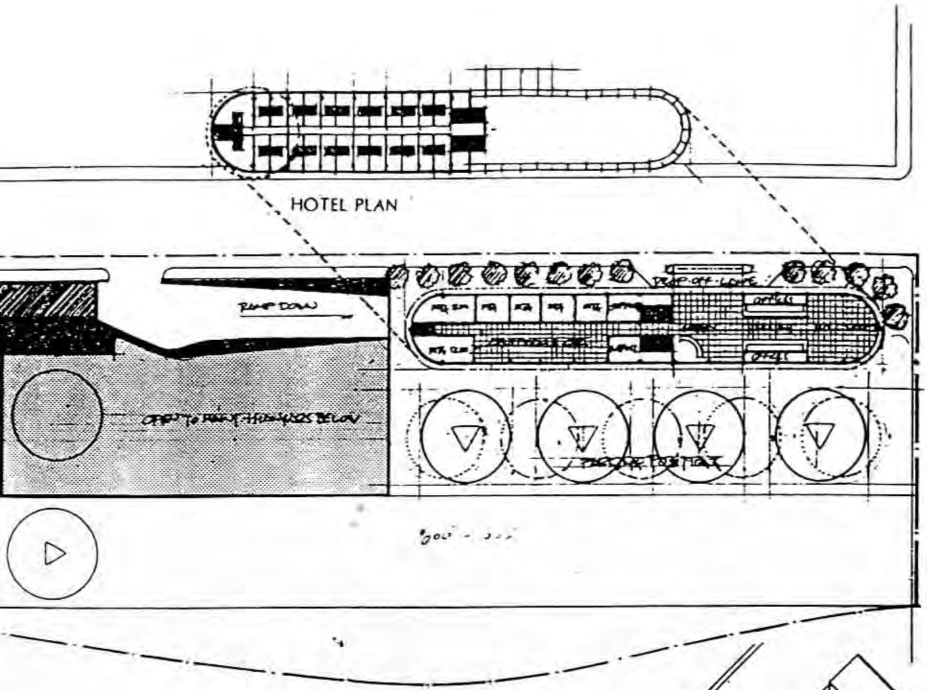


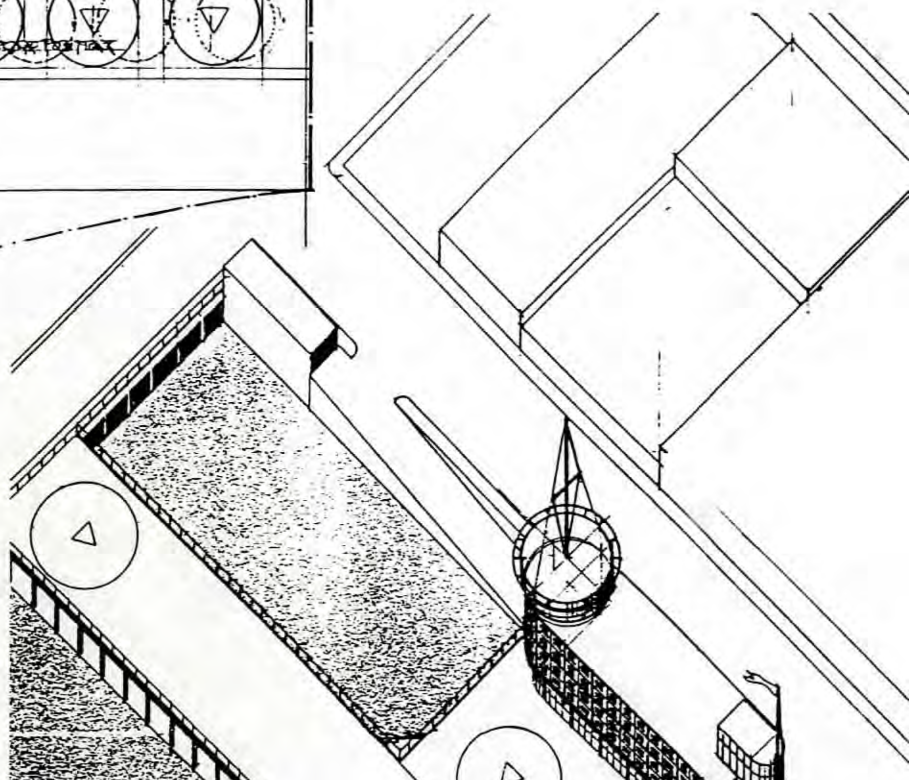




Metrolev

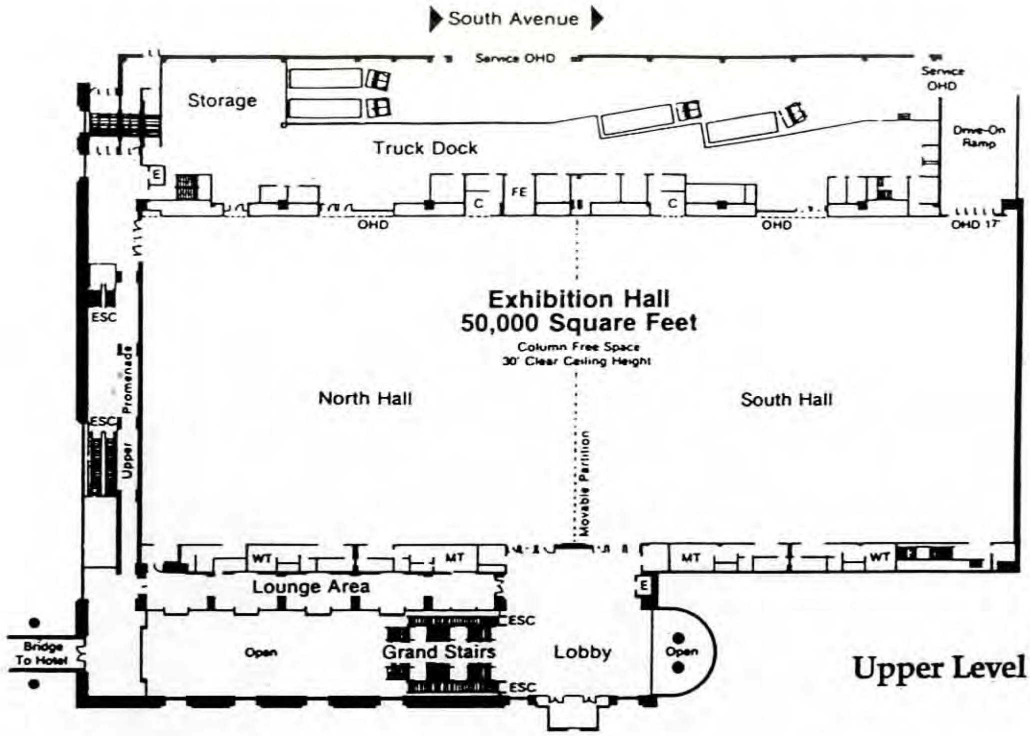
Heliports

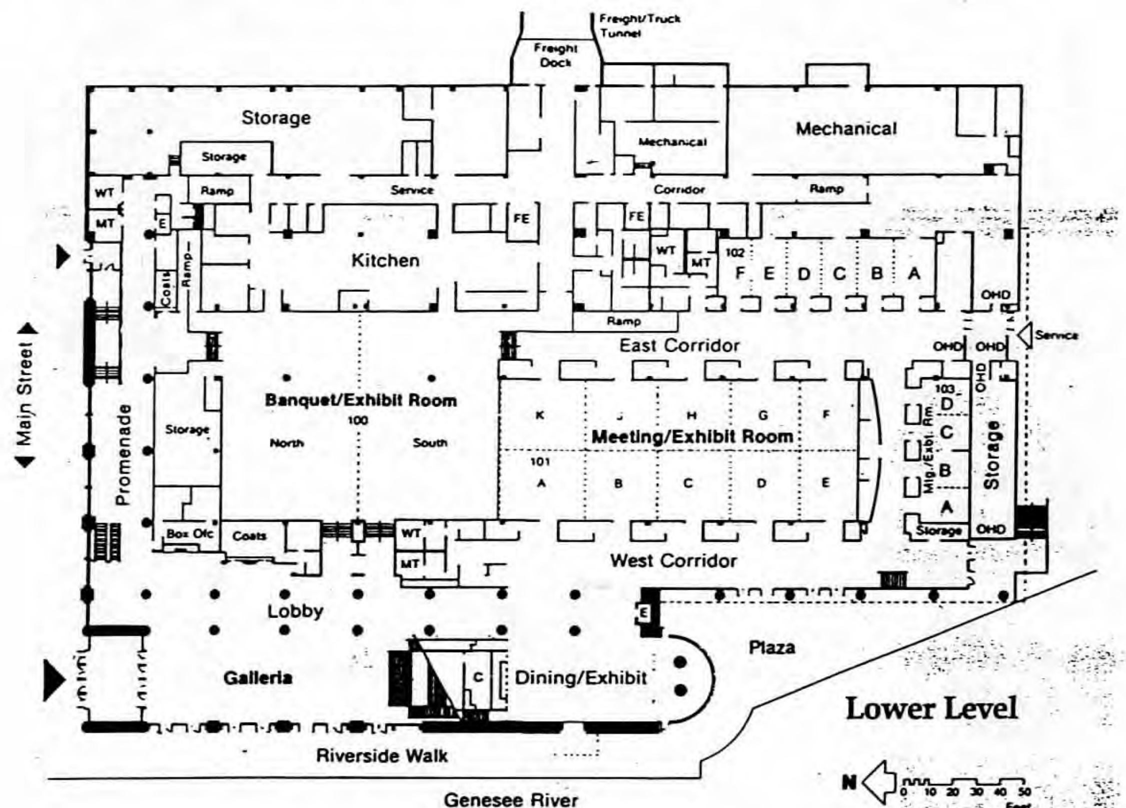




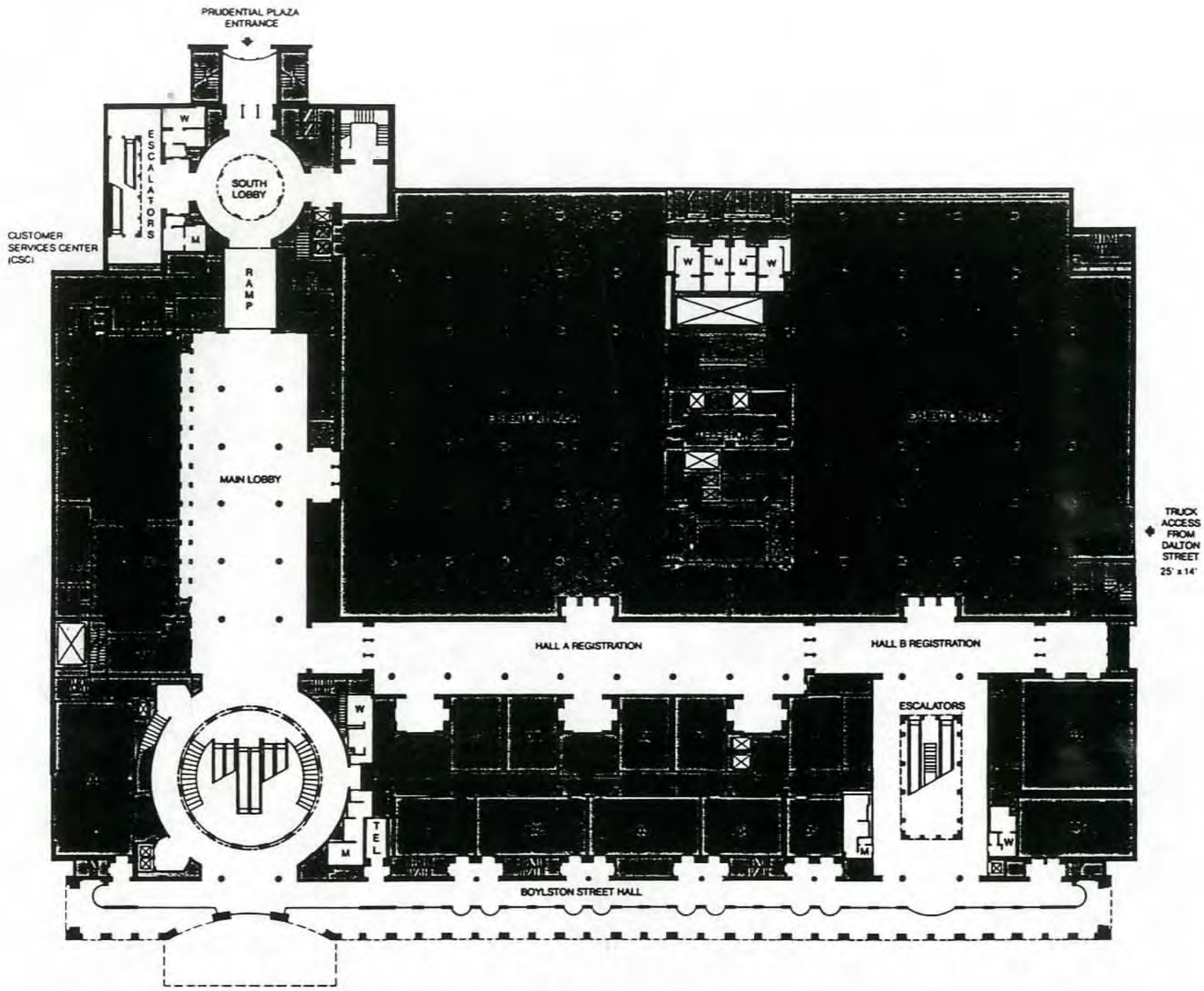
South Loop Heliport, Chicago
Murphy/ Jahn

Convention Centers



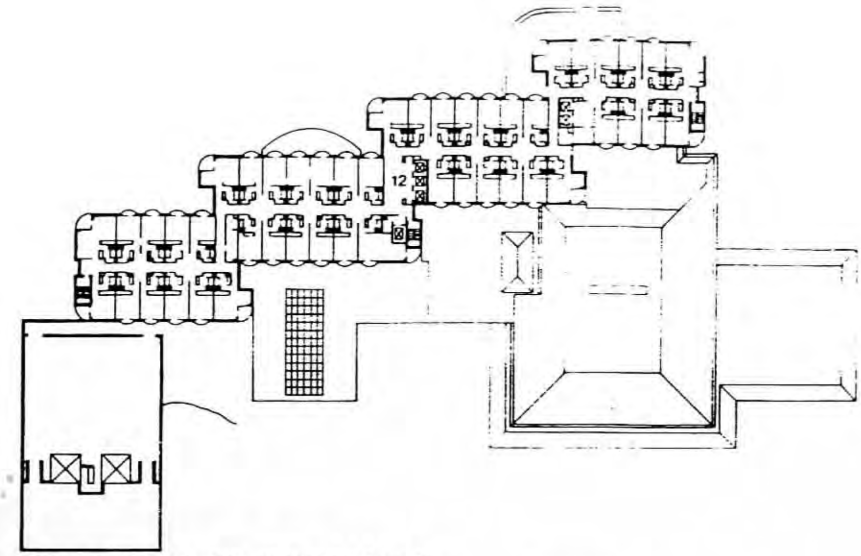


Rochester Riverside Convention Center
James Stewart Polshek

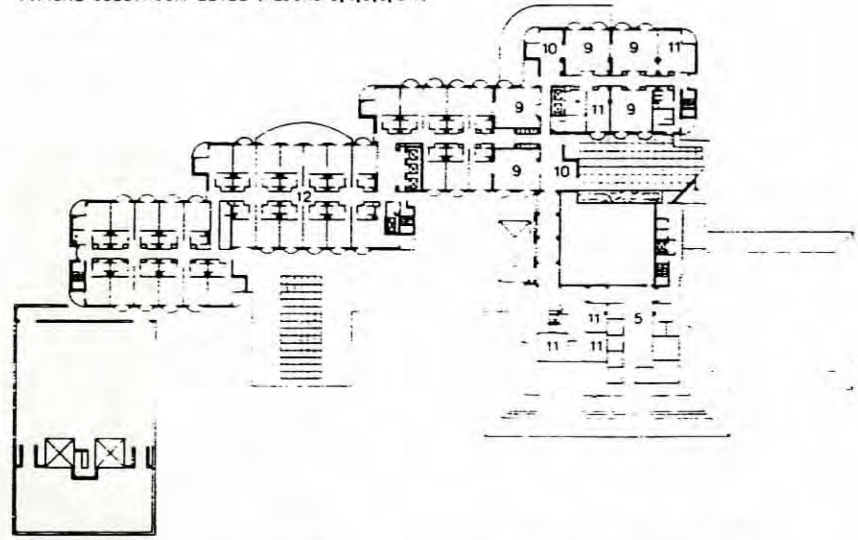


P L A Z A   L E V E L

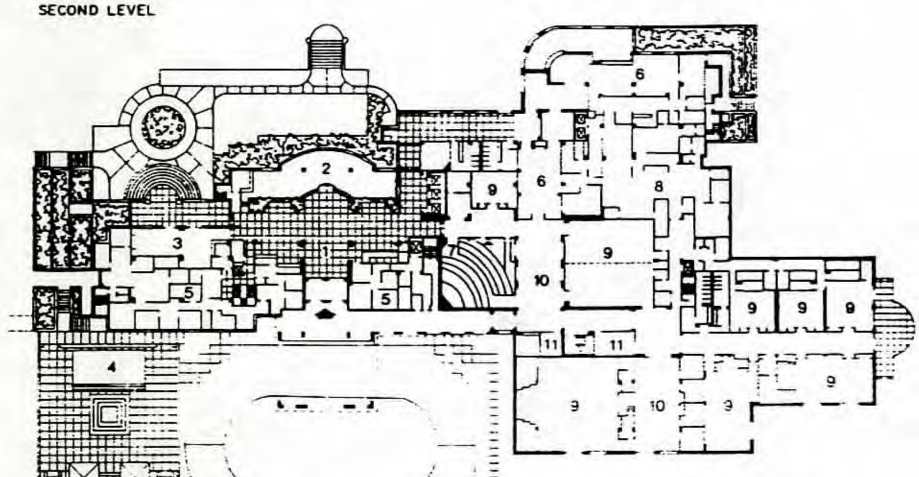
John B. Hynes Veterans Memorial, Boston
Kallmann, McKinell and Wood



TYPICAL GUESTROOM LEVEL (FLOORS 3,4,5,6, & 7)



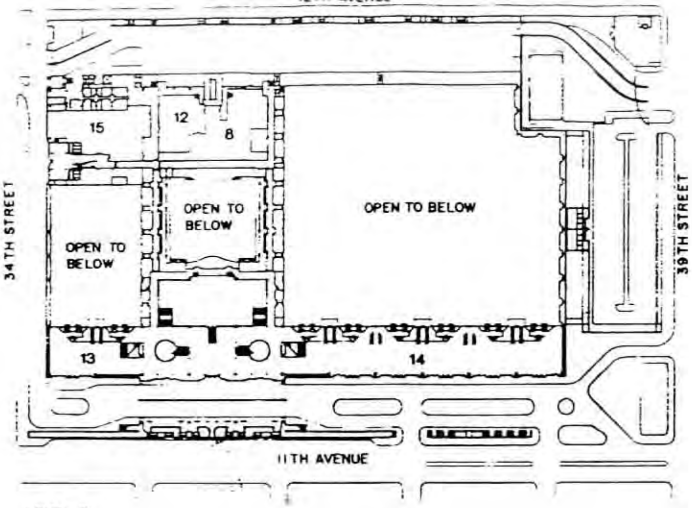
SECOND LEVEL



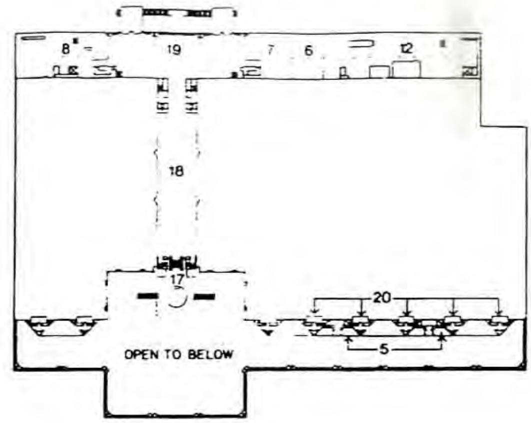
GROUND LEVEL

1. *Lobby*
2. *Lounge*
3. *Bar*
4. *Pool*
5. *Offices*
6. *Dining*
7. *Amphitheater*
8. *Kitchen*
9. *Conference rooms*
10. *Prefunction areas*
11. *Breakout rooms*
12. *Guest rooms*

Las Colinas Inn and Conference Center, Texas
Harwood K. Smith



LEVEL 2



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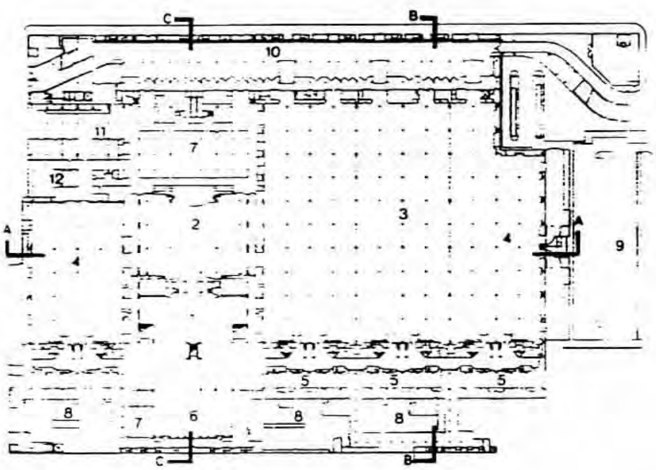
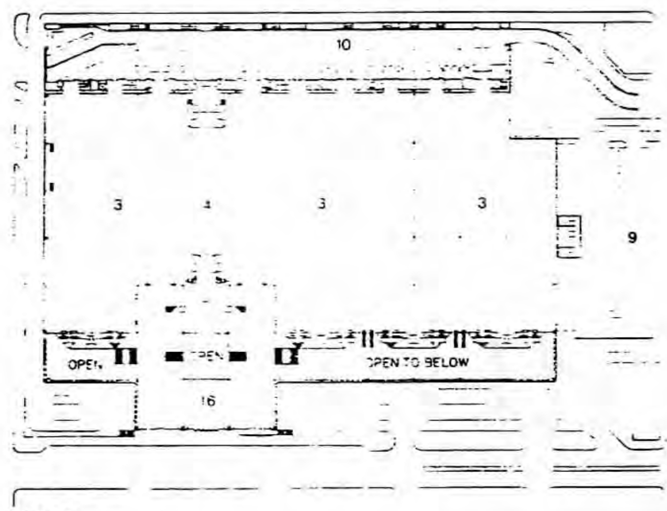


LEVEL 1



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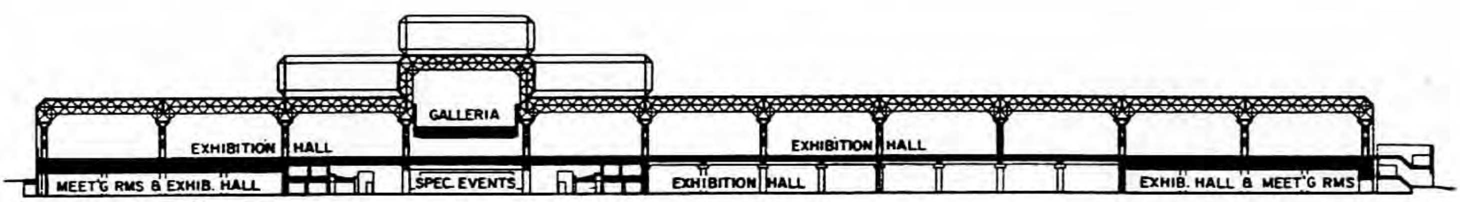
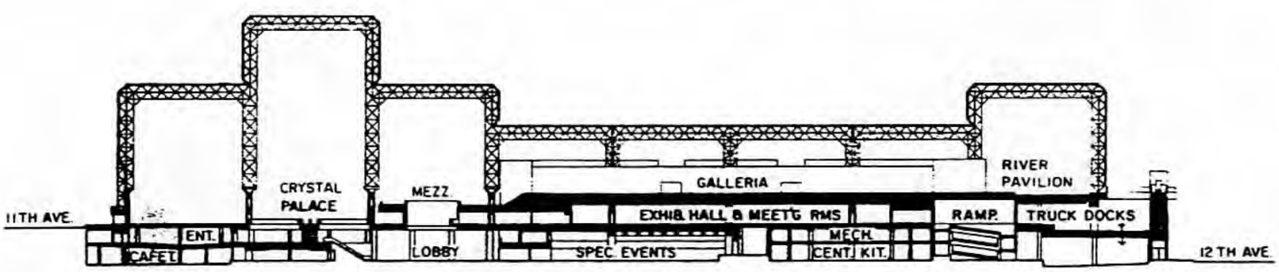


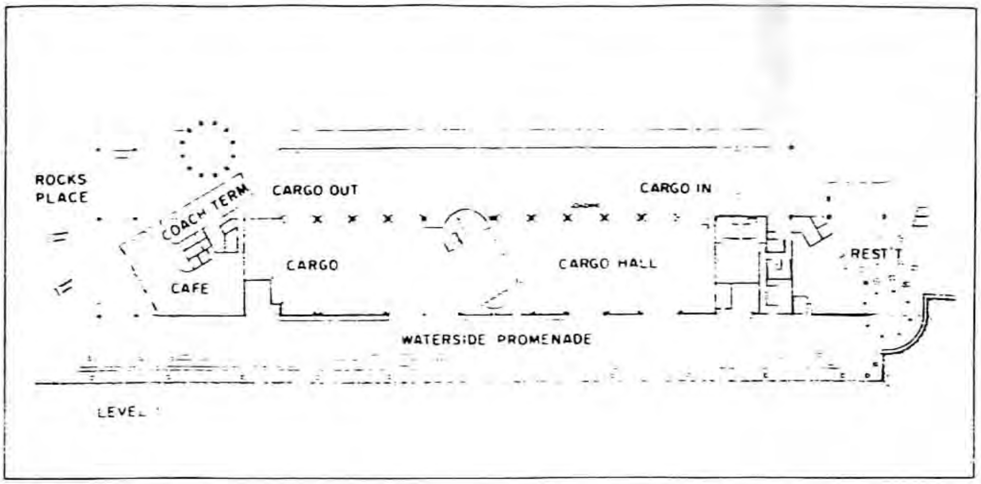
SECTION A-A 20

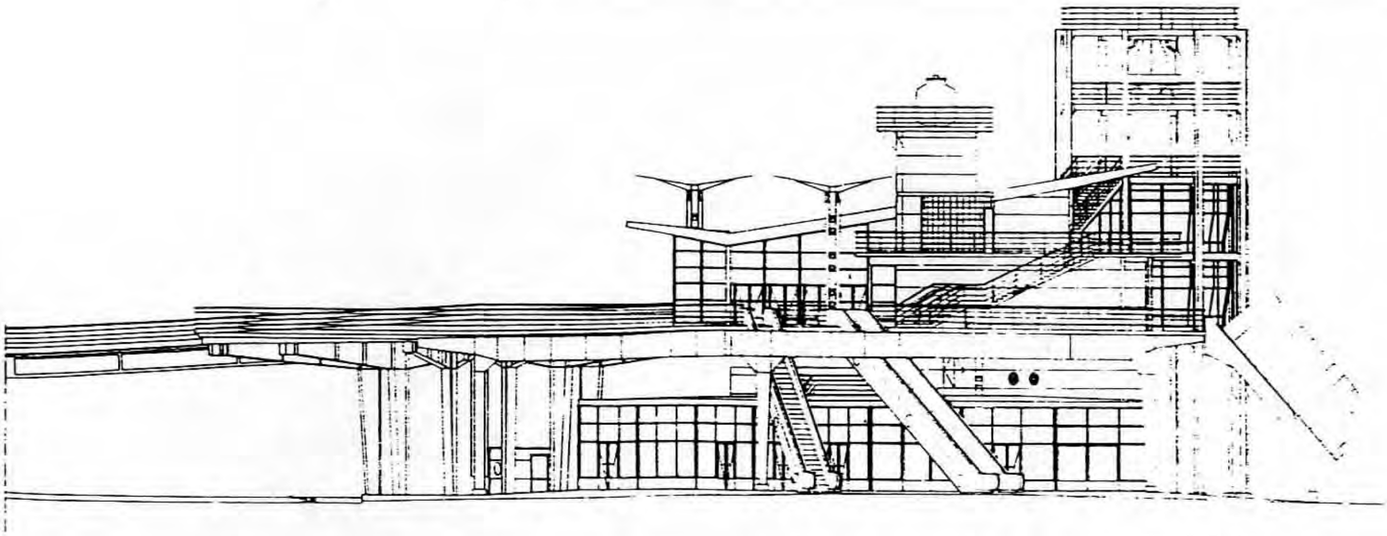


SECTION C-C

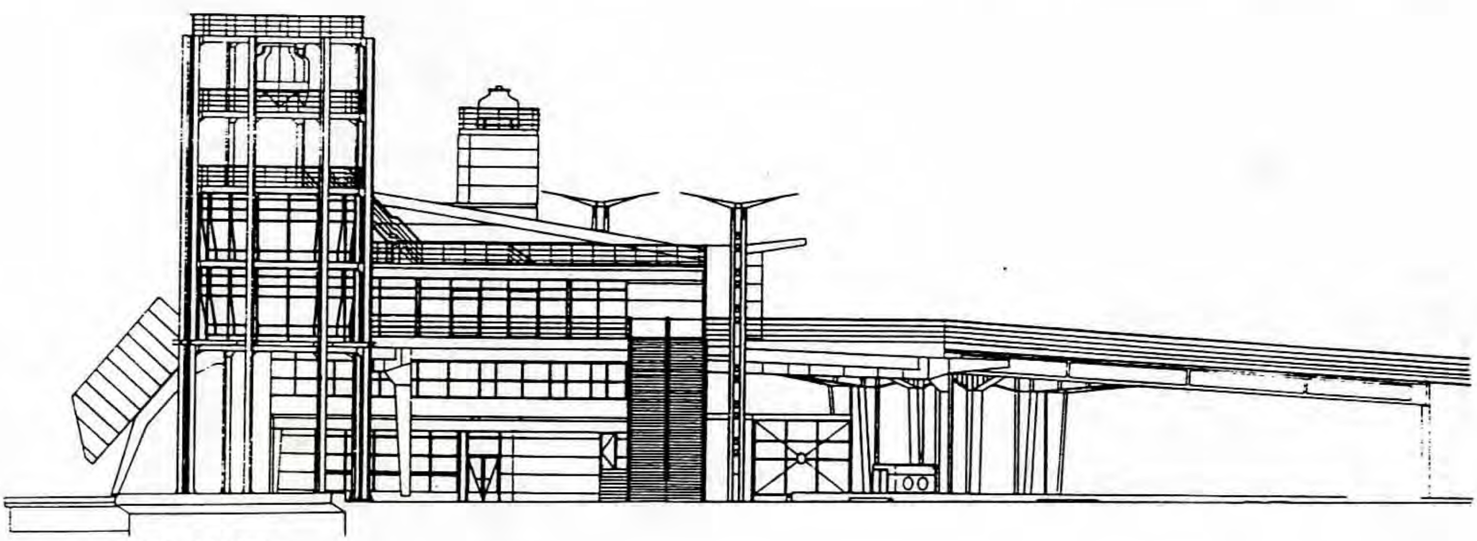
Jacob K. Javits Convention Center, New York City
I.M. Pei

Related Images



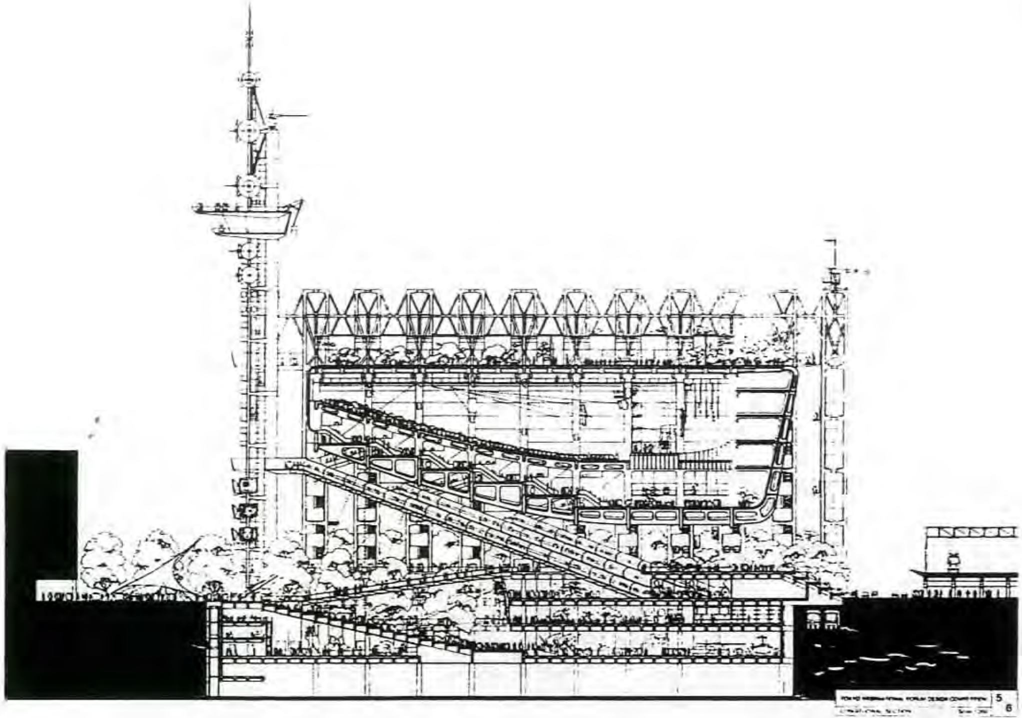


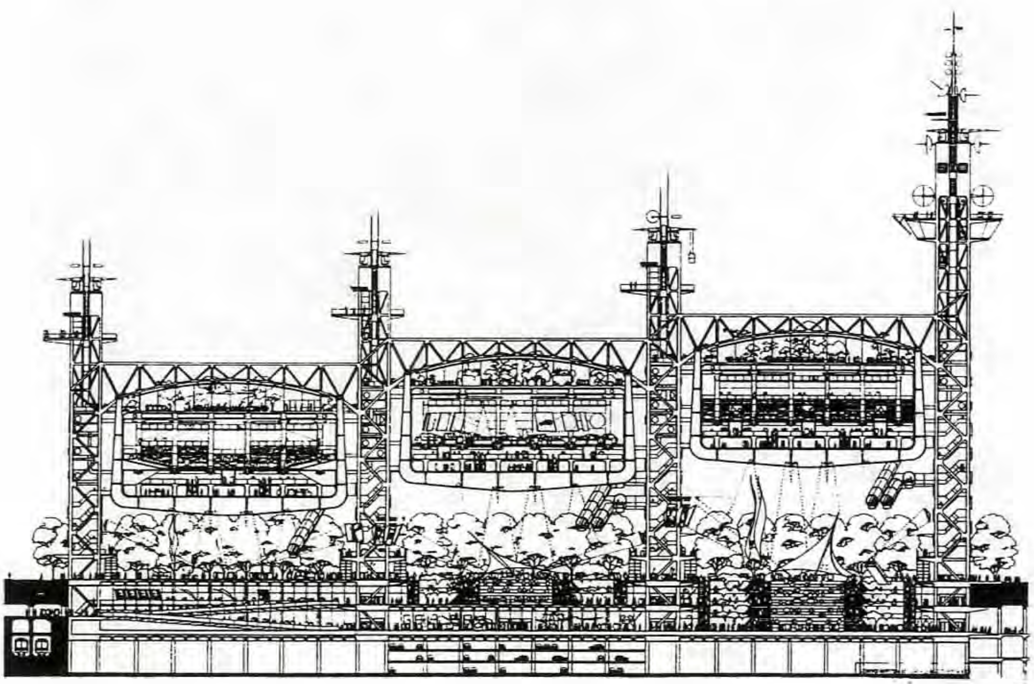
SOUTH ELEVATION



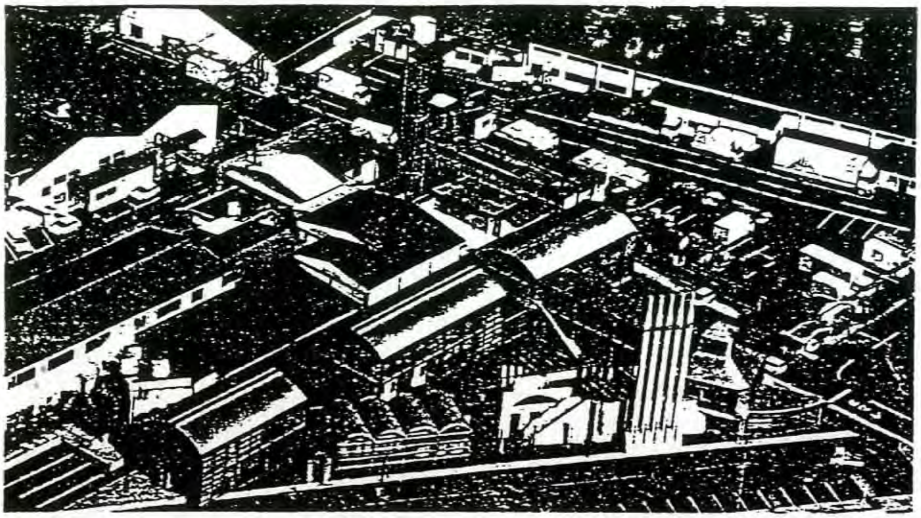
NORTH ELEVATION

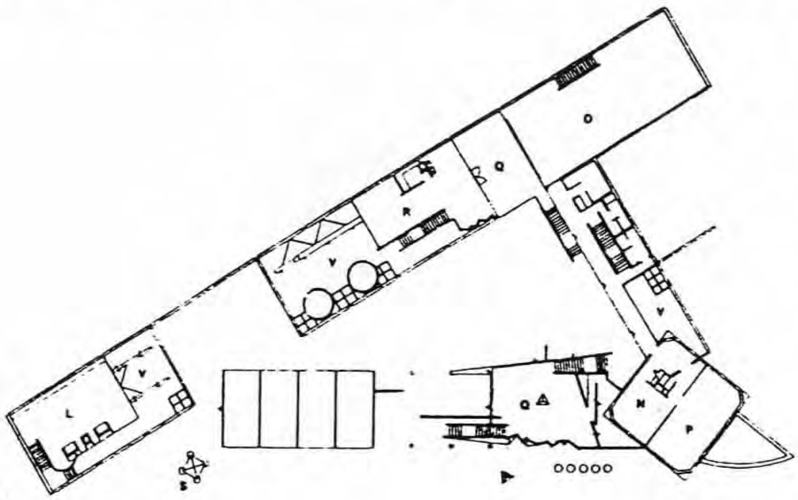
Overseas Passenger Terminal Sydney, Australia
Public Works Dept. of New South Wales





Tokyo International Forum
Richard Rogers

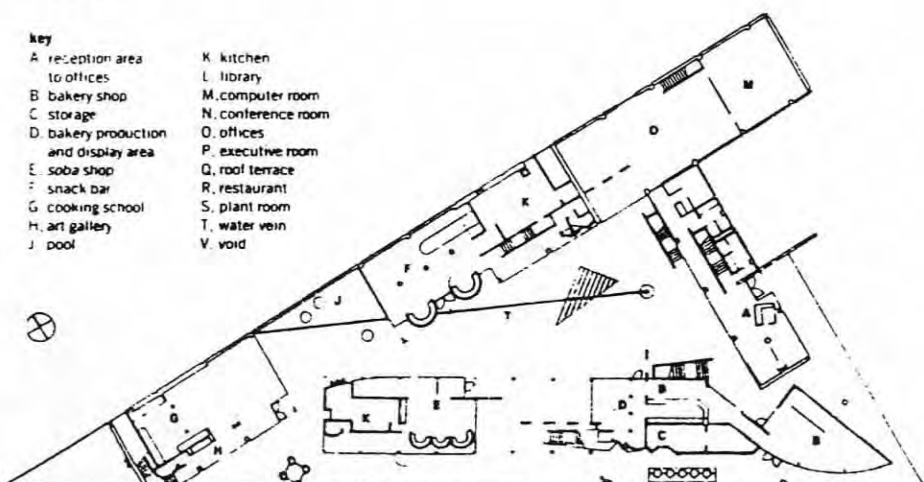




first floor plan

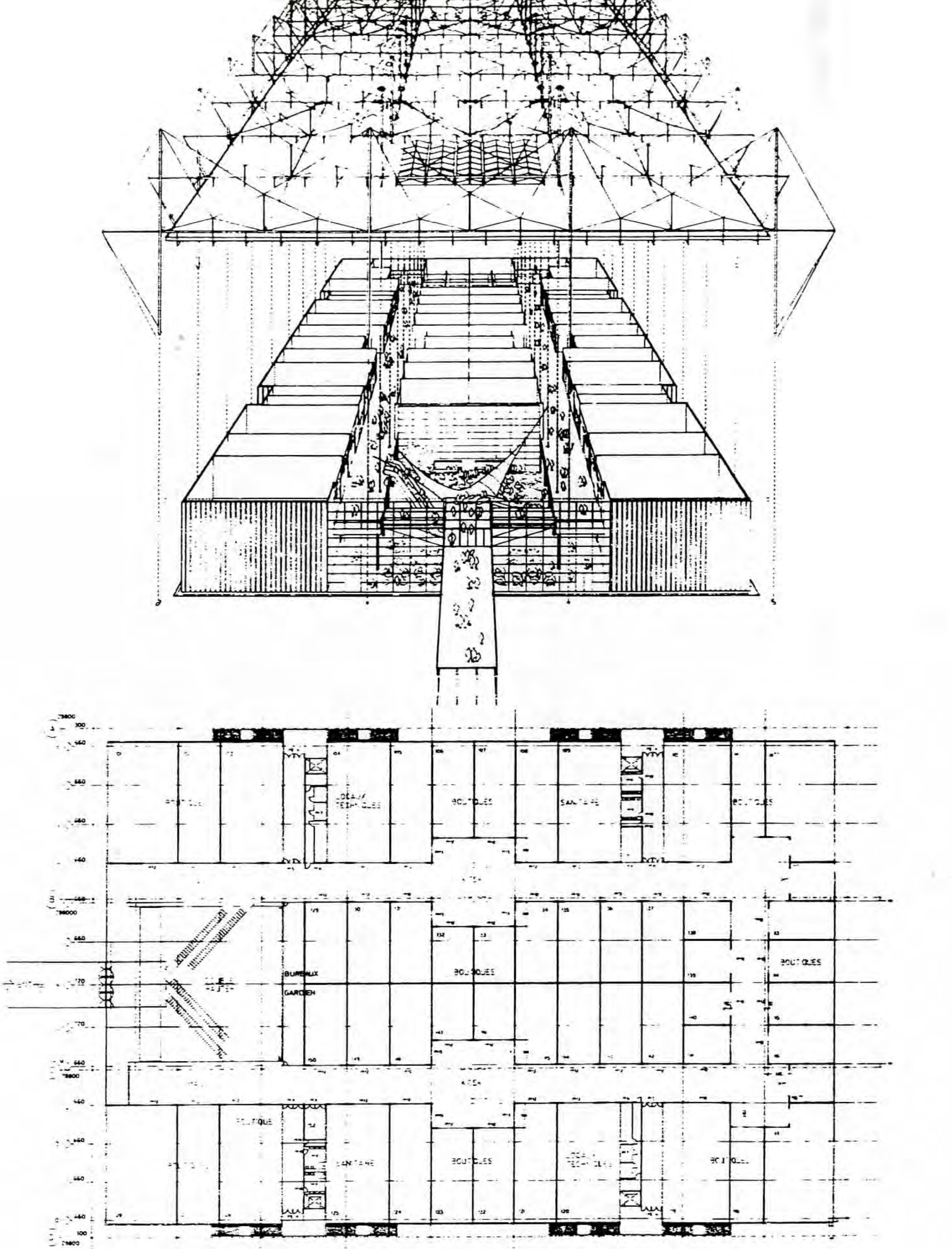
key

A. reception area to offices	K. kitchen
B. bakery shop	L. library
C. storage	M. computer room
D. bakery production and display area	N. conference room
E. *soba* shop	O. offices
F. snack bar	P. executive room
G. cooking school	Q. roof terrace
H. art gallery	R. restaurant
J. pool	S. plant room
	T. water vein
	V. void

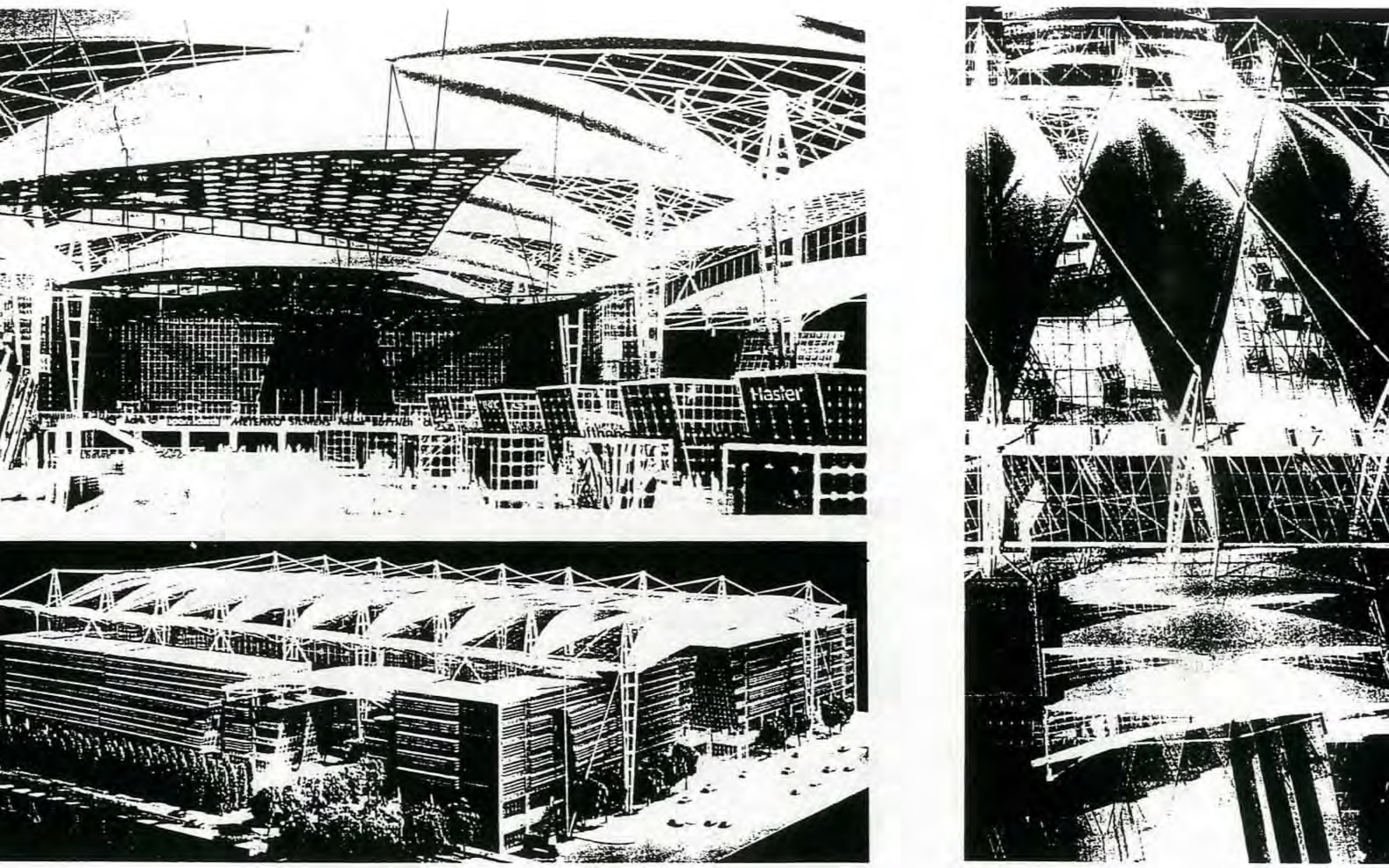


ground floor plan (scale approx 1:700)

Commercial Complex, Japan
Kunihiko Hayakawa

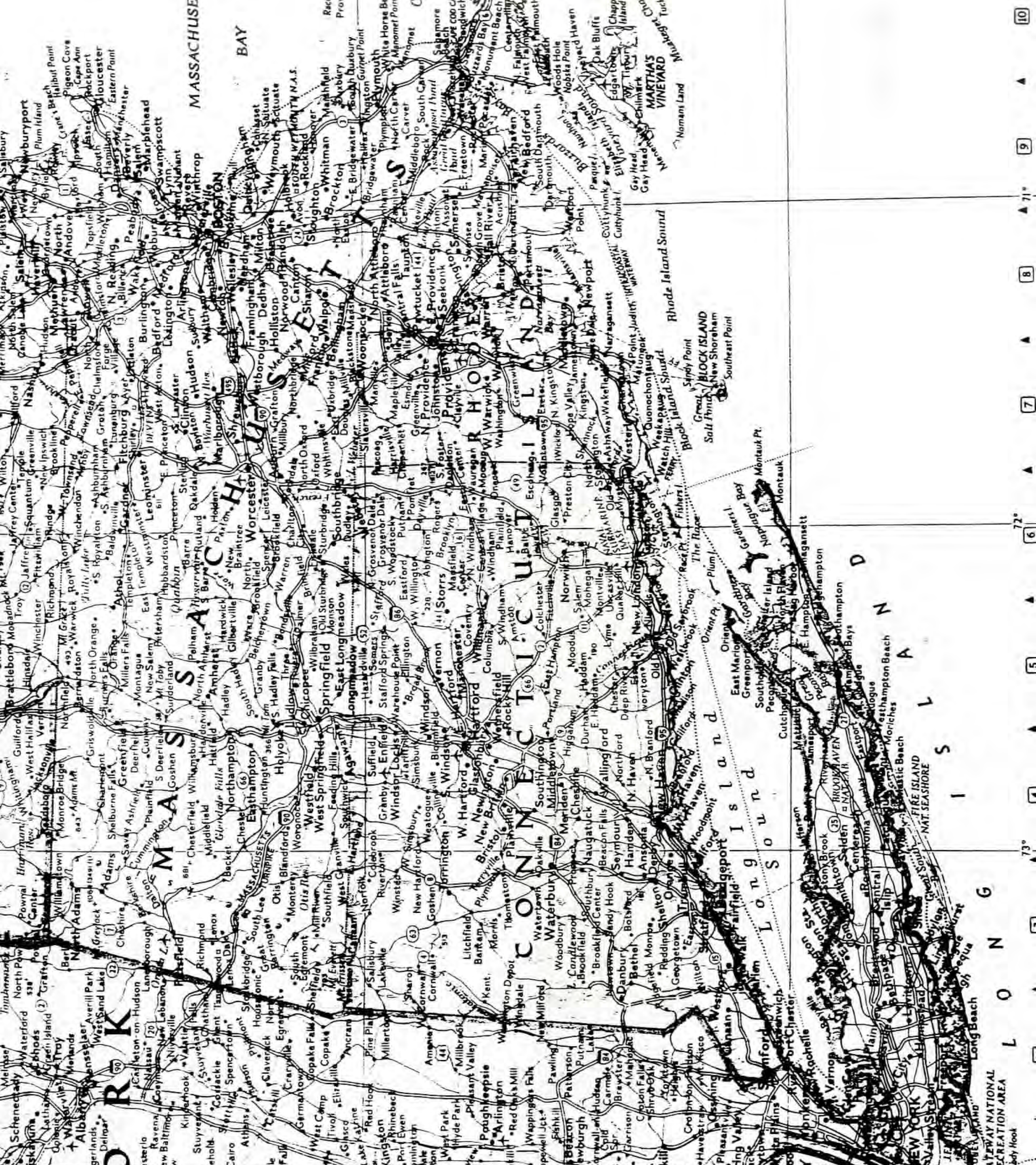


Shopping Center, France
Richard Rogers



Munich Airport Center, Germany
Murphy/ Jahn

Site Analysis


MASSACHUSETTS
CONNECTICUT
RHODE ISLAND
NEW YORK
LONG ISLAND
Long Island Sound
Rhode Island Sound
MARTHA'S VINEYARD
BLOCK ISLAND
FIRE ISLAND NAT. SEASHORE
GATEWAY NATIONAL RECREATION AREA
BOSTON
Providence
Hartford
New Haven
Springfield
Worcester
Albany
New York
Bridgeport
Stamford
Poughkeepsie
Newport
New Bedford
NEW JERSEY
Catskill Mts.

Locator Map

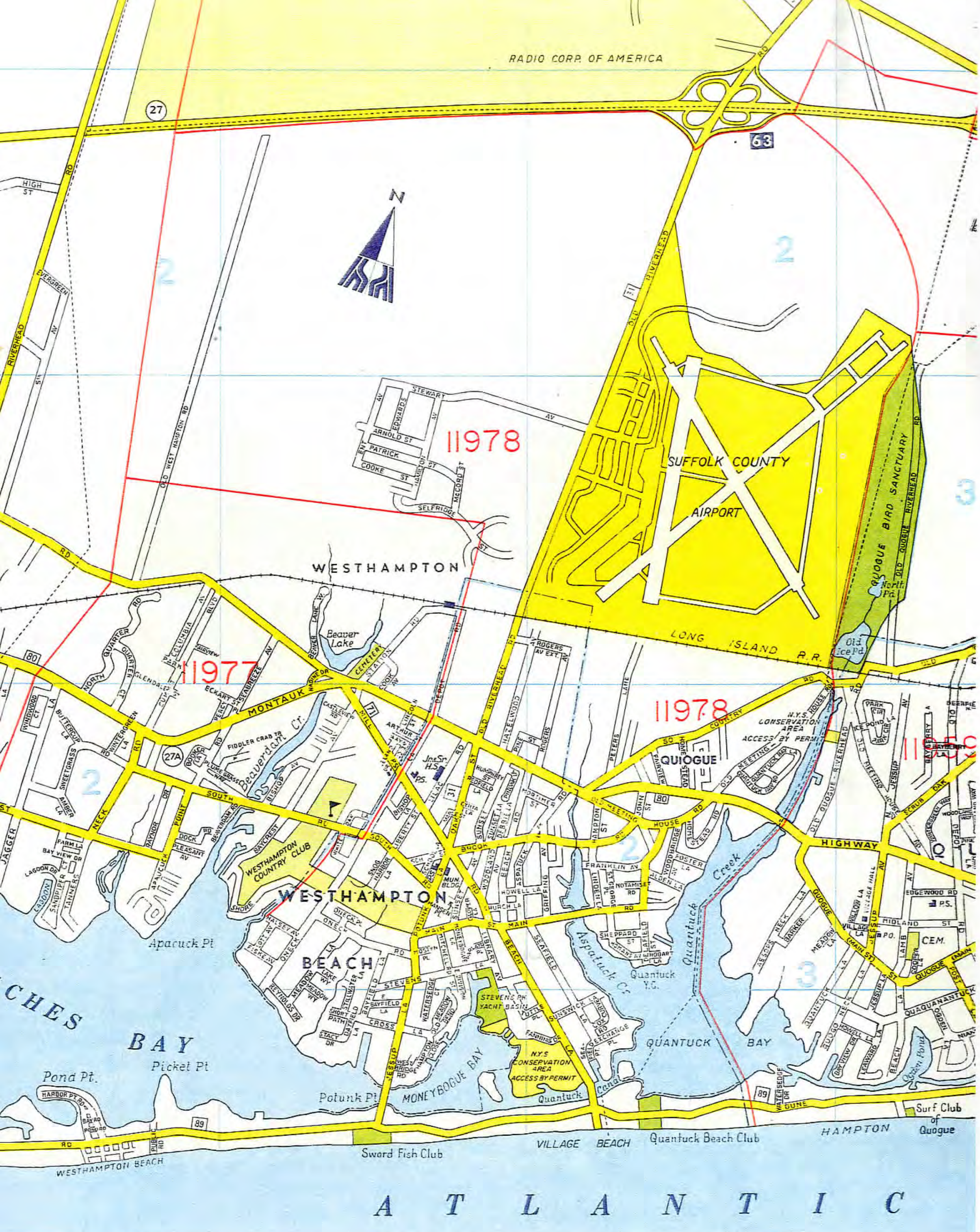
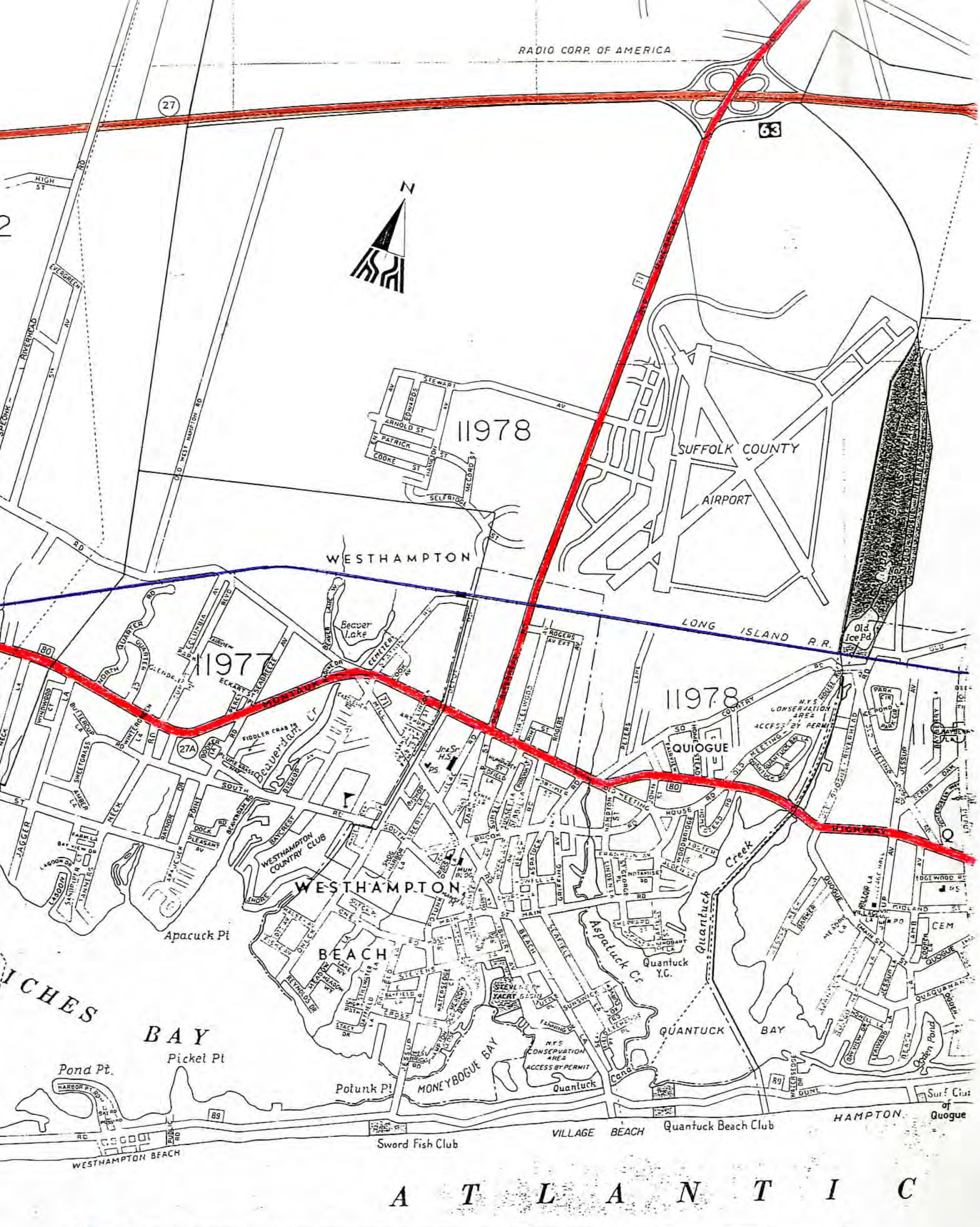


Figure 1
Locator Map



ROUTE 27 SUNRISE HIGHWAY
LONG ISLAND RAIL ROAD
OLD RIVERHEAD ROAD & MONTAUK HIGHWAY

Figure 2
Circulation Map

LEGEND

CR-200	COUNTRY RESIDENCE (200,000 sq ft)	OSC	OPEN SPACE CONSERVATION
CR-120	COUNTRY RESIDENCE (120,000 sq ft)	R-120	RESIDENCE (120,000 sq ft)
CR-80	COUNTRY RESIDENCE (80,000 sq ft)	R-80	RESIDENCE (80,000 sq ft)
CR-60	COUNTRY RESIDENCE (60,000 sq ft)	R-60	RESIDENCE (60,000 sq ft)
CR-40	COUNTRY RESIDENCE (40,000 sq ft)	R-40	RESIDENCE (40,000 sq ft)
HB	HIGHWAY BUSINESS (40,000 sq ft)	R-20	RESIDENCE (20,000 sq ft)
LI-200	LIGHT INDUSTRY (200,000 sq ft)	R-15	RESIDENCE (15,000 sq ft)
LI-40	LIGHT INDUSTRY (40,000 sq ft)	R-10	RESIDENCE (10,000 sq ft)
MF-44	MULTI-FAMILY RESIDENCE (44,000 sq ft)	RWB	RESORT & WATERFRONT BUSINESS (40,000 sq ft)
MHS-40	MOBILE HOME SUBDIVISION (40,000 sq ft)	SC-44	SENIOR CITIZENS (44,000 sq ft)
MTL	MOTEL BUSINESS (40,000 sq ft)	SCB	SHOPPING CENTER BUSINESS (220,000 sq ft)
OD	OFFICE BUSINESS (12,000 sq ft)	TDR	TRANSFER OF PERMITTED DEVELOPMENT RIGHTS
		VB	VILLAGE BUSINESS

AGRICULTURAL OVERLAY DISTRICT
AQUIFER PROTECTION OVERLAY DISTRICT
TIDAL FLOOD PLAIN OVERLAY DISTRICT
TIDAL WETLAND & OCEAN BEACH OVERLAY DISTRICT

Figure 3
Southampton Zoning Map

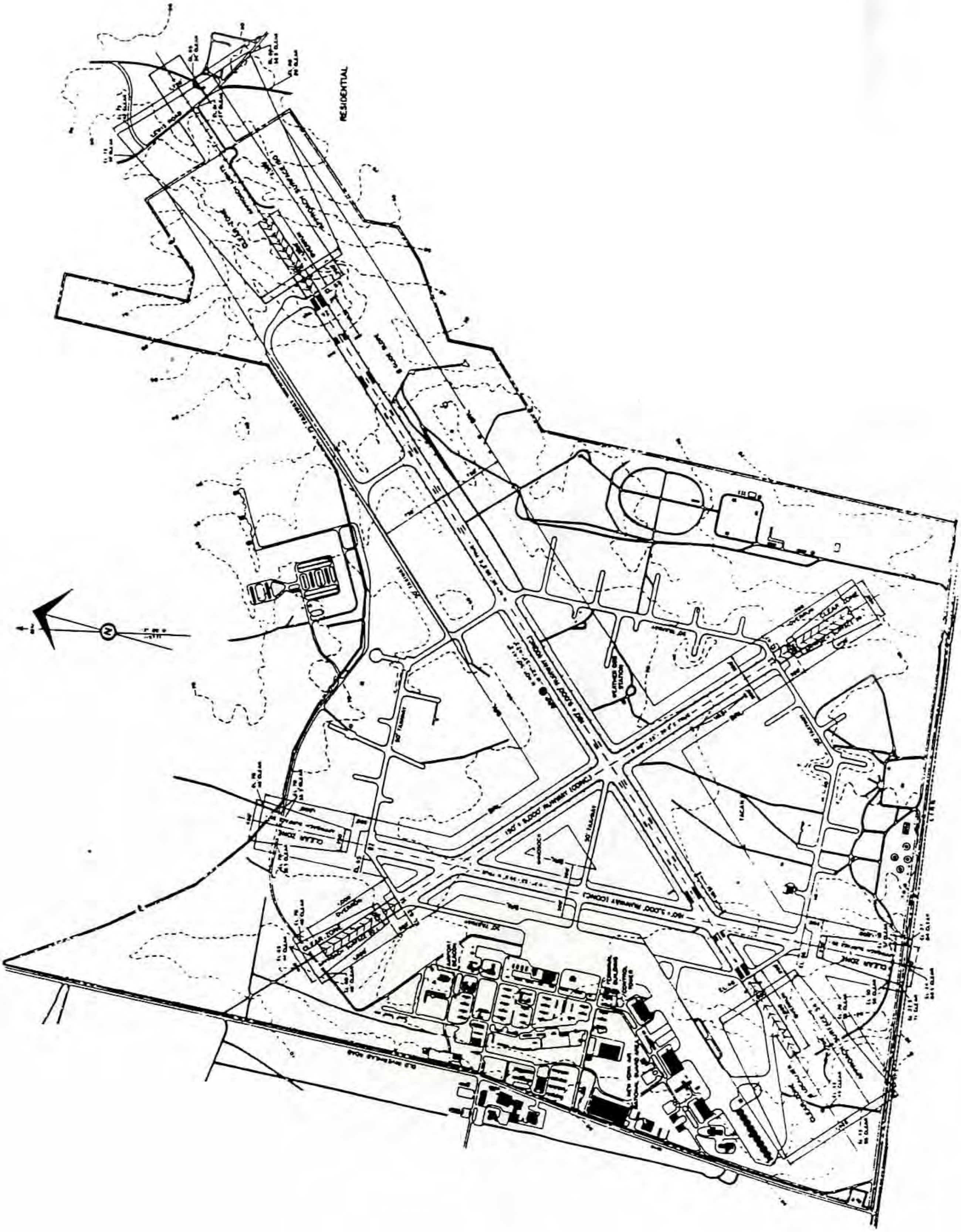


Figure 4

Scale: 1/16" = 100'

Airport Layout Map

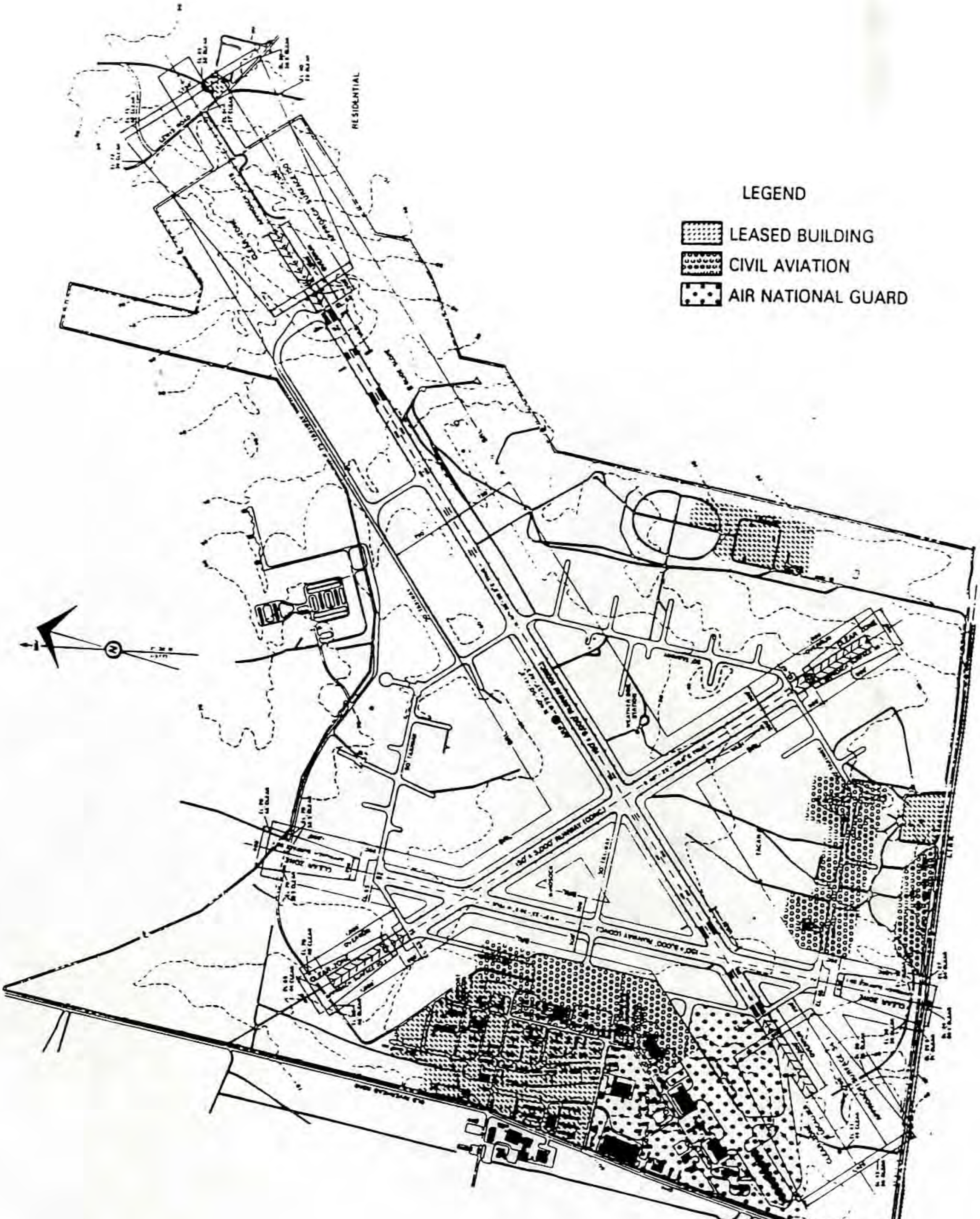
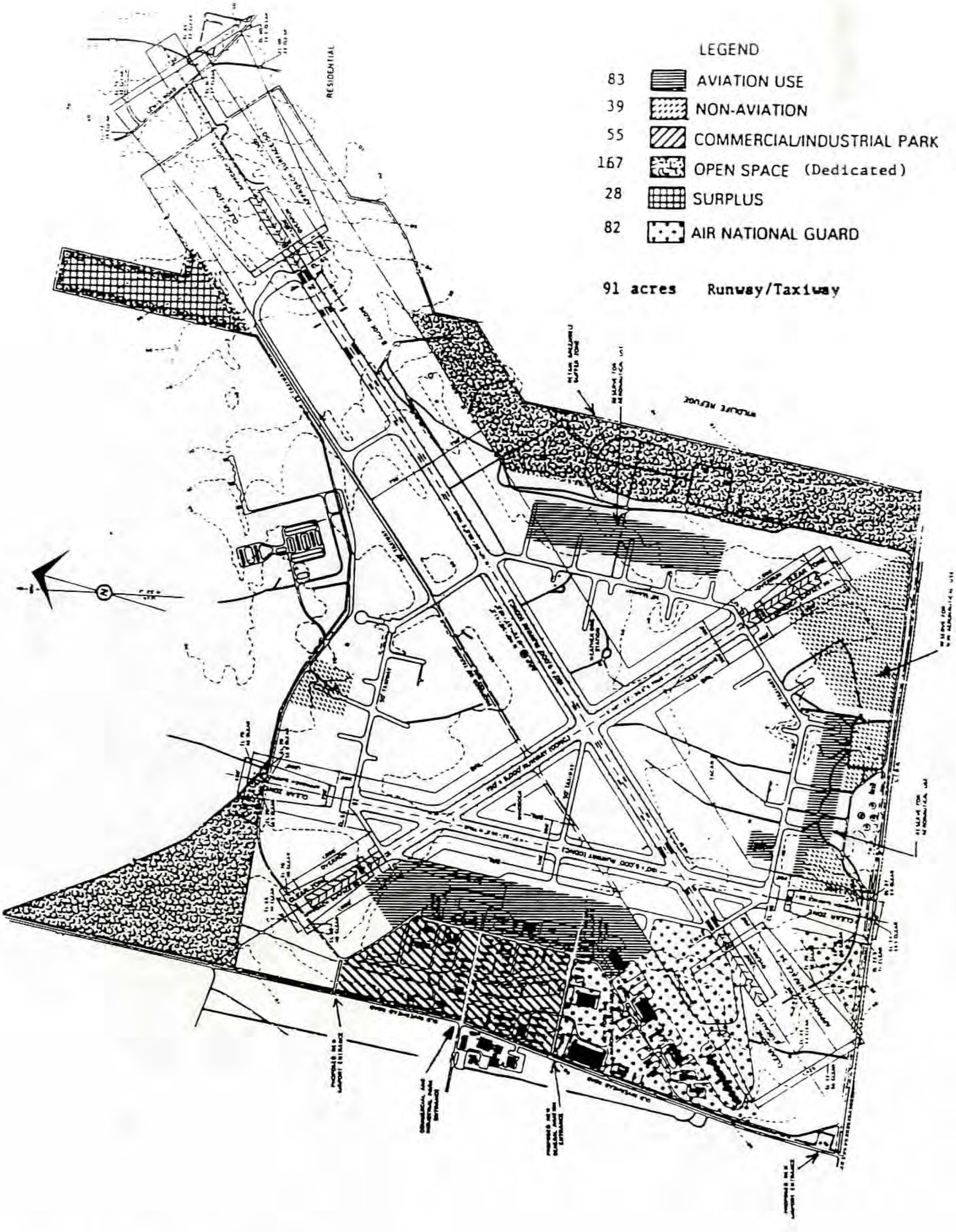


Figure 5

Scale: 1/16" = 100'

Existing Use Areas



Scale: 1/16" = 100'

Figure 6
Airport Land Use Plan

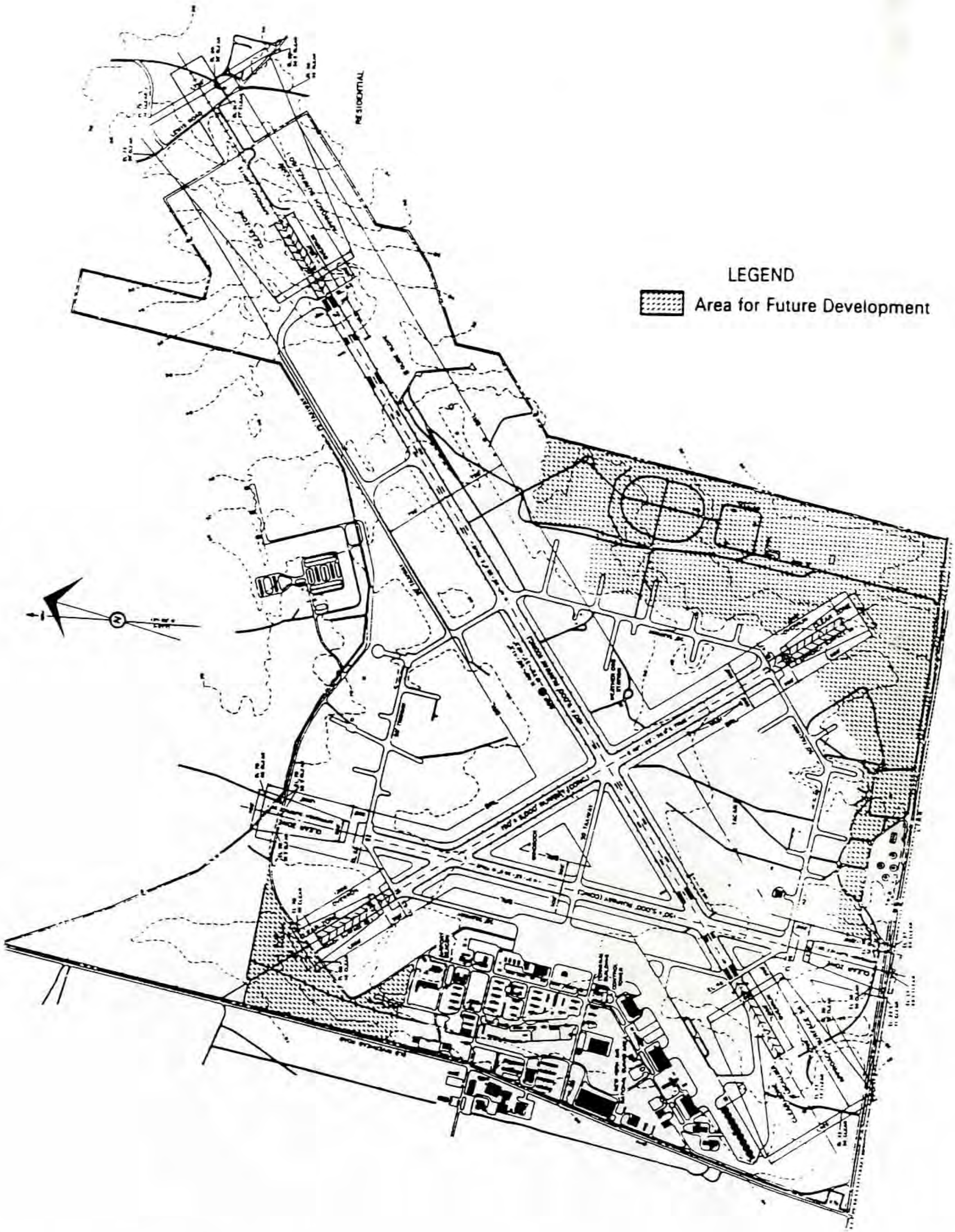


Figure 7
Scale: 1/16" = 100'
Available Lands

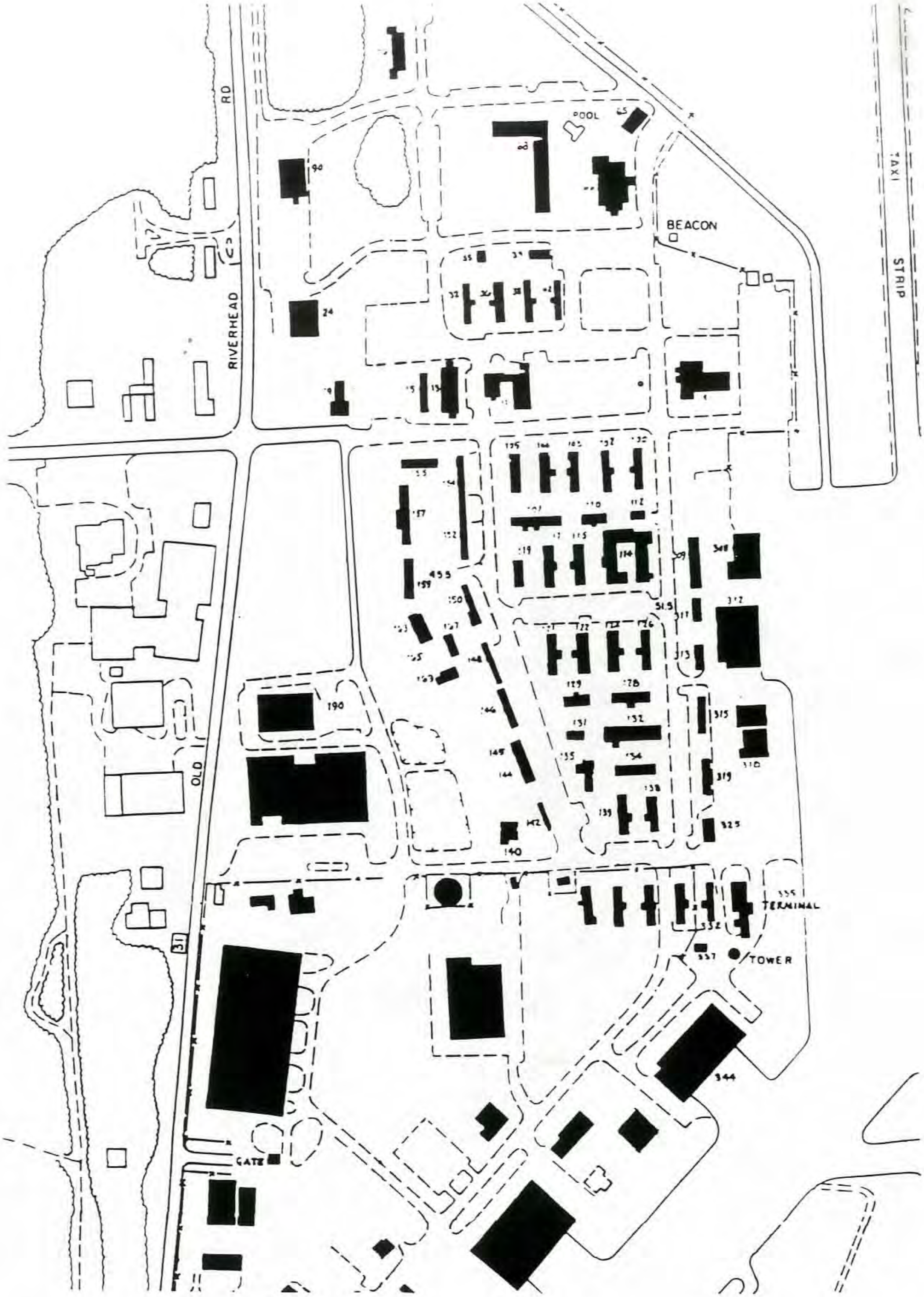
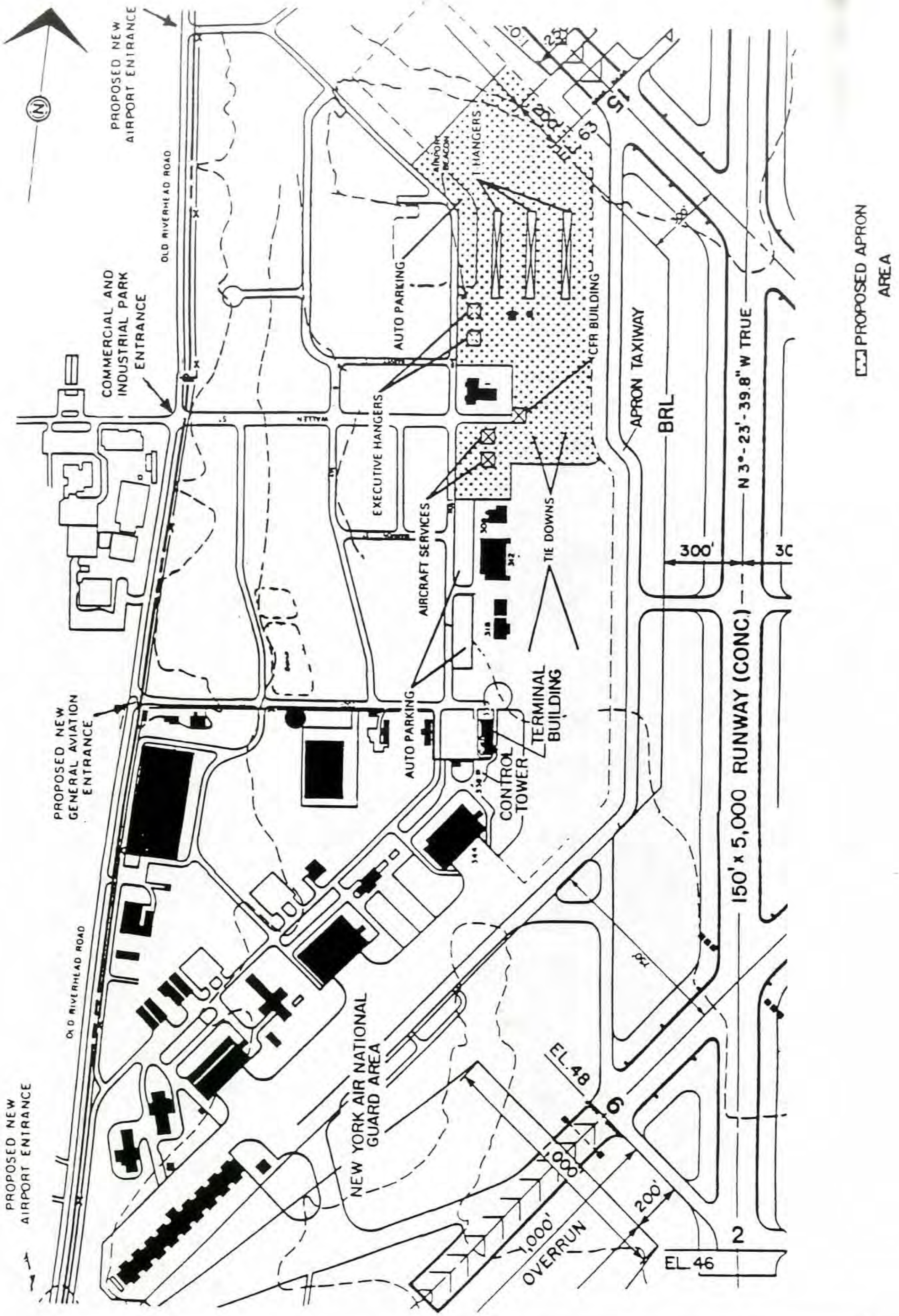


Figure 8

Scale: 1/4" = 100'

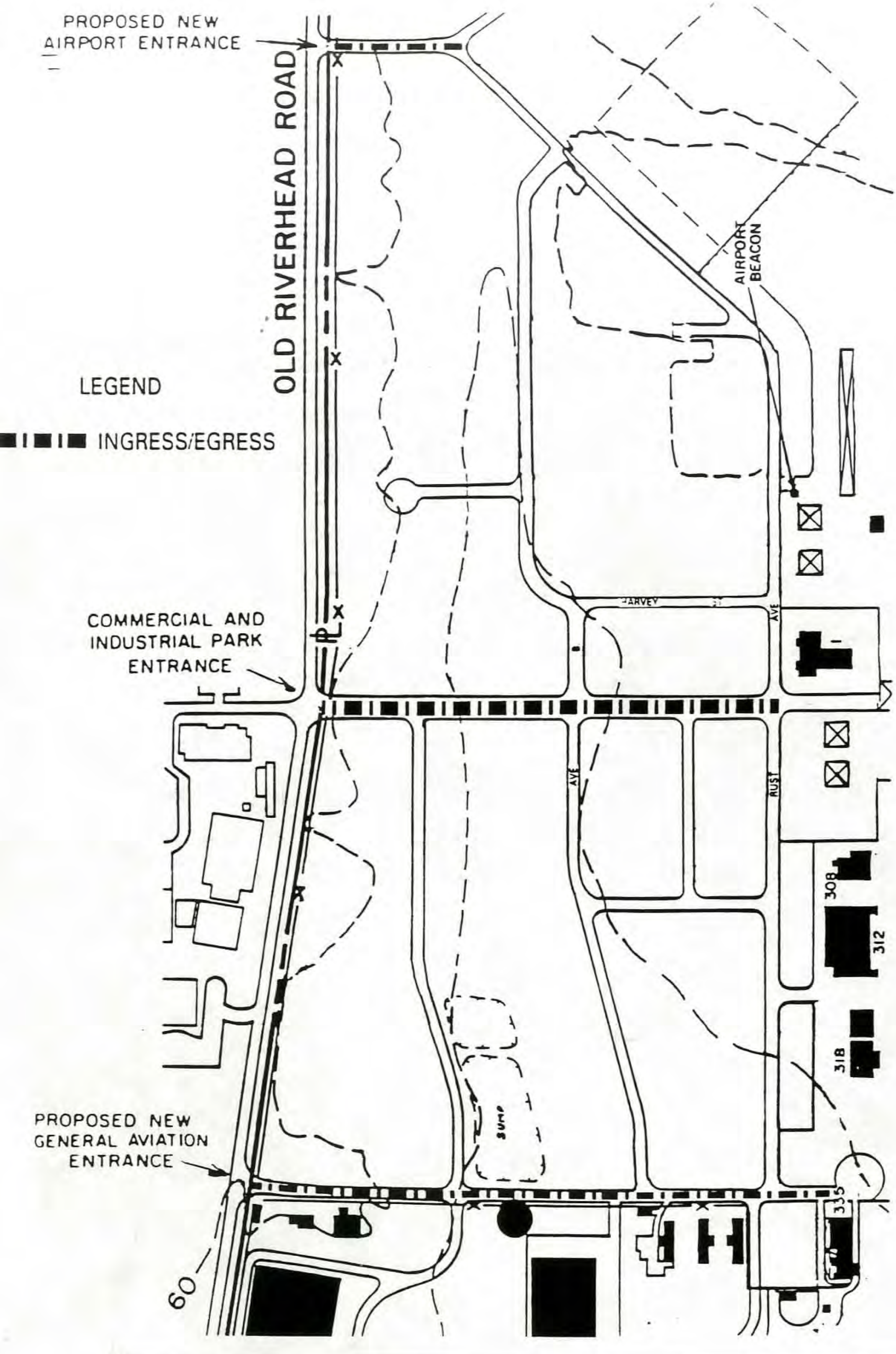
Figure Ground-West Side



Scale: 3/16" = 100'

Figure 9

Figure Ground-Enhanced General Aviation



Scale: 1/4" = 100'

Figure 10
Airport Ground Access

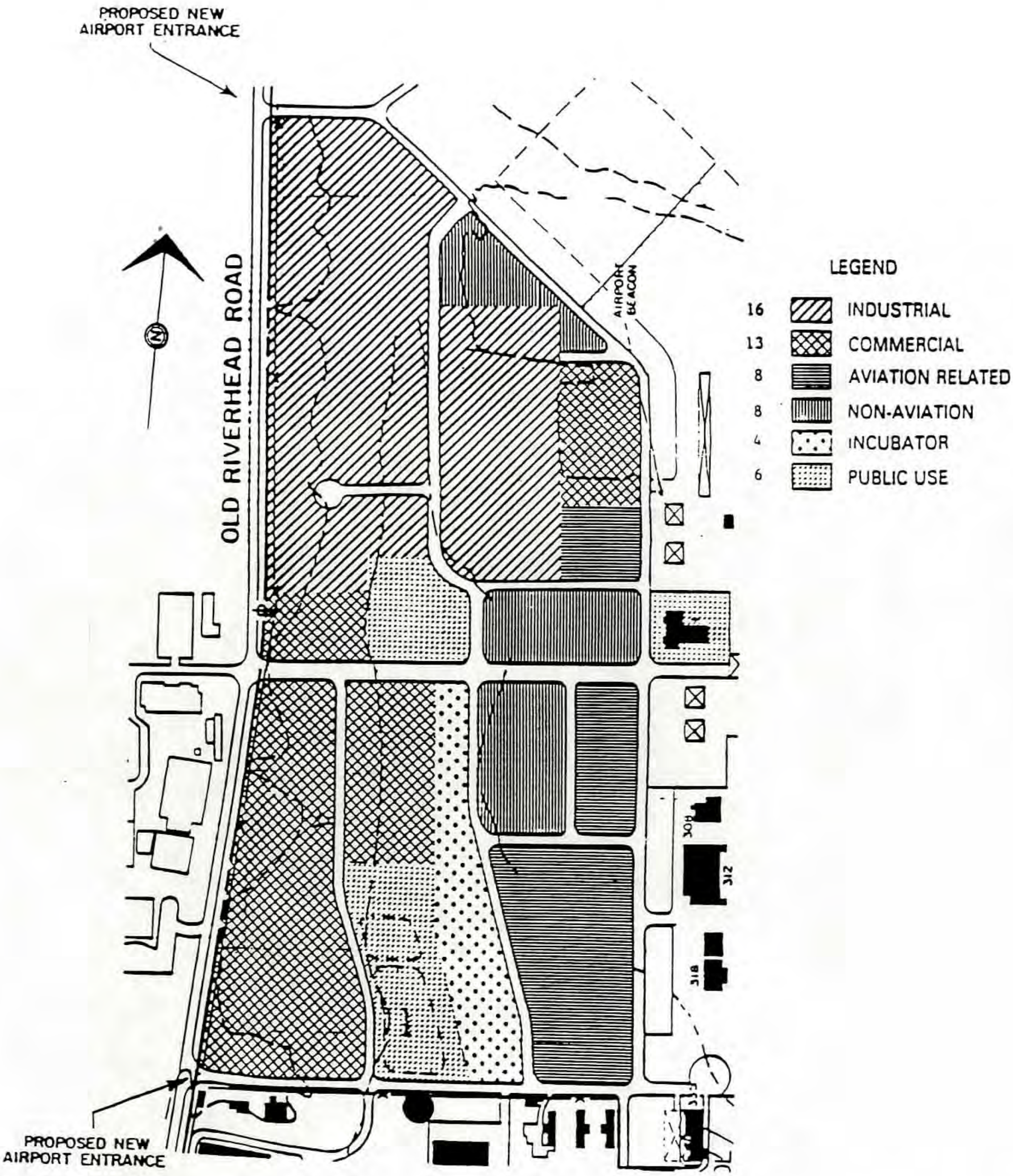


Figure 11
Building Area Layout

Scale: 1/4" = 100'

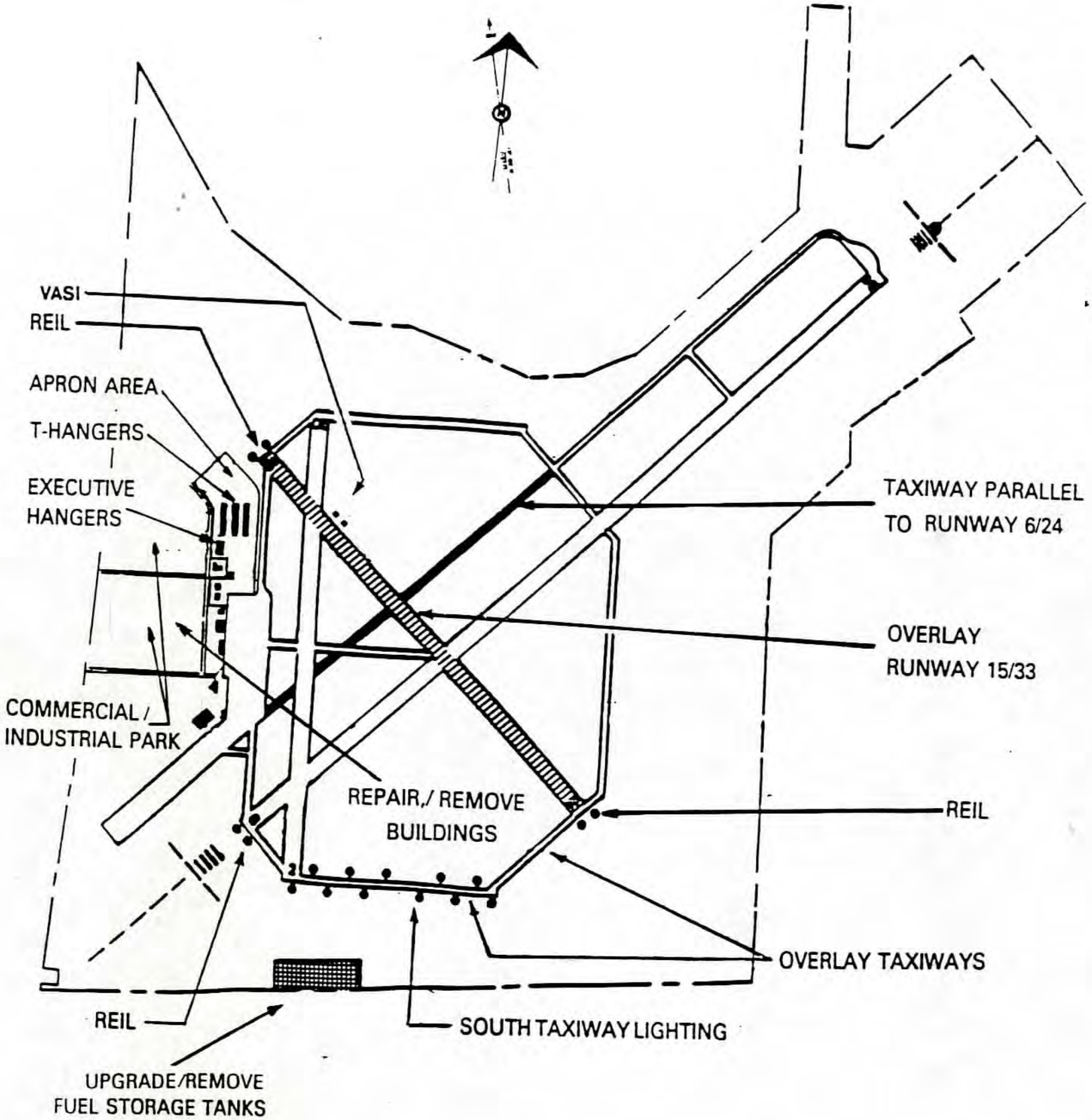


Figure 12
Facilities Improvement Plan

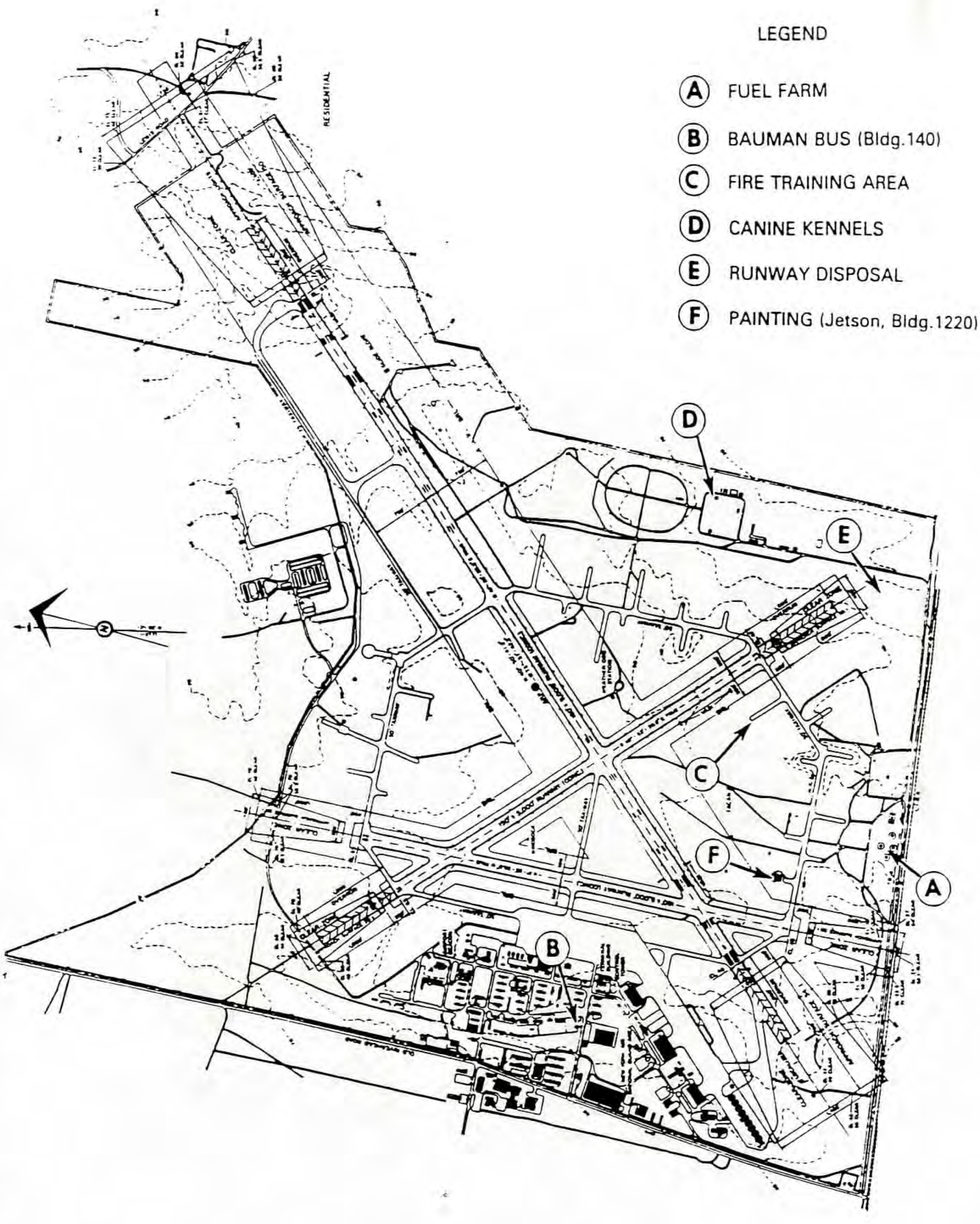


Figure 13
Environmental Concerns

Scale: 1/16" = 100'

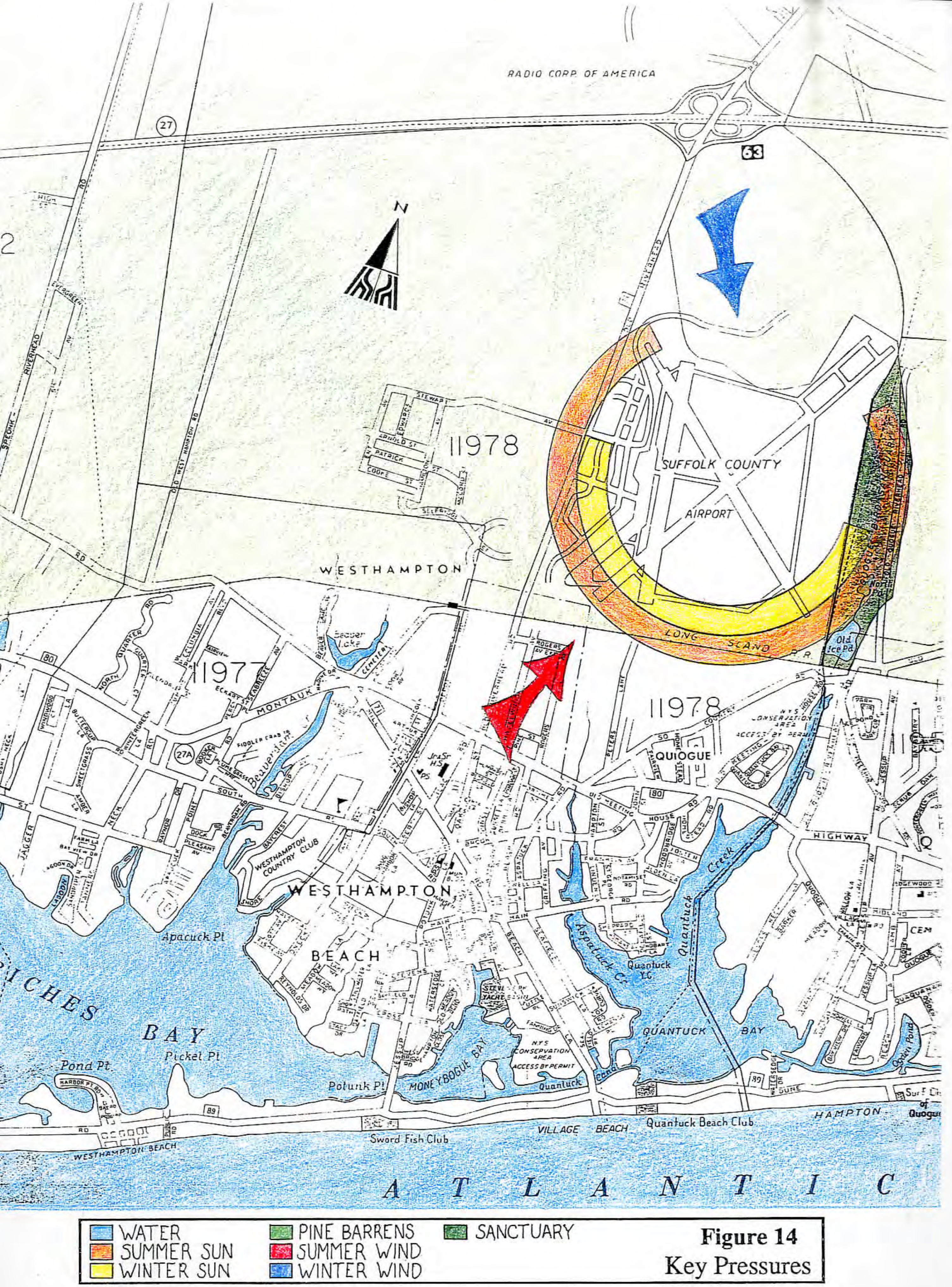


Figure 14
Key Pressures

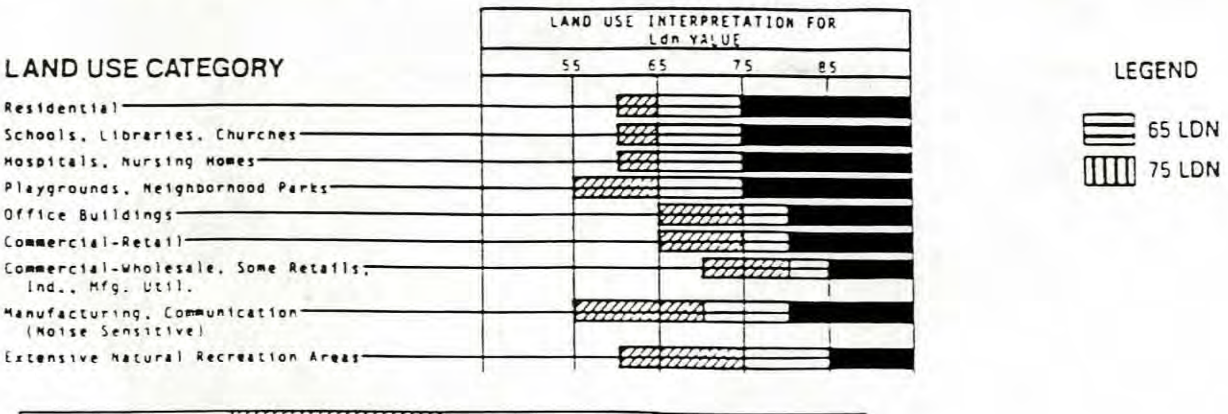


Figure 15
Aircraft Noise Impacts

LAND USE PLANNING GUIDELINES (FAA)

"Ldn" Values	Description of Noise Zones in Terms of Land Use
< 65	Essentially no complaints are anticipated. Few activities will be affected by aircraft sounds, although building designs for especially sound sensitive activities such as auditoriums, churches, schools, hospitals, and theatres should consider sound control in areas close to the airport. Detailed studies by qualified personnel are recommended for outdoor places of public assembly in the general vicinity of the airport.
65-75	Activities where uninterrupted communication is essential should consider sound exposure in design. Generally, residential development is not considered a suitable use although multi-family developments where sound control features have been incorporated in building design might be considered. Open-air activities and outdoor living will be affected by aircraft sound. The construction of auditoriums, schools, churches, hospitals and theatres and like activities should be avoided within this zone where possible.
75 >	Land should be reserved for activities that can tolerate a high level of sound exposure such as some agricultural, industrial, and commercial uses. No residential developments of any type are recommended. Sound sensitive activities such as schools, offices, hospitals, churches, and like activities should not be constructed in this area unless no alternative location is possible. All regularly occupied structures should consider sound control in design.

Issues

Goals/ Issues:

"The creation of an architecture that incorporates the new technologies entails breaking away from the Platonic idea of a static world, expressed by the perfect finite object to which nothing can be added or taken away, a concept that has dominated architecture since its beginnings".

Richard Rogers

Technology is defined by the Websters New World Dictionary as the science or study of the practical or Industrial Arts. It is important to understand that technology is a continually evolving condition where man is trying to create objects which make his life easier. It is also important to understand where technology has evolved from and begin to speculate where it may be going in terms of material, constructural and formal design trends. The beginnings of technological evolution can be traced back to primitive man with, for example, the "invention" of the wheel, an object to make his life easier. In terms of a building technology, related to this thesis, the transformation in the mid 19th Century on how things were made and the shift in the local environment, including materials and techniques, establishes a coherent beginning. The evolution of the railroad industry and the use of cast iron in the train stations such as the San Pancras station established a technique of building technology that revolutionized how structures could be designed and constructed. This building typology was followed by a variety of structures which included Labroute's Ste. Genieve library and Paxton's Crystal Palace, all concerned with a standardized, non-site manufactured unit and more importantly a sense of lightness in the structure.

The introduction of the aircraft industry in the early 20th Century produced new materials, construction techniques and forms which were based on interpretations of the cast iron technology and influences of aircraft design. In terms of architecture, in a modern sense, the aircraft industry has aided in the exploration, innovation and technological achievements associated with high-tech building fundamentals. These new technological developments offer architects an extraordinary opportunity to develop and evolve new forms and materials.

With the combination of building and telecommunication technology it will be important for the building to be flexible and capable of future transformations in response to the developing needs and requirements of the user.

It will also be important for the building to develop a new typology that redefines the role of the conference center and the workplace.

Expectations

Expectations:

The thesis will analyze the telecommunication building as a typology, to develop strategies for prototypical development, and demonstrate the advantages of the prototype and how it can be administered for different specific site considerations nationally as well as globally.

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