

Freeway Removal and Waterfront Redevelopment

Combining Two Planning Trends

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Freeway building boomed in North America because the high speed, high capacity highways were seen as efficient ways to move large numbers of people in, out, around, and to and from major cities. While freeways certainly remain the centerpiece of the continent's transportation systems, there has been recognition amongst many local governments in recent decades that freeways are not necessarily appropriate everywhere. As these concrete monstrosities slash through and across downtown areas, many cities have opted to completely remove the superhighways they had just decades earlier embraced with open arms. In many cities, the removal of these freeways has coincided with another popular planning movement: waterfront redevelopment. In areas with rivers or other water features, these roadways often are shoehorned in between the edge of the downtown and the river, effectively cutting the city off from the water. As the wrecking ball is taken to these structures, opportunity arises for the city to embrace the water once again.

The rise of the freeway coincided with the demise of the city, so it is no coincidence that as the vibrancy of cities has begun to resurge, a closer look has been taken at how freeways may be negatively affecting quality of life. Cities looking to increase development in the downtown area have found that freeway removal can be a major catalyst. Lisa Schreibman noted that "In downtowns across the country, where developers find it increasingly difficult to assemble full-block sites, freeing up 15 or more contiguous acres is a real estate dream" (Schreibman, 2001, p. 11). With many urban areas being so built up, removing a freeway opens up a rare large patch of land that is a sandbox to any variety of major development projects without the issue of having to work around existing land uses. Furthermore, as Jane Jacobs famously noted, and can be seen in cities all over North America and indeed the world, freeways act both as physical and perceived barriers. They can cut parts of the city off from each other and split whole downtowns

in half. The resulting blight drives down property values, discourages development, and encourages movement out of the city, which is made all the more easier by the freeways.

Tearing down those structures often ties the city back together (Napolitan, & Zegras, 2008).

The most obvious concern with removal of these freeways is the traffic that was previously driving over them. An easy assumption would be that losing that infrastructure would result in traffic bottlenecks in other areas as drivers find new routes. Typically, this is not the case. Reduction of capacity on the roads is usually shown to decrease the total number of automobile trips made. Furthermore, the remaining traffic can be absorbed by other streets: “Studies have shown that the addition of capacity can actually increase congestion by “funneling” traffic into a single direct route, rather than distributing it over a network” (“Case studies in,” 2008, p. 1). This is a back breaker for opponents of freeway removal, as it eliminates the only major case against their destruction. By removing the freeway, drivers will spread out over a wide variety of routes, thereby often actually easing congestion.

The waterfront has been an obvious location for the placement of freeways. In some cases there were already roads there that could be converted to freeways, while in others land acquisition difficulties could be remedied by building the road right over the water on the border of the downtown. So naturally, with freeways in areas such as this being removed, the opportunity arises to incorporate waterfront redevelopment. The recent popularity of waterfront redevelopment is motivated by many of the same factors as freeway removal, primarily a lack of open space in the city; “With new popularity and increased development pressures, many have found that their most significant opportunity for economic and physical revitalization- the only place left to go- is their derelict edges” (Greco, 2008, p. 35). However, there is more to it than a simple need for space. Often these waterfront areas simply have not been that attractive for

redevelopment until recent years. Major cities located on rivers, lakes, and oceans not by coincidence or for recreational value, but functionality. Shipping was king, and with industrialization came heavy water traffic volumes and the construction of factories and warehouses in waterfront districts. Industry and pollution do not make for attractive park and recreational space. As many cities have seen industry all but leave town, and port traffic shrink drastically, the waterfront has presented a new opportunity (Greco, 2008).

With sustainability becoming a hot topic of discussion in planning circles, there is a natural gravitation toward waterfront park projects. They are green, sustainable, and they can greatly enhance a city's image. There is an inherent connection between humans and water. People are drawn to it, and find it pleasant to be around, so waterfronts are ripe for commercial redevelopment. Freeway removal presents the opportunity for planners to combine two major projects into one, and make a very visible impact on the look and feel of the city. The skyline of a downtown as a backdrop to a clean waterfront up against green space or mixed use commercial development is certainly more appealing than one fronted by a sprawling concrete highway. The results speak for themselves. Cities such as Portland, Toronto, and Milwaukee have demolished freeways and opened up their downtowns to the waterfront, while other towns, such as Buffalo, continue to plan for such a project. Even more cities sit ripe with opportunity to imitate and expound upon their success.

Harbor Drive, Portland

In the case of Portland, the city is widely known for progressive urban planning and transportation policies that help to shape the culture and vitality of the city. A forerunner in promoting alternative transportation options, Portland became the first city in the United States

to remove a freeway in 1974 (Seattle Urban Mobility Plan, 2008). Harbor Drive was a three-mile, ground level highway that ran along the west bank of the Willamette River. Also known as US Route 99 West, Harbor Drive connected the industrial neighborhood of Lake Oswego to areas south of downtown Portland (Seattle Urban Mobility Plan, 2008). Harbor Drive was Portland's first limited access freeway, and was completed in 1942 (Congress for the New Urbanism, 2010). The highway consisted of four lanes, and carried approximately 25,000 vehicles per day including roughly 2,500 heavy trucks to the industrial areas nearby (Seattle Urban Mobility Plan, 2008).

Like most other cities in the United States, Portland's downtown was in severe decline by the 1960's, resulting from a continued exodus to the suburbs and the increasing dominance of the automobile. Signs of neglect marked the city: between 1940 and 1970, the number of housing units in the downtown area dropped by fifty six percent. In 1960, Portland's first suburban mall opened, and the downtown area suffered further from the loss of retail businesses. Additionally, environmental problems such as pollution and poor air quality became increasingly evident with the formation of the Environmental Protection Agency in 1970. Public transportation in Portland had declined as the downtown area continued to deteriorate. The Rose City Traction Company went out of business in the 1950's, leaving only a few remaining privately owned bus lines within the entire city (Wollner, Provo, & Schablisky, 2005). Ripe with urban renewal projects and funding, Portland responded by demolishing housing units in many areas of the city, and by expanding freeway projects such as Interstate 405 (Preservation Institute, 2007).

With federal support for highway expansion in the 1950's, Portland's network continued to grow. By 1968, the state Department of Transportation proposed to widen and straighten Harbor Drive to accommodate more vehicles and relieve traffic congestion (Seattle Urban

Mobility Plan, 2008). The DOT's traffic models predicted that by 1990 Harbor Drive would carry 90,000 vehicle trips per day. Fortunately for freeway opponents, Governor Tom McCall was concerned about reinvesting and revitalizing Portland's downtown area, and had visions of a more beautiful Portland. Governor McCall instead created a task force to evaluate alternatives to the highway expansion, which consisted of nine members and was structured to include a public hearing (Seattle Urban Mobility plan, 2008). Governor McCall supported plans for Portland dating back to the City Beautiful era, which called for greenways and parks along the Willamette River (Congress for the New Urbanism, 2010).

Although Governor McCall had advocated the creation of a public park on the Willamette River, the task force came up with three possible solutions to the traffic congestion on Harbor Drive. The first option was termed 'Cut and Cover', which would bury the highway and build the park on top. The second option presented was to widen and realign Harbor Drive, in accordance with the DOT's original proposal. The task force's last option, was to relocate the highway to Front Avenue, which was located parallel to the drive, and to widen it to six lanes of traffic (Seattle Urban Mobility Plan, 2008). Because the state highway engineer had projected the increase in traffic to 90,000 trips per day, the task force did not even consider removing the highway (Preservation Institute, 2007).

Meanwhile, increasing public opposition to the proposed expansion of Harbor Drive was gaining more momentum. The most vocal group was the Riverfront for People coalition, which publicly campaigned against the project, using the press, petitions, and public events to bring awareness to the citizens of Portland (Congress for the New Urbanism, 2010). At this point, Governor McCall had the task force reevaluate alternatives, which then concluded that Harbor Drive could be removed completely, upon completion of interstate 405. I-405 would connect to

I-5, which was located on the east bank of the Willamette River. In May of 1974, I-405 was completed and Harbor Drive was closed (Seattle Urban Mobility Plan, 2008).

The removal of Harbor Drive had minimal negative impacts on traffic flow in Portland. The removal project was successful due to a few important measures and characteristics of the city of Portland. First, the downtown grid network of streets was utilized to absorb traffic. Streets were converted to one-way traffic flow and traffic lights were coordinated to accommodate traffic movement, and speed limits were reduced. Second, because I-405 had been completed, there was an alternative route for heavy industrial traffic, and traffic bypassing downtown. Additionally, Front Avenue, which ran parallel to Harbor Drive, was landscaped and made into a boulevard to accommodate automobile traffic as well as pedestrian use. Lastly, following the closure of Harbor Drive, there was a concerted effort at creating pedestrian and human scale activities downtown, and increasing support for transit and bicycling options in Portland.

The removal of Harbor Drive was the first of many other decisions that supported the increase in pedestrians, transit and cycling in the city of Portland. Other pivotal decisions that transformed the city include the development of Pioneer Square. In 1970, the Portland City Planning Commission denied a permit to build a parking structure in the downtown area, and instead later developed a pedestrian plaza, which supported restaurants and retail. Additionally, in 1974 the city rejected a proposal to build another freeway, called the Mt. Hood Freeway. Instead, the city used the federal funding to build a downtown transit mall, the Eastside Light Rail, and other transit projects. Also, in 1980 Portland implemented a new Comprehensive Land Use Plan, which established an urban growth boundary, and supported further pedestrian and transit development (Preservation Institute, 2007).

The construction of the park that replaced Harbor Drive was completed in 1978, and was named Tom McCall Waterfront Park. The 37-acre park provided the only direct access to the Willamette River in downtown Portland. In addition to the benefits of less traffic and increased pedestrian and transit support, the removal of Harbor Drive spurred redevelopment in the city (Seattle Urban Mobility Plan, 2008). In 1974, with the support of Mayor Neil Goldschmidt, the Downtown Waterfront Urban Renewal Area was established (Wollner, Provo, & Schablisky, 2005). Increased development occurred downtown, including residential development that was previously lacking. A mixed income residential building, The Yards at Union Station, was built next to the train station in the River District Neighborhood. Two new high rises, River Place and Pioneer Place, were constructed for mixed-use development. In 1974, 75% of properties in the redevelopment area were worth the same or less than the value of the land they were on, but by 2002, property values had tripled. Similarly, overall growth in the Waterfront Development Area had outpaced the growth of the city as a whole by 7% (Preservation Institute, 2007).

The Tom McCall Waterfront Park has been upgraded and expanded several times, and in 1999, the park was expanded again which nearly doubled its size. Additionally, the boulevard adjacent to the park (now called Naito Parkway) is being redesigned to become more pedestrian friendly. The most positive result of the Harbor Drive removal project is that in creating waterfront space, the river became an asset to the city (Congress for the New Urbanism, 2010). Other positive externalities of the highway removal project include the reduction in crime rates in the area. Since 1990 there has been decline in crime in the Waterfront area by 65%, versus 16% reduction in the city as a whole (Seattle Urban Mobility Plan, 2008).

The case study of Portland, Oregon is important as it provides a clear example in support of the movement to provide more livable cities by decreasing auto-dependency and designing cities at the human scale. Many recent studies advocate freeway removal as a tool for traffic management and neighborhood redevelopment, which Portland provides a great example. In a recent study, Robert Cervero asserts that highway removal can support the overall reduction of motorized traffic by 25%, even controlling for possible increased travel of parallel routes as people take eliminate trips or opt for other modes of transit. He also asserts that in urban built up areas, high quality public spaces is more valuable than increased transportation accessibility (Cervero, 2006). This theory is supported by the Portland case, as land values in the downtown area dramatically increased after Harbor Drive was removed. The history of the downtown redevelopment in Portland also confirms research by Lisa Schriebman, who asserts that freeways not only occupy valuable space, but are physical barriers to development of surrounding land, impacting businesses and residential development (Schreibman, 2001).

Overall, the removal of Harbor Drive began a fundamental shift in the policy of the city of Portland by reordering municipal priorities from the expansion of freeways to provide efficiencies for suburbanites, to supporting a vibrant downtown and creating a more livable city. The 1970's provided a turning point in city of Portland, and with the support of a progressive Governor and Mayor, the city was able use its waterfront as an asset and to apply funding towards transit and pedestrian based facilities and development, which has shaped Portland into the great city it is today. Portland broke the ground for the concept, and many other cities followed, including Milwaukee, Wisconsin.

Park East Freeway, Milwaukee

In 1948, Milwaukee voters approved a referendum which proposed a system of freeways that would encircle the downtown. Property was acquired in 1965 and by 1971 the City of Milwaukee had completed construction of the first section of the Park East Freeway, which cut through the city's downtown and riverfront, separating the north side of the city from the rest of the central business district. Despite passing a referendum vote, the freeway construction faced stiff opposition from the public and local business leaders. In truth, Milwaukee's express highway system was built almost exclusively for the emerging suburbs, and although it still provided access to the downtown, the Park East Freeway had "exits at only three points, and interrupted the street grid--funneling north-south street traffic to three main intersections" ("Milwaukee's park east,").

Originally, "the Park East freeway would have continued to Lake Michigan," where "it would have connected with the Lake Freeway, which would have run along the lake through Juneau Park connecting with what is now I-794... There was also a planned Park West freeway, which would have continued the Park East Freeway to the West of what is now I-43, where it would have connected with the proposed Stadium Freeway, which would have led to I-894" ("Milwaukee, wisconsin park," 2007). Ultimately, only a portion of the proposed Park East Freeway was completed. Following heavy resistance from local business and community leaders, including future mayor John Norquist, the expansion plans were nixed in 1972 by Mayor Henry Maier. He "emphasized the cost to the city, saying: 'America is the only nation in the world to let her cities ride to bankruptcy on a freeway My city has discovered that the freeway is not free'" ("Milwaukee, wisconsin park," 2007).

Following the termination of freeway expansion plans, the one mile spur of the Park East Freeway remained conspicuously underutilized. Due to an unused canal located under part of the highway's right of way, the Park East was elevated over a hundred feet and lowered the value of the surrounding land, which was used primarily for surface parking although most of it was on the Milwaukee River front. The land that was designated for the Park East extension remained vacant for over twenty years, but following the removal of its transportation corridor designation, the area was redeveloped into the East Pointe community in the early 1990s.

During the 1970s, John Norquist was one of the most vocal opponents against Milwaukee's downtown freeway project, but he was unable to fully stop its construction. In 1988, Norquist took office as mayor and finally had the resources at his disposal to reverse the damage done to the city's downtown and riverfront. The new Riverwalk system, stretching along the Milwaukee River through the entire downtown, renewed interest in the riverfront and sparked a downtown housing boom. But the area around the Park East Freeway remained underutilized with surface parking lots and aging industrial parcels" ("Milwaukee's park east,").

With the success of East Pointe and the new Riverwalk spurring redevelopment efforts, and the endorsement by City Planning Director Peter Park, Norquist was convinced that removal of I-794 and the Park East spur were finally attainable goals. After a redevelopment design competition, Anton Nelessen & Associates were chosen for the vision plan and to stage several design charrettes within the community. Prior to the visioning workshops most of the community was staunchly against the freeway removal, including local businesses and most of the city council. However, after seeing redevelopment plans and the new McKinley Boulevard proposal, nearly everyone got behind it. Unfortunately, although the freeway removal seemed like a reality, it ran into political opposition from the Department of Transportation and the governor's

office. Most of the opposition was led by George Watts, a mayoral candidate who claimed to represent pro-freeway interests. Eventually, the complete freeway removal plan was voted down, with Department of Transportation studies claiming that traffic volume on I-794 was too heavy to support its demolition. I-794 carried 84,000 vehicles a day, while the Park East Freeway carried only 35,000 a day, which transportation planners assumed would be less of a burden on local streets. In May 1999 Norquist conceded, agreeing to leave the I-794 as long as some of the \$241 million federal transportation budget was used for the Park East Freeway removal project. With the governor, Department of Transportation, and Mayor Norquist all on the same page, and after a lengthy legal battle led by perennial curmudgeon George Watts, demolition began in June of 2002.

The removal of the Park East Freeway brought an economic renaissance to the former transportation corridor and Milwaukee River waterfront. According to Tony Nelessen, the moment the freeway came down, land values surrounding the freeway increased by as much as six-fold. In addition to McKinley Boulevard, which replaced the highway, the former street grid was restored, and a new drawbridge was built over the Milwaukee River. Three new neighborhoods are also planned for the twenty-six new acres of real estate, including the McKinley Avenue District, slated for office, retail and entertainment development, Lower Water Street District with offices and existing waterfront residential, and the Upper Water Street District slated for mixed-use infill office development.

“The city expects the freeway removal to bring at least \$250 million of investment in the Park East redevelopment area. The first project proposed in the area, a \$90 million complex of condominiums and apartments on 7.5 acres on two blocks of North Water St., is primarily composed of urban-scale residential

development. As of the beginning of 2007, five more projects have been approved and are under construction in the redevelopment area, representing an investment of over \$140 million, an additional five projects are going through the city's approval process, representing an investment of \$339 million, and more projects have been proposed" ("Milwaukee, wisconsin park," 2007).

On the Way: The Gardiner Expressway, Toronto

The Frederick G. Gardiner Expressway, known locally as "The Gardiner", was constructed between 1955 and 1966 with a length of 18 kilometers. The Gardiner connects downtown Toronto with its western suburbs. Running parallel to the shore of Lake Ontario, it extends from the junction of Highway 427 and the Queen Elizabeth Way in the west to the foot of the Don Valley Parkway in the east, just past the mouth of the Don River. East of Dufferin Street, the roadway is elevated, running above Lake Shore Boulevard east of Bathurst Street. In the late 1960s, an anti-expressway movement led by urban sociologist Jane Jacobs began to gain momentum among Toronto citizens and politicians. This movement levied strong public opposition to freeway construction which resulted in the cancellation of the freeway construction proposed in the 1966 official plan and shut down the Gardiner's extension along Scarborough's transportation corridor (Jose R. Gutierrez, 2005).

The Gardiner brought many problems. One is the costly maintenance expenses which are spent in two major programs. Toronto receives a lot of snowfall during winter, and in order to maintain normal use of the road, salt is applied onto the road surface to improve grip and traction control. However, salt not only corroded the road surface, but also permeated through cracks down to the steel structure. This resulted in a major repair program with an average annual cost

of \$15 million during a period of twenty years. The second program was the replacement of two old bridges across the Humber River. The project was finished in 2001 with a pedestrian arch bridge costing a total of \$30 million (Jose R. Gutierrez, 2005). Besides these costs, perhaps the most serious problem is that the Gardiner Expressway creates a physical barrier between Toronto and its waterfront along Lake Ontario. In response to these costs, the western most stretch of the freeway, between the Don Valley Parkway and Leslie Street, was demolished in 2001. The project was completed on time and under budget (Seattle Urban Mobility Plan, 2008).

The success of the first stage of removal of the Gardiner along the eastern edge of the waterfront gave impetus to explore options of removing the barrier caused by the remainder of the freeway (Seattle Urban Mobility Plan, 2008). The Toronto Waterfront Revitalization Corporation (TWRC) has proposed three alternatives for resolving the existing problems of the Gardiner. One is to eliminate the barrier effect by replacing the elevated structure with an at-grade roadway with an express road on a rail embankment and a four-lane tunnel. This will cost approximately \$1.4 billion. The second solution, termed “retain and ameliorate”, seeks to reduce the barrier effect by retaining the existing elevated structure, removing ramps and enhancing the architectural structure to improve north-south roadway connections with an estimated cost of \$465 million. The third option favored by TWRC is the “Great Street” solution. This solution aims to remove most of the freeway and replace it with a waterfront boulevard, while retaining its busiest section. The total cost would be approximately \$490 million (Toronto Waterfront Revitalization Corporation, 2006).

A fiscal impact analysis in 2004 announced that that the plan could cost \$950 million (Canadian) in total spending, provide 8,100 man hours of employment per year and eliminate the maintenance cost of \$120 million (Toronto Waterfront Revitalization Corporation, 2006). Hence,

this plan is also fiscally beneficial in addition to its major benefit of redesigning the Gardiner corridor to allow access and subsequently revitalize Toronto's waterfront.

The "Great Street" plan can also discourage car use and further increase public transport share. Twelve transit projects were anticipated to be completed by 2009. The expansion of the transit system in Toronto will provide far more travel capacity than current capacity supply of the Gardiner.

In May 2008, it was officially announced in a news conference at Waterfront Toronto headquarters that the Gardiner Expressway will be demolished between Jarvis and the Don Valley Parkway, while the Front Street Extension (FSE) has been put out to pasture. Mayor David Miller participated in the press conference via telephone and proclaimed "the Front Street Extension will not proceed." (Matthew Blackett, 2008).

In order to achieve the greater urban goals including waterfront access, improvements to the public realm, transportation, sustainability, and economic development, TWRC acted radically in changing Toronto's freeways. The removal of the elevated Gardiner Expressway will make connections to the waterfront, enable a network of waterfront parks and public spaces, promote a clean and green environment and create dynamic and diverse new communities.

This project also complements changes to expressway functions with new transit infrastructure and policy. Traffic demand strategies range from increased public transit to user fees for parking, as well as incentives for alternatives to commuting by car and congestion pricing (Dillon Consulting, Perkins+Will, HR&A, 2009). These improvements not only encourage transport mode shift from car to public transit, but will be effective in reducing carbon emissions.

With enhanced physical connection to the downtown area and an improved waterfront transit network, the benefit of waterfront revitalization is going to be maximized, and will further be incorporated into the vision of what the city of Toronto want to be like in the future.

Potential Project: Buffalo, NY

Buffalo, New York is a city that has been taken over by high-speed superhighways. Commuters constantly use these high-speed thoroughfares because there are simply no other methods of transportation. It would be wrong to state that these superhighways serve no purpose to the city, as Buffalo's highways are a vital part of its transportation infrastructure. Recently, however, increased attention has been given to the negative impacts that these superhighways have had on the city, specifically the Downtown Waterfront.

Many of Buffalo's highways segment and disconnect the Downtown Waterfront, lowering the value of Buffalo's most desirable downtown real estate. It is in this way that Buffalo's highways are contributing to the continued economic struggles that the city has experienced for decades.

As a true "rustbelt" city, Buffalo experienced a significant economic decline when industry left in the 1970s. Since then, many plans for Buffalo have included strategies to revitalize the city's economy. These plans have often suggested strategies that would reduce the negative effects of Buffalo's highways. In the report *Queen City Waterfront, Buffalo Waterfront Corridor Initiative: A Strategic Plan for Transportation Improvement* published in 2007, "means to mitigate the negative effects of highway infrastructure on neighborhoods and to reconnect residential areas to the waterfront" (United States Department of Transportation, 2007, 24) are discussed as a strategy to improve the conditions of Buffalo's downtown communities. This report also attacks the Scajaquada Expressway and suggests a proposal to "transform the

Scajaquada Expressway from a highway to a low speed boulevard or parkway” (United States Department of Transportation, 2007, 33). Finally, the report criticizes the Niagara Thruway, which also separates Downtown Buffalo from the Waterfront. Proposals to improve the bridges, remove the highway, and even bury the highway with a tunnel are all recommended to take back Buffalo’s Downtown Waterfront and redevelop its real estate (United States Department of Transportation, 2007, 33-35).

Another organization against Buffalo’s highways is the Buffalo Olmsted Parks Conservancy. This organization has a publication, *The Olmsted City, The Buffalo Park System: A Plan for the 21st Century*, which highlights the negative effects that highways have had on the Buffalo Olmsted Park and Parkway System. The plan identifies “park devouring highways” and “highways that have annexed parkland and swallowed parkways” (Buffalo Olmsted Parks Conservancy, 2008, 24-32). Within the Olmsted Park and Parkway System, which was designed as six parks and multiple connecting parkways, Delaware Park has been split in two by the Scajaquada Expressway, Front Park has been cut off from the waterfront by the New York State Thruway, and Martin Luther King Jr. Park has lost ground to the Kensington Expressway (Buffalo Olmsted Parks Conservancy, 2008, 44-66). All of these high-speed thoroughfares are attacked by the plan for destroying Buffalo’s unique park system. The plan strongly recommends that these expressways be removed or converted to Olmsted’s designed parkways.

The most criticized highway in the city of Buffalo is the Buffalo Skyway. The Buffalo Skyway is the elevated section of New York State Route 5 that crosses through Downtown Buffalo and over the Buffalo River. In 2008, the New York State Department of Transportation worked to produce *The Buffalo Skyway Management Study*. In this publication the Skyway is identified as “an elevated steel bridge 100 feet over the Buffalo River and 1.1 miles in length”

(New York State Department of Transportation, 2008, 2). Because of its structure and location, the Buffalo Skyway has been criticized by many, and numerous plans and reports have demanded for its removal. According to the NYDOT:

The Skyway has been the subject of considerable public debate in Western New York. Much of the discussion has focused on its structural integrity and safety for vehicles traversing the elevated structure. Some community officials consider the bridge a barrier to Waterfront development and feel that it occupies valuable real estate. Consequently, they want it removed

(New York State Department of Transportation, 2008).

For these reasons, most of the suggestions to lessen the negative effects of the Buffalo Skyway demand for a complete removal.

In the *Queen City Waterfront* report, the Buffalo Skyway is branded as the reason for Buffalo's disconnect from its own Waterfront. The report repeatedly suggests that removal of the Skyway is essential for Buffalo to "take its Waterfront back". *The Buffalo Comprehensive Plan* also identifies the Skyway as a barrier to Buffalo's Waterfront and suggests its removal. The plan specifically supports the removal of the Skyway Bridge as a long-term priority to strengthen economic development along Buffalo's Waterfront (Office of Strategic Planning, 2006, 74).

One proposal of *The Buffalo Comprehensive Plan* designed to remove the Skyway and spark economic development along the Waterfront is "to cut and cover the I-190, remove the Skyway, build a casino, and to redevelop the Outer Harbor" (Office of Strategic Planning, 2008, 82). Unfortunately, despite all of the plans that suggest the removal of the Skyway, a lack of political support and motivation combined with a lack of funding has left the Buffalo Skyway still standing. Regardless of this, there is no questioning that the Buffalo Skyway is a barrier to

Buffalo's Downtown Waterfront, and its removal would give Buffalo access to its most economically desirable Downtown real estate and allow Buffalo to achieve something it desperately needs: successful economic development.

Lessons Learned and Predictions

It is useful to establish an analytical framework to determine the conditions necessary for freeway removal to be the implemented strategy to re-establish linkages between urban central business districts and their underutilized waterfronts. Aided by the analysis of two examples highlighted in this paper where freeway removal was the chosen strategy, Portland's Harbor Drive and Milwaukee's Park East Freeway, this framework can be used to establish a general theory on when freeway removal will be implemented into waterfront redevelopment. This theory can be applied to the two potential projects highlighted in this paper and assess their likelihood of being carried out. These potential projects are the teardown of the remaining elevated structure of Gardiner Expressway in Toronto and the multiple highways choking the Buffalo waterfront off from its downtown.

Napolitan and Zegras (2008) established a useful framework in exploring a potential theory of freeway removal in an earlier paper examining similar issues discussed here. They tested a series of hypothesis by examining four aspects of freeway removal projects: (a) preconditions; (b) windows of opportunity; (c) the value of mobility; and, (d) the values embedded in power (Napolitan and Zegras 2008, 69). From this framework they develop the theory that free way removal will occur if:

- (a) the freeway's condition raises concerns about its integrity and safety; (b) a window of opportunity exists, some event that enables a freeway removal alternative to gain serious consideration; (c) the value of mobility is lower than

other objectives such as economic development; and (d) those in power value other benefits associated with freeway infrastructure. (Napolitan, & Zegras, 2008, 68).

In analyzing the first of Napolitan and Zegras' hypothesis utilizing the examples of Portland's Harbor Drive and Milwaukee's Park East freeway it becomes apparent that a deteriorated condition of the freeway structure is not necessarily a required condition for freeway removal to occur. It is, however, certainly a useful condition to generate discussion regarding freeway removal being an option versus various costly repair scenarios. Eventually, Harbor Drive and Park East would have been in need of repair, however, this was not the impetus to their removal. In these scenarios, it appears the necessary precondition was a situation in which the highway was surrounded by underutilized land within a city struggling with declining central business districts.

Napolitan and Zegras' second hypothesis is that "a window of opportunity must open for freeway to become a legitimate option" (Napolitan, & Zegras, 2008). They claim this window "provides proponents with the chance to push their particular projects" (Napolitan, & Zegras, 2008, 69). Portland and Milwaukee demonstrate that the "window of opportunity" is necessary and can be wide ranging.

Portland's window of opportunity opened when additional highway capacity was established with the addition of the 405 linking with the I-5 on the opposite bank of the Willamette River. This allowed the removal option to gain traction with all stakeholders beyond citizen action groups and a visionary governor. Governor McCall was able to pressure the task force in charge of developing a strategy regarding Harbor Drive to go back to the drawing board and explore removal as a viable option.

In Milwaukee, the success of the East Pointe development along with the incorporation of the River Walk system into the city's master plan opened the window to push the idea of removing Park East Freeway to encourage additional economic growth. Concerns of local business owners and citizens were eased when success of these new developments became apparent.

Napolitan and Zegras' third hypothesis is that removal will take place if locations "evidence a relative change in the 'value of mobility'" (Napolitan, & Zegras, 2008, 69). In both cases analyzed it is apparent that the 'value of mobility' took a backseat to the value of economic development and urban revitalization, at least in the area proximate to the projects. Governor McCall saw a need to improve the fortunes of his state's largest city. The downtown had been suffering and he envisioned a more vibrant beautiful place. Governor McCall was supported by concerned local citizens that opposed expansion of Harbor Drive. This value structure remained in place in Portland afterwards. McCall Waterfront Park was the first in a series of sweeping changes that allowed McCall's vision to come to fruition.

However, on the regional scale it is not apparent that mobility took a backseat to other values. Highway capacity was improved with development of the 405 freeway. This may have offset opposition from surrounding municipalities. This is important because often these freeways cross borders. Decisions often have to incorporate more than one location's concerns.

John Norquist, Milwaukee's mayor and the primary figure in pushing for the removal of the Park East certainly valued revitalization, walkability and economic development over the value of mobility. He was able to galvanize support throughout the community by hiring like minded individuals to sell his ideas of a re-envisioned Milwaukee Riverfront. The public soon came on board. Here too, the regional value may not have been re-development over mobility.

Negotiations over retaining other parts of the region's highway infrastructure were necessary to get state government support behind Norquist's vision.

The fourth hypothesis under Napolitan and Zegras' framework is that those people with an "other than mobility enhancement' objective" must be in a position of power (Napolitan, & Zegras, 2008). In both cases this is apparent and may be the most important factor. Without the vision and determination of two individuals in power, it is not certain that values other than mobility would be valued at a higher level and subsequently that these projects would be carried out. Governor McCall in Oregon valued economic development of a stagnant waterfront more so than mobility within Portland. Mayor Norquist in Milwaukee had long been opposed to freeway development in Milwaukee and when he came to power was determined to right the wrongs he felt had been done to the city. It is no surprise that John Norquist went on to become the president of the Congress of the New Urbanism after his stint as mayor of Milwaukee (Seattle Urban Mobility Plan, 2008).

From the framework established by Napolitan and Zegras and by incorporating the lessons learned from Harbor Drive and Park East Freeway a general theory of freeway removal along waterfronts can be made. Freeway removal will occur in locations that exhibit a preexisting condition of an underutilized or deteriorating adjacent waterfront. Concerns over structural integrity and safety can further this possibility. A window of opportunity must be present that allows freeway removal to be explored as a viable option. The value structure within a location must rank issues such as revitalization over mobility. And finally, and most importantly, this value structure must be embodied within the structure of power in that location.

Applying this theory to the two potential projects highlighted in this paper, a prediction can be made regarding their prospect of being implemented into future waterfront development

strategies. The prognosis for highway removal is good in Toronto. The outlook in Buffalo is not as optimistic, but down the road highway removal could take place.

Toronto presents strong preexisting conditions that support highway removal. Their waterfront is completely underutilized the length of its border due to the existence of The Gardiner. Years of wear and tear have had negative effects on the safety and integrity of the elevated structure. Serious discussions regarding the future of the expressway were necessary. The window of opportunity allowing freeway removal to become a viable option for the remainder the expressway was the successful completion of the removal of easternmost portion of the structure on time and under budget. The TWRC has pushed for the value of waterfront revitalization to be a more important value to residents than mobility. Most importantly this value was advocated by former Mayor David Miller, who at first opposed removal of the freeway (Byers, 2008). Miller opposed eastern expansion of the expressway and favored development of the waterfront.

In Buffalo, the future of freeway removal along the waterfront is not as certain. The necessary precondition certainly exists. Buffalo is notoriously economically stagnated and desperate for revitalization. A key part of any revitalization would be a utilization of the waterfront currently separated from its central business district. However, it appears as if the window of opportunity for highway removal to become a viable strategy for waterfront revitalization has not opened yet. On a positive note there are diverse groups of interest that are exploring the option of freeway removal. Until a window opens, these ideas could fall on deaf ears. Groups as diverse as the U.S. Department of Transportation and Buffalo Olmsted Parks Conservancy value ideas such as establishing green space and waterfront revitalization over mobility; however, there is not an entity with significant political power within the city that

maintains the same value structure. However, Federal support could lead to funding which often leads to political allies. Until this value structure embeds itself with the power structure of local politics, Buffalo will be waiting for freeway removal to become the implemented strategy for waterfront development.

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