The Power of Policy Image: Bicycling Infrastructure in Denver, Colorado

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By

Carter Eng

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Corina McKendry
Associate Professor of Political Science

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Elizabeth Coggins
Assistant Professor of Political Science

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From Toy to Essential Tool in Building a Modern City

Bicycling in Denver, and the U.S. more broadly, has made the important transition from a children's mode of transportation and leisure activity to a necessary component of becoming a competitive, modern city. In recent decades, U.S. cities have installed hundreds of miles of bike lanes (Cohen, 2017). There are many potential explanations behind the explosion of bicycling infrastructure in U.S. cities. One explanation is the is the emergence of the "creative class" a term coined by Richard Florida that describes the new generation of young professionals that value cycling and view it as an essential amenity in any city (Florida, 2005). This theory posits that cities vying for the economic benefits that the creative class bring have begun installing bike lanes in order to provide for the lifestyle that the creative class seeks.

While the courting of the creative class by cities has led to the implementation of such amenities as bike lanes, an often over looked contributor to the growth of bicycling infrastructure in the U.S. is the transformation of the image of bicycling, particularly the *policy* image of bicycling. The policy image of an issue considers the associated values of an issue. A policy image is shared ideas of a given issue within a broader community begin to define how the issue is perceived. For example, a policy image of U.S. military spending is one of patriotism, which makes it popular among some groups in the American electorate. Policy image is an important force in garnering political attention,

as an issue without an effective policy image will be relegated to the outskirts of political attention, and therefore political action. The policy image of bicycling has shifted from one of a leisure activity to a necessity for the health of a city, making bicycling appear more essential for city living. One city that has implemented a public health policy image of cycling effectively is Denver, Colorado. Denver is a city that shows all of the symptoms of poor spatial design and city planning common in the U.S., yet it is now seeing a cycling renaissance.

During the 1970s a "bike boom," a period in which a lot of attention was given to bicycling projects, occurred in the U.S.. The movement overlapped with the 1973 Oil Crisis, which created a dire need for more efficient transportation due to fuel shortages, yet the boom slowly fizzled out despite it (Reid, 2017). Why did the bike boom of the 1970s fail to gain traction even when it occurred during an ideal period for adoption of bicycling infrastructure, and how can this explain the current success in Denver's implementation of bicycling infrastructure? The current political climate in Denver is very similar to the bike boom of the 1970s, but this time around it seems as though the efforts of bicycling advocates will be more permanent. Denver's development of bicycling infrastructure is an effective illustration of the power of policy image in transforming public perception of bicycling as a necessary component of a city.

Policy Image and Equilibrium

An effective tool in analyzing the transition of active transportation infrastructure's (ATI), infrastructure for cycling and walking, policy image in the U.S. is

using the lens of political equilibrium originally proposed by Frank Baumgartner and Bryan Jones. Baumgartner and Jones theorize that the policy landscape in the U.S. is shaped by periods of equilibrium, or relative stability, and periods of punctuated, far reaching change (Baumgartner & Jones, 2009). Strong monopolies of power in the transportation sector have been able to enforce a period of stability in the transportation sector since the advent of the automobile in American society. Policy stability and policy equilibrium are closely related. Political stability is the result of a wide held belief of issue that has resulted in a political climate where the issue is either not seen as something that needs to change, or there is not a lot of attention directed towards issue. The most important ingredient for political equilibrium is simply lack of attention from the public (Baumgartner & Jones, 2009). Most issues are understood as they were in previous generations and it takes a significant change for an understanding of an issue to shift (Baumgartner & Jones, 2009). Lack of attention to an issue leads to stability and a long held public image of an issue is what makes a strong policy equilibrium.

The U.S. has been built around the automobile because the external voices pushing for a more bike-able city are both recent and have historically been rather subdued until the past decade. Without a strong policy image, bicycling infrastructure has historically been seen as a detriment to traditional transportation by taking lanes from automobiles. Because the nation's transportation policy has been a in a period of equilibrium and alternatives have been unpopular, not a lot of change has occurred, but once a critical mass is reached there will be a quick and punctuated change in political equilibrium (Baumgartner & Jones, 2009). This is good news for bicycle advocates who

have been working on pushing a bicycle agenda with so far only incremental progress being made in most U.S. cities.

Progress, participation, equality, economic growth, public health and patriotism are some of the most effective examples of positive policy images (Baumgartner & Jones, 2009). All of these characteristics are extremely popular because they are what most Americans strive towards. So, if the image of a policy is linked in the community's mind with, for example, economic growth and progress it is likely to garner more attention and support both from the public and within institutions. Policy image, in its most basic form, is the popular association of one of the aforementioned values and the objectives of a given group's issue. It is essential, for a couple of reasons, for a group to create a connection in the public eye between these positive values and their issue. The creation of a policy monopoly, a political climate where one dominant group has access to the conversation surrounding an issue and outsiders do not, relies on the creation of a policy image that has strong ties to positive, widely held beliefs. While it is arguable that outright policy monopolies do not exist due to the democratic process, the creation of these associations allow for more streamlined implementation of policy that benefits the issue at hand (Baumgartner & Jones, 2009). The other benefit of creating a positive policy image is the favorable treatment that lawmakers tend to grant to issues that are widely perceived as positive. Governments at all levels want to make their jurisdictions safer places to live, create economic growth, live independently from foreign powers and myriad other things. The key is for policymakers and advocates to make their policy a solution to one of these pursuits so that governments can justifiably begin implementing their agenda (Baumgartner & Jones, 2009).

The power of policy image is clear in the examination of how the popularity of nuclear power slowly died in the U.S. as a source of energy. Public perceptions of nuclear energy in the U.S. changed drastically between the 1940s and the 1980s "not based so much on changing realities as on changing images" (Weart, 2009). When nuclear power was first introduced to the public it was seen as the energy of the future that presented endless opportunity for growth. Since the technology was so new, the nuclear industry at the time controlled the image of nuclear power, which corresponded to an overwhelmingly positive policy image of nuclear power (Baumgartner & Jones, 2009). Slowly, more and more actors began entering the nuclear power debate due to changes in congressional hearings pertaining to nuclear energy. Some of the new actors were proponents, and others opponents, of nuclear power, but the most important thing was that the nuclear industry had lost control of the policy image. Despite little change in the safety and efficiency of nuclear power, more and more negative media coverage of nuclear energy lead to a decline in the support for nuclear energy (Baumgartner & Jones, 2009). Only 15 more nuclear power plants were ordered to be constructed in 1974 simply because of the change in public perception due to the altered policy image (Baumgartner & Jones, 2009). Once opponents of nuclear energy were able to convince the public that nuclear energy would not create a limitless utopia, but rather a caustic wasteland, they had won the policy battle. By appealing to those who were previously apathetic to nuclear energy by making economic, national security and environmental arguments against nuclear energy, more people were drawn to the debate and the power of the nuclear industry over policy image was diluted.

In order for meaningful change regarding ATI to occur in the U.S., bicycle advocates have to gain control of the policy image of cycling within a given city. Policy image is crucial in the development of policy for a given issue because it can achieve two related objectives. First, a change in policy image can bring those on the fringes of the issue into the fold by appealing to an issue that they care about (economics, national security, family values) (Baumgartner and Jones, 2009). As seen in the nuclear power example, once the previously apathetic were brought into the debate through a change in policy image from one of endless power to world destruction, policy changes began occurring rapidly. As a result of creating more invested stakeholders, an issue has the ability to slowly percolate to the top of the political agenda, demanding that it is addressed with political action (Baumgartner and Jones, 2009). In the case of nuclear energy, once a policy image of destruction was established, the momentum of the industry was halted and nuclear energy in the U.S. began to decline. Often times, all that is needed for change is the policy image of an issue to shift. Once a shift occurs, a long stagnant issue can begin to change rapidly, landing it in a totally new political equilibrium.

An investigation of the different iterations of Denver's bicycle masterplans will reveal an effort by city officials and organizations to take control of the policy image of cycling. The recent turn around in the success Denver has had in implementing ATI and ATI-friendly policy has been the result of a carefully refined policy image of ATI and cycling. The results of the carefully crafted nature of the policy image of ATI are that, as an issue, ATI is no longer relegated to the outskirts of conversation and consideration. Using the past and present policy images of Denver's ATI network is essential as it is a

practical lens through which to analyze how Denver's ATI network has gone from a fringe issue to one that has gained the political traction necessary for lasting change.

The Importance of Bicycling Infrastructure in Cities

Cycling is a sensible mode of transportation for urban areas. When used as transportation, cycling can offer many benefits to the urban dweller: improved health, decreased traffic congestion, lower costs of commuting and local environmental benefits (Pucher & Buehler, 2012). As American cities have begun investing in their ATI, the cities that are being emulated are the cycling powerhouses of Europe: Berlin, Germany, Copenhagen, Denmark and Amsterdam, Netherlands. The National Association of City Transportation Offcials (NACTO), a North American organization of 68 major cities that produces data and research for implementing better ATI often use examples from Copenhagen and Amsterdam in their distributed materials (NACTO, 2019).

While these cities lead the pack in terms of cycling infrastructure, the countries within which they are situated have almost uniformly better ATI than all other countries (Buehler & Pucher, 2012). Using the "bike share" metric, a measure of daily cycling trips of any purpose, it is evident that even the most bike-friendly cities in the U.S. are not nearly as bike-friendly as the least bike friendly cities within the three previously mentioned countries (Denmark, Germany and the Netherlands) (Buehler & Pucher,

2012). Portland, Oregon, arguably the most bike-friendly city in the U.S. has only about 6% bike share, meaning that 6% of total trips in the city are made on a bicycle. Portland's bike share rate is comparable to Stuttgart, Germany, the lowest scoring city in Germany in the research conducted by Buehler and Pucher. These findings are indicative of the underlying obstacles that American cities face in the implementation of ATI.

The U.S. is a heavily car centric nation. The National Household Travel Survey (NHTS) reports that 87% of trips taken in the U.S. are in personal vehicles and 91% of commutes to work are in personal vehicles (BTS, 2019). These statistics are symptomatic of the American transportation planning process. The U.S. enjoyed a post-World War II economic and industrial boom that resulted in the average American family having the resources to own a personal automobile. The automobile quickly became an important facet of the American lifestyle and soon new land developments were being designed around automobile use (Buehler & Handy, 2008). The 1956 Federal Aid Highway Act designated $26 billion towards the creation of a 41,000-mile network of highways that would span across the country (Federal Aid Highway Act, 1956).

American investment, economic and lifestyle patterns have led to an entrenched culture of personal vehicles as the primary method of transportation in many American cities. The 2012 federal transportation act titled Moving Ahead for Progress in the 21st Century Act (MAP 21) further entrenched the status quo of transportation in the U.S. by cutting funding for cycling as well as walking in order to fund restoration of decrepit highways (MAP 21, 2012). While the most recent federal transportation act, Fixing

America's Surface Transportation Act (FAST ACT) of 2015, increased the budget for ATI spending and included funding for cycling safety programs, there is still a dire need for a quicker transition to active transportation in the U.S., especially in urban centers. Traffic fatalities have been on the rise in U.S. cities. 6227 pedestrians were killed in the U.S., primarily in urban areas, in 2018 as opposed to only 4109 pedestrians killed in 2008 (Caron & Chokshi, 2019). Safer bicycling and pedestrian conditions can help to reverse the trend of pedestrian deaths in U.S. cities. Air pollution, especially in Denver due to the thermodynamics of the Front Range, has also been increasing in U.S. cities due to the use of single occupancy vehicles (Leins, 2019). ATI can be part of the solution for these rising issues in urban areas.

Denver, Colorado is a seemingly ideal city for ATI to be thriving in. Denver is a fairly progressive city, it has mild enough winters that make year-round commuting by bike a possibility, it is a relatively flat city that makes cycling easier, and, most importantly, the local government has expressed support for augmenting the city's bicycle network. Denver Mayor Michael Hancock has shown support for cycling by taking part in the national Bike to Work day and unveiling the 2019 budget for Denver that included $27 million for transportation improvements, $7.1 million of which is dedicated to ATI improvements. The 2019 budget is a marked improvement over the 2018 budget which only allocated $2.2 million towards Denver's ATI network.

On top of the annual budget, the citizens of Denver voted for the Elevate Denver Bond Program (EDBP) passed in 2017. The EDBP is a 10-year plan to invest $937 million into the city of Denver through projects that will benefit the roads, cultural centers and parks of Denver. Of the $937 million around $431 million is being designated

for 25 different transportation and mobility projects. The majority of which provide necessary improvements to the cities ATI and bike network. One of the projects is simply listed as “citywide bike infrastructure” which $18 million has been allocated towards.

Denver on Right Path to Implement Bicycle Infrastructure

Despite the widespread support for Denver’s bike network, it is still a city that ranks very poorly in bike-ability. PeopleforBikes is a nationwide bicycle advocacy group that aims to make available tools that can create sustainability and social justice through bikes. PeopleforBikes does bicycle network analysis of cities in the United States. The score is an aggregate of scores related to the bike-ability of a city. Bike-ability metrics include how well people can reach core services (dentists, doctors, grocery stores, pharmacies, social services etc.) by bike, how well people can reach opportunities (employment, higher education, K12 education, vocational schools etc.) by bike, as well as bicycle access to recreational opportunities, retail stores and major transit hubs (PeopleforBikes, 2019). Denver has an aggregate bicycle network score of 36. In comparison, bicycle hubs in the U.S. like Boulder, Colorado and Davis, California have scores of 62 and 71, meaning that cities like Davis are over twice as bike-able as Denver. Denver’s low score is indicative of a struggle to make meaningful ATI development in

the past, but due to changes in the policy image of cycling in Denver, important policy changes have been achieved by local organizations and government projects, like the BDPB.

While it is unfortunate that that Denver currently has lackluster cycling infrastructure and has relatively little continuity in its cycling infrastructure network, it is not uncommon. American cities all face the same two obstacles when it comes to implementing ATI. The first is identifying what the most effective means of investment to increase ATI are and the second is justifying spending already tight transportation funding on cycling when the infrastructure for automobiles is slowly becoming more and more dilapidated (Handy, van Wee, Kroesen, 2014). The congestion on the major thoroughfares of Denver (I-25 and I-70) has become so cumbersome that $90 million in federal grants have gone towards the renovation the highways. The total cost of the projects is likely to cost the state over $500 million (Aguilar, 2018).

It makes sense that citizens of Denver have been wary in contributing more money towards ATI projects when nearly half a billion dollars is being put towards I-25 and I-70 already, yet the people of Denver have approved of spending a similar amount on ATI through the BDBP. It is clear, because of the passage of the BDBP, that Denver finds ATI projects to be worthwhile and potential fixes to issues that the city faces, like traffic congestion. It is essential that Denver continues funding alternatives to traditional modes of transportation as the more funds that are spent on highways and single occupancy vehicle infrastructure, the harder it becomes to change the norm of Denver being a car dominant city. Denver's recent progress in advancing ATI policy is all the

more important since it is a means of eventually reducing the current reliance on single occupancy vehicles for the majority of trips.

The Impact of Policy Image on Cycling Infrastructure Implementation

When most people think of urban cycling the first city that often comes to mind is either Amsterdam or Copenhagen, and for good reason. Copenhagen boasts over 400 kilometers of dedicated bicycle paths that are completely independent of automobile traffic (Denmark.dk, 2019). Copenhagen has fully adopted cycling as a part of its identity and as a result has built arguable the soundest cycling infrastructure in the world. An analysis of how Copenhagen became the premiere cycling city in the world can help to shed light on the power of policy image for getting ATI on the policy agenda and the eventual implementation of ATI in urban areas.

The rise of bicycling in Copenhagen is similar to the previously discussed fall of nuclear energy in the U.S. in that the change in policy image of cycling resulted in an influx of people invested in the issue, which led to the issue gaining priority on the agenda and to cycling finally being adopted as a solution to a pressing issue the Danish government faced. The development of cycling infrastructure in Copenhagen began early in the 20th century, well ahead of most American cities at the time (Jensen, 2009). By the 1940s well over 100 km of cycling tracks were in operation in Copenhagen. Despite the early dominance of cycling as a means of transportation, Copenhagen, similar to the U.S.,

became infatuated with cars during its post WWII prosperity (Denmark.dk, 2019). City planners believed that automobiles were the future of transportation and began implementing infrastructure, similar to infrastructure that was being implemented in the United States and other developed countries, such as wider roads and highways that would be more conducive to increased automobile ownership (Denmark.dk, 2019). Copenhagen's plans to adopt the car as the main form of transportation changed dramatically with the 1973 oil crisis.

The 1973 OPEC Oil Embargo pushed energy efficiency to the very top of political agendas across the world. The solutions proposed by each country varied drastically and their consequences would be monumental for the future of transportation around the world. Denmark, due to wide spread protest of the lack of attention being given to the bicycling infrastructure of cities like Copenhagen, began leaning on cycling as a means of reducing their dependency on expensive, foreign energy. Copenhagen began utilizing its long-held belief in cycling as an egalitarian mode of transportation to slowly become a city less dependent on cars and, as a result, foreign energy. Mikael Colville-Andersen, the leader of the Danish Cycling Federation in the 1970s as well as an urban planner, began organizing demonstrations and protests that demanded better cycling facilities (Slapak, 2014).

Community leaders and experts like Colville-Andersen began changing and augmenting the conversation surrounding cycling by highlighting the health, safety and energy benefits to be had through the implementation of ATI. By changing the policy image of cycling from an outdated national pastime to a feasible solution for an energy crisis, ATI in Copenhagen gained political traction. By providing a popular solution to a

pressing issue, bicycle advocates in Copenhagen were able to convince local politicians to pursue ATI improvements. Through the organization of "Car Free Sundays", an event that barred automobiles from the city for one day, and an increased emphasis on the augmentation of ATI, Copenhagen dealt with the 1973 Oil Embargo in a bicycle centric manner (Denmark.dk, 2019).

The U.S. dealt with the 1973 Oil Embargo in a wholly different way. The opportunity to promote cycling as a potential solution to the issues posed by the oil crisis was present, yet the policy image of cycling was not one of the aforementioned positive policy images (economic progress, patriotism, progress) and therefore it was not sufficient enough to make it a realistic option. The U.S. experienced a four-year long bike boom in the early 1970s (Reid, 2017). The inaugural Earth Day celebrations in 1970 helped to bring environmental issues and solutions into the mainstream consciousness through many protests surrounding the environment, including cycling demonstrations (Sisson, 2017). One such cycling demonstration, the Bike Hike Earth Day protest, was organized by college students in Denver to bring awareness to the potential of cycling to ameliorate environmental concerns (Sisson, 2017).

Earth Day 1970 was a catalyst for discussion of cycling in the United States as many cities began adopting bike friendly legislation. 1973 saw the introduction of 225 bills in 42 states that were focused on the advancement of cycling, 60 of these bills became law that year (Reid, 2017). The Oil Embargo of the same year likely played little role in the introduction of so many pro-bicycle bills since the adverse effects of the event were not felt until late 1973. The federal government also took notice of the boom and included $120 million for bikeways in its 1973 iteration of the Federal-Aid Highway Act

(Reid, 2017). Many grandiose plans of bikeways and protected bike lanes around the country began taking shape and it looked like the era of the bicycle in the United States had come to stay (Reid, 2017).

The bicycle boom was relatively short lived, though, as the momentum of the moment began to dwindle in 1975 as bicycle sales and political interest in cycling took a nose dive (Reid, 2017). Experts explain the drop-off in interest for cycling by claiming that the newly proposed cycling infrastructure began to be seen as a nonessential luxury during the recession caused by the 1973 Oil Embargo. It is surprising that the search for a means of reducing American reliance on energy and the bicycle bust happened simultaneously. It seems like the ideal policy window for advocates of cycling to make ATI a clear solution for the energy issue the federal and local governments needed to address. And yet, the cycling boom slowly fizzled out as the public and the government looked to other avenues of conservation and efficiency to address the crisis.

The U.S. responded to the 1973 Oil Embargo in a radically different manner than Denmark. While energy efficiency climbed to the top of the national and subnational political agendas in the U.S., the solutions proposed primarily did not include ATI. In 1974 consumers were beginning to feel the financial strain of the oil crisis (Cowan, 1974). Everything from construction, everyday goods, transportation and manufacturing became more expensive and over 10% of the nation's gas stations had closed their doors (Cowan, 1974). There was a sense amongst bicycle advocates in the U.S. that the oil crisis presented a policy window for public transportation and cycling that was ripe for change (Cowan, 1974). Despite the acknowledgement of the potential policy window for ATI implementation by cycling advocates, the U.S. failed to make any serious efforts

towards increasing ATI. While still focused on reducing dependence on foreign energy, the U.S. looked almost exclusively to increasing the efficiency of automobiles and homes as solutions. In addition to the image of ATI as a non-essential luxury item, the popularity of these solutions was that they did not require a change in lifestyle like a transition to cycling would have. Increased efficiency in housing and automobiles meant that people could live in the same house and drive relatively similar cars while still conserving energy. Through Corporate Average Fuel Efficiency (CAFE) standards, which dictated certain thresholds of mile-per-gallon ratings for personal vehicles, and various other efficiency acts the U.S. set about addressing the residual effects of the energy crisis.

The aforementioned reasons for the closing of the policy window of the 1970s bike boom are all plausible and certainly contributed to the downfall of ATI implementation, but the only reason that they occurred was a lack of positive policy image for ATI. An investigation of policy mood that serves as a litmus test for how the public perceives an issue, and the image associated with bicycling will shed light on how negative policy images of cycling doomed to bicycling boom and effectively closed the ATI policy window of the 1970s. The policy image of cycling was not conducive to widespread adoption of cycling or a change in the equilibrium of transportation policy. The positive associations of national identity and public health were not being made, and therefore it was acceptable for the wide held view of cycling to be one of a non-essential luxury that was not worth changing the American lifestyle to adopt. Many of the same arguments against automobile use today were present during the bike boom. The inefficiency of cars and the large amounts of resources they consumed as well as the congestion caused in urban areas were all popular arguments against automobile use at

the time (Ritchie, 1975). The destructive pollution caused by cars was also well known by cycling advocates and yet the main talking point for the adoption of cycling at the time was conservation (Reid, 2017). While these are both valid images of cycling, they are not conducive to widespread adoption of cycling or to bringing the apathetic into the bicycling debate, all of which are essential for the capitalization of a policy window (Baumgartner & Jones, 2009).

The automobile is a comfortable and luxurious form of transportation. It requires no physical effort to get from point A to point B, making it the preferred method of transportation for much of the United States. Bicycle advocates of the 1970s failed to address the basic lack of luxury of cycling as transportation. Not enough weight was given to the fact that physical exertion, uncomfortable seats and lack of protection from the elements were all very real detractors from the bicycle as a feasible means of transportation during the energy crisis (Reid, 2017). Even if there had been established bike lanes created, the efficiency and ease of automobiles would have made cycling a hard sell. Copenhagen, which has terrible weather during Winters overcame the lack of comfort associated with cycling by creating a citywide identity of cycling that overpowered the negative effects of discomfort. U.S. bicycle advocates of the day failed to make the policy image of bicycling one of the previous examples of effective policy images (patriotism, economic development, or progress) and it was not strong enough or to compete with the lack of luxury it offered the everyday American. Almost any political movement that has pushed the idea of sacrificing American ideals of comfort and luxury has not led to sustained political action. The calls for sacrifice in the U.S. that have worked, like food rationing during World Wars I & II, have had the help of a patriotic

policy image to help garner public support. An analysis of Jimmy Carter's "Malaise Speech" can give insight into how a call for sacrifice for the public good is often not sufficient in gaining political traction.

The "Malaise Speech" was given in 1979 in response to what President Carter viewed as a threat to national ideals, a lack of public cohesion in addressing the oil crisis. While the speech garnered rave reviews at the time, it was not sufficient in the long run as the political momentum was short lived (Klein, 2013). The Carter administration failed to capitalize on the popularity of the speech in order to make any lasting change (Klein, 2013). There are many similarities between the "Malaise Speech" and the bike boom of the 1970s. They both called for a collective sacrifice of comfort and ease for the benefit of the public good. They both failed to capitalize on the fleeting popularity of the movement. A better framing of the bike boom may have led to sustained success and a change in the equilibrium of transportation policy, but instead it fell to the wayside.

An article, a decade removed from the 1973 Oil Embargo, in the New York Times highlights the changes that people had made since the crisis. The most common lifestyle changes that people in the mid 1980s adopted due to the energy crisis relate to increased efficiency in the home and automobile (Kleinfield, 1983). Smaller houses, advanced insulation, carpooling and driving more efficient cars make up the bulk of the everyday changes that those interviewed made (Kleinfield, 1983). There is certainly nothing wrong with these changes. They are all conscious efforts to reduce energy use in the everyday life, yet it is curious that only one of the people interviewed talks about commuting to and from work on a bicycle in order to reduce energy usage. This follow up with people 10 years after the oil crisis is indicative of the different path that the U.S. chose to take to

address the need to decrease the amount of energy used during the average day. Instead of adopting cycling as a feasible means of urban transportation, like the Danes, the U.S. continued business as usual by maintaining the automobile as the primary mode of transportation, albeit a more efficient automobile.

A shift of cycling policy image to public safety, patriotism and national ideals may have helped to land the U.S. cycling policy in a new state of equilibrium. The Danish government faced the same conundrum as the U.S. during the 1973 Oil Embargo, granted on a smaller scale. Because the Danish people viewed cycling as part of their national identity and as a great equalizer, it was viewed as a real political solution to the energy crisis that the people of Denmark felt they could rally around. The U.S., on the other hand, never made the leap of cycling as a hobby and something that children do, to a piece of the solution to the energy crisis. Bicycle advocates should have appealed to the values of the nation including independence from foreign powers by being less reliant on the energy coming from overseas. Only strong messaging like this could have helped to bicycle advocates of the time make cycling appeal more than the passive options for conservation (better insulation in housing and more efficient automobiles) that eventually would be adopted and as a result the status quo was upheld. The paths of Danish cities like Copenhagen and American cities like Denver began to diverge, one becoming a global cycling superpower and the other, until very recently, doubling down on its reliance on automobiles.

Denver's Recent AT Policy Image Success

While bicycle advocates of the U.S. and Denver were not able to capitalize on the policy window of the bike boom of the 1970s, there has been a resurgence of cycling in Denver that is seemingly much more promising than earlier bike booms. The previous policy window was not capitalized upon because bicycling lacked the strong policy image necessary for shifting equilibriums. Because of effective policy image, it seems as though this iteration of the cycling movement has staying power unlike past bike booms, shifting Denver and other U.S. cities into a new equilibrium of transportation policy.

Denver has made significant strides towards becoming a more bike-able city in the past few years. With the adoption of the BDBP in 2017, as well as numerous other causes and organizations like Vision Zero, it is clear that the people of Denver are finally ready to realize the potential that Denver has to be a cycling hub of the United States. Only through the addition of images of public health and safety, which have been used to address specific public health issues within the city, to Denver's existing ATI policy image of sustainability were these changes secured, as effectiveness of these policy images have brought a broader audience into the ATI debate. An investigation of Denver's ATI journey from its first bicycle demonstrations and bike master plan until today is important, as it provides clarity on what changes were made that led to success. Using the lens of punctuated equilibrium and policy image, the changing nature of Denver's ATI can be analyzed.

Tracing the portrayal of ATI from the first iterations of Denver's bike plans to contemporary plans allow for a clear map of how the policy image of cycling has shifted over the recent decades, and the resulting attention given to bolstering the ATI network in Denver. Language in the following documents that aims to expand the audience of the

ATI debate as well as language that associates bicycling infrastructure with safety and the identity of Denver is of note. The aforementioned examples of Copenhagen's rise to bicycling dominance indicate that a policy image of cycling that invokes concerns of public health and create a sense of pride in a city are effective in bringing about meaningful change to the ATI of a city. As previously mentioned in the section on the change in nuclear energy perceptions in the U.S., it is important to expand the audience that is invested in a given issue in order to generate change. Therefore, any mention in the following plans to expand the conversation of ATI to the previously apathetic is an indication that the ATI audience is being broadened and as a result, more attention is being given to ATI.

The first Denver bike master plan (DBMP) was published in 1979 and revised in 1987. The first iterations of the DBMP were received well but resulted in relatively little change. They did present a starting point for the more important and influential DBMPs to jump off from. These versions of the DBMP were bolstered again in 1993 when Denver released another version of its master bike plan, this time with an emphasis on the utility of cycling. The goals of the 1993 DBMP were primarily logistical and included signage for cyclists, increased bike lanes and education programs to make cycling more accessible (DBMP, 1993). The 1993 iteration included a section on both "Promotion" and "Advocacy". In the advocacy section the plan recommends that the Denver Bike Advisory Committee (DBAC) becomes more involved in the advocacy of cycling in Denver saying that "the DBAC should encourage more public inclusion in their process, holding quarterly or semiannual public meetings to receive public comments and direction" (DBMP, 1993).

The call for DBAC to encourage more public inclusion was essential for the success that Denver is having today in passing cycling legislation. As mentioned previously, bringing those that are apathetic to an issue into the debate is a sound way raising an issue higher on the political agenda (Baumgartner & Jones, 2009). In addition, DBAC has morphed into the Mayor's Bicycle Advisory Committee (MBAC). MBAC is made up of 25 members with 3-year terms. Members of MBAC come from a variety of disciplines and as a result of the diversity of the team, they are able to include the interests of more people in the planning of cycling in Denver. MBAC also has the Mayor's ear and can help to foster mayors that are sympathetic to cycling into the future. While not perfect, the 1993 DBMP helped to lead the city down the right path for changing the status quo of transportation within the city.

The next iteration of the DBMP came in 2001. The 2001 DBMP improved upon the 1993 DBMP in a couple of ways. The first improvement was that it addressed the fact that Denver had grown nearly 20% between 1990 and 2000 (DBMP, 2001). This growth created traffic congestion that presented an opportunity for cycling to be portrayed as a remedy. The 2001 DBMP was aware that "the resulting development pattern [had] increased the attractiveness of alternative transportation modes, including cycling" and was setting up a framework to make cycling a feasible and attractive solution to the new gridlock. The 2001 DBMP also began casting cycling in a new light, public safety. Citing the U.S. Department of Transportation's National Bicycling and Walking Study, the 2001 DBMP sets out to simultaneously double the percent of trips made on bicycle and walking and to reduce by 10% the number of pedestrian fatalities and injuries due to traffic crashes (DBMP, 2001). The inclusion of safety as one of the top four priorities for

the 2001 DBMP meant that it would become one of the main talking points for bicycle advocates in Denver.

Transitioning to an argument of safety was a key move because it meant that the conversation, and by extension the policy image, of bicycling in Denver surrounded, among other things, public health. Public health is likely an attractive image to those that may not be strong bicycle advocates or enthusiasts because it is something that has the potential to affect the community more broadly. As previously mentioned, a key component for changing a policy equilibrium is bringing the previously apathetic into the fold by crafting a policy image that appeals to many different types of people. At the time, traffic fatalities were a serious issue in Denver and the 2001 DBMP proposed changes (primarily a more cohesive bike lane network) that could help to address a public health crisis. While the results of this were not immediately evident, it helped to raise cycling on the political agenda in Denver for over a decade.

Public health has been proven in the past to be an effective policy image for cycling. When Denmark was addressing the 1970s energy crisis, one of the main concerns was the safety of cyclists in Danish cities that had been overrun by automobiles (Denmark.dk, 2019). As previously discussed, the public health image of better cycling infrastructure preventing traffic deaths was essential in Denmark for garnering political attention for cycling, and eventually creating a culture of cycling in Copenhagen that has made it one of the premiere cycling cities in the world. It was important that Denver began creating a formal discourse between surrounding cycling and public health similar to the approach that Copenhagen took.

Finally, the 2001 DBMP continued the efforts of bringing people into the fray by defining the form and function of the BikeDenver organization. The 2001 DBMP recommended that BikeDenver "should not officially be an extension of the MBAC, the City & County of Denver, or any other local government. It should function independently from the formal local government with a board of directors" (DBMP, 2001). BikeDenver's separation from local government meant that it could more effectively encompass more views from the community, which has meant that it has brought more parties into the discussion surrounding ATI. As previously discussed, an expansion of different interests towards a given issue generally results in the rising of an issue on the political agenda due to the increase in attention. The 2001 DBMP acknowledges the potential for BikeDenver to "be an ideal organization to define public opinion on bicycling issues and advocate for Denver, RTD and CDOT improvements" (DBMP, 2001). By being able to define public opinion on cycling, BikeDenver is able to better bring those from the fringes of the bicycle debate into the fold by creating policy images of cycling that are conducive to greater community involvement.

The next major ATI plan to be implemented in Denver was the Denver Moves plan in 2010. The Denver Moves plan was primarily logistical, as the support for cycling in Denver was growing because of the number of ATI projects that were carried out after the 2001 DBMP was published. More people began cycling in Denver as they realized that the infrastructure allowed for easier bicycling tips, leading to more support (Denver Moves, 2010). The city of Denver claims in the Denver Moves plan that the majority of the recommendations in the 2001 DBMP have been carried out. The goals of Denver Moves are network and transportation based. The first goal is to provide "a biking and

walking network where every household is within a quarter mile (5-minute walk or 2minute bicycle ride) of a high ease of use facility" and the second goal is to "achieve a 15% bicycling and walking commute mode share by 2020" (Denver Moves, 2010). Denver Moves capitalizes on local level political developments that occurred between the 2001 DBMP and 2010. Denver Moves is a supplemental plan to the 2005 Pedestrian Master Plan, 2006 Game Plan and 2010 Gulch Masterplan and as a result, Denver Moves is solidifying the new equilibrium of ATI in Denver by building off of the policies that helped to begin the shift in ATI policy image.

In addition to new masterplans, Denver also saw the development of a bike sharing program and a bond package between Denver Moves and the 2001 DBMP. The most notable of these developments was the first iteration of the BDBP in 2007. The 2007 BDBP was focused on primarily the arts scene in Denver, transportation and adapting to the influx of people moving to Denver. The transportation section of the BDBP did not include many projects that were focused on ATI implementation, but rather the resurfacing and maintenance of roadways. Most of the plans laid out in Denver Moves revolve around implementing some form of ATI improvement into the existing BDBP plans to resurface and maintain existing roadways, therefore making the implementation of ATI more palatable to more people.

The image of Denver being a cycling city is invoked many times throughout the plan by listing the ATI accolades of the city like being a top 10 ranked cycling city as well as a silver cycling city (Denver Moves, 2010). As was seen in the development of cycling infrastructure in Copenhagen, the use of the image of cycling as an identity has been shown to be highly effective in gaining traction with more people. On top of the

fostering of the policy image of cycling being an identity of the residents of Denver, Denver Moves also continues the important work of expanding the ATI discussion to those on the fringes that may otherwise be apathetic to ATI. The objectives section of the Denver Moves plan include plans to "create a new identity" in order to find new ways to portray cycling in Denver and to educate a larger audience about cycling through social media efforts (Denver Moves, 2010). The plan builds on the previous objective by stating another objective to "embrace innovative, practical ideas" including increasing the safety and visibility of cycling in Denver (Denver Moves, 2010). While not as explicit in its attempts at shaping ATI policy image as previous DBMP iterations, Denver Moves assisted in expanding the audience concerned with ATI as well as shaping an ATI policy image of public health by expanding the issues of ATI to safety.

Public Health Framing of Bicycling Infrastructure

Vision Zero is evidence that the addition of the public health framing of ATI to the existing positive framings was effective in Denver. Vision Zero was created in the fall of 2017 by Mayor Hancock as a result of abnormally high rates of traffic fatalities in Denver. Between January 2016 and October 2017 over 100 people were killed on the streets of Denver (Paul, 2017). Vision Zero identified pedestrians as the most vulnerable and therefore tailored its plan to making multimodal transportation safer in Denver. Vision Zero has the goal of eliminating traffic deaths in Denver by 2030 (Vision Zero, 2017). To achieve this goal, Vision Zero has increased data collection to identify problematic intersections and stretches of roads as well as proposing ATI projects that the

BDBP has funded, such as walking bridges and improved bike lanes (Vision Zero, 2017).

Vision Zero was in the works in Denver starting in 2015 when a variety of public and private organizations like BikeDenver, WalkDenver, the Mayor's pedestrian and bicycle committees as well as neighborhood organizations came together to create what is now Vision Zero (Paul, 2017). With the creation of the Denver chapter of Vision Zero, it is clear that advocacy groups like WalkDenver, BikeDenver and the Denver Streets Partnership (DSP) were effective in the cultivation of a public health policy image of ATI, which resulted in a rising of ATI on the policy agenda in Denver. For years these advocacy groups have been pushing improved ATI as a solution for the lack of safety of Denver's roads. Vision Zero is the result of their advocacy work as it looks to solutions of increased pedestrian data and improved ATI to solve the issue of pedestrian fatalities in Denver.

DSP was able to capitalize on a pressing issue, in this case pedestrian fatalities, in order to advance the standing of ATI in Denver. DSP and other advocacy groups' efforts were evidently effective because the city is deciding to pursue and fund ATI and not increasing restrictions on drivers or implementing policy to change drivers' behaviors. ATI in Denver has landed in a different equilibrium than it occupied in the late 1970s when the first DBMP was released. ATI has been institutionalized in Denver's government and has earned significant funding ($2 billion) over at least the next decade. In addition, a supportive Mayor and government as well as substantial political will (as evidenced by the passage of the BDBP by voters in 2017) mean that ATI is quickly being solidified in Denver. ATI's support in Denver signifies a new political equilibrium in

which bicycling is becoming more and more normalized as a mode of transportation within the city. As previously mentioned, this bodes well for the longevity of ATI in Denver as issues are often understood as they were in previous generations. The shift in ATI policy image in Denver therefore not only changes the understanding of ATI today, but for future generations as well (Baumgartner & Jones, 2009).

The most recent plan implemented by Denver is the Denver Mobility Action Plan (DMAP) which was released in June 2017. DMAP is the culmination of all of the plans covered in this project. It includes all of the same arguments for public health, Denver reaching its full potential as a city and accessibility to both cycling and public discourse regarding cycling. DMAP introduces many lofty goals, all of which are to be completed in the coming decades. DMAP supports Denver's Vision Zero project, reduce single occupancy vehicle commuting in Denver from 73% to 50% (including 15% commuting via public transit and 15% commuting via bike) and an 80% in greenhouse gas emissions by 2050 (DMAP, 2017).

The lofty goals of DMAP are important for the success of Denver as a cycling friendly city, but the most essential was the creation of the Mayor's Multi-Modal Advisory Committee (MMAC). The MMAC, comprised of a wide variety of stakeholders including "bicycle riders, pedestrians, transit riders, vehicle drivers, people with disabilities and other mobility-system users", is a means for DMAP to be regularly updated based on community input (DMAP, 2017). The connection between DMAP's MMAC and the aforementioned decline of nuclear energy in the U.S. must be made clear. One of the major drivers behind the shift in the direction of nuclear energy in the U.S. was public access to congressional hearings on nuclear energy. In these hearings the

policy image of nuclear energy was crafted by concerned citizens and advocates and the resulting negative policy image led to the anti-nuclear policy that followed. Now that there is an institutionalized means for public input within DMAP, a sustained positive policy image of ATI into the future is a likely scenario.

The success of recent ATI policy in Denver is too recent to judge yet, but there are some encouraging, as well as concerning, developments since the passage of Vision Zero, DMAP, and the BDBP. Despite the emphasis on pedestrian safety in the aforementioned plans, the areas that have been known to be problematic in the past have seen little change so far. Colfax Avenue in Denver has already been the site of 4 traffic deaths since the beginning of 2019 (Bosselman, 2019). Vision Zero has proven to be ineffective to date as traffic fatalities jumped from 50 to 58 in 2018 and are currently on pace for 60 deaths in 2019 (Bosselman, 2019). In fact, there are simple fixes to dangerous intersections that have been proven to reduce fatalities, yet Denver has not implemented these along dangerous stretches of Colfax Avenue (Bosselman, 2019). DSP is keeping the pressure on Vision Zero to successfully implement ATI by releasing a report card of how well Vision Zero did in 2018 in achieving its goal of zero traffic casualties by 2030.

The report card grades different areas of responsibility for Vision Zero including bike lanes, sidewalks, traffic calming, redesigning intersections and increasing lighting for safety (Roberts, 2019). The overall score given to Vision Zero in 2018 was a "C" (Roberts, 2019). Jill Locantore, co-chair of DSP, has said that she is "really pleased Mayor Hancock has committed to Vision Zero, but the city needs to do a better job of implementing the plan in a timely manner" (Roberts, 2019). Cycling infrastructure has been improved through carefully crafted policy images of public health and a Denver

identity which resulted in a wider audience as well as specific, bike friendly policy to address pedestrian casualties in Denver, which may have helped it score the lone "A" on the DSP report card (DSP, 2019). Denver added 19 miles of the 20 miles of bike lane installations promised and, more importantly, constructed the new bike lanes in areas that they were necessary in order to bolster traffic safety according to Piep van Heuven of DSP (Roberts, 2019). The successful implementation of bike lanes as opposed to sidewalks highlights the stark difference in where each rank on the political agenda of Denver. It is clear that the reshaping of cycling's policy image in Denver from a nonnecessary luxury to the public health solution to a massive issue in Denver as well as an image of bicycling being part of the fabric of the city has made cycling a mainstay in Denver.

Denver As a Model for Other Cities

Denver's success in passing ATI friendly policy through the construction of a positive policy image has provided a blueprint for other cities to see the same success in creating a political environment that is ready for ATI implementation. Denver certainly has some advantages including supportive city officials, Mayor Hancock is of note, as well as the political will to pass legislation like the BDBP that directly funds bicycle related projects. Fortunately, successful advocacy campaigns could create a similar political environment in any U.S. city. A policy entrepreneur must appeal to the values of a city and create an image of bicycling that not only fits their values and creates more invested citizens, but also one that has the potential to address an issue within the city.

Achieving these two criteria is essential for the issue of bicycling infrastructure to rise on the political agenda of a given city.

Bicycling infrastructure is quickly becoming a fixture in many American cities. In order for bicycling infrastructure to keep receiving funding and public support, the advocacy groups that brought about the change in the first place must stay dedicated. As mentioned previously, very little changed in the field of nuclear energy between when it was seen as the creator of utopias to when it was portrayed as a ticking time bomb that could end civilization, it was all about the policy image. Therefore, bicycle advocacy groups in Denver must keep up the tremendous effort that has landed Denver in a new state of transportation equilibrium. If a strong enough opposition to bicycling infrastructure arises, there could be a regression in the bicycling movement across the country, even if there is little change in the data on the benefits of safety and economics that bicycling provides. It appears that groups like DSP are continuing to push the bicycling agenda through the creation of the report card for Vision Zero and other bicycle friendly efforts. Vision Zero is a 10-year plan, so at the very least there will be progress being made for the next decade. The future of cycling in Denver is bright, but the work must continue in order to maintain the progress that has been made thus far.

Conclusion

Denver is an illustrative case study of how changes in policy image are shaping the bicycling infrastructure of American cities. Through the expansion of those invested

in the bicycling infrastructure issue as well as creating policy images that lend themselves as solutions to pressing issues of a given city, such as minimizing pedestrian deaths in Denver, bicycle advocates have created a strong pro-bicycling movement that has already seen more longevity than previous bike booms. Bicycling advocates, by reclaiming the policy image have allowed for a capitalization of the current ATI policy window that currently exists in American cities. The theory of Baumgartner & Jones would suggest that these changes have led to a shift in the political equilibrium of bicycling infrastructure within the U.S. (Baumgartner & Jones, 2009).

The story of Denver's growth in ATI is telling of the power that policy image has to change long standing political equilibriums. Similar to the decline of nuclear energy in the U.S., relatively little has changed in the technology or approaches of ATI implementation, yet it has only recently had success in the U.S. due to a change in policy image. The policy image of ATI must be one that is important to the community that it is being implemented in. Perhaps the use of public health will not be as effective everywhere in the country as it was in Denver, but there are certainly many issues that ATI can help to address and effective policy images that ATI can adopt, and bicycling advocates in each city must find the ones that fit their needs. It is an exciting period for ATI in the U.S. and understanding how cities like Denver found the success that it is currently experiencing can only help to inform future generations on how to garner support for alternative modes of transportation so that the current bike boom does not end in a similar fashion to the bike boom of the 1970s.

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