REKINDLING THE GENESIS OF THE AMERICAN LOVE AFFAIR WITH MOBILITY

BICYCLE COMMUTING FACILITIES

CHARLES LEMASTERS
UNDERGRADUATE ARCHITECTURE THESIS
COLLEGE OF ARCHITECTURE
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ACKNOWLEDGEMENTS:
RAY IRVIN, INDIANAPOLIS GREENWAYS
JACK WYMAN
A E PALMER
SCOTT TRUEX
CHERI ESSMAN

ARCHITECTURAL DESIGN THESIS COMMITTEE

PROFESSOR JACK WYMAN                     ARCHITECTURAL DESIGN STUDIO PROFESSOR

PROFESSOR SONNY PALMER                   ARCHITECTURAL THESIS CRITIC

02.00
ABSTRACT

The aim for this project is to reconnect the population with nature and a healthier life-style. This will be realized through the adaptive reuse of the Monon Rail Corridor into an alternative transportation corridor focusing on bicycle and pedestrian traffic.

For years we have been dependent on the automobile that is polluting the environment, making us lazy, and increasing the hours we must work to support ourselves. As the demands of work and the cost of living increases, more people are seeking alternatives to the normal life-style. They need less expenses and more free time for family and relaxation. By converting the Monon Rail line into a bicycle and pedestrian trail a new alternative is created to the automobile dominated world. The trail links the most heavily populated area of Indianapolis with many community functions and recreational opportunities.

The program of the facilities along the Monon Trail would incorporate those functions needed for bicycle commuting as well as for recreational users. A place to store the bicycle, cleanse, and change before work, need to be provided for the cyclist. Other services to be provided are a work station to make emergency repairs, along with gathering spaces for the community to enjoy the recreational uses of the trail. The facilities will take advantage of its context and any opportunities to engage and encourage the gathering of people.

The character of the spaces intend to educate the user of the positive effect they have had on the environment. Each facility shall have its own character relating to its context and be sensitive to the environment in its operation.

These spaces combine into an approximately 1750 gross square foot structure. The estimated cost for this project is $120,000 (in 1990 dollars) for each facility.
THESIS. RESEARCH

As our free time is encroached upon by the economic pressures of sustaining life, the "American" dream is slipping from the grasp of many families. The demand for our time by work, family and friends, is creating tremendous pressure upon our lives. We are isolating ourselves from nature through our dependence on the automobile. It is rare that someone will know their neighbor in this day of subdivisions without sidewalks. Society needs to find the time to relieve stress, increase their interaction with others, and decrease the damage done to the environment. I believe all of this can be accomplished through an increase in commuting by bicycle.

HISTORY

As an avid cyclist, I know that the bicycle is being under utilized as a means for transportation. The following quote from the December 1994 issue of Bicycling magazine convinced me of the importance of this concern, "Bike commuters need use some help. We're out there on the mean streets doing our very best to save the planet, but we're not getting much assistance from anybody. This includes one group that could make our lives a lot easier: the companies we work for."

The desire already exists in approximately 5 million Americans who commute to work by bike. By providing the much needed facilities to reward those employees commuting by bike, it will eliminate one of the most common excuses used by other prospective commuters for not riding to work.

My enthusiasm for this idea grew during the summer of 1994 when I explored the design possibilities of a rest stop for bicyclists along a new rails to trails system in Muncie, IN. Although this project was intended for a rural location, I began to see a lot of opportunities if it was located in an urban setting. It could serve as another link in the increasing network of public transportation systems. In researching this subject, I discovered that Seattle's and New York City's public busses have bicycle racks on the front or rear to allow cyclists to ride part of the way to work if the distance is too great. Several airlines also allow bicycles to be shipped free of charge when you belong to a club. By accommodating the needs of bicyclists on a number of levels, this alternative will become a leading mode of transportation.

SIGNIFICANCE

If bicycle commuting facilities are provided, more people will realize the benefits of this mode of transportation and leave their cars at home. Bicycling still allows the personal sense of freedom that the automobile has given America. Although commuting by bike takes longer, there is satisfaction in passing the stopped or stalled traffic in heavily populated areas. Another strength is that this project will draw upon the current all terrain bicycle craze. This type of bike is well suited for urban congestion and road hazards with its straight handlebar for better steering and fat tires for a smoother ride (Mills, 18). The encouragement of bicycle commuting can positively affect both the employer and the commuter from a healthier lifestyle, but also society and the environment from less pollution (Consumer Reports, 5, 1).

ENVIRONMENTAL

A 1990 amendment to the Federal Clean Air Act states that companies in the most heavily polluted areas of the country must induce their workers to choose energy-efficient ways to get to work. This is a big incentive for companies to inspire their employees to bike to work. It also encourages the linkages of other modes of public transportation. Bicycling uses the least amount of fossil fuels of all types of transportation systems and is also the least polluting. This will help ease the dependency on oil from foreign countries. The more people that commute by bicycle will mean fewer stuck in traffic on the congested roads. The long term effects would include a reduction in the construction or addition to existing roads. A current trend in many developing third world countries is the disturbing switch to the private automobile as the primary mode of transportation. America could once again play a lead role in the push for ecologically sound transportation and...
help prevent the abandonment of the bicycle as the most sound method of commuting.

PERSONAL

The individual will reap both health and economic benefits from bicycling to work. It is estimated that 1/3 of the population is overweight which is the leading cause of heart disease, diabetes, and many other chronic diseases according to a NBC Nightly News report (Nov. 28, 1994). Bicycling is the best low impact aerobic exercise that is easily accessible to everyone. If it is done over a long period of time, it can significantly lengthen the lifespan of an individual by lowering their weight and increasing their cardiovascular fitness. When cyclists get sick, their recovery time is much quicker than those that do not get any exercise (Smutko, 28). Cycling also allows social interaction that is impossible when everyone is isolated inside their cars.

ECONOMIC

Businesses will enjoy the benefits of having healthier, more productive employees that do not require as much sick leave due to a regular exercise routine. By providing facilities that ease the transition to bike commuting, it demonstrates that the business is also interested in their employees' personal well being. This concern will create a higher retention rate of employees and will add to the overall success of the work force.

Most bicycle retailers are the smaller, private entrepreneurs that are the foundation for the capitalist economy. Most of these companies are owned by families in which the business is passed down through each generation.

Economically, the bicycle is cheaper in many aspects than travel by automobile. By reducing the need for trips by car, many insurance companies offer reduced rates for both auto and life coverage (Pavelka, 111). Bicycling could be an affordable alternative to the automobile for the low income families needing to get to a job. Most bicycles start around $300-$400, and with a min

MUM OF MAINTENANCE CAN BE KEPT IN GOOD RIDING CONDITION FOR MANY GENERATIONS. THE SOCIAL COSTS ARE ALSO BENEFICIAL BY LOWERING THE AMOUNT OF POLLUTANTS IN THE ATMOSPHERE. NOT ONLY WILL MORE PEOPLE LEAD HEA LTHIER LIVES FROM THE EXERCISE OF RIDING TO WORK, BUT MANY OTHERS WILL NOT REQUIRE HOSPITALIZATION FOR RESPIRATORY DISEASES FROM THE DECREASE IN THE AMOUNT OF AIR POLLUTION, LOWERING THE BURDEN ON HEALTH CARE FACILITIES.

It costs an average of $6,270 a year to operate a new automobile. This cost would be greatly reduced and possibly eliminated if more trips were made by bicycle. Commuting by bicycle would benefit not only the individual but society through less pollution and the lowering of maintenance costs for roads due to less traffic.

METHODOLOGY

My initial investigation into this area has given me many leads into other sources of information. I have been in contact with a number of cycling advocacy groups. I also contacted the top ten bicycle commuting friendly businesses as rated in BICYCLING magazine, in hopes that they will also give me clues as to what advantages a business might see in alternative transportation. In the future, I hope to travel to several cities in the Midwest that have begun to implement bicycle friendly features.

From researching this topic I learned that there are several concerns cyclists have when biking to work. Flexible working hours would allow cycling employees to ride when the traffic is less congested and when it fits their schedule. A secure place is need to lock the bicycle to prevent theft and vandalism. In many of the high rise buildings downtown, space is at a premium and consideration must be given as to accommodating the storage of bicycles. The other concern of both commuters and employers is cleanliness after physical exercise. A place for the commuter to wash after the ride must be provided. A shower is best to refresh after a ride, but it is possible to wash by using the sink in the restroom at the workplace. Along with a place to store the bike, a place is needed for a change of clothes, helmet, tools, tire...
PUMP, AND OTHER MISCELLANEOUS ITEMS.

CONCLUSION

BICYCLING MAGAZINE ESTIMATES THAT ONLY ONE IN SIXTY AMERICANS COMMUTES TO WORK BY BIKE. THAT RATIO WOULD IMPROVE TO ONE IN FIVE IF FACILITIES WOULD BE PROVIDED BY EMPLOYERS TO MAKE COMMUTING EASIER. THE DESIRE TO SAVE MONEY AND TO ENJOY A HEALTHIER LIFESTYLE HAS INFLUENCED PEOPLE THAT RIDING A BIKE TO WORK IS AN EXCELLENT ALTERNATIVE TO THE AUTOMOBILE. IT IS NOW TIME FOR EMPLOYERS TO TAKE THE INITIATIVE TO REWARD THOSE WORKERS THAT HAVE MADE THAT DECISION. THE INFORMATION IN THE INSTRUCTIONAL PAMPHLET THAT WILL BE PUBLISHED WILL GIVE THE COMPANIES AN EASY SOURCE OF REFERENCE IN GUIDING WHAT SPACES AND EQUIPMENT NEEDS TO BE IMPLEMENTED FOR THE BICYCLE COMMUTER.

THE INDIANAPOLIS GREENWAYS SYSTEM, DIRECTED BY RAY IRVING, IS UNDERTAKING THIS DRIVE TO IMPROVE OUR LIVES BY INCREASING THE AMOUNT OF PARKLAND AVAILABLE TO COMMUNITIES. THESE LINEAR PARK SYSTEMS INCORPORATE A BIKE PATH AND PEDESTRIAN WALKWAY, PROVIDING A LINKAGE TO MANY OF THE AMENITIES WITHIN THE COMMUNITY. PEOPLE OF ALL AGES CAN TAKE THE GREENWAY TO THEIR DESTINATION AND NOT HAVE TO WORRY ABOUT AUTOMOBILE TRAFFIC.

THE PROGRAM PROVIDED IN APPENDIX A PROVIDES THE NEEDED FACILITIES THAT WOULD ENCOURAGE MORE PEOPLE TO BICYCLE TO THEIR DESTINATION. FUNCTIONS HAVE ALSO BEEN PROVIDED TO AID IN THE RECREATIONAL USE OF THE TRAIL. ACCOMMODATIONS HAVE BEEN IMPLEMENTED FOR ALL METHODS OF TRANSPORTATION ALONG THE TRAIL. THE FACILITIES CREATED ALONG THE PATH SHALL PROVIDE A MAXIMUM OF OPPORTUNITIES FOR INTERACTING WITH OTHERS AND NATURE. A VARIETY OF SPACES SHALL BE PROVIDED FOR EDUCATION ABOUT ARCHITECTURE AND THE ENVIRONMENT. EACH OF THE FACILITIES IS INTENDED TO IMPROVE THE NEIGHBORHOOD THROUGH ITS RESPONSE TO THE CONTEXT. INCLUDED IN THIS PROGRAM IS A SET OF DESIGN CRITERIA AND SPATIAL RELATIONSHIPS TO ENSURE THAT EACH FACILITY IS HELD TO THE HIGHEST STANDARDS.
SITE: RAIL, CULTURE, PHYSICAL

The Monon Rail was the first line to cross Indiana before the development of the road system. It started in 1854, linking New Albany and Michigan City. Service was expanded in 1859 when the line reached Louisville. It carried troops and supplies during the Civil War and was the funeral train for President Lincoln. In 1881 the rail line expanded again and reached Indianapolis and Chicago. The length that passes through Nora, Broad Ripple, and crosses the White River and eventually connected Union Station was completed in 1883. Ridership declined until 1946 when the line was renovated and the cars were replaced with new passenger and freight cars. The rail then became known throughout the nation for the quality of service. Even with the improvements, ridership still declined in the 1960's. Through a series of mergers the Monon line became the property of CSX who abandoned the majority of the rails except for the main line. In 1983, '84, '85 the Indiana Transportation Museum's Fairtrains shuttled passengers between Carmel and the State Fairgrounds. After the lines were abandoned for good, the city of Indianapolis bought the right-of-way.

The trail passes through a variety of communities and provides access to many activities as it passes from 96th to near 10th street in Indianapolis:

Nora Little League
Indiana School for the Blind
Marott Park
Indianapolis Arts Center
I.W.C. Canal
Broad Ripple
Cantebury Park
Indiana Deaf School
Indiana State Fairgrounds
IUPUI (38th street Campus)
Fall Creek Parkway
Downtown

Society is looking for ways to cut their expenses and improve their health. The time it takes to provide a comfortable standard of living has increased. Recycling and other environmental movements are riding a wave of popularity. People are searching
FOR BETTER ALTERNATIVES TO OUR DAILY ROUTINE. IT IS THE INTENT OF THIS PROJECT TO CAPITALIZE ON THIS GROWING TREND OF ENVIRONMENTAL AND ECONOMIC RESPONSIBILITY.

THE SITE THAT WAS CHOSEN LIES ALONG 86TH STREET IN INDIANAPOLIS, IN. IT HAS BEEN PLANNED ACCORDING TO THE NEEDS OF THE AUTOMOBILE WITH PEDESTRIANS AS AN AFTERTHOUGHT. THE NEIGHBORHOOD CONSISTS OF COMMERCIAL, BUSINESS, AND LIGHT MANUFACTURING LOCATED ADJACENT TO 86TH STREET. RESIDENTIAL COMMUNITIES ARE LOCATED TO THE SOUTHWEST OF THE SITE AND BEHIND THE BUSINESS THAT FRONT ALONG 86TH STREET. THIS NEIGHBORHOOD WAS CREATED BY THE URBAN SPRAWL DUE TO THE AUTOMOBILE.

THE SPACE IS BOUNDED ON THE EAST BY THE DRIVE FOR THE HABIG GARDEN SHOP, AND ON THE WEST BY THE BURGER KING PARKING LOT. THE SOUTHERN EDGE OF THE SITE IS CREATED BY 86TH STREET ITSELF WHILE THE NORTHERN BORDER IS LEFT UNDEFINED BY THE LINEAR TRAIL. THE SPACE IS CURRENTLY USED FOR STORAGE AND NURSERY FOR A LAWN AND GARDEN STORE TO THE EAST.

A VARIETY OF BUSINESSES ARE LOCATED WITHIN WALKING DISTANCE OF THE SITE;

- NORA SHOPPING CENTER
- MARSH SUPERMARKET
- HABIG GARDEN SHOP
- LEISLEY AND SONS PLUMBING AND HEATING CONTRACTORS
- BURGER KING RESTAURANT
- BLOCKBUSTER VIDEO
- BEN AND JERRY'S
- PITTSBURGH PAINTS
- EXPRESS PRINT


05.02
DESIGN EXPLORATIONS

This project went through a series of design explorations used to determine the effect of the mode of arrival of the user upon the experience of the space. The first design concept was created in reference to the commercial aspect of the context. The billboard form was abstracted to manipulate sound from the passing automobile traffic by using the doplar effect. The wall also provides shade during the summer months and screens the views of the commercial signs. By breaking the wall it allows users to explore and experience the space in a variety of ways. The overhead plane was used to give the facility a better sense of privacy and enclosure while keeping within the open quality I felt was important. I felt that this concept did not have the impact on the trail that I wanted to create. The design was very passive in its ability to interact with the users on the trail.

The second, third, and fourth concepts explored the idea of rhythm that is created by built elements as you pass through them. Each concept tested the effect of the spacing of the walls on the experience of passing through them at various speeds. This was accomplished by using fly throughs with microstation. These explorations taught me that the spacing that I had chosen was to narrow and the rhythm that was created by the walls was not noticed. One of the successes of the walls was that it created a strong sense of identity for the site. A ceremonial procession was created as one passes through the walls towards your destination. They also create a strong sense of gateway as the cyclist leaves the domain of the car and enters one geared towards the needs of the cyclist.

The concepts also presented a problem in that they created awkward spaces that were difficult to move through. Functions and auxiliary spaces were hidden from view or were not noticable while passing through the series of walls. The issue of security was also raised because the walls provided many hiding places for muggers or for bicycle thieves.

The fifth concept was created through the idea of recycling artifacts from the automobile. By abstracting and re-using materials that would nor-
Mally be wasted by the automobile the efficiency of cycling is also raised. Each mode of transportation has its own identity. By taking existing elements and abstracting them or applying a new use for them a new identity is created for the facility. This concept employs the use of the aluminum trusses recycled from the interstate signs as for the facility. The curved plane represents the metal drainage culverts used by the highway department. This surface provides a place for bicycles to be stored from the effects of the elements. The wall is a representation of the billboards cluttering the environments. This element provides a sheltered space for the showers and frames views of the trail and context.

The sixth concept abstracted the forms and issues developed from the previous concepts. The layout of the facility is based on the rotational energy created when cycling. The ceremony of arriving was kept by the sequence of spaces that are passed through. As a cyclist explores the site they pass from the most public spaces, bike shelter, to the most private spaces containing the showers and restrooms. The overhead canopy allows the users a visual connection with their bicycles at all time and yet still provides a shelter from the elements. The overall facility maintains the connection with nature that is important to the purpose of educating those of our dependence on our environment. Gathering spaces are provided at a variety of locations around the facility and have multiple degrees of privacy. Restrooms have been added for the trail users to prevent waiting for the shower users to finish.

Areas for improvement were mentioned in the final critique. The need for environmental control in the restrooms was questioned since they would only be in use during peak hours. The jury felt it was important to reexamine the space provided for the vending and water fountains since that would be the most visited area of the facility. The issue of privacy and the use of public restrooms still raised a discussion pertaining to whether the showers would be used in the public setting. The recycling of materials from the automobile during the fifth concept should have been pursued further in the final concept.
CONCEPT 4

CONCEPT 5

VIEW TO THE SOUTH

VIEW TO THE SOUTH
IN RETROSPECT

THIS THESIS PROJECT IS THE FIRST STEP IN A SERIES OF DESIGN EXPLORATIONS I PLAN TO PURSUE AFTER I GRADUATE. THERE ARE MANY DIFFERENT PATHS TO EXPLORE FOR THIS PROJECT. THE PATHS THAT I CHOOSE TO EXPLORE ARE DIAGRAMMED TO THE RIGHT. THIS THESIS ALSO HAS THE POSSIBILITY TO EXPLORE THE DESIGN POTENTIAL TO STUDY A SERIES OF THESE FACILITIES AS THE TRAIL PASSES THROUGH THE DIFFERENT NEIGHBORHOODS AND CONTEXTS. A STUDY COULD BE DONE TO DETERMINE HOW DIFFERENT CONTEXTS AFFECT THE PROGRAMMING OR THE INTENT OF THE FACILITY. IF THESE FACILITIES ARE DEVELOPED AT MANY POINTS AROUND THE CITY AND ALONG THE SAME TRAIL A FUTURE STUDY MIGHT INCLUDE THE DISCUSSION OF THE ABILITY OF THESE ICONS TO CREATE A STORY OR AN IDENTITY FOR THE AMATEUR SPORTS CAPITAL OF THE WORLD. THE ISSUES RAISED DURING THE FINAL JURY COULD ALSO PROVIDE AN AVENUE OF FURTHER STUDY.

THESIS
FOCUS ON ALL USERS CYCLISTS
SEPERATE RENOVATE EXISTING STRUCTURE BUILDING
PUBLIC PRIVATELY OWNED
SHOWERS NO SHOWERS
VOLUNTEER PRIVATE MAINTENANCE MAINTENANCE

07.00
BIBLIOGRAPHY


PUBLIC GATHERING

users:
bicyclists
commuters
recreational riders
joggers
rollerbladers

activities:
dismounting
gathering
momentary rest/reflection
stretching/relaxing

equipment:
level surfaces
shade providers
sitting surfaces

ambient conditions:
summer:
winter:
shelter from the sun
sun for warmth
a breeze to cool
light for the soul
protection from moisture
dancing light
people are heard

adjacent spaces:
a private space
security for equipment
refreshing station to cleanse and
purify the body and soul

design criteria:
a celebration of arrival
space for a public gathering and socializing
blend or repair the context
use the natural environment to benefit the design

09.01
**Equipment Storage**

2 bikes @ 3'-2"x6'-0"x4'-2" (enclosed)
1 bike @ 3'-0"x6'-0"x3'-0" (open)

**Users:**
- Bicyclists
- Commuters
- Recreational riders
- All who wish to store

**Activities:**
- Securing of equipment to protect from theft or damage

**Equipment:**
- Enclosed storage
- Long term, large storage
- Short term, storage

**Ambient Conditions:**
- Shelter from rain and snow
- Light borrowed from central gathering
- Some voices nearby but all of nature is heard

**Adjacent Spaces:**
- Central gathering
- Commuter refreshing stations
- Public services
- Private contemplation

**Design Criteria:**
- Strength
- Security
- Safety
Cleansing Stations

1 station @ 7'-6"x8'-0"

Users:
Commuters
All those soiled from exertion
Relief from discomfort

Activities:
Cleansing
Purging
Changing of garbage
Solitary reflection

Equipment:
Temporary storage
Recycling container
Toilet
Sink
Reflection when needed
Shower
Sitting surface

Ambient conditions:
Natural light to control unwanted growth
Warmth without drafts
None can here and one can here, none
Warm standing surfaces

Adjacent spaces:
Bike security
Private contemplation

Design criteria:
Only one exists in this realm
Isolation
Privacy
Education of the environmental impact
Conservation of resources
Your tourism
Locker room

09.03
PRIVATE CONTEMPLATION

users:
those seeking refuge

activities:
resting
reading
appreciating nature
intimacy with thoughts

equipment:
variety of sitting levels
in nature

ambient conditions:
maximum relief from negative weather
only nature and thoughts can be heard here
dancing light and shadows

adjacent spaces:
public gathering
refreshing stations
abundant nature

design criteria:
environmental education
reflection
solitude
relaxation

09.04
TRAIL SERVICES

repair of one bike @ 4'-0"x6'-0"x4'-0" (min.)
all other functions 4'-0"x12'-0"

users:
all in need

activities:
repair and emergency relief
communication
education
nourishment

equipment:
devices to aid in the abatement of emergencies
communication devices
information suppliers
providers of nourishment
elimination of thirst

ambient conditions:
year round comfort with minimal energy consumption
light focusing on task at hand
noise is kept within

adjacent spaces:
public gathering
security of equipment

design criteria:
access to all
relief of emergencies
ENVIRONMENTAL CONTROL

users:
maintainer

activities:
controlling of environment
access to maintenance materials
reclamation of resources

equipment:
supplemental water heater
provider of heat storage opportunities

ambient conditions:
minimum effort to provide comfort for the contents of room

adjacent spaces:
refreshing stations
trail services

design criteria:
demystify the black box
supplement what nature provides
reclamation of what used to be wasted

09.06
TRAIL AMENITIES

20'-0" linear shelf space
6 bikes @ 9'-6"x6'-0"

users:
those without attendant

activities:
renting
to "loan ing"
education
site specific activities

equipment:
bicycles
 cannones
roller blades
recreational equipment
multiple function work surface

ambient conditions:
ample light to work
temporary relief of extremes for the attendant
some can here but the occupant can here all

adjacent spaces:
public gathering
trail services
storage security

design criteria:
optional but integrated
visual connections with all
efficiency easily noticed
protection of contents

09.07