WHITE RIVER CROSSING

INDIANAPOLIS

JENNY ROOKS
THESIS '80-'81
PROF.: R. KINGSLEY
This book is a summary of the development of my thesis, Sept. 1980 - May 1981. The project I chose is a residential/commercial structure which spans the White River in Indianapolis. I have chosen to document the development more fully than the end result because I feel this particular project could have gone any direction, and my final solution is merely one solution out of several which are presented in this document.

Garry A. Reeb
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HISTORICAL INFO...

When Indianapolis was chosen for the site of the new state capital over one hundred and fifty years ago, the White River was a decisive factor. It was envisioned that the natural resource of a river could become a vital force in development of the capital city. But the river did not become the major transportation route that it had been originally conceived to become; in fact, development around the river was nearly avoided altogether.

Lately, the river has begun to receive much attention. Many people in and around Marion County are beginning to appreciate this untouched natural resource. This, coupled with a realization of the need for a central park in the Indianapolis area, prompted the creation of the White River Park Development Commission by the 1979 Indiana General Assembly. Their principle objective is to create a state park in an urban setting which reflects the magnificence and strengths of the State of Indiana. This area, just west of Downtown Indianapolis, will probably receive the most attention in the next few years, but further development of the rest of the river corridor is also expected in the years to come.

Presently, the proposed park site extends north to the IUPUI campus, east to the downtown, south to the convention center, and across the river to the west bank where a large residential district lies. Many different activities/elements have been suggested to be included in this area and along the river corridor.

In February of 1980 a design team of architects, urban planners, landscape architects, sociologists, and economists came together for four days to help create a park plan for White River. Not only did they want to see an exciting, significant, and satisfying park created, but they also believed that White River Park must be highly sensitive to its setting in the heart of a major metropolis. David Lewis, chairman of the P/DAT team, stated, “The park must relate effectively to downtown Indianapolis, to the State Capital Center, to the growing university complex on the park’s northern edge, and to the hard-pressed neighborhoods in its vicinity.”
Evolution of an idea...

The idea for White River Crossing came about in my fourth year of design while I was working on a White River Park Design in an urban design studio. I could see the need for a pedestrian bridge within the park; for housing, both to replace the already existing, but rundown housing on the southwest side of the river, and for student housing to support IUPUI campus and the hospital complex on the northeast side of the river; as well as a commercial/shopping area to support this housing, the campus, and the hospitals.

As I began to consider various possibilities for my thesis, I decided to incorporate these needs and entities into one complex. It was a very open proposal from the beginning. How much housing was needed? Where would be the best location for this multi-function complex? Just how large a role would it play in the White River Park - in the IUPUI campus - in the neighboring residential areas - in the city of Indianapolis?

Initially I considered ideas of a large residential complex on one side of the river, connected by a pedestrian bridge to a commercial complex on the other.

I worked with that for a short time - it started to grow into the river before I knew it, looking something like a bow tie with the knot in the center getting smaller and smaller.

It then occurred to me that maybe this entire complex could span the river and become one big "living" bridge. Being somewhat naive and untraveled, the only comparison I had was London Bridge (I had sung the song as a child...) Upon researching London Bridge, I also came up with several other bridges and housing complexes which I thought worthy of investigation.
THE OLD LONDON BRIDGE

PULLENY BRIDGE
BATH, ENGLAND
- reflection
- rhythm

PONTE VECCHIO over the Arno in Florence.

Design by Palladio for a stone bridge carrying three separate footways and six rows of shops.

RIALTO BRIDGE, VENICE
segmental arch spanning 80'; w/ 21' rise

Indianapolis
white river crossing

AERIAL SHOWING SCALE OF HOUSING IN CONTEXT OF CAMPUS

- 260 foot long, 7 stories tall
- 200 residents
- $45/month - 4 man rooms
- $65/month - single

PLAN

STUDENTS' UNION HOUSING
EDMONTON, ALBERTA

ELEVATION

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Excitement grew as I began to realize just how many directions I could go with this thing. I pinpointed my site and began to look seriously at major issues and considerations which might affect my design and the form which it might take.

The Site

The site crosses the river south of New York Street and north of Washington Street. The northeast bank of the river is a gentle slope with a 200' flood plain. The southwest bank is concrete for stabilization and protection from erosion, approximately 60' in length from top of bank to water.

In dealing with the site, I intend to follow the White River Park proposal which was put together by the PY/DAT team in Feb., 1980. Some changes will be made where I feel they may be necessary, but as a park concept I intend to follow it. I also plan to work with IUPUI's master plan and generate a pedestrian axis up through the campus, eliminating some of the around-the-campus parking and turning it into much needed green spaces and recreational areas. I realize that the parking must be dealt with in another way.
Preliminary location of White River Crossing - between New York St. and Washington St.

Perspective of proposed White River Park in Indianapolis, by John Desmond, Feb. 1980
white river crossing

CONFIGURATIONS...

- axial shear at focal point
- extension of monumental or dominant mass
- modular bridge components = plug in spaces
- expression at midspan
- articulation of support (panel) points rhythm A-B-E-A-A
- joints contrast path across water
- bridge serves as transition between two scales (or textures, materials, rhythms...)

ARCHES
- fixed arch
- two-hinged
- three-hinged

CANTILEVERS

RIGID FRAME

BEAMS
- simple beam
- continuous beam

SUSPENSION CABLES
GOALS

To link the growing campus, IUPUI, on the northeast side of the river, with the park activities and residential areas on the southwest side of the river.

To preserve a "greenbelt" on both sides of the river.

To generate a major positive image within the proposed White River Park and within the city of Indianapolis.

To provide housing adjacent to the river without taking up premium park space along the river's edge.

To provide a crossing point for bicycles and joggers to cross the river.

Park Users:
To provide eating and shopping facilities within the park; to provide a pedestrian flow point across the river; to emphasize and continue access up and down the river.

IUPUI Users:
To create a place for commuters to spend time in between classes; to provide housing for students and faculty; to provide a display area for student arts and crafts and the selling of these things.

Residential Users:
To provide shopping and eating facilities; to provide pedestrian access to the park; to provide more housing.
ISSUES...

JOGGING PATH

The runner's pace should not be broken as he crosses the river. The jogging path should not cross vehicular traffic patterns. The runner should experience good views and attractions along the way. Special attention should be given to the pavement.

PEDESTRIAN CIRCULATION

The pedestrian should never cross the path that a moving vehicle would follow. Desirable views and attractions should be located along the way. Parts of pedestrian circulation should be covered or indoors so that the bridge may continue to be in use during bad weather.

BICYCLE PATH

The cyclist should feel safe and should avoid crossing the path that a moving vehicle would follow. He should experience desirable views and attractions along the way. Special attention should be given to the transition from the path along the river to the bridge and back to the river bank again.
PLANTING

Planting should be of high quality with proper drainage and irrigation. It should respond to the different seasons. Some should serve as visual and acoustic barriers.

DRAINAGE

Consideration should be given to water run-off from the bridge; if possible, when this occurs, an aesthetic solution should be found which might turn into some form of waterfall or fountain.

At this point I began to conceptualize. The next three pages show just some of my ideas of what this bridge might be...
white river crossing

Bubble Diagram

scale @ 1/4" = 10'-0"

- Housing on the outside for views and ventilation
- Darker colored circles represent multi-story housing for views/ventilation over lower levels of housing in front
- Some housing creates courtyards off main circulation path for privacy/variety

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This concept brings the pedestrian/shopper back and forth across the winding bridge in a zig-zag pattern as housing is directly across from shopping in every instance. Views would be equally emphasized in both directions. A central space is introduced in this concept (market-plaza...)

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This sketch begins to suggest a more linear circulation pattern with shopping lining the path. Housing is placed above shops as the bridge passes over the river but begins to spread out once the structure touches land. The central plaza element is again introduced—emphasizing views in several directions.
Schematic design followed. This is where I had some decision-making problems. I spent more time in this phase of design than any other. I learned a lot of things—two ideas stick out in my mind:

- If you (as a designer) really believe in something and can see true potential in an idea, stick with it until you’ve proven yourself to others, or until they prove to you that you are wrong... everyone has their own opinion when it comes to design.

- A project can be too open-ended—scope and limits must be clearly defined at the beginning of creative problem solving, just goes in circles... the problem must be understood.
This was my first schematic design - as I look back I think this had a lot of potential, mainly because I was so excited about it. If I were to do this project over again, I think I would go back to this "park within a park" and develop it much further.
SUSPENSION BRIDGE

Structure - balanced cantilever

- Visual axis to capital

Gridwork of housing/shops
(APPROXIMATE PROCESS)

- Based on 20' grid
- Dictated by suspension cables

- Units may be staggered - hung between cables and by cables below main level - patchwork of housing and shops

Section - Elev.

1" = 50'

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residential / condominiums ? like desire: become strong ending point on north bank. working with rhythm and arches...

Full water in to residential area - create swimming and outdoor recreation facilities into neighborhood. see well on road down for both residents and visitors to bridge.

a floor plan evolves...

- boat docks
- housing
- housing
- housing
- shops
- shops
- shops
- parks
- promenade

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Studying the south end condition—bridge meets land...

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↑ massing of activities

layering of activities ←

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my solution...
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perspective

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site

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1st level floor plan

- **housing**
- **circulation**
- **rentable space**
- **open to below**

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7th level floor plan

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- 2 bedroom apartment with loft space
- 1 bedroom apartment
- 1 bedroom apartment
- mechanical systems stem horizontally every other level from vertical shaft located in the center of each bridge module
- 1 bedroom apartment
- 1 bedroom apartment
- market space for vendors, farmers' fruit & veggie, student artwork, local displays

- bicycle/jogging corridor under bridge supported on piers and by secondary frames

section - perspective, indianapolis
model photographs
in conclusion...

I think the idea of a commercial/residen-
tial structure spanning a river is very
exciting. To live over water - to look
out your window and see up and down
down a river, a view hardly ever achieved
except perhaps from a boat, could be
a fantastic idea in itself. The commer-
cial link between a college campus and
a park holds much promise as does the
jogger, bicyclist path which allows the
crossing of a river in a pedestrian en-
vironment as opposed to a vehicular
one.

This project has many variables. The
scale (over a million square feet in
the bridge itself) is devastating,
especially when one begins to look at
the park, the campus and the city,
and all of their implications on a pro-
ject of this size. I think I could
have spent my entire thesis year just
identifying, the variables which might
affect the project. My solution just
barely scratches the surface - it is
only a beginning. I haven't any idea
how a metabolist piece of architecture
would fit in with the cityscape already
there. The park is only in a planning
stage at this point - it is hard to guess
what flavor it will bring into the city.

I do believe, however, that there is a
great potential in White River Cross-
ing. I hope that someday, when
I have much more experience in this
profession, that I might be given
the opportunity to work on a project
as exciting as I think this one could
be.
Bibliography

Great Buildings of the World: Bridges
Derrick Becket; Hamlyn Publishing Group Ltd., 1969.

The Architecture of Bridges
Elizabeth B. Mock; Museum of Modern Art; New York; 1949.

A Span of Bridges

Bridges of the World
Y. Naruse; T. Kijima; Morikita Publishing Co. (Tokyo); 1964.

Kissing Bridges
Hegan Petersen; Stephen Greene Press, 1965.

Bridgest
Sir Hugh Casson; Nat'l Benzole Co. Ltd.; 1963.

Architectural Graphic Standards

Hotel and Restaurant Design
Douglas Smith, Van Nostrand Reinhold Co.; 1978

IUPUI Master Plan
Wooden Associates, (Indianapolis)
Urban Design Associates of Pittsburgh