OHIO STREET: Improvement Study
by Darrell Garrison
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To my son, Quintin
I love you
This book has grown out of nearly twenty weeks of research into the quality of life in urban environments and the impacts of traffic and transportation on them. The purpose of this book is to create a record of design recommendations regarding street improvements within the city of Indianapolis' Central Business District (CBD). This book discusses the relationship between the pedestrian and the automobile and the development of malls, including feasibility analysis, planning and design. In reviewing mall feasibility, cultural factors such as traffic, transit, and parking are analyzed as well as natural factors like solar and climatic conditions, wind, and vegetation. This book also reviews the concept of a transit mall and streetscape improvements and provides information about the most interesting of the two. This book is by no means a complete documentation of my design process, but does begin to illustrate the approach used to achieve the final design.
ACKNOWLEDGMENT

My efforts that are exemplified within this book would not have been possible without the love and support of my parents, Samuel and Priscilla Garrison, who have supported me in every way possible—mentally, spiritually and financially.

In addition, I am indebted to my brother Lonzo Buggs, for his encouragement and persistent enthusiasm throughout the last five years while having to put up with a lot.

For their assistance in preparing this book, I wish to thank all those who generously provided information including various city planning agencies and departments, the Indianapolis Public Transportation Corporation, and especially Ms. Catherine Tanner of the Marketing Dept.

Thanks are due to my thesis committee advisors and critics George Young, J. Paul Mitchell and especially Malcolm Cairns.

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INTRODUCTION
The regional center of Indianapolis, Indiana, as with most American cities has become very successful in terms of growth and revitalization. The revitalization of the State Capital Complex, Military Park, The Central Canal Development, the construction of the American United Life Building, the White River State Park and proposals of the Circle Center Mall show a strong development potential toward the west. Although each element functions independently as a separate entity, each element affects the character of the city by the function it performs. An urban core link between the downtown area and these elements is vital to the image of the city as a regional center.

The intent of this project is to develop a pedestrian oriented environment along Ohio Street of Indianapolis inclusive of vehicular traffic. A secondary goal will be to establish, a prominence to the large natural amenity areas--The Central
Canal and Military Park, located along the western portion of the corridor by physically and visually linking these developments to the downtown core.

Due to city planning and corporate commitment, Indianapolis has developed into one of the fastest growing urban centers in the country. The this reason, downtown "people-spaces," pedestrian oriented areas are needed and justified.

**Rationale for the study:**

The principle reason for the study is that Ohio Street is of considerable economic importance to the entire city. It is imperative that this business/financial base become a node, a district with its own image and character within the Central Business District (CBD). A corollary rationale concerns Ohio Street's capacity to accommodate both
the pedestrian and vehicular traffic. An underlying assumption is that the study will examine the prospect of increasing the pedestrian environment while decreasing the automobile's right-of-way. A street improvement plan is needed to connect the western components together with the core as well as recapture urban open spaces for human use to encourage and enhance the experience of the pedestrians moving within and between the city's major activity areas.

**Key issues and major planning concerns:**

The major planning concerns identified along the Ohio Street Corridor are:

* Traffic circulation and transit
* Impact on vehicular circulation
* Location and character of existing structures
* Pedestrian movement
* Climatic conditions
* Military Park
* The Central Canal

Scope of work:

Throughout the course of my thesis curriculum, the following activities will have been completed:

1. Examine Ohio Street in terms of the corridor's social characteristics and its relationship to the CBD and city as a whole.
2. Analyze existing and proposed physical conditions along the corridor. This will include open spaces, vacant land, structural densities, public attractions and amenities.
3. Examine existing and proposed circulation and transportation routes and facilities serving the Ohio Corridor and surrounding streets.
4. Develop specific goals and objectives for the corridor including a general theme/image for
the area.

5. Develop a conceptual masterplan for the area which will enhance the pedestrian environment and the Historic/Architecturally significant structures/features along the site.
GOAL/OBJECTIVES

* To define the east-west corridor, Ohio Street, as the aristocracy—a distinct corridor within the Central Business District.

* To design a pedestrian-oriented environment for the Ohio Street Corridor that will create a visual and physical connection between the developments west of the regional center to the core.

* To create a design that will prove a combination of the natural and the built environment can be united within the city to provide a sense of order.

* To create a more habitable environment through a unified system of street hardware and furniture system that will give greater visual satisfaction as a pedestrian-oriented space and contribute to the improvement of this financial and business core's image.
-to develop elements that will create a scale comfortable for the pedestrian.

-to allow and provide for vehicular circulation along this "pedestrian environment" in a sensitive and unobtrusive manner.

-enhance the environment by extending the influence of the natural areas on the western fringe of the corridor into the business center.

-to provide active, passive, and participatory spaces along the corridor.

-to create an environment conducive to a lively, satisfying day/night variety of people activities.

-to design spaces along the corridor that will respond to a variety of essential requirements necessary for maintaining interest of all ages.
-to develop a pedestrian-oriented zone that will preserve the stability and integrity of the neighboring Monument Circle.

-to provide linking components that will unify the major activity areas.

-to create a transitional environment that has more character than just a flow-thru area.

-to provide a coordinated system of street hardware that will reduce visual pollution.
- ASSUMPTIONS/DELIMITATIONS

The first and foremost assumption of this thesis is that all pedestrian areas (sidewalks, building setbacks, alleys, etc.) become available for development.

I assume the surface parking lots located along the corridor available for development.

I assume the proposed State Judicial Building and the underground parking structure of the Capital Complex exist as actual developments on the sites currently proposed.

I wish not to include in my investigation:

-the construction standards of the street furniture and hardware used in this project.
COUNTY/REGIONAL CONTEXT:
Introduction

Indianapolis is a city which is on the move. Its growth has increased due to some influence involving plans developed by public/private partnerships for this central area (Indianapolis 2000, 1981). Certain elements of these plans are currently being implemented by large corporations as well as the private sector along Ohio Street, which serves as the heart, both physically and symbolically of the financial and business district of Indianapolis. Ohio Street is one of the city’s most important corridors as a vehicular artery, and is famed for its tall buildings and architectural styles. The developments along the corridor represent a wide cross-section of the cities history and society.

The project site selected spans the length of the prime "Business District" bounded by Martin Luther King Street (formerly West Street) to the west, Market Street to the south, Alabama to the east, and New York Street to its north. Ohio
Street being a major east-west transportation route, is easily accessible from all directions. Interstate 70 exits onto Ohio Street from the east. To the west, the newly improved and widened Martin Luther King Street with direct access both north and south to an Interstate. To the north and east, surface level parking lots border the project area which facilitate existing site developments, and the south along Market Street with its 1980 improvements, major retail and office developments span the length of the project site.

Entering this business corridor from the west, one is confronted with an intense interplay between the dynamic activity of the Central Canal Development and the visual complexity of the conflicting systems of lighting, parking meters, trash receptacles, news stands, etc., to the east, the architectural styles of the neo-classical Indiana State Museum and the contemporary, brick facade of the Market Tower II building, together
form a structural gateway into this dense financial business district giving a sense of arrival into the area.

Subjectively speaking, Ohio Street in its present form offers very little positive relationship to the actual businesses and servicing functions located along this seven-block area. The relationship that the corridor currently has to the core is generally negative in that it does not encourage commercial and social interaction. The corridor does not provide livable spaces for the employees of these offices to enjoy nor experience.

The existing conditions of the corridor are described for the area as a whole except in the Visual Survey section. There, for purposes of a more detailed description, the corridor is broken down and divided into sections by cross-streets.
OVERVIEW

Through design, this corridor can become an enjoyable space. However, currently, it is a combination of two worlds. For the pedestrian, it is a desert devoid of benches unrelieved by the continuity of a master-planting scheme of trees, while to the motorist it is a jungle of traffic lights and signs. For this project as with most landscape and urban design projects, a visual reconnaissance of the physical elements, conditions, and existing features to be enhanced or de-emphasized, is an important step in the overall design process.

Environmental and Physiographic Conditions:

a) The Temperature and Relative Humidity:

The average daytime temperatures range from -18 degrees F. to the upper 90's throughout the course of the year. Relative humidity remains on an average of or near 61% most of the year, but increases slightly during the period from
November-January.

b) Elevation and Topography:

The corridor is located 715 feet above sea level. Central Indiana located within the Midwest, the topography is relatively flat. Visibility from one of the corridor to the next is unobstructed by the slight elevation changes which range from 714-715 feet contours with the highest elevation located at the eastern boundary of the site.

c) Wind System

Ohio Street is cooled throughout most of the year by winds which blow from a south westerly direction. Seasonal northwesterly winds occur primarily during the winter months. Due to the building heights in a few areas of the corridor, the winds are funnelled creating wind tunnels which cause wind gusts.
d) Solar Analysis

To communicate the sun pattern along this corridor, altitudes and arbitrary times were selected and studied.

During the summer months—June 21, the elevation of the sun is 49 degrees from the surface at 9:00am and 3:00pm and climbs to 74 degrees by noon. Calculating the same times only during the winter—December 21, the altitude only climbs to a 14 degree height in the morning and evening while reaching a maximum of only 28 degrees by noon. These angles coupled with the structural heights contribute to an almost always shaded south side.
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**Streetscape Conditions:**

a) Sidewalks and streets

As in most cities, city planners in Indianapolis ignored the street as a public space. "Streetland (as property) is often in private ownership, but the public improves and maintains the street space..."
(as territory). The public controls the use of the street. In theory, streets are for public use. However, in practice, most streets in this country's cities are dominated by only one branch of the public, the automobile" (Mouden, 1987, p13).

Within the downtown core, the city of Indianapolis utilizes the traffic pattern and guidelines as originally laid out in the Alexander Ralston plan. The Ohio Street corridor consist of six-lanes of east-west circulation, while contiguous streets provide for one way traffic alternating vehicular direction in each of the succeeding blocks with the exception of Meridian Street.

Along Ohio Street, the entire street width is successful in moving traffic and maintaining a consistent flow with a few minor exceptions where curb-side metered parking is permitted. Normal weekday traffic is heavy due to the entrances and
exits of the various traffic generators—the parking structures and surface lots, that depend solely on this corridor for access. The pavement, however, is in good condition and the lane markings well maintained.

The sidewalk is the most important visual as well as functional element to the pedestrian in an urban environment. The sidewalk circulation system of this was constructed, without a street plan, by private ownerships and developers. According to the Department of Metropolitan Development (DMD), with the construction of new buildings and developments, the adjacent and abutting easement area was designed. The lack of master-planning has resulted in the use of conflicting materials and "patch-work" walks of various textures, colors, heights, and widths. These visual cues, while individualizing each development, lack continuity within the corridor de-emphasizing the overall image of this street from any other street within
the core. These sidewalks that serve the commercial and civic core of the city, are among the busiest in all of the downtown area. Office workers and there employers are the prime contributors in the crowding of the sidewalks along the corridor. A few of the contiguous streets have changed their street and curb contours to accommodate the increasing number of pedestrians providing convenience at street intersections, however, many have conflicts of which almost all involve the pedestrian loading and unloading zones for either transit, or commercial vehicles. Otherwise the existing gridiron pattern of 60’ streets and sidewalks ranging in widths from 4-15 feet prevail.

b) Buildings and Open spaces

Office development has been the regional centers one consistent successful, private sector
development pattern; the major corridor's activity. Ohio Street experienced the same office construction boom that occurred nationally between the mid-60's and 70's. As in the rest of the nation, there was little to no construction activity in the latter 70's, but the corridor experienced a resurgence in construction in the 80's with the construction of the Capitol Center Towers, the American United Life Insurance Tower, and the Bank One Building. This continuing development in the office market is constantly improving the corridors present strengths. The corridor combines three primary ideas in structures: banking, service centers, and offices. These take the form of a high rise building with a local or regional bank occupying the first couple of floors with the other floors being occupied by doctors, lawyers along with other various executive types.

The visual image of the corridor consists
primarily of an interesting variety of office buildings and facades. A vast amount of openings exists in the building line which varies the density of mass while giving character to the downtown skyline. The construction of the latest contemporary office structures developed along the corridor, add character to the groundplane as well by the shape of the structures and its locations on the site; but most are typically modest in shape, yet structurally sound.

The pedestrian feeling of enclosure, being surrounded, or contained is defined by the heights of the buildings, the ratio of height to street width, the presence or absence of vacant sites, and the streets openness to sunlight. Along Ohio Street, many of the buildings range in height from 10-40 floors which coupled with the 60' street width, contribute to a cold dark "walled-canyon" along several areas of the site. There is a considerable variation in the sense of enclosure
within the project study area due to the extensive varying heights and setbacks of these buildings.

Located within this dense office market, lies a small cluster of structures housing specialty shops which generate a sensitivity to "Old Main Street," which emphasize Indianapolis in history. These shops have taken advantage of the use of canopies that tend to soften the scale of what otherwise, is a harsh environment.

There are little to no pedestrian open spaces along the heart of this financial district; and the ones that exist are not utilized as an activity node due to the lack of pedestrian needs and attitudes in the design. The area in front of the Federal Court Building has potential to become a high amenity area for social interaction, but the pedestrian is prohibited to truly experience the space.

Alleys make up a very small percentage of spaces along the corridor. Out of the 7 alley-ways
that bisect the site, only one makes an attempt to encourage pedestrian usage. Unsuccessful in its try, this space is almost always desolate due in part to its design and the micro-climatic conditions that exist.

A dynamic pedestrian amenity area has been created along the west end of the corridor surrounding the canal. Office workers, and there employers are the prime benefactors of this space.

c) Landscaping

Green space is almost nonexistent along the heart of the core. The need for foliage and plantings is very evident although some recent tree installations has been sponsored by private developers for their property and project site only emphasizing the lack of unity and continuity in plant material and planting techniques.

The absence of street trees along various parts of the corridor, and especially the north side,
limit the protection from the direct and reflected heat and glare of the sun during warm conditions. According to Markley Stevenson, not only does this lack of vegetation contribute to the pedestrian's physical discomfort, but it restricts his spiritual well being as well. (Arch. Rec. 1978, p.477)²

d) Street components and furniture

The predominant visual image of the corridor is a profusion of public equipment and signs in no apparent order. In the war for pedestrian awareness, many of the components are in competition for space either on the sidewalks or attached to poles. Many of the components are uncoordinated in size, shape, and even materials. Instead of these products distinguishing this business corridor image from the rest of the core, it merely contributes to the visual pollution of the city. The street furniture along the corridor consists of newspaper vending machines, trash
receptacles and free standing transit shelters only. No furniture that is conducive to initiating and encouraging pedestrians to pause, experience, and to become a part of the urban scene is evident. Parking meters at 20' intervals line both sides of the outlying corridor in areas which when in use, restrict the use of the right-of-way lane for automobile and transit vehicles reinforcing the image of clutter and congestion.

Individual elements such as signs and transit stop shelters seem to be well maintained and in good condition, in totality, they appear redundant and excessive lacking any type of pattern placement. There is little uniformity in the location of most objects especially trash receptacles and newsstands. Even the placement of street light poles vary from the rhythmic pattern from curb-side placement to the right of the pedestrian path.
e) Lighting

Existing lighting along Ohio Street consists of various types of old and new lighting poles. These 30' high light poles are located approximately 100 feet on center to obtain a high level of illumination. Unlike the neighboring Market Street, the staggered lights are directed toward the roadway for motorist, without regard for pedestrian need. The emphasis on roadway lighting and convenience for motorist is not balanced by safety, convenience and amenity provided to the pedestrian.

Cultural Conditions:

a) Users of the Corridor

The users of the corridor consist of:

- Professional and related workers
- Clerical and related workers
- Government workers
- Transit commuters
b) Vehicular Circulation

Circulation patterns have drastically been altered with the implementation of the I-65/70 Interstate. With this Interstate serving as an eastern boundary to this regional district, the Corridor serves as a flushing agent into and out of the Central Business District. This major east/west transportation route is becoming somewhat hectic for the motorist due to the increasing office developments and other traffic generators that heavily depend on this major thoroughfare.

Within the downtown area, Ohio Street carries about 14,225 vehicles east and westbound in areas along this business route. Currently a significant number of people and businesses depend on this corridor as an important primary artery of the urban core. No major vehicular congestion is evident, however, most people who come to the area
arrive by automobile according to the DMD. The downtown blocks are 400 feet in length which contribute to a moderately spaced street system which encourages left turns and circulating movements while providing a stable flow of traffic at relatively moderate speeds. Generally speaking, no serious congestion problems exist, but general access and circulation problems could be eliminated and removed by planned street improvements.

User loads during the peak hours (6:30-8:30am and 3:30-5:30pm) involving the motorist account for a large portion of this urban intensity as many workers scurry to and from their prospective places of employment and destinations. Pedestrian activity increases as many of these offices release their employees for lunch or some other noon-time activity (11:00am-1:30pm).
c) General Transit Conditions

Indianapolis has an extensive and frequent transit service, a fifty-one route system including several cross-town and inner city trolley routes; forty-nine of which converge into what is known as the "Downtown Loop." This loop consists of six urban streets which combine to make a transit route around the heart of the city: Washington Street to the south, Capitol and West Streets to the west, Delaware and Alabama Streets to the east, and the Ohio Street Corridor which makes up the northern leg of the loop. The Indianapolis Public Transit Corporation (Metro) focuses its services on the downtown destination or transfer. As of 1981, 13% of the regional centers work force utilized this transit service as its primary mode of transportation; today, according to Catherine Tanner of the Marketing Dept., ridership and patronage has dramatically increased to 20% as a direct result of the creation of this loop.
Within the Downtown core, traffic-flow and direction changes has been proposed for Washington Street—the southern leg of the loop. A conversion from a two-way to a one-way westbound circulation within the core. This will then become part of an east-west pair formed with Maryland Street.

According to transit authorities, this futuristic conversion will have a dramatic affect on the city’s transit service. Circulation re-routing is uncertain, but incorporating Maryland Street into the loop is at present, a strong possibility.

Along Ohio Street, transit vehicles run in both directions; 29 service routes of which run westbound while only 18 routes and 2 trolleys utilize the corridor to make up the eastbound return. Bus volumes vary significantly during peak hours along the corridor. During peak hours, 6:30-8:30am and 3:30-5:30pm, westbound bus volumes reach to 82 trips per hour (tph), while eastbound volumes reach only to a maximum of 25 tph and 7 trolleys.
During non-peak hours, 8:30am-3:30pm, westbound volumes manage to reach 40 tph while eastbound has no circulation at all of service routes with 7 trolleys. Between the hours of 5:30pm-12:00am, 18 routes head west with no transit activity at all eastbound.

d) Parking

Within the Historic Mile Square, there are about 34,138 parking spaces available to the urban commuter (Indpls. Division of Planning & Zoning, 1981, p.52). Parking demand and supply along the corridor is generally balanced. Within the seven-block area, most people are able to park in the block or in an adjacent block along this east-west spine. There are eight parking garages, most of which are visually apparent, that are accessible from Ohio Street. Most businesses along the corridor provide for their own parking needs. However, according to the Metropolitan Planning
Commission, within the regional center, office developers have provided on average for only 57% of their parking demands. Ohio Street plays a major role in daily parking provision for the mile square. This general balance of supply and demand works well for the employer demand, but not well for the urban shopper. This has proven to be a deterrent for a continued strong urban retail center. The supply-demand balance also does not describe the special needs of office visitors. "offices particularly dependent on the continuing availability of close-in parking for clients, executives and special need employees."

(Indianapolis Division of Planning and Zoning, 1981, p.52).

Metered curb parking to the extreme east and west of the project area make an attempt to accommodate office clientele and visitors, however, the inflexibility of the time lengths and the ever present metermaids, result in anxiety and mental
anguish. These meters also contribute to the obstruction of flow through traffic and the use of public right-of-ways during non-peak business hours, but vital to the success of the various developments and activity nodes located on the periphery of the site.

To clearly communicate the information contained in this section, the Visual Survey will be discussed in terms of Blocks.

Alabama to Delaware St.

* The Landuse Activity Pattern: The landuse activity pattern consist primarily of medium density office structures, a parking structure, two small restaurant chains and the historic State Museum. An eight car surface lot has temporarily been housed on a vacant site within this area.
* Setting and Form of Buildings: The Museum and the Market Tower II form an entry into this district from the east. The office structures have varying heights and moderate site coverage. The mass of these structures are broken up by bisecting alleys. The alley located directly behind the State Museum is only 12 feet in width and used only for loading and unloading purposes for the Museum. The next bisecting alley is actually a street leading into a surface lot for these structures and permitting metered parking along its east side. The third alley has been developed into a pedestrian link for the City Market.

* Sidewalk Character:

Physical condition: Walks are well maintained, privately owned sections of streets reflect lack of unity in street components such as tree grates and planting material. Planting exists only on the south side of street.
Parking: Curb-side metered parking on both sides of street with a parking structure that has a 474 car capacity.

Loading: Two 20-minute loading zones within this block do not seem to affect traffic due to the curb-side parking that is permitted.

Delaware to Pennsylvania St.

* The Landuse Activity Pattern: The landuse Activity patterns in this area are similar to those in the previous block; however, there are two high rise office towers—Indiana National Bank and First Indiana. The Indiana National building has extensive site coverage on the north side of the street. A small cluster of mom-and-pop shops provide a distinct character for its immediate area.

* The Setting and Form of Buildings: Indiana National Bank building serves as a character area for the block (landmark) in that it at one time was
the tallest structure in the State. The setback of the Indiana National Bank tower allows for vegetation and a secondary walkway system to take place, while the recessed corner entry of the First Indiana building creates a large open area for the block. The form of the mom-and-pop shops utilize canopies which emphasize their character.

* Sidewalk Character:

Physical Condition: The sidewalks are well maintained and in good condition, however, visually cluttered with a variety of street components. The north side of the street serves as a major transfer point for transit vehicles. A linear transparent shelter takes up a vast majority of the sidewalk space.

Parking: Parking is limited to curb-side metered parking on the south side of the street only with two major traffic generators (Indiana National parking garage and the First Indiana parking garage) which together provide public
parking for 1,251 vehicles which appear to be adequate for present uses within this area.

Pennsylvania to Meridian St.

* The Landuse Activity Patterns: The Landuse and Activity of this block are a mix of governmental activities and Financial/business. The Federal Building/Post Office as with the Bank One building make extensive coverage of the site.

* The Setting and Form of Buildings: The Federal Building has a historic and cultural character which is contradictory to neighboring architecture. Bank One building will characterize this area as being the newest and tallest structure in the State (40 stories).

* Sidewalk Character:

  Physical Condition: The walks on the north side are wider, 25 feet due to the 80 foot setback of the Federal Building. Sidewalks have been patched
and repaired. The plaza space breaks up the mass of the preceding structures as well as those which follow. This area serves as a major transfer point.

Parking: Parking is not permitted within this area.

Meridian to Illinois:

* The Landuse Activity Patterns: The landuse Activity Patterns within this area consist of Public Services including the Hilton Hotel, and two large office towers--Indiana Bell Telephone Company, and the Capitol Center.

* The Setting and Form of Buildings: The Hilton Hotel (24 stories) and the telephone company (26 stories) have no significant features, however there setbacks coupled with their heights create a canyon wall. The Capitol Center's contemporary shape and form are architecturally significant. A parking structure accessible only from Illinois
Street makes a southern edge for this area.

* Sidewalk Character:

Physical Condition: Streetscape is inconsistent--Brick paving on south side of street only. Although street are present on both sides, spacing varies according to development.

Parking: Hilton Hotel Parking takes up six floors of its hotel space, while the Capitol Center is serviced by an underground structure. Together with the Illinois parking structure, 1,553 parking spaces are provided.

Loading: Street is not adequate to permit loading and unloading in front of the Hotel without difficulty. Traffic is obstructed as well as the sidewalk-pedestrian environment. The width of the sidewalk diminishes to 5 feet where loading is permitted.

Illinois to Capitol St.

* The Landuse Activity Patterns: Business
Activities occur in high rise high density structures—The American United Life building and 101 Capitol. The Greyhound Bus Terminal is a major traffic generator in that for many, this structure renders the first or last impression of the city.

* The Setting and Form of Buildings: The AUL building is not only significant in height (39 stories), but also its shape and how it is sensitively placed on the site. The generous setback allows for landscaped walks and densely planted street trees which canopy the walk which soften the scale of the building. 101 Capitol office structure emphasizes high-tech architecture. The facade of this structure is metallic in appearance.

* Sidewalk Character:

Physical Condition: The streetscape along the north side of the street appears to be well maintained. Densely planted, and closely spaced street trees soften this harsh environment. No
street character is evident along the south side. However, an iron fence physically separates the sidewalk from the monthly parking spaces at ground level of the bus station, but not visually.

Parking: Parking within this area are facilitated by the Greyhound structure and the underground parking facility of the AUL building. Metered curb-side parking is permitted within this area limiting the six lanes of through traffic to four.

Capitol to Senate St.

* Landuse and Activity Pattern: This area is characterized by the Governmental facilities that exist along both sides of the block; The Capitol Complex and The Judicial Building.

* The Setting and Form of Buildings: These governmental facilities both have been generously recessed on the site allowing landscaping and vegetation to bleed into the preceding dense urban
environment.

* Sidewalk Character:

Physical Condition: The sidewalk in this area appear to be poorly maintained. A curb-side grass median has been replaced by a gravel strip. Street trees have been replaced by parking meters which align both sides. Within this area, the roadway has been reduced to four lanes of through traffic.

Parking: Along with metered parking, an underground private parking structure expands from The State Capital to the Judicial Building.

Senate to West St.

* The Landuse and Activity Pattern: This area is characterized by its openness and natural surroundings. Aside from the State Library and Firehouse #13, two large but landscaped surface lots a prevalent on the north side surrounding the Central Canal Development which serve as a transition from the natural to the man-built.
* Sidewalk Character:

Physical Condition: The sidewalks in this area differ very little from the previous block, however, excellent views of the canal and state park have been enhanced.

Parking: Curb-side metered parking exists, along with the two large private government surface lots.
BUILDING MASS STUDY

SCALE

LEGEND

1 - 10 stories
10 - 20 stories
20 - 30 stories
30 - 40 stories
PARKING
Several Observations about the activities and users of this corridor have been made on the preceding pages. However, it may be useful at this point to reiterate some of the major points. The Ohio Street Corridor has special characteristics and functions which set it apart from other streets within the city, namely: its transportation significance, its architectural character, its specialization as a business/financial corridor, and its reclaimed natural resources as amenities. Improvements along this corridor can be enhanced by giving a stronger sense of continuity to minor elements such as pedestrian movement and physical improvements. These physical improvements will give the corridor integrity by allowing a pedestrian to view the entire corridor as one total space; even though the project study area spans seven city block lengths, small design elements and street components such as signage, lighting, paving, etc., will help to establish the corridor.
as a distinct district within the urban core of Indianapolis.
DESIGN
Research into the subject of creating a distinct image within an urban office core through a pedestrian-oriented environment has turned up many viewpoints in urban planning. Within the scope of this project, the best solution might be a transit mall, bus only lanes, other forms of restraints and transit priorities, street beautification, or a combination of measures. Research into the area of street improvements and beautification alone is very limited, therefore, most of my research is focused on the restriction of the automobile and the creation of transit and pedestrian malls.

This study will document corridor improvements in two American cities: Portland Oregon, and Cincinnati Ohio; however, listed are a few corridor improvement types which were also studied.

Chestnut Street Transitway
Philadelphia, Pennsylvania
The Nicollet Mall
Minneapolis, Minnesota

River City Mall
Louisville, Kentucky

Portland, Oregon

The Portland is located on two of the busiest streets in the downtown area. The mall is eleven blocks in length in each of the two parallel streets for a combined total of twenty-two city blocks, for the sole purpose of eliminating vehicular usage from a major portion of the business district by acting as the hub of a regional transit system.

Each street is a one-way with two bus-only lanes and one lane for general traffic. Every fourth block, the general traffic lane is replaced by widened sidewalks which prevent the use of through-traffic on the mall. Portland Mall differs from most of the other malls in that it runs the length of the office core although it also
intersects major retail streets.

The Portland Mall uses a combination of sidewalk improvements, landscape and lighting, street furniture and other amenities to create an image for the mall. Each added amenity is designed to match the Victorian theme of the mall contributing to a sense of place, and its imageability.

FIGURE 3-17. TYPICAL PORTLAND MALL AMENITIES (THREE LANES)
To prevent further growth of visual pollution, the city of Cincinnati sought demonstrate community revitalization through a systematic design, production and utilization of "street furniture," equipment used for traffic control and direction, lighting, communication and trash collection (Malt, 1973, p.1).3

This urban renewal project comprises approximately twelve blocks of the city's core for the sole purpose of increasing the visual image of the core. The predominant visual image was that of a profusion of public equipment and signage randomly placed along the walking environment in no recognizable order.

The creation of the cluster system consisting of approximately 350-400 structures precisely aligned along street curbs throughout the twelve block area. Each structure varies in size, number and arrangement of elements according to the need at the given locations. The structure itself
consists of three parallel vertical poles arranged in a triangular plan which appear light, open and unobtrusive.

Within this triangular structure, public amenities benefit from the interior spaces (trash receptacles and telephone booths), while various other components such as traffic signals and signage utilize the cantilevered boom concept onto these triangular modules to contribute to the sense of community and identity through this consolidation both in location and physical relationship of street furnishings.
This creative project proposes the conversion of Ohio Street (from Alabama St. to West St.) into a one-way westbound circulation route. By the removal of the eastbound lanes, the sidewalk system is increased giving the pedestrian priority within the environment which is the intent and primary goal of this thesis; taming the presence of the automobile and reinforcing the pedestrian environment. By offsetting the order of the gridiron street pattern, intensity and diversity increase without interfering with the functional order of the street. The irregular lane pattern will facilitate cross-street accessibility through the use turn lanes while maintaining three lanes of consistent unobstructed westbound circulation. Eastbound traffic will be redirected onto New York St. This corridor is currently a primary eastbound artery. Increased traffic volumes can be accommodated if both sides of metered parking were eliminated permanently; not only during peak hours.
Since parking within this area does not presently raise major difficulty, existing parking structures and surface lots should be utilized to accommodate these users. The removal of curbside parking in areas and limitations on access to off-street parking facilities along Ohio Street can generate strong opposition to those affected. No new parking is proposed near the corridor as part of the project itself, however, identification of alternative parking and the provision of access to existing facilities have been a constant part of the corridor improvement planning process.

Strategy to divert traffic:

Convincing drivers to change previous habits and divert to new routes is one of the first issues to be faced by planning officials. Although the construction period will force drivers to find new routes to their destinations, once construction is
over, a strategy must be developed to keep motorist, particularly occasional users from trespassing in the wrong direction along the corridor.

Signage should be used to encourage motorist to use New York St. Signs reading NO TURNS should be used to prevent cross-street traffic from making eastbound turns onto Ohio Street. This signage should conform to the standard street graphics set in the "Manual on Uniform Traffic Control Devices for Streets and Highways."

The image of a city is the mental picture people have of it in an environment. The image is structured by the activities an individual engages in, and by the paths of circulation which he uses to get from one activity to another.

The image of the corridor can be enhanced by giving a stronger sense of continuity to its
movement pattern; in this case, by extending the natural environment into the built environment. Pedestrian movement and physical improvements help to give an area integrity by allowing its users to view it as one total space: even with the juxtaposition of blocks, smaller design elements such as paving, signage, lighting etc., will help to establish this corridor as a distinct district.

**Landscaping**

The planting concept should be to maximize planting along the corridor with concentration on efficient movement. All landscaping elements including trees, plants and groundcovers should be planned to preserve a pedestrian scale. The trees, plants and other forms of vegetation not only provide relief from the hardness of the corridor, but will serve as a reminder to the pedestrian of the natural environment which in this case, not far away.
Typical strategies are as follows:

The vegetation used should be indigenous: trees that are compatible to climatic and street conditions.

Both deciduous and evergreens should be used to benefit the year round users. These trees and groundcovers should accent the pedestrian environment.
Hardiness zones of the United States and Canada. (Compiled by the Arnold Arboretum, Harvard University, Jamaica Plains, Massachusetts, May 1, 1967.)
<table>
<thead>
<tr>
<th>Trees for City Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Latin Name</strong></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td><strong>DECIDUOUS TREES</strong></td>
</tr>
<tr>
<td>Acer platanoides var.</td>
</tr>
<tr>
<td>Acer platanoides</td>
</tr>
<tr>
<td>Acer platanoides Emerald Queen</td>
</tr>
<tr>
<td>Acer platanoides Summershade</td>
</tr>
<tr>
<td>Acer platanoides pseudoplatanus</td>
</tr>
<tr>
<td>Carpinus</td>
</tr>
<tr>
<td>Catacusus phaenopterus</td>
</tr>
<tr>
<td>Fraxinus pennsylvanica</td>
</tr>
<tr>
<td>Fraxinus p. lanceolata var. Marshall's</td>
</tr>
<tr>
<td>Fraxinus p.</td>
</tr>
<tr>
<td>Ginkgo biloba</td>
</tr>
<tr>
<td>Ginkgo biloba Autumn Gold</td>
</tr>
<tr>
<td>Ginkgo biloba Fairmount</td>
</tr>
<tr>
<td>Ginkgo biloba Lakeview</td>
</tr>
<tr>
<td>Ginkgo biloba Princeton Sentry</td>
</tr>
<tr>
<td>Gleditsia triacanthos inermis</td>
</tr>
<tr>
<td>Gleditsia t. inermis Imperial</td>
</tr>
<tr>
<td>Gleditsia t. inermis Majestic</td>
</tr>
<tr>
<td>Gleditsia t. inermis Moraine</td>
</tr>
<tr>
<td>Gleditsia t. inermis Shademaster</td>
</tr>
<tr>
<td>Gleditsia t. inermis Skyline</td>
</tr>
<tr>
<td>Gleditsia t. inermis Sunburst</td>
</tr>
<tr>
<td>Koelreuteria paniculata</td>
</tr>
<tr>
<td>Liquidambar styraciflua var.</td>
</tr>
<tr>
<td>Liquidambar styraciflua Burgundy</td>
</tr>
<tr>
<td>Liquidambar styraciflua Festival</td>
</tr>
<tr>
<td>Magnolia</td>
</tr>
<tr>
<td>Magnolia x soulangiana</td>
</tr>
<tr>
<td>Magnolia stellata</td>
</tr>
<tr>
<td>Malus var.</td>
</tr>
<tr>
<td>Malus A. Beauty</td>
</tr>
<tr>
<td>Malus barbara</td>
</tr>
<tr>
<td>Malus xietiana</td>
</tr>
<tr>
<td>Malus floribunda</td>
</tr>
<tr>
<td>Malus hupensis</td>
</tr>
<tr>
<td>Malus sargentii</td>
</tr>
<tr>
<td>Malus Snowdrops</td>
</tr>
<tr>
<td>Malus zuni-calcarpa</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Latin Name</th>
<th>Common Name</th>
<th>Hardiness Zone</th>
<th>Height (feet)</th>
<th>Habit*</th>
<th>Fall Colors</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phellodendron amurense</td>
<td>Amur Cork Tree</td>
<td>3</td>
<td>45</td>
<td>WS</td>
<td>Yellow</td>
<td>Interesting, corky bark</td>
</tr>
<tr>
<td>Platanus acerifolia</td>
<td>London Plane Tree</td>
<td>5</td>
<td>80</td>
<td>WS</td>
<td>Peeling</td>
<td>Bark</td>
</tr>
<tr>
<td>Platanus acerifolia var.</td>
<td>Bloodgood</td>
<td>5</td>
<td>50</td>
<td>WS</td>
<td>Disease</td>
<td>Disease resistant</td>
</tr>
<tr>
<td>Pyrus calleryana var.</td>
<td>Callery Pear</td>
<td>5</td>
<td>30</td>
<td>P</td>
<td>Red</td>
<td>White flowers</td>
</tr>
<tr>
<td>Pyrus calleryana Aristocrat</td>
<td>Aristocrat</td>
<td>5</td>
<td>40</td>
<td>O</td>
<td>Crimson</td>
<td>Large foliage</td>
</tr>
<tr>
<td>Pyrus calleryana Bradford</td>
<td>Bradford</td>
<td>5</td>
<td>40</td>
<td>P</td>
<td>Crimson</td>
<td>Thorny</td>
</tr>
<tr>
<td>Pyrus calleryana Chanticleer</td>
<td>Chanticleer</td>
<td>5</td>
<td>40</td>
<td>P</td>
<td>Yellow</td>
<td>Rapid growth</td>
</tr>
<tr>
<td>Pyrus calleryana Fauneri</td>
<td>Fauneri</td>
<td>5</td>
<td>15</td>
<td>R</td>
<td>Red</td>
<td>Dwarf, suck.</td>
</tr>
<tr>
<td>Quercus borealis</td>
<td>Red Oak</td>
<td>4</td>
<td>75</td>
<td>R</td>
<td>Red</td>
<td>Rapid growth</td>
</tr>
<tr>
<td>Quercus laurifolia</td>
<td>Laurel Oak</td>
<td>4</td>
<td>60</td>
<td>R</td>
<td>Branching</td>
<td>horizontally or ascending</td>
</tr>
<tr>
<td>Quercus palustris var. sovereign</td>
<td>Sovereign Pin Oak</td>
<td>4</td>
<td>75</td>
<td>P</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>Quercus phellos</td>
<td>Willow Oak</td>
<td>5</td>
<td>50</td>
<td>R</td>
<td>Yellow</td>
<td>Willow-like foliage</td>
</tr>
<tr>
<td>Salix babylonica</td>
<td>Cabbage Palmetto</td>
<td>8</td>
<td>90</td>
<td>Palm</td>
<td>Yellow</td>
<td>Pendulous</td>
</tr>
<tr>
<td>Sophora japonica</td>
<td>Japanese Pagoda Tree</td>
<td>4</td>
<td>70</td>
<td>R</td>
<td>Yellow</td>
<td>Disease resistant, leathery foliage</td>
</tr>
<tr>
<td>Tilia cordata var.</td>
<td>Little-leaf Linden</td>
<td>3</td>
<td>60</td>
<td>P</td>
<td>Yellow</td>
<td>Disease resistant, leathery foliage</td>
</tr>
<tr>
<td>Tilia cordata Greenspire</td>
<td>Greenspire Linden</td>
<td>3</td>
<td>60</td>
<td>P</td>
<td>Yellow</td>
<td>Disease resistant, leathery foliage</td>
</tr>
<tr>
<td>Tilia cordata Chancellor</td>
<td>Chancellor Linden</td>
<td>3</td>
<td>60</td>
<td>P</td>
<td>Yellow</td>
<td>Disease resistant, leathery foliage</td>
</tr>
<tr>
<td>Tilia europaea</td>
<td>European Linden</td>
<td>3</td>
<td>60</td>
<td>R</td>
<td>Yellow</td>
<td>Disease resistant, leathery foliage</td>
</tr>
<tr>
<td>Ulmus americana var. Augustina</td>
<td>Augustine Ascending Elm</td>
<td>2</td>
<td>90</td>
<td>V</td>
<td>Yellow</td>
<td>Susceptible to Dutch elm disease and necrosis</td>
</tr>
<tr>
<td>Ulmus crassifolia</td>
<td>Christine Buisman Elm</td>
<td>4</td>
<td>60</td>
<td>V</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>Zeilka severa var.</td>
<td>Japanese Zeilka</td>
<td>5</td>
<td>60</td>
<td>V</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>Zeilka Parkview</td>
<td>Parkview</td>
<td>5</td>
<td>60</td>
<td>V</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>Zeilka Village Green</td>
<td>Village Green</td>
<td>5</td>
<td>60</td>
<td>V</td>
<td>Russian</td>
<td></td>
</tr>
</tbody>
</table>

**EVERGREEN TREES**

<table>
<thead>
<tr>
<th>Latin Name</th>
<th>Common Name</th>
<th>Hardiness Zone</th>
<th>Height (feet)</th>
<th>Habit*</th>
<th>Fall Colors</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abies concolor</td>
<td>White Fir</td>
<td>4</td>
<td>100</td>
<td>P</td>
<td>Blue</td>
<td>Blue-green foliage, glossy</td>
</tr>
<tr>
<td>Cinnamomum camphora</td>
<td>Camphor</td>
<td>9</td>
<td>40</td>
<td>R</td>
<td>Glossy</td>
<td>Dense, glossy</td>
</tr>
<tr>
<td>Magnolia grandiflora</td>
<td>Southern Magnolia</td>
<td>7</td>
<td>100</td>
<td>P</td>
<td>White</td>
<td>White flowers</td>
</tr>
<tr>
<td>Picea pungens</td>
<td>Colorado Spruce</td>
<td>2</td>
<td>60</td>
<td>P</td>
<td>Still</td>
<td>Still green to blue foliage</td>
</tr>
<tr>
<td>Quercus virginiana</td>
<td>Live Oak</td>
<td>7</td>
<td>60</td>
<td>WS</td>
<td>Fine</td>
<td>Fine textured</td>
</tr>
<tr>
<td>Taxus cuspidata</td>
<td>Japanese Yew</td>
<td>4</td>
<td>30</td>
<td>P</td>
<td>Red</td>
<td>Dense needlelike</td>
</tr>
<tr>
<td>Tsuga carolinana</td>
<td>Carolina Hemlock</td>
<td>4</td>
<td>75</td>
<td>P</td>
<td>Needle</td>
<td>Needle leaf</td>
</tr>
</tbody>
</table>

Lighting

Lighting should be used to clarify the movement of the pedestrian while accenting points of interest. The Lighting used should provide security while complimenting the scale of the pedestrian as well as contribute to the imagery and visual identification of the project study area.

Recommended Functional Description:

The luminaire and lamp should produce acceptable I.E.S. light pattern, with efficient distribution of light on the roadway and sidewalk.

The system should produce an average illumination of 10 f.c. on the roadway.

The illumination should consist of the full color spectrum to highlight the green of the street trees.
Siting should be of an opposite pattern on both sides of the street-50 feet between centerlines.

Luminaires should be mounted 30 feet above roadway and 14 feet above sidewalk.

Street furniture

Street furniture should be placed along the corridor to accommodate activities. These elements should be placed to compliment the pedestrian flow, but not allowed to block movement.

Recommended Design Description:

Street furniture should be economical in structure and spatial use.

Street furniture should contribute to the enhancement of the environment.
The system should be designed to offer installation flexibility so that structures and components can be added or deleted according to location needs.

The system should be designed in compliance with all federal, state and local safety standards.

The intersections should be related to the pedestrian way along Ohio Street as opposed to the cross streets. The intersections should be slightly raised and resurfaced with distinctive paving materials—this will facilitate better drainage while creating harmony with the rest of the corridor. The paving material will also indicate the pedestrian crossing to the motorist as well as designate an entrance from contiguous cross-streets.
Drainage in the walks should slope towards the planting strips and street trees. This concept will allow for drainage to slope away from the buildings. The center of the traffic lanes should crown to distribute water runoff to the curb sides of the street into block length granite gutters. Along the south side of the street the existing drainage system can be used with some modifications since the existing walk width is used alternately.

Mall Cross-Sections

The typical block along the corridor has a right of way of 90 feet from building line to building line. By decreasing the vehicular right of way from 60 feet to 40 feet widths, an additional 30 feet becomes available to the pedestrian environment. Due to climatic and physical conditions along the south side of the
corridor, consideration should be given to pedestrian comfortability. By concentration efforts of pedestrian activity along the north side of this corridor, an additional 10 feet should be a constant with alternating blocks 20 feet. The use of existing 15 foot walks along the south side in areas will provide for three lanes of through traffic as a constant throughout the site.
OHIO STREET

ILLINOIS—WEST St.
MINI-PARK
MID-BLOCK DELAWARE & OHIO ST.
FEDERAL PLAZA
BETWEEN MERIDIAN & PENN. ST.
VIEW DOWN CORRIDOR
MERIDIAN ST LOOKING WEST
CONCLUSIONS

The problems of the corridor were approached in terms of urban design. Urban design is the use of built elements within public spaces to accommodate public activities. During the process of this project, I gained better understanding of the activities which users of urban environments engage in and successfully made provisions for the conduct of these activities. Activities make a place. Places in turn are related through patterns of movement. Assuming the role of an urban designer, my prime concern was with these patterns of movement, and with how movement, both by vehicle and by foot. In addition, I gained experience organizing elements of the physical environment so that new activities might be encouraged and the general experience of the users enhanced.
NOTES


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