Connection Through Creation of Place: A Multimodal Center for Downtown Omaha

Bradley R. Isham
University of Nebraska at Lincoln, brad.isham@huskers.unl.edu

Follow this and additional works at: https://digitalcommons.unl.edu/archthesis

Part of the Architecture Commons

Isham, Bradley R., "Connection Through Creation of Place: A Multimodal Center for Downtown Omaha" (2010). Theses from the Architecture Program. 95.
https://digitalcommons.unl.edu/archthesis/95

This Article is brought to you for free and open access by the Architecture Program at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Theses from the Architecture Program by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.
Connection Through Creation of Place
A Multimodal Center for Downtown Omaha

by

Bradley R. Isham

A Terminal Project
Presented to the Faculty of
the College of Architecture at the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Master of Architecture
Major: Architecture
Under the Supervision of Professors

Wayne Drummond
Keith Sawyers

Lincoln, Nebraska
May, 2010
Thesis Abstract

Proposals and advocates for the reestablishment of the Omaha Streetcar have been around since the program was first ended in 1955. Similarly, regional passengers through Omaha once experienced both the Union Station (Durham Western Heritage Museum) and the Burlington Station, both were praised for their architecture, ease and comfort of travel. Passenger rail today operates at only a fraction of what it used to. A strong opponent to the railroad has always been the automobile. The automobile with its freedom and speed of technology has quickly surpassed the train and has taken full control of our cities growth patterns. This freedom of movement has lead to freedom of development in an increasingly westward direction. This westward movement left nodes of people and sprawling developments in its wake. The nodes, designed to cater to the automobile user as opposed to those using the train. This is apparent for most destinations and seems to be a continuing trend as spaces continue to be developed.

The creation of place through developments on a small scale in the Omaha Downtown seem to be highly adaptable to streetcar travel and pedestrian travel, but preliminary design seems to be better connected by the automobile rather than the purposed rail travel. Abandonment for one form of travel for another is not feasible or consistent with the needs of today’s society. Blending of the streetscape scale achieved by streetcars, the freedom of the automobile, the organization of a Cityscape light rail train, and the future expansion and networking of a regional and national rail will likely be in the future with the high possibility of a high speed rail.

Focusing now on the structure of the transportation hub that I am proposing to achieve the integration and revitalization of the systems that I desire, came first to site selection. While I had already wanted to be closely tied to the historic train yard between the Durham Western Museum and the Burlington Station, to spread a new structure across a vast site would be contradictory to my goal of integration without sprawl. The conclusion that I reached was to renovate and add to a building left vacant by the rail travel and the train yards obsolete fate. The Burlington Postal Annex, a historically registered building left vacant after the decline of rail travel. The Annex, built in 1928, carries the old charm seen in the Old market structures, while being located on the edge of the Near South District and train yard serves a better unifier structurally of the two districts. Its freedom from the nostalgia that the Burlington and the Durham carry by being old train stations and great need for development inspires and creates a great opportunty for its rennovation.

“The Connection Through Creation of Place” is structured to rely on the varying scales at which an intermodal center must operate to be successful. It is the success of each scale: National, Regional, Site, and Destination that each form of transportation relies on. Omaha currently has an Amtrak station; it however does not attract many users throughout its surroundings or within the city. The downtown master plan encourages streetcar and light rail travel in its development, but their connection and integration does not seem initially important to their design. It is the success of these systems that is the goal and importance of this structure not only in transportation, but also socially, historically and functionally for Omaha’s inhabitants on a day to day experience.
CONNECTION THROUGH CREATION OF PLACE
OMAHA MULTIMODAL CENTER
Table of Contents

RESEARCH/ANALYSIS
NEED-DOWNTOWN MASTERPLAN-HISTORY-TRAIN ARCHETYPE-PRECEDENTS

CONCEPTUAL DESIGN
DESIGN STUDIES

PROCESS DOCUMENTATION
SITE STUDY-PROCESS MODELS

DESIGN DEVELOPMENT

FINAL DESIGN DOCUMENTATION

BIBLIOGRAPHY & ACKNOWLEDGEMENTS

Original individual Images: www.nzhistory.net
Looking into master plans created for the city of Omaha was a great way to see how the inclusion of future planning would fit into the way that Omaha is growing as a city and beginning to look into solving the issues that they identified as a city. Using these plans was a great way to understand the aspects that each plan focuses on or is limited too, and allows for more interpretation or stricter specifications. Master plans in general are numerous for the city of Omaha. Over the last few years the recent mayors and their staffs have completed numerous studies, Master Plans, and surveys. Importance and findings of each of these plans all carry valuable information their unity of information, however does at times seem varied. The quick acceptance and execution of an adaptable existing or new master plan seems necessary for the success of endeavors such as the streetcar. Realizations like this lead one to look into the countless proposals, studies, advocates, and competitors for streetcars, light rails, and other forms of Mass transportation.

Master Plans

Omaha City Plan - Omaha by Design

Downtown Master Plan - HDR

Green Streets Feasibility Plan
Passenger Rail Today and the High Speed Rail of Tomorrow

Currently the development of a National high speed rail is still not feasible, but according to some progress and requests by some states and cities have encouraged others to follow in their footsteps. Leading the way are California, Florida, the Northeast Corridor States, and Texas. With the success and precedent of European and Asian high speed rail networks the U.S. is looking to offer a National network that will offer similar amenities and release our dependency on short duration flights as they lead to wasteful energy consumption.
Connecting Nation to Region

With support from the U.S. government for a stronger public transportation system large scale trans continental systems become more and more possible. Growing need for a fast reliable source of travel has many looking for the development of a national high speed rail. Large connections possible in the regions where population density is at its greatest, but with the need for a route through the midwest the existing Amtrak and freight routes point to Omaha a greatly viable option for the connection between the midwest and the West coast.

High speed rail with its greater velocities and right of ways are not fit to run directly on existing tracks, but in relation to the cost incurred with the development of a highway or interstate system the development of a single track is roughly one eigth the cost compared to the cost of adding a lane to an existing interstate system.

Warren Buffet, “The Oracle of Omaha”, has recently purchased the Burlington National Santa Fe freight company. Buffet a investing strategist has most likely looked to capitalize on the ever present need for the use and transportation of coal by rail. supporters of passenger rail look to the acquistion optimistically in hopes for the development of passenger rail lines the could run on or along side existing freight lines including the lines owned by BNSF.Key factors that give supporters hope are the ability for light rail and Amtrak trains to run along the same tracks that freight cars currently occupy.
Connecting Omaha

The city of Omaha established along the west bank of the Missouri River has since then grown and established itself as numerous distinct area culturally, demographically, and economically. Like any other city routes and means of travel lead visitors and residents through the city and its districts(?) Since the decline of passenger rail and the streetcar system roadways have become the most used form of travel in Omaha. More specifically, personal car travel has become the way in which most move about the city, as opposed to the development of mass transit.

Public transportation in Omaha is facilitated by the MAT bus company but its use and praise have been limited by poor conditions and low ridership. Visitors to Omaha arriving from Amtrak or Eppley Airfield most frequently use taxicab service and rental cars instead of a well developed city transit system. MAT’s highest ridership is mainly low income riders and is not suited to accommodate high volume of riders.

Developing a network for traveling lending way to a variety of needs, means, and methods has provided a great opportunity to use existing and revitalize old methods. The re-use of old rail lines provide great links to city key destinations such as the direct connection from 168th St. and Dodge St. near the village point shopping area to the downtown historical trainyard.
Controlling Omaha Sprawl

1854
Population: 150-200

1854 was the founding year of Omaha and Nebraska as a territory. Omaha was established as a thriving transportation and industrial center contributing to that was the introduction of the Union Pacific Transcontinental Railroad through Omaha in 1865. With the introduction of the railroad streetcars are soon to follow in 1869, although early cars are horse drawn along rails.

1897
Population: 140,590

One year the Trans-Mississippi Exhibition is held in Omaha. This international exhibition confirms Omaha as a major city in the midwest and bring World Fair patrons close to realize what Omaha has to offer. From 1888 to 1955 Omaha will use electric street cars.

1917
Population: 204,524

Omaha continues to grow the streetcar system continues to thrive having recently connected all the lines between Omaha and Council Bluffs providing an ease of travel across the Missouri River.

1950
Population: 281,020

Omaha streetcar will begin to decline and eventually run its final car in 1955. Omaha Growth seems generally uniform up until this point put with the growing popularity of cars Omaha sprawl will reach exponential growth patterns.

1975
Population: 397,038

“Between 1960 and 1990 Omaha’s population grew 11%, but the households increased 44% and the area of the city doubled. Although the city’s population increased, population density decreased from 5,933 to 3,260 persons per square mile.”

2009
Population: 438,646

Today the city of Omaha is growing larger and larger and with the recent annexation of the city of Elkhorn the trend continues to be westward. There is hope however for transportation methods that look to control that in serious consideration for the beginning of the downtown streetcar and the research into an intercity light rail.
New Development
As a way to combat the sprawl that has occurred in within the city of Omaha plans are underway to return to the development of nodes or key places within the city to establish as pockets of activity and strong destinations within the city redevelopments have been designed. Although it is unclear how accessing these establishments will occur the inclusion of a light rail, streetcar, and national rail now will allow for growth to occur around a system that will very quickly allow for the quick access for other nodes of the city.
Downtown Masterplanning

Transit Routes
Proposed lines of travel throughout the extents of the downtown have been planned to balance the need of the users and the growth in which needs to be facilitated for. Inclusion of Transit Centers both Bus and Rail seem to both be located on nodes that represent the meeting of multiple scales and speeds of travel. Interstate and National rail respectfully incorporate bringing people into the heart of the city in their own way, but their effectiveness within downtown and the rest of the city can lead one to look for further development of their systems.

Key Corridors
Strong corridors of travel that exist along the street grid have been looked at to further understand the need for development and the organization of future transit paths and systems. Seeing their relationship with areas of importance throughout the downtown one can begin to understand the connection that they offer or could with further development.

Key Developments
Developments of importance and magnitude are key to understand the need for addition of services and access to different amenities. Key also to its understanding of space is the micromanagement of sprawl. If the downtown can take any lessons from the city of Omaha as a whole it would be the linking of areas so as to offer reason to travel between without the need for quick spreading away from the center but the redevelopment within.

Key Areas
Distinct areas of downtown offer a history and character all there own. Some districts more than others have been able to embrace its history and allow for users to understand and experience those aspects as well.

Areas and Corridors/Connections of Importance
By comparing layouts of corridors, key areas, and modes of travel pedestrian areas of importance are able to be located and further developed as illustrated page right. These areas of importance be they existing or new they look to incorporate a key part to the reason in which many choose to live downtown, to be able to have close proximity to amenities, events, and destinations. Consequently by developing these destination the creation of a thoughtful experience is something that goes hand in hand.

Key Nodes of Downtown Gateways
Access to downtown are key and crucial to the selection of my site and the way in which that its placement and functions are able to facilitate a linking between different areas. By doing so growth is directed and encouraged towards existing amenities, in many these amenities, buildings, or sites are in need of renovation to allow for its use or some cases its reintroduction into use.
Thesis Abstract

Many users throughout its surroundings or within the city. The downtown master plan encourages streetcar and light rail travel in its development, but their connection and integration does not seem initially important to their design. It is the success of these systems that is the goal and importance of this structure not only in transportation, but also socially, historically and functionally for Omaha’s inhabitants on a day to day experience.
Adjacency and Effect of Rail Road Track

As the train moved across the nation it left along it track clusters of development. These clusters today are no longer centered on a direct connection to the railroad, many give it no further consideration as treatment of a service alley or an eyesore. In looking at the specific types of buildings associated in proximity to rail lines you can see a variety of industries, businesses, mixed use, apartments, homes, recreation, and social life. The defining characteristic seems to be their close connection with rail lines as opposed to roadways. This connection to underused land instead of the established grid draws opportunities for passenger rail or even reestablishment of service freight rail.
As the train moved across the National, it left along its track clusters of development. These clusters today are no longer centered on a direct connection to the railroad, many give it no further consideration as treatment of an service alley or eyesore. In looking at the specific types of buildings associated in proximity to rail lines, you can see a variety of industries, businesses, mixed use, apartments, homes, recreation, and social life. The defining characteristic seems to be their close connection with rail lines as opposed to roadways. This connection to underused land instead of the established grid draws opportunities for passenger rail or even reestablishment service freight rail.
History of Streetcar and Its Inclusion into Modern Omaha

Since 1955 when the last streetcar in Omaha was stopped in operation. There have been numerous attempts and supporters for the resurrection of the streetcar. In Omaha’s search for a workable streetcar, in Omaha’s search for a workable streetcar plan there have been feasibility studies on top of studies, on top of studies.
Until one author suggested that the indecision concluded without action. But by taking from those studies and acting upon their results one would be able to formulate support and a workable plan. The most realistic possibility of a streetcar yet. By taking from those studies and looking into possible precedents Omaha has been able to formulate support and a workable plan for its reintroduction into Omaha’s streets.
OMAHA STREET RAILWAY IN 1930

- TRUNK STREETCAR LINES
- BRANCH STREETCAR LINES
- FEEDER BUSES
Reintroduction of the Past

By comparing the past streetcar line that thrived in 1930 with the most recent plan for a streetcar layout as included in the Downtown Master Plan released in May of 2009.
Precedents

Looking into and understanding precedents played a key role in the understanding and path for my research. Omaha streetcar advocates have listed numerous precedents in which we can take good examples from Dallas, Portland, and Denver, to name a few. Each of these have similar qualities in city comparison or have taken similar steps to include mass rail transit in their respective cities. The quick sketches and analysis led me to exploration of archetypes and examples that have led to conceptual, schematic, and final design ideas.
ARTIC

PURPLE (COMMERCIAL)
RED (RESIDENTIAL)
BLUE (EVENT)
GREEN (PUBLIC)
YELLOW (TRAIN CORRIDOR)

Taking into account surrounding aspects of the site surrounding the ARTIC Transit Center is able to realize the way in which a train station inserts itself directly into the heart of a community, for a station such as the ARTIC the close proximity of an arena, college, commercial business, and living quarters it makes for an excellent node for the future California High Speed rail and the newly created direct connection via the Las Vegas Maglev train. The intermodal center is designed and set up to account for the addition of larger passenger capacities. The inclusion of services and amenities give the the ARTIC Center the ability to offer a community within a community fell to its surroundings.
DENVER UNION STATION

PURPLE (COMMERCIAL)
RED (RESIDENTIAL)
BLUE (WATERWAY)
GREEN (PUBLIC)
YELLOW (TRAIN CORRIDOR)

Denver Union Station carries with it historical value and importance. With the need for development of the existing trainyard into something that carries the ability to be used by the public and still maintain the historical value of the station is of great importance. New additions to the development will happen within the entirety of the train yard with transit function being submerged below the ground as to allow for a seemles streetscape to continue to a public park to the north of the station. Consequently the train station will become the centerpiece for the new development and act as a historic gateway to a vibrant and new development.
Gateway transportation center in St. Louis is most similar to Omaha in size, proximity, and need to integrate an existing bus system with a future rail travel system. With a great number of bus travellers this center is used as a central bus station will not include light rail and national passenger rail travel until later in its future but the planning and design for the way in which passengers interact with different modes of travel within the structure are what make for the inclusion of this precedent valuable to my research.
MAIN STATION - STUTTGART

PURPLE (COMMERCIAL)
RED (RESIDENTIAL)
BLUE (TRAIN YARD)
GREEN (PUBLIC)

Stuttgart Main Train Station similar to previously discussed Denver Union Station also deals with an existing train station valued with great historical importance. The method of execution for Stuttgart station was to create new platforms running perpendicular to the existing tracks located to the front of the station. Submerging the platforms and tracks allowed the preservation of the existing station facade within the streetscape but also did not deter from the experience associated with the connection to the adjacent park. Light wells being designed directly into the structure connecting the streetscape to the platforms below give the users a conscious understanding of their surroundings.
many users throughout its surroundings or within the city. The downtown master plan encourages streetcar and light rail travel in its development, but their connection and integration does not seem initially important to their design. It is the success of these systems that is the goal and importance of this structure not only in transportation, but also socially, historically and functionally for Omaha's inhabitants on a day to day experience.
Site Selection

Selection of the historical train yard as my site for my project exploration came from a variety of factors at differing scales. As Illustrated by the included maps thought was given to its relationship between city travel, connecting regions, and site experience by pedestrians.
The Burlington Postal Annex is located along the West side of the 10th street viaduct. The building is unused and is in need of serious renovation. Structurally the building is sound and fit for use in rail operations as was once used for that. This former post office was at its height of use during the travel of mail by railcar, the use of this building as a center for transportation serves as an example for the retrofitting of an old system with the needs of a contemporary society. This structure will serve Omaha as it restarts its rail travel and begins to grow back into the unused train yard.
Trainyard in Full Use, under the old 11th street viaduct and through the Postal Annex

Access to Burlington Postal Annex Through Today’s Existing Tracks
History of the Burlington Postal Annex

An Understanding of the building’s past use is beneficial for the understanding of limitations and potentials that it may possess in the future. Images such as these point to where use and references to the past can be made.
Historical Train Yard

The three main buildings shown are what represent the framing and introductions into the yard below. Their development and use once was able to yield a thriving, busy place for people to travel throughout the country.
Site Study Model

Through Study of the understanding of inhabitants of the site was crucial the site understanding it was similarly important to understand the way in which movement of different types passed through the site.
Conceptual Study Models

From top to bottom - Expression of the Division || Direct Access || Without Boundary There is Void
CONCEPTUAL DESIGN
The conceptual phase is marked by the exploration of overall full project ideas. Manifestations in built form come from the realization of the varying scales at which a multimodal center needs to exist. From the beginning these goals were apparent in the underlying goals of design. The site in which I worked was always in or adjacent to the existing historical train yard. The context and program remained for the most part intact and was only required to vary slightly due to different location concerns.
Program

Circulation - 15,200 sq. ft.
Retail - 10,000 sq. ft.
Civic Space - 20,000 sq. ft.
Parking - 12000 sq. ft.
Future Platform - 7200 sq.ft.
Baggage Storage - 2300 sq.ft.
Break Room - 185 sq. ft.
Rest Room - 1600 sq. ft.
Offices - 800 sq. ft.
Conference - 400 sq. ft.
Long Range Train Platform - 37,000 sq. ft.
Bus Platform - 7200 sq. ft.
Waiting/Reception - 4290 sq. ft.
Luggage Storage (LRT) - 2300 sq. ft.
Rest Room - 65 sq. ft.

Total: 132,340 sq. ft.
Schematic Design
Final Design Development
Level 1
Level 3.5
Thesis Bibliography


www.dailynebraskan.com. Swicerek, “Omaha Public Transportation Leaves Much to be Desired”

www.newcolumnist.com/omaharail

www.denver-infill.com-images

www.heritagetrolley.org/planomahafeasibility

www.lightrailnow.org

www.railroadforums.com

“Superfast Bullet Trains are Finally Coming to the U.S.” www.wired.com

www.infrastructurist.com

www.wikimedia.org

www.infoplease.com

www.omahastreetcar.com
Acknowledgements

Thank you members of the Attic Static for your company, advice, reality checks, ability to listen, and amazing willingness to lend a helping hand. Without you I would have most likely gone crazy.

Thank you Professors and Professionals your valued opinion on matters where your knowledge and experience outweighed my own and allowed my project to continue to grow in ways that I could not have reached without your advice.

Thank you Martin and Nate as critiquers you were able to give direction and excitement to my work when frustration and mental block may have more than likely taken over.

Thank you Keith and Wayne the ability to talk day to day with mentors who always offered direction and enthusiasm, thank you for your help this project would not have gotten done without you.

Thank you again all of you for all your help, for I am truly grateful.