AN URBAN MALL FOR SOUTH BEND, INDIANA

AN ARCHITECTURAL THESIS PROBLEM BY:

PHILIP E. PANZICA

BALL STATE UNIVERSITY
COLLEGE OF ARCHITECTURE AND PLANNING

PROJECT ADVISOR:

DR. GEORGE A. WING
CHAIRMAN FOR THE MAYORS DOWNTOWN DEVELOPMENT COMMITTEE

THESIS CRITIC:

DR. BRUCE MEYER
ASSOCIATE PROFESSOR OF ARCHITECTURE

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PROGRAM
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ABSTRACT

The South Bend urban center, like other American cities, has been hard hit economically by the migration of shoppers to the suburban malls which offer a bright, clean and new enclosed shopping area. At the same time the downtown loses activity, retail stores and revenue at an alarming rate. Unless vital steps are taken to stop this cycle, all hopes of an active urban center will die. The urban mall is an attempt to change the cycle and draw people to the downtown area.

Basically the downtown has much more to offer than any suburban mall can. The urban center is located at the heart of government, theatre, business and the new cultural center. The design of the mall should take advantage of these factors, explore and exploit the potential for filling this mall with people, projects and excitement. This report is a program which starts to do just that.

This program investigates and identifies users, activities, goals, needs, and other pertinent data. Issues discussed are not the end, but rather the beginning from which new issues, ideas and needs will be identified. Concepts are discussed from which the designer can start to organize the actual physical environment, but as he organizes this "structure" he must be aware of the user and the users needs.

After writing this report it became apparent that the user is the primary concern. The user must be able to arrive and depart in an orderly and pleasing mode. Once inside of the mall the user must be
stimulated visually, by odor, touch and sound. The user should almost receive a "sensory overload" which makes him or her want to return to try and experience the excitement again and again. The user should not be isolated from other urban activities, he should be integrated and given an experience that no other mall can offer.
I. INTRODUCTION

The decentralization of urban commercial centers to suburban malls is a phenomenon that is threatening the life of many urban centers. Through the ages the Greek agora, European plazas and the urban centers of America, have been looked upon as centers for marketing, theatre, government and exchange of ideas. These centers were a common bond and were symbolic of prosperity and activity of people living within that city. The development of suburban malls has disassembled the urban centers. Suburban malls tend to segregate cities since they are designed to cater to a regional area of the city. This segregation fragments the city into opposing forces rather than fostering civic pride and ideals of a city that has unity. In recent years city planners, developers and concerned merchants have been making attempts to reestablish the urban center as a viable "people place" which they once were. An urban center for South Bend is an example of this desire to reorganize its urban area into a true people place.

The commercial center of South Bend has been steadily dying as regional shopping districts such as Town and Country, Scottsdale, Northvillage and others are prospering. In the early 1970's the Urban Planning Commission redesigned traffic flow, demolished deteriorated buildings and constructed a pedestrian mall. One of the shortcomings of this effort was that it failed to add any new commercial space or business. The development of this urban shopping center is an attempt
to correct that problem. The urban projects of the 70's have laid the groundwork for the new mall. When we start to consider the potential of South Bend becoming a successful urban center we should look at surrounding developments.

Directly east of the site a new Civic Center, designed by architect Philip Johnson, is being completed. Northeast of the site First Bank proposes a new bank/office building. A couple of blocks to the southeast an office complex for rental office space is in the planning/construction phase. These projects along with the development of an urban mall are the key to establishing downtown South Bend as a vital business, shopping and cultural center. A true people place!

The scope of this program will be to investigate the goals/needs and functions of the urban mall. We will be looking at the roles that surrounding projects will play on the mall. We will also be considering the attitude, potential and role that the urban mall will project to its users. This program is not a finite report, it will be revised, questioned and improved upon as the project enters into the design phases. It will serve as a design tool to guide and direct the designer in the decision making process. This program will also serve as an evaluation tool to analyze the success of the schematics and final design.
II. GOALS

Client Goals

The goals of the client were presented to me by Dr. George A. Wing, Chairman of Mayor Peter Nemeth’s Downtown Development Committee. Their goals are representative of market studies, developers goals and various city planning officials.

As public officials the major concern is to transform downtown into an active commercial, office, cultural and government center. The government center has been established by the County-City Building and renovated Court House. The new South Bend Cultural Center and Morris Civic Auditorium offer ample space for theatre, music and convention. Banks and office developers are currently planning and constructing new office space. The city officials are now trying to arrange the development of a retail commercial center.

Previous plans had called out for a "Superblock" development which would have put three major department stores under one roof covering four city blocks. Included in the complex were 100-125 smaller stores that would cater to various services and products. This project was discontinued when one of the major department stores opted to relocate in a suburban mall. After this setback reevaluation and market studies were instituted. From these findings, and some basic ideas from the original program, goals for the new mall were established. These goals are:
* Development of the two city blocks bounded by Main Street to the west, St. Joseph Street at the east, Jefferson Boulevard and Washington Street to the south and north respectively.

* Approximately 150,000 to 200,000 square feet of retail commercial rental space which would offer 50 to 75 distinct retail outlets.

* Parking garages that will house 1,000 to 1,500 cars for shoppers to use.

* A bus terminal on the site or in close proximity for intercity bus-loading and transfer.

* Investigation of feasibility for locating an ice rink within the mall which would replace the deteriorating Howard Park Ice Rink.

* Development of a pedestrian tie from the new Cultural Art Center to the proposed mall.

* Restaurant areas to induce lunchtime shopping and offer badly needed eating establishments for the downtown area.

* Investigation of locating a movie theatre within the mall structure.

* Maximum two levels within the mall.

Overall, the clients goals are to increase the downtown retail activity. The effect of this increased retail activity will be increased use of the downtown, a more stabilized urban economy and an increase of city revenues for further improvements to the city. This increase of activity will help establish South Bend for more conventions, visitors and out of town shoppers.

**User Goals**

The users goals were derived at from market research analysis and common sense observation. The users, who will be identified later, will be demanding that the urban mall offer them a facility better than
what they are accustomed to using (i.e., Scottsdale Mall, Northvillage, etc.). The mall has to have some feature or features which make it superior to the existing suburban facilities. Areas of concern shall be:

* Easy access to the mall by bus, foot or car.
* A controlled interior environment for comfortable all season shopping.
* A variety of shopping and services which offer "everything under one roof".
* A stimulating shopping environment.
* Security for the shopper and his/her vehicle from vandalism or attack.

**Designer Goals**

It should be the responsibility of the designer to realize that he is designing an urban shopping mall and not a suburban mall transplanted to the city. The urban site offers advantages, as well as problems, that no other suburban site can offer. The structure shall have its own identity which clearly states that the mall is urban. It should be identifiable as the "people's mall" at the center of the city.

We must remember that this new mall will be at the city's center and should therefore act as the city square where people congregate, visit and exchange ideas. We should consider that the new Cultural Center is across the street and the County-City Government Center is one-half block away. The center of city banking operations surround the site and many other businesses are located within walking distance. A major concern should be that the river is visually and physically close and that many activities that can enrich the mall take place along the river banks.
The major problem of the site is that it is separated from these activities by major thoroughfares which carry all the city traffic. Careful investigation of this can lead to solutions of how to bridge pedestrian flow to the auxiliary and enhancing activities. The suburban mall does not have civic, business and government activities in close proximity to enhance its operations, therefore we must integrate and design in such a way that the mall is an extension of these activities rather than a "shopping center in a sea of asphalt."

The central location and urban fabric of the site are the two major influences of this project. The design should at all times consider these two criteria, then and only then will the mall offer a unique and different atmosphere that will make shoppers want to come back again and again. Not only in the day but also the evening. Shoppers will be the basic daytime user, but the cinema, restaurants and ice rink can generate evening users. They will park, spend money and generally make the facility more useful and profitable.
III. USER REQUIREMENTS

The urban mall can and will be successful if proper consideration is given to all users, indirect or direct. In order to give such consideration we must first identify who the users are, how they reach the site, why are they at the mall and when do they like to visit the mall. The following section will attempt to look at the users and the designer must use his/her intuition to identify and consider any user not listed.

Direct Users

Local Shopper--This shopper is the primary concern of the mall since he or she make up the greatest proportion of the shoppers. The age varies from toddler to senior citizen with women being the majority. They arrive at the mall by car, bus and walking. Their duration of visit will vary from all-day to a direct purchase and departure. A distinction of buyer and shopper should be considered. A shopper is not really out to buy, but rather to leisurely spend an afternoon looking. This person tends to be an impulse buyer who if they enjoy the environment will tend to spend more. The buyer on the other hand has a pre-determined goal to purchase a specific item and then leave the mall. Again, if the buyer enjoys the environment of the mall, he or she may be induced to impulse buy.

Out-of-Town-Shopper--This shopper is the person who will drive in from surrounding small communities to investigate the quality of
shopping available in the mall. They will usually intend to stay for a couple hours or an afternoon. The major reason they visit is to shop for merchandise not available in their community and if they find a good variety of products with a stimulating environment they will become good steady customers. If they return, they return as buyers with intentions of purchasing specific items as well as being impulse buyers. Most will make a day of shopping, eat lunch in the restaurants and tend to use the seating areas in the mall concourse more frequently than local shoppers. They also tend to use the public restroom facilities more since their visits are for extended periods of time.

Lunch-Time Shopper.--This category of shoppers usually come to the mall during lunch time hours of 11:00 a.m.--2:00 p.m. They are predominantly businessmen or secretaries and arrive on foot. They tend to be a set group who will come almost every day. The businessmen will tend to eat in full menu restaurants and use the hour as an informal business conference, thus doing little, if any, shopping. The female secretary on the other hand will want to eat smaller meals and spend some time "window shopping" in the mall. The lunch-time group will also consist of "brown-baggers" who are both male and female, and will buy maybe a drink only, sit in the concourse and devour a sack lunch. There is also a group of people who will just come into the mall to "waste" their hour of lunch-time, neither eating or shopping. As a whole this entire group will make the mall very active at noon on Monday through Friday while typical suburban malls are idle. Activities and functions should be aimed at this group so they do not get "bored" with the "mall lunch routine." Variety in food, activity and shopping
will keep these people returning everyday.

School Age Children--The children and young adults, ages 12-20, tend to use shopping areas for meeting places and enjoyment. They tend to gravitate to these areas to shop, meet the other sex, visit friends or just someplace to do "nothing." The younger "kids" tend to use the public transportation system while older ones come by car in pairs or groups. They usually visit the mall late afternoons, Saturdays and during school break. Provisions should be made where these groups can congregate yet not become trouble-spots. Older people can sometimes feel threatened by loud but harmless groups of young people. By recognizing this fact we can develop spaces that cater to each group, allow interaction but segregate and satisfy both groups. Within the mall there will be many retail stores that cater to the youth such as clothing stores, record stores, craft stores, novelty, game arcades and of course the ice rink, therefore the youths should be given as much consideration as any other user group.

There are possibilities of youth programs and exhibitions that can be sponsored by the Park Department, Boy and Girl Scouts, Junior Achievement and other similar groups. By sponsoring such programs the parents of the children will also visit the mall adding to user activity.

Conventioneers--The new Century Center directly east of the site has been erected as a cultural center with space for business, professional, political and other various types of conventions. Many times a convention will last all day or be visited by out of town groups that need food and night-time entertainment. The urban mall will be able to offer the conventioneer a place to get away for lunch or a place to kill
a few hours between lectures. There is also the possibility of the
mall concourse being the extension of a convention or display. The
major area of concern is how to connect the pedestrian traffic flow
across the northbound St. Joseph Street. There are basically three
options to the designer which are; an elevated walkway, on grade, or
subsurface tunnel. The connection should be safe and aesthetically
pleasing.

This connector has the potential of being so exciting that people
will want to walk through it just to see the other side! This effect
could be beneficial for both mall and convention center since both
require people for activity. The convention center is a feature that
no suburban mall can rival, use this asset to the fullest potential.

Entertainment Users--This group is composed of three groups who
are ice skaters, restaurant goers, and movie patrons. All three of
these function should be capable of operating independently of the mall
stores. The ice skaters are a little bit different in the fact that
they may come after hours or come to skate while their parents are
shopping. These areas have the possibility of being located in close
proximity so after store hours the mall will still seem full of activity.
One of the restaurants may even give its patrons a view to the ice rink
while they enjoy a drink or dinner.

One of the major concerns for the evening group is security from
attack and vandalism. Parking facilities should be close to the parking
areas with the connecting walkways being well lit and patrolled.
Consideration should not only concern protection for these people but
also protection of the building from these evening users. Sections of
the mall should be locked off from the night activities. People should not be allowed to congregate or be out of the view of the major activities, in other words do not create nodes or alleys where individuals can cause vandalism.

**Indirect Users**

**Building Codes**—Although codes are not a "user" of the building they put constraints on the design and can therefore be considered an indirect user. Codes dictate occupancy, structural loads, exits required, stairs, fire ratings, ventilation, toilets, fire sprinklers and other various things. It is the responsibility of the architect to identify and comply with all state and local codes for structural, plumbing, electrical, fire, traffic, etc.

**Financial Constraints**—All design concepts and lay-outs should give careful consideration to cost, not only initial but also long term operating costs. Proportions of rentable space to supportive space should be competitive with malls of similar function. A more complete analysis of cost will be investigated in the Cost/Benefits section.

**Community Influences**—This group is made up of zoning laws, material availability, O.S.H.A. rules, labor unions and other similar constraints. Although these constraints take precedence during the planning and construction phases, they have impact on the buildings entire life. The role these constraints play vary, for instance, as designers we could specify a certain stone facing which is not available or normally used in the South Bend area. In doing so, the contractor may have problems obtaining the material and labor forces might
have trouble installing it or just do a bad job due to inexperience with the material. The end result could possibly be displeasing, costly and disasterous to the construction schedule. Therefore careful consideration should be given to these areas.

Utility Power—Careful consideration should be given to efficient use of utilities and power distribution. This group includes water, sewage, gas, telephone and electric companies. Each one of these utilities have in-house consultants who will advise the architect on any local variances or problems. Telephone services will most likely require a sizeable switching station within the mall facility. All utility companies should be notified during the later stages of schematic work.

It should also be noted that design of gas, electric and water utilities give careful consideration to the use and conservation of these critical resources. As users of energy we, as a nation, have been extremely wasteful of the resources and supplies are not infinite as we had once considered. Use of natural light, passive solar heat gain, insulation efficiency and all other energy saving ideas should be induced into the total design.
IV. ACTIVITY REQUIREMENTS

Smooth operation of this urban mall can be achieved when all functions and needs are met by the physical structure. This section of the program will concern itself with identifying some of the major issues involved with the design of particular functional spaces and their relationship to other functions. The arrangement of supportive activities to primary activities is not an easy task with constraints of codes, cost, mechanical services, merchandise flow, exposure to pedestrian traffic and an endless amount of other considerations. Diagramming, computer, matrix and other organizational aids should be investigated and used in relationship studies. Data and ideas presented are only the seeds from which other ideas, data and considerations should come from, identification of all possibilities is surely a logistics problem.

When designing spaces for particular functions we must remember at all times that the user is the most valued material within the mall. The building should allow maximum flexibility and choice to the user. Designs should seek to stimulate all the senses, not just visual. Flowers, trees, water and pleasant scents should stimulate the nose, the audio senses should be stimulated in one area and relaxed in other areas. All experiences should be enjoyable.

Retail Space

The design of the retail stores will be, for the project architect,
ACTIVITY SPACE RELATIONSHIP
schematic design only, the individual space leasee will be responsible for specific layouts and detail interior design. The project architect will be responsible for determining maximum bay sizing, rest-room and service area location, storage and mechanical feeds.

The architect will be required to lay-out primary store locations and mix. Flexibility of the structural system should allow for alteration of bays for increasing or decreasing store sizes.

From research it is apparent that bay sizing of the structural grid is subjective to material, soil conditions, store function and costs. For instance, a 45 foot by 45 foot open bay is very flexible for display purposes, but structural costs tend to outweigh flexibility. Most bays tend to vary from 24 foot grids to 30 foot grids. Although rectangular grids are acceptable, the square grid lends itself to a more useable space.

Store front design should be left up to the individual leasee. The architect should prescribe a code or outline of acceptable features for signage, overhangs, materials, lighting, colors and any other feature. Preferably the store front line should not be located on a column line, thus giving store front designers much more flexibility.

Ceiling heights should vary between 10 foot to 12 foot, if no mezzanine is located within the store. With the energy crisis at hand designs should tend to try and minimize the volume of spaces. The ceiling heights mentioned do not reflect the mechanical plenum space required. Again, plenum dimensions should be kept at a minimum to help ease energy use.

Service corridors for goods coming in and out of the rental
space should be ample for movement of goods, trash and employees. The corridor should service the maximum amount of stores with minimal length.

Restaurant

The amount of eating space in similar malls is about 1.0 to 1.5 seats for every 1,000 square feet of "gross leasable area." Considering the location of the mall to business and convention the amount of eating spaces should probably approach the higher end of the spectrum. The ratio of fast food and full course meal restaurants is about 1:2. That is, one-third of the facilities are fast food while two-thirds are full-menu. In addition the mall should offer some businessmens lounge that would cater to lunch time executives as well as evening theatre traffic.

The restaurants that will cater to the mall shopper and lunch time eater can be located within the mall and function on normal mall hours. The restaurants and lounge that cater to the late evening user should be able to accept patrons while the major portion of the mall is secured after business.

The two major concerns for placement of the restaurants are:
1. Location,
2. Receiving and trash removal.

The location is important so the facility will have adequate traffic flow and use. The location is also important for reasons of operation, i.e., receiving and trash removal. Restaurants deal with perishable items and this creates odor, filth, vermin and other unfavorable problems. Therefore it is necessary to be able to get goods in
and out of these areas in an orderly fashion.

One last consideration for restaurants is the kitchen. These areas create noise, odors, moisture and heat. They require an intense amount of mechanical services such as electricity, gas, water, sewage and fire protection. Location of the kitchen should consider the neighboring tenant on the side as well as below or above.

Ice Rink

The inclusion of an ice rink is not certain at this point.

Requirements for the ice rink include:

* 200 feet by 85 feet rink area
* Ticket and office area
* Locker area and skate rental
* Rest rooms
* Concession area
* Mechanical equipment
* Seating for spectators (100--200)

The operation of the ice rink should be independent of mall hours. The rink should be visible from the mall concourse area but physically secure from those areas, thus making it possible to operate without extra security to patrol the closed stores. Activity generated by the rink can be great. People watching hockey games while shopping, mothers letting the children skate while she shops and ice festivals, displays etc. In order to make the rink function many issues have to be considered which include:

* Private entrance for extended hour operation.
* Mechanical problems of additional heat load during winter.
Cooling gain in summer.

* Compressor locations which create noise, vibration and heat.
* Disposal of ice shaving from ice resurfacing equipment.
* Egress of spectators in emergency situations.

**Mall Concourse**

The mall concourse area is the pathway or circulation through the mall. The shopper spends a great deal of time in this area walking, resting, talking and just window shopping. In the 1930's people would go to the train station to see activity, in the 70's people flock to the mall just to walk, shop and see activity in the mall areas. This area reflects the entire attitude of the mall. If it is sterile, most likely most users will feel the mall to be sterile or uninviting.

This common area has so many possibilities, it can be the continuation of displays that are in the Cultural Center, it can act as a forum place for politicians to meet the city people, sort of a public "soap box." It can serve as a resting place for shoppers, an art fair, a dog show or an endless amount of other functions can occur within.

The mall area should be a sincere statement of well being, not formal, not gimmicky, but sincere and honest. A pleasing environment that stimulates the audio, olfactory and touch as well as the visual senses. Seating should allow the user to sit in the crowd or alone in a secluded place. The main concern is to give the user a choice of activities rather than only one. Excite the senses, so the shopper will return to enjoy the same feelings again and again.
Movie Theatre

The movie theatre within the mall has advantages as well as disadvantages. At times there are activity overlaps when a person comes to the movie and utilizes a parking space that a shopper could use. Overall the extended theatre hours help utilize parking spaces and facilities which otherwise would be idle.

The theatre has certain considerations that must be resolved. They usually require extra soundproofing, more air conditioning and lobby space. Other factors include additional restrooms, fire exits and increased fire protection around the projection booth.

Location of the theatre should be in close proximity of other functions that are open while "normal" mall operations are closed. Clustering of restaurants, lounge, ice rink and theatre might be advantageous for security purposes. One portion of the mall that serves these functions could be locked off from the retail section and give two advantages:

1. Security personnel could patrol this smaller area easily,
2. Night time patrons are confined to a smaller area which makes the facility seem filled with more activity than if it were spread over a large area.

Parking

The urban mall requires parking as a suburban mall does but the ratio is smaller due to the fact that a good many shoppers arrive by public transit. Suburban malls require 5-6 parking spaces for each 1,000 square feet of gross leasable area while urban malls require 2.5 to 3 cars per 1,000 square feet. Existing on the southeast corner of
the site is a city owned parking structure which holds 422 cars. This structure is used almost to its fullest by businessmen and shoppers. Traffic studies indicate that auxiliary on site parking should be 1,000 cars which will give the center a 5 car to 1,000 square foot ratio.

When this new garage is in place, the existing could be turned into "monthly lease spaces" and leave the new structure available to shoppers. Such a parking structure can "turn over" a parking space three to four times a day, thus increasing parking revenues. Parking space layout should strive for 60 per cent parking with 40 per cent circulation. An efficient garage uses about 300 square feet per car. Estimated size of the parking structure is 300,000 square foot.

Careful consideration should be made in respect to parking entrance and exit for cars headed in all directions. These car traffic patterns should not conflict with truck delivery patterns or pedestrian paths.

Security for the shoppers and automobiles is a vital aspect. If vandalism and attack become an issue people will be reluctant to come and shop while it is dark. Parking ramps and levels should be well lit and patrolled either by camera or foot patrol. Patrons should also be able to enter the mall through an enclosed walkway from the parking area. Total protection from the harsh elements of rain, snow and hot sun are a definite advantage over suburban malls.

One last consideration for the parking structure is the structural system. It is possible that 30 years from now the car might be just a memory and some sort of mass transit will be predominant. Therefore we should consider the future use of the parking garage. If all
levels of parking are ramped, rehabilitation of the structure is dif-
ficult. Consideration of parking levels being flat is practical with
ramps being the only sloping parts of the structure. This also adds
to the safety factor that a car is unlikely to "slip out of gear" and
cause property or structural damage to the building. If cars become
obsolete developers can enclose the structure, add mechanical systems
and have a usable building.

**Bus Terminal**

At this time the southwest quadrant of the site is serving an
inter-city bus terminal. The downtown area is in vital need of a more
permanent system for bus transfering. Since the mall is located in
the central city, officials hope that use of the public transit to
reach the mall will increase.

As part of the mall development, the bus terminal needs reloca-
tion and better facilities. It has been proposed that Jefferson
Boulevard be turned into a transit mall. The street would then be
accessible only to buses and taxis. The two banks located on the street
have opposed this plan due to the feeling that it would make their
locations unaccessible and undesirable. A functional and desirable
solution must be found.

Hopefully the terminal can be integrated into the overall plan.
The terminal should offer bus patrons a sheltered area to await for the
buses. A pleasing canopy might also offer these people shelter while
boarding the bus. This terminal should also offer direct and covered
entrance to the mall with this entrance having access to the mall,
theatre and ice rink.
The terminal shall be designed to help reduce the undesirable effects of the urban bus which are noise, odors from exhaust, oil droppings and vibration. It is displeasing to a person in the theatre or restaurant to endure the constant noise and odor that a steady flow of buses offer.

**Mall Administration**

The function of this office area is basically for management of the complex. Responsibilities are day-to-day operation, supervision of maintenance and security, tenant relations and compiling statistics on the mall operation. The typical mall requires between 1 per cent -1.75 per cent of "gross leasable area" to perform these functions.

**Space requirements include:**

* Private offices for Manager and two subordinate officers.
* General file and secretary area.
* Communications and public address control room.
* Lost and found with space for lost child holding area.
* Conference room.

Location of the administrative offices should obviously not be in a high traffic area but rather in a more settled area. This location should not be so obscure that management loses touch with mall activities.

**Security**

Security of the mall is basically broken down into two distinct activities, normal operation and closed operation. During store hours the security force is in normal operation of traffic control, crowd
control and general observation. Shoplifting patrol is usually the responsibility of the private tenant. The number of security personnel varies with the mall activity such as exhibitions, shows and various mall events. Closed operation security is in force when the mall is closed and concentrates on building security from vandalism, theft, fire and mechanical systems malfunction.

Security office location should be adjacent to mall administration and allow access to central communications. The security office can be the information center for security equipment (video tape, audio surveillance, panic alarm), fire detection equipment and mechanical malfunction indicators. Space should be allowed for locker area or lounge which may double as a briefing room for security personnel.

Maintenance

The duties of the maintenance staff include day-to-day cleaning, maintenance of parking facilities, lighting fixtures, mechanical equipment for mall area, opening and closing of the building, assisting in exhibition erection and clean-up and so forth. The space required to perform these tasks averages around one per cent of G. L. A. Spaces required include:

* Janitorial equipment storage.
* Workroom for repair of various equipment that needs repair.
* Storage room for ladders, brooms, scaffolds, etc.
* Stock room for light bulbs, standards, door hardware, plumbing supplies etc.
* Locker room or lounge
* Small administration office (80 square foot).
Loading Dock

The loading dock area tends to create a trouble spot for a number of reasons. The constant flow of large trucks which deliver goods and remove waste cause conflicts with pedestrian, auto and bus traffic when backing in and leaving. The dock area itself, due to its functional characteristics, generates noise, odor, filth and vermin. Very close attention should be given this area in design and maintenance.

The dock area should have a location that allows truck movement to happen independently of pedestrian and auto traffic while at the same time offering a central location so the maximum number of stores may be serviced with the minimum amount of service corridor.

The center can expect to handle .23 trucks for every 1,000 square foot of G. L. A., or in this case 46 trucks per day. The docks should be designed to handle 15 per cent of those trucks at one time. Therefore the truck dock should offer a minimum of seven truck slots. Not all trucks will be pulling 40 foot trailers, therefore 4 to 5 bays may be designed to handle a large step-van type truck and 2 or 3 bays can handle a regular semi.

The final consideration of the truck dock area is trash storage and removal. These areas generate odor, filth and vermin. Some centers have used specially refrigerated rooms to retard spoilage of waste and reduce odor until the trash is removed. Other centers have installed systems to compact waste and thus require less storage space for trash. Both approaches are expensive and the refrigeration technique proves too costly in installation and energy usage. The alternatives are to just use conventional systems of trash bins or an energy-reclamation
unit. Trash bins tend to allow vermin, odor and filth to get out of hand, the best option is the energy unit. The energy reclamation unit is basically a incinerator that fires a boiler to produce steam which can be used to heat, cool or generate electrical power. These units are expensive but cost is out-weighed by energy production and elimination of odor and filth. Also, the waste that is removed from the center is reduced to ash and therefore requires less frequent traffic by trash removal services.
V. COST/BENEFITS

One of the major constraints of a large project is cost. We can spend precious time designing and planning a complex and find out to late in the game that costs will be prohibitive to the project if we do not pay close attention to costs early. At this stage of programming a cost analysis is somewhat obscure. Costs can be calculated more accurately after a quantity analysis of space is made. For this stage we can get a ball-park figure which can be used as an index for other costs. The total project costs takes into account many areas. Listed below are the percentage of costs that other mail projects have incurred.

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<thead>
<tr>
<th>TOTAL PROJECT COSTS</th>
<th>(Percentages)</th>
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<tbody>
<tr>
<td>Per Cent</td>
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</tr>
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<tr>
<td>Equipment</td>
<td>7</td>
</tr>
<tr>
<td>Mechanical</td>
<td>13</td>
</tr>
<tr>
<td>Contingency</td>
<td>9</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>15</td>
</tr>
<tr>
<td>Land Costs</td>
<td>3</td>
</tr>
<tr>
<td>Fees</td>
<td>4</td>
</tr>
<tr>
<td>Administration</td>
<td>4</td>
</tr>
<tr>
<td>Financing</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
The actual building cost is usually 84 per cent of the total project cost. Using gross square foot calculations we can obtain a basic project cost. Sources used for this analysis were the Marshall and Swift Cost Publication of December 1976 and Dodge Digest for Building Costs May 1976. To project the cost to the present day figures the cost index for building cost was used from Engineering News Record. The prices shown are only rough projected costs based on assumptions of required activity space.

**BUILDING COSTS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>100,000 square feet of office space shelled-out @ $35.00 per square foot</td>
<td>$3,500,000</td>
</tr>
<tr>
<td>250,000 square feet of shelled-out interior for tenant space @ $32.50 per square foot</td>
<td>$8,125,000</td>
</tr>
<tr>
<td>75,000 square feet of mall space and supportive areas @ $39.50 per square foot</td>
<td>$2,962,500</td>
</tr>
<tr>
<td>22,000 square feet for ice rink and equipment @ $51.00 per square foot</td>
<td>$1,112,000</td>
</tr>
<tr>
<td>500,000 square feet of parking garage @ $12.50 per square foot</td>
<td>$6,750,000</td>
</tr>
<tr>
<td>November 1977 Cost</td>
<td>$22,449,500</td>
</tr>
</tbody>
</table>
## PROJECT COST

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Building Cost</td>
<td>$22,449,500</td>
</tr>
<tr>
<td>Land Cost</td>
<td>$750,000</td>
</tr>
<tr>
<td>Fees</td>
<td>$600,000</td>
</tr>
<tr>
<td>Administrative</td>
<td>$600,000</td>
</tr>
<tr>
<td>Financing</td>
<td>$750,000</td>
</tr>
<tr>
<td>Total Project Cost</td>
<td>$25,149,500</td>
</tr>
</tbody>
</table>

This cost figure is well within the limits of other projects. The original Superblock was estimated to be a 55 million dollar project for 1,632,000 square feet that figure gives a $33.70 per square foot project cost. The project cost for the new proposed urban center is $29.31 labor, material and other costs rising it is to the advantage of the client to proceed with planning as fast as possible.
VI. SCHEDULING

Scheduling of a project of this size is very important when there are so many facets of the planning stage that go on simultaneously. Designers, financiers, tenants and users all need to know what to expect and when. The most useful tool is the development of a "Critical Path Chart" that identifies all crucial steps in the total project. The scope of this section will be to identify the major architect/client phases that will take place. Each one of these phases requires a specific amount of time to carry out, no matter how large the architectural firm is and the client should not try to force the architect to speed things up or the end result will be that the client will not receive the benefits of a well thought out design. The method of increasing the speed of the project is to "Fast-Track" the project. This method is achieved by letting each phase overlap the other phases. It must be understood that when the fast-track method is used communication and cooperation between the project teams must be optimum. A graphic representation of each method is presented on the following page.

Programming Stage--This report is the near completion on the program stage. In this stage we have looked at goals, facts, concepts, needs and have identified issues and problems.

Schematic Phase--This phase includes site analysis of traffic, pedestrian, utility, codes, and other environmental factors. The
TRADITIONAL SCHEDULE

2 mo. 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42

FAST-TRACK SCHEDULE
functions are studied and relationship studies lead to a set of conceptual ideas of activity location, structure, form and preliminary costs.

**Design Development**--This phase continues from the schematic phase, after a workable concept is decided upon the architect will start to work out actual bay sizing, ceiling heights, true dimensions, materials, form and more substantiated costs.

**Construction Documents**--This phase is a continuation of the design development. The architect will prepare drawings which identify structural sizing, materials, heights and all data necessary for construction. A set of specifications will be assembled to identify and qualify all fixtures, materials, requirements and scope of each trades work. Estimated costs plus or minus ten per cent of the actual costs will be made.

**Bidding**--Using the construction documents all phases of the work will be put out for contractors to bid on. Bids will be due on a specific date, after that all bids will be opened, analyzed and contracts awarded.

**Construction Phase**--After contracts are awarded the construction phase will begin. This phase is the actual placement and erection of the physical structure. This phase will be the longest and require the most organization and cooperation from all parties as well as weather.

**Interior Construction**--After the major portion of the mall is complete each tenant will have to finish out the interior of their respective store and store front. The tenant will also stock their stores and prepare the store for business.

**Opening Stage**--Depending on the manner in which the mall manage-
ment desires to handle this the time span will vary. The mall can be opened section by section or the entire complex opened all at once with one large grand opening.
PROJECT
DATA
FACTS ABOUT SOUTH BEND

Founded 1923 • Incorporated 1855 • Population 125,580 (1970 Census) • Second Class City
Area 32 sq. miles • Altitude 715.167 ft. above Sea level • Latitude 41°38.887' • Longitude 86°41'
Housing Units 43,044 • Assessed Valuation $281,977,890

OUTSTANDING INDEBTEDNESS 12/31/75

PAID OUT OF TAXES:

Civil City: General Obligation $1,190,000
            Park Bonds 1,309,000
            Urban Redevelopment 3,633,000 $6,122,000

South Bend Public Transportation Corp. 900,000

School Corp: General Obligation 1,925,000
              Holding Corp. 21,185,000
              TOTAL $23,110,000

South Bend's share 74.6% 17,240,060

County: County City Bldg. 5,250,000
         South Bend's share 52.5% $2,758,050

TOTAL PAID FROM TAXES $27,028,310

PAID FROM WATER REVENUE:

Water Works Improvement 1,235,000
Waste Water Treatment Plant 8,195,000

PAID FROM PARKING METER RECEIPTS, GARAGE INCOME & CCIF:

Parking Garages (2) 3,420,000

* GRAND TOTAL Outstanding South Bend Debt $30,643,310

* Does not include $6,985,000 Redevelopment Dept. Debt and $5,290,000 Civic Center Bond Issue

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>From Taxes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Revenue</td>
<td>$20,292,046</td>
<td>$20,230,720</td>
<td>$20,122,024</td>
<td>$20,842,258</td>
<td>$10,958,655</td>
</tr>
<tr>
<td>Paid from Parking Meter</td>
<td>8,100,000</td>
<td>11,253,225</td>
<td>9,815,000</td>
<td>9,315,000</td>
<td>8,769,000</td>
</tr>
<tr>
<td>Receipts &amp; Garage Income</td>
<td>3,600,000</td>
<td>3,600,000</td>
<td>3,570,000</td>
<td>3,520,000</td>
<td>3,470,000</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td>$31,998,046</td>
<td>$35,186,945</td>
<td>$35,507,034</td>
<td>$33,778,259</td>
<td>$33,778,259</td>
</tr>
</tbody>
</table>

(South Bend Debt)

SCHOOLS:

Public: 2 Middle
        7 Sr. High
        34 Elementary & Jr. High
        2 Special

Parochial: 2 High
           13 Elementary
           1 Jr. College—Enrollment 275

LIBRARIES: Main Library; 4 Branch Libraries plus 2 Bookmobiles. Total Volumes: 304,406; 1,076 Periodicals; 44 Newspapers:


WATER WORKS: 3 pumping & 1 booster stations; 25 wells with a capacity of 87,000,000 gallons per day; 415 miles of water mains;
33,298 metered accounts; 3,183 Fire Hydrants.

STREETS: 399.24 miles maintained by city; 24.63 miles maintained by state; 340.44 improved; 56.80 unimproved; 19 miles of improved alleys; 163.30 are unimproved.

ROLLING EQUIPMENT: Street Department: 2 Sedan, 2 Station Wagons, 1 Travelall, 10 Pick-up Trucks, 4—1 ton trucks, 28 Dump Trucks; 4 Graders, 3 Front End Loaders, 2 Oil Distributors, 3 Flushers, 9 Sweepers, 2 Slurry Machines, 1 Asphalt Paver, 2 Rollers, 2 Compressors, 4 Tar Kettles, 10 pc. Auxiliary Equipment, Sanitation Department: 12 trucks, 1 Pick-up, 1 Car. Traffic: 10 trucks, 1 Paint Striper, 1 Station Wagon, 1 Car.

PARKING METERS: 915 meters; 1975 revenue $127,005

FIRE PROTECTION: 277 firemen and alarm operators budgeted; 11 station houses; 160 alarm boxes; 3,188 fire hydrants; 12 pumpers;
3 fire trucks; 4 engines; 2 ambulances; 2 market; 1 light truck; 1 boat truck; 2 chief cars; 2 standy pumps; all with 2-way radios.

POLICE PROTECTION: 273 police officers; 61 school auxiliary police; 15 police cadets; 12 max.

CARS: 42 uniformed Patrol (1 canine); 5 administrative vehicles; 1 bomb disposal unit; 1 armored car; 2 patrol wagons; 3 jeeps, 1 bus;
33 wheelers; 5-2 wheelers; 25 detective and special, all with separate 2-way radio systems; 169 Portable Radios.

PARKS & PLAYGROUNDS: 50 comprising 1,312.25 acres; 66 intersection street center parks and Cul-de-sacs; 37 Supervised summer programs; 3 outdoor pools; 3 wading pools, plus Pinnoak Beach; 5 indoor pools, 43 baseball diamonds (3 lighted); 69 tennis courts
4 tennis courts; 11 football fields; 2 fishing sites and 1 boat ramp to St. Joseph River; 1 band shell; 1 conservatory; 2 zoos, 3 greenhouses;
2 botanical gardens; 1 var. of desert; 1 nature center; 3 golf courses, 3 recreation centers; 2 senior citizens clubs; 13 picnic areas with facilities for 6,000 meals.
Soil Boring Data:


They bored to depths of 25, 50, and 75 feet below grade. Six of the borings went to 75 feet; 11 to 50 feet; and 5 went to 25 feet. (See page at end of this subject.) I was allowed only limited license in duplicating these findings - but was given a complete copy to use as design references.)

Throughout the site, fill dirt runs from the surface to approximately 10 to 15 feet below grade in most places, except under the remaining foundations of previous structures located in the middle of the depression on the site. The report provided several recommendations for filling the depression should the client or architect deem it necessary, but noted that St. Joseph Street is seven feet lower than Michigan Street, therefore the possibility of leveling the site is not practical cost-wise.

Medium-density sand lies below the fill, in an undulating layer, at a somewhat constant layer thickness of 10 ft. The sand layer is slightly lower toward the river, rising toward Michigan St.

Under the sand is a layer of moderate-to-dense grey clay, approximately 30 ft. in thickness, again rising toward Michigan St.

Dense sand lies below the clay, and gradually turns to clay again - of a dense-to-very-dense grade.

The report makes reference to various geographic surveys conducted at and near the site, and indicates that at an elevation of 576 feet above
Soil Boring Data:

sea-level (or 100-125 feet below grade), shale bedrock is encountered. The water table on the site occurs at 567 m.s.l.; and at 689 m.s.l., ground water begins to appear.

The sand throughout the site is categorized as Tyner loamy sand, with a profile of neutral to slightly acidic.

Since bearing capacity is a necessity in determining the framing philosophy of the structure, a test was conducted with a penetrometer. It was calculated that a bearing capacity of 4.0 tons per square foot was possible, with a normal bearing capacity of 2.5 tons per square foot being advisable.
ANOTATED BIBLIOGRAPHY


Excellent short and precise report of feasibility, planning, considerations and costs.


Although this data is old, this book contains ideas and numbers on parking, pedestrian and service considerations. Very worthwhile reading.


A book that studies the spirit and life of the London Market. It talks about the people.


A study of the British shopping centers with analysis of site, economics, and new theories. Rather dated but has good photos of arcades and plazas.


A survey of implications and considerations for the design of a shopping center. Fairly good general idea source.


A "how we did it" study book of the impact that this mall had for planning success. Charts and graphs of all sorts of analysis.

Although the book is 17 years old it is considered to be one of the most complete and concise pieces of material on the subject. It has a few case studies. The best reference source available.

Holmes, J. D.  **Selected and Annotated Bibliography of Shopping Centers.** Bureau of Research: University of Texas, 1960.

A list of 300 books and articles that pertain to shopping centers. The majority of books are from the 50's and are therefore dated information.


A collection of outstanding shopping centers with plans, sections and photo's. Concepts seem useable, but most material is dated.


This is another book that is dated, but material and thoughts that are presented are very much essential for a good design. Worthwhile browsing.


A study of international cities of urban centers that attract people. This book concerns itself with site orientation within the city.


This book first studies considerations, design and construction, then has a section that documents recent developments. The information is current and presented very straight-forward. An excellent reference source.


Individual case studies of European and American cities and their urban centers. The individual study states goals and shows the planning, it also states chronic weaknesses.
Market Study Reports, Etc.


These I.U.S.B. professors compiled this report that outlines the cities growth in the past few years and projects where the city is going, financially speaking.

Why Sears Should Locate in an Enclosed South Bend Mall Downtown.

This report was put together by the South Bend Redevelopment Committee in an attempt to get Sears to commit itself to the Downtown Mall rather than a suburban mall. Some excellent data is displayed.

_____. "South Bend in a Box."

This "kit" is a collection of data about South Bend which a prospective business can look at if he is planning to locate in South Bend. It contains data on churches, schools, recreation, labor force, resources, rental facilities, other businesses in the area, etc. Very useful.


Periodicals


As only Architectural Record does with expertise, the entire journal focuses on stores and shops. Concerns itself with the individual design of stores.


The entire issue focuses on shopping centers. Most (3) centers that are studied are urban enclosed malls that are incorporated into office complexes, etc.


Again, the entire issue focuses on malls. This issue studies both urban and suburban mall structures.
SITE
ANALYSIS
FINAL
DESIGN