



From ‘Highway into Greenway’: How Public Spaces Change Zoning Regulations

The Case of Northend Park Rose Fitzgerald Kennedy, Boston, USA

Israa H. Mahmoud¹(✉) , Bruce Appleyard² ,
and Carmelina Bevilacqua¹ 

¹ Mediterranea University of Reggio Calabria, 89100 Reggio Calabria, Italy
israa.hanaf@unirc.it

² School of Public Affairs, San Diego State University, San Diego 92182, USA

Abstract. The case study presented in this paper is a manifestation for an urban regeneration project that transformed a Highway into a Greenway. **The first part** aims to understand the contextual background of the highway regeneration Project, and it analyses the key factors of the long-debated land use and how the public authorities mandated the development of open public places as a policy. **The second part**, entails the rebirth of the Public Space as part of the Rose Kennedy Greenway where the role goes beyond the semantics from just a park towards being considered the front porch of the city oldest Neighborhood, the Northend. **The last part** analyses in depth the cultural programming of the Public Place and its character as a livable destination in the heart of the Downtown district. The methodological approach uses a public Life Matrix of evaluation to identify users’ behavioral patterns through intercept surveys, frequency of social activities through intensive three months long physical observation analysis, and lastly in-depth interviews with local Stakeholders, related Governmental bodies and Boston development and planning authorities. The findings highlighted a tendency that community involvement in the planning and placemaking process helped inform the Public Policy about the needs of surrounding neighborhood residents; as well as, emphasize the Public Private Partnerships in successful urban regeneration projects such as the case of the Northend Park.

Keywords: Public space · Urban regeneration
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1 From a Highway to a Greenway: A Land Use Dilemma

The Northend Park takes part from the -so called- Boston’s ribbon of contemporary parks. The Rose Kennedy Greenway is a mile and a half of contemporary parks in the heart of the Boston city. The greenway as a roof garden topping a highway tunnel connects people, city scape and fun; it connects a series of 7 parks, whereas there are public art installations, water fountains, historical sites (such as: the freedom trail),

public transit and bike sharing stations (such as: Hubway), food trucks vending locations and public restrooms [1].

In this light, this paper aims to highlight the role of urban regeneration projects that involves distressed urban areas, through actions, cultural programs, and public policies on a larger scale, to improve the living conditions; by the development of public spaces, parks, squares, etc. and mobilization of cultural capital. This includes, as well, the role of economic and human behavioral facts about public spaces, which is the focus of economic regeneration process to a certain extent. The reason for the selection of the Northend Park in the city of Boston is that it fulfills the criteria of being a public space formed after a regeneration project that involved different stakeholders as well as transformed an eyesore to a vital livable destination in the heart of the city.

Following the removal of the elevated highway (Interstate 93 and 90) as mandated by the Boston Redevelopment Authority [2] a big debated land use dilemma paved the way towards the development of only 75% of the land “as series of parks and urban plazas”. That was adopted later in the “Air-Rights Park plan” mandating the 25% surface development only while the rest remained as public open space [3, 4].

The buried sections of Interstate 93 and 90, are now topped with the 1.5-mile-long Rose Fitzgerald Kennedy Greenway, see Fig. 1. The Project have been federally funded and overseen by the state where the Bostonians recall it as “the battlefield of Menino”. Somehow, though, Mayor Tom Menino managed to sell investors and ordinary citizens alike on his vision for the clean, efficient, and business-friendly city that would emerge from the project’s dust [5]. ‘The Big Dig’ project ballooned into a \$22 billion boondoggle, but Boston came out of it as a better city. Property values have doubled, streets are safer, and economy is more robust than ever.

“The Rose Kennedy Greenway will transform the heart and character of Boston in so many ways. We have taken a space that previously hosted an outdated elevated steel highway and turned it into a vibrant park. Today’s dedication of the North End Parks is a significant step forward in the overall development of this Greenway.” Governor Patrick: opening ceremony of the Northend Park [6].

Context Overview. The Central Artery Master plan developed in 2001 by the Massachusetts Turnpike Authority provided a framework designating eight acres for open spaces and parks in Bullfinch triangle and Northend. The plan stipulated the parcels development focusing on reconnecting districts with a seam of futuristic-yet historical-open space that knits its’ neighborhoods together [7, 8].

In 2003, the mapped central artery corridor master plan showed designated specific parcels for open space development; amongst which parcels 19, 21, 22 were assigned to Massachusetts Horticultural Society to develop outdoor gardens and an enclosed winter garden. Then, the Massachusetts Turnpike authority delegated the assignment of developing parcels 6, 12 and 18 to the Greenway Conservancy which created the Dewey Square Park and Fort Point channel parks. The “Big Dig” plan nonetheless called the creation of a pair of one-way surface road extending the length of the Greenway, now called “John Fitzgerald surface road”, to handle local traffic that existed underneath most of the replaced Central Artery. In the meantime, the Greenway parks and development parcels were bordered as well by other crossing streets (North, Cross, and Sudbury streets) separating the developed parcels. Both parcels 8 and 10

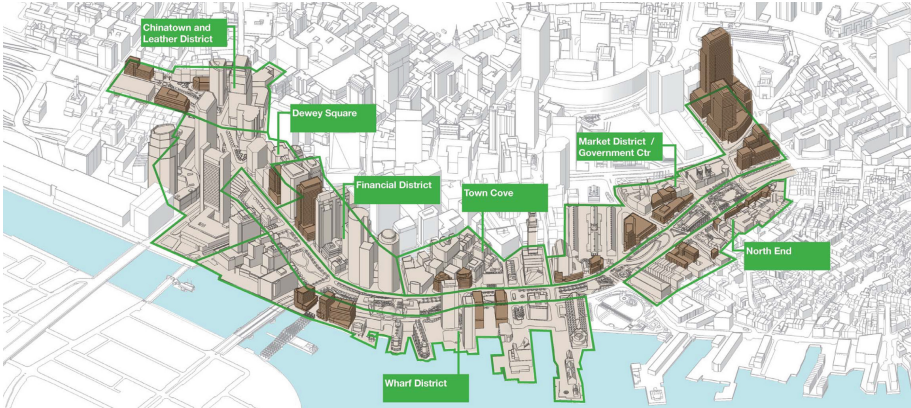


Fig. 1. Rose Fitzgerald Kennedy Greenway sub-districts and seam of connected parks.

gave birth to the Northend parks in 2005¹. Northend parks, described as a “city hinge” to connect the old-Italian neighborhood to the financial district and Downtown of Boston is a major milestone for the recognition to the role of public spaces to generate social capital and foster communities’ development.

2 The Rebirth of a Public Space

The Northend Parks were designed by Gustafson Guthrie Nichol and Crosby Schlessinger Smallridge in 2005. Both firms commissioned by the city of Boston, specifically by the Massachusetts Turnpike authority [9], to design a park that reflects the link between the historic neighborhood of Northend and the rest of the city. The Northend park and plaza opened in November 5th, 2007, have been replacing an area that was formerly an eyesore, the long awaited controversial sixteen-year-long Central Artery/tunnel project of the “Big Dig”; One of the largest and most expensive public works project in the American History, replacing an elevated highway that bludgeoned the city for nearly half century, dividing the city waterfront and historic Northend from the adjacent Downtown.

The Northend Park and Plaza takes part of The Emerald Network, in a parallel way, a 200 miles of greenway networks that is an initiative under the livable streets alliance. The Emerald Network is a seamless shared-use greenway paths in the urban core of the city of Boston and adjacent cities that provides walking, biking connections through parks. The major aim of the greenway project is to connect people to jobs, to neighborhoods’ assets by foot, bikes and any non-motorized means [10]. The later one is an initiative of the Massachusetts Government for “rethinking urban transportation”, nonetheless, the fundamental aim of the planned shared-use paths across the greenway is to connect neighborhoods with open spaces, transit stations and jobs therefore

¹ See <http://www.rosekennedygreenway.org/files/7713/0084/3916/North-End.gif>

increase mobility, promote active recreation, improve climate change resilience, and enhance the city's competitiveness in the global economy.

Physical Design Concept. Geographically located in coordinates 42.362358 N, 71.055875 W; the Northend parks and plaza are physically encompassed with a size of 2.83 acres and approximately 12,000 m². The design of the open space and park plaza (identified in Boston Maps geospatially as ID 570) in which the open spaces layer of data is defined as: the open spaces under conservation and recreation interest in Boston, Massachusetts regardless the ownership [11] frames the entry to Northend neighborhood from one side and to downtown on the other.

The notion of design for the Northend park and plaza is that it works as a significant “hinge”, between the grand civic spaces of Quincy market, Government Center, and Haymarket; leading the way to approach the intimate Northend, Boston's oldest neighborhood. While located at the threshold between downtown and a historic/touristic neighborhood, the design conception has not been easy, creating a critical link between the importance of Northend as a “home” to largely Italian community since 1890s. In fact, the neighborhood - still distinguishably abutting the narrow streets and alleys- containing several historical sites remained till now an appealing attraction; hence, local residents have accepted the resulting influx of tourists and the gradual increase of restaurants and retail shops over the years [12, 13].

A steel pergola lines one side of the site and is the conceptual “front porch” of the North End neighborhood, complete with site furnishings that encourage its use, makes it an “exception” as described by [5]. A reflective water feature separates the porch from a series of lawns and perennial gardens. Through the park design on the circumference by streets and walkways (North Street, Hanover Street, and Salem Street walkways) reconnect the City to the North End; Each cross the gardens, water feature and pergola. The site's rich history is reflected in interpretive elements that include granite marking the edge of the Mill Pond and the water's edge, descriptive quotes and a timeline engraved in leaning rails, and an engraved stone map illustrating the changing landform of the site, see Fig. 2.



Fig. 2. Current view of the Northend Parks. Source: the first author, Summer 2016.

3 The Northend Park as a Successful “Public Place”

The ever-evolving debate about the difference between a “public space” and a “place” goes beyond semantics on the distinction between the two concepts. A place is shaped by the environment in which people invest meaningful times; it has its own history, a unique cultural and social identity that is defined by the way it is used and who are the people using it. In addition, Physical, social, environmental, and economic aspects of communities can be nurtured through the creation of places [14, 15]. The Northend park case in particular is characterized by an unmistakable cultural enrichment due to touristic traffic crossing through following the Boston’s historic landmark (the Freedom Trail); that said, the flexible design of The North End Parks features spaces including green landscapes with a path system, plazas with pergolas and water features that run through both parcels and appeal to a wide range of people, including North End residents of all ages and the thousands of tourists and Bostonians who visit each year [9].

The Gustafson Nichol [16] design for these two adjacent parcels restored views and street connections that were severed for decades by the elevated highway. The North End Parks, that had always been a physical and social threshold, are now one of the most popular Greenway destination in Boston. Nonetheless, the community involvement in the design process played an essential role towards creating a distinguished public place. The enthusiastic involvement of the neighborhood community centers and an engaging public process -through local collaboration and public meetings- were fundamental in shaping the design of a new “front porch” for the North End. The residents’ traditional, lively street culture is celebrated in the parks’ design of furnished terraces, intimate garden spaces, and interactive water features. A large pergola defines the North End neighborhood’s gateway and ‘front porch’ as a place to gather, to stroll, and to be seen.

According to Ken Greenburg an urban design consultant hired by the City to visualize the future of the RFK Greenway, noted the importance of keeping existing businesses in the North End to retain the Italian ambience and help retain a 24-h environment. Whereas, he predicted, the North End’s parks could be “one of the great public spaces in America” [17]. Historically, since 1950’s, the freedom trail crossed the site in confined space beneath the Central Artery viaducts. Now, the park design weaves high the city’s historic freedom trail that now crosses the main path while it used to sit in the dark shadow of the elevated highway.

Cultural Programming. More in depth, The Northend Park as listed by June 2015, with a total budget of \$400,000 was subject to face-lifts in lighting fixtures, pathway lights along the freedom trail were returned functional and condensed. Benches have been replaced, along with gliding porch swings under the pergolas and the greenery in the gardens area have been replaced, condensed and redesigned to be more welcoming [18]. In fact, The Park is programmed to get advantage of all spaces, while the primary use is passive activities (such as watching water fountains, relaxing on lawns and sitting around benches, chairs and existing tables); active engagement programs include free fitness yoga and Pilates classes [19] or Berklee seasonal Musical Concert series during July and August yearly [20], food trucks vendors, and Galleries on the fence.

Nonetheless, the continuous effort of the Rose Fitzgerald Kennedy Greenway Conservancy in promoting the cultural programming of the greenway through festivals

and special events such as artistic installations, outdoor movies displays and Dogs carnivals [21]. In addition to that, the public art program that displays along with the active placemaking activities of creating and activating open spaces have bolstered a longer term economic value creation in the whole urban Downtown business district and the Northend in particular [22, 23].

4 The Northend Park as a Liveable Social Destination

While the physical analysis is as important for any site, one of the most important measurable qualities of any public place is its attraction for users; people gather in plazas, walk in parks, the relationship between people and their space is an essential component of urban design [24]. Based on this notion, the following in-depth analysis is on the users of the Northend park with the help of a public life matrix toolkit technique. The main outcomes are part of an intensive visual observation analysis, an intercept users' statistical survey, interviews with on-site and in-field experts, and a video camera surveillance records analysis.

The First Phase of the analysis started in December 2015, the physical observation of the plaza, see Fig. 3- left, showed a touristic tendency in the crossing between Hanover street and the Blackstone street whereas the freedom trail path is. In other words, in good weather season, the human flow increases, tourists stop often in specific spots to take pictures, enjoy the view of the waterjet fountains, and maybe grab something to eat from the adjacent bakeries of the Italian neighborhood. In compliance with that, the Northend park is as vibrant as one can imagine a public place; yet, in some crossings as reported in **Vision Zero**², pedestrians run the red lights or even cross away from the crosswalk due to longer walk signal time [25].

Following that, an intensive visual observation timeline³ conducted for three months period from April 2017 till July 2017, see Fig. 3-right, showed an attractiveness factor to the usage of the Northend Park as Cultural-Based Destination due to its' contingency to the Italian Neighborhood food and restaurants cluster with a special frequency occurrence on weekend days. Whereas sociability (defined as a livable street life and diversity in public place use and stewardship [14, 26, 27]) measures a noteworthy feminine presence in the plaza and in a frequent time frame between 5:30 pm and 8 pm that peaks in the weekends days.

The second Phase of the case study analysis treated the statistical side of the users' surveys. In the 70 intercepts users' surveys that have been conducted⁴, see Fig. 4, there

² Vision Zero is a real-time online Platform to report Safety Issues as they occur instantly in the city streets; Supported by the city of Boston and ESRI mapping tool.

³ The Visual observation timeline was conducted from 10 am to 10 pm for three full months and divided into 2 h slots based on a preliminary analysis that most frequent users do not spend more than 2 h in the Northend Park daily.

⁴ The survey was completely anonymous for the 70 users and was tested with local stakeholders and urban experts from the greenway conservancy. Statistical analysis of Survey takers was conducted on site using a paper survey form then by building a SAV database with STATA software and re-analysed with DataCracker online tool.



Fig. 3. Left -Observation Points Base map with exemplary views from around the Northend Park, April/July 2017. Right - Mapping Stationary activities in ten Observation points.

has been analyzed a tendency of 37% towards the usage of the public space from the surrounding inhabitants of the Northend district. Considering the strong influence of the park parcels in shaping the cultural aspect of the neighborhood, it is significant that most of the frequent users are from the same zip code of 02113 whereas the park is. Nonetheless, a noteworthy female attraction of 14% of survey takers during the weekends of 16th and 22nd July due to good weather conditions (recorded an average temperature between 19 and 28 °C) and planned Musical Concerts from 5:00 to 7:00 pm. In the interim, the age and gender differences were not substantial, both categories scored between 34 and 38 years as most significant quantiles; a noticeable low correlation of 0.80 between gender and age in the survey results.

Contrariwise, higher correlation was assessed between age and social clusters of users; 57% preferred frequenting the park alone in the average age of 34 and less, while 35% preferred group activities in an age bracket between 35 and 40; at last, only 8% of survey takers were in couples with an average age of 34. While looking at gender in correlation to sociability of the park, 62% of female surveyors were walking alone; and felt “neutral or positive” about it vs. 38% of the opposite gender. Another visible aspect of users’ behavioral analysis is by referring to their yearly income, 26% declared having an annual income between \$60 k and \$90 k (with a majority of 29% of male), while 23% preferred rather not declare their income (with a majority of 24% of female); that however, falls in the median-high percentile wages in Boston MSA.

Lastly, the 70 users were divided into subcategories by latent class analysis, while ‘daily’ or ‘weekly’ were the highest percentile of female gender frequency with 38%, ‘monthly’ was the remarkable sub category of opposite sex with just 14% of sample analysis and 95% confidence interval. On the same scale, the female gender scored 48% in staying 30 min or more up to 1 h in the plaza, that however, coincidences with the female superlative value in the sociability of the public place as confirmed with the visual observation analysis.

The third phase of the case study analysis was the interviews with in-field experts; interestingly, the gained insights from the meetings with Boston Development Planning Agency officials, the Emerald Network, and the Rose Fitzgerald Kennedy Greenway Conservancy were all concerned about the success of the Northend Park due to its’



Fig. 4. Timeline of the Surveys conducted during the month of July 2017.

strategic location in the city Downtown area. 6 interviews were conducted with 4 different stakeholders entities and 2 urban planners, most of interviews stressed on conserving the livability of downtown area; whereas the Northend park case study is; in addition to work on equitable cultural programming, inclusiveness and resilience in planning processes, wayfinding, and safety issues.

Furthermore, from the personal interviews it was qualitatively deducted a noticeable governmental approach to conserve the age/gender/social class diversity and encourage people mixing along the RFK greenway. Meanwhile, on the top of the agenda comes safety, security, and accessibility from all colors to the park and to surrounding economic activities. Mostly, those were the planned goals of the blue print document “**Imagine Boston 2030**” - released in 2016 - at its’ core as a guiding policy; specifically investing in open spaces, arts and cultural programming together with transportation and infrastructure [28]. In fact, one of the measurable tools to identify the success of the case study of the Northend Park was the Livability performance⁵ whereas the transit corridor -where it falls- showed a high ranking in walkability, biking opportunity, accessibility to economic opportunities, social and governmental services, vibrant community and cultural recreation opportunities, healthy and safe neighborhood while scored low in mixed income housing opportunity and that is expected in the Northend case [29, 30].

5 Conclusion

While the Northend park and plaza were in the heart of the regeneration project of a city-wide scale highway; the forefront of the public place had a historical root of Community engagement and a deeper cultural-based territorial neighborhood relationship. That said, founding on the notion of the Northend park as a city hinge and the historical freedom trail path, the physical design and the imagery of the park was a challenging task. The city ballooned the economic debt of the big dig giving birth to an ever-evolving economic urban regeneration project of the Greenway; being, then, on

⁵ The livability Performance is an index of a calculator designed to numerically describe the characteristics of an individual transit corridor to identify urban policies to implement based on 12 digits FIPS code and Census Block Groups IDs. The results are integrated in a helix of livability indicators such as 1. quality transit, walking, biking 2. Mixed income housing, 3. Accessible economic opportunities, 4. Social and governmental service, 5. Vibrant community, cultural and recreational opportunities, 6. Healthy and safety neighbourhoods.

the last end of a series of open spaces and parks and due to its location, the Northend park is considered one of the greatest parks and plazas in the city of Boston.

By analyzing the Cultural Programming of public events occurrence in the park, Users' behavioral patterns through intercept surveys, intensive physical visual observation analysis, and in-depth interviews with urban anthropologists, Governmental bodies and related urban development authorities, as well as the usage of the livability Calculator, all showed excellent performance keys in the sociability of the park.

Behavioral patterns tracing whether in weekends or weekdays as well as the Stationary activities measurement through imagery or videos recordings unfolded the daily life attractiveness factor of the Northend Park. There is an average of 250 pedestrians crossing an ordinary day of the week and double the count for any weekend. Whatever the time or the day, there will always be someone in the park standing, sitting, walking across, waiting for a friend, riding their bike, and/or children playing in the fountains along a summer breezy day. It is undeniable as well to highlight the activity of the Neighboring Haymarket Public Market held in weekends, that augments the park sociability and brings more users in some peak hours.

Surveys revealed nonetheless the matching sociability patterns in the park; vicinity to two metro stations, a residential neighborhood, and a cluster of restaurants such as the case of the Northend brought a diversity of groups and individuals to the park constantly in remarkable commute times and peak lunch/dinner-times. In addition, Key informants' interviews unfolded the governmental and statutory approaches in the planning development of the case study. However, the microscale of the Northend park is not on the priorities of placemaking in the "**Imagine Boston 2030**" plan as the guideline of development; yet, the inclusiveness, community engagement and safety issues are on the top notch for a variety of stakeholders involved. Whether Boston Planning and development Agency, the Rose Fitzgerald Kennedy Greenway Conservancy, the Livable streets Alliance, the Vision Zero Coalition, etc., there seems to be a certain linkage of collaboration on the wider scale on the networks of parks and open spaces dept. and the transportation dept. in that sense.

In Sum, the Northend Park is a set stage to a successful social public place case study that brought vibrancy and a diversity of users to the downtown core of the City of Boston; the cultural aspects of the regeneration project are distinguishable, and the human attraction plays a turmoil role in shaping the overall park image.

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