URBAN
CONSERVATORY

FT. WAYNE, INDIANA

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Without certain people this thesis would not be finished today. These people gave me advice, patience, time, support, and encouragement over the period the thesis took. At least in some part, I hope they are aware of their help and my appreciation for it.

I wish to say two things then. First, a special thanks to my thesis advisor, Prof. C. D. Woodfin. His continued support meant a great deal to me. I am also not totally sure which one of us was happier to see this thing finished. Second, to the many others who supported me-- perhaps I can best acknowledge that help by stating an invaluable lesson you have helped me with. "No one is an island, and the world is a far better place because of those who have learned the art of reaching out and sharing."
# TABLE OF CONTENTS

1. ABSTRACT/PROCESS SUMMARY 1

2. PROJECT CONCEPTION 1

3. CONTEXT 4
   a. Project Assumptions 4
   b. Problems/Needs 5
   c. General Context Goals 7
   d. Strengths 9
   e. Land Use Maps 9
   f. Climate 19
   g. Regional 20

4. PROGRAM & INFORMATION 20
   a. General Conservatory Information 20
   b. Specific Conservatory Program 28
   c. Program Summary 29
   d. Further Building Information 31
   e. Mechanical Criteria 32
   f. Materials/Details 32
   g. "Other" or "Buffer" Spaces 33

5. DESIGN 37
   a. Concepts 37
   b. Summary - Gross Building Areas 46
   c. Design Drawings 46
   d. Mechanical 50
   e. Structure/Materials 51

6. DISCUSSION/CONCLUSIONS 62

7. FURTHER DIRECTIONS 65
ABSTRACT/PROCESS SUMMARY

Having an interest in plants and greenhouses, I was searching for a thesis topic when the possibility of re-designing the Ft. Wayne, Indiana botanical conservatory was suggested to me. A downtown urban site had already been selected and cleared for the soon-to-be-built conservatory. Taking this site as a given, I gathered both site context information and general conservatory information. Upon analysis and much consideration, it became apparent that a higher density, urban development with mixed uses would address more of the downtown's needs than the low density design being proposed. This was particularly true for this site, as it has about 650 feet of frontage on a developing downtown axis. I then changed the initial approach from designing the conservatory as a single use for the site to an approach which accounted for an emerging concept of an Urban Conservatory. This approach was one of exploration and discovery, for my conceptual ideas of an Urban Conservatory were very cloudy at this time. Certain questions became central. Among them were "Given Ft. Wayne and its downtown, what is appropriate to go on this site?" "What does an Urban Conservatory look like and how does it work?"

Using both Ft. Wayne's downtown needs and the general conservatory needs as a starting point, I developed various working concepts which incorporated additional uses (commercial, office, and residential) into the site to create a mixed-use project. Three site concepts were then worked out. I selected a final site concept; this one was then developed into the Urban Conservatory as presented in this book.

PROJECT CONCEPTION

In the early 1980's, a botanical conservatory was built in downtown Ft. Wayne, Indiana. Several groups, both private and public, were instrumental in its successful completion. For this thesis project, I began by assuming that I have been asked to design the conservatory. I would use the original project information and then fill in with additional information that I would acquire by research. Using this, my approach was as follows:

Ft. Wayne has asked me to design a "Greenhouse Conservatory" in their downtown (central business district). It is to be a unique and added attraction to the area, as well as a "people generator"—one more step in a series of downtown improvements intended to renew the downtown area.
They have selected a prominent site located on Calhoun Street, a developing north/south axis. The site is enhanced by several factors, some of which include: (see Site Context map p. 3)

The Embassy Theater
Built in 1927-1928 in the grand manner of its time, it seats 2,700 people. Due in part to an earlier threat to demolish the structure, it recently has become the object of renewed civic pride; the people of Ft. Wayne donated much in both money and renovation skills in order to restore the theater.

The new Convention Center
Across the street to the north, the Convention Center will have an assembly hall, meeting rooms, and banquet facilities.

A proposed new hotel
Also to the north and adjacent to the Convention Center, the hotel is expected to service both the downtown area as well as the Convention Center.

Cathedral of the Immaculate Conception
Across the street to the east of the site, the prominent cathedral is a landmark in the downtown area.

Lincoln National Life Insurance offices
Across Douglas Street to the south of the site, these offices comprise 4, 6, and 7 story buildings. As a part of the downtown working population, people there will be in a prime location to take advantage of the conservatory and related activities.

The original design goal for the site included only the botanical conservatory. Yet upon context analysis of the above and other related downtown information, a possibility began forming. "Why not develop an Urban Conservatory?" The Conservatory could add life and color to an urban framework. In this case the Conservatory might be a soft, yet vibrant inner core, a pulsing life within an outer harder shell. The outer shell would maintain the urban street edge--shops, offices, and services so vital to the pedestrian urban quality. Together they could help each other and the downtown in things such as: buffered spaces for heating; attracting people to the downtown and site; a pleasant place to relax; tax
revenues which could help to support the Conservatory; a resident population to help keep an eye on things; and a winter site for fairs or festivals.

During context analysis, this thesis then changed to designing an Urban Conservatory. Major issues to resolve included 1) "How does one establish the integrity of the individual parts, especially the conservatory itself?" and 2) "In the design of our cities, what types of development support pedestrian use and city life, and what types detract from it?" Related issues included parking and servicing-- "How are automotive needs met?" and possible future expansion-- "Given urban densities, how could expansion be handled?" These are some of the things addressed in this thesis, the Urban Conservatory.

CONTEXT

Project Assumptions

Several assumptions were made in doing this project. The first two come from Redevelopment Commission projections for the downtown area. These affect the way the site should be developed. The second two involve conditions which would have to be negotiated with the parties involved. I have assumed that these negotiations could be successfully completed.

1. Calhoun Street will develop as a major north/south pedestrian and limited transit artery. Regular vehicular traffic will be intentionally reduced (leaving buses, delivery, servicing), and existing sidewalks will be widened, perhaps by one traffic lane. Some of the displaced traffic is expected to shift to Harrison Street to the west.

2. The Civic Parking Garages I and II (bordering the northeast corner of the site) are available to the public and thus to the site to provide a sizeable portion of its parking needs. Parking on site is also to be provided.

3. The Embassy Theater (northwest corner of the site) is willing to let other buildings attach, so long as needed exits and services are maintained. It is possible that waste heat from the Urban Conservatory might be of use to the Theater during its "non-occupied" times.

4. The size of the conservatory project can be enlarged. One of the Redevelopment Commission's "guidelines" is to "build big projects, and let those attract the small ones." The enlarged project will simply allow for both large and small to develop simultaneously on the same site.
Problems/Needs

From the Redevelopment Commission, downtown problems and needs include the following:

1. The area is deserted after 5 and on weekends.
2. There is a lack of regular activities to bring people in.
3. The street system is antiquated; wider streets are needed.
4. There is a shortage of residential areas near downtown.
5. There are deteriorated housing areas near downtown.

In addition to these, others could be stated which are not necessarily specific to the downtown but which the downtown shares:

- business problems/needs
  1. There seems to be both a loss of jobs and retail business to the outskirts.
  2. Lack of job diversity throughout Ft. Wayne is a concern. The downtown itself seems to be changing into an office/business center.
  3. The poor need jobs for self-sufficiency. Community groups and churches have established aid programs and food kitchens to help out here. This treats only the symptoms though and not the causes themselves.
  4. There is a need for "starter business" spaces and a flexible, supportive climate to foster small businesses.

- other problems/needs
  5. The downtown lacks gathering spots.
  6. Neighborhoods need strong boundaries to give conscious "recognition" to those neighborhoods.
  7. Efficient, convenient transportation is needed. Parking is part of this problem.
Other perceived problems concern the form of some of the new development taking place. At times there is a lack of design for pedestrian interest and involvement. This can be seen in several ways such as:

1. Development which is large, singular in purpose, and static in street appearance, e.g. large parking garages on the street, and high rise office buildings which take a major part of a block. Their longer street frontage and lifeless facades severely reduce the variety and interest so often found on urban streets.

2. Large building setbacks which isolate the pedestrian from the activity inside the building. Large open spaces between buildings also reduce the efficiency of using "walking" as one part of the transportation system.

3. Use of dark glass, curtains, or little or no glazing at the street level. Whether used for fashion, privacy, economic or security reasons, a simultaneous effect is to further isolate pedestrians from life within the building.

4. New residential building (usually medium to high density) which does not encourage contact with the street. This is a loss for both the street and the residents as well. The street has fewer eyes watching it, and people now cannot look to the street at times for "connection" and pleasure.

In view of these problems and needs, what roles then should both the conservatory and the site play in downtown Ft. Wayne?

First, the conservatory should allow people to relax, play and learn. It should also help attract people to the downtown while increasing development there. The site should both strengthen the Semi-Mall corridor being developed and get along well with its neighbors and the downtown. Beyond this, what "could" the conservatory and site do? It is worth pointing out at this time that a second look at the downtown and especially at recent development in the downtown may be warranted.

The question can be posed, "How does new development most benefit the downtown?" Or in a different but more blunt way, "How do you do it so you solve more problems than you create?" Seen this way, some pressing needs of the downtown come to light. First and foremost, new development needs to help create an attractive, positive environment for the pedestrian. Second, it should help create downtown stability and safety not only over a 24 hour period, but also into the next day, month, year, and so on. Finally, it should help create an economic environment
which not only allows, but encourages people to work toward finding solutions to the problems they face.

The conservatory "design problem" was thus changed. Given its site and context, it could no longer be a single use facility spread out over that site. It needed an appropriate development as an urban development which reflected and satisfied more of the downtown needs. This especially meant considering the needs of the pedestrian.

General Context Goals

General goals were formulated in response to the site needs.

1. Help develop a healthy downtown and city by:
   a) developing a design which respects its context and
   b) attracting people back to the downtown for living, working, playing, and relaxing. This would be accomplished by satisfying goal #2.

2. Develop an Urban Conservatory. The Urban Conservatory is to be defined through both conceptual and design development. At this point it is felt that it will somehow combine the conservatory with mixed-uses; these may include commercial, office, light industry, and residential developments.

3. Develop the Conservatory Block as a landmark place the community feels is theirs. They should be able to actively participate and change or add parts of it. This also means that all citizens, regardless of income, can enjoy it. This leads to the following goal.

4. The Conservatory is to be designed as a "free-admission" public space. It is suggested that operating funds could come from:
   a. memberships
   b. donations
   c. endowment funds
   d. tax revenues from the site

5. The built project should spread out the times people use the site over the hours of the day. It should also allow outside as well as inside use. Possible ways of doing this might include the use of:
   a. plazas
   b. night-life areas
   c. residential areas
   d. spaces for people to relax in and enjoy at all hours
6. Design a pedestrian scale which fits the downtown's needs. This would mean developing a dense, urban street edge with activities such as shops and offices, particularly along Calhoun Street, a growing north/south downtown axis.

7. Encourage continued improvement in the local economy and job supply. Allow for flexibly-sized business spaces. These "starter" spaces allow for "home-grown" (and usually diverse) businesses, and need 1) an encouraging, flexible administrative climate to grow in, and 2) inexpensive physical space to keep start-up costs down.

8. Develop housing as a part of the downtown. Much of the housing should be in clusters and allow for small "neighborhoods" to form.

9. Integrate on-site parking in such a way that it is convenient and yet does not "deaden" the street edge.

10. Develop the site in an energy conscious way, especially for long term maintenance. Possible conserving strategies might include:
   a. buffering the buildings (with soil, other buildings, screens, etc.)
   b. energy conscious building skin design
   c. use of solar heat, waste heat, off-peak energy storage
   d. cooling strategies to combat excess heat build-up

11. Reduce long-term material maintenance costs wherever possible. While a balance between short-term/long-term costs would still have to be reached, it is felt that reducing long term maintenance costs are a priority for the conservatory.

12. As the project is developed and if time permits, I would like to explore ways of user modification of the development. This would include the conservatory, the commercial and office areas, the housing and even the parking. Independent studies would be made of each area as to the priorities and concerns of that area—then general frameworks set up which allow change—then coordination with the other uses on the site to see "what the other neighbors think."
Strengths

One of the greatest perceived strengths of Ft. Wayne is its people. There is an optimism and community pride which is recognized even outside Ft. Wayne. Problems are met head on with energies and resources coming from many places including governmental agencies, private businesses and foundations, community groups, and individuals. Other strengths of the downtown were cited by the Redevelopment Commission:

1. It has been the traditional "heart" of the community.
2. It is currently very active as the center of government, legal business, and finance.
3. Some business is coming in.
4. There are strong community-wide churches.
5. One close residential neighborhood is being renovated.
6. There is an active Parks and Recreation Department (they will run the conservatory).
7. There are a variety of cultural activities:
   - philharmonic society
   - art museum
   - library (strong genealogy section)
   - elderly center.

Other strengths could be added to this. One would be the downtown's variety--its old to new, small to large, local stores to chains, to small businesses, large businesses, government buildings and cultural facilities. This richness of diversity, especially if expanded upon, could become one of its greatest strengths.

Another strength is the planning for the downtown. These plans give both a direction for people to see and also something physical that can be discussed. This helps to open up communication; that allows for support, changes, alternatives, additional projects, etc. which can further the downtown's regeneration.

Land Use Maps (pp. 11-18)

The site is located in Ft. Wayne's downtown. The downtown contains shops, restaurants, offices (public and private), service businesses, religious and community groups, and limited housing. In the last few years, Ft. Wayne has turned a lot of its attention on its downtown and as a result, is actively changing it. Existing land use maps and related
comments are given below to provide "as is" information. Also included is a "Downtown Revitalization" map from the Redevelopment Commission which shows some of the projects recently done or currently in progress.

Retail and Service (p. 11): Most is either on or very close to Calhoun. The small cluster at the northern intersection of Calhoun and the railroad tracks is a local night spot area affectionately called "the Landing."

Offices: Offices are an increasingly popular use of the downtown. One might note that they are predominately located within a one block distance of the northern part of Calhoun.

Industrial and Warehouse: This is not a strong component of the downtown area. To improve the local economy, Ft. Wayne could try to stimulate "downtown-compatible" industries, such as light industry or cottage industries.

Churches/Religious/Landmark Sites: Ft. Wayne has both a strong religious presence (e.g. Catholic, Lutheran, Methodist, Presbyterian and Congregational) as well as sites of major landmark importance. The Embassy Theater and Barr Street Market would be examples of the latter. These sites provide a symbolic presence and depth to the downtown, and draw people from both the local and outlying areas.

Residential: Older housing is present in the two neighborhoods on the southern corners of the downtown. The larger buildings are generally newer apartments less than twenty years old. The sparseness in the central downtown contributes significantly to a strong "deserted after 5 p.m. and on weekends" feel.

Parking and Traffic: Much space is devoted to parking which includes both surface lots and parking structures. Outside the weekday work hours, these lots are usually empty, and thus also contribute greatly to the above-mentioned "deserted" feel.

The main traffic artery affecting the site is east-bound Jefferson Street. High traffic volumes give the north end of the site a lot of exposure.

Activity Nodes: This map identifies some of the downtown's "special character" areas.

Downtown Revitalization: A main observation here is that Calhoun is becoming a main development corridor.
Site Context (p. 3): Particular points to note here include:

1. The northern part of the site has strong "night spot" potential
2. The eastern neighbors are a lower density religious/office use
3. The western neighbors are all business uses.
4. The offices to the south will cast winter shadows on the southern part of the site
5. Much of the current vehicular traffic on Calhoun will probably shift to Harrison as Calhoun develops into the Semi-Mall.

Climate

Ft. Wayne's 345,000 population enjoys a temperate climate with its cold winters and hot, muggy summers. General climatic features are outlined below:

- average annual rainfall is about 35"
- average annual snowfall is about 30"
- average annual degree days-- 6,205
- summer dry bulb temperatures:
  - above 93 degrees 1% of the time
  - above 91 degrees 2% " "
  - above 88 degrees 5% " "
  - (wet bulb: above 75 degrees 5% of the time)
- winter temperature:
  - median of annual extremes: -5 degrees
  - above 0 degrees 99% of the time
- usual first fall frost-- mid-October
- usual last spring frost-- late April
- average elevation above sea level is 839 feet
- latitude: 41 degrees
- solar:
  - average annual clear days-- about 80
  - average annual partly cloudy days-- about 110
  - average annual cloudy days-- about 175
- for sun paths, see p. 20. As can be seen in the Site Context Map (p. 3), there are 4 and 6 story buildings to the south of the site. The winter shadow at noon on December 21 from the taller one was calculated to project about 80' onto the southeastern corner of the site.
Regional

Located in northeastern Indiana, the city of Ft. Wayne acts as an Indiana regional center within relatively easy reach of major Midwestern cities such as Chicago, Indianapolis, Detroit, Toledo, and Dayton (see regional map p. 21). This access gives Ft. Wayne both the position and potential for keeping and strengthening its economic and social influence in the area.

PROGRAM & INFORMATION

General Conservatory Information

Conservatories, whether public or private, have long held a fascination for people. They breathe life, offer renewal, and lift us in inspiration. They help us to both relax and play. We can use them for research and learning, and yet be entertained by them. They foster social groups such as gardening clubs and plant societies, and also serve as gathering spots for a diverse assortment of community groups simply because they provide an enjoyable place to meet. They fulfill such diverse functions and do it on so many levels that one wonders, "How?" and "Why?"
Perhaps part of the reason comes from the things we as people carry with us when we go there. Perhaps there is a feeling there that we often only sense. Perhaps there is a "reaching" to our souls, or spirits: perhaps there is a "flow" between the conservatory's "aliveness" and deep feelings of "Mother earth" within us -- feelings with the power to move us in many different ways. For perhaps these as well as other reasons, conservatories remain as places which fascinate us; we continue to value them and include them in our parks and cities.

For a historical context, one could start with plants and buildings. From early times plants often played one role or another in man's built spaces. Perhaps the earliest use of plants "within" buildings occurred in atriums and courtyards. The use of these spaces for lighting in buildings also allowed people to grow plants there; these spaces then became an integral part of the building's form and use. An example can be seen in the development of the courtyard garden or cloister garth in churches and monasteries (see below). These gardens provided light to the building as well as plants and medicinal herbs for people's use; one could also use the cloister for meditation and relaxation. But these areas were not roofed over, and thus were very dependent on the local climate as to what plants could be grown.

Cloister of Rome's cathedral church, St. John Lateran.
(from Design on the Land by Norman T. Newton, p. 24)
The enclosed conservatory on a large scale became practical with developments in building technology made in the nineteenth century. This technology greatly affected both the structure and form of conservatories due to the rapid improvement in the iron and glass building systems. These systems were not developed solely for housing plants; other reasons included commercial purposes and exhibition halls. Two primary examples are London’s Crystal Palace and Paris’ Galerie des Machines. As large glass-roofed halls, they were flexible in allowing a variety of uses within them (see below).

Crystal Palace, London, 1850-51 by Joseph Paxton
(from A History of Building Types by Nikolaus Pevsner, p. 245)

Galerie des Machines, Paris, 1889 by Dutert and Contamin
(from A History of Building Types by Nikolaus Pevsner, p. 249)
With the availability of iron and glass building systems, conservatories became more numerous. Common siting and design themes were developed. "Glass houses in parks" could be used as the essence of the theme—many well-known conservatories such as the St. Louis' (Mo.) Botanical Gardens (Shaw's Gardens), Kew Gardens at Kew, England, and Mitchell Park Conservatory (Milwaukee, Wi.) follow this pattern. Of two conservatories that are in downtown areas (Toronto, Ontario and Ft. Wayne, In.), both still have been sited in park or park-like settings.

The building forms vary; a well-known nineteenth century example is the Palm House at Kew Gardens (see below). Today the forms range from the rectangular single-ridged, row-type greenhouse, to south-facing shed roofs, domes, octagons and parabolic conical structures (pp. 25, 26).

Palm House at Kew, England, 1845-48 by Richard Turner
(from Architecture and Urbanism, March 1979, p. 75)
MITCHELL PARK CONSERVATORY  showing (l. to r.) the Showcase dome, the Arid dome, and the Tropical dome.
(from "Mitchell Park Conservatory" pamphlet-- Moeblus Printing Co.)
The form is important in that it affects several things, particularly the following:

1. Light-- glazing angles and orientations affect the transmittance of available natural light.
2. Temperature-- this can be affected by the building form's ability to collect heat by day, lose it at night, or to allow temperature stratification due to its height.
3. Condensation falling on plants (undesirable)-- flat or nearly flat surfaces, as well as steeper ones that have no provisions for "guttering" make condensation control difficult.
4. Ventilation-- needed for plant health and growth, ventilation can be aided by open gentle curving spaces, or impeded by segmented angular ones.
5. Heating/cooling-- large, high spaces are harder to heat but easier to vent and cool by convective venting and the capture of available breezes.

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**Showcase**
Five major displays of seasonal flowers dramatically reflect the Showcase in theme and in color. The Showcase is an ever-changing garden under glass with flowering plants magically transforming with the seasons of the year.

The Showcase covers 10,000 square feet and is 45 feet high. In order to grow the plants for the displays, some 20,000 square feet of greenhouse space at Lawton Park is utilized. In most cases, more than 15,000 plants are cultivated for each display. As in every building, the temperature is controlled for the duplication of the plants' natural environment.

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**Tropical House**
Flora and exotic plants from around the world highlight this prismatic jungle of lush, towering plants, and delicately fragrant flowers. A walk-up waterfall and flowing streams contribute to the natural forest atmosphere.

The Tropical House encompasses 10,000 square feet and is 55 feet high. At least 90 species of plants, and more arriving every month, are sheltered here. In addition, hundreds of gallons of water cascade every hour from a 550-gallon tank, enclosed in the large rock formations.

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**Arid House**
In order to display the richest variety of desert plants from North America, materials were selected from the Sonoran Desert of northern Mexico and southern Arizona. This collection emphasizes an ecologically balanced group of cacti and succulents.

The Arid House covers 4,500 square feet and is 25 feet high. More than 52 tons of boulders have been transported into the building to complement the desert panorama. More than 200 species of plants comprise the display.

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**FT. WAYNE BOTANICAL CONSERVATORY**
(from "EXPERIENCE... Fort Wayne's Botanical Conservatory", a brochure produced in cooperation with the Tourism Development Division, Indiana Department of Commerce)
The major greenhouse spaces included in conservatories located in temperate climates have followed popular themes. Typical major ones are the tropical house and the arid house (p. 26); space is also included for temperate plants, this often being outside. Specialty houses are sometimes used, examples being ones for orchids, ferns, bromeliads, and succulents, a variation of the arid house. A newer development is becoming more popular -- the so-called Showcase House. This is devoted to periodically changed exhibits. Exhibit topics are often related to the seasons or holidays, thus there may be Christmas shows, Easter shows, spring shows, winter shows and the like. It is to this changing display that Milwaukee credits a large portion of its repeat attendance. It is interesting to note that St. Louis with its "Climatron" (but no Showcase House) has an annual attendance of approximately 300,000, and that Milwaukee (with a Showcase House) has an annual figure of 500,000.

Other major spaces normally include the "working greenhouses" and spaces for whatever support activities are needed for the particular conservatory. Examples are administration, public spaces, display areas, education, and research, etc.

Due to the downtown location for the Urban Conservatory, the following questions were asked. "What effect does an urban context have on a conservatory?" and "How does it affect both the general functioning and also the specific needs of the conservatory?" The "specific needs" issues are addressed later under "Specific Conservatory Program." The following discussion outlines some of the "general effects" issues.

First, one might look at some of the purposes of a conservatory, asking, "Does an urban area prevent or affect any of these things?"

1. growing/exhibiting plants -- The main concern here is light and pollution levels. Neither of these were seen as major problems in the downtown. Outside planting beds and gardens would be very much affected due to the conflict between their usual expansiveness and the downtown's compact dense nature.

2. relaxing/walking -- Still possible within the conservatory.

3. playing -- The inside is not affected; the outside is possibly affected due to less room available.

4. research, learning -- Unlikely to be a problem unless extensive outdoor areas would be needed.

5. entertaining, group gatherings -- Not seen to be a problem.
Second, one could ask, "What effects does the park setting have on the traditionally sited conservatory?"

1. Parks generally allow major control over light and shading factors.
2. The open settings allow more space for building siting and outside plantings, as well as future expansion.
3. The site context of "greenspace" parallels the "inside greenspace" nature of the conservatory.

From the preceding two lists, two major concerns needed to be addressed for the Ft. Wayne downtown site. One, "Was outside space needed for large beds and plantings or future expansion?" The answer here was "No." Large outdoor plantings were not required, and possible expansion could be handled by establishing "branch" conservatories. Two, "Because of the differences in site contexts, would a special transition now be required to "protect" the conservatory from its urban context?" This was seen as an important design concern, yet it was also one which might have an advantage. In this case, perhaps the contrast between the "soft, green" conservatory and the "hard" urban surroundings could be used to both their advantages.

The following points could then be made about a conservatory. First, it should be a place for plants of different climatic zones, and thus a place for curiosity, research, and education. Second, it should be a place for people to relax, sit in the sun, talk, meditate, people-watch, etc., and it should also allow people to get together in groups for meetings, pleasure, and events. Finally, it should do it in a way which maintained the strength and integrity of the conservatory.

Specific Conservatory Program

The program from the actual Ft. Wayne Conservatory was taken as a starting point. Adjustments and additions were made to reflect the changes in the project's orientation and expansion of built spaces. The following is the original conservatory program, along with a summary of the descriptions of the individual spaces. Building criteria are also included.
PROGRAM SUMMARY (square feet)*

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Showcase</td>
<td>10,000</td>
</tr>
<tr>
<td>Tropical</td>
<td>10,000</td>
</tr>
<tr>
<td>Arid</td>
<td>4,000</td>
</tr>
<tr>
<td>Propagation</td>
<td>4,000</td>
</tr>
<tr>
<td>Gift/Plant Shop</td>
<td>1,500</td>
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<tr>
<td>Restaurant</td>
<td>1,250</td>
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<td>Lobby</td>
<td>3,400</td>
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<td>Classroom</td>
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<td>Administrative</td>
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<td>Service</td>
<td>1,200</td>
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<tr>
<td>Storage</td>
<td>1,600</td>
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<tr>
<td>Mechanical</td>
<td>2,000</td>
</tr>
</tbody>
</table>

Total: 40,900

*(from the existing conservatory study)*

Showcase House-- 10,000 s.f. (square feet)

With the changing of its exhibits, the Showcase house becomes a major part of the conservatory. Seasonal changes (spring, fall, etc.) and special occasions or holidays are often the themes of various shows. The shows usually combine some built structures such as walls, gazebos, trellises, etc. with extensive plant material; walkways and seating are then provided for people to enjoy it. This space is seen as a major attraction for the conservatory, especially in prompting repeat visits.

Due to frequently changing shows, sometimes six or more per year, convenient access to a service area, receiving area, and temporary plant storage (the "Propagation House") is required. High light levels are not as important as in the more permanent houses due to the frequency of the plant changes. Temperatures are normally kept on the cool side to prolong the many blooms and flowers used here. The minimum ceiling height is 35' and minimum desirable space width is 80'.

Tropical House-- 10,000 s.f.

A second major area of the conservatory, this house specializes in plants from the tropics such as palms, ferns, orchids, vines, etc. Lush, exuberant growth is often combined with water in various forms-- pools, streams, and fountains. This house requires less changing and thus does not need a close connection to the Receiving area. Light levels are an
important concern here. Suggested minimum height is 45', minimum desirable space width is 80'.

Arid House-- 4,000 s.f.
A smaller house, the Arid House specializes in cacti and succulents. Desert environments are common, and hard, sparse settings are often used. This house normally requires the most light. As one person put it, temperate climates with their inherent cloudiness provide real challenges in growing cacti well. Cool house temperatures in winter are often used to reduce or stop plant growth-- otherwise the available light levels induce weak, leggy growth. The height needed is less-- 25', and the minimum width is 40'.

Plant Propagation-- 4000 s.f.
Serving as both a growing and holding area, this is more a working area and usually not open to the general public. Some research oriented, educational, or community activities could still occur here. As this area often holds incoming/outgoing Showcase plant material, it should have a very close connection to the Receiving area.

Gift/Plant Shop-- 1,500 s.f.
This area sells plants, educational materials, and other gifts to the public. It then supplies income to the conservatory. Convenient access to both the Receiving area and the Propagation House is preferred.

Restaurant-- 1,250 s.f.
Seen as an informal eating place with table seating and and evening meals, the restaurant is also a source of income for the conservatory. Access to the public areas and Receiving is required.

Lobby-- 3,400 s.f.
A "first-impression" entry room, the lobby needs to accommodate various sized groups as well as displays and restrooms.

Classroom-- 1,200 s.f.
Accommodating 65 people, the classroom serves not only the conservatory but also the community as well. While public access is required, it does not need as strong a connection as the main conservatory houses.

Administrative-- 750 s.f.
Two offices, conference area, reception and greeting, and toilet make up this area. Access to the public is required.
Service-- 1,200 s.f.
Service or "Receiving" is required to handle the incoming/outgoing plants, materials and business/office supplies. Close contact with Plant Propagation and Showcase is desired.

Storage-- 1,600 s.f.
Storage is expected to hold Showcase display material and the various tools and supplies needed for conservatory operation. It needs convenient access to the various plant and display spaces.

Mechanical-- 2,000 s.f.
Mechanical criteria are listed below after "Further Building Information."

Further Building Information:

Additional criteria for the Ft. Wayne Conservatory included the following:**

1. Dispersed glass areas are more efficient.
2. Glass should only be used at an angle between 45 and 90 degrees.
3. Total glass quantities should be approximately 70% of the floor area.
5. Soil depths required are: Tropical 3' to 5' or as much as possible; Arid, less than Tropical; and showcase, least of all for plant growth. If changing levels are desired for Showcase, then soil depth must be increased and planters will be used.
6. Good drainage of the soil is essential to plant growth.
7. Reflectance within the growing areas is essential.
8. Highly distributed lighting is essential.
9. Diffused light is better in many cases than direct.
Mechanical Criteria:

1. An 85 degree maximum temperature would be satisfactory and there should be at least a 10 degree differential between daytime temperatures and night-time temperatures. A larger differential will be more desirable if possible. Minimum temperatures will vary according to the plant material; tropical should be 65 degree minimum, foliage plants could go as low as 55 degrees, and cactus and succulents will grow well at 50 degree minimum.
2. Sudden changes in temperature are bad for plants.
3. Relative humidity should be maintained in the range of 85% for the Tropical Rainforest area, 75% for the Showcase area, and 35% for the Arid area.
4. Water temperature for plants should be room temperature.
5. Water pH should be between 6.0 and 7.0 in order for plants to effectively utilize nutrient material. This will require treatment of the city water supply which is often above the 9.0 level.
6. Circulation of air is important for plant growth and health. Ventilation through the use of fresh air is not necessary except as a cooling device to avoid heat build-up in summer temperatures.

Materials/Details:

1. Fungicides may have a corrosive effect on metals. Metal surfaces may need special protective coatings.
2. Building materials should be chosen carefully to avoid surfaces that can collect mold and mildew.
3. Falling condensation can erode soil and damage plants.

** excerpted form the original conservatory study by Archonics Corporation

As the project was now greater than just the conservatory and as the conservatory would now occupy the site along with other uses, some sharing of spaces and functions might be possible. Ones which readily came to mind were the lobby, service (receiving), and classroom areas, as well as the gift/plant shop and restaurant. Others with possibilities were mechanical and storage. The actual sharing arrangements were not foreseen at this time. More needed to be learned about the uses which might share spaces and what their respective needs would be.
"Other" or "Buffer" Uses

What came to be seen as "buffer" uses were to provide the urban context for the conservatory. These uses would somehow help tailor the site to the downtown. These uses consisted of commercial/retail, office, residential, and parking. As these were not the primary purpose for the site, the approach was to get a general idea of their needs and not fix particular amounts of each needed. Thus the quantities at various stages of the design varied, depending on the approach taken.

Commercial/Retail: These areas need flexible spaces with primary access to pedestrian traffic. Delivery areas should be convenient. Due to Ft. Wayne's economic needs, a site goal was also to include inexpensive flexible "starter business" spaces. These spaces might then generate more jobs as well as a more diverse economy. "Inexpensive, flexible, and location" are perhaps the key adjectives to describe the spaces needed for "starter businesses."

Office: Offices need public access but not usually to the extent of retail stores. Convenience to delivery areas is desirable, and if they are not on a ground floor, then elevator service is highly desirable.

Residential: Important aspects of residential units include both privacy and a connection to the street. Walk-up units are possible, though elevator access is also desirable. Access to parking is a further important consideration.

Parking: Its importance to the downtown is self-evident, especially one dependent on commuters for the majority of its activities. Requirements for on-site parking included serving some of the general conservatory and mixed-use needs and also the housing. It should also be noted that large parking garages available to the public are located directly to the northeast of the site.

Building types which were to play roles in incorporating these "buffer" uses with the conservatory varied at different points in the project. An early one was the courtyard or cloister garth mentioned earlier. In this case, the "buffer" uses would surround the courtyard conservatory.
Later developments used ideas shown in three projects--two from the nineteenth century and one from the twentieth century. The first two illustrate gallerias and arcades: Galleria Vittorio Emanuele II in Milan, and the Cleveland Arcade (p. 34, 35). In these, continuous skylit roofs help form a strong building axis--a great hall. Mixed uses of shops and offices can occupy the spaces along these great halls.

The third project is the Rainbow Center Winter Garden in Niagara Falls, NY. Here a central space within a mall system has been specifically developed as a garden which people can also walk through (p. 36). It is the "garden" emphasis which is important here; as is shown later in the "Design" section, this "garden" or conservatory emphasis along a galleria axis was to play a strong role in the site organization and design.

Galleria Vittorio Emanuele II, Milan, 1865-67 by Giuseppe Mengoni (from A History of Building Types by Nikolaus Pevsner, p. 265)
Cleveland Arcade, Cleveland, Ohio, 1888-90 by John Eisenmann and G. H. Smith
(from *A History of Building Types* by Nikolaus Pevsner, p. 265)

One should note at this point that the conservatory was pictured as the primary use for the site, and that its spaces would stay relatively fixed over time; also the mixed-use spaces were seen to be more flexible in their sizes and/or total numbers and could also more easily change over time. This perception led to a general design approach of 1) fixing the conservatory spaces and public spaces and 2) infilling with the other mixed uses. This approach was modified and clarified by various conceptual design approaches as explained in the next section.
A primary economic and social concept which was kept throughout the project was to develop the conservatory as a free or "no admission charge" conservatory. An important social goal was to make this a public space, accessible and enjoyable by all regardless of income level. With this approach an important feeling can be given to all-- a feeling that the conservatory is everyone's. Required operating funds could come from several sources. Options include donations, conservatory memberships, endowment funds, and tax revenues and subsidies generated by the additional development on the site. Additional "funds" might come in other ways, e.g. waste heat from the buffering spaces, and volunteer help performing some of the conservatory's work, possibly in the form of combining work and educational classes.

An important implication of building a free conservatory comes to light when one considers that conservatory access no longer needs to be controlled for "paid admission" purposes. Perhaps needless to say, this approach allowed substantial design and planning freedom when it came to integrating the conservatory with the other uses on the site.
Early design divided the site into two parts, a conservatory/business part, and a housing/"some business" part (see Concept 1 p. 39). This design used several concepts or guidelines which included:

1. Mixed-use development. This helped integrate the project into the downtown and provide some solutions to some of the downtown's needs.

2. "Courtyard" approach for the conservatory. Similar to earlier cloister gardens in monasteries, the conservatory would be sited within an outer shell of other uses.

3. Pedestrian/urban street development. Along the street edge, development was high-density with very little setback. This allowed for greater interaction between pedestrians and the buildings’ interiors, making walking generally more interesting and enjoyable.

4. Housing in a neighborhood. A clear cluster was developed to contain the housing and define neighborhood boundaries.

5. Parking to the block's interior. This kept parking off the street edge and helped to develop the "pedestrian/urban street."

The site uses were felt to be too separated and discrete in Concept 1, however. Subsequently I searched for ways to integrate them—ways which might use an organizing framework to assist in the design of the site. It was already a concern that the conservatory should maintain its integrity within the overall development. It was also realized that the conservatory spaces would be more fixed over time when compared to commercial and office spaces. I then developed the concept of using the conservatory as a combination "path/event on path" framework around which the site could be developed.
I also began to use the idea of "buffering street spaces" and began developing "conservatory atriums" within a larger urban structure.

Two additional concepts gave further guidance. One was to organize vertical space using the pattern of offices and residences on upper floors, with shops taking the ground floor. The second was that inter-floor movement would be largely via stairways and that the overall number of floors should not exceed four.

Two more site concepts were developed (see pp. 41, 42). Both maintained high density development on the street; both increased the commercial/office development along the growing downtown axis on Calhoun Street. Concept 2 used fewer, larger atriums to house the conservatory spaces. It also contained an interior axis which, when roofed with glazing, was the beginning of a galleria. Concept 3 broke up the conservatory into even more atrium spaces, this time smaller ones. These seemed to be getting too small, angular and fragmented. The conservatory's strong formal role in helping to shape spaces seemed to be getting lost by being broken up into so many "light wells."
In arriving at the Final Site Concept (p. 44) which would be used for design development, I incorporated parts from the three earlier site concepts.

1. High density development on the street was kept.
2. Vertical organization of shops/offices/residential was used.
3. Larger atrium spaces with a strong linking axis was used. Spaces and "events" were to occur along this axis.
4. Buffered parking was to be used with "starter business" type spaces.

During design development, several concepts were added or strengthened. The main one was the "Conservatory theme " for the site. I felt that the site needed a center-- something which symbolized the meaning and purpose of the site. There were many factors involved-- Ft. Wayne, its downtown, and the conservatory. Perhaps it was the feeling of them all coming together-- the diverse, vibrant life, both of people and plants, in a setting of business and work which was connected to that life... perhaps it was this that made it very fitting to develop the Showcase House into a "heart" for the site. The Showcase space included people and plants; it included spaces for work, play, and relaxation in its offices, workspaces, stage, plant displays and informal seating. It was also a place of change; the changing shows even mirrored the changing and improving of downtown Ft. Wayne. It would be a heart that was alive and growing, not only for the site itself, but possibly for the city as well.

In addition to the "Showcase heart", two other concepts could be mentioned. First, a "Night Life" plaza was developed at the north end of the galleria to reinforce what was seen as a potential "night activities" area. Second, the requirements for natural lighting for the conservatory spaces provided form-giving guidelines for the boundaries between the "plant" and "other" spaces (see sketch below and building sections pp. 56, 57).

![north/south section](image1)
![east/west section](image2)
### SUMMARY - GROSS BUILDING AREAS

in square feet (s.f.)

<table>
<thead>
<tr>
<th>FLOOR</th>
<th>CONSERVATORY (MAIN PUBLIC AREAS)</th>
<th>COMMERCIAL/RETAIL</th>
<th>OFFICE</th>
<th>RESIDENTIAL</th>
<th>PARKING (383 SPACES)</th>
<th>CIRCULATION/ELEVATORS/LOBBIES/RESTROOMS (Includes BALCONIES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>53,760</td>
<td>49,900</td>
<td></td>
<td>30,360</td>
<td>10,100</td>
<td></td>
</tr>
<tr>
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<td></td>
<td>52,600</td>
<td></td>
<td>30,360</td>
<td>23,850</td>
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<tr>
<td>3</td>
<td></td>
<td></td>
<td>33,140</td>
<td>16,750</td>
<td>30,360</td>
<td>25,400</td>
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<tr>
<td>4</td>
<td></td>
<td></td>
<td>6,980</td>
<td>24,870</td>
<td>30,360</td>
<td>15,180</td>
</tr>
<tr>
<td></td>
<td><strong>TOTALS</strong></td>
<td><strong>53,760</strong></td>
<td><strong>92,720</strong></td>
<td><strong>41,620</strong></td>
<td><strong>136,620</strong></td>
<td><strong>62,500</strong></td>
</tr>
</tbody>
</table>

**MISCELLANEOUS:**
- RECEIVING: 4,170 s.f.
- STAGE/STORAGE: 2,670 s.f.
- MECHANICAL: 8,500 s.f.

**TOTAL PROJECT AREA:** 452,460 s.f.

Design Drawings (pp. 52-61)

The major part of this thesis dealt with two ideas; 1) both the conservatory and the downtown would play major roles in guiding site development, and 2) a buffer between these two would be provided by mixed-use spaces on the site. The conservatory was to function as the inner core for the project, and the buffer would surround this core. This can be seen in the first, second and third floor plans (pp. 52-54).

To describe the site in more detail, one can begin with the project's center or "heart". This is the Showcase house, one of the conservatory's primary spaces. It functions as both a horizontal and vertical transportation hub as it sits at the crossroads of the primary circulation paths. Activities here mirror the integration of the conservatory with the
downtown. Plantings and seasonal displays provide both a focus and background for such things as people walking, sitting, relaxing, and eating. Activities also can include concerts, weddings, and small shows. It serves partially as a community center with the capability of having connections to its outside entry plazas. Roofed overhead with a translucent glazing, it is bright inside by day, and glows on the outside at night.

Extending out both north and south from the Showcase "heart" are the Galleria streets--the 3-story interior walkways which provide a backbone for a major part of the project. Lit by a continuous, glazed roof, they are heavily planted, yet they maintain a sense of urban street in order to serve the mixed-use spaces along them. These spaces include shops, offices, and the conservatory houses (Tropical and Arid). Their vertical arrangement follows the general pattern of: first floor - retail; second/third floors - offices; the conservatory spaces run continuous, first through third floors.

The Galleria as a street has a strong emphasis on people. Walking, learning, shopping, sitting and relaxing are all activities that could be found here. The conservatory theme is present, but not the only one. The other mixed uses provide their own themes as well. While signage and tenant activities would be somewhat restricted, it is felt that the tenants could also "come out onto their doorsteps", providing the individuality unique to an urban area.

The commercial and office spaces which open onto the Galleria are designed as flexible buildings which can be finished to suit their occupants. These might include a variety of retail shops; service businesses (e.g. barber, tailor); and offices (professional, institutional, etc.). A further possibility for these spaces would be meeting rooms which could serve both the community and the convention hall just across Jefferson Street.

At the north and south ends of the site, the Galleria streets end with entry plazas. The north one has a special character of "Night Life" activities which reinforces that of its neighbors next door and across the street (theater, hotel/convention center and McDonald's). Activities for this area might include a restaurant, ice cream shop, drug store, book shop, tobacco shop, pub, or newspaper/magazine stand. Evening meetings, group functions, or conservatory events would add even more possibilities to a lively cluster of night spots.

Along Calhoun Street with its developing Semi-Mall, the building density is generally kept high with alternating mixed uses. This alternating mixed-use/conservatory rhythm characterizes the site and can be seen in the "East Elevation" (p. 59). Compared to the conservatory, the
mixed-use buildings are usually smaller in both size and scale of
detailing. The lower two floors for commercial and offices are kept
simple and straightforward, while the upper residential facades reflect
the living spaces behind them. It is expected that over time, the building’s
tenants would personalize their street fronts, thus adding more life and
interest to the street.

The conservatory buildings use a larger size and scale to help set
them apart from the mixed-use buildings. Extensive glazing is used where
higher light levels are needed for the Arid and Tropical Houses. Since
light is not as important for the Showcase house, it was designed with
less glazing.

The plaza just east of the Showcase House offers an outside space
for the uses around it. Showcase, restaurant, and retail activities would
be encouraged to move outside when possible, giving additional liveliness
to the street.

Next to the south entry plaza is located the largest commercial area.
It is possible that a larger tenant would take one or even two floors here,
providing a commercial anchor to the project. This plaza is also open for
activities to move outside, and would provide a sunny, pleasant street
space during the warmer part of the year.

At the southwest corner of the site are two buildings designed as
"starter business" spaces. Construction is simple, and while there is no
elevator access, wheelchair access can be gained to all of the Harrison
Street building by using the north parking garage entries to that building.
The building has no interior columns and could accommodate a wide
variety of activities, from retail to offices to working studios (pottery,
art, etc.). Improvements would generally be left up to the tenant, with an
emphasis on keeping rents low. The Douglas Street building allows
business use on the first and second floors, with walk-up townhouse
apartments on the third and fourth floors. Again the building approach is
to keep things simple and rents low.

Directly behind the "starter business" buildings and buffered by them
is the parking garage. With space for nearly 400 cars, it provides parking
for the residential units on the site as well as part of that required for
the conservatory and other commercial/office uses. This comes from
parking needs of 71 spaces for residential use (1.7 spaces/unit @ 42
units) and 435 spaces for conservatory/commercial/office use (2.5
spaces/1000 s.f. @174,000 s.f.). Remaining parking would be supplied by
adjacent parking structures, especially the Civic Parking Garage located
directly to the northeast of the conservatory site.

The service entry to the site is located on Harrison Street. In the
Receiving/Mechanical building is the main receiving area for the site,
especially for plants-- there is a covered loading door where plants can be taken directly to either a main house or possibly the gift shop. Other site tenants also use this area-- there is some temporary storage space available to handle merchandise and supplies while they are being unloaded.

Next to the receiving docks is the Plant Propagation House. As this House also handles temporary plant storage (after coming in or before going out), it benefits from convenient access to the loading docks. An additional benefit of this particular location is being able to use the Embassy Theater's south wall. This is seen as a mutually advantageous buffering of each other's building. Some mechanical ducts and possible exits on the Embassy's wall would be extended through the Propagation House. Due to the "working" nature of this space, it is not seen as a major problem.

For the most part, the 42 residential units on the site can be classified as one, two, or three bedroom units. They are generally located above business spaces and are usually found in clusters on the third and fourth floors. Most are two story units with the main entry being on the third floor. Most units are also connected by walkways to the Galleria Streets which then gives them access to the site's elevators. Typical floor plans can be seen in details (p. 61).

It is felt that the market for these units would consist of 1) people just starting out-- singles or couples, 2) people wanting a downtown place to live for its proximity to work, as well as those who simply enjoy the downtown, or 3) the "empty-nesters" who are looking for a place without a yard or extensive upkeep, yet who want a place that is close to many different activities, many within walking distance. Units could be sold as condominiums or rented, depending on the market for each. External building and site maintenance would probably be handled by the overall site management.

A final design comment could be made about how the project and particularly the Gallerias would be used throughout a 24 hour day. Since some of the residential units are reached primarily through the Galleria streets, these streets would need to remain open round the clock. Also as the elevators are seen as an important option to reach the residential units, the Showcase House would also remain open. This implies that the Gallerias and Showcase "heart" also function as a 24 hour street, with the spaces along it being able to set their own hours and building control. It also implies that the planting and exhibits done there would not be locked up at night unless they were taken inside or protected in some manner. While this does imply there would be limitations on the types of things that would be feasible for those spaces, especially regarding the
conservatory’s plantings and exhibits, it is felt that there are still many worthwhile ways for the conservatory to operate. In contrast to these disadvantages, there would be the advantages of 1) allowing 24 hour businesses within the Galleria (the night life area at the north end of the site might especially use this) and 2) allowing the community both night use and ownership of the space. Plantings and fountains lit at night have long been an enjoyable experience.

Mechanical

Cooling was seen as the major problem due to the overall size of the building. General strategies employed would include 1) avoiding the sun through shading, 2) ventilating excess heat both naturally by convection, and mechanically with fan units (conservatory houses could use both), and 3) using night ventilation for pre-cooling the buildings. Savings in cooling costs also could come from using off-peak electric rates when conventional air conditioning was needed.

Since heating was not as important, economic analysis would be needed to decide whether the following strategies would be cost effective: 1) solar heating 2) transferring waste heat from one area to another, and 3) saving heat by insulating. A final strategy, setting back the thermostat, would be automatically used in the conservatory houses— it keeps plants dormant or slow-growing in winter when plant growth tends to be weak.

Using a central boiler and chiller was seen as the preferred solution for all but the residential units and the detached buildings on Harrison Street and the corner of Harrison and Douglas Streets. The main units would be located in the Service/Mechanical building just off the Service Court, possibly in a basement room as well as the fourth floor. A utility tunnel running under the Galleries and Showcase House would have branches into the main spaces and then rise vertically to feed various air handling units. Use of heated/chilled water then would be metered for the tenant spaces. (It could be noted here that the conservatory soil beds can be zoned with radiant heating, thus giving desired flexibility in soil temperature control. Air circulation would still be required due to both cooling needs and the plants’ need for general circulation.)

Other options or additions that could be looked at for the main system include 1) using cogeneration systems (conservatories need back-up power supplies anyway) and 2) using a one-pipe main supply system where water at approximately fifty degrees is supplied to water-to-air
heat pumps for both heating and cooling. The other spaces on the site for residential and "starter business" uses would have individual units sized for their spaces. This would give each space its own control and metering.

Structure/Materials

The whole site generally uses masonry bearing walls and columns. Floor structures for the commercial/office/residential buildings use a bar joist with metal deck and concrete topping system; the Showcase uses a structural concrete slab. The roof varies from bar joists for the residential/commercial areas to aluminum trusses and beams for the conservatory houses and Gallerias.

Major surface materials start with brick and concrete pavers for the public areas on grade inside and out. These would use two colors, one red and the other cream. Walls use red brick for the commercial/office/residential buildings and cream-colored brick for the conservatory houses and Galleria entrances. Roofing includes heavy gauge fiberglass shingles in a red and cream pattern for the solid areas; glazing is used for the conservatory areas. This would be glass for the Tropical and Arid Houses, and a translucent plastic, perhaps acrylic or fiberglass, for the Showcase and Galleria areas. Advantages of the translucent glazing include 1) less breakage from hail or wind, and 2) the exterior view at night. The translucence would give off a soft glow, with the Showcase House appearing as the "jewel" in the downtown.
DISCUSSION/CONCLUSIONS

One could ask, "How does the "Urban Conservatory" work? Is it feasible?"

It is felt that it could indeed work, especially when approached with the idea that balances between uses are both worthwhile and achievable. This means working out balances between the form and space needs of the conservatory and the other mixed uses and the downtown. Their common boundaries here are especially important. The space needs can be satisfied with design, and the "use" balancing can be worked out by using guidelines for items such as signage, activities, and noise levels. Management could stress the importance of communication and also set up methods for resolving differences.

The advantages of all this are multiple. The conservatory would play a very active role in the city of Ft. Wayne. It most likely would affect a wider range of the population than it would as a "single-use" facility sited by itself in the traditional park. Relaxation, education, and research could still be major roles for it. The downtown would get a developed site which served as many things:

1. a valued amenity for attracting people, one with a pedestrian scale;
2. more jobs and the potential for new business growth;
3. additional parking which is buffered and thus does not discourage the liveliness of the street;
4. residential units which provide 24 hour uses with direct connections to the street.

The conservatory, along with its typical use pattern, would now be available to uses for just a few minutes, or a lunch hour, or in connection with another evening activity. And it could do this while also serving as a symbol—of downtown and city renewal which is freely accessible to people regardless of income.

A final advantage might take note of the potential for the future. Due to man's increasing effect on his environment, balances will most likely become more and more important. The conservatory, in achieving its own balance with the city, could help educate others in both the importance of "environmental balancing" as well as ways to do this. In this way it could be part of a global improvement as well.
To conclude what I learned in this project... perhaps the major benefit I accomplished in doing this thesis was gaining insight and practice regarding the needs for sensitivity and responsibility in design. To explain that, this thesis incorporated what could be seen as a large number of variables. For instance, the mixed uses included the conservatory, commercial/retail spaces, offices, residential units, and parking spaces. Each main use could be further split up into component parts: the conservatory has its major houses and minor support spaces; the commercial spaces needed a range of space sizes as well as some "starter business" spaces; and so on. To integrate this spectrum of uses and needs on one site, and to further integrate this site into an urban area which has its own needs--this is what I refer to when I talk about the need for sensitivity and responsibility in design. The alternative I feel is to regard a site or a use as something of an island. An island has some connections to the rest of the world, but largely it is alone and separate. If a design treats its site or use as an island, fulfilling perhaps its own needs but not reaching out to gain from or satisfy other outside needs, then it seems that the designer has stopped short in both design and responsibility.

In this thesis, all this meant that in order for me to be both sensitive and responsible, not only did I have to understand the conservatory's needs and purposes for being on that site, I also needed to understand the needs of the downtown and Ft. Wayne. This substantially changed the original project. Sensitivity then required that I search for ways to integrate the new uses and requirements for the site in sympathetic ways. Uses should not merely coexist. For example, the progression from Site Concept 1 to the Final Site Concept covered a lot of learning and integrating. This included 1) urban scale design: e.g. designing for high density mixed uses, as well as designing for pedestrian streets, nightspot areas, and special needs such as "starter business" spaces, and 2) site ordering concepts: e.g. use of neighborhoods and boundaries, courtyard spaces, formal and informal axes, buffering strips, and pathways and nodes. From the Final Site Concept to the finished design, I learned more about ordering as I developed a strong center for the site; I learned about integrating uses as I designed residential spaces with office and commercial spaces below--and these all within a building structure which worked not only for those spaces, but with adjoining buildings on as many as three sides. I also learned about the sharing of common spaces. For instance, walking through a conservatory can also be the same walking a person needs to do when running downtown errands or going from workplace to lunch and back. The conservatory may lose some control over one of its spaces when it is also used as a pathway for other
uses, yet it gains in terms of its exposure to a greater number of people. Or, what the conservatory loses in terms of its individuality, it makes up for in becoming integral to a larger number of users.

The thesis process was a long one. The changes in the project were extensive. The transformation from the "initial" to the "final" has been a nice one to reflect upon. Nice as well, is both to expect and reflect upon the changes for the future.
FURTHER DIRECTIONS

Some aspects of this project which could be taken further are
1) "transitions", 2) conservatory expansion, and 3) user-modification of
the site.

"Transitions" involves designing boundaries between spaces. From
small to large scale, these might include the spaces on each side of a
doorway, to the larger spaces going from block to block. To study these, it
is felt that further information about the particular uses in those spaces
would be needed, and particularly so in regards to the people who manage
or control those areas and the policies they wish to use. In that case a
resulting design could better accommodate both the physical and the
intangible environment.

Conservatory expansion was not a major concern here. It was felt
that "branch" expansions were one possibility; if this were pursued, one
could get into some intriguing applications of how a "branch conservatory"
would function. (Who would care for it, would it be subsidized by
surrounding spaces? etc.) Social and economic benefits are definite
possibilities-- one could even imagine with some amusement how a
conservatory and "Roman bath house" might be integrated.

Finally comes "user-modification" of a site, an original goal to
explore if time permitted. The establishing of "frameworks" and
"suggestions" can be a way to accommodate a variety of uses within a
space. This approach would allow buildings and spaces to have greater
flexibility and hopefully longer and more useful life spans. In this case
buildings could be changed more easily and thus be more personalized--
and last but not least... architects would perhaps be more appreciated.