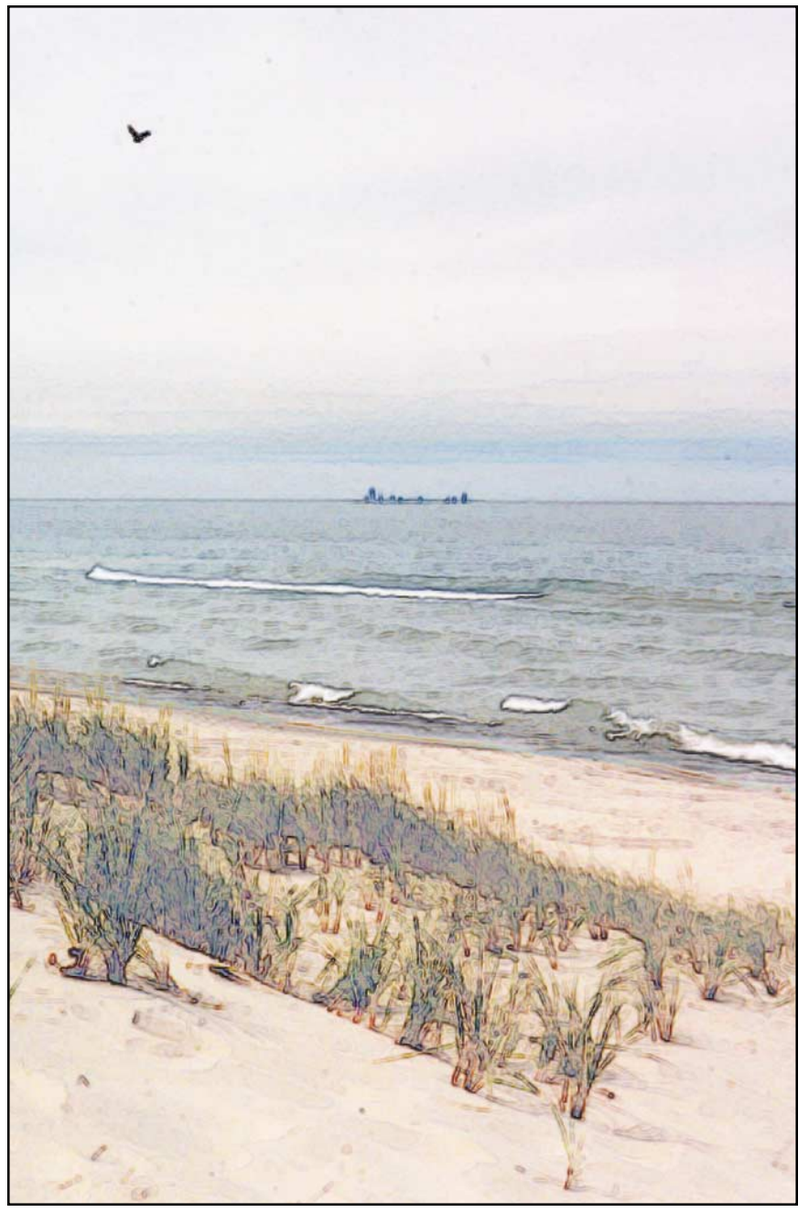

HARMONY

Thesis submitted to the faculty of
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approved by

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Blacksburg, Virginia
February, 1998

Wendy Avery

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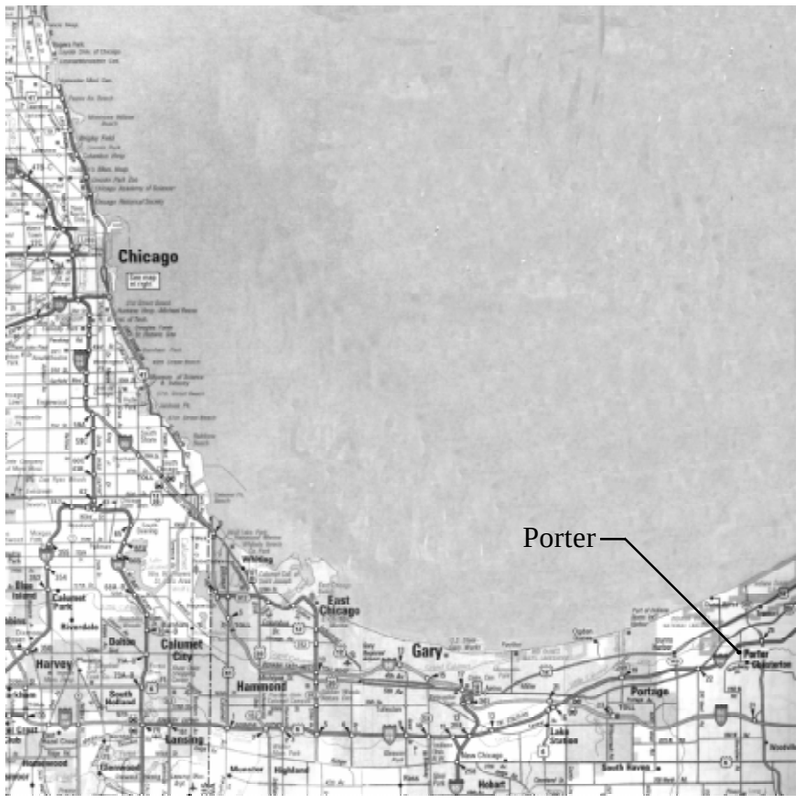
Right: View of the dunes along the National Lakeshore.

H A R M O N Y

pl. Harmonies (#). [F.harmonic, L. harmonia, Gr. joint, proportion, concord, fr. a fitting or joining.]
1. The just adaptation of parts to each other, in any system or combination of things, or in things, or things intended to form a connected whole; such an agreement between the different parts of a design or composition as to produce unity of effect; as, the harmony of the universe.
2. Concord or agreement in facts, opinions, manners, interests, etc.; good correspondence; peace and friendship; as, good citizens live in harmony.

Thesis Overview:

An Introduction To Porter



The flight from the inner city and the growth of the suburban landscape has negatively impacted both people and nature in a number of ways. Life-styles which burden working families, the isolation of the young and the elderly, the loss of community identity, the death of affordable housing, the destruction of open space, and the proliferation of cars, pollution, and traffic congestion are just a few of the problems traced to suburban development.

Porter, Indiana is a small town located 45 minutes from downtown Chicago. Lake Michigan, the National Lakeshore, and Indiana Dunes State Park border it to the north. An abundance of farmland and a few other small towns lie to the east and south. To the west, stretching all the way to Chicago is a string of small towns and cities that grew uncontrollably until there was scarcely land left untouched by suburban sprawl. In recent years, the exodus from Chicago which caused this mostly unplanned development has reached Porter as more and more people move to take advantage of the lower taxes, better schools, and better roads. At this time, Porter has no comprehensive town development plan of any kind. Growth is occurring unchecked and without direction. As a result, a small town that used to be relatively compact in form is beginning to succumb to suburban-ization and acquire all the additional problems that such development implies.

The economic prospects associated with growth, an increase in town revenue, the potential for better local services, the continuation of a small town atmosphere, the availability of affordable housing, and the protection of a rare, fragile, and shrinking natural environment are among the many strong, opposing forces at work shaping Porter.

No one thing can instantly resolve

Left: View of typical Porter street.

these forces. The use of substitutes for environmentally harmful products is one step in mitigating and preventing further damage to the environment; however, an equally important element is a substitute for one of the underlying sources, architecture and urban planning that encourages a lifestyle which demands ever increasing amounts of material resources while providing ever decreasing physical, emotional, and spiritual satisfaction.

Harmony and balance, however, can be encouraged through architecture that simultaneously nurtures people and supports nature. In the case of Porter, the introduction and design of a train station, the development of a schematic town plan, and the integration of public transportation in the area would go a long way toward establishing a more nourishing and less detrimental way of life.

The Plan

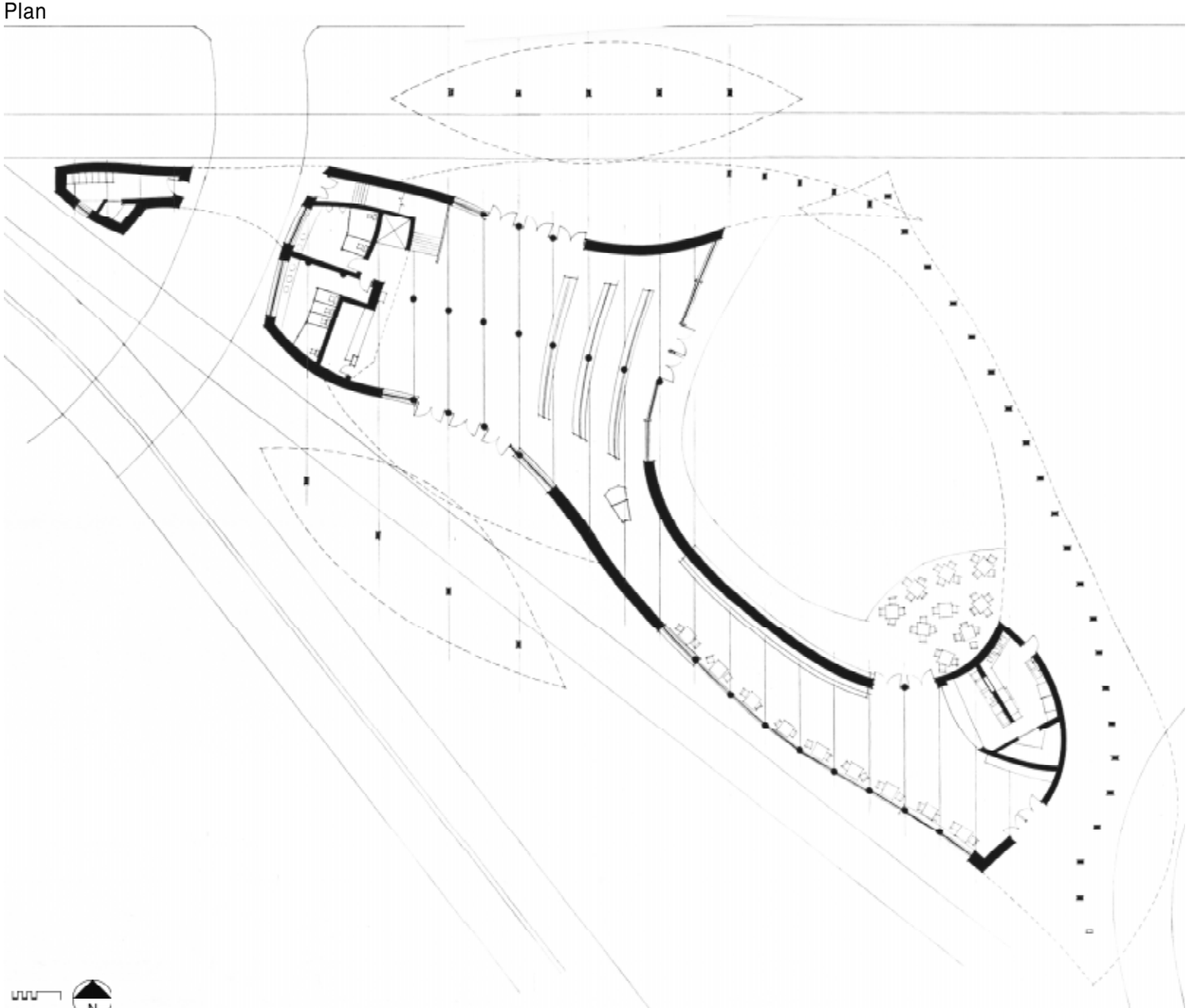
Porter is situated along three major rail lines that currently accommodate Amtrak and freight traffic. The foundation of this schematic plan is to use these lines to accommodate commuter trains that will serve the large number of people who travel to and from Chicago and the major towns in between. This would be one piece in an overall scheme for Northwest Indiana to promote a more harmonious and amical way of developing the region.

This plan would include a comprehensive public transit system along with the encouragement of compact development along the rail lines in the region with emphasis on infill and redevelopment of existing neighborhoods. The main body of downtown Porter, sitting adjacent to the rail lines, would contain a mixed-use community within an average 10-minute walk of the train station and core commercial area. Development would include public, residential, employment, and green space all within walking distance of the transit stop.

“Communities historically were embedded in nature — it helped set both the unique identity of a place and the physical limits of the community. Local climate, plants, vistas, harbors, and ridgelands once defined the special qualities of every memorable place . . . . Understanding the qualities of nature in each place, expressing it in the design of communities, integrating it within our towns, and respecting its balance are essential ingredients of making the human place sustainable and spiritually nourishing.”

Peter Calthorpe from The Next American Metropolis

Plan



The Train Station

Every architectural project presents its own, individual set of issues that must be reconciled in the production of the design. These elements, with their conflicting needs and forces, are analyzed, prioritized, and balanced, based on achieving the larger goal of the project.
In the development of the station, several concerns came to the forefront as important in the design's promotion of harmony: Porter's relationship to the neighboring community (Transformation/Bridge), its presence and image in the region (Identity), as well as, the station's response to its surrounding natural environment (Nature). Along with these locale-related forces, there is the question of encouraging harmony in the day-to-day use and function of the building; specifically, in the way the station relates to the experience of train travel (Train Travel/Journey).

Above: View of site showing how it divides Porter (right) and Chesterton (left).

Transformation/Bridge

The site for the proposed train station currently acts as a barrier between Porter and the nearby town of Chesterton. It is a place that everyone passes through but one at which no one stops and spends time. The two communities are reluctant partners pushing up against one another with a neglected strip of no-mans'-land in between. The site is perceived as an obstacle to pass by on the way to somewhere else.

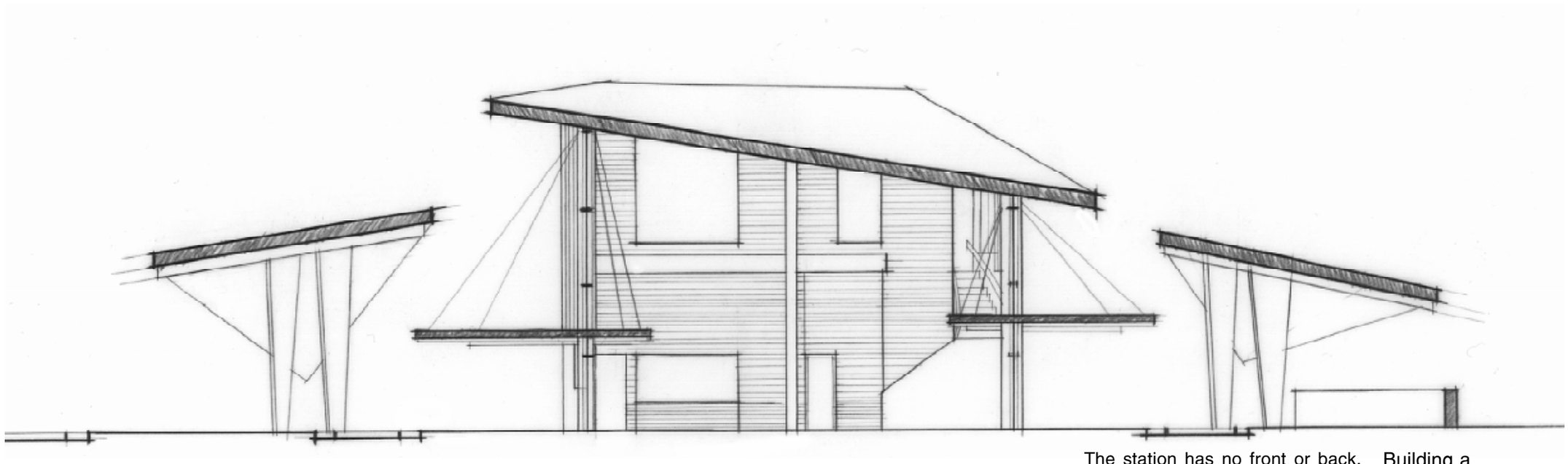
As a result, it became important for the station design to transform the nature of the site from a barrier into a connector between the two towns.

Right: Picture of model with Chesterton in the foreground and Porter in the background.
Following Page: Conceptual illustration indicating the station's relationship to the surrounding communities.

Transforming the Site

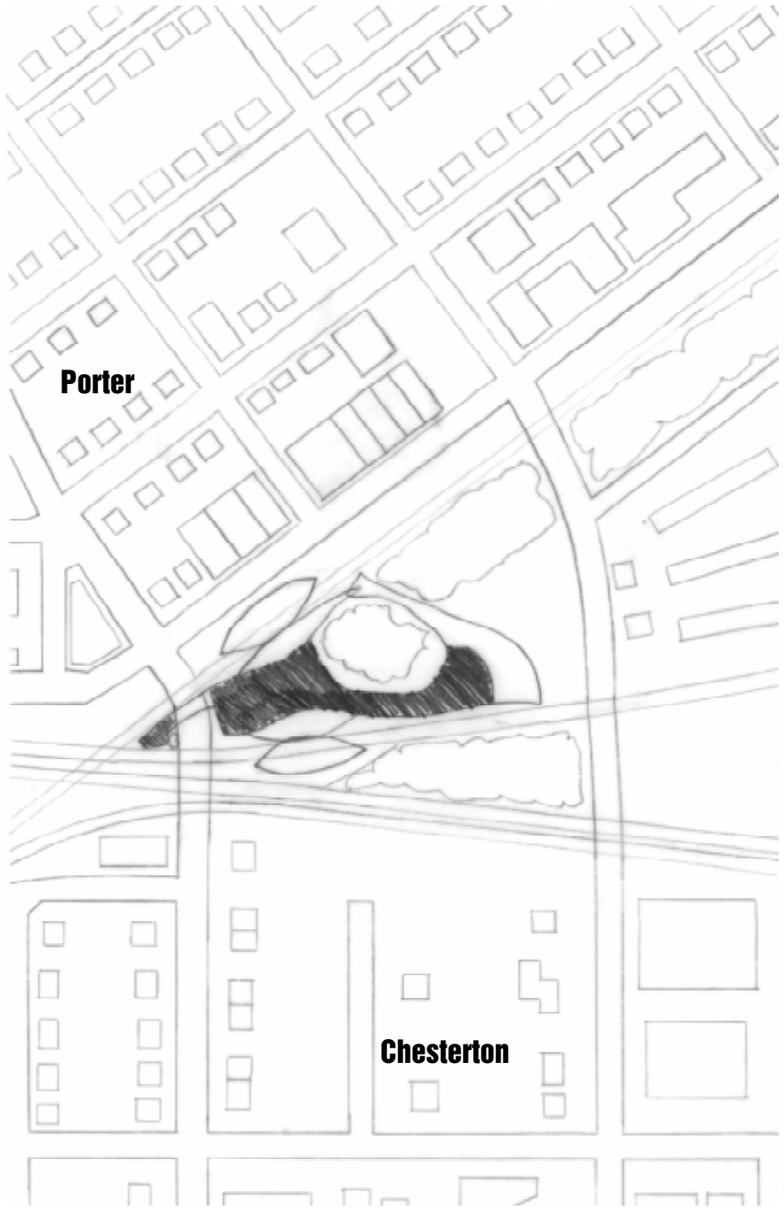
By placing the station in this no-man's land between Porter and Chesterton, the building serves to fill the void separating them and transforms the site from an obstruction to maneuver around into a place in its own right.

Transverse Section



The station has no front or back. Space flows through the building and site. The building's form addresses both Porter and Chesterton, acting as a bridge drawing the two sides together providing a more pleasant connection and transition between the towns.

Building a Connection



Site Plan

N

Identity

Porter suffers from the lack of a cohesive image and regional presence making it more vulnerable to uncontrolled suburban development. Looked down upon as being on the “wrong side of the tracks”, Porter is constantly fighting to maintain its own identity and economic growth in the shadow of the more populated and prosperous town of Chesterton. Consequently, to help counter this effect, the station attempts to bolsters Porter’s image through the creation of a major town landmark and community focus.

Below: Dunes along lake Michigan.

Establishing a Link to the Dunes

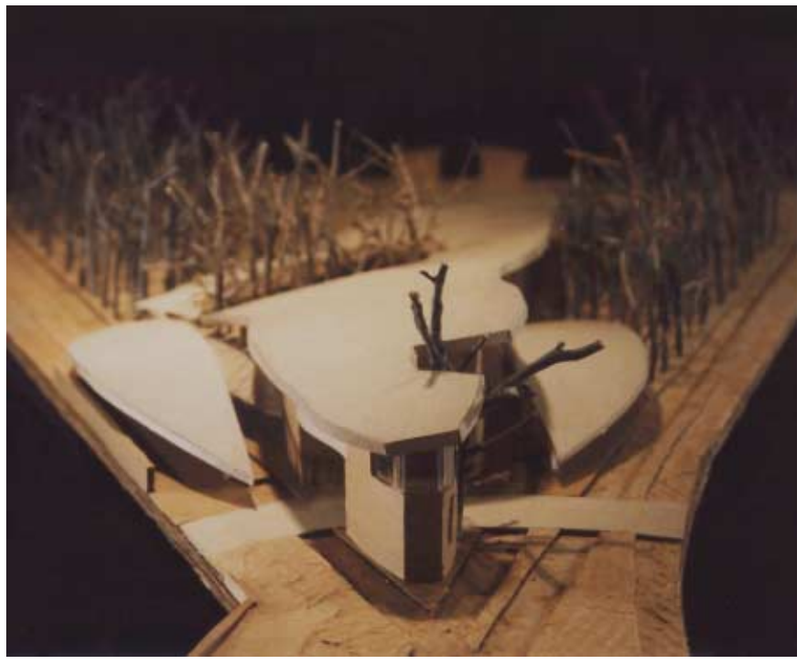
On a regional level, Porter's identity is reinforced by the form of the station which recalls the rolling Lake Michigan dunescape. The station draws on the character of the area to make the station distinct from other stations on route. Riders will be able to tell at a glance that they have arrived at the Porter station.

South Elevation

The boundary between the Porter and Chesterton is difficult to discern. The proposed train station sits in this no-mans'-land providing a gateway into Porter. The location reinforces Porter's presence by marking the boundary between Porter and Chesterton and helps to establish and maintain a strong town center and identity for Porter.

Providing a Gateway/Landmark

Top: Model from the west.
Bottom: Porter.



A Sense of Place

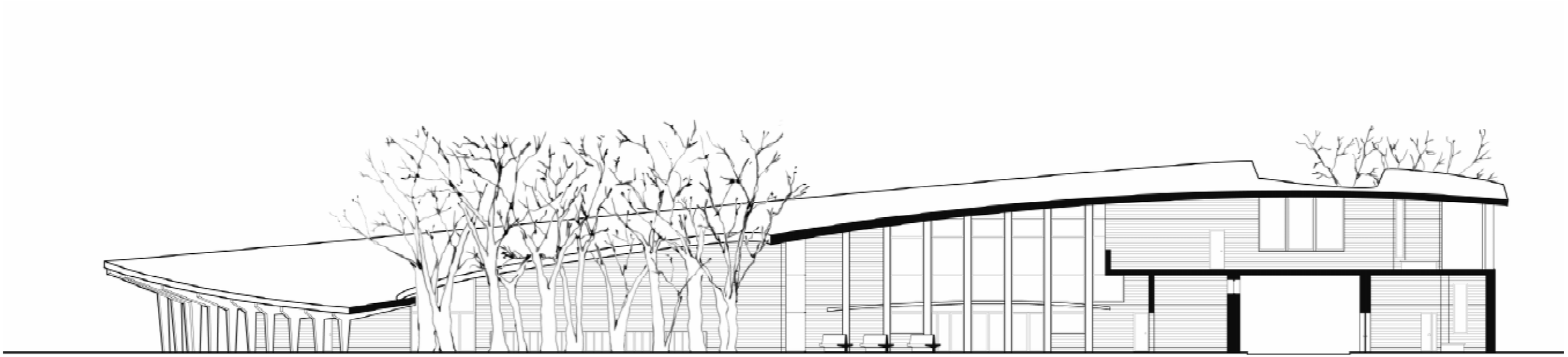
The station works to create a sense of place by reminding users of the features that make Porter special. In addition to the Lake Michigan dune-scape, the station emphasizes the natural wooded areas, the small town atmosphere and the local rural ties. Views from the upper floor provide an overview of the surrounding farm fields and residential areas reinforcing the commuter's relationship to the town.

Right: Model from the North.

Nature

The problems of Porter's image and relationship to the surrounding area is further compounded by the lack of value placed on the area's natural environment. Nature and humanity are intimately interdependent. People are as much a part of the natural world as the natural world is part of them. However, in Northwest Indiana, this reality is being ignored as more and more of the natural landscape, which has always been a major part of the region's character and plays a vital role in Porter's image as a small town in a natural wooded area, is being lost in the push toward suburban type development. Therefore, in order to promote a more harmonious partnership with nature, the station is designed to respect and acknowledge the location, climate, and natural features of the site.

Longitudinal Section



Tying the Building to the Site

The building form reaches out to embrace the existing woods on the site, preserving them and integrating them into the building design. By highlighting their presence and character, the site's natural features become an intrinsic part of the station. This effect is further enhanced by the columns within the station which echo these trees and carry that imagery through out the building.

Right: The dunes in winter.
Above: wall composition illustrating the red brick exterior.
Following Page: Conceptual illustration of the effect of color in the winter environment.

Responding to the Location and Climate

In this area, the winters tend to be gray and overcast, the red color of the brick helps to counter this effect by adding some life and atmosphere to the drab winter landscape. The use of brick also helps to prevent the station's size from overpowering the town by invoking a more human scale through its hand-size proportions. In addition, the brick works to strengthen Porter's identity by recalling its history of beginning as a brick factory town.

North-West Elevation

Train Travel

In addition to these factors in the building design, the train station is an integral part of the overall rail journey. It is the main transitional element, and as such plays a key role in the quality of the travel experience. Accordingly, the station attempts to enhance and support that experience by drawing attention to the impending journey and stimulating interest and anticipation in it. In this way, a more amicable relationship between the traveler and the journey experience is encouraged.

Right: The form of the building embraces the tracks and emphasizes their presence.

The curving walls of the station allow sight lines down the tracks, making trains and train travel an integral part of the building. They draw the eye toward the tracks highlighting their connection with the riders and the journey they are about to take.

Focusing On the Journey

Above: The station interior.

Incorporating Characteristics of Train Travel

Movement and rhythm, elements intrinsic to rail travel, are echoed in the design by the undulating walls, the graduated columns and cables, and the wavelike form of the roof and canopies. The curved shape of the station always keeps part of the interior just out of sight creating a sense of mystery and anticipation at what might be revealed as one walks through the building. This sculptural form changes the experience of the building from one moment to the next. By incorporating these qualities associated with train travel (movement, rhythm and mystery) directly into the building design, the station attempts to spark interest and anticipation in the impending journey.

“The purpose of architecture is to improve human life. Create timeless, free, joyous spaces for all activities in life. The infinite variety of those spaces can be as varied as life itself and they must be as sensible as nature in deriving from a main idea and flowering into a beautiful entity. The overriding essence is focused in the intangibles — life — heart — soul — spirit — freedom — ending within the structure.

The basic needs of human beings and the subtle variations of the individual are the source of Real Architecture as well as, of course, the natural environment and the natural use of materials. Thus creating — new — changing — to — infinity yet timeless Architecture.”

John Lautner

Appendix A: Additional Planning Information

Public Areas & Buildings

A day care facility would be centrally located with in the downtown area and easily accessible to the park, public plaza, library, train station, and commercial / retail areas.

A central public plaza would be created adjacent to the train station, commercial / retail area, library, day care, and residential areas containing shaded seating areas and play equipment.

The train station would be accessible by foot, bike, bus, or drop off by car; additional parking would not be provided for the train station as research indicates that such parking deters the pedestrian travel this plan is intended to encourage (pg. 48, The Next American Metropolis); however, residential parking passes would be provided to ensure adequate local residential parking, as well as, the use of short term parking and meters in the core commercial area to prevent the neighborhood from being overrun with commuter cars.

Open Space & Wetlands

Open space and wetlands would be protected from development as amenities and to preserve the natural drainage in the area.

Small neighborhood parks would be located through out the downtown and surrounding area.

Residential

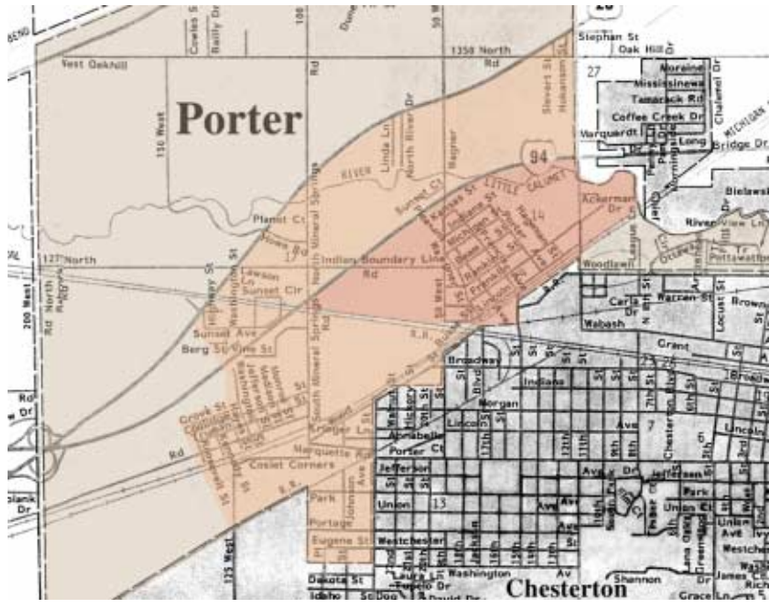
Densities would be increased by infilling a variety of housing, ownership types, and costs including small lot single-family homes, town houses, condominiums, and apartments.

Left: View of Porter showing character of the town.

Auto, Pedestrian, and Bicycle Circulation

The street grid pattern (modified to address geographic and ecologic features) would be extended, creating well connected and fine grained circulation alternatives that reduce auto congestion by providing a variety of ways to get from one point to another, easy access to local destinations, as well as, enabling travel to any location with in the downtown area without crossing or following an arterial.

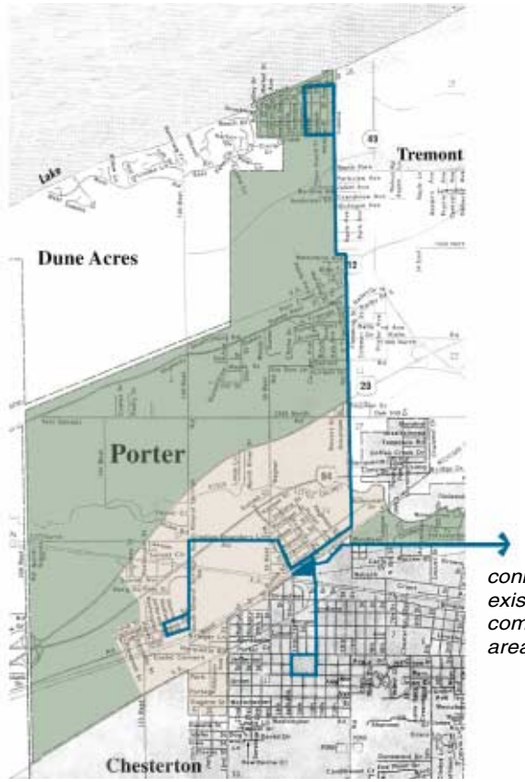
This street grid network would encourage pedestrian and bicycle traffic because it is simple, well connected, formalized, memorable, and direct with streets that are hospitable and pedestrian-friendly.



Beyond Downtown

The adjacent area beyond 10 minute walk of the train station would be reserved for low density housing, public schools, and community parks.

Small retail cores would be strategically located in the adjacent area to give it a focus and identity as a subarea of downtown.

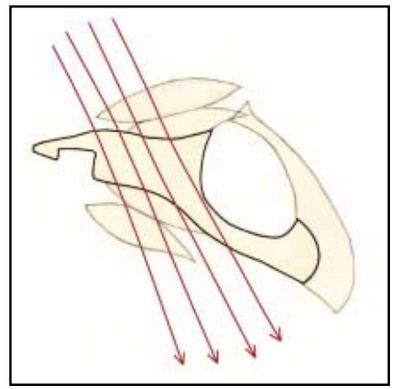


Auxiliary Bus System

As part of the comprehensive public transit system, a limited, auxiliary bus route is included in the plan that would link outlying residential areas in both Porter and Chesterton with the train station, commercial core, and existing local retail establishments.

Additional Usage and Benefits

Due to the location of the neighboring town, the proposed train station, commercial core, and auxiliary bus system could be used by residents and employees of both

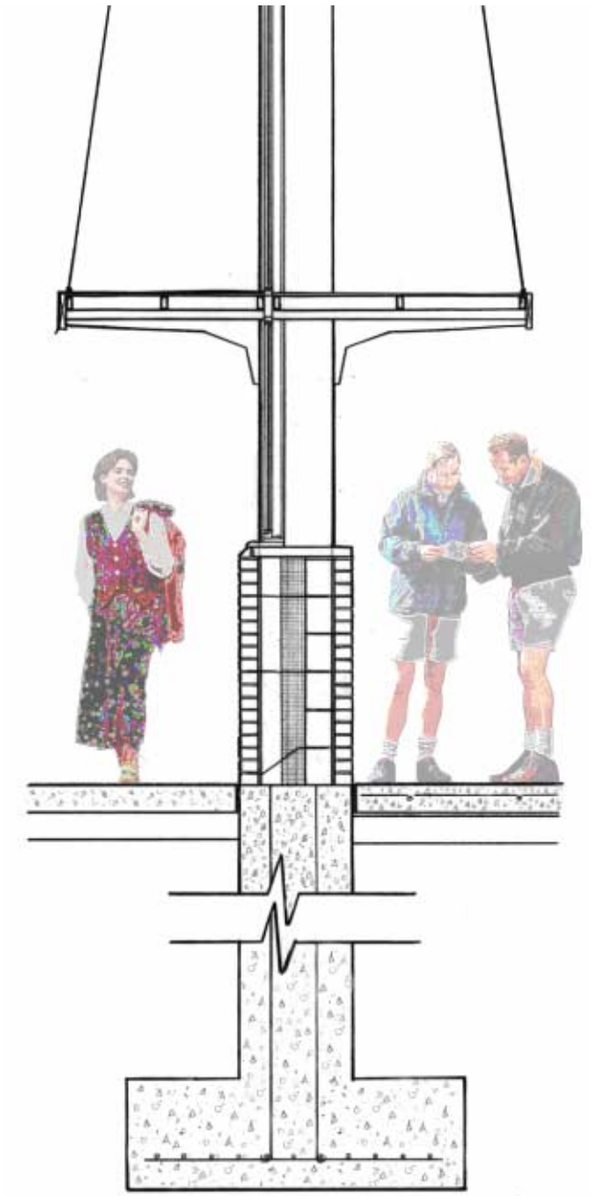


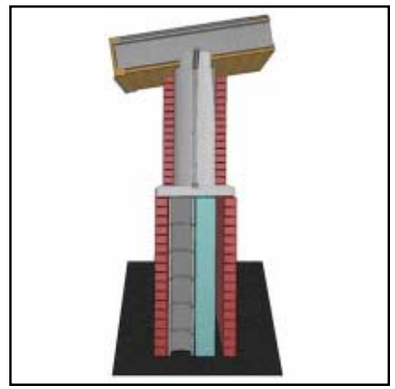
Appendix B: Additional Train Station Information

Above: Diagram of light penetration on January 21st for direct gain solar heating. Left: Wind ventilation diagram.

Heating and Cooling

Summer cooling is passively achieved through natural ventilation. Heat loss is minimized by the building form which is more closed on the north, west, and east, while allowing adequate solar exposure on the south for daytime direct gain solar heating of the station. Windows allow for excess heat to be vented. Supplemental heat in winter is provided by radiant floor heating. Energy is conserved in the winter by passively heating the station during the day.

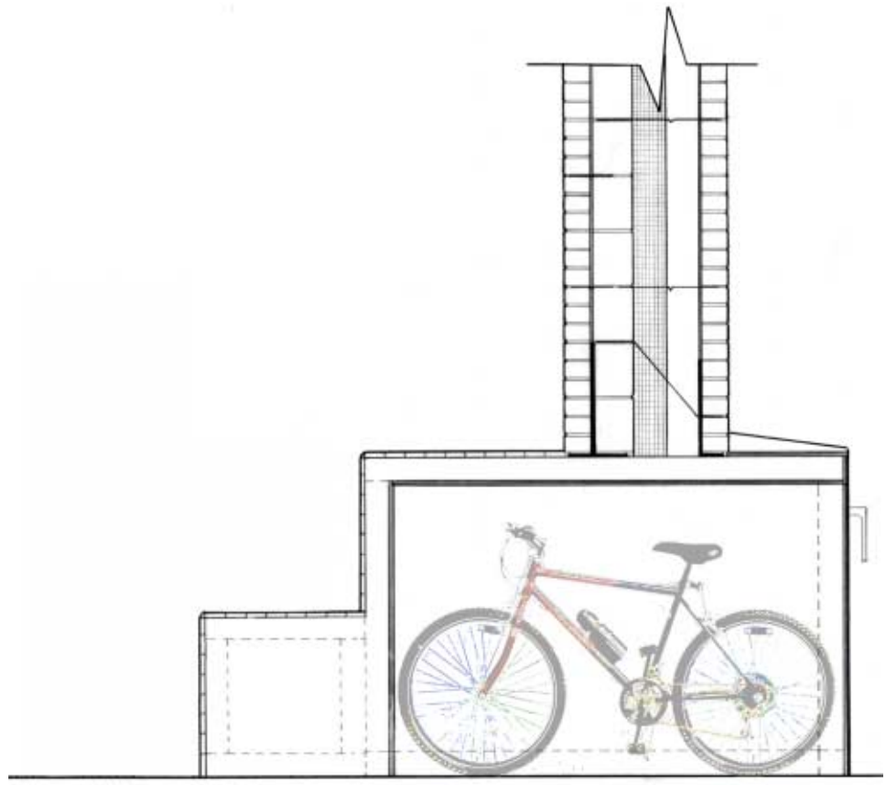




Right: Model of wall composition.
Far Right: Wall section of canopy area.

The construction system consists of a concrete column supporting skeleton, covered by a skin of brick, concrete block and insulation stretched along and around the supports, topped by a sandwich of wood, steel, insulation, and flat seam metal roofing. To create openings in the structure, the skin is pulled back to reveal the concrete skeleton. The use of masonry and insulation in conjunction with passive heating and cooling techniques supports a more sustainable life-style. Masonry provides a durable, long lasting structure that is relatively easy to maintain.

Construction



Above: Wall section featuring integrated bicycle storage.

Bicycles

Using bicycles to get to and from the station is encouraged and made easier by providing adequate, secure storage facilities. This storage is made less obtrusive at the station by integrating it directly into the building's wall structure.

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Lastly, I want to thank my husband, Richard, who guided me through the bad times when I was tempted to quit. Thank you for your inspiration, wisdom, strength, love, and patience.

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