Shifting Gears: Redeveloping the Downtown's Cultural Approach

by

Renee Reder

Submitted to the Department of Architecture in Partial Fulfillment of the Requirements for the Degree of

Bachelor of Science Art and Design

at the

Massachusetts Institute of Technology

June 2010

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ABSTRACT:

Downtowns of small cities and towns are often overlooked when thinking of cultural and gathering spaces. Unlike a large city that usually has a vibrant historical and cultural history represented by clustering of museums, theaters, and other gathering spaces, most small cities do not have these cultural centers because they do not have an influx of tourists and visitors. After the collapse of many mill industries in New England cities and towns people moved towards the suburbs, leaving behind Downtown areas, polluted rivers, and letting any remaining cultural or gathering spaces disappear.

Using a site in Downtown Nashua New Hampshire that exists as a parking lot, a stitch was employed on the urban scale and a slit on the local scale to establish connections between a cultural program, site, urban fabric, and people, reversing a trend towards creating open lots along the river. The stitch is a cultural experience, a place that makes art and culture accessible to the public through a journey that connects the city back to its river.

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ACKNOWLEDGEMENTS:

There are many people I'm grateful to for helping along the way to my thesis, making it stronger and seeing me through plenty of twisted turns along the way. My journey to final thesis review wouldn't have been possible without all of you.

Thank you very much to Nondita Correa-Mehrotra for being willing to take me on this semester as a thesis student (and the significant time commitment) and providing guidance and feedback at many different stages and working around many of the things that came up along the way.

Many thanks to Ana Miljacki for her critique at critical points in the semester, encouragement and helping me see this semester in context with the future and challenging many of the assumptions I'd made about the project.

Special thanks to Katherine Hersh for her devotion in coming for reviews, but more than that, her support and belief from the beginning that I should push my limits and pursue my interests. Thank you to everyone at the City of Nashua who provided me with needed information for the project--I feel very blessed and lucky to know and have worked with all of you.

Thanks to my guest reviewers throughout the semester who took time out of their busy schedules to provide thoughtful critique, including Liam O'Brien, Joel Lamere, Meejin Yoon, and Maia Small; I appreciate it more than I can say.

Thank you to all my archfamily friends (there are so many of you to thank!), especially Jack Murphy, Jean Li, Tiffany Chu whether it was helping pinup, late night advice or devoting their time to help along the way. Thank you to all my other friends too for understanding why I would disappear for days or weeks (or months) at a time.

Thank you to all my professors throughout the years, especially my studio professors Bill Hubbard, Angela Watson, Nondita Correa-Mehrotra, Jan Wampler, Dan Chen, and Meejin Yoon who helped me to build to the point of being able to do this thesis. Thank you too to Renee Caso for all the course suggestions and advice along the way (plus reminders about thesis related stuff). Thank you to everyone else in the BSAD program.

Finally, I am very grateful to my family, my mom, grandma, uncle, and sister for their constant love and support throughout this process--and all the journeys in my life. I have become the person I am today because of you.
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INTRODUCTION

Downtowns of small cities and towns, particularly prevalent in New England, provide a different obstacle for creating cultural and gathering spaces. Unlike large cities with significant infrastructure critical to culture and gathering, most small cities present a different obstacle, one of creating spaces that create a constantly changing experience for residents while attracting visitors who might not otherwise visit a given city or town. In mill towns in particular, the need to reinvigorate and rethink Downtown areas is necessary. Once the center for economic and community activity, trends over the last thirty years have led to the abandonment of gathering spaces in many Downtowns, paired with many tenants moving away from Downtowns, industries dying, propelling towards the shopping mall or strip malls that clutter the periphery of many cities, facilitated by the car.

Fig. 1 Views of Nashua
Yet, with gas costs rising and the rehabilitation of Downtown areas, they are beginning to become the “it” place again. Yet, despite all the changes, the current economic situation is causing small shop owners to lose their businesses. The decline in the Downtown can be linked to the framework. If a Downtown closes at 5:00pm and there is no place to go out, a Downtown economy will never stabilize or expand. Yet, how does one building begin to change this context and how can it function on the urban and architectural scale? Is there a method like the stitch and slit that can be used?
In Nashua, there has been significant effort towards the revitalization of Downtown, including the fine dining establishments located in the core city, events such as the Holiday Stroll, and the current efforts towards adding sculpture and the arts as well as a bus system that offsets some of the vehicular traffic. Yet, the lack of a place for cultural activities to occur does not allow this small city to engage its rich history. In a recent survey of businesses in Nashua, many of them indicated that they would most want to see a movie theater in the Downtown, which opposes the decline of the movie theater in the advent of digitalization. What it indicates is the need for Downtown to be open longer, encouraging visitors and residents to the shops and restaurants Downtown.

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2009 DOWNTOWN NASHUA BUSINESS / CONSUMER SURVEY

Four Businesses would like to see Downtown Movie Theater, 56% (2)
Four Community Assets would like to see developed Public Parking, 63% (1) Train Station, 57% (2) Performing Arts Center, 56% (3) Expanded green space, 46% (4)

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"The nineteenth century mill town is dead or dying. The abandoned shoe and textile mills of New England...are fossil remains of the Age of Carboniferous Capitalism," Dawley writes in his piece *Death and Rebirth of the American Mill Town*. The question of how to revitalize old mill towns now that mill industries are left leaves a number of methods for accomplishing this. In Georgia, one city has used tax breaks and other large incentives to bring a Kia manufacturing plant to the area allowed revitalization (Copeland). In Maynard Massachusetts, the textile industry was replaced by a high technology economy. At Turners Falls mill town neighboring the Connecticut River, a RiverCulture project is underway to create art which embraces culture and history of the area.
Lowell, which is Nashua's sister town provides one precedent that has become a model for many New England mill towns. "Lowell fell on hard times as its mills closed and jobs dried up....By the 1980s, technology companies had relocated to the area, but Lowell's downtown, which was designated a national historical park in the 1980s and still held all of its old buildings, was desolate. Its solution was to use the arts as a catalyst to attract tourists and residents. In 1998, it developed a downtown arts district, which includes galleries, theaters and studios. Its old mill buildings were transformed into artists' lofts, poetry readings were planned, and new restaurants and coffee shops moved in." (Zezima) In North Adams, Massachusetts, the opening of the MASS MoCA, a new cultural arts association in the mill buildings, helped to spur increase viability within the city. Each of these methods of rebirth has helped to shape respective cities beyond just bringing new industries to the area.
Fig. 7 Structure of Nashua's Transportation Routes
Nashua New Hampshire, a small city of approximately 87,000 residents, has often been called the "Gateway City" because it is forty miles from Boston and it functions as an entrance to New Hampshire as well as being the most direct route to Vermont and Canada. Nashua remained undeveloped largely as a result of the poor soil in Nashua, which meant the city had to rely on its access as a trade location on the river before the advent of manufacturing (Sullivan 16). In 1795, the Nashua area saw its first stagecoach, which went through the town to trade from Boston to Concord ("Nashua New Hampshire" 9). In 1826, a stone wharf was built and the Nashua Village Canal Boat Landing was created, some of which was designed by Asher Benjamin (Manoian). This was built on the banks of the Nashua River, the cross-axis to Main Street.
Asher Benjamin has also been attributed with laying out the street grid pattern, creating a N-S and E-W axis running from the Hunt Building down Main Street and Nashua Manufacturing to the Pilgrim Congregational Church (site for this project). Completion of the Middlesex Canal provided the prototype for other canals, facilitating movement from Concord NH to Boston MA, until the railroad opened which caused the canal industry to collapse by 1853. Yet, the Nashua River would continue to be important for industry.

In 1815, small mills and shops were scattered in the Nashua area, and in 1817 a dam was built across the Nashua River, west of the current Main Street bridge near a gristmill owned by James Patterson (Discontinued Industries 3). “In 1820, Nashua’s sister town, Lowell, built its first cotton mills and Nashua soon followed, chartering Nashua Manufacturing Co. by 1823 and Indian Head Co. by 1825. 1825 was also the year that a series of locks were created in the lower canal so that boats could go from Lowell, up the Nashua River to the Main Street Bridge. James F. Baldwin, engineer of the Middlesex Canal was brought to design and build the essential canal for the Nashua Manufacturing Company (Schuster 69).”
In 1838, the Nashua and Lowell railroad opened followed by the Concord railroad in 1842 ("Nashua Souvenir, 1906" 4). The main railroad depot and complex for the railroad was erected as the same site as the Nashua Village Canal Boat Landing. The riverfront was selected for the railroad because of the substantial 1826 stone Wharf and the river’s edge, next to the Main Street Bridge stonewall abutments (Manoian). In 1838, locomotive engines weighed 9 tons, engines reaching 30 tons in later years without freight or passenger cars (Bradlee 13). A natural riverbank would have been unable to support those loads, but the stonewall provided the necessary strength to support the engines. The Nashua River became associated with the center of industry and the center of Nashua. The value of land also increased, going from land that was once 10 cents an acre, to a price of $1000 when broken up into house lots (Shuster 70).

In Nashua after the development of the first dam, Nashua Manufacturing Company was founded by a group of men, including Daniel Abbott, Joseph Greeley, Moses Tayler, and others in the association, purchased the land from Mine Falls and Main Street and applied for a charter granted on June 18, 1823 (The Nashua Experience 98). The dam was to be built at the 35-40 foot drop in Mine Falls Park, three miles west of the Nashua River bridge (Winship 26). It helped make possible the mills along the river and created the drop to create waterpower. The railroad was crucial for the success of Nashua as a manufacturing city and also as a node in a larger network of transportation. The location of tracks along the canal was also significant since it went by both Nashua Manufacturing and Jackson Company on route to various other locations.
Nashua Historical Society and Museum
Hunt Memorial Building, fits 50 people
Greeley Hall, 1833-circa 1910
(A change of use)
Armory Hall, 1890-1950 (fire)
Franklin Opera House, 1849-1937 (fire)
Goodrich Hall, 1869-circa 1920 (fire)
Park Theater (cinema), 1918-1952 (closed)
Nashua Public Library, 75 seats
14 Court Street, 275 seats, 190 seats
Old Nashua City Hall, 1843-1940 (demolished)
Beasom Hall, 1865-1961 (fire)
YMCA Hall, 1902-circa 2000 (change of use)
O'Donnell Hall, 1902-1947 (fire)
State Theater/Star Cinema, 1927-1976 (closed)
Daniel Webster Theater/Tremont Theater, 1917-1974 (closed)
Spring Street School, 1919-1988 (demolished)
Colonial Theater, 1911-1954 (closed)
Nashua City Hall, small auditorium
Brandt Theater (cinema), 1971-2001 (demolished)
Elm Street School, 1500 seats
The downfall of the railroad and the mills occurred under very similar circumstances. Yet, both the automobile and Southern mills had a significant impact on Nashua’s status as a small city. With the advent of the automobile, the old Nashua & Lowell route saw less traffic after World War II and the lines all but stagnated. The mills had struggled before World War II, a result of the new, more efficient machinery that overproduced, coupled with the advent of the Great Depression and the Flood of 1936. However, the most significant factor was the increased competition from Southern mills. Despite Nashua’s growth as a result of the river and railroad, the city changed after the collapse of the mills and railroad industries.

"After the mill closed, Nashua had organized a nonprofit corporation to finance, purchase, and market the mill facilities. Within two years, 85 percent of the space had been rented, all mortgages and loans had been retired, and a substantial amount of working capital was in the bank (Business Week 1950)." Yet, culture can help to continue improvement of the Downtown area in Nashua.
Fig. 13 Different Fabrics of Nashua

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The river with its pollution became an eyesore and as many buildings in Downtown were torn down that abutted the river; they were left empty to be filled with parking lots. Pictures show the state of the Nashua River, where many of the waste products of the industries were dumped. The character of the city also changed, to a city with a small urban center coupled with a suburban ring, making it attractive to those tired of the metropolis, which was a trend during the 1970s. “The construction of Route 3 in the 1950s cemented the orientation of life and commerce away from the downtown (Schweitzer)” and Nashua became once more a Gateway City, to income-tax free New Hampshire. As the mills once again filled with industry (BAE Systems) and housing (Clocktower Place), the resurgence of Downtown began, although it is oriented to the daytime. This, coupled with other revitalization efforts in Downtown began the process to restoring the Downtown area.

Yet, the key to the Downtown area is the Nashua River, where cleanup began in 1965 with Marion Stoddart and the Nashua River Clean-Up Committee which faced a Nashua River classified as U—unfit to receive further sewage. The stench and river coloring made real estate along the riverbanks undesirable and most buildings were orientated away from the river. However, protective measures were added against pollution, new sewage treatment plants, and point sources that became controlled under legislation. A plan to create the Nashua Riverwalk has helped to reshape the image of the Nashua River, creating a pedestrian and bike friendly path usable by visitors and citizens alike that embraces the area surrounding the river. A double-layered section of this path neighbors the site area. Although these measures have attempted to change the perception of the river, many of the properties along the river continue to be filled with parking lots or oriented away from the river. Embracing the “new” Nashua River would be important towards the continued revitalization of Downtown and a key element in the redefinition of the city as well as reviving cultural and gathering spaces in the city.
Shifting Gears: Redeveloping the Downtown's Cultural Approach
Previous page: Fig. 16 Conceptual Drawing
Fig. 17 Selected Images from flip book, site access by car
Fig. 18 Selected Images from flip book, site access by walking
The site selected for the cultural center is in an area of Nashua identified in the 1983 Central Nashua Plan and the 1991 Downtown 2000 Plan as the future Downtown Nashua Cultural District. The site is adjacent to the library, providing a link with education, a building that has been converted into a small theater area, and an office building. It is accessible by car, bike, or walking. The site is also adjacent to the Riverwalk, engaging the pedestrians and creating a visual connection to the Nashua River. Nearby is the Old City Hall (demolished), which once served as the center of Nashua. It is part of historic Downtown Nashua but also in an area of Nashua that was revamped during the 1960s and 70s. This provides an interface between the modern and historical as well as engaging the historical center of Nashua. Currently, the site is covered with parking lots and is one of the largest undeveloped pieces of land in the core of Nashua.

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Fig. 20
Historical Site

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The slit and stitch provided connection within the urban and local scale, necessary for a larger project. A stitch provides a method for sewing together. On the urban scale, this can create connections and links between opposing fabrics in the urban framework. A slit, however, is more complex because its resultant is both divisive and inclusive. A slit within the same plan is a split that results in separation between two elements. Slits which are stacked in section can join together spaces by creating a joint void. There are instances where an element can be both a slit and stitch. For example, within the same plane, a material change may occur, but by being in the same plane, it functions as a stitch, while the change in material is a slit.
Just as there are various types of stitching within sewing, so too are there different types of stitching on the urban scale. A stitch can exist as a mass-void-mass, void-mass-void, mass-mass, void-void. Although a stitch is primarily used at the urban scale, a stitch can also exist in the facade, window, door combinations which connect between exterior and interior or joining different “rooms” within an interior space.
A slit can exist as both uninhabitable and habitable. An uninhabitable slit is often in the form of a crack but can be of a larger size. A habitable slit starts at the size of one person increasing to circulation elements to courtyard to alley or plaza type area. Slits can be stacked with their centers at varying distances.

The stitch and slit can be deployed at various scales.
Here, the stitch is used on the urban scale while the slit is explored on the local scale. The stitch is a mechanism for joining different sections of the site to each other, stitching between the residential and commercial fabric, the river and the rest of the city, the Downtown to the outlying streets, and to buildings within the site. The library provides an opportunity to join elements of the cultural center program to a public building. The type of stitch this can most characteristically be compared to is a slip-stitch which is an invisible type of stitch joining together two pieces of material while not being able to be seen on either side, running as a long and short stitch. It requires precise handling of the material and careful workmanship. In architecture, this occurs in a seamless stitching of the urban fabric. This stitching joins the programmatic elements of the cultural center together with the existing fabric through a spine element. Through this axis, Asher Benjamin’s axis is reemphasized.

On the local scale, the slit functions to create connections between different levels of the spine, bring in light, providing access, and sewing together the different level changes that occur with the site as-is.
Fig. 28 Stitch / Slit Axon
To create the "destination" or "receiving ends" for the stitches to join the program, there are four main mass pieces. Programmatically, the cultural center is structured as a sampling so that people who come to use the center for one purpose may discover other programmatic elements. The four major programmatic elements are the auditorium area, two sets of galleries (art and historical), an education center, and artist lofts. The assembly spaces can be broken up into five smaller pieces, two halls and three smaller auditoriums. These spaces could house traditional functions as theater, music, dance, and perhaps even movie showings, but also be function halls, places for competitions and tournaments to be held, and engage events such as graduation since Nashua High School students do not currently graduate in Nashua because there is no venue large enough. It would be important to respect the existing venues already existing in the city, the Elm Street Auditorium (1200 seats), American Stage Festival (150 seats), and the Hunt Memorial Library Building (accommodates 50 people).
OFFICES/CONFERENCE AREAS
- Overseers of program, areas for conferences (7,000 Sq. Ft)

CIRCULATION
- Car parking area which integrates with the cultural aspect of the project (80,000 Sq. Ft)
- Shared circulation, walk up

ARTIST LOFTS
- Lofts for 10 artists (15,000 Sq. Ft)

VISITOR ARTIST/GROUP
- Space for a visiting artist (5) to stay and work (3,000 Sq. Ft)

GATHERING/ASSEMBLY
- Four spaces which can be joined or used separately, 3500 seats total (50,000 Sq. Ft)

LOBBY
- General gathering, impromptu performance area for cars/people (4,000 Sq. Ft)

SERVICES
- Bathrooms, amenities (1,000 Sq. Ft)

EDUCATION CENTER
- Outreach center for complex (4,000 Sq. Ft)

GALLERIES
- Joint spaces which can be combined, used separately, historical, arts, industries, design and writing center (35,000 Sq. Ft)

LIBRARY
- Unspecified

Fig. 30 Detailed Program
The galleries space includes exhibition areas that could display "design", both Nashua through its artifacts, art, sculpture, and design as it relates to local businesses, a quasi-museum / design center. To engage the art and provide rotating exhibitions, a visiting artist would be invited to stay at the artist lofts and communicate with existing artists. In creating a link to children and the adjacent library, an education center would allow children to meet with cultural center experts, the visiting artist, and provide an interface for the exhibition area. The education center could also be used for adult classes in the arts and cultural research.
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Fig. 32 Program By Date / Time
The programmatic volumes correspond to the other existing masses on the site. Once these masses are in place, it is possible to stitch a spine between them that allows the programmatic elements to go from the inside to the outside.
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Fig. 36 Sketch Massing Models
THE LAYERED STITCH

The site is layered with different uses and different users. There are three groups considered, including the car, bike, and walking person. Each user is encouraged to use the site differently with entry points and connections that are specific and shared. The walker has the most access to the site but the bike's path links to the Riverwalk area while the car is accommodated for parking and a drive-in movie theater. They coexist at an entry point linking to the library area, a significant entry point to the site. Here, in trying to reconcile the city, it comes into conflict with itself. Nashua, as a city of an intimate Downtown and sprawling suburb must rectify the 50 miles per hour suburban car to the 15 miles per hour bike, and 3 miles per hour walking person, both more suited to Downtown. To achieve this unity requires rethinking public space and the function of public buildings. What does it mean to be a cultural/gathering center? The act of gathering is looked at in the flexibility of the spaces and how they can accommodate one of these three general groups.
Building Masses
Second Level
First Level
Underground
Existing Ground

SUMMER

Building Masses
Second Level
First Level
Underground
Existing Ground
WINTER

SUMMER

Fig. 39 Exploded Summer / Winter Spine Axon

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The layering of these users is superimposed on a layering of a gradient of uses. These uses are laid out on a fluctuating grid that molds and changes the existing site conditions. The building masses added to the site, the auditorium, artist lofts, galleries (historical)/education center, and galleries (art) provide a usage map for these specific volumes. The spine creates a blending of different uses that feed into each other and relate to these building masses. The spine is a "cultural bazaar", a place where you would go for one thing and discover other things. The traditional Middle East bazaar is usually a street with many different stalls and shops and in a similar way, the spine of this project functions as a "street" for culture.
Fig. 43 Sketch Models of Spine
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Fig. 45 3D Model in Site
1. Existing Parking
2. Parking / Drive-in Movie Theater
3. Auditorium
4. Vendor Space / Market
5. Grassy Outdoor Space / Sledding Hill
6. Artist Lofts / Visiting Artist
7. Sculpture Garden
8. Sculpture Garden / Reflecting Pool / Ice Skating Rink
9. Galleries (Art)
10. Galleries (Historical) / Education Center
11. Informal Performance Space
12. 2D Mural and Art Board
13. Outdoor Listening Garden
14. Riverwalk

Fig. 46 Underground Level
Fig. 49 Vignettes of Spine
On the underground level, an existing parking lot is expanded and part of the new parking lot becomes a drive-in theater usable in the evening. On the first level, the program progresses from a vendor/market area and sitting area to a grassy area/sledding hill, to a sculptural garden which links to another sculptural garden/reflecting pool/ice skating rink. On the second level, there is an informal space for performance, a 2D display mural wall and a listening garden (which is a series of poles that allow one to listen to the performance happening in the nearby auditorium). These uses also feed into the attached gallery/education space that affords different views over the nearby Nashua River.
Fig. 52 Exploded Axon of Gallery Space

Fig. 53 Perspective Section
These uses create a gradient of 2D media, performance and sound. The listening garden, an artificially created sound area located on one end of the axis is juxtaposed with the natural sound area of the dam falls located on the opposite end at the Nashua River. The prerecorded movie performance space is contrasted with the informal performance space. A sculptural garden which is man made is compared with a grassy area. What is high culture? And is there a way to make it accessible and visible to anyone? Visitors who might go to play on the grass might find sculpture. Likewise, someone who might come to see the 2D mural wall might stop to watch a game being played on the grass. An artist once told a story of a man who had never gone to a gallery, who wasn’t really interested in art and culture. He did attend a “sculpture race” where artists design and wear their sculptures that must propel them to the finish line without use of motors or similar devices and told this particular artist about how, for once, he was interested in art and culture and how this kind of art was something that he could relate to because it was not just in a museum but part of the street life. By creating access to the river and creating a pathway that is experiential, it is possible to integrate these different elements of culture.
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Fig. 59 Rendering of Listening Garden
BIBLIOGRAPHY


Discontinued Industries. WPA Administration. Nashua NH: n.d.


"Nashua New Hampshire." Nashua NH: Goulet Printing Co. n.d.


Figure 1: http://www.villabanca.com; http://www.downtownnashua.org/stroll.html;
http://www.andresinstitute.org/Nashuasymposium/CityArtsNashua5-09.html
Figure 5: A Testing Time: Crisis and Revival in Nashua; The Nashua Experience (see bibliography)
Figure 6: http://www.middlesexcanal.org/images/map
Figure 14: http://www.nashuariverwatershed.org/history.html
Figure 20: Various photographs from collection of Nashua Public Library
Fig. 60 Rendering of Gallery