Transportation Policies

and Their Effects

Including the Impacts of Second World War and Cold War Era Policies

Prepared for:

The City of Milwaukee

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Table of Contents

Background

The native Potawatomi termed the area of the City of Milwaukee “the gathering place by the river.” When the location served primarily for such historic gatherings, the Potawatomi judged the area of the "City," by a set of criteria for that purpose. For generations prior to mechanized transport, water served as the principal means for accomplishing travel for longer than walking distances, as well as for the shipment of goods. Here, the forces of nature had created the confluence of two rivers near the shore of a huge lake that would come to be called Lake Michigan. Here, where these waters flowed together, people could easily gather. The only early human action was the act of the discovery of this place.

The City remains an important gathering place for many, but today other travel modes are of higher priority to Milwaukee than is water-based travel. The City's importance has risen enormously and its functions have become exceedingly more complex. The natural setting remains, but the accouterments added by people over time have transformed the location from one naturally suited for one principle purpose to one built up to become that most complex of human creations: a city.

Today's era of regulations and permit requirements for construction activities did not always exist, but each aspect of the built form of the City was guided by conscious human decisions and policies. These policies have many names, including zoning, codes, Acts, laws, guidelines, programs and simple preferences. As the City has changed over time, however, the review of all of its own policies, and the outside policies that affect it must be reviewed to see if they comport with current and projected needs.

This paper will examine some of the transportation-related policies that have affected the City.

Introduction

Recently, the City embarked on a planning process involving the presentation of hundreds of images to thousands of people. This process, conducted by Team ANA, seeks to determine what vision the citizens and others have for the City's future through the presentation and very detailed analysis of responses to actual imagery.

Based on the Visioning process, and now as a matter of public policy, the City of Milwaukee has chosen to revitalize its downtown. This revitalization is expected to include a significant number of new residencesadded to the downtown, along with many new recreational, institutional, and personal service and other commercial uses.

This type of public policy requires a reexamination of all policies affecting the downtown, some of which may need to be changed to help realize the ultimate goal of revitalization. As the city center is a very complex mix of many elements that at times compete with each other for limited resources, each decision involving the public realm will usually require a tradeoff of one form or another. This document evaluatessome transportation policies of the past and examines whether the existing transportation policies may need to be adapted or redirected to relate to the overall goals of the long range downtownplan.

The revitalization of the downtown includes the goal to reestablish the City as a vibrant mixed-use center. One small example of relatively recent changes in the nature of the City, in 1948 the City had 79 indoor movie theatres; today, it has none.

The citizens have also recognized the increasing importance of non-motor vehicle modes of travel, particularly including pedestrian and transit, for the long term success and revitalization of the Downtown. To the largest extent possible, movement within the City of Milwaukee for most personal downtown trips as a goal should be by transit and on foot. While intuitive to many, the notion that pedestrians are the lifeblood of a

downtown has been formally noted by many, including some organizations that deal primarily with the movement of motor vehicles.[1] Enhancing the pedestrian aspects of the downtown will enhance transit opportunities, while at the same time adding to the vibrancy of the streets.

Historic Transportation Issues for the City

Before the private automobile, transportation issues in the City had a rather different set of downtown planning issues. Before electric streetcars and railroads, transportation on land was predominately either on foot or made with the assistance of animals. An examination of the past will reveal that each age has its own set of direct and indirect transportation issues to address. The realities of what may have seemed an idyllic past demonstrate that there are few if any transportation nostrums.

It has been estimated that shortly after 1900, when auto traffic was just beginning to be a problem, the City had a horse population of approximately 12,500.[2] This number of horses produced approximately 133 tons of manure each day, and this daily amount of manure would cover an entire acre of land to a depth of nine or ten feet. The disposal of this manure was a significant urban matter at the time.

As occurred in all cities that developed prior to motor vehicles, the City of Milwaukee was first laid out with an understanding of the importance of walking. This understanding was not due to some early prescient understanding of the environmental benefits of "sustainable design," as it is so often termed today. Rather, this understanding came about because at the time there were fewer travel choices. Planners possessed the

[1] See, for example: American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets, Washington, D.C., 1994, pg. 97 "…it is often extremely difficult to make adequate provisions for pedestrians…[y]et this must be done, because pedestrians are the lifeblood of our urban areas." And Untermann, Richard K., Accommodating the Pedestrian, New York, 1984, Preface: "The public right-of-way's most important purpose is to accommodate the pedestrian."

[2] Jackson, Kenneth T., Crabgrass Frontier, Oxford University Press, 1985, pp. 107.

concomitant and elemental recognition that all people are pedestrians and that all travel is at least in part made on foot. This latter point remains true today.

The fundamental need for people to walk about the city was one of the first design policies or principles to influence the physical form of the city. However, its intrinsically understood importance to human travel was so much a part of every person's makeup that this policy did not at first need to be stated or written: it was as natural a part of planning as any aspect of planning or life could be. This can be noted in the similarities of the patterns of cities and human developments throughout the world. Commenting on the likelihood that the pedestrian behavior today in the streets of souk in the Old City of Jerusalem differs little from that of pedestrians centuries ago, Whyte noted "there are lessons [for designers] in these old places."[3] Older neighborhoods often offer up many good areas for design study, in part simply because they have survived long enough to become older neighborhoods.

Milwaukee recognized some of the impacts of motor vehicles at an early stage, particularly the impact of the speed of motor vehicles. In 1902, when motor vehicles were fairly new to the City, the Common Council passed a resolution limiting the speed of motor vehicles to 8 miles per hour on streets and public grounds, while imposing the additional limit of 4 miles per hour on “crowded streets”. In 1904, the Mayor asked for even tougher speed limits, noting that “many of the automobilists seem to be perfectly regardless of human life.”[4] It is worthy to note, not coincidentally, that 8 miles per hour is the speed of a adult running, and 4 miles per hour is a brisk walking speed.

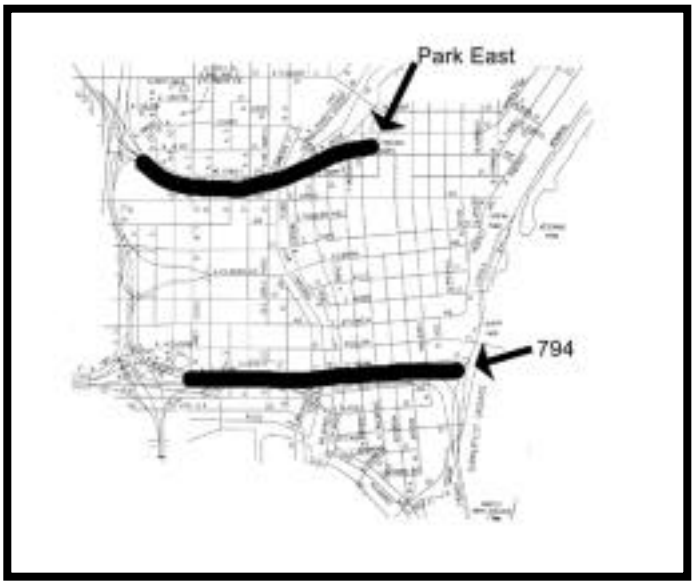
These actions by the Council and Mayor point out the importance at the time of attempting to "humanize" this new mode of travel through a public policy relating to speed. While bigger than people and horses, if the speeds of motor vehicles stayed in

[3] Whyte, William, City: Rediscovering the Center, Doubleday Dell publishing, 1988, pg. 24.
[4] Online exhibit about history of Milwaukee, University of Wisconsin-Milwaukee, http://www.uwm.edu/Library/arch/highway

the range of speeds at which people could themselves travel, then the motor vehicles would be less intrusive and dangerous in the city (this same concept forms a large part of "traffic calming" today). Also, by attempting to limit to these speeds, the motor vehicles would have little to offer in terms of reducing travel times as compared with walking. Pedestrian travel was clearly at least as important as motor vehicle travel to the policy makers at the time.

Today, the generally recognized upper threshold of vehicular speeds beyond which pedestrians and other non-motorists are not generally comfortable is 20 miles per hour (see Pedestrian Report). Obviously 8mph is not necessary for pedestrian enhancement, nor was it achievable even in 1902, but the City's early adoption of such a restriction is an interesting commentary on the public policies of the day and of the lasting importance of the pedestrian to the downtown.

Existing Grade-separated Highways in the City



The downtown is generally understood to extend from the northwest neighborhoods south of Walnut Avenue and Pleasant Street, to the southeast Historic Third Ward, and westerly from Lake Michigan to the Highway. This downtown, however, is divided into smaller sections by two elevated, six-lane highways that cross the City in an east-west alignment at two locations. These highways are known as the Park East Highway to the north, and Highway I-794 more to the south (see diagram at right).

These elevated highways do not physically preclude pedestrian travel beneath them. There are some sidewalks beneath them, and large areas under these highways are used for parking. However, these highways do present significant psychological barriers to pedestrian travel: they loom over the street blocking the sun and are altogether out of scale for pedestrians. While many pedestrians walk to and from these locations when parking or leaving by motor vehicle, few pedestrians walk through these areas. This pedestrian "disconnection" diminishes the value and vibrancy of the severed neighborhoods, especially to the northwest.

The existence of these highways does not comport with the current policy of downtown enhancement from the pedestrian perspective. The creation of such looming structures would have been possible in 1902 as well, if constructed of different materials. However, given the speed limit imposition of that time it is unlikely that such structures would have been allowed then either, due to adverse impacts to pedestrian circulation in the City.

The construction of such elevated highway facilities in Milwaukee occurred due to a series of fundamentally different planning criteria and policies.

Both of these highways did not simply spring from the earth; their creation followed much planning and considerable debate that occurred locally in the late 1950's. Both came about when the clear goal and policy at the time of their inception was to provide high volumes of fast moving motor vehicles to and through the City of Milwaukee. In 1958 this was acknowledged by the City Land Commission that issued a report noting that the expressway system should "give greater emphasis to bringing traffic to downtown rather than through downtown." This original 1950's goal of moving large

volumes of relatively high-speed motor vehicles through the City of Milwaukee does not comport with the current public policy to revitalize the downtown.

The City Policy makers had clearly and fundamentally changed the City's transportation policies between 1902, when vehicles were throttled back to eight miles per hour and 1958 when large sections of the City were to be replaced with elevated highways solely for the use of motor vehicles. To better understand the forces affecting the policy makers of the time that effected such significant changes in fundamental urban policies, one needs to examine the context within which these decisions were made.

Local Studies

Between 1928 and 1949 three significant local transportation studies were conducted. Despite the pedestrian focussed history of the City, these studies, in conjunction with national policies that began to take form after World War II, served to create a mindset that became predisposed to motor vehicle (primarily automobile) solutions for travel demands.

In 1928, the so-called McClellan Report entitled Transportation in the Milwaukee Metropolitan District was issued. This report noted the increasing population of the City, estimating a resident population of one million people by 1950, while also predicting that the population growth would be exceeded by the number of automobiles traveling the streets. It concluded with recommendations to complete a highway development plan that included constructing wider "arterial" streets for through moving traffic intended to be kept out of the central business district and improvements to the transit systems, including the construction of a subway system.[5]

In 1946, Milwaukee was one of 37 metropolitan areas in the U.S. that received federally-sponsored local transportation scrutiny. In a report titled as an origin-destination study,

[5] University of Wisconsin-Milwaukee, online exhibit, Ibid.

the U.S. Public Roads Administration concluded simplistically that there were too many cars and not enough roads for those cars. Transit was not examined as a part of this study.[6]

1949 brought to the City's decision-makers the third major local transportation study of the era: Major Trafficways: Milwaukee Metropolitan Area by DeLeuw, Cather &Company. This report studied the transportation needs for the next twenty-five years. It also concluded that "the most economical way to obtain the added traffic capacity required in Milwaukee would be through the construction of a system of expressways."

C.I.A.M., and International Policies

Milwaukee's studies and planning were not occurring in isolation of much broader initiatives occurring internationally. While many Milwaukeeans of the time were likely unaware of it, the world design community was getting together during the same time period that Milwaukee was studying its transportation issues.

Internationally, a very significant design association began in 1928 that would come to fundamentally affect the thinking of architects, urban planners and policy-makers for decades. Known as the Congres Internationaux d'Architecture Moderne, or more commonly C.I.A.M., this group of highly influential people held a series of five "congresses," through 1937, that brought designers and others together to work out design solutions and policies for all aspects of the built environment, from the neighborhood to complete cities, including transportation at all levels. Present day designers will recognize the similarities between C.I.A.M. and today's Congress for the New Urbanism (CNU).

C.I.A.M. defined the four primary functions of the city: "dwelling, work, recreation, and transportation."[7] C.I.A.M.'s analysis of these four functions were presented in the "Town-

[6] University of Wisconsin-Milwaukee, online exhibit, Ibid.

Planning Chart." The principles of this "chart" guided suburban and urban development thinking from academia to construction and even destruction of urban neighborhoods.

From a transportation perspective, two of C.I.A.M.'s principles were that "buildings of all kinds, but especially dwellings, should be isolated from heavy traffic by green bands," and that "traffic could be reduced" so long as it was "concentrated within the great arteries."[8]

C.I.A.M. also documented in great detail a very important topic for urban planning at the time, that being the new air-raid "menace" as it was termed.[9] Noting that it was "too late now to alter the patterns of our cities," C.I.A.M. warned that existing cities nevertheless "offered excellent targets from above" and that planners were warranted "in assuming that [the air raid menace] influence will transform urban patterns."[10] C.I.A.M. also noted that "a district formed by one-family dwellings…considerably reduced" the "chances of a hit" from an aerial bomb.

Similarly, C.I.A.M. advised that high "dwelling blocks" of apartments that "were widely spaced and surrounded by park land" made "a hit comparatively difficult," while at the same time the larger buildings themselves also "may offer greater possibilities for an efficient shelter system."[11] Many early cities had fortified walls encompassing the city proper to protect the inhabitants and provide suitable defense from aggressors. In the middle of a World War, C.I.A.M. argued for the need to plan for future bombings from above. Dispersing the targets, in the form of buildings and development, was clearly seen as one important planning tool.

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[7] C.I.A.M., ***Can Our Cities Survive?,*** Harvard University Press, 1947, pg. 10.
[8] C.I.A.M., ***Can Our Cities Survive?,*** Ibid, pg. 248***.***
[9] C.I.A.M., ***Can Our Cities Survive?,*** Ibid, pg. 69.
[10] C.I.A.M., ***Can Our Cities Survive?,*** Ibid, pg. 66.
[11] C.I.A.M., ***Can Our Cities Survive?,*** Ibid, pg. 69.

Finally, from the international perspective, C.I.A.M. did not forget the desirability of many older cities, once they had literally been cleaned up.[12] C.I.A.M. again warned that "as recent European experiences have demonstrated," shelters to protect the populations of cities "is impossible," and therefore "mass evacuation affecting the greatest possible number of inhabitants appears to be the only efficient precaution to be taken today."[13]

These concerns and issues did not remain solely in Europe.

National Policies and Influences

In 1943 the American Road Builders Association was formed. This powerful lobbying enterprise was second only to the munitions industry at the time, and the notion of an entirely new system of "superhighways" crossing the country became one of its earliest goals.[14]

Such highways had been dreamt of for years, a 1936 publication, in a chapter prophetically entitled "The Automobile Millennium" predicted that "perhaps the most spectacular developments in the automobile age of the future will be on our highways." These highways were going to be "straight as the flight of an arrow," and would pass through cities either overhead or underground so that it might be possible for "heavy commercial traffic to disappear from the city streets."[15]

After the War, the pervasive impacts of the Cold War were affecting thinking in U.S. planning policy circles. In 1951, a group of atomic scientists argued for the need to defend the United States, much as C.I.A.M. argued, through decentralization to disperse

[12] As recently as the 1940's soot was considered both a reality and a necessary evil associated with industry in cities. The average monthly soot fall in parts of Manhattan at the time was 150 tons per square mile (source: ***Can Our Cities Survive?,*** pg. 117).
[13] C.I.A.M., ***Can Our Cities Survive?,*** Ibid, pg. 66.
[14] Jackson, Kenneth T., Crabgrass Frontier, Ibid., pp. 248-249.
[15] National Bureau of Casualty and Surety Underwriters, Man and the Motor Car, New York, 1936, pp. 225-226.

targets from the new atomic bomb menace.[16] The American Association of State Highway Officials (AASHO, the predecessor to AASHTO) civil defense committee warned that street design should take into account the need for evacuation before, and cleanup after the nuclear war that was expected to take place.[17]

All of these concerns and thinking were addressed with typically American dispositive finality when the Interstate and Defense Highway System was authorized in 1956. The U.S. set out to construct 42,500 miles of the new superhighways. In support of the Interstates, President Eisenhower cited that: existing roads were unsafe; there were too many traffic jams; transportation costs were too high for businesses; and, "in case of atomic attack on our key cities, the road net must permit the quick evacuation of target areas."[18] No non-auto based solution was ever studied.[19]

The threat of a nuclear war had become a real concern. Milwaukee's industry was an obvious target for Soviet missile or bomber attack, and a battery of Nike anti-aircraft missiles was placed on the lakefront as another part of the effort to defend the City.[20]

While these large highways had tremendous impacts to urban form, their design and placement were considered to be primarily engineering exercises. Engineers had been successful in wrapping highway planning and construction in an aura of "technical expertise uncontaminated by politics."[21] The decisions concerning where these highways were to be located were often made by "small numbers of elected officials…with engineers included in the process as technical experts."[22]

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[16] Jackson, Kenneth T., Crabgrass Frontier, Ibid., pp. 249.
[17] Chellman, Chester E. Land Development, ***Street Design: Design Intent, History, and Emerging Concepts***, national Association of Homebuilders, Spring/Summer 1995, pg. 14.
[18] Jackson, Kenneth T., Crabgrass Frontier, Ibid., pp. 249.
[19] Jackson, Kenneth T., Crabgrass Frontier, Ibid., pp. 249.

[20] University of Wisconsin-Milwaukee, online exhibit, Ibid.
[21] American Association of State Highway and Transportation Officials (AASHTO), The States and the Interstates, Washington, D.C.,1991, pg 36.

Against this national and international backdrop, Milwaukee's decisions to support both I-794 and the Park East highways, at the expense of the pedestrian, are more easily understood.

Travel Behavior, Convergence and Divergence

Thankfully, Milwaukee has not yet had the need to evacuate due to aerial attack or nuclear threat. Nevertheless, some of the infrastructure for evacuation, this being the elevated highways, was constructed and they have been in continuous use for decades transporting goods and people. The question has arisen recently as to whether the transportation functions of these highways are somehow irreplaceable, with considerable concern over what might happen if they were removed. In order to evaluate this possibility, a few travel characteristics need to be presented.

When an individual contemplates travelling from one point to another, there are three basic decisions that must be made: the time of day for that journey; the mode of travel for that journey; and the route along which that journey will be made. When large groups of individuals choose the same time of day, mode of travel, and route for that travel, then the transportation concept termed “triple convergence” occurs, and that particular mode of travel and its route at that time will quickly become congested. Anyone in a car who has attempted to access the Marquette interchange via 794 during the P.M. peak commuting times has experienced the effects of triple convergence.

Another factor that impacts the choice of time, route, and mode of travel is the cost of the journey. The one cost of travel that is a common denominator for all is the time for and the experiential value of the journey. Clearly, a stroll on Water Street on a fine spring day requires less personal cost and is a much better experience than, for example, being caught in that line of traffic along Clybourne Street creeping its way onto 794.

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[22] AASHTO, Ibid. pg 36

Actual monetary costs may also be assigned to certain travel. So-called intelligent transportation systems have made it possible to assess peak period fees for travel in motor vehicles along certain routes. Fees for parking have been a routine for the downtown for decades.

When there are options to be made in terms of route, mode, or time of day of travel, travelers consciously and unconsciously evaluate the costs for a particular journey. When that cost of a particular trip, real or subjective, becomes too great, then the reverse of the above effect takes place and triple divergence will occur, moving travelers to other times of day, other routes of travel, and usually a lesser extent, to other modes of travel.

Triple convergence often occurs when an entirely new mode of travel is introduced such as occurred when these highways were first constructed. This sort of highway construction is now recognized to induce additional travel by that mode.

Therefore, the variables available to Milwaukee for its long range transportation planning are primarily what modes and routes of travel are to be made available for its citizens, workers and visitors. Times of travel will be an option for some, but as a major metropolitan area, the City will likely continue to have peak period travel demands to deal with.

With certain holidays comes the obligation to gather with certain family members that one had no choice in selecting. Such is not the case with travel. People do not travel along a certain route or by a certain mode for genetic reasons, they do so as a matter of choice, and the route, time and mode are all options.

The actual transportation functions of the Milwaukee highways, or those of any other highway or single mode of travel, are completely replicable by other modes of travel. To answer its future transportation needs, the City could choose to implement, over time, a series of improvements and additions to its transit systems. Such an implementation

would be fully in keeping with the stated desire to create a more walkable and pedestrian friendly downtown: pedestrians more often take advantage of transit than do drivers. It therefore becomes, as it did decades ago, more a question of long range policy.

However, in addition to inducing changed travel behavior, there are examples where acts of nature, conscious decisions and policy changes have forced modal change on travelers.

Impacts of Highway Removal: U.S. and Other Examples

Certain aspects of the planning for Downtown Milwaukee are quantifiable and to that extent, essentially scientific means can and should be a part of the planning for the downtown. However, travel within the City of Milwaukee, or any city, is so complex that conventional forecasting techniques will not always predict what will actually occur when change is effected. This is especially true when the potential impacts of traffic capacity reduction, as would occur with a highway removal, is considered.

As one example, on October 17, 1989 San Francisco was struck by the Loma Prieta earthquake, which caused very significant damage to the city. The earthquake damage closed many roads including the Bay Bridge and the Embarcadero Highway, among others. Prior to the earthquake, the Bay Bridge carried 245,000 vehicles and 400,000 people per day (3 to 4 times the vehicular volume of I-794, and more than twice the volumes of both I-794 and the Park east together). As the alternative to use of this bridge involves a minimum 20 mile additional journey by motor vehicle, conventional wisdom would say that the effects of its instantaneous removal from the transportation network would be disastrous.

However, one month after the earthquake and while the bridge remained closed, a survey of travelers was conducted and it was found that in this instance, most of the

travelers to the city maintained their existing travel times by changing travel mode. Those travelling by car dropped from 61% of travelers before the earthquake, to 11% afterward; those travelling by bus and train increased to 76% following the earthquake. The figures show that there was a convergence to transit.

The Bay Bridge presents and important example of travelers changing modes, in this case because they were forced to by the sudden damage to the bridge. It should also be noted that, not surprisingly, when the bridge was repaired most drivers returned to that mode of travel.

The same earthquake impacted another downtown San Francisco highway. This example, also largely destroyed by the quake, is the waterfront Embarcadero Highway, which was a grade-separated highway not unlike the Milwaukee highways. This highway was never reconstructed but was replaced with streets, increased pedestrian activity and a light rail line, with no ill effects on transportation overall.[23]

What the San Francisco examples show is that that if alternative modes of travel are available, travelers will use them either if they are essentially forced to as occurred with the earthquake, or induced to by enhancements to these alternative modes such as occurred with the Embarcadero Highway removal.

There are numerous other examples found in this country and worldwide. Even the city of London, which enjoys one of the best public transport systems and ridership levels (90% of city workers travel to and from work by transit) found a need in 1993 and 1994 to enhance its downtown by minimizing some of the motor vehicular traffic. Through a series of measures which included its closing streets and other conventional traffic capacity reduction schemes, an approximate 25% reduction of the traffic entering the central core area of the city, roughly the same size as Downtown Milwaukee, was

achieved. The results of this reduction in traffic was essentially no change to travel times by bus, a 39% reduction in casualties, and an approximate 15% reduction in air pollution while overall "remaining extremely popular with the majority of businesses, workers, and City visitors".[24]

As with computer data, where it is prudent to create redundant copies of files, creating redundant travel routes and modes is actually a safer means of planning for the long range needs of a city than is reliance on a single mode. If San Francisco had not had its train system in place, the Loma Prieta earthquake would have indeed paralyzed that city.

Park East Highway Details and Present Functions

The Park East Highway covers approximately thirty acres, or twelve hectares, of the City. This highway also presently has traffic volumes of approximately 48,000 vehicles/day entering and leaving the Hillside interchange and approximately 35,400 vehicles between North 4th and North Broadway. The average daily traffic at its East end, approximately between Milwaukee and Jefferson Street drops to approximately 23,800 vehicles.[25] As a six-lane highway, Park East Highway has an approximate daily capacity of 90,000 vehicles, so it is presently operating well below its daily capacity. Its hourly service flow capacity is approximately 11,400 vehicles (1900 cars/hour/lane at 50 mph)[26].

Highway I-794 Details and Present Functions

Highway I-794 stretches over a mile of so of the City, and covers approximately 45 acres (eighteen Ha.) of City real estate. This highway has current traffic volumes of

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[23] Traffic Impact of Highway Capacity Reductions: Assessment of the Evidence; by Karen Cairns, Hass-Klau & Goodwin, London Transport Department of Environment Transport in the Regions, 1998, pp. 194-198.
[24] Assessment of the Evidence, Ibid., pp. 152, 153.
[25] Wisconsin Department of Transportation, Wisconsin Highway Traffic Volume Data, March 1997 (1996 data), pg. 227.
[26] Transportation Research Board, Highway Capacity Manual Special Report 209, pg. 3-10.

approximately 95,000 vehicles/day entering and leaving the Marquette interchange. The annual average daily traffic (AADT) approximately over 2nd street drops to approximately 80,000 vehicles and the AADT drops to approximately 22,000 vehicles at Lincoln Ave.[27] As another six lane highway, I-794 also has an approximate daily capacity of 90,000 vehicles, so it is presently operating well within its daily capacity over most of its length. As with the Park east, its hourly service flow capacity is approximately 11,400 vehicles.[28]

Together, these highways today carry upwards of 115,000 vehicles per day to and through the City. Despite their design and capabilities to transport large numbers of travellers through the City, they serve primarily to transport vehicles to and from the City. Assuming an average occupancy of 1.25 people/vehicle, these highways are also transporting approximately 144,000 people/day.

Historic Changes in Milwaukee Modes of Travel

As noted above, approximately 144,000 people utilize the elevated highways each day for travel to and from the City.

Fixed-Route Transit Ridership in Milwaukee

1950 (est)	1963	1972	1991	1995
215,000,000	89,761,600	52,875,400	47,267,100	44,046,900

As a point of reference, some of the recent travel behavior history of the City was reviewed. As it happens, there are historic examples of even higher numbers of Milwaukeeans changing modes of travel than presently use these highways. Above is a table of the annual fixed-route transit ridership in Milwaukee.[29]

[27] Wisconsin Department of Transportation, Traffic Volume Data, Ibid, pg. 227.
[28] Transportation Research Board, Special Report 209, Ibid pg. 3-10.
[29] SEWRPC, Regional Plan, Ibid, pg. 30.

Converting this data to approximate daily weekday ridership, is can be seen that in the 13 year period from 1950 to 1963, daily ridership dropped by approximately 480,000 people. In the next 9 years, another 141,000, or about the same number as use the elevated highways today, changed modes of travel away from fixed-route transit. Since then, and following a slight increase in ridership in the 1970's, perhaps caused by the gas "crisis" of that time, ridership levels have dropped slightly.

There are many reasons for this change in travel mode, but purely from the standpoint of frequency of service, the quality of the transit experience has diminished greatly since 1963. In 1963, transit vehicles traveled 78,900 miles over routes totaling 716 miles in length (a ratio of 111). In 1995, transit vehicles traveled 58,700 miles over routes that had grown to 2,095 miles in length (a ratio of 28).[30] This represents a drop in overall transit route service coverage to only 1/4 of what was possible in 1963, with an attendant increase in headways, or waiting times. The growth in route length speaks to the more diffuse development pattern since 1963, and the drop in service coverage speaks to the changing policies during that time, some of which were discussed previously.

Conclusions

Simply removing the all of the Park East Highway or I-794 without providing other attractive and functional travel options would be irresponsible. Although initially conceived to address the horrific need of emergency evacuation, these highways address more mundane travel purposes today. They represent routes of travel and a modal choice that are presently relatively simple and understood by many.

However, in the Vision process, the citizens have predicted a view of the City that does not include these highways. If as a formal matter of policy these highways continue to be deemed to no longer comport with the City's long range vision of itself, then the trips

[30] SEWRPC, Regional Plan, Ibid, pg. 30.

presently taken on these highways will need to be replaced with trips completed in another fashion.

By introducing more housing and mixed use in the downtown, some existing trips will not be made: some who now drive to work could walk to work, others who drive out of the City for entertainment may find the revitalized downtown to present what they seek and, again, the need to drive could thereby be eliminated. Finally, if transit is significantly enhanced, it can replace the remaining functions of these highways.

The Southeastern Wisconsin Regional Planning Commission (SEWRPC) has formally studied the removal of the Park East Highway east of North 4th Street. Removing that portion of this highway would return it to where it first terminated in 1968. This study concluded that this segment of highway "could be removed without significant increases in traffic congestion" in the City under 1995 and likely 2020 conditions.[31] This conclusion includes assumptions that the City may need to remove some on-street parking and that transit service will be improved in accordance with the adopted regional plan. The adopted regional plan projects a 28% increase in transit ridership (from 47 to 61 million average weekday revenue passengers), along with some improvements and a few additions to the arterial street and highway systems in the County.[32]

The historic record clearly demonstrates that in Milwaukee large numbers of people can and have in the past changed their modes of travel over relatively short periods of time in the past. Indeed, in only 9 years the same number of people who presently use both grade separated highways daily, changed modes of travel. The historic record therefore demonstrates the potential for an Embarcadero-type experience in Milwaukee: if the other modes of travel can be enhanced to draw travelers to them at the same numbers as were drawn away from fixed-route transit between 1963 and 1972 then, from the

[31] Southeastern Wisconsin Regional Planning CommissionSEWRPC, Staff Memorandum, July 1998, pp. 9-10.
[32] SEWRPC, A Regional Transportation System Plan for Southeastern Wisconsin: 2020, Planning Report #46, December, 1997, pp122 et seq.

City's perspective, both highways can become unnecessary. This potential exists without additional surface street vehicular capacity.

This history bodes well for the potential of the future plans for the City, and the potential for change. These highways, born of a series of policies no longer relevant to the City can be removed and their functions replaced; it's a question of policy.

Appendix

Comparison Surface Streets

For volumetric comparisons, Capital Drive, east of 35th Street carries approximately 60,000 vehicles/day in a twelve lane cross section,[33] and Wisconsin Avenue carries a daily vehicular volume of 10,000 to 20,000 vehicles per day and 1,300 at the peak hour, with these daily extremes occurring at the East and West ends of the Avenue, respectively. 6th Street carries a daily vehicular volume of 12,000 to 23,000 vehicles per day and 2,500 vehicles at the peak hour, with its highest daily volumes between Wells and State. Most of the other streets in the City's CBD carry less than 12,000 vehicles/day.

[33] Personal communication with Milwaukee DPW, January, 1999.