URBAN DIVERGENCE: from Physical to Social Infrastructures

by

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Abstract

Healthy and sustainable growth of a modern city happens when positive synergy takes place between public transportation and the commercial/residential areas which it serves. In lack of proper synergy, these interfaces ('transit nodes'), lack the human scale, feel sterile and isolated from the city's nature and give rise to awkward, fragmented spaces which are undesired and unoccupied.

The MBTA T stops, especially those in the outskirts of Boston, facilitate on a daily basis for hundreds of people who commute into the city and for residents or locals who utilize public transportation. Such stops possess the potential for urban expansion, and can offer a variety of amenities for its comers. Instead, most nodes are left unaccounted for and fail to provide a gradient of program components that create a sense of place and develop an identity which represents its community.

This thesis offers a prototype for nodes that provide sensible, seamless and healthy transitions between various modes of transportation to its urban vicinity. Nodes contain train stops, bus paths, main roads and public areas. Common constraints due to the nature of the site such as noise, lack of light, and safety issues are integrated into the design scheme to transform the site into a place which bridges among the urban fragments, reconnects public and private and becomes the heart of the local community.

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MY SUCCESS IS YOUR SUCCESS

facing page:
desk crit sketch, Jan Wampler 2009
Transportation technology plays an important role in the formation of the city when the cities grow beyond normal walking distance. Many cities in the plains developed as a circular city with radial routes, whereas the cities beside a river developed linearly. Factors like increase in personal income, construction of paved road network, the development of automobiles, and others, transformed settlements into urban centers of intense travel activity.
introduction
URBAN DIVERGENCE:
from physical to social infrastructures

in-fra-struc-ture (in'fra-strük'char) n. The basic facilities, services, and installations needed for the functioning of a community or society, such as transportation and communications systems, water and power lines, and public institutions including schools, post offices, and prisons.

social infrastructure. The range of activities, organizations and facilities supporting the formation, development and maintenance of social relationships in a community.
Healthy and sustainable growth of a modern city happens when positive synergy takes place between public transportation and the commercial/residential areas which it serves. In lack of proper synergy, these interfaces (‘transit nodes’), lack the human scale, feel sterile and isolated from the city’s nature and give rise to awkward, fragmented spaces which are undesired and unoccupied.

Let us examine for instance the MBTA Alewife station, which is a local intermodal transportation hub (involves more than one mode of transport of passengers). As such, it is a place where the urban bus system, high speed train and subway coincide, along with bikes, and private vehicles. It is located at the outskirts of Cambridge, MA, and is the northern terminus of the MBTA’s Red Line.

Seemingly, a multipurpose complex, its facilities include: a huge multi-level parking garage, with a direct connection to Route 2; bicycle parking for more than 150 bicycles; a Zipcar location in the employee parking area; connections to the Minuteman Bikeway, the Cambridge Linear Park and the Fitchburg Cutoff Path Pedestrian access to East Arlington; and retail area with food and services such as dry cleaning. In addition to that, public art is displayed in the station. Still, the human scale is lost in this space due to its gigantic footprint; as a transit node, the space lacks connectivity to the surrounding suburbs in the sense that in order for a passenger to get to suburbia from the station, one has to be picked up, or take a cab. Moreover, Despite the station’s proximity to residential area, it lacks the sense of community, and fails to create an experience for the person passing through the space. This is due to the fact that the program offered in the site, is not designed to provide for a collective (in the sense of community), but rather for the individual who commutes from one place to another.

In a broader sense, the MBTA T stops, especially those in the outskirts of Boston, facilitate on a daily basis for hundreds of people who commute into the city and for residents or locals who utilize public transportation. Such stops possess the potential for urban expansion, and can offer a variety of amenities for its comers. Instead, most nodes are left unaccounted for, and fail to provide a gradient of program components that create a sense of place and develop an identity which represents its community.

Urban growth/expansion is a never ending process, especially in the context of the modern city. As a place where public and private come together, transit nodes are areas from which the development of the city picks up. For students or young professionals, living in the vicinity of a transit node is a desirable solution. For families and people that live in suburbia, the ability to relay upon public transportation is a huge benefit. Thus, it is only rational to deduce that intermodal hubs, or transit nodes, are where urban convergence starts. Therefore, creating nodes that are sensible and community oriented, is a key step in assuring healthy and sustainable growth of a city.

This thesis offers a prototype for nodes that provide sensible, seamless and healthy transitions between various modes of transportation to its urban vicinity: Intermodal nodes that contain train stops, bus services, etc, and which program focuses on catering for the collective experience. Naturally, common constraints due to the nature of the site such as noise, lack of light, and safety issues are integrated into the design scheme to transform the site into a place which bridges among the urban fragments, reconnects public and private and becomes the heart of the local community.
[precedents, studies and inspiration]

Les Halles, Paris. Originally designed by architect Victor Baltard. Known as the biggest marketplace of Paris. A main transportation node, beneath lies the underground station Châtelet-Les-Halles, a central hub of Paris’s express commuter rail system, the RER.


Port Authority, NYC. Hectic place. Studied to determine if an site is used by people who do not commute into/throughout the city.

South Station, Boston. Despite the presence of a dining court and a few small parlors, the space is a good example for an unsuccessful relationship between individuals and transit hub. Spaces serves merely for commute. Doesn't offer a larger experience to its users.

Forest Hill (MBTA Station), Jamaica Plain. As the last stop of the Orange Line, the space feel extremely sterile and uninviting. When I visited the station during my search for a site, I found that even during daylight, the space not only overwhels its user but also fails to integrate into its surrounding area due to its mega scale.

Back Bay (MBTA Station), Boston. Designed by Kallmann McKinnell & Wood. Successful synergy between public and private created in the sense that the station is welcoming and integrated well into its immediate surroundings.

Rockway Parkway Subway Station, NY. Last Stop of the line. Ends with a cemetery. No potential for urban expansion.
site selection

In order to offer a prototypical design that could be modified to fit any transportation hub, it was essential to choose a site that represents the underlying assumptions of this thesis: transit interchange that serves both local passengers and those who commute daily, residential vicinity, and potential for synergy of the two.

For that purpose, the Orange Line of the MBTA was mapped, based on scale, proximity to the city (vs. proximity to the suburbs), and residential presence criteria.

The findings were then classified and placed on a "Nodal Gradient".

GREEN STREET was finally selected as the site for insertion due to its location (in the heart of Jamaica Plain, separating between residential and commercial spaces), its scale (services hundreds of passengers and commuters daily, but which footprint doesn't overbear those of neighboring buildings), and its historical context (to be discussed later).
1 Green St T Stop
2 aerial photo of Jamaica Plain and site on larger scale
site + program
multi ethnic community of artists and local parlors

The site, the Green Street T Stop, an MBTA Station on the Orange Line, Located in the heart on Jamaica Plain, MA, is a place where public and private transportation coincide, commercial and residential are at a synergy potential, but currently are independent entities. To the East of the immediate site, mostly a commercial area and a live/work arts neighborhood. On the West, a residential area where families reside, a large public park (Johnson Park), a more quiet and private atmosphere.

Though the inserted program is not site specific, it is a catalyst for connection on a local scale. Adapted to any site’s scale, it can also serve as a catalyst for a more global connection. Composing of parking facilities, low-rise retail/commercial, public recreation spaces, and a day-care, the program’s components can expand to adapt for a larger site that poses the same basic constraints: a hub where transportation and residential meet.

At any rate, the Transit Interchange is transformed into a hub for public amenities and the local and global community, and ties independent forms of transportation.
Green St stop, platform level. Stop services the Orange Line. Though the high speed train passes through the stop, it does not make stops there.

Existing circulation within the station. Escalators, stairs and a handicap elevator provide access from street level down to the platform.

Looking from inside the station down to platform level. One single central platform services inbound and outbound trains.
At street level, access and general organization.

Station general scale and footprint

Existing pedestrian plaza. View from Amory street.
Johnson Park. Corner of Green St and Woolsey Sq.

Opposing view. Residential area.

Overlooking the residential portion of the site.
East to the station. Commercial block. Still developing.

Improvised street parking. Clear lack of formal parking.

Corner of Green St and Amory. Commercial area.
the immediate site, the Green Street T stop, in the center of the plan.

the residential area of Oakside Street and Woodsley Square. majority of population residing in this portion of JP is composed of young families.

the commercial area of Amory Street. majority of building are commercial or small local businesses. further to the East, a community of artists, JP veterans, and students.

main roads passing through the site and surrounding it.
historical context

Urban Renewal
Commonly known as JP, Jamaica Plain is an historic neighborhood of 4.4 sq. miles in Boston, Massachusetts. Founded by Puritans from Boston seeking farm land to the south, it was a part of the city of Roxbury, until 1851, when the community seceded as a part of the new town of West Roxbury. In 1874 it became a part of Boston. In the 19th century, JP becomes one of the first Streetcar Suburbs in America and home to a significant portion of Boston's Emerald Necklace of parks, designed by Frederick Law Olmsted.

In the 1970's, it was decided to remove the embankment and depress the train line with new plans to extend highway I-95 from Canton north into downtown Boston. It was also decided to remove the elevated rapid transit train line on Washington Street and replace it with a below-grade line alongside the train tracks. With the new transit lines in place following the old train embankment, JP was sectioned into two parts- residential and commercial.

Many students came to the area in the 1980's due to low rents. In addition, the neighborhood developed a lesbian and gay community. The presence of artists in the neighborhood led to the opening of local galleries and bookstores, and arts centers. In the 1990s, nonprofit housing groups bought up rundown houses and vacant lots to create low-income rental units. As part of a city-wide effort, Boston Main Streets districts were named, bringing city funds and tools of neighborhood revitalization to local business owners. By 2000, the neighborhood had attracted a large community of college educated, professionals, political activists and artists. A hot real estate market has driven conversion of homes and older commercial buildings into condominiums. A large number of formerly vacant sites are now being converted to residential use.

public transportation
MBTA. The Orange Line rapid transit train line runs below street level through the middle of Jamaica Plain, stopping also at Green Street. Buses connect Jamaica Plain with West Roxbury, Hyde Park, and suburban Dedham and Walpole to the south, and the rest of Boston by street routes.
Commuter Rail. The Needham Line stops at Forest Hills Station, yet passes through the Green Street T Stop.
Parking. There are few parking meters in Jamaica Plain; on-street parking is free. Most streets near the Green Street station are posted “resident permit only” during working hours. This is intended to discourage commuters from using residential streets as parking lots during the day.
To transform the site, currently a sterile, austere space that segments the neighborhood into two distinct parts into a dynamic, exciting space that encourages public interaction, the program was designed to include the following components:

Parking lots (air rights): to provide for commuting passengers who driving from the suburbs into Greater Boston, and use the T services to moved around the city. Lots can also be used for local residents who currently suffer from sufficient number of parking spots on street level.

- Shops/Parlors (street level) for local business and/or paid public utilities such as laundry services, pharmacy etc.
- Studios/workshops (above street level) for artist who live/work in the area
- Exhibit hall/Gallery (where the artists can present and sell their works)
- Restaurant (above street level)
- Café (street level, air rights)
- Outdoor screening amphitheater (summer) and ice rink (winter)
- Outdoor terraces
- Youth center for after school hours (street level, air rights)
- Night club/ lounge (top of tower)
parking

Transit hubs offer an unrealized potential for parking to be lid out in spaces that are otherwise left unused. The immediate space above the train tracks is converted in this scheme into parking (beneath street level) that is easily accessed from street height. In return, the community receives vast areas (on top of the parking lots) where public amenities are places to allow people to come together. Due to basic size constraints that are needed for parking lots (bay size, access clearance, etc) broad, planar spaces are created, which are ideal for functions such as skating, basketball, and more. In terms of the parking itself, it allows for visitors that are not from the immediate surroundings to come and use these spaces, that in lack of proper accommodation for vehicles are less likely to be used in a more global manner.

youth center

After school hours, many kids find themselves wandering on the streets of JP. In order to provide a solution for this concerning phenomena, a youth center provides its users with play areas, a game room, and a rest area.

night club

The the context of the site, no building rises above 30'. In order to formally provide the scheme with a focal point, and functionally, to create a space for the young and vibrant community to come together, a night club is located at the top of the main circulation tower (new insertion). Moreover, functionally, the presence of a night club ensures that the space is occupied also after dark, and therefore enhancing the notion of personal security around the site. Keeping after dark active spaces also help transforming the transit node during the day into a dynamic place at night and thus, no longer sterile and unattended.

shops/ parlors

Nowadays, with the current recession and general financial crisis, in order to better integrate the transit node into the neighborhood, spaces for local business are provided, where local goods are sold. This ties back to the notion of giving back to the community, by encouraging micro-economy, and local growth. Such growth also boosts the formation of a social infrastructure.
artist studios + workshops

Another way to provide for the needs of the local community to encourage the formation of social infrastructure is by facilitating for the local artist community in creating work spaces in the vicinity of their residents. Functionally, these studios are elevated off of street level, to allow an uninterrupted commercial activity on street level.

restaurant

Located above street level, the restaurant is another place for people to come together and experience the transit node in a more active way than by its initial function alone (transit). In addition, the restaurant bridges and connects between the southern and northern parking lots above street level and thus, maintain a formal connectivity, and easy access among all of the program components.
roof plan

design in context

facing page:
individual moments
the human experience
View from Green Street. Pedestrian plaza. View of iceskating rink, cafe, restaurant, and outdoor balconies.

View from Amory street. Retail amenities on street level. Recreational public space on second floor view of iceskating rink, cafe, and outdoor balconies.

Corner of Green street and Amory. The street as experienced by pedestrians. The roof bridging across Green Street on second and third level.

Public garden and recreation area. Southern side (back) of T station, and view of roof top eating area.

Southern Parking lot view from platform level.
The levels of the node correspond to the surrounding site and infrastructure:

The platform level (situated at +0') stays untouched in term of existing tracks, station footprint and original foundations and columnar supports. Additional columns however are laid-out to support the added program components.

The following level (situated at +25') is the level at which the ground is dug to receive the parking lots that are built on air-rights.

The parking level (+26') is placed at the same height as the existing "island" on which the Green St station is laid out, and is access from the eastern portion of Amory Street.
parking plan

structural plan

platform (ground) plan
Ice rink/outdoor amphitheater located on top of northern parking lot

Main circulation tower

Street level floor plan intensified node

Shops/parlors. double access—through street and through internal circulation corridor.

Youth center (indoor) and a half basketball court (outdoor) located on top of southern parking lot
outdoor terrace. seats overlook outdoor public space.

main circulation corridor. connects southern and northern portions of suggested program.

**second floor plan**

intensified node

shops/parlors. double access-through street and through internal circulation corridor.

studios + workshop for artists
third floor plan
intensified node

outdoor balcony

restaurant

exhibit hall + gallery

outdoor dining area. access through restaurant. garden view
urban divergence
sections
going across the site.
urban divergence
urban divergence
roof design
turning the transit node into a landmark
urban divergence
urban divergence
bibliography


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