

**Shifting Urban Priorities:  
The Removal of Inner City Freeways in the United States**

By  
Francesca Napolitan

BA in Architecture  
University of California, Berkeley  
Berkeley, California (2002)

Submitted to the Department of Urban Studies and Planning  
in Partial Fulfillment of the Requirements for the Degree of

Master in City Planning

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June 2007

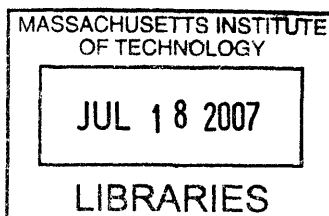
© 2007 Francesca Napolitan  
All Rights Reserved

The author hereby grants to MIT the permission to reproduce and distribute  
publicly paper and electronic copies of the thesis document in whole or in part.

Author \_\_\_\_\_  
Department of Urban Studies and Planning  
May 24, 2007

Certified by \_\_\_\_\_  
P. Christopher Zegras  
Assistant Professor Department of Urban Studies and Planning  
Thesis Supervisor

Accepted by \_\_\_\_\_  
Professor Langley Keyes  
Chair, MCP Committee  
Department of Urban Studies and Planning



ROTCH



**Shifting Urban Priorities:  
The Removal of Inner City Freeways in the United States**

By

Francesca Napolitan

Submitted to the Department of Urban Studies and Planning  
on May 24, 2007 in Partial Fulfillment of the Requirements for  
the Degree of Master in City Planning

**ABSTRACT**

The United States Interstate Highway System transformed the nation's cities and countryside, accelerating suburbanization and leading to unprecedented levels of motorized mobility. While the interstate highways brought undeniable benefits, they also imparted social, environmental and aesthetic costs. Growing opposition to the paving of cities in the name of improved mobility resulted in a "freeway revolt" movement.

Much of the original interstate infrastructure built in the 1950s and 1960s is reaching or is past the end of its useful life – requiring large investments for rehabilitation. At the same time, the freeway revolt has evolved into a more widespread movement, underlined by values such as sustainability. Thus, the vigorous debate over the future of urban highways and mobility continues.

This thesis examines this future from the perspective of a fairly recent phenomenon: urban freeway removal. By examining three different cases where urban freeway removal was a seriously considered option – two where the freeway was removed and replaced with a lower capacity at-grade boulevard (Park East Freeway, Milwaukee and Central Freeway, San Francisco) and one where the freeway ultimately was not removed (Whitehurst Freeway, Washington D.C.) this thesis works toward a theory of highway removal.

The analysis suggests that freeway removal will only take place when: (1) the one precondition is met: the condition of the freeway must be such, that there is concern over its integrity and structural safety, (2) a window of opportunity exists; the window may be the precondition itself or another event that enables a freeway removal alternative to gain serious consideration and legitimacy, (3) the value of mobility must be lower than other objectives such as economic development, quality of life, etc., and (4) those in power must value other benefits more than they value the benefits associated with freeway infrastructure for the alternative of freeway removal to be selected over other alternatives.

Thesis Supervisor: P. Christopher Zegras  
Title: Assistant Professor, Transportation and Urban Planning



## Acknowledgements

I am grateful for the many kinds of help, both institutional and personal, that made it possible for me to complete this thesis.

At M.I.T. I would like to thank my advisor, Chris Zegras, for his helpful guidance, comments and assistance, as well as my reader, Fred Salvucci, for providing me with great historical insight and perspective.

For their role in the development of my case studies, I would like to thank Elizabeth MacDonald, John Norquist, and Peter Park for allowing me to interview them and taking the time to provide me with invaluable insight. Their personal experience with freeway removal in San Francisco and Milwaukee was a key component of this thesis. Also, thanks to those in the San Francisco Planning Department and D.C. Department of Transportation who assisted me in tracking down many old planning documents and studies.

Lastly, I would like to thank my friends and family, and in particular my friends at DUSP for their encouragement and support, without which I may have not survived this process.



# Table of Contents

Introduction.....	10
<b>CHAPTER ONE: History.....</b>	<b>14</b>
The Development of the Interstate Highway System: A Tool for Urban Revitalization.....	14
The Freeway Revolt.....	20
Paradigm Shift—The Role of Mobility and its Relative Value.....	25
Urban Freeway Removal Movement?.....	28
<b>CHAPTER TWO: Theory &amp; Hypotheses .....</b>	<b>32</b>
Section One: Existing Relevant Theory.....	33
Frameworks for Decision Making .....	33
Power Structures and Policy Entrepreneurs.....	37
Section Two: Towards a Theory of Highway Removal – A Series of Hypotheses.....	41
<b>CHAPTER THREE: Methodology .....</b>	<b>44</b>
Case Study Method.....	44
Case Study Selection.....	44
Framework for Evaluating the Case Studies.....	47
Data Collection Approach.....	48
<b>CHAPTER FIVE: Case One – Central Freeway, San Francisco.....</b>	<b>50</b>
Section 1: Background.....	50
Timeline of Key Events .....	55
Section 2: Case Specifics.....	57
<b>CHAPTER FIVE: Case 2 – Park East Freeway, Milwaukee.....</b>	<b>74</b>
Section 1: Background.....	74
Timeline of Key Events .....	78
Section 2: Case Specifics.....	79
<b>CHAPTER SIX: Case Three – Whitehurst Freeway, Washington D.C.....</b>	<b>90</b>
Section 1: Background.....	90
Timeline of Key Events .....	95
Section 2: Case Specifics.....	96
<b>CHAPTER SEVEN: Synthesis &amp; Analysis .....</b>	<b>110</b>
Section One: Synthesis .....	110
Section Two: Analysis .....	118
Understanding the Path to Freeway Removal.....	118
Toward a Theory of Highway Removal .....	123
Limitations of Analysis.....	124
<b>CHAPTER EIGHT: Implications &amp; Areas for Further Study .....</b>	<b>126</b>
Section One: Implications.....	127
A Paradigm Shift.....	127
A New Framework.....	128
Section Two: Areas for Further Study .....	129
The Decision-Making Process and Roles under a New Paradigm .....	129





Mobility Pre- and Post-Freeway Removal..... 130  
Bibliography ..... 132

## Introduction

Throughout the 1950s and 1960s cities across the United States saw huge infrastructure investment in their downtowns in the form of freeways. At the time, these projects were seen as necessity and as a sign of progress that would enable greater mobility, economic development and bring the city back to life, as many at the time felt cities were dying out. However, these freeways were seemingly built without regard to the fact that they divided neighborhoods, created physical barriers and blight, exposed residents to negative environmental conditions such as car exhaust and excessive noise, forced residents out of their homes, and squandered valuable open space and parkland.

As time went by, however, and the negative consequences of large scale infrastructure became more apparent, people began to fight back, calling for the end of highway construction in inner cities. What had once been viewed as the tool for saving the city was now destroying it. The public no longer trusted that the government knew what was best for them and began to challenge the values of the 1950s highway engineer which placed the value of mobility above all else. As the anti-freeway sentiment gained momentum in the late 1960s and early 1970s, reaching into mainstream America, its proponents were successful in halting a number of planned highway projects across the country.

The changes happening at the grassroots level were also beginning to be reflected at the governmental level with the introduction of new legislation. The anti-freeway movement along with the growing environmental movement helped shape new legislation which took into account concerns over the potential negative impacts of large projects. One such piece of legislation was the National Environmental Policy Act of 1969, a cornerstone of the environmental movement as it was the first broad national policy that was directed at protecting the environment.<sup>1</sup> The 1969 act required federal agencies to consider the environmental impact of the programs they funded. The Federal-Aid Highway Act of 1973 changed the way in which transportation projects were

---

<sup>1</sup> Weiner, Edward. *Urban Transportation Planning in the US: A Historical Overview*. Washington, D.C.: Office of Economics, 1992, p 82.

funded by increasing the flexibility of various highway funds to allow for the financing of mass transportation projects.

Throughout the 1980s and 1990s, both environmental- and transportation-related legislation continued to evolve with more protective environmental measures and more flexible transportation financing policy. At this time the values of sustainability, broadly defined as “to ensure that [development] meets the needs of the present without compromising the ability of future generations to meet their own needs”<sup>2</sup> were also gaining increasing worldwide attention and acceptance.

The evolution of highway policy from its inception as a massive national infrastructure project, covering the United States with tens of thousands of miles of freeways, towards a more flexible approach marks an important shift in priorities. This shift may partly result from changing attitudes towards the role of large scale infrastructure, which itself might suggest a shift in values regarding mobility relative to other values such as sustainability and the environment. Of course, the shift also likely reflects the fact that the massive highway infrastructure investments themselves – once complete – allowed for a shift in policy priorities towards other areas.

One could argue that today the freeway movement has come full circle, with a new relationship forming between cities and freeways. Presently, some cities in the U.S. appear to be experiencing a renaissance, marked by growing populations, declining crime levels, improved quality of life as evidenced by increased investment in urban amenities, such as museums, and rising property values<sup>3</sup>. This resurgence is naturally accompanied by concern for the quality of urban life, to which traffic congestion remains a detriment. The highway infrastructures that historically were used as tools for alleviating this congestion also negatively impacted the urban environment. As such, some cities have made the decision to remove urban freeways, or at least segments of them, and replace them with at grade boulevards, reclaiming the resulting land for housing,

---

<sup>2</sup> 1987 Brundtland Report – chapter 2

<sup>3</sup> Glaeser, Edward L. and Joshua D. Gottlieb. *Urban Resurgence and the Consumer City, Preliminary Draft*. Cambridge: Harvard University, 2006. p 18-21.

recreational space and commercial development as well as to re-knit the urban fabric that was destroyed. The result has been a net decrease in urban roadway capacity.<sup>4</sup>

Portland, Oregon, provides the first example of urban freeway removal in the United States, with its decision over thirty years ago to raze the Harbor Drive freeway and replace it with a 37 acre park. Since that time, four other North American cities have removed elevated freeways. The uncovered land has been used for new commercial and residential development, parkland and recreational space and has helped revitalize previously economically stagnant neighborhoods. A number of other cities such as Baltimore, Seattle, Akron (Ohio) and New York are currently debating the future of their aging infrastructure and whether or not it should be rebuilt or demolished.

This apparently increasing interest in freeway removal – spurred, in part, by the fact that much of the original urban highway infrastructure built in the 1950s and 1960s is approaching the end of its useful life and in need of replacement – has received little research attention to date. This thesis aims to begin to fill this research gap. In this thesis, I study the urban highway removal phenomenon in the United States, examining cases where it has taken place and where – after serious consideration – it has not taken place. In this research I explore whether freeway removal represents a possible paradigm shift away from a value of mobility above other relevant values. Ultimately, I aim to contribute towards the development of a theory for why highway removal takes place and thereby help understand where and why this might happen in other cities.

The remainder of this thesis contains eight chapters. In Chapter One, I provide a history of the interstate highway system, the freeway revolt, key pieces of legislation with regards to transportation and the environment, the changing role of mobility, and background information on freeway removal in North America. In Chapter Two, I discuss existing relevant theory and how it relates to the topic of freeway removal. In this chapter I also outline the hypotheses I will test in order to determine if freeway removal implies an entirely new type of transportation

---

<sup>4</sup> In this thesis, the phenomenon of urban freeways being replaced with equivalent or expanded capacity via realignment or submersion (e.g., Boston’s “Big Dig”) is not considered “removal.”

planning that requires a new theory. The case study methodology and case selection process for this thesis is reviewed in Chapter Three. Chapters Four, Five and Six each provide an in depth examination of one of my cases. Chapter Four looks at the removal of the Central Freeway in San Francisco, Chapter Five focuses on the demolition of the Park East Freeway in Milwaukee, and Chapter Six provides a contrast to the prior two chapters, with a non-removal case study, the Whitehurst Freeway in Washington D.C. A synthesis and analysis of all three cases and an evaluation of my hypotheses is presented in Chapter Seven. My thesis concludes with a discussion of implications of this work as well as areas for further study.

## CHAPTER ONE: History

### The Development of the Interstate Highway System: A Tool for Urban Revitalization

#### *1920s and 1930s*

On June 29, 1956, President Dwight D. Eisenhower signed the Federal-Aid Highway Act of 1956 into law, setting in motion the extensive network of interstate highways that would be built over the next decade.

Though President Eisenhower had championed the passage of the Federal-Aid Highway Act, the foundation for the development of a national highway system has its roots further back in the early 20<sup>th</sup> century. One of the first major steps was the Federal-Aid Road Act of 1916. This legislation established the basic funding principal behind the federal-state relationship over the development of highway infrastructure. Under this bill costs would be split evenly between the federal and state governments. At the time there were no uniform construction or maintenance standards for roadways and there was also a lack of coordination among states such that the characteristics of a given road often changed drastically at state lines.<sup>5</sup>

During the 1920s the U.S. Bureau of Public Roads (BPR), which would later become the U.S. Department of Transportation, worked to bring coordination and cohesiveness to the nation's road network. Key routes were assigned U.S. Route numbers and substandard roads were modernized.<sup>6</sup> However, it wasn't until the late 1930s and early 1940s that a more comprehensive national scheme was developed.

Thomas H. MacDonald, chief of the BPR and his top aide, Herbert S. Fairbank would be responsible for developing much of the policy that would later lead the Federal-Aid Highway of 1956. MacDonald and Fairbank were driven by desire to improve metropolitan areas through the introduction of interregional roads that would provide access to the central business district

---

<sup>5</sup> Reid, Robert L. "Paving America From Coast to Coast" *Civil Engineering* (June 2006): 37-43, 78.

<sup>6</sup> Weiner, (1992), p 9-10.

(CBD) and help relieve traffic congestion<sup>7</sup>; an idea which many critics would later argue actually had the opposite effect, instead contributing to the decline of urban areas.

Around this time, President Franklin D. Roosevelt had been toying with the idea of building a network of integrated toll roads as a tool for improving the mobility of people and goods and as a tool for helping the nation recover from the great depression.<sup>8</sup> In response, Congress asked the BPR to evaluate the feasibility of the President's idea. MacDonald and Fairbanks' emphasis on addressing the issues facing metropolitan areas was quite evident in their report. Their response was that transcontinental and long-distance traffic had not reached sufficient levels to support the construction of these types of roadways. In their 1939 report to Congress, *Toll Roads and Free Roads*, they instead focused on regional networks as a tool for achieving their objectives and provided "A Master Plan for Free Highway Development."

In their report, MacDonald and Fairbanks noted the movement of middle income households from the inner cities to the suburbs. As a result, much of the inner city was now occupied by lower income households and tenements were deteriorating, leading Fairbanks to declare a state of blight in the inner city.<sup>9</sup> Thus, according to the master plan, the immediate construction of regional roadways was crucial to saving the city as "only a major operation will suffice."<sup>10</sup> In particular, the design was a hub and spoke model, with depressed or elevated freeways carrying traffic into the CBD. A ring road outside the city would allow through traffic to bypass the CBD and help relieve and avoid congestion.

The idea of using freeway infrastructure as a tool for urban revitalization was not an idea unique to MacDonald and Fairbanks. By the late 1930s a number of city planners and business leaders were promoting highway construction as a way to rescue their cities and reverse the decline that

---

<sup>7</sup> Rose, Mark H. *Interstate: Express Highway Politics, 1939–1989, Revised Edition*. Knoxville: The University of Tennessee, 1990, p 4.

<sup>8</sup> Schulz, John. "Eisenhower's 1919 Trek Led to Road Network." *Transport Topics*, no. 3695 (June 19, 2006)

<sup>9</sup> Weingroff, Richard F. "The Genie in the Bottle: The Interstate System and Urban Problems, 1939-1957." *Public Roads* 64, no. 2 (Sep/Oct 2000), p 5.

<sup>10</sup> *Ibid.* p 5. Quote from Fairbanks

resulted from the beginnings of suburbanization. “Highway building, in their scheme, was a form of social and economic therapy.”<sup>11</sup>

The transformative power of freeways was first introduced to the general public around this time, in one of the most popular exhibits at the 1939 World Fair in New York City.<sup>12</sup> “Futurama,” an exhibit and ride created by Norman Bel Geddes for General Motors, was a seven-acre exhibit that took people on a journey 20 years into the future. The future as imagined by Geddes, consisted of various landscapes connected by motorways, up to 14 lanes wide, that were monitored by technicians, enabling traffic to move at speeds up to 100 miles per hour.<sup>13</sup>

### *1940s and the Interregional Highways Report*

The idea of infrastructure as a tool for metropolitan revitalization gained further momentum in 1941 with the release of *Interregional Highways*, which elaborated on the framework established in *Toll Roads and Free Roads*. Commissioned by President Roosevelt through the newly established National Interregional Highway Committee<sup>14</sup>, the report maintained a focus on the transportation and economic issues facing urban areas. Similar to *Toll Roads and Free Roads* this report also recommended the hub and spoke model in conjunction with a ring road as a way to provide access to the CBD as well as encourage uniform development around the city. In addition, the report advocated for more integrated land use planning.<sup>15</sup>

The report states, “the plight of the cities is due to the most rapid urbanization ever known, without sufficient plan or control.”<sup>16</sup> The authors of the plan saw the role of highways as “a powerful force tending to shape the future development of the city”<sup>17</sup>; a force that needed to be planned out carefully if its influence was to have a positive effect on urban areas. MacDonald

---

<sup>11</sup>Rose, (1990), p 5.

<sup>12</sup> Lewis, Tom. *Divided Highways: Building the Interstate Highways, Transforming American Life*. New York: Viking, 1997, p 41. This was according to a poll conducted by Dr. George Gallup’s American Institute of Public Opinion.

<sup>13</sup> Ibid. 42.

<sup>14</sup> The committee which had seven members, included politicians, planners, associates of President Roosevelt, and MacDonald and Fairbanks.

<sup>15</sup> Weingroff, (2000), p 5.

<sup>16</sup> Ibid. p 6.

<sup>17</sup> Rose, (1990) , p 21.



cited the interregional system as a new tactic in reversing the inner city's decline where tools like zoning had failed. He also noted that new roadways would provide an opportunity to clear out inner city slum housing and replace it with new modern housing.<sup>18</sup>

In 1944, President Roosevelt sent *Interregional Highways* to Congress; however he deemphasized the urban aspects of the report, choosing instead to focus on interregional transport that was more his priority.<sup>19</sup> Based on this work the Federal-Aid Highway Act of 1944 was signed into law. This legislation stipulated that 40,000 miles of a National System of Interstate Highways were to be selected by state highway departments, however there was no mention of integrating highway construction with any other types of land use planning.<sup>20</sup>

With the end of World War II in 1945, the United States entered into a period of great economic growth. As the post-war economy surged, Americans purchased cars at an increasing rate and the surge in the need for housing resulted in the development of mass production housing in the suburbs. With President Truman now in office, MacDonald and Fairbank continued to push for the development of interregional roads as a means to urban revitalization, particularly given the post-war trends of increased auto ownership and suburbanization. However, Truman's focus was on addressing housing needs, and with the start of the Korean War in 1950, not much progress was made on the National System of Interstate Highways. However, things were about to change just a few years later in the early 1950s with the post World War II economic boom and Dwight Eisenhower's presidency.

### *1950s and President Dwight Eisenhower*

When Dwight Eisenhower was elected president (1952) in the midst of the Cold War, he made it one of his goals to fully develop a national highway system that would promote defense as well as economic growth.<sup>21</sup> By the time he took office in 1953 only 6,400 miles of the network had

---

<sup>18</sup> Mohl, Raymond. "Stop the Road: Freeway Revolts in American Cities." *Journal of Urban History* 30, (July 2004), p 677.

<sup>19</sup> Weingroff, (2000), pg 6.

<sup>20</sup> Wiener, (1992), p 22.

<sup>21</sup> Cutler, Richard W. *Greater Milwaukee's Growing Pains, 1950-2000: An Insider's View*. Milwaukee: The Milwaukee County Historical Society, 2001, p 67.

been constructed and Congress had just authorized \$25 million to go towards construction of the system with a 50-50 federal-state split.<sup>22</sup>

President Eisenhower had been greatly influenced by his experiences abroad while serving in the U.S. Army during World War II. He had observed the effectiveness of Germany's autobahn, which ran across the country, providing efficient connections between cities. This was a sharp contrast to the American highway system, which had proven rather inadequate during demonstrations of cross-country military convoys, conducted by Eisenhower prior to World War II.<sup>23</sup> In moving forward with his objective, President Eisenhower asked General Lucius Clay to head a committee which was charged with designing a set of detailed standards and a financing plan for a new national highway system that could then be presented to Congress. Clay was a retired engineer and long-time presidential advisee. Clay, in turn, selected Francis Cutler Turner, a Bureau of Public Roads engineer, to head the committee's staff.<sup>24</sup>

In designing their report, the Clay committee had to determine which cities would be connected by the 40,000 miles of highway they were proposing and whether or not the freeways should run through cities or instead go around them. The precedent set by European cities had been to circle cities with ring roads rather than enter cities directly. However, Turner believed that freeways should enter cities and thus this question became a great debate within the Eisenhower administration.<sup>25</sup> Unlike the Autobahn in Germany, the American freeway network was designed to serve an economic development objective, thus the committee argued that it was necessary for the freeway network to enter American cities.

The idea that new highway infrastructure, running directly through American cities would serve as a tool to strengthen and build metropolitan areas was similar to the ideas put forth by MacDonald and Fairbank years earlier. However, President Eisenhower favored a network of highways that would connect urban areas without entering the CBD.<sup>26</sup>

---

<sup>22</sup> Schulz, (June 2006).

<sup>23</sup> Cutler, (2001), p 68.

<sup>24</sup> Ibid. p 68.

<sup>25</sup> Ibid. p 68.

<sup>26</sup> Reid, (June 2006), p 40.

The committee estimated that the cost for their proposal was approximately \$100 billion. They recommended that financing come from issuing \$25 billion in bonds, levying gasoline taxes, and the states. In 1955 a bill based on the Clay committee's work was put forth for debate in the House of Representatives and the Senate. However, it was defeated, partly due to lobbying by the trucking industry who was against the proposed increase in fuel tax. Undeterred, President Eisenhower continued to rally behind the development of an extensive interstate highway system and a revised bill was created.<sup>27</sup>

The new legislation called for the construction of 41,000 miles of interstate highways over the next 16 years and the creation of the Highway Trust Fund which would help finance the infrastructure.<sup>28</sup> The Highway Trust Fund would be funded by an increase in the gas tax from 2 cents to 3 cents as well as by various user fees.<sup>29</sup> The federal government would be responsible for covering 90 percent of construction costs and the states were responsible for covering the remaining 10 percent, which the States could pass on to local counties or municipalities. States would not receive any of the funding up front but rather they would be reimbursed after the project was complete; there were no limits on construction costs and states would own the roads within their boundaries.

States were also responsible for preparing an advisory metropolitan transportation system plan, in which they nominated federal highway routes and developed a local highway network that would connect to and serve the federal highway system. However, the federal government had final say over which routes and to what specifications they would be built. More significantly for cities, the final legislation also called for building highways directly into the downtowns of cities.<sup>30</sup>

---

<sup>27</sup> Schulz, (June 2006), p 2.

<sup>28</sup> Reid, (June 2006), p 39.

<sup>29</sup> Schulz

<sup>30</sup> Reid, (June 2006), p 40.

On April 27, 1956, the House of Representatives passed the Federal Highway-Aid Act by a vote of 388 to 19. After a few minor changes the bill went to a vote in the Senate and was passed on June 26, 1956, by a vote of 89 to 1.<sup>31</sup>

Construction on the Interstate Highway System continued at a rapid pace throughout the 1950s and early 1960s. However, by the late 1960s, opposition to freeways was growing across the country.

### The Freeway Revolt

Though the public outcry against inner city highways wouldn't be in full effect until the late 1960s and early 1970s, opposition to the Interstate Highway System was evident almost as soon as the 1956 Act was passed. One of the harshest early critics was Lewis Mumford, an urbanist, who felt that the key to revitalizing cities was not in the introduction of large infrastructure but rather in a restoration of the pedestrian scale and environment. Jane Jacobs, an urbanist as well, was another strong advocate against inner city freeways. As a strong supporter of neighborhoods she viewed freeways as destroying communities and took her anti-freeway stance so far as to act as the chairman of the Joint Committee to Stop the Lower Manhattan Expressway in New York City.

When construction on the Interstate Highway System began in the mid 1950s, the general public viewed the government with a sense of trust as they were the technical experts who were acting in the best interest of the county and its citizens. Though there were a few controversies, the myth that the elite were basing decisions on technical expertise, enabled those in power to defeat challengers and prevent controversy from escalating.<sup>32</sup>

### *The Anti-Freeway Movement Begins*

The 1960s were a turbulent time in American history, with the Vietnam War and the Civil Rights Movement. Out of these events grew a rising distrust of government officials and the top-down decision making process, which failed to involve the general public in the decisions that directly

---

<sup>31</sup> Schulz, (June 2006)

<sup>32</sup> Altshuler, Alan and Luberoff, David. *Mega-Projects: The Changing Politics of Urban Public Investment*. Washington D.C.: Brookings Institution Press, 2003. p 48.

impacted them. As a result, citizens began to speak out and express their discontent with the actions of the government.<sup>33</sup>

As construction of state highways moved from rural areas to urban areas, the public began to see many of the negative effects that earlier critics such as Mumford had warned about. Suddenly roads were being constructed through parkland and densely populated neighborhoods, which were often occupied by low-income residents, as the land was cheaper to acquire in these areas. Whole neighborhoods were razed in order to facilitate new infrastructure such that by the late 1960s highway construction was responsible for the demolition of 62,000 housing units annually, according to the U.S. House Committee on Public Works.<sup>34</sup> The urban renewal programs of the 1960s had similar effects. Slum clearance, an explicit objective of urban renewal, also targeted low-income, minority communities and was responsible for the destruction of entire neighborhoods across the United States.

By the mid-1960s “the frames of reference by which politicians, business leaders, and ordinary Americans judged the Interstate system began to change...many Americans, including business and political leaders at both the local and national levels, were contending that economic development, transport efficiency, and suburban lifestyles no longer justified the social and physical destructiveness of the Interstate Highway System.”<sup>35</sup> This shift in viewpoint acted as a catalyst for change both at the neighborhood level in the form of activism as well as at the state and federal level in the form of new legislation.

In reaction, a collection of bottom-up, neighborhood level anti-freeway movements sprung up in cities around the United States with San Francisco being the first city to revolt. Like the other countercultural movements of the time, anti-freeway activists sought to establish citizen participation and voice in the decisions that affected their communities. This sentiment was clearly expressed by a writer at the time who stated “The highway revolt is against the tyranny of the machine—the highway bulldozer and the political machine that drives it. Being helpless

---

<sup>33</sup> Rose, (1990), p 106.

<sup>34</sup> Mohl, (July 2004), p 680.

<sup>35</sup> Rose, (1990), p 101-102.

before the highway lobby is just one form of the powerlessness that Americans increasingly resent.”<sup>36</sup>

### *New Legislation Reflects Changing Values*

At the same time, growing concern and acknowledgement of environmental issues was fueling the environmental movement, which lent its support to the anti-freeway movement. With the creation of the Federal Department of Transportation (DOT) in 1966 (which the BPR would be incorporated in to) and its founding legislation, the states’ ability to construct highways through parkland and sites of historical significance was greatly limited.<sup>37</sup> This was particularly important as parklands were often viewed as ideal for the placement of highway infrastructure.

The establishment of the DOT also marked a shift in the ideology behind highway policy. The basic BPR highway strategy had been grounded in engineering, not policy, and focused on the idea that building more freeways was the solution to transportation problems.<sup>38</sup> In contrast, the new DOT focused more on multi-modal transportation systems. In fact, the first DOT Secretary Alan S. Boyd stated in a 1967 speech in California, “I think the so-called freeway revolts around the country have been a good thing.”<sup>39</sup> He advocated for more citizen involvement in the highway planning process and to this aim he had the DOT issue a new policy and procedure manual in 1968 which required two public hearings on planned interstate routes, up from the current requirement of one hearing.

Several other initiatives played an important role in restructuring federal highway policy. The Federal Highway Act of 1968 required that states provide habitable relocation housing before acquiring property for highway routes in addition to providing funding to states for moving expenses, housing relocation, and housing and rental supplements. Additionally, it required that public hearings on the economic, social and environmental effects of proposed highway projects be held.<sup>40</sup>

---

<sup>36</sup> Mohl, (July 2004), p 700.

<sup>37</sup> Wiener, (1992), p 63-64.

<sup>38</sup> Mohl, (July 2004), p 681.

<sup>39</sup> Ibid. p 681.

<sup>40</sup> Wiener, (1992), p 74.

At the same time the public's growing concern over the environment helped put pressure on the government to adopt more stringent environmental policy. The result of these efforts was the National Environmental Policy Act of 1969, a cornerstone of the environmental movement as it was the first broad national policy that was directed at protecting the environment.<sup>41</sup> The 1969 act required federal agencies to consider the environmental impact of the programs they funded, by mandating that an environmental impact statement or EIS be prepared for all legislation and major federal projects that would possibly have a significant impact on the environment.

This was followed by the passage of another piece of important environmental legislation, the 1970 amendments to the Clean Air Act, which reinforced the federal government's oversight on environmental issues. The Clean Air Act established the Environmental Protection Agency (EPA) and gave the EPA the authority to set ambient air quality standards.<sup>42</sup>

In addition to the development of environmental legislation, the 1970s also marked a change in attitude towards the role of public transportation and the power of state and local government to determine how to best address their transportation needs. The Federal-Aid Highway Act of 1973 increased the flexibility of highway funds by allowing Federal-Aid Urban system funds to be used for mass transit capital costs as well as permitting Interstate Highway funds to be relinquished in return for an equivalent amount from the general fund which could then be spent on mass transportation projects. The federal funding match for urban mass transportation capital projects was increased from 66 percent to 80 percent (except for Urban system fund substitutions which remained at 70 percent).<sup>43</sup> All in all, this legislation provided states with new channels of funding for mass transit projects and began to equalize mass transportation and highways.

While changes continued to occur at the state and federal levels, anti-freeway activists were leading public protests and speaking out in public hearings and meetings. The freeway revolt was also pushing its message into mainstream culture through environmental and popular magazines.

---

<sup>41</sup> Ibid. p 82.

<sup>42</sup> Ibid. p 85.

<sup>43</sup> Ibid. p 108.

### *Post Urban Highway Boom*

By the mid-1970s the combination of the anti-freeway movement, environmental movement, increasing flexibility in federal transportation funding and more local and state control over this funding seemed to be effective in halting the progression of a number of freeway projects across the country. That is not to say that highway construction ceased completely; in fact, the federal government continued to fund the Interstate highway system over the next 15 or so years as its target completion date was pushed back to 1991, though in reality building continued through the 1990s. However, by the early 1990s the era of new highway construction in urban areas was largely over.

With the post urban highway era came a few more key pieces of legislation that continued to change the role of the highway and the automobile. One such piece of legislation was the federal Clean Air Act Amendments of 1990. These amendments revised compliance standards for air quality and accompanying sanctions for non-compliance. Under the 1990 amendments there were two mandatory sanctions; the withholding of approval for Federal-Aid highway projects and a two-for-one emissions offset for new or modified stationary sources.<sup>44</sup>

The early 1990s also marked the approval of another important piece of legislation, the federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). ISTEA was different from previous legislation, such as the Federal-Aid Highway Act of 1973, in that it provided more flexible funding for transportation. A new block grant program, the Surface Transportation Program, was created under this legislation, which permitted funds to be used for a wide range of transportation projects, including highways, bicycles, carpools, transit capital, traffic management, and safety improvements.<sup>45</sup>

ISTEA also established a new Congestion Mitigation and Air Quality Improvement Program (CMAQ). This program provided an 80-percent federal matching rate for transportation projects

---

<sup>44</sup> Wiener, (1992), p 235.

<sup>45</sup> Ibid. p 243-244.



in ozone and carbon monoxide nonattainment areas (as defined under the Clean Air Act Amendments of 1990) that contributed to the given area meeting air quality standards.<sup>46</sup>

Additionally, the legislation marked an increased focus on congestion management. Beyond strengthening the role of metropolitan planning organizations (MPOs) in project selection and planning as related to transportation, it also designated large urbanized areas with a population of over 200,000 as transportation management areas (TMAs). “In TMAs, the transportation planning process had to include a congestion management system (CMS) for the effective management of new and existing transportation facilities through the use of travel demand reduction and operational strategies.”<sup>47</sup>

### Paradigm Shift—The Role of Mobility and its Relative Value

The evolution of highway policy from its inception as a massive national infrastructure project, covering the United States with miles of freeways, to flexible legislation which allows freeway funding to be used for mass transportation projects and requires environmental and socially sensitive planning, marks an enormous shift in priorities. This shift, it could be argued, is partly the result of changing attitudes to the role of large scale infrastructure and the relative value of mobility.

The need for urban freeway infrastructure was rooted in the desire to accommodate auto use, revitalize urban downtowns, allow for economic growth, promote defense, provide regional connections and reduce congestion. With the development of the Interstate highway system, came the need for a system of measuring the adequacy and performance of these roadways. Roadway levels of service (LOS) became the standard measurement of performance, with a range from A to F where an LOS of A represents a free-flowing roadway and an LOS of F signifies gridlock. Levels of service at a basic level are simply “proxies for vehicle operating speed.”<sup>48</sup>

---

<sup>46</sup> Ibid. p 244.

<sup>47</sup> Ibid. p 249.

<sup>48</sup> Ewing, Reid. “Measuring Transportation Performance.” *Transportation Quarterly Winter* 49, no. 1 (1995), p 91.

While this performance measurement addressed one of the initial goals of the interstate highway system, to reduce congestion, it failed to acknowledge any of the other original objectives. As a result, the value that became attached to the highway network was primarily that of mobility. Mobility refers to the quality of moving from one point to another. The greater mobility, the greater the ease with which one can move around.

The function of mobility as the primary objective was evident not only in the level of service performance measure but in the decision of how to align the interstate freeways. “The engineers were trained in getting people from point A to point B in the cheapest, fastest, and safest manner. Cheap often meant through wetlands or parkland, only later recognized as valuable, or through slums, bulldozed before residents could organize.”<sup>49</sup> As a result, freeways were often placed without much thought given to how their presence might create a physical barrier within a neighborhood or cut off access to valuable natural assets, such as the waterfront and open space, or fracture social connections and community cohesiveness. Rather, the logic behind their placement “had always been weighted toward service to motorists in the most heavily traveled corridors...and the idea of preserving a pristine environment appeared preposterous...if not impossible to accept.”<sup>50</sup>

The emphasis on the value of mobility, however, is not without tradeoffs. “High levels of mobility bring with them high social costs (at least in auto dependent America).”<sup>51</sup> Mobility as a measurement tool can provide a general overall sense of the functioning of the current transport system by measuring travel times, congestion levels, time lost to congestion, etc. This can aid in the development of policy that strives to improve efficiency and reduce congestion.

Mobility alone, however, fails to acknowledge the potential land use, environmental, quality of life, and downtown revitalization impacts, and as a result “by some point in the 1960s, then, many Americans came to focus on the negative consequences of highway building, as opposed

---

<sup>49</sup> LaGesse, David. “The Road Warrior: Building the highways that changed a nation.” U.S. News and World Report 134, no. 23 (June 30, 2003): 44.

<sup>50</sup> Rose, (1990), pg 107 -108.

<sup>51</sup> Ewing, (1995), p 92.

to the demonstrable advantages of modern, high-speed, express highways serving a nation addicted to automobiles and to mobility”.<sup>52</sup>

The anti-freeway revolts of the 1960s and 1970s were a testament to the public’s apparent growing value for other goods over mobility. Grassroots groups fought to keep freeways out of their neighborhoods in a desire to maintain community cohesion and preserve their quality of life.

The shift in the relative value of mobility continued in the late 1980s as the idea of sustainability gained mainstream awareness. Towards the end of the 1980s, the Brundtland Commission offered the now often cited definition of sustainable development: “to ensure that [development] meets the needs of the present without compromising the ability of future generations to meet their own needs.”<sup>53</sup> In some respects the emergence of the values associated with sustainability were a result of the emergence of the postmodernist movement, which in reaction to the modernist ideology prevalent in the first half of the 20<sup>th</sup> century, emphasized “diversity (of perspectives, culture, land uses), human scale, participatory, ecological, and focused on quality of life.”<sup>54</sup>

The value system associated with sustainability then manifests itself in the way in which decisions are made regarding the physical nature of urban environments, much like the values associated with the anti-freeway movements shaped physical space. Under the principles of sustainability, the idea of mobility is no longer the primary measure when evaluating transportation projects. Rather criteria such as air pollution, equity, consumption of natural resources and accessibility are considered just as or more important than mobility in its purest definition of moving people from point A to point B, without consideration of any other objectives.

The values of sustainability as they relate to transportation issues, such as air pollution, auto dependence and urban sprawl, have also manifested themselves in a number of key pieces of

---

<sup>52</sup> Mohl, (July 2004), pg 675.

<sup>53</sup> 1987 Brundtland Report – chapter 2

<sup>54</sup> Zegras, Chris. “Sustainable urban mobility : exploring the role of the built environment.” PhD diss., Massachusetts Institute of Technology, 2005, p 23.

legislation. The Clean Air Act Amendments of 1990 and the Intermodal Surface Transportation Efficiency Act of 1991 both reflected values of sustainability as they placed greater restrictions and penalties on emissions and allowed for flexible funding which encouraged alternative modes of transit, respectively.

The anti-freeway movements as well as the goals of sustainability seem to suggest that the value of mobility in urban areas is often lower relative to the value for cohesive neighborhoods, less air and noise pollution, and use of land for other types of development. Perhaps, even the paradigm shift has come full circle as cities are now making a conscious choice to reduce total freeway capacity by removing aging and damaging freeway infrastructure and using the land instead for housing, commercial development and public open space.

#### Urban Freeway Removal Movement?

While a number of cities across the United States, such as San Francisco, Baltimore, New Orleans, Boston and Miami were successful in stopping the construction of a number of inner city freeways, the City of Portland, Oregon was the first to take the anti-freeway sentiment one step further.

Over thirty years ago, Portland made the decision to raze the Harbor Drive freeway and replace it with a 37-acre park, making it the first city in the United States to initiate the idea of freeway demolition. Harbor Drive freeway was a three-mile long, ground-level highway built in 1950 that ran alongside the Willamette River and provided a connection between an industrial neighborhood, Lake Oswego and areas south of downtown Portland. In 1968, Governor Tom McCall organized a task force charged with studying the feasibility of removing the freeway and replacing it with a park. Interstate 5 had recently been completed on the west bank making Harbor Drive unnecessary. The task force recommended closure and the proposal gained leverage when Interstate 405 was completed in 1973. In 1974 Harbor Drive was closed and removed to make way for construction of Tom McCall Waterfront Park.

San Francisco, the city that had started the anti-freeway movement<sup>55</sup>, was given the momentum to push the freeway removal movement forward when the 1989 Loma Prieta earthquake hit, severely damaging both the Embarcadero Freeway and Central Freeway. The city had been toying with the idea of removal before the earthquake, however local opposition, primarily from business owners in Chinatown, made the plan unfeasible to implement. After the earthquake, the future of the Embarcadero could not be ignored and the city and its citizens used this opportunity to push for the freeway's removal. In its place a vibrant waterfront, with recreational and public gathering spaces, cultural amenities and commercial activities has been created.

The situation around the Central Freeway was not so straight forward as it was ensnared in debate for roughly 10 years, before the decision to tear it down and replace it with an at-grade roadway was formally made. Residents in the neighborhood surrounding the freeway strongly advocated for its removal as their community had been split apart by the physical barrier created by the freeway. However, residents located in other areas of the city as well as commuters to San Francisco were concerned about the impacts that the loss of mobility would have on their commute. In the end, the debate was solved through the referendum process, where the voters decided to remove the freeway and replace it with an at-grade boulevard. As a result, the Hayes Valley neighborhood has seen a revival with the creation of new housing, shops and park space. The removal of both freeways has drastically changed the face of the city, spurring new development and improving pedestrian, bike and transit conditions in previously economically stagnant neighborhoods.

In the past five years the cities of Milwaukee and Toronto have both commenced with the demolition of freeways in their downtowns rather than rebuild their aging infrastructure. In the late 1990s, the City of Milwaukee made the decision to remove the Park East Freeway which had reached the end of its useful life. The freeway ran through an industrial part of the downtown which had been primarily used for parking lots. With the removal of the freeway, 26 acres of land was opened up for development. As a result, the city is now in the process of developing new housing, retail and commercial spaces under the guidance of the Park East Redevelopment Plan. In the case of Milwaukee there was relatively little resistance from the general public,

---

<sup>55</sup> Mohl, (July 2004), p 674.

businesses, and government as there seemed to be a general understanding that the potential for economic development on the land occupied by the freeway outweighed the road's mobility benefits.

Toronto, like Milwaukee, was faced with the decision of what to do with its aging infrastructure, specifically the Gardiner Expressway. The Gardiner Expressway is an elevated highway built in 1965 that runs parallel to Lake Ontario from each end of the city. As the structure began to deteriorate in the late 1990s city officials discussed the option of demolishing the highway. In 1999, the Toronto City Council approved the demolition of a 1.4-km stretch of the most easterly stretch.<sup>56</sup> In 2003, the City of Toronto removed the eastern part of the elevated expressway and replaced it with a boulevard, opening up port land near the waterfront. The future of the remaining sections of the expressway is currently under debate, however in 2004, the Toronto Waterfront Revitalization Corporation released a corridor study recommending that the remainder of the elevated structure be placed at grade to create a "great street."

Other cities are now facing the issue of what to do with aging infrastructure. Baltimore, Seattle, Akron (Ohio) and New York are currently in the midst of debating if their aging freeways should be rebuilt or demolished.

Within the past 15 years a new relationship between cities and freeways has been forming. Despite worsening congestion, a number of cities are seeing freeway demolition as a form of urban renewal and are replacing elevated structures with at grade boulevards that have a much lower carrying capacity. By removing these massive pieces of infrastructure cities are allowing land to instead be used for housing, recreational space and commercial development. Neighborhoods that were once divided by a freeway are reestablishing previous connections and enabling new development at a more human scale.

---

<sup>56</sup> O'Reilly, Dan. "Death by decay: Toronto highway bites the dust [Gardiner Expressway]." *Heavy Construction News* 45, no 5 (May 2001): 12.



## CHAPTER TWO: Theory & Hypotheses

This chapter reviews a number of theories, relevant to different aspects of the process behind the removal of urban freeways are discussed in this section. Though none of these theories was written in direct response to the demolition of freeway infrastructure, they do discuss several important concepts that are embodied in each of the case studies that will be evaluated.

In the first part of this chapter, I look at existing theories regarding the structure of decision making or the framework by which decisions are made. Understanding the order or way in which decisions are made is important in evaluating how a decision to remove a freeway evolved and developed over time. The evaluation of frameworks is broken down into two parts. The first half focuses on the pre-conditions that must be met before a decision can be made. The second part of the framework, pays particular attention to the idea of turning points or “windows of opportunity” within the decision making process, as a way to gain insight in to how an idea gains the necessary momentum to become a legitimate option with widespread support. This will help to understand the mechanisms that enabled a once radical idea (freeway removal) to become a valid and desirable option.

In the second part of the chapter I examine theories which explore power structures within the decision making process. By looking at theories which discuss power structures I hope to gain insight into who has the power to decide what course of action should be taken, when large public policy decisions must be made. I also examine the concept of policy entrepreneurs, or advocates for a given proposal, and their role in the decision making process.

Building on this review of relevant theories, I then explore the development of a theory of highway removal. Towards developing this theory, I propose a number of hypotheses to be tested.



## Section One: Existing Relevant Theory

### Frameworks for Decision Making

#### *Collaboration as a Necessary Precondition*

In his dissertation analyzing the planning process behind transit planning in Bogotá, Colombia and Curitiba, Brazil, Arturo Ardila-Gomez discusses a new framework by which the planning process can be evaluated and understood. Though he is specifically interested in understanding the role planners play in the planning process as well as their role in shaping the outcome, he has developed a framework which can be applied to the decision making process as a whole.

His framework is composed of two stages. The first stage is the development of the fundamental condition that must exist for the planning process to accurately represent collective goals.

“For the plans of a city government to reflect collective and legitimate goals, the government needs a minimal space for action. Within this space, several actors – none with overwhelming influence in the process – shape the plan.”<sup>57</sup> This space, which allows for discussion and debate over policies, according to Ardila-Gomez, is achieved through interaction between stakeholders. Through interaction, parties can create channels through which they can debate and negotiate goals and policies.

The idea of a space for discussion is applicable to and important for any major planning decision, such as freeway removal. The concept of participatory planning, which has gained mainstream acceptance in the United States and elsewhere, follows this idea, in that it promotes interaction between stakeholders as a tool for establishing shared goals and objectives.

Alexander Walter and Roland Scholz, comes to a similar conclusion regarding the important role that interaction plays in establishing collective goals. The authors utilize five cases studies, diverse types of transport projects from around the world, to identify necessary preconditions<sup>58</sup> for a successful collaborative planning project. Based on their results, the authors conclude “that

---

<sup>57</sup> Ardila-Gomez, Arturo. “Transit Planning in Curitiba and Bogota: roles in interaction, risk, and change.” PhD diss., Massachusetts Institute of Technology, 2004. p 23.

<sup>58</sup> Walter and Scholz test a number of critical success indicators that have been derived from literature in order to determine what preconditions are necessary for a collaborative planning project

a dedicated management of the multi-actor network, a high diversity of actors, as well as an extensive use of knowledge integration methods in combination with a high network density are critical success conditions of these planning processes.”<sup>59</sup>

These findings seem to be in agreement with Ardila-Gomez’s argument, as the outcome basically states that the establishment of a collaborative planning process is the direct result of a great deal of communication between the various actors involved in the planning process (high actor network density) and having dedicated network management helps ensure that there is more effective interaction of stakeholders.

Walter and Scholz’s findings corroborate Ardila-Gomez’s premise that interaction is necessary for creating a space where collective goals can be identified. However, their research suggests that once a project moves out of the planning phase and into the implementation phase, the extensive use of unilateral methods, rather than multilateral or bilateral methods, is a condition for successful project performance over the long term. This seems to suggest that while the participatory process is critical in establishing collaboration during the planning phase, project performance in the implementation phase fares better when overseen by just a few actors.

#### *Inevitability as a Necessary Precondition*

Yaakov Garb offers up another perspective on the necessary preconditions for large projects. In his examination of the planning history behind the Trans-Israel Highway, Garb discusses “the creation of a sense of inevitability as a key dimension in furthering a major infrastructure project.”<sup>60</sup> He shows, in the case of the Trans-Israel Highway, how project proponents use language and political actions to help achieve this inevitability.

Garb notes that one aspect of inevitability is the vision and confidence of a project’s supporters and their projected attitude that a project will happen, no matter what. However, his essay focuses primarily on four more subtle methods that amplified the project’s power in the sense

---

<sup>59</sup> Scholz Roland W. and Walter, Alexander I. “Critical success conditions of collaborative methods: a comparative evaluation of transport planning projects.” *Transportation* 34 (2007) p 1.

<sup>60</sup> Garb, Yaakov. “Constructing the Trans-Israel Highway’s Inevitability.” *Israel Studies* 9, no. 2 (Summer 2004), p 180.

that it became viewed as the only and, at the same time, best option. In the first method Garb discusses, proponents shape the problem such that the proposed project seems to be the intuitive and only solution to the given problem. In the case of the Trans-Israel Highway, proponents were able to manipulate the problem of lack of mobility and traffic congestion such that the highway was seen as the inevitable solution. This was done primarily by shifting from “an access-based to mobility-based framing of the problem.”<sup>61</sup>

In the second method described by Garb, proponents reshape the project’s history such that it appears as if it was part of a long-established plan that is unfolding as planned, and to hide the reality of the process (which involves controversy, starts and stops in momentum due to opposition). Thirdly, project supporters undertake a deliberate effort to limit debate to issues directed at components of the project itself, which can prevent people from questioning the ultimate need for the project.

The final mechanism for creating a sense of inevitability involves blurring the boundaries between the past, present and future in favor of the future. In the case of the Trans-Israel highway, one way this was done was by incorporating the project (before it was approved) into plans for the region. This seemed to suggest that the freeway was a done deal, even though it was not formally approved, which might have deterred the full evaluation of other alternatives.

### *Turning Points*

With the necessary preconditions for a decision making process met, how does one move into the phase where an actual decision is made?

The second component of Ardila-Gomez’s framework addresses the timing with which the decision making process occurs using the concept of a “window of opportunity.” According to Ardila-Gomez, a window of opportunity provides “an opportunity for advocates of proposals to push their pet solutions, or to push attention to their special problems.”<sup>62</sup> Windows of

---

<sup>61</sup> Garb, (2004), p 184.

<sup>62</sup> Ardila-Gomez, Arturo, (2004), p 25, the author credits \_ Kingdon with this quote

opportunity can arise for a number of reasons, such as the election of a political figure or the advent of a crisis.

According to Ardila-Gomez, there is little chance a plan will be adopted or a decision made before the window of opportunity occurs because before this point stakeholders and politicians will consider it a waste of resources to interact with the supporter(s) of an idea. Ardila-Gomez, together with Fred Salvucci, also identifies the idea of a turning point, before which an idea will not be promoted, in their “Planning Large Transportation Projects: Six-Stage Model”.

The first of the six stages, prehistory, is the time before the “window of opportunity.” This is the period of time where the need for the project has not yet emerged into minds of the public or decision makers. This can be due to several factors, such as partisan reasons, lack of necessary technology, or cautiousness on the part of decision makers or the public. For the project to get to the next stage its supporters must build up a minimum level of momentum. This may require that “conditions deteriorate to the point that the need for the project is evident, and thus citizen awareness for the project emerges.”<sup>63</sup> This last point is particularly relevant in the case of highway infrastructure as much of the debate over what to do with them has been forced by the fact that they are aging and deteriorating.

Once the window of opportunity opens, interaction among the parties can begin. This interaction can, in turn, push an idea or plan onto the political agenda and greatly improve the chances that a given plan will be adopted.<sup>64</sup> However, at the same time, as Salvucci and Ardila point out, the development of large transportation projects take place within a political reality, one where the politicians in office can often change over the life of the project.

Thus, windows of opportunity have limited duration, as an elected official’s term ends, or a crisis is over. Once the window closes interaction ceases. A closed window can be reopened; the planning process is dynamic and there will be various periods of time where the window is open or closed. However, it is often in the project proponent’s best interest to try and complete one of

---

<sup>63</sup> Ardila-Gomez, Artruo and Salvucci, Fred. “Planning Large Transportation Projects: Six-Stage Model”. *Transportation Research Record* 1777 (2001), pg 117.

<sup>64</sup> Ardila-Gomez, (2004), pg 25.

the six stages, described by Ardila-Gomez and Salvucci, in one administration<sup>65</sup> to avoid the closing of a window.

Lastly, Ardila-Gomez ties the concept of “windows of opportunity” back to collaboration. He states, that the prior establishment of channels of interaction ensure that once the window of opportunity is open, continuing interaction amongst stakeholders will provide feedback that enables the plan to be adjusted incrementally to reflect collective goals rather than personal objectives.<sup>66</sup>

### Power Structures and Policy Entrepreneurs

An important component in understanding how a specific decision was made is determining who controlled the power to make that decision within the given context. When the window of opportunity occurs, what actor or actors initiate discussion and promote an idea and who is ultimately responsible for making the decision. Is it a collective group, an individual, a government, a special interest group, or a combination of these actors?

Alan Altshuler and David Luberoff provide insight into the politics and power structures, specifically in the context of planning large scale infrastructure projects.<sup>67</sup> In their analysis of mega-projects, they focus on the primary schools of thought in urban political theory from the 1950s to present day. They grouped the theories into five categories that are, in chronological order: Elite-Reputational, Pluralist, Public Choice, Elite-Structural, and Historical-Institutional. Each category presents a different viewpoint on what groups or individuals within the planning process control decision making.

Table 1 provides an overview with key points for each of the five typologies.

---

<sup>65</sup> Ardila-Gomez and Salvucci, (2001), pg 121.

<sup>66</sup> Ardila-Gomez, (2004), p 27.

<sup>67</sup> In their 2003 book *Mega-Projects: The Changing Politics of Urban Public Investment*

**Table 1: Five Categories of Urban Political Theory**

<i>Category</i>	<i>Time Period</i>	<i>Key Contributors</i>	<i>Key Points</i>
<b>Elite - Reputational</b>	Late 1950s to early 1960s	Floyd Hunter	<ul style="list-style-type: none"> <li>• Corporate elites dominate local politics</li> <li>• Businessmen rank above high level government officials</li> <li>• Investigation of local political behavior and power</li> </ul>
<b>Pluralist</b>	Early 1960s	Robert Dahl	<ul style="list-style-type: none"> <li>• How those with power influence others</li> <li>• Local influence is widely distributed</li> <li>• Wealth is not in only factor in gaining power, other skills like political activism can be more influential</li> <li>• Power can be held in the private sector or the public sector</li> </ul>
<b>Public Choice</b>			
1. Hard	Late 1950s to mid-1960s	Mancur Olson	<ul style="list-style-type: none"> <li>• Politics tends to be dominated by small groups, each of whose members has a great deal at stake</li> <li>• Is weak in explaining social movements that are centered around wide ranging issues, such as environmentalism</li> </ul>
2. Soft	1980s to present	Paul Peterson	<ul style="list-style-type: none"> <li>• Individuals make enlightened and rational decisions</li> <li>• Therefore, a balance exists between collective interest and individual interest</li> </ul>
<b>Elite - Structural</b>	Mid-1960s to late 1980s	Norman I. and Susan S. Fainstein John R. Logan Harvey Molotch	<ul style="list-style-type: none"> <li>• Private sector elites hold most of the power, but ability to control political processes is dependent on the public sector</li> <li>• Because their power is a function of the structural systems within which politics occurs (capitalism, governance, culture)</li> </ul>
<b>Historical - Institutional</b>	Mid-1980s to present		<ul style="list-style-type: none"> <li>• Collective choices are greatly influenced by institutions and legal arrangements, which are a reflection of or based on historical patterns</li> <li>• Politics must proceed from an understanding of institutional arrangements and history</li> </ul>

Source: Derived from Altshuler and Luberoff, *Mega-Projects: The Changing Politics of Urban Public Investment*, 2003

Altshuler and Luberoff discuss which of the five categories of urban theory best explain the mega-project era: the time period between 1950 and 1970 when massive projects such as urban renewal, highway construction and airport development were occurring. Their analysis explores the relevance and impact of various actors in both the construction of these large scale projects and well as the subsequent backlash against them. Given that an era of freeway removal appears to be upon us and that the decision to remove a freeway is also a large-scale and contentious intervention, Altshuler's and Luberoff's analysis seems relevant.

Prior to the mega-project era, "business was certainly the most influential group in just about every city, but its capacity – like that of other local interests – was mainly negative."<sup>68</sup> Negative in this context means that while business had the power to stop initiatives, at the same time they lacked the ability to gain support for and start up initiatives. In the aftermath of World War II and the subsequent mega-projects era, that included the construction of the interstate highway system<sup>69</sup>, there was a dramatic shift in power to the government, whose role became economic developer and activist of large-scale projects. Yet another shift occurs in the late 1960s and 1970s when citizen-led movements begin to successfully shape policy.

Theorists Norman and Susan Fainstein present evidence, under the elite-structural framework, that explains the success of the anti-freeway and anti-urban renewal movements of the 1960s. The Fainsteins state that it was the grassroots protests that "brought a widespread shift from directive to concessionary regimes – which...shifted the emphasis of urban renewal from CBD redevelopment to neighborhood rehabilitation."<sup>70</sup> Altshuler and Luberoff concur with this analysis but also add that the shift was equally due to the movements of historical preservation and environmentalism that were spearheaded by middle and upper-class urban residents.

The role of advocates for proposals or for the prominence of an idea is further explained by John W. Kingdon, through his development of the concept of policy entrepreneurs. According to Kingdon, policy entrepreneurs are broadly defined as advocates who are characterized by "their willingness to invest their resources—time, energy, reputation, and sometimes money – in the

---

<sup>68</sup> Altshuler and Luberoff, (2005), p 261.

<sup>69</sup> The post World War II freeway boom is discussed in more depth in Chapter 2.

<sup>70</sup> Altshuler and Luberoff (2005), p 252. This is a citation of Norman and Susan Fainstein's work.

hope of a future return. That return might come to them in the form of policies of which they approve, satisfaction from participation, or even personal aggrandizement in the form of job security or career promotion.”<sup>71</sup> Policy entrepreneurs can be found in many parts of the policy community including within government agencies, elected or appointed officials, special interest groups, community organizations, and research organizations.

Kingdon takes the idea of who makes decisions or promotes ideas or policy one step further by discussing the motivations behind policy entrepreneurs. One type of motivation behind advocacy is the promotion of personal interests. “This might mean the protection of bureaucratic turf – keeping one’s job, expanding one’s agency, promoting one’s personal career.”<sup>72</sup> The motive of promotion of one’s agency and keeping one’s job is evident in large scale infrastructure projects as various agencies advocate for the alternative that best serves their department. One example of this would be highway engineers supporting highway construction projects rather than mass transportation projects. In the case of politicians, the motivation to advocate can be a result of their desire to claim credit for a new policy or legislation which, in turn, they can use in their reelection campaigns.

The second reason that people advocate for an idea is because “they want to promote their values, or affect the shape of public policy.”<sup>73</sup> This reasoning is evident in the anti-freeway movements of the 1960s and 1970s as well as the more recent proponents of freeway removal, where supporters advocated for values such as community cohesiveness and neighborhood quality of life. Lastly, some policy entrepreneurs advocate for ideas simply because enjoy advocacy, being in or near power, or being part of the action.

---

<sup>71</sup> Kingdon, John W. *Agendas, Alternatives, and Public Policies*, 2<sup>nd</sup> edition. New York: Harper Collins College Publishers, 1995. p 122.

<sup>72</sup> *Ibid.* p 123.

<sup>73</sup> *Ibid.* p 123.



## Section Two: Towards a Theory of Highway Removal – A Series of Hypotheses

In the review of existing relevant theory, several key points stand out as being applicable to understanding the process behind removing an inner-city freeway. The first key point is the concept of meeting certain preconditions in order to better ensure the acceptance of an initiative once the window of opportunity is open. Collaboration, according to Ardila-Gomez is the necessary precondition, while Garb cites inevitability. I would argue that in the case of freeway removal the concept of a necessary precondition is applicable, but that concerns over the condition of the infrastructure is most critical precondition rather than collaboration or inevitability.

The second key point is the window of opportunity, which is the point in time when advocates can push their ideas. Though there might be policy entrepreneurs for freeway removal, according to Ardila-Gomez, it is impossible to gain acceptance before the window of opportunity is open. This begs the question of what is the window of opportunity for gaining more widespread acceptance for freeway removal and does it vary across cities? The third key point is the concept of policy entrepreneurs defined by Kingdon as advocates for a given idea or proposal. In the case of freeway removal is it important to understand who is promoting the idea and why. Lastly, who controls what decision is made once an idea gains support? According to Altshuler and Luberoff, prior to World War II, businesses controlled city policy. After the war and during the mega-project era control shifted to the government, however by the late 1960s yet another shift occurred, placing power in the hands of citizen activists. This then leads to the question of who is controlling relevant city policy today?

The review of existing theory provides a number of insights into particular components of the process behind removing an inner-city freeway as well as a number of key points which can be built upon. However, does freeway removal imply an entirely new type of transportation “planning”, requiring a new theory? I explore this by testing a number of hypotheses related to the following topics: (1) preconditions, (2) windows of opportunity, (3) the value of mobility, and (4) the values embedded in power.

Firstly, I hypothesize that one pre-condition must be met before the issue of highway removal will enter into the debate. The necessary precondition is that the condition of the freeway must be such that there is concern over its integrity and structural safety. At this time, serious public debate regarding the future role and state of freeway infrastructure will only occur when the precondition is met.

Once the necessary precondition is met, a window of opportunity or turning point must occur for the alternative of freeway removal to become a legitimate option. While the aforementioned precondition is necessary for a discussion about rehabilitation or reconstruction of a freeway to occur, just because a freeway is aging and perhaps unstable, it does not guarantee that the option of tearing down a freeway will be discussed or even considered. Therefore, the precondition may be the window of opportunity; however a number of other events occurring after the initial discussion can also act as windows of opportunity.

Thirdly, I hypothesize that freeway removal would take place only in places that evidenced a reduced “value of mobility,” relative to other objectives such as economic development, quality of life, or the environment. Removing a portion of a freeway requires some loss of mobility, thus what the gains from tearing down a freeway, like freeing up land for housing or commercial development, must be more valuable, making the tradeoff worthwhile or desirable.

Lastly, even with the window open, and some sense of changing values, highway removal must have an empowered agent of change. Thus, I hypothesize that in order for the decision to remove a freeway to be made, the value of the given objective (economic development, environment, etc.) must be embedded in power, be it the power of a given individual or a collective group.



## CHAPTER THREE: Methodology

### Case Study Method

In this thesis I employ the case study method. “In general, case studies are the preferred strategy when ‘how’ or ‘why’ questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context.”<sup>74</sup>

Given that this thesis looks to understand how and explain why the decision to remove an urban freeway was made, a survey or experiment would not allow for explanatory analysis.

Additionally, since urban highway removal is a complex social and relatively recent phenomenon, the case study method seems appropriate as it incorporates the techniques of direct observation and systematic interviewing. The case study method also allows for the possibility for replication of my proposed theory across different case studies. Thus, if the same conditions hold we would expect the same outcomes.

However, there are shortcomings to the case study methodology. First, a single case cannot be to provide a basis for generalization. One way to deal with this shortcoming is to use multiple case studies. Furthermore, one must keep in mind that case studies are generalizable to proposed theory, but not to specific groups or populations. A second shortcoming of case studies is the difficulty of ensuring a rigorous methodology. When writing case studies care must be taken to not “allow equivocal evidence or biased views to influence the direction of the findings and conclusions.”<sup>75</sup>

### Case Study Selection

In selecting case studies for this thesis, the key outcome of interest in my cases was: removal or non-removal. Removal here is defined as:

1. The demolition of an elevated freeway structure, and

---

<sup>74</sup> Yin, Robert. *Case Study Research: Design and Methods*. Beverly Hills: Sage, 1984 p 13.

<sup>75</sup> Ibid. p 21.

2. If the freeway is replaced with an at-grade roadway, the new roadway is of lower carrying capacity than the original freeway and designed as a local street (eg, integrated into grid pattern with stop signs, sidewalks, etc.).

It is important to note that I do not consider cases where freeways have been realigned or submerged, such as the Big Dig in Boston, as removal case studies. From a mobility, accessibility, and capacity standpoint the removal of an inner-city freeway is significantly different in that it completely removes a portion of the transport network whereas realignment or submergence relocates the freeway but does not remove a portion of the transport network. Thus, the decision making process, political pressures, and transportation system ramifications will be different.

Non-removal in this thesis is defined as:

1. Not demolishing an elevated freeway structure, and
2. If the structure is rehabilitated, the capacity and overall design is maintained at pre-rehabilitated levels.

By using case studies that represent both removal and non-removal I will be able to compare the conditions under which the decision to remove and the decision to rebuild or retrofit are made, enabling me to more accurately pinpoint what factors were significant in the decision to remove a freeway.

### *Removal Case Studies*

In order to select the most appropriate removal case studies for my thesis I considered several factors. First, the process of freeway removal in inner cities is a relatively new phenomenon in North America with the first instance occurring in Portland, Oregon in the early 1970s. As such there were a limited number of cases to choose from. I was able to identify a total of six cases of removal: Harbor Drive in Portland, the Embarcadero in San Francisco, the Central Freeway in San Francisco, Park East Freeway in Milwaukee, Westside Freeway in New York, and Gardiner Expressway in Toronto, Canada. The recent case of the Cheonggyecheon expressway in Seoul,

Korea was not chosen due to the very different political and social context, as well as simple logistic challenges to carrying out a case study there.

Secondly, I wanted to use cases where there was a reduction in vehicle capacity. In all of these locations, except Portland, the existing elevated freeway was replaced by an at-grade roadway. The reasoning for this is similar to why submergence and realignment are not considered removal.

My last consideration is the amount of available information, given that freeway removal in a number of these cases occurred only within the last five years.

From the six cases identified I selected the Central Freeway in San Francisco and the Park East Freeway as my two removal cases for evaluation. These cases were selected based on the above criteria but also because they represent different geographic regions and time periods and thus a varying range of political, economic and social factors.

#### *Non-Removal Case Study*

Selecting the non-removal cases was more difficult due to the challenge of finding a location where the idea of removing a freeway had been seriously considered. For the purposes of this analysis, serious consideration was defined as having an open public debate over a number of alternatives, one of which had to be the removal of the freeway. The removal alternative could propose an alternative roadway in place of the freeway; however the proposed roadway would also have to call for a significant reduction in capacity.

The identification of a situation where there was serious consideration given to freeway removal, that was ultimately rejected for another alternative, proved quite difficult. In surveying transportation planning professionals I was able to identify three potential cases: Whitehurst Freeway in Washington D.C., the Westside Highway in New York City and the Alaskan Way Viaduct in Seattle.

The Alaskan Way Viaduct was rejected because, while there was support for removal from citizen and special interest groups, the only two official alternatives being considered at this time (as this in an ongoing case) are the replacement of the original structure with a similar structure and a hybrid tunnel replacement. The Westside Highway was rejected because, even though New York City officials considered (and ultimately selected) an at-grade replacement for the elevated roadway, the alternatives considered did not propose any reduction in capacity.

The Whitehurst Freeway case seemed to be the best removal option given the available cases. In deciding whether or not to retrofit the Whitehurst, officials also considered an at-grade roadway, tunnel and a new elevated freeway. In the end the city decided to rehabilitate the existing structure rather than remove it.

### Framework for Evaluating the Case Studies

I have developed a framework of key relevant categories:

1. Infrastructure: The function, usage, design, condition of the infrastructure, and the site where the infrastructure is located.
2. Transportation Network: The forms of transportation other than driving that are available in the city where the freeway is located.
3. Social Conditions: The make-up (demographic and economic) of the residents living in the area surrounding the freeway.
4. Financing: The costs associated with each project and the proposed alternatives and the sources of funding. The financing mechanisms (federal, state, local) used.
5. Process: The decision making process in whatever form it took and the decision making structure.

This will allow one to more clearly compare the case studies in order to identify commonalities and differences.

## Data Collection Approach

I utilized various methods to gather the necessary data and information. Firstly, a major component was the collection of documentation in the form of formal studies and evaluations related to each freeway, such as Environmental Impact Statements, traffic studies, definition of alternatives studies, and project plans and sections. These types of documents were collected from various government agencies and departments within each case study city. Agendas, memoranda, and public meeting minutes were often included in the appendix of the formal studies and evaluations.

The second type of documentation was newspaper articles from major newspapers in each region, collected in order to get a sense of the debate that was occurring at the time that the decision of what do with the freeway was being discussed. Lastly, I carried out phone interviews with people involved in the debate or design of the alternatives, such as professors from local universities, government officials, and political figures.



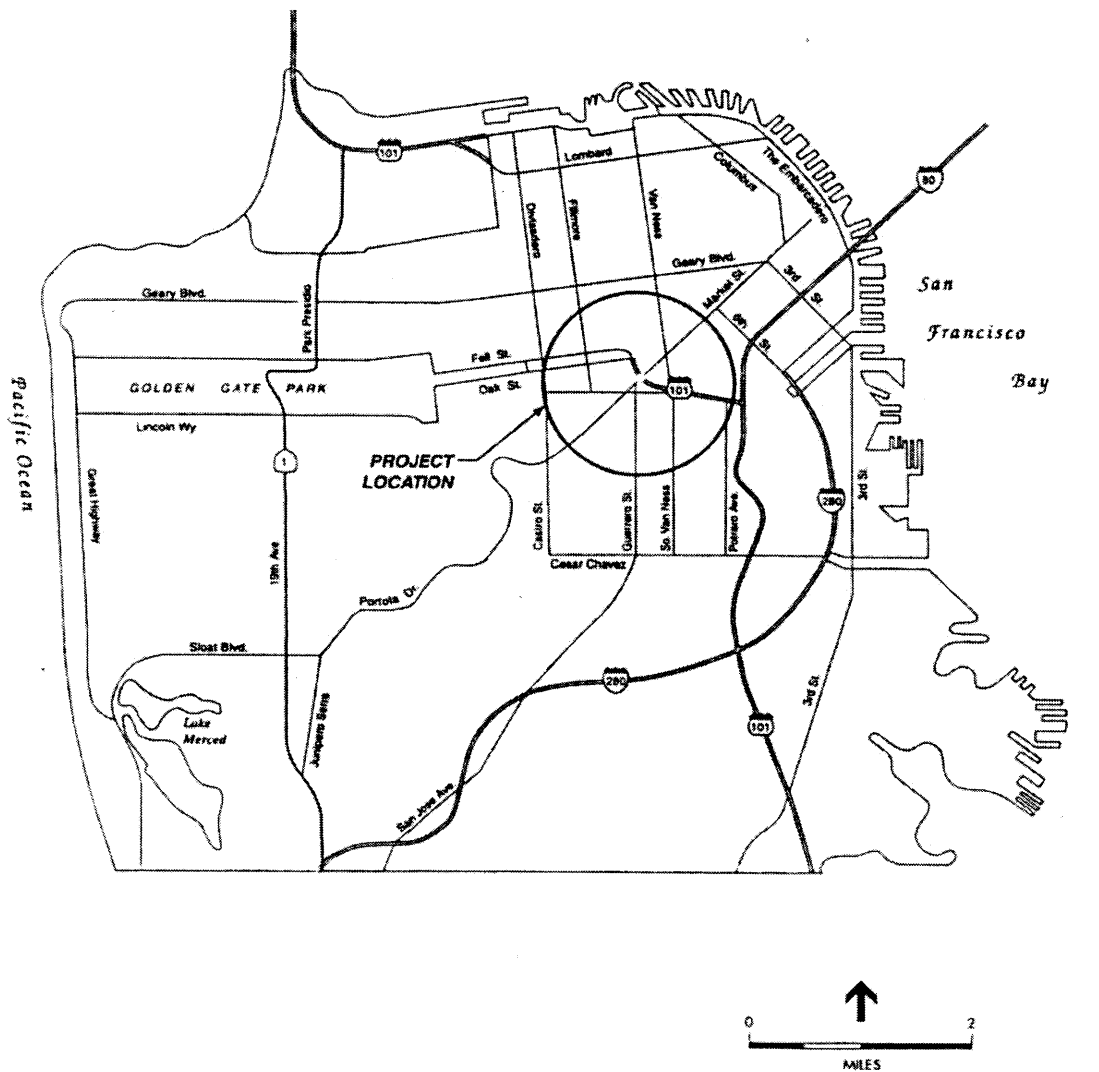


# CHAPTER FIVE: Case One – Central Freeway, San Francisco

## Section 1: Background

Built in the 1950s the Central Freeway was a double-decker elevated structure located in the Hayes Valley Neighborhood. The original design configuration was intended to connect I-80 (Bay Bridge) to the Golden Gate Bridge (U.S. Highway 101) by cutting through Golden Gate Park. However, the freeway was never completed as a citizen-led revolt in 1966 halted freeway construction.

Figure 1: Diagram of the location of the Central Freeway



Source: Central Freeway Replacement Project

On October 17, 1989, the Loma Prieta earthquake hit the Bay Area causing severe damage throughout the region. The 6.9-magnitude earthquake damaged a number of freeways in the Bay Area, one of which was the Central Freeway. The resulting damage to the structure raised safety concerns and the California Department of Transportation (Caltrans) demolished the unsafe portions of the structure. The remaining sections were left intact as under California state law Caltrans could not rebuild the remaining portion of the freeway without the City of San Francisco's approval.

With the remaining portion of the freeway now structurally unsound, the issue of whether or not to rebuild the freeway was raised, igniting the start of the public debate. Over the next five years discussion over what to do with the Central Freeway occurred primarily within the confines of the formal governmental process, as the City of San Francisco along with a number of other agencies and newly created task forces, conducted a number of studies to evaluate feasible alternatives. While the public was involved to a lesser degree in this decision making process, the debate was fully pulled into the public arena in 1997 when the freeway's fate was placed in the hands of San Francisco citizens by way of the city's referendum process.

By collecting the necessary<sup>76</sup> signatures, freeway supporters were able to place a proposition on the November 1997 ballots, which called for the replacement of the western terminus the Central Freeway with a four-lane, single-deck elevated structure over Market Street to Fell Street. The voters of San Francisco passed the proposition (Proposition H) catching anti-freeway activists off-guard<sup>77</sup>. In reaction to the passage of Proposition H, residents in the neighborhoods adjacent to the freeway sponsored a 1998 measure, Proposition E, which would authorize Caltrans to build a four-lane surface boulevard at Octavia Street. Proposition E was approved by San Francisco voters in the November 1998 election. In November 1999, the two sides came to a head by placing competing measure on the ballot. Proposition I, which would repeal Proposition E and allow Caltrans to resume retrofitting the structure, was countered with Proposition J, which called for an at grade boulevard along Octavia Street. The result of the November election was the passage of Proposition J or the Octavia Boulevard Alternative, by 54.4 percent of voters.

---

<sup>76</sup> According to city guideline, 20,791 valid signatures (10% of the votes cast for the Mayor in the preceding regular municipal election) must be submitted.

<sup>77</sup> MacDonald, Elizabeth. "Building a Boulevard." *Access*, no. 28 (Spring 2006) p 4.

In 2003 the freeway was demolished, and the new Octavia Boulevard and the new Central Freeway touchdown ramps at Market Street opened to traffic on September 9, 2005.

Figure 2: Plan for Octavia Boulevard



Source: Central Freeway Replacement Project

Replacement of the Central Freeway with Octavia Boulevard created a number of vacant land parcels previously occupied by freeway structure. By combining the existing Octavia Street with the Central Freeway right-of-way, approximately 86,923 square feet or 2 acres of additional developable parcels, are now available for other uses.<sup>78</sup> These parcels fall under the City and County of San Francisco’s jurisdiction and is has dedicated the revenue from the sale of these parcels for the implementation of Ancillary Projects in the area. According to the most recent projections, the sale of the vacant parcels will generate an estimated \$5.75 million in revenue.

In addition to generating revenue for neighborhood improvement projects, the removal of the Central Freeway has also resulted in a number of benefits for the Hayes Valley neighborhood and surrounding areas. Firstly, the demolition of the freeway has greatly reduced the negative environmental and traffic impacts upon residents while also removing a huge physical and visual barrier that separated a neighborhood for decades. Secondly, Hayes Valley has seen a surge in new development in the form of housing upgrades, infill development, and commercial development.

Lastly, the design of Octavia Boulevard provided an opportunity to create new public amenities

Figure 3: Hayes Green (2007)



<sup>78</sup> California Department of Transportation, District 4 and City and County of San Francisco. *Central Freeway Replacement Project NEPA Reevaluation: Final Report*. San Francisco, June 8, 2000. p 29.

in the form of Hayes Green, a public park that was developed as a transition zone between Octavia Boulevard and the surrounding city grid.

Figure 4: Looking north on Octavia Boulevard (2007)



Figure 5: Looking north at the Central Freeway (1990s)



## Timeline of Key Events

- 1959 Caltrans builds the Central Freeway
- 10/89 Loma Prieta Earthquake damages the Central Freeway
- 1990 Caltrans provides temporary support on the portion of the structure from Mission Street to Fell Street
- 9/91 California State Senate passes SB 181, prohibiting Caltrans from repairing or replacing the freeway without the City of San Francisco's endorsement
- 2/92 Caltrans demolishes the Franklin/Gough on and off-ramps
- 7/92 Board of Supervisors (BOS) adopts Resolution 541-92, calling for no new ramps above ground north of Fell Street
- 1/94 Board of Supervisors adopts Resolution 9-94, requesting the Mayor to urge Caltrans to delay the retrofit of the freeway until alternatives can be studied
- 2/94 Board of Supervisors appoints the Hayes Valley/Western Addition Transportation Task Force
- 6/94 The Task Force votes to reject Caltrans' retrofit plan
- 12/94 Board of Supervisors changes the Task Force's name to the Central Freeway Citizens' Advisory Task Force and expands representation
- 3/95 Caltrans sponsors a study to design alternatives and asks the Task Force to select a preferred alternative in six months
- 10/95 Task Force selects Alternative 8 as the preferred alternative
- 10/95 Board of Supervisors adopts resolution 869-95, encouraging Caltrans to begin the environmental review process for Alternatives 3, 8 and the retrofit alternative
- 11/95 Wilbur Smith Associates releases the *Central Freeway Areawide Traffic Study* for the Department of Parking and Transportation.
- 8/96 Caltrans closes the on and off-ramps at Fell Street and Oak Street for demolition of the upper deck
- 12/96 Caltrans completes demolition of the upper deck of the Fell and Oak Street ramps
- 4/97 Caltrans reopens Fell Street off-ramp.

- 4/97 Caltrans publishes the Environmental Assessment for Alternatives 1A, 1B, 8B, 10, and a No Build Alternative
- 5/97 Systan, Inc. publishes the *Central Freeway Evaluation Report* outlining the effects of the temporary closure of the freeway for demolition of the upper deck
- 8/97 Transportation Authority Board requests SAR on Central Freeway alternatives
- 11/97 San Francisco residents vote on and approve Proposition H
- 11/97 San Francisco BOS votes to endorse Proposition H and approves a retrofit plan
- 03/98 Caltrans releases the *Environmental Assessment/Finding of No Significant Impact (FONSI) and Response to Public Comment for the San Francisco Central Freeway Replacement Project*
- 07/98 Caltrans began retrofitting the remaining structure
- 11/98 San Francisco residents vote on and approve Proposition E, repealing Proposition H
- 06/99 *Conceptual Design and Preliminary Engineering Report, Central Freeway Replacement Project Octavia Boulevard Alternative* completed
- 07/99 *Supplemental Report – Preferred Alternative Central Freeway Replacement Project Octavia Boulevard Alternative* completed.
- 11/99 San Francisco residents vote on two competing measures, Proposition I and Proposition J
- 11/99 Voter approve Proposition J
- 12/99 Draft National Environmental Policy Act (NEPA) evaluation completed
- 06/00 Final National Environmental Policy Act (NEPA) evaluation completed
- 2003 Central Freeway ramp north of Mission Street is demolished
- 2004 Construction on the new Octavia Boulevard begins
- 9/05 New Octavia Boulevard and Central Freeway touchdown ramps at Market Street open to traffic



## Section 2: Case Specifics

### Infrastructure

#### *Function*

San Francisco's Central Freeway ran from I-80/U.S.-101 over Market Street into the Hayes Valley/Western Addition neighborhood. It connected with I-80, providing access to the East Bay via the Bay Bridge, and U.S. Route 101 which serves as the connector to the Peninsula. Under the original scheme, the freeway was intended to run north to the Golden Gate Bridge and west to Golden Gate Park, however the freeway revolt halted the project in 1966 and forced the freeway to terminate just west and north of the Civic Center with on- and off-ramps at Franklin, Gough, Oak and Fell Streets.

The Central Freeway served as a connector between the Bay Bridge/I-80 and four city streets: an east-west one-way couplet consisting of Fell and Oak Streets, and a north-south one-way couplet consisting of Gough and Franklin Streets. Historically, these one-way streets served to connect the Central Freeway with the Haight, Sunset, Richmond, and Marina districts.

#### *Design*

The 0.8 mile portion of the structure running between I-80 and Mission St was a single-deck elevated steel viaduct. The remaining portion (0.55 miles) from Mission to its terminus at Oak and Fell streets was a double-deck concrete structure. On the double-deck portion of the freeway there were two lanes running in each direction for a total of four lanes.

#### *Usage*

Prior to the earthquake, the Central Freeway carried 100,000 vehicles per day<sup>79</sup> over Market Street. Structural damage required the demolition of the U.S.-101 ramps leading to Franklin and Gough Streets in late 1991/early 1992. As a result, the number of vehicles per day traveling over Market Street dropped to 80,000.

---

<sup>79</sup> Department of Parking and Traffic City and County of San Francisco. *Central Freeway Area-wide Traffic Study*. Wilbur Smith Associates, et al. San Francisco, November 1995.

In 1997 Caltrans completed the Central Freeway Evaluation Report, which provided a comparison between pre-closure traffic patterns and post-closure traffic patterns. Prior to the closure of the freeway San Francisco residents accounted for 47.8 percent of all the vehicles on the Fell Street and Oak Street ramps, with 14.5 percent of the vehicles registered in San Mateo County, 14.1 percent from Alameda County, and 7.4 percent from Contra Costa County.<sup>80</sup>

Based on a survey conducted for the report, nearly all the drivers from outside the City of San Francisco who used the Central Freeway had final destinations in the city, with only 22 percent using the freeway to pass through the city on their way to various destinations in the South Bay.

### *Condition of Infrastructure*

As a result of the 1989 Loma Prieta earthquake, portions of the Central Freeway were damaged to such a degree that the roadway posed a public safety risk and were closed off and later demolished. The remaining sections were constructed in such a way that they did not meet the seismic standards of the time which, meant that they would have to be retrofitted, rebuilt, or demolished.

### *Site*

The Central Freeway cut directly through a residential neighborhood, of Victorian-era homes, located adjacent to the Civic Center. The Civic Center houses a number of government offices, the public library, opera house, theaters and the symphony hall.

### Transportation Network

San Francisco was relatively well served by public transportation at the time of the earthquake. The San Francisco Bay Area Rapid Transit (BART) system, provided regional rail service that connected downtown San Francisco to the East Bay including Richmond in the north, Pittsburg/Bay Point in the Northeast, Dublin/Pleasanton in the west, and Fremont in the South Bay. In addition BART connected with Caltrain, which provides service to San Jose, Palo Alto,

---

<sup>80</sup> California Department of Transportation, District 4. *Central Freeway Evaluation Report*. Systan, Inc., et al. San Francisco, May 1997, p 1-5

and other cities in the South Bay. In total, BART currently has 43 stations and covers 104 miles.<sup>81</sup> San Francisco City was also served by MUNI, the local bus and light-rail service.

## Social

In comparison to the City as a whole, the Hayes Valley neighborhood (Census Tract 162.98) has a lower median household income and approximately 25 percent of the population falls below the poverty line.<sup>82</sup> The concentration of minority residents is higher in Hayes Valley compared with the citywide number. 23 percent of residents are Hispanic and 19 percent are African American.

Before the earthquake, many of the housing units were also occupied by young professionals who couldn't afford upscale neighborhoods such as Noe Valley or the Castro. The neighborhood was plagued by problems, such as prostitution and drug dealing, which often took place close to the freeway.<sup>83</sup>

## Process

### *Decision-Making Process*

#### *1989–1994*

Initially following the earthquake Caltrans maintained its jurisdiction over the Central Freeway. However in September, 1991, the California State Senate passed Senate Bill 181, turning control of the freeway over to the City of San Francisco. The bill prohibited Caltrans from repairing or replacing U.S.-101 unless the city approved a selected alternative.<sup>84</sup> In response to SB 181, Caltrans demolished the seismically unstable ramps at Franklin and Gough, while the future of the remaining freeway sat in limbo. It was at this point that Hayes Valley residents got their first taste of what their neighborhood could be like without the presence of the freeway, and began to consider that perhaps the freeway shouldn't be rebuilt. However, it would be several years before that thought would be given serious consideration.

---

<sup>81</sup> Bay Area Rapid Transit website, [www.bart.gov](http://www.bart.gov)

<sup>82</sup> NEPA Reevaluation (2000), p 28 – The original source of the data is unclear as is the date when this data was collected, but it would be sometime in the 1990's

<sup>83</sup> King, John. "15 Seconds That Changed San Francisco." The San Francisco Chronicle, October 20, 2004, A1.

<sup>84</sup> Text of Proposition E ballot measure

With the decision of what to do with the remaining structure placed into the city's hands, the Board of Supervisors<sup>85</sup> assumed responsibility for moving the decision making process forward. After holding several public hearings on the prospect of freeway replacement, the Board of Supervisors approved resolution 541-92 in July 1992. This measure made it city policy not to build any new above-ground ramps to the Central Freeway north of Fell Street to replace the sections that Caltrans had previously demolished.<sup>86</sup> In light of this decision the city obtained funding to conduct a study of alternatives for the future of the freeway and in particular the traffic problems that had arisen with the termination of the freeway at Fell and Oak Streets.

With a study underway, the San Francisco Board of Supervisors (BOS) adopted resolution 9-94 in January 1994, asking Mayor Frank Jordan to persuade Caltrans to delay the retrofit process of the Central Freeway in order to allow the study to be completed. Though the State of California had given the City final say on what alternative was to be selected, Caltrans had continued to work on a design for the seismic retrofit of the Central Freeway.

In response to Caltrans' actions and to better involve the public in the evaluation process, the BOS established the Hayes Valley/Western Addition Task Force, which comprised 17 residents from Hayes Valley and the Western Addition neighborhoods, to evaluate the future of the Central Freeway. One of the Task Force's first actions was a vote in June, 1994, to reject Caltrans' retrofit plan.

By August 1994, the first phase of the study commissioned by the city was complete. Notably, one of the report's conclusions was that the city and Caltrans should examine alternatives to a simple retrofit of the freeway structure. As a result, Caltrans agreed to fund the next phase of the study and hired Wilbur Smith Associates, a transportation and infrastructure consulting firm, to

---

<sup>85</sup>The Board of Supervisors is the legislative branch of the City and County of San Francisco. The Board consists of 11 members and each member is elected on a non-partisan basis from the district where they reside. As the legislative branch of the City and County of San Francisco, the Board Supervisors establishes city policies and adopts ordinances and resolutions.

<sup>86</sup> Final Report: Central Freeway Areawide Traffic Study, (1995), p 1-2.

define alternatives for the Central Freeway. However, Caltrans requested that a finding be made no more than six months after the study started.<sup>87</sup>

### *The Creation of the Task Force and the First Round of Alternatives*

In going forward with Phase 2<sup>88</sup> of the Central Freeway Areawide Traffic Study, the BOS appointed the Hayes Valley/Western Addition Transportation Task Force to act as the liaison to the public as well as evaluate alternatives and recommend a preferred alternative. Furthermore, the BOS expanded representation of the task force from 17 to 30 members in order to include residents from the following neighborhoods: South of Market, Richmond, Panhandle, Sunset, Mission, Haight, and South Van Ness. In addition, one representative from the American Institute of Architects, San Francisco Beautiful and the San Francisco County Transit Authority (SFCTA), an urban design professional, and four at-large members were also on the task force.<sup>89</sup> Lastly, the name of the task force was changed to the Central Freeway Citizens Advisory Task Force (Task Force).

Task Force became the main vehicle for community participation in the decision-making process. Ten task force meetings were held between April and September 1995, which were open to the public and were working sessions with the consultant teams, representatives from various city departments, and Caltrans. Two Saturday design charrettes were held in April 1995 as well.<sup>90</sup>

In addition to soliciting public input, Task Force was charged with selecting the preferred alternative of traffic and transit improvements for the Central Freeway. Task Force evaluated eight alternatives in detail based on the following criteria: minimizes negative visual impacts, promotes neighborhood cohesion, maximizes the reclamation of freeway land for housing, open space and local commercial uses, promotes multimodalism, accommodates traffic circulation, and promotes a healthy environment.<sup>91</sup> Within each category of criteria were a number of specific elements which Task Force was to give a grade.

---

<sup>87</sup> Ibid. p 1-2.

<sup>88</sup> Phase Two began in March 1995

<sup>89</sup> Ibid. p 2-1.

<sup>90</sup> Ibid. p 2-1, 2-2.

<sup>91</sup> Final Report: Central Freeway Areawide Traffic Study, (1995), p 2-4.

Of the eight alternatives proposed in the study, none considered the replacement of the freeway with an at-grade roadway. Rather the alternatives called for either the preservation of an elevated structure in some form, the creation of a tunnel or a hybrid of these two ideas.

After completing a traffic analysis for each of the eight alternatives and evaluating each one in regards to the criteria set forth by Task Force, two preferred alternatives were selected. The first preferred alternative, endorsed by the consultant, was Alternative 3 – Low Single Deck Freeway Depressed North of Market Street. The consultant team recommended this alternative as it would meet the traffic conditions prior to the earthquake while being more environmentally sensitive, it would minimize increased traffic on city streets and construction impacts on the surrounding area, and the below grade roadway north of Market Street would improve the physical environment of the neighborhood.<sup>92</sup>

The second preferred alternative, endorsed by the Task Force, was Alternative 8 – South of Market Refinement. Alternative 8 was similar to Alternative 3 with two major exceptions: an at-grade intersection with the freeway at Market Street and a new off-ramp at South Van Ness Avenue rather than at Mission Street. The reasons cited for endorsing this alternative, were that this alternative provided a clear visual corridor along Market Street and that it “routed exiting northbound traffic along South Van Ness Avenue rather than Mission Street, providing potential for fewer conflicts with Mission Street Transit.”<sup>93</sup>

#### *The Public Takes Control over the Decision-Making Process: 1996 - 1998*

However, the Task Force’s recommendations had little impact and were brushed aside as Caltrans pushed forward. In 1996 Caltrans began demolition of the upper deck of the Fell and Oak Street ramps in preparation for renovating the lower deck as a state seismic panel had determined that the double-deck design of the freeway was potentially dangerous and could collapse.

---

<sup>92</sup> Ibid. p 7-1.

<sup>93</sup> Ibid. p 7-3.

However, in order to do so the freeway had to be shut down temporarily while the work was completed. As people braced themselves for gridlock during commute hours, the unexpected happened; nothing. The commute went fine and suddenly the idea of taking down the on and off-ramps north of Market Street didn't seem so crazy. As a result, Mayor Willie Brown even went so far as to call for the Central Freeway north of Market Street to be torn down permanently.<sup>94</sup>

By the time the Fell Street off-ramp reopened in April 1997 the future of the freeway was in limbo as a number of citizens had turned out for a Caltrans meeting only to tell the agency that "they were dissatisfied with the five options that the state and federal government and federal officials have offered, [telling] state officials to go back to the drawing board."<sup>95</sup> The purpose of the meeting was to help Mayor Willie Brown and the BOS select one of the five alternatives, but because the city was so divided over the freeway no immediate decision was made.

As a result, the citizens of San Francisco decided to take matters into their own hands by turning to the referendum process.

Within the City and County of San Francisco the referendum process is a powerful tool that allows voters to nullify an ordinance involving legislative measures that has been approved by the Board of Supervisors. Any person who is a registered San Francisco voter can circulate a referendum petition. Typically, the proponent of the referendum must submit at least 20,791 valid signatures (10 percent of the votes cast for the Mayor in the preceding regular municipal election). If the Board of Supervisors does not repeal the ordinance, it is submitted to the voters at the next general municipal election or a special election. The operation of the ordinance is then suspended until approved by the voters.<sup>96</sup> Since the BOS had previously passed a resolution calling for a halt on freeway construction until alternatives could be evaluated, this tool was one way for pro-freeway supports to get construction started again.

---

<sup>94</sup> King, (Oct 24, 2004), A1.

<sup>95</sup> Barnum, Alex. "All Options for Central Freeway Draw Wrath in S.F." *The San Francisco Chronicle*, April 24, 1997, A19.

<sup>96</sup> Guide to Filing Referenda, Department of Elections, City and County of San Francisco

In November 1997, San Francisco voters were asked to weigh in on the Central Freeway's future. Proposition H was spearheaded by The Coalition to Save the Central Freeway, an alliance of residents living in the Sunset and Richmond districts<sup>97</sup>, with the support of Supervisor Leland Yee. They were concerned over reduced access from their neighborhood to I-80 if the freeway was not rebuilt.<sup>98</sup>

Proposition H called for the replacement of the western terminus the Central Freeway with a four-lane, single-deck elevated structure over Market Street to Fell Street. Proposition H also repealed the BOS's ban on above-ground ramps north of Fell Street.

Not surprisingly residents of Hayes Valley and other neighborhoods in the near vicinity of the freeway voted against the measure, however their strong turnout was still not enough to sway the vote in their favor and Proposition H passed by a margin of 53 percent to 47 percent.<sup>99</sup>

With the public showing support for the retrofit and widening of the Central Freeway, the BOS voted 10 to 1 to adopt a resolution formally endorsing the Proposition H Central Freeway plan and approved a \$67 million plan to retrofit the freeway.<sup>100</sup>

While Caltrans began work on the retrofit, the debate was far from over, as a new anti-freeway movement began to grow. The approval of Proposition H had caught anti-freeway activists and Hayes Valley residents off-guard<sup>101</sup> and had acted as a mobilizing force for the neighborhood. In response to Proposition H, residents produced a counter initiative, Proposition E, and collected the required signatures, placing the measure on the November 1998 ballot.

Proposition E would the repeal 1997s Proposition H, authorizing Caltrans to replace the Central Freeway with a new four-lane, two-way, single-deck elevated structure from Mission Street to

---

<sup>97</sup>King, (Oct 20, 2004), A1

<sup>98</sup> Phone interview with Elizabeth MacDonald, Assistant Professor, University of California, Berkeley, February 2, 2007.

<sup>99</sup> Epstein, Edward and Ramon G. McLeod. "New S.F. Voter Bloc Shows Clout: Chinese Americans were key to retrofit ballot victory." *The San Francisco Chronicle*, November 16, 1997, A19.

<sup>100</sup> Wilson, Yumi. "Central Freeway Retrofit Passes: Supervisors OK \$67 million plan." *The San Francisco Chronicle*, November 25, 1997, A15.

<sup>101</sup> MacDonald, (Spring 2006), p 4.



Market Street and a ground-level, four-lane boulevard along Octavia Street from Market Street to Fell Street with two additional lanes for local traffic. Proposition E would also reinstate the BOS's policy not to build any new above-ground ramps to the Central Freeway north of Fell Street that had been repealed under Proposition H.<sup>102</sup>

How did the residents come up with the idea of a boulevard replacement? At the time, Allan Jacobs and Elizabeth MacDonald, both professors at the University of California, Berkeley were conducting general research on the use of boulevards as a tool to deal with fast moving traffic in urban areas. Having heard of their work, Hayes Valley residents used MacDonald and Jacob's research as the base for the Octavia Boulevard Alternative.<sup>103</sup>

In November 1998, San Francisco citizens voted in favor of Proposition E and the subsequent repeal of Proposition H, 54 percent to 46 percent<sup>104</sup>; a victory for the residents of Hayes Valley. Caltrans stopped design work for the retrofit and widening of the freeway, despite having already spent \$10 million on the job.<sup>105</sup>

After the passage of Proposition E, the BOS remained divided over the future of the freeway. In response to this division, Supervisor Tom Ammiano introduced a proposal that called for the establishment of a Central Freeway Project Office (CFPO).<sup>106</sup> The CFPO would take the reconstruction out of Caltrans hands and become the project manager; overseeing the implementation of the boulevard alternative, supervising and coordinating the various city departments and agencies that would be involved (Department of Parking and Transportation, Planning Dept., and Redevelopment Agency), and administering project funds. This newly

---

<sup>102</sup> Text of Proposition E

<sup>103</sup> Phone interview with Elizabeth MacDonald, (February 2, 2007).

<sup>104</sup> King, (Oct 20, 2004), A1.

<sup>105</sup> Levy, Dan. "S.F. Voters to Decide Central Freeway's Fate –Again." *The San Francisco Chronicle*, October 27, 1999, A17.

<sup>106</sup> Epstein, Edward. "Battle Joined Over Fate of Freeway; S.F. board at loggerheads after passage of Prop. E." *The San Francisco Chronicle*, November 17, 1998, A17.

created office would report to the San Francisco Transportation Authority, who oversaw project finances and the Citizens Advisory Committee (CAC)<sup>107</sup>.

The organizational structure of this office was modeled after the Waterfront Transportation Projects Office, which was created to oversee the replacement of the Embarcadero Freeway after the 1989 Loma Prieta earthquake.

### *The Government Carries out the Public Will*

In March of 1999, the establishment of the CFPO<sup>108</sup> was formalized by the BOS. The new agency was tasked with preparing the necessary design, engineering and environmental review documents to build the Octavia Boulevard portion of the Central Freeway Replacement Project (the "Octavia Boulevard Plan") as approved by Proposition E. Caltrans would be responsible for designing and constructing the new elevated structure between Mission and Market Streets.<sup>109</sup> The San Francisco Transportation Authority<sup>110</sup> in consultation with the San Francisco Planning Department would ensure that Octavia Boulevard Plan meet environmental compliance regulations.

Over the next several months, the CFPO in cooperation with Citizens Advisory Committee and the Transportation Authority, worked to develop the conceptual design for the Octavia Boulevard Alternative. The firm Jacobs Macdonald: Cityworks, headed by Allan Jacobs and Elizabeth Macdonald, was hired to prepare the design. Jacobs and Macdonald put together a design team which consisted of "a planner from the Department of Parking and Traffic, two civil

---

<sup>107</sup> The CAC is distinct from the Task Force. The CAC is made up of residents and reports to the Transportation Authority

<sup>108</sup> The Central Freeway Project Office was under the San Francisco Public Works Department

<sup>109</sup> The division of labor was per an agreement between Caltrans and the City of San Francisco made in April 1999. Two construction contracts were used to implement the Central Freeway Replacement Project. Caltrans was responsible for overseeing the demolition of the elevated structure and construction of the replacement structure south of Market Street. The City of San Francisco was responsible for constructing Octavia Boulevard and other surface street improvements. The construction contracts were coordinated between Caltrans and the City of San Francisco minimize the construction time.

<sup>110</sup> The Transportation Authority was also responsible for coordinating with Caltrans, the Department of Public works, the Department of Parking and Traffic and the Mayor's Office of Economic and Workforce Development.

engineers and three landscape architects from the Department of Public Works, and three project managers from the Central Freeway Office.”<sup>111</sup>

Throughout the design process the Transportation Authority acted as a liaison to the Central Freeway Project Office and CAC to ensure full input from City residents. Moreover, a series of three community workshops were held in May 1999 which allowed the public to provide feedback on the design process.

In June 1999, the *Conceptual Design and Preliminary Engineering Report, Central Freeway Replacement Project Octavia Boulevard Alternative* was completed. The document identified three different approaches for configuring the local access roads. Working together the CFPO, CAC, and the BOS came to a consensus on the preferred alternative and in July 1999, the *Supplemental Report – Preferred Alternative Central Freeway Replacement Project Octavia Boulevard Alternative* was completed.

The design and implementation of preferred alternative was then prepared and documented in *Central Freeway Replacement Project Octavia Boulevard Alternative Supplemental Report – Preferred Alternative*, written by the CFPO in cooperation with the Department of Public Works and the City and County of San Francisco.<sup>112</sup> Later that month (July 1999), the Transportation Authority officially accepted the *Conceptual Design and Preliminary Engineering Report for the Central Freeway Replacement Project Octavia Boulevard Alternative*.

#### *The Two Sides of the Debate Face-Off: November 1999*

As the city moved forward with the planning process for the new Octavia Boulevard, supporters for rebuilding the Central Freeway were gearing up for one last fight at the polls. The fate of the Central Freeway again became uncertain when pro-freeway forces gathered more than twice the

---

<sup>111</sup> MacDonald, (Spring 2006), p 5.

<sup>112</sup> Central Freeway Project Office, Department of Public Works, and City and County of San Francisco. *Central Freeway Replacement Project Octavia Boulevard Alternative: Supplemental Report – Preferred Alternative*. San Francisco, July 12, 1999.

required number of signatures<sup>113</sup>, placing the third referendum regarding the future of the Central Freeway on the November 2, 1999 ballot.

Proposition J, backed by Sunset residents, Supervisor Leland Yee, and San Franciscan's for Transportation Solutions, called for the repeal of Proposition E and authorized Caltrans resume retrofit work on the lower deck of the Central Freeway as well as construction on two additional traffic lanes over Market Street from South Van Ness Avenue to Oak Street and Fell Street. Proposition J also required the City to hold quarterly meetings on improving transportation in San Francisco and to develop an annual comprehensive transit plan. Lastly, a stipulation that Proposition J could only be amended or repealed by a two-thirds vote of the voters rather than a simple majority vote was added.<sup>114</sup> This last point was added with the intention of ending the debate, since it would be difficult to get necessary two-thirds vote to pass a counter measure.

Hayes Valley residents, Committee to Rebuild the Boulevard, and Supervisors Leslie Katz, Tom Ammiano, Mark Leno and Sue Bierman<sup>115</sup>, endorsed a counter measure, Proposition I. Similar to Proposition E, this measure would authorize Caltrans to build Octavia Boulevard. Based on the schematic design work that had already been done by Cityworks, San Francisco voters were able to envision what the proposed boulevard would look like.

The November 1999 election was distinct from the previous two elections as it was the year of the mayoral election. Supervisor Tom Ammiano had decided to run as a write-in candidate, partly because of his efforts to win approval for Proposition I.<sup>116</sup> As the representative for District 9, which encompasses parts of the Mission, Bernal Heights and Portala neighborhoods, he had the support of a number of residents living in the Castro, a neighborhood adjacent to Hayes Valley. According to Ammiano “the write-in candidacy prompted people to come out and vote.”<sup>117</sup> Though, Ammiano placed second (with 25 percent of the votes) behind Willie Brown (39 percent) his presence on the ballot played an important role in the passage of

---

<sup>113</sup> Epstein, Edward. “Yaki Wants Spending for Freeway Held Up.” *The San Francisco Chronicle*, July 14, 1999, A11.

<sup>114</sup> <http://www.smartvoter.org/1999nov/ca/sf/meas/J/>

<sup>115</sup> Levy, (October 27, 1999), A17.

<sup>116</sup> Wilson, Yumi. “Boulevard Plan Takes Lead in S.F.; Central Freeway retrofit now trailing in vote count.” *The San Francisco Chronicle*, November 4, 1999, A21.

<sup>117</sup> *Ibid.* p A21.

Proposition I, in that the additional voters who were mobilized were likely in favor of Octavia Boulevard.<sup>118</sup>

After years of debate and four initiatives, the citizens of San Francisco voted once and for all to replace the Central Freeway with a boulevard.

### *Decision-Making Structure*

Throughout the numerous stages of the decision-making process, the San Francisco Board of Supervisors (BOS) played a central role. In the first few years following the earthquake, the BOS was responsible for the creation of the Central Freeway Citizens Advisory Task Force in 1994, and overseeing the development of alternatives. The BOS was also responsible for passing a number of resolutions which helped guide the future of the Central Freeway, such as callin for no new ramps above ground and encouraging Caltrans to consider the recommendations of the Task Force.

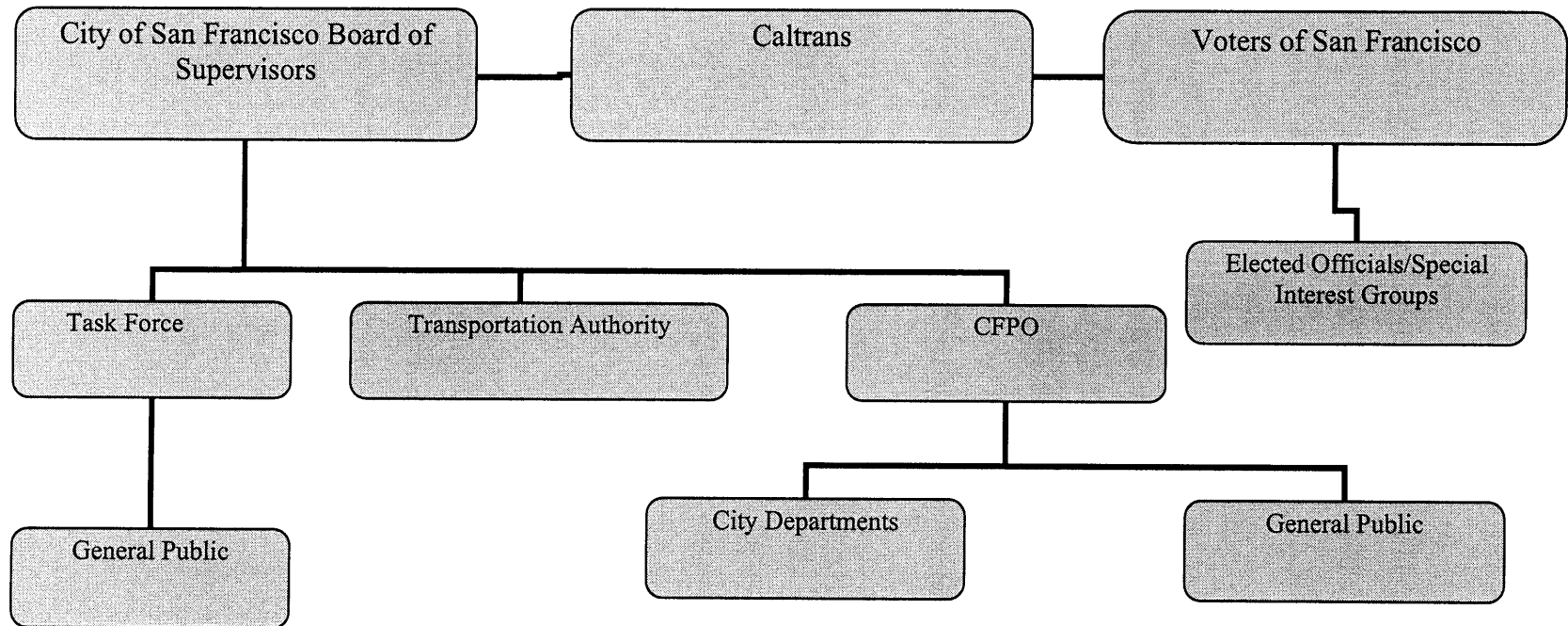
California State Senate Bill 181 left the decision of what to do with the Central Freeway up to the City of San Francisco however, that did not prevent Caltrans from pursuing its own agenda. Caltrans provided funding for phase two of the development of alternatives study and asked the Task Force evaluate the alternatives and identify the preferred alternative. Nevertheless, they didn't take the city's viewpoint too seriously. In fact, after the Task Force presented its preferred alternative, Caltrans initiated another study of alternatives.

The general public's role was initially limited to providing input and feedback through the Task Force and later the CAC. However, as time passed and people become more and more frustrated with how slowly process was progressing, neighborhood groups, special interest groups, and elected officials rallied behind a number of propositions. While, the propositions were developed by the aforementioned groups, the final decision was left up to the voters of San Francisco.

---

<sup>118</sup> Phone interview with Elizabeth MacDonald, (February 2, 2007).

Figure 6: Decision-Making Structure in San Francisco



## Financing

### *Funding Sources*

Following the Loma Prieta earthquake, Congress appropriated \$1 billion in federal Emergency Relief funds for transportation repair and replacement assistance throughout Northern California. The Federal Highway Administration, in cooperation with Caltrans, allocated \$40 million in Emergency Relief funds for the Central Freeway, an amount that was estimated to be sufficient in covering the costs of seismically upgrading the structure. The allotment of this funding was contingent on the selection of a replacement alternative that met the Federal Highway and Caltrans' requirements that there be "functional replacement of the original project; maintenance of roadway capacity; and no ancillary improvements beyond the functional replacement of the original project."<sup>119</sup> After demolition of the unsafe portions and the temporary shoring of the remaining structure, only \$27 million of the original \$40 million remained.<sup>120</sup>

In 1992, the City obtained funding for Phase 1 of a Central Freeway Areawide Traffic Study. The study was conducted by the Department of Parking and Traffic in conjunction with a number of consultants, and it looked at the future of the freeway, particularly the traffic problems caused by the termination of the freeway at Fell Street and Oak Street. After completion of Phase 1, Caltrans agreed to fund Phase 2 of the study.

In September 1999, Senate Bill 798<sup>121</sup> was enacted, which called for the designation of the portion of route 101 north of Market Street as a state highway if the voters approved the Octavia Boulevard Alternative (Proposition I) in the November 1999 election. If Proposition I passed, the state would transfer any portion of route 101 that was no longer designated as a state highway to the City. Proceeds from the sale of any excess right-of-way would be used to finance the design, construction, development and maintenance of the Octavia Boulevard Project.

---

<sup>119</sup> Final Report: Central Freeway Areawide Traffic Study, (1995), p 6-1.

<sup>120</sup> Ibid.

<sup>121</sup> "Existing law requires the California Transportation Commission to relinquish to any city or county any portion of any state highway within the city or county that has been deleted from the state highway system by legislative enactment. This bill would relinquish to the City and County of San Francisco (city) a specified portion of State Highway Route 101 and would specify that the Department of Transportation retains jurisdiction over another specific portion of Route 101." Senate Bill 798

In 2001, the City and County of San Francisco and Caltrans came to an agreement; the city would be responsible for building the five-block long Octavia Boulevard and in return Caltrans would give the City 7 acres of freeway right-of-way.<sup>122</sup>

### *Funding Mechanism*

Funding for Octavia Boulevard was administered by the San Francisco County Transportation Authority; an agency created under California state law that is a separate legal entity from the City and County of San Francisco. The Transportation Authority was created to administer the proceeds of Prop B, a local sales tax for transportation, approved by voters in 1989. As administrators of the tax the Transportation Authority is responsible for prioritizing the funding and allocating it to eligible projects.

The Transportation Authority was the main fiscal agent for the Central Freeway, programming all the state and federal funds that were received for the project.

### *Costs*

The Octavia Boulevard construction project was projected to cost \$25 million to \$35 million.<sup>123</sup>

---

<sup>122</sup> Gordon, Rachel. "Vote on deal to replace freeway; Central is S.F.'s enduring quake scar." *The San Francisco Chronicle*, Oct 15, 2001, A11.

<sup>123</sup> *Ibid.*





## CHAPTER FIVE: Case 2 – Park East Freeway, Milwaukee

### Section 1: Background

Built in the early 1960s, the Park East Freeway was a 0.8 mile long elevated freeway that carried 40,000 vehicles per day<sup>124</sup> along the northern edge of downtown Milwaukee. The original intention was that the Park East would be part of Interstate 43 freeway however, like the Central Freeway in San Francisco, it was never completed due to the local freeway revolt in the 1970s, that halted construction.

In 1981, the State of Wisconsin official removed the un-built portion of the Park East from the State Trunk Highway System in a process called "de-mapping." As a result, roughly half of the Park East Freeway was completed and what exists today is merely a remnant of an abandoned plan to circle the entire downtown with freeways.

By the early 1990s the freeway was deteriorating and it was reaching the end of its useful life. The cost of necessary repairs was estimated at \$80 million.<sup>125</sup> Mayor John Norquist (1988 – 2004) began a discussion over what do with this piece of aging infrastructure. As part of the anti-freeway movement in the late 1960s and early 1970s he had come into office with the goal of seeing the Park East Freeway torn down during his tenure as Mayor of Milwaukee. At the time, however, this notion seemed somewhat outrageous, thus began an approximately 15 year fight to win both the public's and government's approval, and the necessary funding.

Over the following years, Norquist and Planning Director Peter Park would work to convince their own city engineers, Common Council<sup>126</sup>, businesses, the public, the governor, and state officials. In 1999, the debate came to an end when the Mayor, the County Executive of Milwaukee County, and the Governor signed an agreement that authorized a portion of ISTEA funding for the demolition of the Park East Freeway.

---

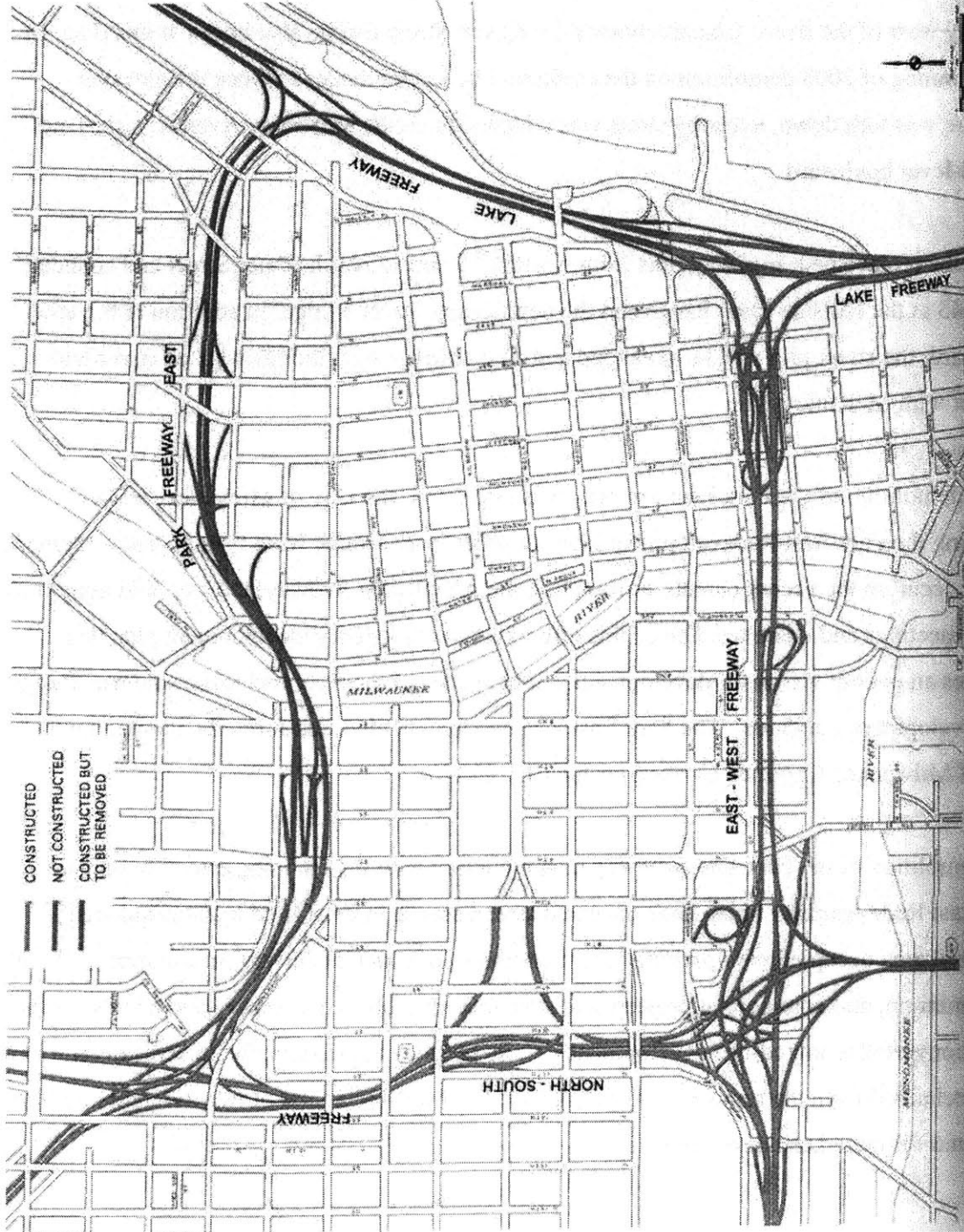
<sup>124</sup> Lange, Larry. "Could Seattle do Without It's Viaduct?" *Seattle Post-Intelligencer*, May 23, 2006.

<sup>125</sup> Schreibman, Lisa. "On a Tear." *Planning* 67, no. 1 (Jan 2001): 10-13.

<sup>126</sup> The equivalent to a City Council in other cities

Figure 7: Proposed Configuration of the Park East Freeway

MULTI-SEGMENT DOWNTOWN LOOP FREEWAY  
PROPOSED IN 1965 PLAN FOR CONSTRUCTION BY 1990



Source: SWRPC

In April of 2002, work started on the removal of the Park East Freeway spur. The first step was the construction of a temporary freeway ramp at the Hillside Interchange. Actual demolition of the westbound lanes began in the summer of 2002 along with the construction of the new roadway west of the river. Construction of the Knapp Street Bridge also began at this time. In the beginning of 2003 demolition on the eastbound lanes commenced. Once the elevated structure was torn down, a nearby street was widened to create McKinley Avenue, a six-lane ground-level boulevard.

Today the replacement roadway runs from North 6<sup>th</sup> Street to North Water Street and connects with I-43 at the Hillside Interchange and the new Knapp Street Bridge. In addition to the new boulevard, the street grid will be expanded and a new bridge over the Milwaukee River will connect with McKinley Ave.

While demolition of the Park East Freeway was underway, the City of Milwaukee began preparing the Park East Redevelopment Plan. In order to determine what type of redevelopment should occur on the vacant parcels surrounding the demolished freeway, the city held numerous public meetings and charettes. Out of this effort came a three part redevelopment plan that provides an overall vision for development and character of the area; including land use, design and development standards. The Park East Redevelopment plan was formally adopted by the City of Milwaukee Common Council on June 15, 2004.

The demolition of the Park East Freeway in conjunction with the planning efforts behind the Park East Redevelopment plan have triggered a renaissance in what used to an abandoned industrial area occupied with parking lots. Construction is now underway on a number of hotel, condominium, and commercial projects and sites that once housed a tannery and a brewery are being converted to mixed-use developments.<sup>127</sup> As of today approximately 26 acres of land have been reclaimed from the removal of the Park East Freeway and a total of twenty-eight city blocks are slated for mixed use development.

---

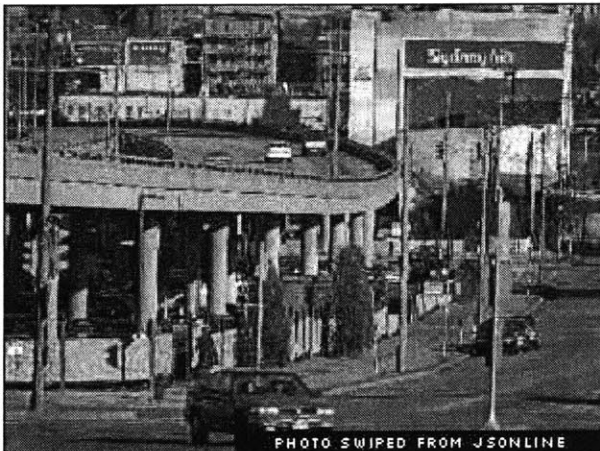
<sup>127</sup> Weiland, Andrew\_–Momentum suddenly builds in the Park East.” *Small Business Times*, March 16, 2007.

Figure 8: Park East Freeway from the north side of downtown Milwaukee (2000)



Source: [www.wisconsinhighways.org](http://www.wisconsinhighways.org)

Figure 9: Elevated Structure



Source: [www.646industries.com](http://www.646industries.com)

## Timeline of Key Events

- 68/69 First section of the Park East Freeway from Hillside Interchange to 4<sup>th</sup> Street completed
- 1971 Second and final section of the Park East Freeway from 4th Street across the Milwaukee River to Jefferson Street completed
- 1977 Ten-year moratorium on all new freeway construction adopted by the Southeastern Wisconsin Regional Planning Commission (SWRPC)
- 1991 Development of the East Pointe Commons by the Mandel Group
- 7/98 “Analysis of Existing Year 2020 Traffic Impacts of the Termination of the Park East Freeway at N. 4<sup>th</sup> Street and Points East” released by the SWRPC
- 1999 Milwaukee Downtown Plan approved
- 6/99 Milwaukee Board of Supervisors approves a resolution endorsing the removal and reconfiguration of the Park East Freeway
- 10/99 City of Milwaukee Common Council approves by resolution the programming and engineering for the Park East Freeway’s removal and reconfiguration
- 8/00 City of Milwaukee Common Council approves by resolution the removal and reconfiguration of the Park East Freeway
- 10/00 “Evaluation of Year 2020 Traffic Impacts of Two New Potential Sixth Street and Fourth Street Termination Options for the Park East Freeway” released by the SWRPC
- 12/00 The results of an alternatives study sponsored by Milwaukee County, City of Milwaukee and Wisconsin DOT released for a public hearing
- 02/01 An amendment to the “Regional Transportation Plan 2020” for the Park East Freeway Corridor released by the SWRPC
- 2002 The City of Milwaukee adopts a tax increment finance district
- 4/02 Removal of the Park East Freeway begins
- 12/03 Park East Redevelopment Plan adopted by the Redevelopment Authority of the City of Milwaukee
- 06/04 Park East Redevelopment Plan adopted by the City of Milwaukee
- 2004 McKinley Ave and Knapp Street Bridge completed
- 06/04 City of Milwaukee Common Council approves the Park East Redevelopment Plan

## Section 2: Case Specifics

### Infrastructure

#### *Function*

Originally the Park East Freeway was designed to connect to a larger network of freeways, beginning at an interchange with the Lake Freeway at Juneau Park in the northeast corner of downtown, moving westward across the northern part of downtown to meet up with North-South Freeway at the Hillside Interchange.

The first portion of the Park Freeway to be completed and open to traffic was the segment from the Hillside Interchange going east to 4th St on the north side of downtown in 1968-69. While the growing anti-freeway movement of the late 1960s and early 1970s lead to the cancellation or reduction of other highway projects, such as the Lake Freeway, work continued on the Park East Freeway and second segment was completed and open to traffic in 1971, beginning at 4th St and continuing to the east across the Milwaukee River to a "temporary" ending at Jefferson St.

In its final state the Park East provided access to the downtown only at three points, 4<sup>th</sup> Street, Broadway and Jefferson Street, leaving it over designed for the level of usage prior to its demolition.<sup>128</sup>

#### *Design*

The Park East Freeway was a 4-lane elevated, steel highway covering approximately 0.8 miles.

#### *Usage*

In 1999, the Park East Freeway carried an estimated 54,000 vehicles on an average weekday between Interstate 43 and North 4th Street; 33,000 vehicles between North 4th Street and North Broadway; and 23,000 vehicles between North Broadway and North Jefferson Street.<sup>129</sup>

---

<sup>128</sup> City of Milwaukee Department of City Development. "Park East Corridor Newsletter." March 2002.

<sup>129</sup> Southeastern Wisconsin Regional Planning Commission. *Amendment to the Regional Transportation Plan-2020: Park East Freeway Corridor*. Waukesha, Feb 2001, p 6.

Of the 54,000 daily trips made on the freeway in 1999, a little over one-half of the trips had an origin or destination east of the Milwaukee River and south of the Park East Freeway in the East Town area of the Milwaukee central business district (CBD). The remaining trips began or ended in CBD west of the Milwaukee River or in the area just north of the CBD.<sup>130</sup> Of the traffic using the Park East Freeway, most was local rather than regional.

### *Condition*

The Park East Freeway, built in the late 1960s and early 1970s, was starting to age and deteriorate. However its condition was stable enough that using the freeway was not a public safety concern.

### *Site*

In preparation for the earlier plans of a vast freeway network, the City had cleared a two-mile, block-wide swath of land in a primarily industrial part of Milwaukee. When the plans for the freeway network were abandoned the vacant land was used as surface parking lots. The use of land for parking was not driven by a huge demand for parking but rather that no other types of uses wanted to be located adjacent to an elevated freeway.<sup>131</sup> Due to the industrial nature of the area, there were no existing businesses or residences in the nearby vicinity until the early 1990s.

In 1991, the Mandel Group built an upscale neighborhood of luxury apartments and condominiums called East Pointe Commons. East Pointe Commons was built on a swath of cleared land at the eastern edge of the freeway, which was made possible by the State of Wisconsin's decision to de-map the corridor. The project was largely successful, both financially with homes selling for \$500,000<sup>132</sup> as well as politically, as the project began to open people up to the redevelopment potential of the area and a vision of what might be possible. In addition to helping shift peoples perceptions of the area, East Pointe Commons showed there was a strong housing market downtown, and in 2000 the assessed value of the once blighted land was almost \$52 million.<sup>133</sup>

---

<sup>130</sup> Ibid. p 10.

<sup>131</sup> Wade, Beth. "Lose a Road, Gain a Neighborhood." *The American City & County* (September 2001): 36.

<sup>132</sup> Schreibman, (January 2001).

<sup>133</sup> City of Milwaukee Department of City Development. "Park East Corridor Newsletter." November 2000.



## Transportation Network

The City of Milwaukee is served by the Milwaukee County Transit System (MCTS) which provides bus service throughout the county. MCTS runs approximately 64 bus routes.

## Social

Due to the industrial nature of the site, no residential units were located in the vicinity of the freeway until the early 1990s and until recently no housing development was adjacent to the freeway.

## Process

### *Decision-Making Process*

#### *Setting the Stage*

Like San Francisco, Milwaukee had a strong anti-freeway movement that started in the 1960s. This movement was responsible for halting the completion of the Park East Freeway as well as several other freeways in the area in the mid-1970s. John Norquist, who would be elected mayor in 1988, was an active member of the anti-freeway movement and a strong political force as he was elected to the Wisconsin State Assembly in 1975 based largely on an anti-freeway campaign.<sup>134</sup> In 1983, he was elected to the state senate where he worked to do everything he could to limit not only the construction of new freeways in Milwaukee, but to also help block what were perceived as improvements and increases in capacity for the system.<sup>135</sup>

From the moment he was elected mayor, Norquist began his campaign to remove the Park East Freeway. Initially he focused his efforts internally with the appointment of Peter Park as the Planning Director in 1993. Park had grabbed Norquist's attention with an urban design studio in the Architecture Department at University of Wisconsin-Milwaukee that looked at the implications of tearing urban freeways.<sup>136</sup> In his role as Planning Director, Park worked to change the mindset of city engineers that capacity should never be reduced. He also played an

---

<sup>134</sup> Phone interview with John Norquist, former Mayor of Milwaukee, February 16, 2007.

<sup>135</sup> Ibid.

<sup>136</sup> Phone interview with Peter Park, former Planning Director of the City of Milwaukee, April 19, 2007.

important role in garnering the support of government officials and the public for demolishing the Park East Freeway.

### *The Downtown Plan as a Catalyst*

In the mid- to late-1990s, Norquist and Park focused their attention on the major task of convincing the public and government officials that removing the freeway would greatly benefit the city.

In 1998, the City of Milwaukee, the Milwaukee Redevelopment Corporation, and the Wisconsin Center District Board hired A. Nelessen Associates to prepare a comprehensive plan for downtown Milwaukee.<sup>137</sup> A number of public workshops were held with several hundred people in attendance. In preparing the plan, thirty teams comprised of citizen, business and government groups were created and asked to develop their vision for the downtown area. Of those thirty teams, only one team expected that the Park East Freeway would remain in its current state in the new downtown plan.<sup>138</sup>

The key to convincing businesses was to address the impacts the removal of the Park East would have on traffic. Business owners were concerned that their customers would be inconvenienced as it would take them longer to drive, thus hurting their business. In July 1998, the Southeastern Wisconsin Regional Planning Commission (SWRPC) released, “Analysis of Existing Year 2020 Traffic Impacts of the Termination of the Park East Freeway at N. 4<sup>th</sup> Street and Points East”. This study found that the replacement of the freeway with an at-grade roadway would have minimal impacts on traffic congestion.<sup>139</sup>

Next on the list of negotiations was the Common Council. Like the business owners, the Common Council was initially against the plan, citing concerns over the loss of capacity and access to the downtown. However, through the charrette process the public and Common Council members were able to envision what the potential for this area was. Using the

---

<sup>137</sup> Schreibman, (January 2001).

<sup>138</sup> Phone interview with Peter Park, (April 19, 2007).

<sup>139</sup> Amendment to the Regional Transportation Plan-2020: Park East Freeway Corridor, (February 2001), p 12.

Embarcadero Freeway in San Francisco as an example of the potential for revitalization that arises when freeways are removed contrasted with Detroit, people could envision the development possibilities for the downtown. The experiences of San Francisco also showed that the value of properties would most likely rise, a point which supported the case for removal. Once the downtown aldermen and business owners were in favor of removing the freeway, the remaining aldermen on the Common Council saw little reason to oppose the project.<sup>140</sup>

The process of developing the downtown plan enabled different groups to discuss the future of the Park East Freeway in an open forum and build support within the business community and city residents. In the end, the removal of the Park East Freeway was identified as a key “catalytic element” for economic development and it was incorporated into the Downtown Master Plan that was formally adopted in 1999.<sup>141</sup>

The development of a downtown plan and the ability to build consensus behind it, was a significant step for moving forward, however it was still a far cry from actual demolition of the Park East freeway. Fortunately, Harley Davidson was about to provide some additional support for Norquist’s cause. Harley Davidson had been looking at a couple of sites for a museum and interactive experience space for their fans, one of which was located in the area just north of the Park East Freeway along N. 3<sup>rd</sup> Street and King Drive. The company’s strong interest in locating to the area drew the attention of Governor Tommy Thompson and Milwaukee County, because Harley Davidson was considered the “darling of Wisconsin.”<sup>142</sup> The prospect of such a large and popular company locating in downtown Milwaukee helped open the eyes of the governor and the county to the possibility for development in this area. In the end, the company selected an alternative site, but the idea of the area as a destination had already been implanted. In the end it was a significant factor in generating the support of the governor and county for the removal of the Park East Freeway.<sup>143</sup>

---

<sup>140</sup> Phone interview with John Norquist, (February 16, 2007).

<sup>141</sup> City of Milwaukee Department of City Development. “Park East Corridor Newsletter.” October 2003.

<sup>142</sup> Phone interview Peter Park, (April 19, 2007).

<sup>143</sup> Ibid.

Obtaining the support of the County was critical if Norquist's plan was to succeed, as the land underneath freeway and the surrounding land included in the freeway right-of-way would revert to the county (from the Federal government) with the removal of the Park East.

### *A Vision Implemented*

With the freeway removal project gaining support from the business community, the public, the governor and county, and a source of funding secured, in June 1999, the Milwaukee Board of Supervisors voted 20-2 on a resolution to approve the removal of the Park East Freeway. Several months later, in October, the City of Milwaukee Common Council voted 12-4, endorsing the resolution to remove the freeway.

With the decision to remove the Park East Freeway formalized, in early 2000, the City of Milwaukee began working with the public, businesses, government agencies, and citizen groups to develop a Park East Redevelopment Plan. The redevelopment plan was based on the earlier work that had been done for the Downtown Master Plan and the planning process was overseen by the Redevelopment Authority as they had the regulatory authority to control land use, design elements, and zoning. Under the Redevelopment Authority's regulatory power the land included as part of the Park East Redevelopment Plan could be incorporated into a tax increment finance district, which would enable the city to better attract new development.

Shortly after the City started its initial work on a development plan for the area, the City of Milwaukee, Milwaukee County and the Wisconsin DOT initiated a preliminary engineering study, including an environmental impact assessment study, to evaluate and provide recommendations on alternatives for the removal and reconfiguration of the Freeway.

Interestingly enough, this was the first time that traffic modeling was really used to predict what would happen to traffic when the Park East was removed. In the development of the Downtown Master Plan, formal traffic modeling wasn't really used as a tool for discussion.<sup>144</sup> The results of the model, showed that recreating the street grid where the freeway was to be removed actually improved traffic flow.

---

<sup>144</sup> Ibid.

In late 2000, the results of an alternatives study sponsored by Milwaukee County, City of Milwaukee and Wisconsin DOT was released for a public hearing. The study evaluated two removal and reconfiguration alternatives as well as a no-build alternative.

1. McKinley Avenue – N. 6<sup>th</sup> Street Alternative: The Park East Freeway would be demolished from N. 8<sup>th</sup> Street to N. Jefferson Street. From 8<sup>th</sup> Street eastward, the roadway would transition from a freeway to a boulevard.
2. 4<sup>th</sup> Street Alternative: The Park East Freeway would be demolished from N. 8<sup>th</sup> Street to N. Jefferson Street. The freeway would be realigned between 8<sup>th</sup> Street and 6<sup>th</sup> Street and would transition to an at-grade roadway between 6<sup>th</sup> Street and 4<sup>th</sup> Street.

Both alternatives called for changes to on-street parking and directionality on neighboring streets.

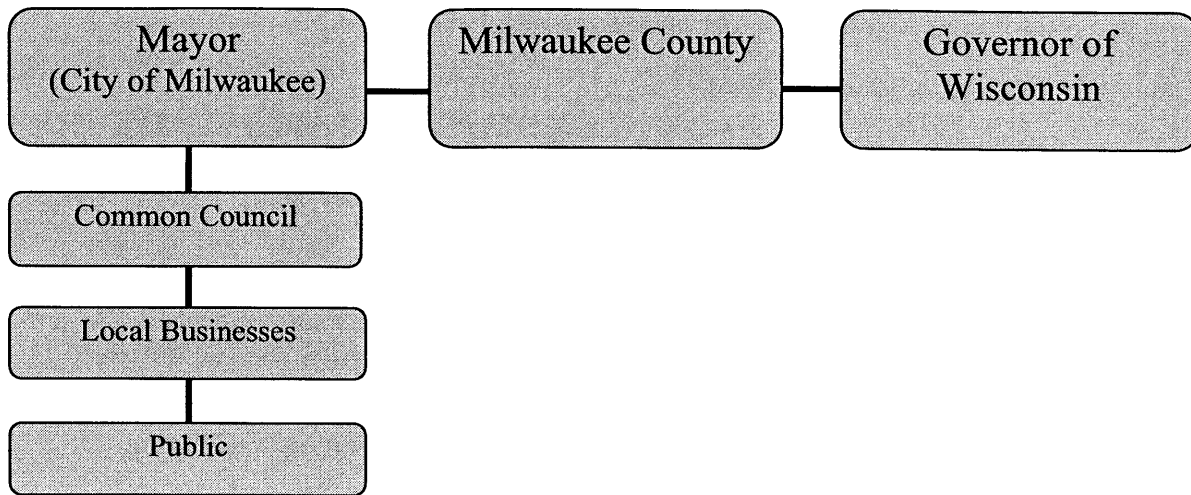
Ultimately, the second alternative was selected with the transition to an at-grade roadway occurring at 6<sup>th</sup> Street. In terms of project implementation, the County was selected as the lead agency for the environmental and public processes preceding the actual removal of the freeway. The Wisconsin DOT was put in charge of designing the facilities to reconnect the local street network to Interstate 43, and the City of Milwaukee was responsible for making the necessary modifications to the local street grid and the new river crossing.

### *Decision-Making Structure*

In the case of Milwaukee, relative to San Francisco, the decision-making process was more informal and straightforward. In terms of the decision to tear down the Park East Freeway, the mayor initiated the movement and was highly active in the process of developing a downtown master plan which utilized input and collaboration between government officials, the public, and business owners.

When the Park East's removal was identified as a catalytic element in the Downtown Master Plan, the decision to tear down the freeway moved from an informal idea pushed by Mayor Norquist to a formal proposal and the Common Council and Milwaukee Board of Supervisors subsequently voted to approve the demolition of the freeway.

Figure 10: Decision-Making Structure in Milwaukee



Two other important actors in the decision-making process were the County of Milwaukee and the Governor as they were partly responsible, along with the mayor, for securing the necessary financing for the teardown of the Park East Freeway.

## Financing

### *Funding Sources and Mechanisms*

The most likely source of potential funding for the teardown was a chunk of money from the federal ISTEA program that needed to be spent by the state or it would have to be returned to the federal government. However its use required the consensus of city, county and state officials. The Wisconsin Department of Transportation (DOT) was pro-highway and thus wasn't really interested in tearing down the Park East Freeway. In fact, quite the opposite was true and the DOT had already invested \$12 million dollars in retrofitting the freeway in hopes of stopping Norquist.<sup>145</sup> Governor Tommy Thompson was also pro-highway.

Given the State of Wisconsin, Milwaukee County and the City of Milwaukee's inability to come to a consensus on a number of major transportation projects in the Milwaukee area for much of

---

<sup>145</sup> Phone interview with John Norquist, (February 16, 2007).

the 1980s and 1990s, Congress offered the parties federal funding possibly as a way to encourage cooperation.<sup>146</sup> It provided that \$289 million (later reduced to \$241 million) of unspent federal funds could be spent upon the request of Governor Thompson if he consulted the appropriate local government officials.<sup>147</sup>

Nevertheless, it wasn't until 1999 as the deadline for an agreement neared (or the funds would be forfeited), that the parties reached a consensus on how the funding would be used. In order to gain the DOT's support, Norquist traded his support for a new interchange on Interstate 794, which he had previously blocked.<sup>148</sup>

On April 20, 1999, Mayor Norquist, the County Executive of Milwaukee County, and the Governor finally came to an agreement on how to use the Interstate Cost Estimate (ICE) funding, a pot of funding available under the ISTEA legislation. The parties agreed to use \$25 million of the ICE funding<sup>149</sup> to remove and reconfigure the Park East Freeway, \$91 million to study and improve the mass transit system, \$51 million to reconstruct the 6<sup>th</sup> Street viaduct and building ramps, and \$75 million for the Marquette Interchange reconstruction.<sup>150</sup>

According to, "Letter of Agreement on the Allocation of ICE Dollars and on Milwaukee Transportation Projects" the basic ICE allocation stated that the total ICE dollars was to be divided equally between the State of Wisconsin and the City and County of Milwaukee, thus each entity would be entitled to \$120.5 million or \$241.0 million total. This agreement also stipulated that the City and County would distribute the bulk of the remainder of their allocated ICE funds to projects identified in the Wisconsin District's Transportation Study.

---

<sup>146</sup> Cutler. (2001), p 106.

<sup>147</sup> The funds had been allocated to Wisconsin because SEWRPC's 1965 land use recommended a transit way along the East-West corridor. Under ISTEA the secretary of transportation with authorization from the governor after consultation with local government "may approve substitute bus transit, and light rail projects, in lieu of construction of the I-94 East-West transit way project in Milwaukee and Waukesha counties as identified in the East-West Cost Estimate."

<sup>148</sup> Schreibman, (January 2001).

<sup>149</sup> ICE dollars are the Interstate Cost Estimate Substitute Project funds provided by Section 1045 of ISTEA

<sup>150</sup> Cutler, (2001), p 108.

Later in 2002, the City of Milwaukee adopted a tax increment finance district to provide funding for infrastructure needed to reconnect the land with the local street grid.

*Costs*

Pre-demolition and construction estimates put the cost of reducing the length of the Park East Freeway to 4th street, re-establishing a connection to Interstate 43, constructing a new river crossing, and other street modifications at \$25 million.<sup>151</sup> Based on the “Letter of Agreement on the Allocation of ICE Dollars and on Milwaukee Transportation Projects” the state was to contribute \$8 million to the project, including any bridge costs with the remaining balance to be covered by the City and County. The specific breakdown of costs (in millions) is as follows:

**Table 2: Funding Sources and Amounts**

<i>Entity</i>	<i>ICE</i>	<i>Match</i>	<i>Total</i>
State	\$6.8	\$1.2	\$8
City and County	\$14.5	\$2.5	\$17
Total	\$21.3	\$3.7	\$25

Post-project evaluation estimated the teardown cost to be approximately \$30 million, which was covered by both state and federal funds. The City of Milwaukee also spent between \$12 and \$20 million on necessary infrastructure once the freeway was demolished.<sup>152</sup>

<sup>151</sup> Amendment to the Regional Transportation Plan-2020: Park East Freeway Corridor, (February 2001), Appendix 2.

<sup>152</sup> Phone interview with John Norquist, (February 16, 2007).





## CHAPTER SIX: Case Three – Whitehurst Freeway, Washington D.C.

### Section 1: Background

Built in 1949, the Whitehurst Freeway is an elevated highway over K Street in the Georgetown neighborhood of Washington D.C. H.C. Whitehurst, who was the director of the District Highway Department at the time, designed the highway as the first piece of infrastructure in a larger plan to build freeways throughout Washington D.C. and the surrounding areas.

Figure 11: Map of the Potomac River and the Whitehurst Freeway (top)



Source: Google Earth

The freeway was designed to enable traffic on U.S. Route 29 and Canal Road to bypass the heavy congestion between the Key Bridge and K Street in Georgetown. The project cost a total of \$3.3 million and carried approximately 30,000 vehicles per day in the first year after opening.<sup>153</sup>

---

<sup>153</sup> [www.dcroads.net/roads/whitehurst/](http://www.dcroads.net/roads/whitehurst/)

In the 1950s, planning for a northwest extension of the Whitehurst Freeway into Maryland began. A 1957 planning study by the National Capital Planning Commission (NCPC) recommended the development of an eight-lane Potomac River Freeway from the Inner Loop, or what is known today as the interchange between the Whitehurst Freeway, I-66 and K Street NW to I-495 or the Capital Beltway. The objective of the plan was that the Whitehurst Freeway would become part of the Potomac River Freeway and the existing four-lane structure would be expanded to six- or eight-lanes.

In 1961, the NCPC worked on several design alternatives for the Whitehurst-Potomac River Freeway and by 1964 the preferred alternative was selected. Under this proposal, the existing Whitehurst Freeway would serve as a four-lane outbound roadway for the new Potomac River Freeway and a new parallel four-lane elevated roadway would be built to the south of the existing freeway to carry inbound traffic. West of the existing end of the Whitehurst Freeway, the proposed eight-lane freeway would to be extended in order to cross the Potomac River and the Three Sisters Islands into Virginia.<sup>154</sup>

By the end of 1964, workers had already completed a six-block long viaduct at the eastern end of the Whitehurst Freeway that was to become part of the new Potomac River Freeway, however not much progress was made as consistent sources of funding were never found. Then in 1970, a court injunction halted all work on the Three Sisters Bridge. The injunction was backed by an anti-freeway citizens group that felt strongly against the proposed bridge. This was followed by the floods of Hurricane Agnes in July, 1972, which destroyed the preliminary construction work. The future of the project did not look good, and although the House of Representatives passed legislation prohibiting court intervention in the construction of the bridge, the provision did not survive in the Senate.

In May 1977, the project was scrapped when the District of Columbia received permission to transfer \$392 million in interstate funds to the Metro and other street improvement projects. In

---

<sup>154</sup> U.S. Department of Transportation, Federal Highway Administration, and District of Columbia Department of Public Works. *Whitehurst Freeway Corridor System Modification Study: Final Impact and 4(f) Evaluation, Volume 1 of 2*. District of Columbia, Aug 1985. p 1-4.

1978, the Potomac River Freeway was officially removed from the Federal Highway Administration's route log.

In the early 1980s, the structure started to show signs of aging. Planners and government officials began considering various different options regarding the future of the freeway. Under consideration was the replacement of the elevated freeway with an expanded six-lane K Street Boulevard. Other suggestions were to demolish the freeway and tunnel under K Street as well as rehabilitate the existing structure. In 1984, district officials presented four alternatives for the Whitehurst Freeway: re-decking, rehabilitation, a new elevated freeway, a six-lane urban boulevard. The projects ranged in cost, with re-decking at the low end with an estimated cost of 31.3 million and the boulevard at the high end with an estimated cost of 96.6 million.<sup>155</sup>

There was a general consensus within the D.C. community that the structure itself was an eyesore and that it blocked valuable views of the waterfront. Most people thought something should be done, however it was difficult to find any sense of agreement on what the preferred alternative was. On one side of the debate, residents from neighborhoods outside of Georgetown voiced concerns that removal or reconfiguration of the freeway would push traffic onto their neighborhood streets or impede on their commute. Others in the district thought this was the perfect opportunity to open the waterfront back up for public use and remove an aging eyesore, much like what had occurred in San Francisco when the Embarcadero Freeway was demolished.

Ultimately, the district decided on the rehabilitation alternative, and phase one of the retrofit, between Wisconsin Avenue and Jefferson, began in 1991. However, due to lack of funding and other constraints such as unstable soil and the discovery of American Indian artifacts, which halted work for an archaeological dig, the freeway wasn't completed until August, 1998.

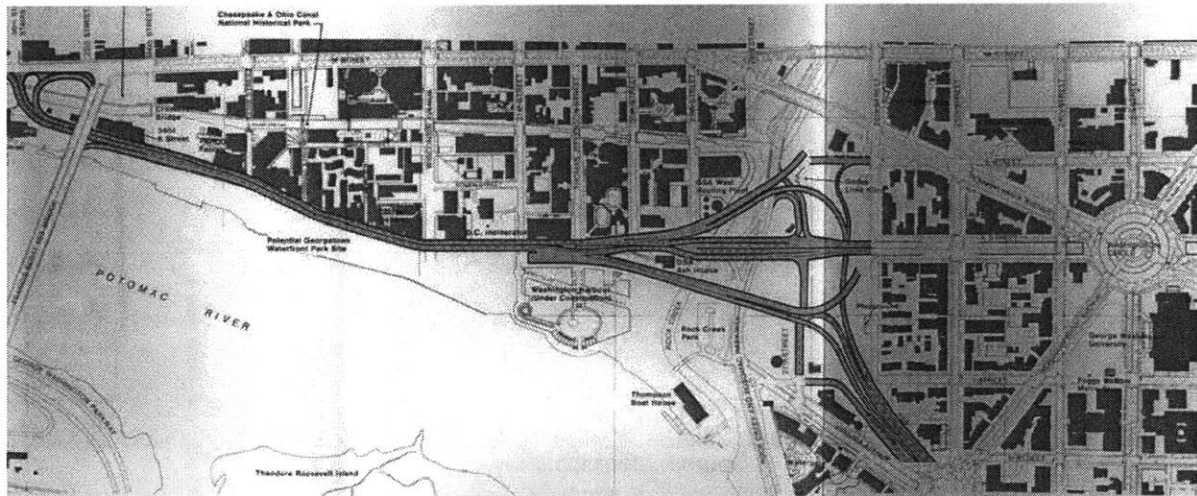
Under the Whitehurst Freeway Plan, the four-lane highway was repaired, repaved, and widened to include shoulders. At the western end, the ramps that were built to connect with the proposed Potomac River Freeway were torn down. No changes were made to the on- and off-ramps at the western end. The improved structure was upgraded to support 70,000 vehicles, the federal

---

<sup>155</sup> [www.dcroads.net/roads/whitehurst/](http://www.dcroads.net/roads/whitehurst/)

standard, compared with a 40,000 pound limit of the original structure.<sup>156</sup> The final cost for the project was \$45 million.

Figure 12: Plan of the Retrofit Alternative



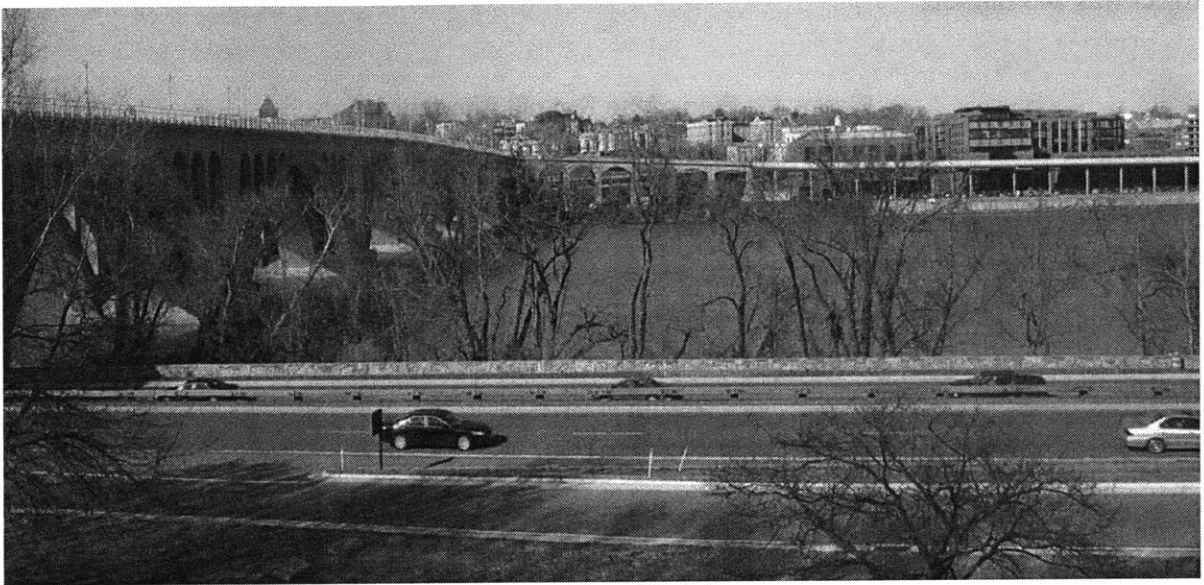
Source: Whitehurst Freeway corridor system modification study: final EIS

However, supporters for an at-grade replacement of the Whitehurst Freeway did not give up on their cause. A small but vocal group of Georgetown residents and business owners continued to pressure the district to consider tearing down the freeway. In 2005, just seven years after the rehabilitation of the freeway was completed, the District of Columbia Department of Transportation released the Whitehurst Deconstruction Feasibility Study. The purpose of the study was to determine the impacts of removal on traffic congestion and improved access to Georgetown and to the future waterfront park. The study, which evaluated 19 alternatives, is currently being debated and is open for input from the public.

---

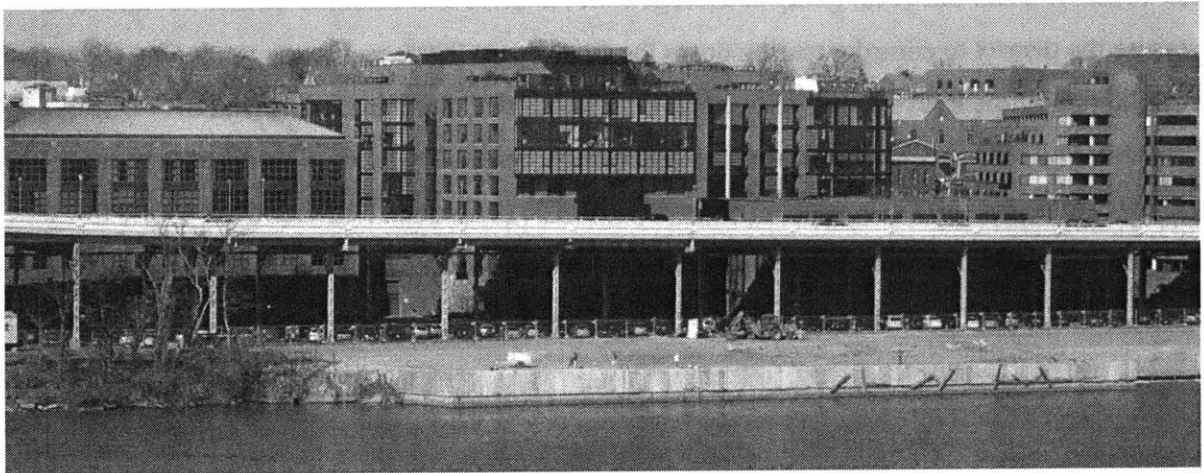
<sup>156</sup> Siew, Walden. "Freeway now ready to reopen; Whitehurst fixed for 2-way traffic." *The Washington Times*, August 19, 1998, A1.

Figure 13: Looking north at the Key Bridge and the Whitehurst Freeway



Source: Meredith Judy

Figure 14: Looking north at the Whitehurst Freeway



Source: Meredith Judy

## Timeline of Key Events

- 1949 Whitehurst Freeway completed
- Fall/81 District of Columbia hires DeLeuw, Cather Consultants to develop rehabilitation alternatives for the Whitehurst Freeway
- 06/82 Study for development of alternatives begins
- 01/83 First Interim Report, Whitehurst Freeway Corridor Study
- 06/83 Second Interim Report, Whitehurst Freeway Corridor Study
- 10/83 East End Restudy Technical Memo, Whitehurst Freeway Corridor Study
- 10/84 Mayor Marion Barry announces plans to retain and rehabilitate the Whitehurst Freeway
- 08/85 Whitehurst Freeway Corridor System Modification Study, Final EIS and 4(f) Evaluation released
- 01/90 National Capital Planning Commission approves D.C.'s proposal to rehabilitate the Whitehurst Freeway
- 1991 Construction on the Whitehurst Freeway begins
- 1998 Rehabilitation of the Whitehurst Freeway is completed
- 2005 D.C. Department of Transportation releases the Whitehurst Deconstruction Feasibility Study

## Section 2: Case Specifics

### Infrastructure

#### *Function*

The Whitehurst Freeway was designed as a bypass roadway, allowing drivers from U.S. Route 29 to access downtown without having to drive on the local streets of Georgetown, specifically M Street which is a major thoroughfare. The freeway runs from 27<sup>th</sup> Street NW and the Rock Creek and Potomac Parkway, westward to M Street and the Key Bridge.

The elevated roadway runs 30 feet above K Street, which connects downtown with Canal Road and the Key Bridge. Originally, the plan was to continue the freeway along K Street as a depressed highway toward Florida Ave, but only a tunnel at Washington Circle and 23<sup>rd</sup> Street was ever constructed.

#### *Design*

The Whitehurst Freeway is a four-lane elevated highway covering approximately nine blocks or 0.6<sup>157</sup> miles. It was built according to 1940's standards out of steel, meaning that structure was built without shoulders and could only accommodate speeds up to 30 MPH.<sup>158</sup> The freeway deck was constructed out of a seven inch reinforced concrete slab. Before reconstruction the freeway measured 52 feet, and during reconstruction it was widened to 60 feet to provide shoulders.

At the western terminus, a ramp connects the northbound Key Bridge to the eastbound freeway, Route 29. At the eastern terminus, a modified cloverleaf interchange connects the freeway to the Rock Creek and Potomac Parkway and to 27<sup>th</sup> Street.

#### *Usage*

Approximately 48,500 vehicles per day use the Whitehurst Freeway, including Washington D.C., Virginia, and Maryland commuters.<sup>159</sup> It is a popular route for many Virginians using Key

---

<sup>157</sup> Whitehurst Freeway Corridor System Modification Study: Final Impact and 4(f) Evaluation, Volume 1 of 2, (Aug 1985), p S-1.

<sup>158</sup> [www.dcroads.net/roads/whitehurst/](http://www.dcroads.net/roads/whitehurst/)

<sup>159</sup> Whitehurst Freeway Corridor System Modification Study: Final Impact and 4(f) Evaluation, Volume 1 of 2, (Aug 1985), p 1-1.



Bridge to get to I-66 and the George Washington Parkway. For Maryland residents it is a convenient path to and from the Capital Beltway via Canal Road and the George Washington Parkway. The Whitehurst Freeway is also popular with drivers commuting from Foxhill Road and MacArthur Boulevard in Washington D.C.

There are three major, approximately equal components of traffic volume on the freeway: “Canal Road to/from I-66, Canal to/from K Street and Key Bridge to/from K Street. The proportions do not vary substantially by time of day or day of the week.”<sup>160</sup> During the weekend and a.m. peak the freeway as well as the approaches operated effectively, however during the p.m. peak “virtually the entire length of the freeway becomes a queue of westbound traffic.”<sup>161</sup>

### *Condition of Infrastructure*

In the early 1980s, the Whitehurst Freeway was showing signs of aging and according to the D.C. Transportation Director Thomas Downs in 1981 the Whitehurst “definitely needs a complete reconstruction”<sup>162</sup> Lack of upkeep and poor maintenance, as well as the Whitehurst Freeway’s proximity to the Hopfenmaier rendering plant, lead to its decline. The steel structure was suffering from rust and corrosion and salt-deposited cracks ran throughout the concrete deck.

### *Site*

When the Whitehurst was built in 1949 the Georgetown waterfront was an industrial area that held a mix of factories, flour mills, cement plants, and a toxic smelling rendering works.<sup>163</sup> The area has seen resurgence since the early 1980s, with a number of new commercial and business developments along the waterfront, highlighted by the Washington Harbour development at 30<sup>th</sup> and K Streets NW.

---

<sup>160</sup> District of Columbia. *Whitehurst Freeway Corridor Study: First Interim Report*. DeLeuw Cather Consultants. Washington D.C., January 1983.

<sup>161</sup> Whitehurst Freeway Corridor System Modification Study: Final Impact and 4(f) Evaluation, Volume 1 of 2, (Aug 1985), p 3-2.

<sup>162</sup> Chase, Scott and Jerry Knight. “Tearing Down the Whitehurst Freeway; Improving View From the Bridge.” *The Washington Post*, August 29, 1981, E1.

<sup>163</sup> *Ibid.*

In the early 1980s the area was a mix of commercial, residential, institutional, industrial, and recreational uses. A shift in land uses resulted from intense development south of M Street in Georgetown; in some cases within five to ten feet of the freeway. Now the area along the waterfront is one of the wealthier neighborhoods in the district.

### Transportation Network

Within the general area of the Whitehurst Freeway, most public transportation is provided by the Washington Metropolitan Area Transit Authority (WMATA) bus service. The Georgetown Trolley, sponsored by the Business and Professional Association of Georgetown and the Georgetown University Transportation Society, provides some additional service. According to the First Interim Report “on the basis of modal split characteristics, prospects for substituting transit travel for a large proportion of auto trips in the Whitehurst Freeway Corridor appear slight.”<sup>164</sup>

Of the buses that served the area at the time, a large number of the routes were peak-only express service that operated on the Whitehurst Freeway. Metrorail did not serve this corridor at the time.

### Social

The population within the study area<sup>165</sup> is significantly wealthier than the average for the district and the majority of residents are either professionals or other white collar workers.<sup>166</sup> A significant portion of the population is students due to the presence of Georgetown University and George Washington University. The level of education completed in the study area is higher than the citywide average. Approximately 53 percent of the total number of occupied housing units in the study area are renter-occupied.

---

<sup>164</sup> Whitehurst Freeway Corridor Study: First Interim Report, (January 1983), pg 8.

<sup>165</sup> The study area is defined in the Whitehurst Freeway Corridor System Modification Study as census tracts 1,2, 55.2, and 56.

<sup>166</sup> Whitehurst Freeway Corridor Study: First Interim Report, (January 1983), p 10.

## Process

### *Decision Making Process*

#### *The First Stage in the Formal Planning Process: 1981–1983*

In the fall of 1981, the District of Columbia took the first step in addressing the deteriorating condition of the Whitehurst Freeway, by awarding a \$200,000 engineering contract to the consulting firm DeLeuw, Cather, with the objective of determining whether or not it would be feasible to tear down the structure. The city had been considering tearing down the structure, according to D.C. Transportation Director Thomas Downes, “because elevated highways require expensive and continuous maintenance to fight the ravages of rust and auto traffic. The other reason is that it’s just plain ugly.”<sup>167</sup> However, at the same time the City felt that a replacement for the Whitehurst should not make it easier for commuters to drive into Washington through congested Georgetown.

In June 1982, the District of Columbia began the formal study process, with DeLeuw Cather Consultants heading the study. The primary objective was the development of alternatives for a plan to renovate the debilitated highway, improve its widely criticized appearance, and ease traffic bottlenecks. This process was overseen by a three-way review mechanism which was established to provide a framework for coordinating citizen, technical, and other input.

The first step in the review process was lead by the Design Team (DeLeuw, Cather Consultants) who generated alternatives which would meet the study goals and objectives. Three study parameters were established by the Department of Public Works to help guide the development of alternatives.<sup>168</sup>

1. The alternatives are to accommodate present travel demand while minimizing the generation of additional traffic.
2. Through traffic in adjacent residential neighborhoods is to be controlled and reduced where possible.

---

<sup>167</sup> Knight, Jerry. “City May Replace Whitehurst Freeway; City May Build Replacement for Aging Whitehurst Freeway.” *The Washington Post*, August 26, 1981, A1.

<sup>168</sup> The three study parameters are directed quoted from page 2-1 of the Whitehurst Freeway Corridor System Modification Study: Final Impact and 4(f) Evaluation, Volume 1 of 2

3. A potential waterfront park along the Georgetown shore must be accommodated.

Additionally, a set of project goals was established by the Steering Committee to help establish project priorities.

“The consensus of the Committee was that achieving community support and providing cost-effective improvements were the most important goals; improving the highway system and enhancing the quality of life and avoiding adverse environmental impacts were considered second in importance; and the remaining goals, uniting the two Georgetown’s north and south of the C&O Canal and preserving Georgetown’s historic resources, were ranked third.”<sup>169</sup>

The alternatives were then reviewed by the Technical Advisory Group (D.C. and federal agency representatives) for technical feasibility and appropriateness. Lastly, the Steering Committee (representatives from Advisory Neighborhood Commissions, neighborhood associations, institutions, and business groups) evaluated the alternatives with respect to their potential for community acceptance. The three groups meet monthly and additional public meetings were held with the neighborhoods which would be affected by the project.

The analysis was done in three stages. In the first stage, a large number of alternatives evaluated from which seven alternatives were selected for more in depth analysis in stage two. The First Interim Report, which was released in January 1983, outlined the three build scenarios that emerged from the second stage of analysis. These alternatives were more deeply evaluated in the third stage of analysis and in preparation for the Draft Environmental Impact Statement (EIS). The results of the second stage of analysis were documented in the Second Interim Report, released in June 1983.

After over eighteen months of study, the district released for public comment the four alternative plans selected for further evaluation in the draft EIS. However, one alternative option that was popular with the public was not included in the final four. The alternative to depress and cover K

---

<sup>169</sup> Whitehurst Freeway Corridor Study: First Interim Report, (January 1983), p 15.

Street from 22<sup>nd</sup> to 26<sup>th</sup> Streets was not included because the study found “no significant transportation advantage would be gained [and] costs would range from \$35 to \$46 million”.<sup>170</sup>

1. Rehabilitate the existing four-lane highway: The roadway would be repaired and widened to allow for shoulders. A tunnel would be built under the C & O Canal at the freeway’s western end to reduce the bottleneck for cars heading to Canal Road. At the eastern end, the ramps built for the never completed Potomac River highway, would be torn down.
  
2. New Elevated Freeway: Replace the freeway with a new elevated four-lane structure that is approximately 15 feet lower and 16 feet wider, and is designed to be more streamlined and less unsightly. A new ramp, bypassing the freeway, would be built at M and 26<sup>th</sup> Streets NW to provide access to I-66. The new ramp would help divert some Virginia bound traffic away from Georgetown. At the freeway’s eastern end, access along K Street would be reduced to lower traffic in Foggy Bottom and access from Rock Creek Parkway would be eliminated. In order to ease congestion at the western end, an underpass connecting Canal Road with M Street would be constructed.
  
3. Arterial with Service Road: Tear down the freeway and replace it with a six-lane at-grade roadway along the Georgetown waterfront. The proposed boulevard, which would replace a section of K Street NW, would have three traffic lights, located at 30<sup>th</sup> Street, 31<sup>st</sup> Street and Wisconsin Avenue. A new on-ramp for northbound traffic would be built at Key Bridge. The configuration of the eastern end would be similar to those in the proposal for a new, lower structure. This alternative would result in a lower capacity than the elevated alternatives.<sup>171</sup>
  
4. No-Build Alternative: Minimal improvements would be made to the freeway in order to ensure that safety standards were met and the freeway deck and supporting steel

---

<sup>170</sup> Whitehurst Freeway Corridor System Modification Study: Final Impact and 4(f) Evaluation, Volume 1 of 2, (Aug 1985), pg 2-3.

<sup>171</sup> Ibid. p 2-31.

structure would be upgraded to a level necessary for maintenance. No changes would be made to the unused ramps at the east end or the Potomac Freeway stub.

### *Reaction to the Proposed Alternatives 1983 – 1985*

The District of Columbia's initial reaction to the alternatives presented by DeLeuw, Cather was that the city would most likely simply redeck the Whitehurst Freeway rather than tear the structure down and replace it, according to Mayor Marion Berry (June 1983).<sup>172</sup> The likely reason for this was cost, as the preliminary study showed that the no-build alternative had the lowest cost.

While the city moved forward, beginning the environmental review process for the four selected alternatives, debate amongst various citizen groups and government over the future of the Whitehurst continued, revealing great division over what the best solution was.

In Foggy Bottom, the city's proposal was highly criticized as "every community is going to benefit except Foggy Bottom,"<sup>173</sup> according to an advisory neighborhood commission representative. On the other hand, community leaders from the Palisades and Foxhall areas of northwest D.C. supported rehabilitating the freeway and building the tunnel linking it to Canal Road because they felt it would benefit drivers by shortening commutes, and preventing an increase in traffic on residential streets.

The Georgetown neighborhood was also in favor of the rehabilitation for the most part. Georgetown residents were concerned that the removal or any major change to the structure would increase traffic on Georgetown streets and felt that the elevated freeway was necessary to divert rush-hour traffic from their neighborhood.<sup>174</sup>

---

<sup>172</sup> Evans-Teeley, Sandra. "Resurfacing Likely Fate of Whitehurst; Mayor Cites Cost Study on Options for Freeway." *The Washington Post*, June 23, 1983, B1.

<sup>173</sup> Lynton, Stephen J. "City Contemplates Surgery for Aging Artery; Whitehurst Freeway: Replace, Repair, Remove?" *The Washington Post*, March 14, 1984, A1.

<sup>174</sup> Whitehurst Freeway Proposals Debated May 16, 1984

Gary Groat, a private consultant who worked with citizens groups while the various alternatives were being discussed, said most of the affected residents agreed that keeping the freeway and overhauling it was the wisest choice.<sup>175</sup>

### *Disputes Delay Decision-Making Process*

The city had initially planned to announce their recommendation by the summer of 1984; however, two unplanned events stalled the process.

The first was a dispute with the National Park Service over the proposed ramp and tunnel at the western end of the freeway near Key Bridge and Canal Road. The park service felt that the project would endanger the C & O Canal and nearby parkland. The C & O's commission's chairman, Carrie Johnson, said that the proposed tunnel would bring traffic and noise and the proposed boulevard would cut into land that was expected to be included in a waterfront park.<sup>176</sup>

The second cause for delay was a proposal by the Business and Professional Association of Georgetown which offered another alternative. The alternative proposed by the group called for the replacement of a section of the freeway with a tunnel beneath K Street NW.<sup>177</sup> This was rejected by City officials due to cost, which they estimated to be \$155 million, a number that the association disputes.<sup>178</sup> Of the alternatives that the city proposed, the association advocated for the six-lane street, as it would cost less than the other proposed alternatives, improve Georgetown's appearance, and cause only minor traffic problems.

In October, 1984, after 2 and a half years of study and a public comment period, D.C. Mayor Marion Barry announced plans to retain and renovate the Whitehurst Freeway, rejecting the alternative proposals to tear it down and replace it with an at-grade boulevard, a tunnel, or a lower elevated structure. The reasoning behind this decision was based primarily on cost and

---

<sup>175</sup> Fehr, Stephen C. "Whitehurst's Makeover Nears Reality as Freeway Turns 40." *The Washington Post*, March 9, 1989, J1.

<sup>176</sup> Lynton, (March 14, 1984), A1.

<sup>177</sup> Lynton, Stephen J. "District Plans to Preserve and Repair the Whitehurst Freeway." *The Washington Post*, September 19, 1984, A1.

<sup>178</sup> Lynton, Stephen J. "Whitehurst Plan Announced; Barry Says Elevated Freeway Will be Retained, Renovated." *The Washington Post*, October 18, 1984, C5.

functionality. D.C. officials stated that the elevated freeway would allow commuter to travel faster than the at-grade roadway. According to a computer study, traffic speeds throughout the Georgetown area would average approximately 19 miles an hour with an elevated roadway and would average approximately 16 miles an hour with an at-grade roadway, partly due to the traffic signals.<sup>179</sup>

The tunnel alternative was rejected by district officials based on analysis that showed it would result in severe traffic tie-ups. Cost was another consideration against this alternative as some estimates were as high as \$400 million. Additionally, the construction of a steep ramp to connect a tunnel with Key Bridge and M Street was viewed as somewhat impractical. The proposal to build a new, lower, elevated highway was rejected partly due to cost and protest by some Georgetown groups.

#### *Preferred Alternative Selected and Debate Continues: 1985–1989*

In August, 1985, the final EIS was released. The study was overseen by the D.C. Department of Public Works (DPW) in cooperation with the National Capital Planning Commission, as they would oversee the transfer of jurisdiction over federal properties to the district, and the U.S. National Park Service as park property was involved in the study.

In the final EIS, “Alternative A Modified” was selected as the preferred alternative. Alternative A Modified was a combination of Alternative A, the rehabilitation alternative, and the No-Build Alternative. The preferred alternative incorporated the modifications to the existing structure detailed in Alternative A and the connections at the west end would be rehabilitated as described in the No-Build Alternative. The construction of a tunnel as detailed in Alternative A was eliminated.

The reasoning for this decision, as noted in the final EIS, was that Alternative A Modified “maintains traffic during entire construction period, no irretrievable impact on historic properties, takes no land from the potential waterfront park, maintains existing movements to Rock Creek Parkway and the Kennedy Center, provides a safer structure, improves lighting and

---

<sup>179</sup> Lynton, (March 14, 1984), A1.



lends itself to a façade treatment, maintains the potential for a Francis Scott Key Park, preserves current use of the C&O Canal, takes no commercial or residential buildings and causes no commercial or residential displacements, and has received the most community support in the entire corridor.”<sup>180</sup>

This is not to say that the decision of what to do with the Whitehurst was finalized in the public’s mind as the debate continued even after the release of the final EIS and even went so far as to generate another alternative plan.

Joseph Passonneau, former dean of the Washington University School of Architecture, designed a plan to replace the freeway with an at-grade boulevard and an underpass for through traffic. This design would be capable of handling more through traffic than the Whitehurst as well as local traffic. This proposal was similar to the “Arterial with Service Road” alternative developed by the city, however in this design approximately 900 feet of the roadway would be a below ground level trench across the waterfront.<sup>181</sup>

The cost for Passonneau’s plan was roughly the same as rebuilding the freeway.<sup>182</sup> The plan was endorsed by the Committee of 100 on the Federal City, a citizen’s organization focused on planning issues, but was ignored by the District. Critics of the plan countered, stating that the cost would be much closer to \$130 million for the boulevard versus \$50 million to rehabilitate the freeway.<sup>183</sup>

### *A Decision is Made*

On January 4, 1990, the National Capital Planning Commission approved in a 5 to 4 vote, the District’s proposal to rehabilitate the Whitehurst Freeway. This vote finally ended the years of debate over whether or not to repair the freeway or replace it with a boulevard and allowed the public works department to begin work on the project in the summer of 1990.

---

<sup>180</sup> Whitehurst Freeway Corridor System Modification Study: Final Impact and 4(f) Evaluation, Volume 1 of 2, (Aug 1985), p S-5.

<sup>181</sup> Velsey, Donald W. “We Should Keep the Whitehurst.” *The Washington Post*, June 30, 1991, C8.

<sup>182</sup> Wilner, Thomas B. “Why Rebuild an Eyesore?; It’s not too late for an alternative to the Whitehurst.” *The Washington Post*, June 23, 1991, B8.

<sup>183</sup> Velsey, (June 30, 1991), p C8.

The decision faced by the commission was whether or not to approve the District plan to retrofit the existing structure or instead approve the Committee of 100 on the Federal City's<sup>184</sup> proposal to replace the elevated structure with a boulevard. The commission struggled, like many other involved in the debate, with the tradeoff of removing an eyesore while at the same time reducing capacity and efficiency of through traffic.

Commissioners expressed a desire to reduce the negative visual impact of the Whitehurst, but nevertheless supported the District's plan, citing concerns over merging problems for motorists coming from Key Bridge, and that that federal employees using the Whitehurst would get to and from work more efficiently by an elevated structure. Additionally, District officials convinced the commission that the state of the structure was so rapidly deteriorating that it needed immediate attention as it was a safety hazard, while work on an avenue might not get underway for five years.<sup>185</sup>

Commissioners also cited the higher cost as a negative for the avenue plan as well as the loss of land since the proposal would remove 1.5 acres from the nine acres along the Georgetown waterfront while only providing two crossings for pedestrians to access the waterfront.

With the rehabilitation alternative approved (technically they voted not to object to the district's plan) by the National Capital Planning Commission, the Department of Public Works was cleared to begin work on the project.

### *Decision-Making Structure*

In the development of alternatives phase, the D.C. Department of Transportation oversaw the process. A three-way review process was created in order to better achieve consensus amongst stakeholders for the development of three build alternatives. The Department of Transportation worked directly with the design team to develop the alternatives which were then reviewed by the technical advisory group for technical feasibility and the steering committee for community

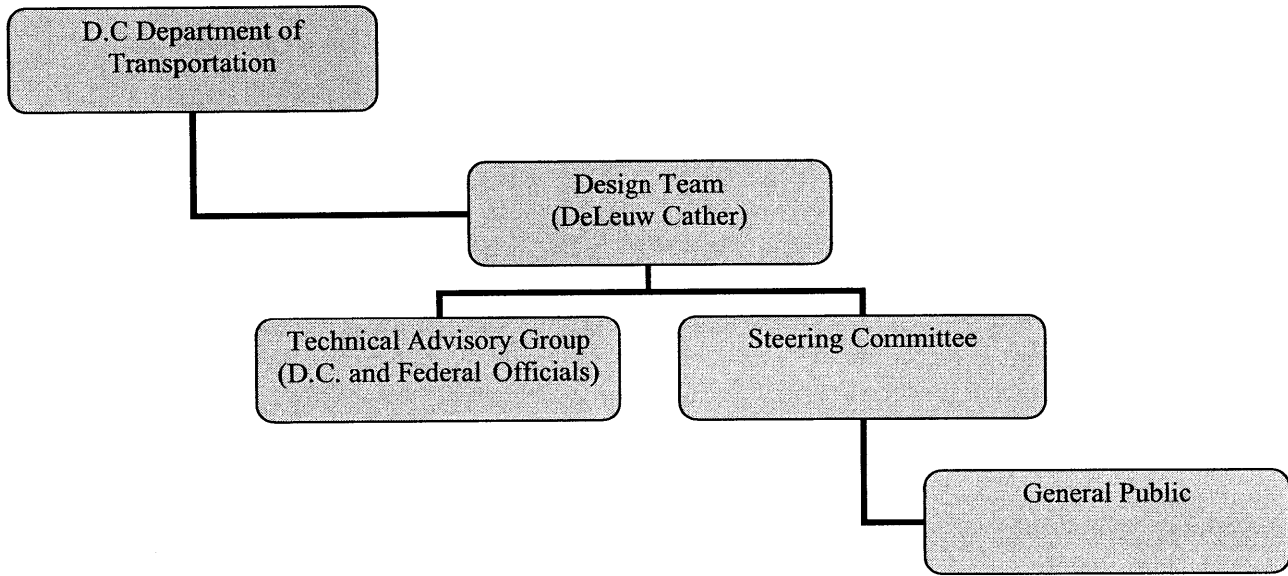
---

<sup>184</sup> A non-partisan group founded in 1929 to influence planning decisions in the Washington D.C. Area. At the time Joseph Passonneau was a member in the organizations transportation subcommittee.

<sup>185</sup> Fehr, Stephen C. "Panel Approves D.C. Plan to Fix Whitehurst Freeway." *The Washington Post*, January 5, 1990, A1.

acceptability. The steering committee also held meetings where members of the general public could provide feedback on the project.

Figure 15: Decision-Making Structure in Washington D.C.



Additionally, district officials had to get the blessing of the National Capital Planning Commission (NCPC) as the NCPC would oversee any transfer of jurisdiction of properties within the district that were owned by Federal and District agencies. The U.S. National Park Service was also identified as a cooperating agency due to the fact that parkland was located in the study area.

## Financing

### *Funding Sources/Funding Mechanisms*

Though the rehabilitation project was approved in the early 1990s the district was unable to begin retrofit work on the Whitehurst, or any other roadways, due to lack funding from the federal government. Then in 1995, the federal government released funds on an emergency basis after D.C. officials promised to set aside highway trust funds as states are required to do. In the

end, 80 percent of the rehabilitation costs were financed with funds from the Federal Highway Trust Fund, with the remainder coming from the city.

### *Costs*

Initial estimates for the four proposed alternatives ranged from approximately \$5 to \$31 million to do minor repairs to the structure, \$99.4 million to rehabilitate the freeway and build the proposed tunnel and ramp at the western end, \$113.9 for the new, lower elevated structure, and \$96.6 million for the boulevard.<sup>186</sup>

In the end the preferred alternative was rehabilitation minus the proposed tunnel. The estimated cost for this alternative, according to the Final Environmental Impact Statement was \$56.5 million. By the time construction began in the early 1990s the costs estimates of rehabilitation were slightly lower at approximately \$48 million.<sup>187</sup>

---

<sup>186</sup> Whitehurst Freeway Corridor System Modification Study: Final Impact and 4(f) Evaluation, Volume 1 of 2, (Aug 1985), p S-2, S-3.

<sup>187</sup> Goldstein, Stephen. "Panel Approves D.C. Plan to Fix Whitehurst Freeway." *The Washington Post*, January 5, 1990, C1.



## CHAPTER SEVEN: Synthesis & Analysis

### Section One: Synthesis

In order to better understand the similarities and differences between each of the cases, I have highlighted the main points within each category and subcategory for all three cases.

#### Infrastructure

The infrastructure category is broken into several subcategories in order to better understand the state of the freeway and its surroundings at the time removal was being discussed, as well who and what geographic areas it served.

#### *Function*

In all three cases studies, the freeways were built with the intention of later connecting up with a larger network that would serve their respective region and city. The national anti-freeway movement of the late 1960's and early 1970's played an important role in stopping the completion of the network in each locale.

As a result, the access that each roadway provided varies. Both the Central and Park East freeway terminated in the downtown area, providing access to downtown San Francisco and Milwaukee respectively. The Whitehurst provided access to the downtown but in an indirect way as it was designed as a bypass roadway, allowing drivers from U.S. Route 29 to connect with Canal Road (which served downtown D.C.) while avoiding the local streets of Georgetown.

#### *Design*

All three freeways were elevated steel structures; the Park East and Whitehurst were single deck freeways while the Central Freeway was a single-deck highway from I-80 to Mission Street and a double-deck highway from Mission Street to its terminus at Oak and Fell Street.

The lengths of each freeway were relatively similar, falling between 0.6 miles and 1.35 miles; the Whitehurst was the shortest in length at 0.6 miles, followed by the Park East Freeway at 0.8 miles, and the Central Freeway was the longest at 1.35 miles.

The Whitehurst had four lanes on a single deck while the Central Freeway had two lanes on the upper deck and two lanes on the lower deck. The Park East Freeway had four lanes on a single deck.

### *Usage*

Given that all three freeways provided access to the downtown, either directly or indirectly, each roadway was used by commuters from outside the city boundaries, as well as for local traffic. For the Park East most of the traffic was local rather than regional whereas in San Francisco, traffic on the Central Freeway was more evenly split between San Francisco residents and commuters from other parts of the Bay Area. On the other end of the spectrum, the Whitehurst was primarily used for commuter traffic from Virginia and Maryland.

The Whitehurst Freeway carried approximately 50,000 vehicles per day, while the Park East Freeway most heavily traveled section carried an estimated 54,000 vehicles on an average weekday. Of the three, the Central Freeway had the highest level of usage, with an average of 100,000 vehicles per day, prior to the earthquake.

### *Condition*

Both the Whitehurst and the Central Freeway had reached a state where they had become public safety hazards. In the case of the Whitehurst, the aging process had resulted in corrosion of the steel structure and cracks in the concrete deck, which been further exacerbated by a lack of maintenance and upkeep. The Central Freeway, on the other hand, had been significantly damaged in an earthquake, making the structure unstable.

In contrast, the Park East was also showing signs of aging with the need for rehabilitation imminent; however it had not yet reached the stage where there were concerns over public safety.

### *Site*

Of the three, the Central Freeway was the only roadway which was sited in a residential neighborhood. The Park East and Whitehurst were located in primarily industrial areas though over time the area surrounding the Whitehurst saw resurgence with commercial and residential development, resulting in a more mixed use environment. The Whitehurst is distinct from the other cases in that it is located adjacent to a body of water as it runs alongside the Potomac River.

### Transportation Network

All three areas were served by public transit, though San Francisco and Washington D.C. were served by both local bus and regional heavy rail service. Milwaukee, on the other hand, had only bus service at the time.

### Social

The population surrounding the Whitehurst Freeway was significantly wealthier than the average for Washington D.C. The majority of residents were either professionals or other white collar workers, while a significant portion of the remaining population were students. In contrast, the Hayes Valley neighborhood in San Francisco was a lower income neighborhood with a high concentration of minorities (relative to the city as a whole) as well as professionals who had been priced out of other neighborhood. In the Park East Case, social conditions were of minor relevance due to the fact that the area immediately surrounding the freeway was abandoned industrial sites.

### Process

#### *Decision Making Process*

The decision making process in each case study is somewhat unique. In the City of Milwaukee, the decision to tear down the Park East Freeway was initiated by Mayor John Norquist. He came into office in the late 1980s with the stated objective of demolishing the Park East Freeway during his tenure. He then hired Peter Park as the Planning Director, who also supported the idea of removing the Park East, and had even gone so far as to explore the idea in several architecture studios during his time teaching at the University of Wisconsin.



The idea of removing the freeway was explored in the public arena during the planning process for the Downtown Master Plan. Through numerous public meetings, charrettes and hearings, support for the freeway's removal began to grow in the business community, the general public and government. In the final Downtown Master Plan, the removal of the Park East Freeway was identified as a "catalytic element".

With the city on board, Norquist secured the necessary funding through negotiations with the governor, state Department of Transportation, and county over ISTEA funding. It was roughly twelve years from the time Norquist took office to the start of demolition. In contrast, the fate of the Central Freeway followed a much rockier, drawn out path, as the ability to find consensus proved much more difficult in San Francisco.

Unlike Milwaukee, where the objective was clear from the start (at least in the mind of the mayor), the impact of the 1989 earthquake left the City of San Francisco in a state of uncertainty. With authority over the freeway's future in the hands of the City of San Francisco, the City began a decision making process that would be filled with indecisiveness and the creation of new city agencies and laws. For the first six or seven years the decision making process was relatively confined to the technical evaluation of rebuild or retrofit alternatives. The public was involved through the creation of a Citizens' Advisory Task Force which acted as a liaison between the public and the consultant and government officials who were involved.

The idea of tearing down the freeway had up until that point remained a pipe dream of Hayes Valley residents who imagined what their neighborhood could be like without a massive piece of infrastructure running through it. This changed in 1997 when the Central Freeway was shut down for a period of time to enable the upper deck to be demolished. When traffic seemed to function even without the freeway, people began to open up their minds to the idea that maybe it wasn't necessary. However, a significant number of residents and government officials still felt that the Central Freeway was important in providing necessary access.

The introduction of Proposition H in 1997, by way of the referendum process, marked the shift of the decision making process into the voters hands. In general in San Francisco, the referendum process is seen as an acceptable and sometimes desirable way of making decisions in that the

government leaves divisive issues up to the popular vote. Proposition H, which called for the replacement of the Central Freeway with a single-deck, elevated freeway, passed.

However, Hayes Valley residents weren't ready to give up their dream and with the assistance of other anti-freeway supporters put Proposition E on the ballot in November 1998. This measure, which passed, called for the creation of an at-grade boulevard. It seemed as if a conclusion over the fate of the freeway had finally been reached. However, pro-freeway forces were still up for a fight, and in November 1999 the two sides squared off in two competing ballot measures. Finally, the end of the battle was in sight as the majority of voters supported the boulevard initiative. Unlike Milwaukee, though, San Francisco never really reached a consensus on the freeway, rather people just got tired of fighting a battle that had dragged on for over ten years.

The decision making process for the Whitehurst Freeway was neither a case of a strong mayor fighting for his cause or indecision played out in an extensive public process. Rather the process fell somewhere in the middle. Like the City of San Francisco, district officials started the planning process by hiring consultants to evaluate options for rehabilitation; the thought of anything else was not an option at the time. Similarly, the district also created a Steering Committee (like the CAC in San Francisco) which would interact with the public and represent their interests, to a certain degree.

The release of the proposed alternatives generated debate amongst various neighborhoods and citizen and business groups. For the most part, however, there never seemed to be a strong community movement against the freeway. The government also seemed to have its mind set on a rehabilitation scheme, primarily citing cost and traffic concerns over the other alternatives. The National Capital Planning Commission also cited similar concerns when choosing between the district's proposed rehabilitation plan and the Committee of 100 on the Federal City's boulevard plan. Ultimately, the district was granted approval to go ahead with its proposal.

### *Decision-Making Structure*

The decision-making structure started off similarly in Washington D.C. and San Francisco. Both cities began the planning process with the development of alternatives. In San Francisco this

process was led by the Board of Supervisors and the Department of Transportation in D.C. In both locations a number of committees representing different interests were involved.

Milwaukee, on the other hand had a relatively informal decision-making structure in the initial stages of the planning process.

However, as the process moved along in each city the decision-making structure changed. In San Francisco, residents became more actively involved and eventually took over the decision-making process. In Milwaukee, business owners, citizens and government officials became part of the decision-making structure with the development of the Downtown Master Plan. In Washington D.C. the decision-making structure remained same over time.

## Financing

### *Funding Sources*

In the case of Milwaukee the teardown was paid for with federal funding as well as state, city and county money. The majority of the funding for the project came from the federal government in the form of ISTEA funds, with the state, city and county required to pay the rest.

Federal and city funding was also used to rehabilitate the Whitehurst Freeway. In this situation, the Whitehurst was eligible for funding from the Federal Highway Trust Fund as the proposal was for rehabilitation rather than a teardown. Eighty percent of the costs were financed by the federal government, while the remaining twenty percent was covered by the District of Columbia.

The financing for the design, construction, development and maintenance of Octavia Boulevard in San Francisco came from the sale of excess right-of-way parcels, resulting from the demolition of the Central Freeway from Market to Fell. The portion of the Central Freeway that was retrofitted was paid for by the California Department of Transportation.

### *Funding Mechanisms*

The major funding mechanism used for the removal of the Park East Freeway was the federal ISTEA program. Prior to the federal government's involvement, the State of Wisconsin,

Milwaukee County and the City of Milwaukee had been unable to agree on the future of the Park East, thus finding the necessary funding had been difficult. After a series of negotiations, Governor Tommy Tompson, the Department of Transportation and Milwaukee Mayor John Norquist came to an agreement to use a portion of ISTEA funding for the Park East's removal as well as a number of other projects. In addition to ISTEA funds, the City of Milwaukee also created a tax increment finance district in order to help cover the costs of upgrading local roads and facilities.

The District of Columbia oversaw the financing for the Whitehurst Freeway. After struggling for some time to secure funding, the district was able to use money from the Federal Highway Trust Fund, using district money for the remaining costs.

The case of San Francisco was different than Washington D.C. or Milwaukee in that federal government was not the primary source of funding. Instead, the State of California passed a senate bill transferring the excess right-of-way parcels to the city, which then used the profits from the sale of the land to finance Octavia Boulevard. The Transportation Authority, not the city, was responsible for overseeing and administering the funds.

### *Costs*

The removal of the Park East Freeway had the lowest cost of all three projects. Pre-demolition and construction estimates for the Park East Freeway, put the total cost at \$25 million. However, post-project estimates put the true cost closer to \$30 million. The predicted cost estimates for the construction of Octavia Boulevard in San Francisco were similar to the Park East, ranging from \$25 million to \$35 million. The most expensive of the three was the rehabilitation of the Whitehurst. The cost estimate for the Whitehurst Freeway, prior to construction was approximately \$48 million. Due to a number of conflicting sources it has been difficult to determine the true cost, post-construction.

**Table 3: Comparison of Case Study Characteristics**

	<b>Central Freeway</b>	<b>Park East Freeway</b>	<b>Whitehurst Freeway</b>
<b>Infrastructure</b>			
Function	Downtown connection	Downtown connection	Bypass road
Design	Elevated, steel, single and double-deck, 1.35 miles long, 4-lanes	Elevated, steel, single-deck, 0.8 miles long, 4-lanes	Elevated, steel, single-deck, 4 lanes, 0.6 miles long
Usage	Spilt between local and commuter traffic, 100,000 vehicles per day	Primarily local traffic 54,000 vehicles per day	Primarily commuter traffic, 50,000 vehicles per day
Condition	Damaged due to earthquake, public safety concerns	Aging and deteriorating, no immediate public safety concerns	Severely deteriorated, public safety concerns
Site	Residential neighborhood	Industrial neighborhood	Industrial, mixed-use
<b>Transportation Network</b>	Heavy rail, regional service Bus, local service	Bus, local service	Bus, local service
<b>Social</b>	Lower income, higher rate of minorities, young professionals	NA – no residential units within the immediate area	Higher than average incomes, Professionals & white collar workers, students
<b>Financing</b>			
Funding Sources	Revenue from sale of excess right-of-way parcels, Caltrans	ISTEA (federal), state, county and city funds	Federal Highway Trust Fund, city funds
Funding Mechanisms	Senate Bill, Transportation Authority	ISTEA, tax increment finance district	District of Columbia, federal government
Costs	\$25 to \$35 million	\$30 million	\$48 million
<b>Process</b>			
Decision Making Process	4 ballot propositions Strong community activism No consensus reached	Strong mayor, Downtown Master Plan, Consensus reached	Some debate Some community involvement
Decision Making Structure	Initially government led, switched to voter led	Initially led by the mayor. Later more stakeholders got involved	Government led, no real change over time in structure

## Section Two: Analysis

As a way to understand how a series of events and decisions results in the removal of an inner-city freeway I will apply the information gathered for the three cases studies to the four hypotheses presented in Chapter 2. Namely, necessary preconditions, the windows of opportunity, the value of mobility, and the values embedded in power.

### Understanding the Path to Freeway Removal

#### *A Necessary State of Disrepair?*

As discussed in Chapter 2, I hypothesize that one precondition must be met before the issue of highway removal will enter into the debate: the condition of the freeway must be such that there is concern over its integrity and structural safety. At this point in time, serious public debate will arise regarding the future role and state of freeway infrastructure.

With respect to the precondition that a freeway must be in such a state to merit concerns over its condition before serious consideration of removal will be considered, all three cases support this point, though Milwaukee to a lesser degree. In San Francisco, a small number of activists and Hayes Valley residents had been interested in tearing down the Central Freeway long before the earthquake. However, until the earthquake occurred, reducing the seismic safety to such a point that safety was a concern, there had been no significant discussion regarding an alternative future for the freeway.

The case of Milwaukee is similar to San Francisco in that there was always a small group of supporters behind removing the Park East Freeway. While there was a general consensus that the structure had reached the end of its life, it was not in such a state that it had become a public safety concern. However, something would have had to been done to the Park East Freeway within the next few years for it to maintain its structural integrity.

The Whitehurst Freeway in Washington D.C. was in worse condition than the Park East as it had become unsafe due to aging and the lack of maintenance and upkeep. The city was thus forced to contemplate the Whitehurst's future by evaluating a number of options.

### *“Windows of Opportunity”*

Following Ardila-Gomez, I hypothesized that a window of opportunity or turning point must occur for the alternative of freeway removal to become a legitimate option. While the aforementioned precondition may generate discussion about rehabilitation or reconstruction of a freeway it will not necessarily guarantee that the option of tearing down a freeway will be discussed or even considered. Therefore, the window of opportunity may be the precondition itself; however it could also be a number of other events occurring afterwards as well.

In San Francisco, the damage done to the Central Freeway was enough to get public officials to discuss what should be done with the structure, however this discussion only included various rebuild alternatives. The idea of tearing down the freeway was not given serious consideration until 1997 when it had to be shut temporarily for the upper deck to be demolished. When fears of massive gridlock did not materialize the idea of removing the freeway became plausible in the larger public and government’s minds. In this case, the true “window of opportunity” opened via the relatively unique “experiment” of the temporary shutdown.

In Milwaukee the window occurred during the development of the Downtown Master Plan in 1998. Prior to that point Mayor John Norquist and Planning Director Peter Park had been working with city staff as well as negotiating sources of funding with the state and county government. The creation of the Downtown Master Plan provided Norquist with a venue to express his vision and gain widespread support. The interest of Harley Davidson in locating in downtown Milwaukee also provided Norquist with extra ammunition for his vision.

Washington D.C. was the only case where the precondition *was* the window of opportunity. When the district began the planning process with the development of alternatives for the Whitehurst Freeway, one of the four alternatives identified was an at grade arterial with service road. The proposal called for a six-lane roadway to replace the elevated structure.

### *Evidence of Changing Values Towards Mobility?*

Even with the window of opportunity open, what might cause it to be taken advantage of? I hypothesized that freeway removal would take place only in places that evidenced a reduced “value of mobility,” relative to other objectives such as economic development, quality of life, or the environment. Removing a portion of a freeway requires some loss of mobility, thus what could be gained by tearing down a freeway, like freeing up land for housing or commercial development, must be more valuable, making the tradeoff worthwhile or desirable.

In San Francisco there was a definite struggle between the value of mobility and the value of neighborhood quality of life and cohesiveness, such that it caused a face-off between residents of different neighborhoods. As the state’s builder of roadways, Caltrans clearly valued mobility. Commuters from outside the city also were in favor of keeping the freeway as it ensured an ease of access to the city while at the same time they didn’t experience the negative effects of living in the vicinity of the freeway.

Government officials and San Francisco residents were almost equally divided on what should be done with the Central Freeway. Residents from the Sunset and Richmond neighborhoods were in favor of keeping the freeway as they were concerned over the access to their neighborhoods if the freeway was removed. On the other side of the debate were residents from Hayes Valley and the nearby neighborhoods of Western Addition, Mission and Noe Valley, who saw an opportunity to revitalize the Hayes Valley neighborhood and the nearby areas by removing a structure which created a very unpleasant place to live. Elected officials followed a similar division with the members of the Board of Supervisors supporting the viewpoint of their constituents.

In Milwaukee, the Park East Freeway was viewed by Mayor John Norquist and Peter Park as a hindrance to realizing the full potential of the downtown area. With the freeway gone, land could be opened up for new development that would help revitalize a barren and underutilized part of the city. The development of the East Point Commons in the early 1990’s had proven that the area had potential for successful real estate development.



Businessmen and some government officials expressed concern over loss of access with the removal of the Park East Freeway, however the potential for economic growth as seen by the East Pointe Commons, the interest of Harley Davidson and the Embarcadero Freeway in San Francisco proved to win over many of the initial opponents as well as quell their concerns over loss of mobility. Additionally, the fact that the Park East was essentially over-designed for its current use (a fact supported by a SWRPC study which stated that the freeway's removal would have minimal impact) also helped to make the tradeoff seem like less of a tradeoff.

In Washington D.C. the removal of the freeway never really was an option in the minds of government officials and much of the public. The District's initially reaction to the four alternatives (before the final report was released) was that the city would most likely re-deck the Whitehurst. When the final alternatives were released, the district again noted its support for renovating the freeway with the reasoning that it would allow commuters to travel faster than the other alternatives. Georgetown residents, as well as those living in Northwest D.C. were in favor of rehabilitation, citing faster commutes and keeping traffic off of neighborhood streets, respectively. The few advocates for an at grade boulevard believed that this alternative would cost less, improve Georgetown's appearance, and only cause minor traffic problems.

#### *Who is in control and what do they value?*

Even with the window open, and some sense of changing values, highway removal must have an empowered agent of change. That is, I hypothesized that in order for the decision to remove a freeway to be made, the value of the given objective (economic development, environment, etc.) must be embedded in power, be it the power of a given individual or a collective group.

In each of the three case studies it is clear that there was a struggle over the value of mobility versus other values amongst various stakeholders. In the case of San Francisco and Milwaukee the freeway removal alternative won out because the objectives of neighborhood quality of life and economic development were embodied in the power structure.

In San Francisco the value, and ultimately the power, was embodied in the hands of voters and the general public. Initially, the general public was left out of the discussion of what to do with

the Central Freeway, for the most part. Instead various government agencies oversaw the process of determining what should be done. However, once the idea of removing the freeway moved into the mainstream consciousness, the public took control of the decision making process.

In comparison to the other case studies, San Francisco is unique in that the city places a great deal of legitimacy on collective processes (the referendum process) in making large scale decisions, which in many other cities would be left solely to government officials. Because of this, there was a legal venue through which the public could make the final decision.

Another distinction between San Francisco and the other cities was the role and strength of the neighborhood unit. In San Francisco neighborhoods are powerful influences in government decisions and the city has a history of influential neighborhoods that can mobilize around issues. Thus, the referendum process could be fully utilized by these competing neighborhoods as they had the collective manpower to secure the necessary signatures to place pro- and anti-freeway measures on the ballot. The outcomes of the three elections show that there was a close divide between those voters who valued mobility and those who valued quality of life and economic development. In the end, those in support of mobility lost.

In Milwaukee the values of economic development and revitalization of a blighted area were initially embodied in the mayor. Through the planning process for the Downtown Master Plan he was able to convince governmental officials, businessmen and the general public of the benefits of tearing down the Park East Freeway and subsequently gained their support. He was also willing to negotiate over federal ISTEA funds with the Governor of Wisconsin and County of Milwaukee to ensure that the project received funding. In fact, in this case, we might question whether a true change in the value of mobility occurred or whether the mobility value was simply “shifted” to another part of the metropolitan area, since Norquist negotiated a suburban interchange with state officials in “exchange” for the freeway removal.

In contrast, in the case of Washington D.C. the proponents for freeway removal were not in a position of power. The community groups that favored an at-grade boulevard were given some consideration, however those responsible for making the final decision, Mayor Marion Berry and

the National Capital Planning Commission voted in favor of keeping the elevated structure and simply retrofitting it as they wanted to ensure that the same level mobility was maintained, if not actually increased.

### Toward a Theory of Highway Removal

Overall, the cases analyzed offer support to my hypotheses regarding the necessary conditions for highway removal. In each case, a window of opportunity did open, allowing for the idea of freeway removal to become a legitimate and mainstream option. An open window is not enough, however; freeway removal will only move forward if other values – such as the potential for economic development on the land once occupied by the freeway – exceed the perceived “value” of mobility.

In each of the three cases, there was a collective group or an individual who valued some other objective more than mobility. In San Francisco it was the Hayes Valley residents, in Milwaukee it was Mayor John Norquist and in Washington D.C. it was a special interest group. Ultimately, however, freeway removal will only happen if the value for an objective other than mobility is embedded in power. In the removal cases, the value of neighborhood quality life was embedded in the voters of San Francisco and the value of real estate development was embedded in the Mayor, government officials, and the public of Milwaukee. In the non-removal case, the value of improving the physical environment of Georgetown and cost savings, relative to rehabilitation, was not embedded in power, thus the Whitehurst was not removed.

This analysis leads us towards an initial theory of highway removal. Urban highway removal will occur in locations where a policy entrepreneur for freeway removal exists and a window of opportunity occurs such that they are able to push the idea to a wider audience. Once the window has been opened, and the idea of freeway removal has gained legitimacy as a valid option, there must be an individual or collective group who supports the opportunity cost for removing a freeway in order to benefit in another area. Ultimately for the alternative of freeway removal to be selected over other alternatives, those in power must value other benefits more than they value the benefits associated with freeway infrastructure.

## Limitations of Analysis

There are several limitations to the analysis that should be noted.

Firstly, given the cases selected, the application of the hypotheses and theory only applies to limited pieces of the freeway network. In Milwaukee and San Francisco, the piece of the freeway that was removed was part of a larger network that was never completed. Thus what was removed was essentially a stub of a freeway: the Park East Freeway was 0.8 miles long and the Central Freeway was 1.35 miles long. The function of the Whitehurst was different in that it was a bypass road not a stub, but similar in length to the Park East and Central freeways at 0.6 miles. Thus it may be difficult to generalize the findings to apply to freeways which serve different functions, such as those that are main thoroughfares that connect with the larger freeway network. In fact, one could argue that these cases show highway removal will only occur for, basically, “non-essential” portions of an incomplete network.

The second limitation of the analysis was that I was unable to determine the exact capacity reduction, if indeed capacity was reduced, by the removal of the Park East and Central Freeway. The replacement roadway in both cases had at least the same number of lanes as did the elevated freeway. However, the replacement roadways were also designed to act as local streets and to fit into the existing grid network which included narrower lanes, signalized intersections and pedestrian and bike amenities. This suggests that capacity reduction did indeed take place; nonetheless, traffic studies for the selected alternatives or post evaluation studies would be necessary to determine if indeed the overall capacity was reduced with the freeway’s removal. In the evaluation of the Whitehurst alternatives, the at-grade service road with arterial option did note a reduction in capacity but did not give specific numbers.

Finally, a number of other conditions that may have been relevant to the final decision were not included in this analysis, due to lack of time and information. For example, a more in depth analysis of transportation conditions to include transportation alternatives in the corridor surrounding the freeway and the mode split of those residing in the area. Other conditions that could have been further explored are economics, population growth, demographic trends, and an overall sense of city-wide conditions.



## CHAPTER EIGHT: Implications & Areas for Further Study

The United States Federal Highway System, called by some the “Greatest Public Works Project in History,” recently celebrated its 50<sup>th</sup> Year. This massive infrastructure project transformed the nation’s countryside and cities, accelerating suburbanization, accompanying large-scale urban renewal projects, and leading to unprecedented levels of motorized mobility at a national scale. The interstate highway system brought undeniable benefits to the country, but all benefits have their costs. In this case, they included social, economic, environmental, and aesthetic costs that led to growing opposition – and, eventually, a full-scale “freeway revolt” – to the paving of cities and the countryside in the name of expedited mobility.

Today, much of the original urban freeway infrastructures built as part of the original Interstate Highway system in the 1950s and 1960s, is reaching or has already passed the end of its useful life – requiring large investments for rehabilitation. At the same time, the freeway revolt has evolved into a more widespread movement, searching for alternative solutions to automobile-dependent mobility. Highway development and pressures for highway improvements and expansions remain important and strong, but today a vigorous debate over the future of urban highways and mobility continues.

This thesis has examined this future from the perspective of a fairly recent phenomenon: urban freeway removal. Though initiated over 30 years ago, in Portland, Oregon, urban freeway removal has apparently become an increasingly considered option in cities in the U.S. By examining three different cases where urban highway removal was a seriously considered option – two where the freeway was removed and replaced with a lower capacity at-grade boulevard and one where the freeway ultimately was not removed – my analysis suggests that freeway removal will only take place when: (1) the one precondition is met: the condition of the freeway must be such that there is concern over its integrity and structural safety, (2) a window of opportunity exists; the window may be the precondition itself or an event like a public hearing, or planning process, or a temporary closure of a roadway, (3) the value of mobility must be lower than other objectives such as economic development, quality of life, etc., and (4) those in power

must value other benefits more than they value the benefits associated with freeway infrastructure for the alternative of freeway removal to be selected over other alternatives.

## Section One: Implications

### A Paradigm Shift

As the analysis of the case studies shows, the value of mobility has been usurped by the value of economic development, neighborhood quality of life, and community cohesion, just to name a few. Contemporary cases seem to suggest that this is a growing trend and not just isolated to the cases studied.

In December 1999, the Mayor of Akron Ohio announced his intention to demolish a half-mile section of the Innerbelt Freeway in order to “open up 25 acres of land to real estate development, reconnect downtown to the near-westside neighborhoods, and uncover part of the Ohio and Erie Canal.”<sup>188</sup> In the Bronx borough of New York City, community and environmental groups are advocating for the replacement of the Sheridan Expressway with a park rather than rebuilding it, as proposed by the New York State Department of Transportation. The City of Seattle is facing the question of what to do with the Alaskan Way Viaduct, which was significantly damaged by the 2001 Nisqually earthquake. Running along the waterfront, over the Elliott Bay and carrying more than 105,000 vehicles a day<sup>189</sup>, the debate has revolved around the value of mobility versus the value of accessibility and usability of a natural resource, the waterfront.

Over the past fifty years the perspective on the role of freeway infrastructure has shifted enormously. In the 1940's and 1950's the interstate highway system was viewed as a sign of progress and advancement that would help revitalize the dying city. However as time passed and the negative side of effects of having large infrastructure running through a city manifested themselves, the anti-freeway movement emerged. What had once been thought of as a means to save the city, many felt was actually destroying it. By the 1990's a small number of cities had taken the anti-freeway sentiment one step further, by removing aging or damaged freeway

---

<sup>188</sup> Schreibman, (January 2001), p 13.

<sup>189</sup> Schneider, Keith. “A City’s Waterfront: A Place for People or Traffic?” *The New York Times*, October 25, 2006.

infrastructure and replacing it with other uses. From the 1950's to present day, the role of the freeway has come full circle as values have moved from away from an emphasis on mobility, suggesting that a paradigm shift has occurred.

### A New Framework

With a paradigm shift occurring and the role of inner city freeways changing, an opportunity now exists to deal with the question of what to do with aging infrastructure in a more systematic way. Previously, as well as in some of the current debates, the decision to tear down a freeway is made in a relatively ad hoc and informal way that varies by location. The decision to remove or not remove is made based on a series of events and circumstances rather than an explicit evaluation of all the alternatives – *including* removal – and their impacts.

In the case of San Francisco, the option to tear down the Central Freeway was never formally evaluated alongside the other alternatives which were developed and then analyzed for their feasibility. Rather, the tear down alternative arose out of a public coalition and a realization by the government and San Francisco residents that the city could function reasonably well without the freeway. In this case, the “window of opportunity” seems to have been the temporary shutdown of the Central Freeway, which gave the city the unique opportunity to experience life “without the freeway.”

The Park East's removal was largely the work of a policy entrepreneur, the mayor. By utilizing a window of opportunity, the planning process for the downtown master plan, he was able to gain support for his proposal to tear down the freeway. Only then was the idea formally acknowledged, subsequently receiving the approval of other government officials and agencies. In the case of Milwaukee, the decision to replace the Park East with an at-grade replacement roadway was made without ever formally evaluating any retrofit or rebuild alternatives.

Of all three cities, Washington D.C. was the only one to develop removal, retrofit, and rebuild alternatives from the onset of the planning process. Washington D.C. was also the only case where the precondition *was* the window of opportunity. However, the idea of removing the



Whitehurst Freeway was never given serious consideration by officials, since they were concerned with selecting the alternative that maintained or improved mobility.

These cases show that a great deal of variation exists in how the freeway removal question is dealt with and that a “fix-it first” attitude is prevalent. The standard approach when developing alternatives requires a “no-build” option to be considered together with several build/rehabilitate options. Perhaps the time has come to add a “tear-down” option to the standard approach. By proposing that the removal alternative become a standard part of the project evaluation process, it may be possible to shift towards a more systematic and conscious rather than accidental way of evaluating options for dealing with aging and/or damaged infrastructure. This expanded evaluation framework would also enable more reflective decisions to be made, as it would provide decision makers with the time to review all the options and better understand the opportunity costs associated with using valuable urban land for infrastructure versus real estate development, open space, etc.

## Section Two: Areas for Further Study

### The Decision-Making Process and Roles under a New Paradigm

The cities evaluated in this thesis were pioneers in the sense that very few points of reference existed from which to draw on. In the case of Washington D.C., only one city in the United States, Portland, Oregon, had removed a freeway before the debate over the future of the Whitehurst Freeway began in the early 1980s. In fact, the fact that the Whitehurst case did not have a valid example to point to may have pre-empted more serious consideration of the removal option. Twenty five years later, six inner city freeways in five different North American cities have been removed, with a number more weighing this option.

As more examples of potential freeway removal emerge over time, how will the way in which the decision to remove a freeway change? Above, I propose that a more systematic evaluation method, which explicitly includes a removal alternative, may be one possible outcome. As the option to remove a freeway becomes more commonplace, people will no longer be caught off

guard by the prospect, resulting in perhaps different debates, strategies, and methods of decision making.

One possibility is that as awareness grows over the impacts of freeway removal, anti-freeway activists and freeway proponents will need to develop new arguments in order to build support for their side. Perhaps freeway proponents will reach to suburbanites who may be concerned about reduced access to the city or local neighborhood residents who don't want traffic pushed onto their streets. Anti-freeway supporters may highlight the inconvenience and hassle created by large construction projects. There are many other possible areas of change within the debate and decision-making process that could be studied further.

With a paradigm shift underway, not only does the decision making structure change but so do the roles of various actors. The original transportation engineers were freeway engineers – highly trained to design, build, and ensure quality operations and maintenance of highway infrastructures and their surfaces. As transportation needs and desires have changed, so have the required skills sets of transportation engineers and planners. If amenities other than mobility continue to grow in value what are the implications for the role of those people who in some capacity support the construction of roadways. Do they adapt by finding a new niche, such as designing replacement roadways for freeway, or work to maintain their current function and purpose?

#### Mobility Pre- and Post-Freeway Removal

Concerns over the traffic effects of removing a piece of the transportation network are valid and are a significant hurdle to gaining widespread acceptance for the demolition of a freeway. As the San Francisco case showed, the possibility of removing the Central Freeway was never even an option in the minds of many citizens and government officials until the city had to function without it for several months in 1996 and 1997. Before its closure, many people feared gridlock; however once it was evident that traffic effectively dispersed itself, people began to open their minds to removing it completely. Convincing businessmen that removing the Park East would not adversely affect them or their customers access, was a key to Norquist's ability to advance his proposition. Fortunately he had a study done by the Southeastern Wisconsin Regional

Planning Commission stating that the existing transit network could support current capacity even with the freeways removal, to support his case.

The freeway removal cases analyzed here highlight the need to integrate a pre- and post-project traffic study and currently this is not common practice. Since the perception that congestion will worsen if a portion of the network is removed is fairly prevalent, a traffic study evaluating the potential impacts on the city and regional network becomes quite important as a tool for changing this perception. Formal traffic studies also have the ability to give a greater sense of legitimacy to an alternative which is still viewed as quite radical.

While potential impact studies may well play a key role in promoting the removal alternative, post-project evaluation studies are also another important area which merits further study. A post-project evaluation would provide insight into where exactly traffic went, what if any congestion was generated, subsequently showing the real role of the infrastructure from a mobility standpoint. A post-project evaluation would also provide an opportunity to determine if the replacement roadway actually reduced capacity or was just the placement of a freeway at-grade rather than in the air. In the case of Milwaukee the elevated Park East Freeway was replaced by a six-lane roadway which in some ways reflects what existed before but in a different form. This suggests that there is still a struggle between the traditional values of designing based on a perceived need for capacity and mobility versus the new paradigm of alternative values.

The travel demand analysis that would underlie assessment of the freeway removal phenomenon is a direct inverse to the ongoing analysis of, and debate around, the phenomenon of “induced” demand. Induced demand represents basic economics: adding additional travel capacity reduces travel time costs. In the short run, demand goes up in the form of people “entering into” the travel market and/or shifting from other routes, other modes, and other times of day. In the longer run, new demand emerges, in part due to new patterns of urban and suburban growth. Freeway removal pushes these forces in the opposite direction. If induced demand rests upon the phrase “if you build it, they will come,” freeway removal opens the question “if you remove it, where will they go?”

## Bibliography

Altshuler, Alan and David Luberoff. *Mega-Projects: The Changing Politics of Urban Public Investment*. Washington D.C.: Brookings Institution Press, 2003.

Ardila-Gomez, Arturo. "Transit Planning in Curitiba and Bogota: roles in interaction, risk, and change." PhD diss., Massachusetts Institute of Technology, 2004.

Ardila-Gomez, Arturo and Fred Salvucci. "Planning Large Transportation Projects: Six-Stage Model". *Transportation Research Record* 1777 (2001): 116-122.

Barnum, Alex. "All Options for Central Freeway Draw Wrath in S.F." *The San Francisco Chronicle*, April 24, 1997, A19.

Central Freeway Project Office, Department of Public Works, and City and County of San Francisco. *Central Freeway Replacement Project Octavia Boulevard Alternative: Conceptual Design and Preliminary Engineering Report*. San Francisco, June 1, 1999.

Central Freeway Project Office, Department of Public Works, and City and County of San Francisco. *Central Freeway Replacement Project Octavia Boulevard Alternative: Supplemental Report – Preferred Alternative*. San Francisco, July 12, 1999.

California Department of Transportation, District 4. *Central Freeway Evaluation Report*. Sycstan, Inc., et al. San Francisco, May 1997.

California Department of Transportation, District 4 and City and County of San Francisco. *Central Freeway Replacement Project NEPA Reevaluation: Draft Final Report*. San Francisco, December 13, 1999.

California Department of Transportation, District 4 and City and County of San Francisco. *Central Freeway Replacement Project NEPA Reevaluation: Final Report*. San Francisco, June 8, 2000.

Cervero, Robert. "Freeway Deconstruction and Urban Regeneration in the United States." *The University of California Transportation Center*, October 2006.

Chase, Scott and Jerry Knight. "Tearing Down the Whitehurst Freeway; Improving View From the Bridge." *The Washington Post*, August 29, 1981, E1.

City of Milwaukee Department of City Development. "Park East Corridor Newsletter." March 2002.

\_\_\_\_\_. "Park East Corridor Newsletter." November 2000.

\_\_\_\_\_. "Park East Corridor Newsletter." October 2003.

Cutler, Richard W. *Greater Milwaukee's Growing Pains, 1950-2000: An Insider's View*. Milwaukee: The Milwaukee County Historical Society, 2001.

Department of Parking and Traffic City and County of San Francisco. *Central Freeway Areawide Traffic Study*. Wilbur Smith Associates, et al. San Francisco, November 1995.

District of Columbia. *Whitehurst Freeway Corridor Study: First Interim Report*. DeLeuw Cather Consultants. Washington D.C., January 1983.

Epstein, Edward. "Battle Joined Over Fate of Freeway; S.F. board at loggerheads after passage of Prop. E." *The San Francisco Chronicle*, November 17, 1998, A17.

\_\_\_\_\_. "Yaki Wants Spending for Freeway Held Up." *The San Francisco Chronicle*, July 14, 1999, A11.

Epstein, Edward and Ramon G. McLeod. "New S.F. Voter Bloc Shows Clout: Chinese Americans were key to retrofit ballot victory." *The San Francisco Chronicle*, November 16, 1997, A19.

Evans-Teeley, Sandra. "Resurfacing Likely Fate of Whitehurst; Mayor Cites Cost Study on Options for Freeway." *The Washington Post*, June 23, 1983, B1.

Ewing, Reid. "Measuring Transportation Performance." *Transportation Quarterly Winter* 49, no. 1 (1995): 91-104.

Fehr, Stephen C. "Whitehurst's Makeover Nears Reality as Freeway Turns 40." *The Washington Post*, March 9, 1989, J1.

\_\_\_\_\_. "Panel Approves D.C. Plan to Fix Whitehurst Freeway." *The Washington Post*, January 5, 1990, A1.

Garb, Yaakov. "Constructing the Trans-Israel Highway's Inevitability." *Israel Studies* 9, no. 2 (Summer 2004): 180-217.

Glaeser, Edward L. and Joshua D. Gottlieb. *Urban Resurgence and the Consumer City, Preliminary Draft*. Cambridge: Harvard University, 2006.

Goldstein, Stephen. "Panel Approves D.C. Plan to Fix Whitehurst Freeway." *The Washington Post*, January 5, 1990, C1.

Gordon, Rachel. "Vote on deal to replace freeway; Central is S.F.'s enduring quake scar." *The San Francisco Chronicle*, Oct 15, 2001, A11.

King, John. "15 Seconds That Changed San Francisco." *The San Francisco Chronicle*, October 20, 2004, A1.

Kingdon, John W. *Agendas, Alternatives, and Public Policies*, 2<sup>nd</sup> edition. New York: Harper Collins College Publishers, 1995.

Knight, Jerry. "City May Replace Whitehurst Freeway; City May Build Replacement for Aging Whitehurst Freeway." *The Washington Post*, August 26, 1981, A1.

LaGessee, David. "The Road Warrior: Building the highways that changed a nation." *U.S. News and World Report* 134, no. 23 (June 30, 2003): 44.

Lange, Larry. "Could Seattle do Without It's Viaduct?" *Seattle Post-Intelligencer*, May 23, 2006.

Levy, Dan. "S.F. Voters to Decide Central Freeway's Fate –Again." *The San Francisco Chronicle*, October 27, 1999, A17.

Lewis, Tom. *Divided Highways: Building the Interstate Highways, Transforming American Life*. New York: Viking, 1997.

Lynton, Stephen J. "City Contemplates Surgery for Aging Artery; Whitehurst Freeway: Replace, Repair, Remove?" *The Washington Post*, March 14, 1984, A1.

\_\_\_\_\_. "District Plans to Preserve and Repair the Whitehurst Freeway." *The Washington Post*, September 19, 1984, A1.

\_\_\_\_\_. "Whitehurst Plan Announced; Barry Says Elevated Freeway Will be Retained, Renovated." *The Washington Post*, October 18, 1984, C5.

MacDonald, Elizabeth. "Building a Boulevard." *Access*, no. 28 (Spring 2006): 2-9.

Mohl, Raymond. "Stop the Road: Freeway Revolts in American Cities." *Journal of Urban History* 30, (July 2004): 674-706.

O'Reilly, Dan. "Death by decay: Toronto highway bites the dust [Gardiner Expressway]." *Heavy Construction News* 45, no 5 (May 2001): 12.

Reid, Robert L. "Paving America From Coast to Coast" *Civil Engineering* (June 2006): 37-43, 78.

Rose, Mark H. *Interstate: Express Highway Politics, 1939 – 1989, Revised Edition*. Knoxville: The University of Tennessee, 1990.

San Francisco County Transportation Authority. *2005 Annual Report*. San Francisco, 2005.

Schneider, Keith. "A City's Waterfront: A Place for People or Traffic?" *The New York Times*, October 25, 2006.

Scholz Roland W. and Alexander I. Walter. "Critical success conditions of collaborative methods: a comparative evaluation of transport planning projects." *Transportation* 34 (2007): 195-212.

Schreibman, Lisa. "On a Tear." *Planning* 67, no. 1 (January 2001): 10-13.

Schulz, John. "Eisenhower's 1919 Trek Led to Road Network." *Transport Topics*, no. 3695 (June 19, 2006): 12-14.

Siew, Walden. "Freeway now ready to reopen; Whitehurst fixed for 2-way traffic." *The Washington Times*, August 19, 1998, A1.

Southeastern Wisconsin Regional Planning Commission. *Amendment to the Regional Transportation Plan-2020: Park East Freeway Corridor*. Waukesha, Feb 2001.

U.S Department of Transportation, Federal Highway Administration, and State of California Department of Transportation. *San Francisco Central Freeway Replacement Project: Environmental Assessment/Finding of No Significant Impact (FONSI) and Response to Public Comment*. San Francisco, March 1998.

U.S. Department of Transportation, Federal Highway Administration, and District of Columbia Department of Public Works. *Whitehurst Freeway Corridor System Modification Study: Final Impact and 4(f) Evaluation, Volume 1 of 2*. District of Columbia, Aug 1985.

Velsey, Donald W. "We Should Keep the Whitehurst." *The Washington Post*, June 30, 1991, C8.

Wade, Beth. "Lose a Road, Gain a Neighborhood." *The American City & County* (September 2001): 36.

Weiland, Andrew "Momentum suddenly builds in the Park East." *Small Business Times*, March 16, 2007.

Weiner, Edward. *Urban Transportation Planning in the US: A Historical Overview*. Washington, D.C.: Office of Economics, 1992.

Weingroff, Richard F. "The Genie in the Bottle: The Interstate System and Urban Problems, 1939-1957." *Public Roads* 64, no. 2 (Sep/Oct 2000): 2-15.

Wilner, Thomas B. "Why Rebuild an Eyesore?; It's not too late for an alternative to the Whitehurst." *The Washington Post*, June 23, 1991, B8.

Wilson, Yumi. "Central Freeway Retrofit Passes: Supervisors OK \$67 million plan." *The San Francisco Chronicle*, November 25, 1997, A15.

\_\_\_\_\_. "Boulevard Plan Takes Lead in S.F.; Central Freeway retrofit now trailing in vote count." *The San Francisco Chronicle*, November 4, 1999. A21.

Yin, Robert. *Case Study Research: Design and Methods*. Beverly Hills: Sage, 1984.

Zegras, Chris. "Sustainable urban mobility : exploring the role of the built environment." PhD diss., Massachusetts Institute of Technology, 2005.

Glaeser, Edward L. and Joshua D. Gottlieb. *Urban Resurgence and the Consumer City, Preliminary Draft*. Cambridge: Harvard University, 2006.