Gary Union Station is a multi-modal transportation center located on the northern edge of Gary's central business district. The station will combine the various facilities of Amtrak, South Shore Commuter Railroad, inter-city buses, airport limo and city bus into one central facility. The 46,000 square foot station will benefit both passenger with easy connection service and operator with easy accessibility to major transportation routes.

However I consider this project to be more than another efficient transportation center. Buildings of this type too often are just large efficient shelters for machinery located in some seedy corner of downtown. The human aspect of travel is too often forgotten, and they offer nothing to the urban environment. The major railroad terminals of the late 19th and early 20th centuries convey the essence of travel. They provoke the anxiety of arrival and departure through sequential series of varied spaces. They're romantic.

It was my intent to instill this romanticism into a new interpretation of the old railroad terminal while retaining the efficiency of modern examples. Gary Union Station, comparatively smaller than a major terminal, obtains this essence not by large vertical spaces but by focusing the spatial emphasis horizontally outside into the city. Strategic siting, respectful massing and a contextual awareness has created a positive urban architecture while controlled spatial organization, sequence development and attention to scale make for an enjoyable and exciting experience for humans.
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ACKNOWLEDGEMENTS
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PROBLEM ANALYSIS .................................. Section 2

PROBLEM SOLUTION .................................. Section 3

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As stated earlier in the abstract, this project is a problem of finding an architectural solution to a technical problem. Design philosophies are to be applied to a technical foundation to achieve the desired solution: a functional and efficient building that meets the architectural expectations. A "balance" of the two is required, so a relationship of the two must be analyzed to a workable solution. The building must perform to a set of criteria for it to be functional; these criteria are to be defined in the building program. Influences on the program are afterwards analyzed toward a final problem solution.

The transportation center is a multi-modal facility incorporating many existing facilities from throughout the city. Identification of the facility users is necessary to understand basic needs.

South Shore Commuter Railroad
- Operates commuter rail service between Chicago, Gary, Michigan City and South Bend.
- 40 daily trains
- Generates high volume of traffic at peak times

Inter-city Bus Service
- Facilities shared by Greyhound, Trailways and Indiana Motor Coach
- 40 daily buses
- Low, steady volume of traffic
- Freight service

Airport Shuttle
- Limo service between Gary and O'Hare Airport in Chicago
- 24 daily buses
- High volume of traffic per bus

Amtrak
- 12 daily trains
- Service out of existing Union Station
- Provide ability to make transfers

City Bus
- Regular service along Broadway stopping at Fourth Avenue

Taxi Service
- Pick-up and delivery service on call

Concessionaires
- Restaurant
- Bar/Lounge
- Travel agency
- Vendors
- Car rental agencies

Offices
- Station manager
- Gary Public Transportation Corporation

The patron of these users must also be identified.

Train Commuters
- Approximately 600 daily
- Highest volume at "rush" hours
- Most commute from Gary but some also commute to Gary
- Desires quick connections to city bus stop and adjacent parking garages.
- "Rushed" nature necessitates clear and direct paths with minimum conflict with other building occupants.
- Gary also expects to draw off-hour passengers to civic and social events and to the national lakeshore park whose entrance is located adjacent to the park.

**Bus Riders**
- Low volume of riders per bus.
- Steady traffic throughout the day.
- Need clear orientation for unfamiliar visitors.
- Riders making transfers may have long waits for buses.
- Should be able to store luggage when waiting.
- Many riders are old and may have slight handicaps that need provided for.

**Airport Limo Passengers**
- High volume of riders per bus.
- Usually travel with more and heavier luggage that need provided for.

**Amtrak Passengers**
- Depart and arrive from the existing Union Station.
- Depend on the transportation center's support facilities.
- Need physical connection between two to make connections.

**Connecting Passengers**
- Make connections between transportation modes.

- May have long waits for connecting service.
- Want storage area for luggage.
- Easy identification of other facilities.
- Central information source.

**Non-traveling Patrons**
- Restaurant and bar should be identifiable from the exterior for patronization by surrounding downtown population.
- Deliver and pick-up passengers should be visible and central and should not interfere with regular passengers.

**Bus Drivers & Employees**
- Need separate lounge and facilities from the public.

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The synthesizing of facilities and passengers happens through the concourse (see diagram of 1.3). The concourse acts as the interchange between various transportation modes. Also the concourse serves as a major orientation space integrating the various facilities. Combined in the concourse are the various support facilities.

The relationship and needs of the building's users and their patrons having been identified, a building program be derived.
Building Program

Final square footages are given which include circulations that may not be programmable and is a result of design.

Concourse: 21,052 ft
- interchange between the various transportation modes
- should provide opportunity for orientation both inward and outward
- serve as main entry
- relaxed seating area for 30 people
- public telephones
- postal boxes
- directly related to:
  - Observation deck: 1536 ft
  - Information Desk: 100 ft
  - Luggage Cart Storage: 960 ft
  - Restrooms: 960 ft
  - Ticketing: 512 ft
  - Travel Agency: 514 ft
  - Concessions: 959 ft
  - Taxi Stand for ten cars

South Shore Station: 3600 ft
- 40 daily trains with daily ridership of 800
- maximum ridership per train is 100
- hourly service with half-hour service during rush hours
- train stock double-deck electric cars
- no gate control necessary - tickets taken by conductors on train
- center island platform - 510' long, 20' wide, 3'-11" high above rail level
• overhead canopy over the center
two thirds of the platform
• two heated waiting areas incorporating escalator/ elevator combinations
• seating for 32
• provisions for advertising, litter
disposal and station identification

Bus Station .................................................. $5070
• 40 daily buses with daily ridership
  of 400
• Greyhound, Trailways, & Indiana Motor
  Coach provide service
• average stop-over time is ten minutes
  for unloading and loading
• ticketing takes place at a central
  location in the concourse
• station area to be designed for a
  capacity of 80 with seating for 36
• directly related to the bus station:

Bus Platform Area
• 4 sawtooth bus bays @ 13’x45’
• median between bays @ minimum 8’
• vertical clearance for buses - minimum
  16’0”
• semi-enclosed waiting area for loading
  passengers

Locker Storage............................................. $20
• 40 cart operated self storage lockers

Employee/Drivers Lounge......................... $256
• private area for breaks
• lounge chairs, table and chairs, coat
  storage, coffee machine, water bottle

Station Manager’s Office............................ $10
• handles station affairs and bus
  traffic

Freight Service............................................ $1600
• pull-off area for customer delivery
  and pick-up
• front office for customer service and
  for management
• storage area with garage door for
carts for bus loading

Airport Limo Station.............................. $2880
• 24 daily shuttles to Chicago’s
  O’Hare International Airport provided
  Tri-State Coach Service
• station area to accommodate 40
  passengers with seating for 18
• ticketing takes place at a central
  location in the concourse
• single 13’x45” bus bay with 16’0”
  clearance overhead
• platform area to be large enough
  to handle extra baggage loading/ unloading

Union Station
• 15’ wide connecting skywalk to
  concourse

City Bus Stop
• pull off areas on either side of
  Broadway for 40’ busses
• sheltered waiting areas
• transit information area

Skywalk System
• 14 wide skywalks connect the
  transportation center to Gary Civic
  Center and the proposed sports
  arena
• skywalks also provide connections to
  adjacent parking garages
• integrates into downtown system
General Offices..........................1728
  • Offices for the Gary Public Transportation Corporation which runs the city bus service
  • employs seven people
  • indirect relation to concourse
  • program requirements are:
    • General Manager's Office........150
    • Director of Marketing + Operations: 150
    • Reception Area.....................400
    • Conference Room for 8..............200
    • Open office area for 4..............500
    • Lounge area..........................300
    • Storage................................100

Restaurant.......................1664
Kitchen............................511
  • A delicatessen-type operation should be available to both station patrons and the outside public
  • Strong identification
  • accommodate 100 people
  • access to outside for outside eating
  • restrooms

Bar.......................................2175
  • should be available to both station patrons and the general public
  • Strong identification
  • accommodate 150 people
  • access to outside for outside drinking
  • 50 ft of storage
  • restrooms

<p>| | |</p>
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<tr>
<td>Totals</td>
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<td>Gross Square Footage</td>
<td>46,202</td>
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Site Development
  • Development should be respectful to both the transportation center and adjacent historic buildings
  • should encourage use from restaurant and bar
  • should receive sun
  • provisions for bench seating
  • appropriate use of existing Statue of Liberty

The technical aspects of the problem having been clarified; the environment, social and design influence must be identified and analyzed.
Each problem poses unique external influences that one must contend with. These influences are both environmental and social. An analysis of these influences will lead to a better understanding of a particular problem's context.

An analysis of Gary and its metro area is necessary to understand how the project relates at a macro-environmental level.

**GARY STATISTICS**

**Location:** northwest corner of Indiana on the southern edge of Lake Michigan. Approximately 25 miles from downtown Chicago.

**Population:**
- City of Gary ...........150,000
- Lake County .......... 850,000
- Chicago metro area ...8,000,000

**Employment:** heavy industry to the north and light and service industries to the south.

**Transportation:** Gary is served by three interstate expressways and two U.S. routes. A municipal airport, commuter rail stop, and Amtrak station are all within the city. A major
international airport is 40 miles away. All major bus lines service Gary and the city has its own city bus system.

Socio-Economic Profile: Gary is composed of various low-income minority groups while the surrounding bedroom communities are of middle-income whites who are mainly blue and white collar workers.

Gary has a unique social environment that has to be analyzed in more depth. Over the past two decades Gary has seen an exodus of middle-income population and downtown business to the surrounding bedroom communities. This shift has left the central business district a scene of devastation. A high crime rate has given downtown a bad (though some exaggerated) reputation. Nearly all major businesses have left downtown leaving behind plywood storefronts. The only "draw" to downtown are government offices and a few remaining small businesses.

Urban renewal plans are currently underway to improve the situation and reverse Gary's decline. The proposed transportation center is an integral part of these plans and should respond accordingly. The plan includes the northern half of the CBD with the proposed transportation center's site being at the northern edge of this area. The CBD is linear along Broadway, the main north-south drag through Gary, and the urban renewal plans includes six blocks on both sides of the street. New proposals for this area include a Civic Center, a sports arena, museums, housing, new office space and a retail mall. All of this is to be interconnected by enclosed skywalks which will terminate at the transportation center. Some of these projects are still proposals while others are nearing completion. The transportation center should be adaptive and complement these plans.

The site itself consists of a two-block area bisected by Broadway. The site is bound by elevated railroad tracks to the north, Massachusetts Avenue to the east, Forte Avenue to the south and Washington Street to the west. As stated earlier the site is at the northern edge of the CBD and physically terminates the CBD at this point. Northward from this point is an elevated railroad and an elevated expressway and a series of more elevated railroads. Broadway continues northward interchanging, with the expressway and continuing to become the entrance to U.S. Steel steel plant. Residential areas are directly to the east and west.

Directly to the south of each block of the site are twin government buildings sited symmetrically on either side of Broadway! These buildings house
Site plan showing proposed interchange of Indiana Toll Road and Broadway.

2-3
the city hall and an annex for the county courthouse. Architecturally these Neo-classical buildings are dominant and impressive. Their gold domes dominate the skyline and are highly visible from the elevated railroad and expressway to the north. They serve as positive landmarks to arriving visitors.

Further south along Broadway is a mixture of low and mid-rise office and retail buildings.

The site itself is now a small green park called "Gateway Park". As one enters Gary from the north along Broadway, the twin government buildings and the park set up a "gateway" across the axis of Broadway. The park's close proximity to noise and dirt and its off-central location does not make for a favorable park space. There is very little pedestrian activity and thus the park has become a home for bums and gangs. The development of a plaza at the Civic Center to the south will not improve this situation. Along the north edge of the site is a parking area for the existing commuter train station located along the tracks.

The views to and from the site are interesting along Broadway because Broadway is a long and wide boulevard down the center of town. Looking south down Broadway from the site, one has a long axial view framed by the twin government buildings and looking north from the south the view is terminated by the various overpasses north of the site.

Physically the site does not have much. The topography slopes slightly from the south northward and has no major geographic features. The area is a sand-hill and the soil is sandy and with a high water table but there are no severe limitations.

The climate consists of distinct seasons but with variable conditions due to the influence of Lake Michigan. Winters can be quite harsh with frequent strong gale winds and snow squalls off of Lake Michigan. These squalls often "dump" heavy snows in this area. Other seasons consist of variable winds and regular rainfalls and temperatures.

See chart on 25.

The climate has a unique man-made feature of very bad air pollution. The central business district's close proximity to the heavy industry to the north creates a deadly cover on buildings, cars, people and so on. This only adds to the dismal depressed appearance of Gary and unfortunately little can be done. Material selection might be influenced by this condition.

An analysis of vehicular circulation
<table>
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<tr>
<th>Month</th>
<th>Average Daily Temperature</th>
<th>Average Monthly Degree Days</th>
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<td>January</td>
<td>28.9</td>
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<td>February</td>
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<td>March</td>
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<td>April</td>
<td>49.7</td>
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<td>June</td>
<td>70.8</td>
<td>2.41</td>
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<tr>
<td>July</td>
<td>75.6</td>
<td>2.32</td>
<td>0</td>
</tr>
<tr>
<td>August</td>
<td>74.3</td>
<td>3.12</td>
<td>0</td>
</tr>
<tr>
<td>September</td>
<td>67.2</td>
<td>2.20</td>
<td>90</td>
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<tr>
<td>October</td>
<td>57.6</td>
<td>2.44</td>
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<tr>
<td>November</td>
<td>47.0</td>
<td>2.19</td>
<td>765</td>
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<tr>
<td>December</td>
<td>30.6</td>
<td>1.76</td>
<td>1147</td>
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<tr>
<td>Total</td>
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is of obvious concern.

Rail movement is along the northern edge of the site. The tracks for the commuter railroad are elevated on concrete retaining walls. The Amtrak tracks are also elevated and are separated from the previous tracks by an elevated expressway.

Inter-city bus and airport limousine traffic is via the Indiana Toll Road which intersects with Broadway. Traffic enters and leaves the central business district on Broadway as it is the only two-way street through the CBD. All other streets are one-way so buses must "loop" to return to Broadway. Additional traffic created by the transportation center should have minimal impact on the existing traffic pattern. Congestion can be lessened by minimizing left turns and by locating the entrance and exit at existing inter-sections.

Auto traffic is fed into the central business district by Fourth (westbound) and Fifth (eastbound) Avenues, both U.S. highways. Two large parking facilities are located on Fourth Avenue adjacent to City Hall and the County Building.

A city bus route runs along Broadway stopping at Fourth Avenue. The bus runs north to the entrance of U.S. Steel and south interchanging with various feeder routes.

The problem analysis now evolves from contextual influences to internal type influences. A building type analysis will focus on how various related problems have been resolved in the past and raise issues of particular concern.

Multi-modal transportation centers as a building type are a relatively new example so one must rely on a variety of related examples. Small railway stations and rest bus stations are quite similar conceptually. They consist of a large waiting room with peripheral support space and are located along existing tracks or interchanges. The architectural style is usually quite simple with modern examples usually being "cookie-cutter" low budget non-descript buildings. Major railroad terminals provide a more interesting study being important structures of their time and place.

Rail terminals are quite simple conceptually also however their richness and variety of spatial experience instill a spirit of travel that many modern examples lack. They provoke the anxiety and excitement of departure and arrival in travel. Fortunately many of these late 19th and early 20th century examples still exist such as New York's Grand Central Station, Washington D.C.'s Union Station, Chicago's Northwestern Station and Cincinnati's Union Terminal. Key to all these stations is the role of the concourse.

The concourse has dual aspects: the physical aspect of linking various functions/spaces of the station and the emotional
aspect of instilling the sense of travel.

Physically the concourse is a large central space which serves as the orientation point for the various facilities grouped about. Functions contained within the concourse are those essential to a central location such as waiting, ticketing, information, etc.

Emotionally the concourse conveys the essence of travel - the anxiety of arrival and departure. The space is quite kinetic with large movements of people, noise, color and light. The expansive space of the concourse is entered through a small penetration which adds to the excitement of travel. An arriving passenger enters the concourse from the penetration sensing the lay of the area; first glimpses of the outside and in a sense, greeted by the space. A departing passenger bids farewell as he leaves the concourse and enters the penetration bound for distant places. It is in the concourse that the traveler either gets the feel of the new destination or bids farewell to a familiar place.

Unfortunately as new building budgets become tighter, the concourse loses its emotional aspect as it becomes an efficient space to process passengers.

My goal is to design the emotional aspect back into the concourse while still retaining an accountant's respect.

Applying these analyses to the program and starting to conceptualize possible designs leading to a final solution. A solution satisfying both the technical aspects of the program and the architectural aspects of the analysis.
PROBLEM SOLUTION
the symmetry of the government buildings.

Enclosure
When massing the building, I became concerned over the negative space created by the building.

The long facade defines the northern edge of the central business district and acts as a border between downtown and industry.

The concave forms are in respect to the siting of the government buildings creating open areas forming open lawns reflecting back on their facades. The convex form pulls the person inside the building but into the exterior space. This enhances the view and also separates the two green spaces.

The interior massing encloses another curve which relates the interior orientation to the outside and to the exterior form.

Context
The domed government buildings are strong and positive symbols for Gary. They are visible as one approaches on the train or expressway.

The massing of the new building should minimize obstruction of this view. Skywalks have been kept
Structure

To permit two-way vehicular circulation, large trusses suspend the second level above Broadway. This permits a column-free underpass at street level. At the second level, tension cables run parallel to the circulation.

The adjoining perimeter area is simple bearing wall construction.

Mechanical

The concourse, stations and other public areas are heated and cooled by a split forced air system. The building is over-pressured to prevent exhaust gases from entering the building. The over pressure is released into the central court where it forces the exhaust gases up into the air currents.

The private spaces around the perimeter are also heated by hot water baseboard units.
Material and Color Development

Material Selection Criteria:
- development of 36" module, 36" and 12" elements
- development of orders for exterior wall conditions

Exterior Finish Materials:
- 6" square ceramic tiles in combinations of white, terra cotta red, crimson lake red, and olive green
- 12" glass block clerestory band
- 36" square glazing, green tint
- rubber tile floorings, through platform and taxicab areas, dark green
- black granite pavers, public areas

Interior Finish Materials:
- 6" square unglazed ceramic tile, various shades of grey and red
- metal slat ceiling, dark grey
- rubber tile flooring, window seating, dark green
- window mullions in olive green (and window wall) and red (hor. window wall)
- furnishings in wood, leather and red

Color Selection Criteria:
- basic color neutral on both exterior and interior to harmonize with adjoining government buildings on the exterior and on the interior to highlight kinetic action of the trains, buses, etc.
- emphasis on main exterior view down Broadway
- each crescent has a stronger, individual color for identity and reinforcement of space
- dark color base of building to reduce upper mass of building, and anchor it into the site
- color of skywalks curve into the building to form the center court
- bands of color tile to "tie" together

Mass of Building

Material & Color List - Structural
- steel trusses suspending steel deck
- perimeter walls of concrete block
- concrete floor and roof slabs
- concrete support columns where required

Exterior Finish Materials
- 6" square ceramic tiles in combinations of white, terra cotta red, crimson lake red, and olive green
- 12" glass block clerestory band
- 36" square glazing, green tint
- rubber tile floorings, through platform and taxicab areas, dark green
- black granite pavers, public areas

Interior Finish Materials - Public Areas
- 6" square unglazed ceramic tile, various shades of grey and red
- metal slat ceiling, dark grey
- rubber tile flooring, window seating, dark green
- window mullions in olive green (and window wall) and red (hor. window wall)
- furnishings in wood, leather and red

Interior Finish Materials - Private Areas
- fabric wall covering, maroon
- 6" square unglazed ceramic tile, light grey
- 12" glass block, office divisions
- carpeting, dark green and light grey
- metal slat ceiling, white
- furnishings in wood, leather and chrome
- chrome hardware
1. CITY BUS STOP
2. KITCHEN
3. DELI
4. STORAGE
5. BAR
6. STATUE OF LIBERTY (existing)
7. OUTDOOR EATING
8. OUTDOOR DRINKING
9. STATUE OF JUDGE GARY (proposed)


BIBLIOGRAPHY