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### Cars and the Illusion of Control

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## **Cars and the Illusion of Control**

On November 15th, 2021, President Biden signed the \$1.2 trillion Infrastructure Investment and Jobs Act into law. The bill, which passed with bipartisan support, included \$39 billion dollars for public transit and \$66 billion for passenger and freight rail. It was the largest investment in public transportation since the creation of Amtrak.<sup>1</sup> The bill could represent the first step towards increased investment in public transportation in a country dominated by urban car usage.

The automobile, first introduced to cities around the turn of the 20th century, grew increasingly integral to urban mobility throughout the 1900s as cities expanded with the help of the creation of the highway system, urban sprawl, and zoning laws. Cars remain dominant in the American city; 81% of American urban dwellers commute to work using a personal vehicle.<sup>2</sup> As the proportion of the American population in cities has grown, the work of urban planning has become increasingly important. Urban planners prefer to view car commuters as a singular group because doing so allows the city to consider the efficiency of the road network. The primary goal of urban transportation planning is to reduce the collective commute time for all city residents. This view of urban car use is important, but to use a popular analogy, it can sometimes result in missing the trees for the forest. Every single car commuter represents a conscious decision to drive, as opposed to walking, cycling, or taking public transportation. Urban areas are different from rural areas in that their population densities and infrastructure mean that there are almost

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<sup>1</sup> Katie Lobosco and Tammy Lubby, “Here’s What’s In the Bipartisan Infrastructure Package,” CNN, November 15, 2021.

<sup>2</sup> U.S. Census Bureau, American Community Survey, 2021 American Community Survey 5-Year Estimates, Table B08201.

always multiple options to get around the city. The high proportion of car users suggests that these transportation options are unequal in the minds of commuters.

Choosing to own a car and use it for a specific trip can be broken down into the economic concept of cost-benefit analysis. In cost-benefit analysis, the decision to do a given thing is broken into a binary comparison of the benefits and costs of taking the action. If the benefits outweigh the costs, the given action is undertaken; if not, the action is not taken. Cost-benefit analysis forms the basis of economic theory and is applied from the level of the individual to the macro-level of global markets. There is even evidence to suggest that the human brain acts as described by cost-benefit analysis during decision-making.<sup>3</sup> However, the effectiveness of cost-benefit analysis is entirely dependent on measuring every cost and benefit accurately and consistently. If a cost or benefit is either over or undervalued, the worth of cost-benefit analysis is diminished. Advocates of reducing car use in cities often argue that the costs of choosing to use a car are undervalued. Cars have many different negative externalities; some of these include greenhouse gas emissions, air pollution, and noise pollution. However, global climate change is a looming issue that necessitates quick action. In the wake of the American government continuing to support cars by supporting new developments like electric vehicles that aim (whether or not they actually achieve) to reduce the comprehensive costs of using a personal vehicle, it is time to shift the conversation away from the costs of cars and towards their purported benefits.

The benefits of using cars in urban areas are significantly overestimated by both individuals and urban planners, and this undermines the decision-making surrounding cars. In American suburban areas, commuters often do not have a choice because urban planners have systematically favored the purported benefits of the automobile. In inner cities, where almost

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<sup>3</sup> Basten et. al., "How The Brain Integrates Costs and Benefits During Decision Making," *PNAS* 107, no. 50 (2010): 21767-72.

every mid-sized and large city has at least some public transportation, individuals choose to drive cars because they believe cars give them more freedom and flexibility than alternatives. A literature review from 2023 found that drivers from around the world considered “...the sense of control over one’s own life, autonomy, and the freedom to use it when desired and to any destination,” the crucial factors influencing their choice of car ownership and use.<sup>4</sup> The review also found evidence to suggest that car use and a positive opinion of the agency of cars are very intertwined; meaning that not only does car use affect feelings about cars, but that an individual driver’s beliefs about cars affects their car usage.<sup>5</sup> In suburban areas, where an individual who wants to commute must take an automobile, the act of using a car increases their perception of the benefits. An elevated perception of the benefits of cars is inevitable because there are no meaningful alternatives. The reverse of this finding, that beliefs about cars affect their usage, is also relevant. In the United States, where the car has emotional connotations, this effect could be very powerful in causing commuters to favor cars in areas with other feasible options.

The association of cars with freedom can be seen in automobile advertisements and popular culture and media, where cars represent not only freedom but also masculinity, escapism, rebellion, and adventure. Historian Pamela Walker Laird argues that as the focus of automobile advertisers in the middle of the 1920s shifted from convincing the public to buy cars to convincing the public to replace the cars they already owned, their advertising techniques changed in response. Advertisers decreased focus on the design and engineering of a car, and instead created advertisements that were “dynamic images and copy about power, speed, and fun for a car purportedly designed for lively, youthful adventurers, or those who perceived

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<sup>4</sup> Jaime Soza-Parra and Oded Cats, “The Role of Personal Motives in Determining Car Ownership and Use: a Literature Review,” *Transport Reviews* (2023): 6.

<sup>5</sup> *Ibid*, 6.

themselves as such.”<sup>6</sup> These connotations quickly became an industry standard, and popular culture incorporated these ideas into the media of the second half of the 20th century. Restless youth in the 1950s and the counterculture movement of the 1960s adopted the automobile as an expression of individuality.<sup>7</sup> The legacy of these advertising-fueled emotional connections of cars as symbols of identity has the effect of inflating the worth of cars in urban areas in the 21st century.

### **Illusion of Control**

In psychology, the concept of the “illusion of control” was developed to describe the tendency of individuals to overestimate their ability to influence exterior events. Scholarship has found that humans derive mental benefits from their perception of control, and therefore have motives to overestimate how much control they have over external factors.<sup>8</sup> This idea can also be applied to transportation. The American association of cars with freedom and flexibility represents a transportation illusion of control. Individuals and cities overvalue the agency that cars allow within an urban environment.

There are many things outside of the control of the typical worker commuting by car from outside the city center to the urban core. Perhaps the most apparent, immediately influential once the car enters the road network, is other drivers. Road congestion is one of the largest concerns for urban transportation planners, so much so that an entire discipline, traffic engineering, centers on the problem. Traffic is a particularly compelling issue because recent

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<sup>6</sup> Pamela Walker Laird, ““The Car Without a Single Weakness”: Early Automobile Advertising,” *Technology and Culture* 37, no. 4 (1996): 807.

<sup>7</sup> David Laderman, “What a Trip: The Road Film And American Culture,” *Journal of Film and Video* 48, no. (1996): 41–57.

<sup>8</sup> P.K. Preson and V. A. Benassi “Illusion of Control: A Meta-Analytic Review.” *Journal of Social Behavior and Personality* 11, no. 3 (1996): 493.

technological developments like electrical vehicles and ridesharing that aim to eliminate some of the problems with cars (pollution e.g.) only contribute to traffic, rather than stop it. Traffic engineers see traffic as a problem to be fixed with regulation and infrastructure. By approaching traffic as a problem, they are classifying the issue as a cost of cars in the cost-benefit model. Road congestion, however, also represents an overvaluing of the benefit of individual control offered by the car. The control that a driver exhibits over a vehicle does not extend to other vehicles, and therefore the conflicting individual interests of drivers using the same public road network invokes the economic theory of the tragedy of the commons. In 1968, Garret Hardin first used the concept of the tragedy of the commons to describe the problems resulting from unmanaged consumption of a freely available good.<sup>9</sup> It argues that each consumer's individual interests create competition for a scarce resource that results in an unsustainable outcome for the collective group. In the context of cars, each individual driver's interest in getting to their location as quickly as possible creates competition for the limited space available on roads, which results in inefficiency for the total commuting population. Reframing traffic as a tragedy of the commons puts into question the traditional strategies urban planners have used in the past for dealing with road congestion. One of the most popular choices has been widening urban highways.<sup>10</sup> The tragedy of the commons predicts that increasing the amount of road space (the common resource available) does not change the problem because it does not address the disconnect between individual and collective interests. This prediction has been supported by data collected studying highway expansion projects. Widening highways has been shown to only increase car use, rather than prevent congestion.<sup>11</sup> The only way to solve the tragedy of the

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<sup>9</sup> Michelle DeRobertis and Richard W. Lee, "The Tragedy of the Commons of the Urban (and Suburban) Arterial," *Institute of Transportation Engineers* 87, no. 6 (2017): 44.

<sup>10</sup> David Zipper, "The Unstoppable Appeal of Highway Expansion," *Bloomberg*, September 28, 2021.

<sup>11</sup> Martin J. H. Mogridge, "The Self-Defeating Nature of Urban Road Capacity Policy: A Review of Theories, Disputes and Available Evidence," *Transport Policy* 4, no. 1 (1997): 5-23.

commons dilemma is through restricting individual consumption. It follows that limiting car use has been an effective way to prevent congestion.<sup>12</sup>

Restrictions targeting car use can take many forms, including direct bans, temporal or demand-based bans, and congestion pricing. In every case, equity remains a concern; wealthier drivers will be less affected compared to poorer drivers.<sup>13</sup> All drivers, however, face at least some loss of control. Whether by the problem of congestion itself or the solution of restrictive congestion laws, if cars continue to be the primary method of transportation in cities, car users will continue to have restricted control over their commutes.

### **Please Proceed to Highlighted Route**

In 2013, Google acquired the navigation company Waze for 1.15 billion dollars, the highest price ever paid at the time for a consumer app.<sup>14</sup> Immediately after the deal, Google began incorporating real-time rerouting suggestions for avoiding traffic based on smartphone location data, the feature for which Waze was known, into Google Maps. This addition meant that traffic identification and rerouting technology became well-known and widely available. For the first time, a driver could be provided with guidance on how to avoid car accidents, traffic jams, or other slowdowns to save them time and stress on their commute. Such power was seen as individually freeing. Suddenly, the external factors of traffic and congestion were no longer completely outside of a driver's control; the driver now had the power to circumvent these

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<sup>12</sup> Selmoune et. al., "Influencing Factors in Congestion Pricing Acceptability: A Literature Review," *Journal of Advanced Transportation* (2020): 1-11.

<sup>13</sup> Ibid, 4-5.

<sup>14</sup>Uri Levine, "Was Selling Waze To Google A Good Decision? Founder Of Waze Reflects On The Deal," *Forbes*, June 9, 2023.

issues. Drivers were quick to adopt smartphone navigation usage. A survey from 2015 found that 67% of smartphone users at least occasionally use their phone for turn-by-turn directions.<sup>15</sup> The widespread adoption of real-time traffic rerouting technology has led some to question the validity of the promoted benefits that made these apps so popular in the first place. The traditional logic of these apps makes sense on a cursory level. This viewpoint, as a spokesperson for Waze stated, argues that “With more and more drivers on the road every day, Waze works to spread congestion evenly across public roads to make the driving and commuting experience better for everyone.”<sup>16</sup> However, there is a compelling argument that the widespread use of traffic navigation apps gives drivers an illusion of control rather than additional freedoms. Research has shown that mass usage of traffic rerouting technology actually increases congestion.<sup>17</sup> Traffic rerouting has directed vehicles through residential roads that were not intended for high volumes of traffic, making it difficult for residents to access homes.<sup>18</sup> Also, navigation apps collect a concerning amount of personal data.<sup>19</sup> For city planners, the lack of transparency makes it difficult to plan for the effect of navigation apps on traffic. For individual users, their personal locations have become a marketable good which is traded out of their control. The most basic argument, however, is that following directions from an algorithm rather than personal decision-making or experience immediately represents a loss of agency. There is frightening evidence that overly relying on navigation apps reduces navigational skills and

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<sup>15</sup> Aaron Smith, “U.S. Smartphone Use in 2015,” *Pew Research Center*, April 1, 2015.

<sup>16</sup> Laura Bliss, “Navigation Apps Changed the Politics of Traffic,” *Bloomberg*, November 12, 2019.

<sup>17</sup> Cabannes et al., “The Impact of GPS-Enabled Shortest Path Routing on Mobility: A Game Theoretic Approach,” *TRB*, (2017).

<sup>18</sup> Lisa W. Foderaro, “Navigation Apps Are Turning Quiet Neighborhoods Into Traffic Nightmares,” *The New York Times*, December 24, 2017.

<sup>19</sup> Valentino-DeVries et al., “Your Apps Know Where You Were Last Night, and They’re Not Keeping It Secret,” *The New York Times*, December 10, 2018.



awareness.<sup>20</sup> This finding suggests a circular cycle of dependency; a far cry from the personal control advertised by the companies behind navigation apps.

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Parking is another factor that contributes to the illusion of control car drivers have over their commute, resulting in an overvaluation of the benefits of cars. The idea that cars offer unfettered access to the city is misleading because there are limited places a car can be left while their drivers enter places of occupation, storefronts, or other city attractions. Parking and traffic as urban planning issues have many similarities. Like traffic, parking has been traditionally understood by urban planners as a cost, or problem of cars to be fixed through infrastructure like parking garages. Additionally, free public parking can also be considered a tragedy of the commons issue, where individual interests in finding the most convenient parking spot lead to a collective inefficiency of time. But more impactful than the individual's loss of control over their commute is the city's loss of control over its urban center. The need for land devoted to parking is incredibly restrictive to the way a city operates both commercially and residentially. It was, and still continues to be, a common practice for cities to mandate minimum parking availability for new developments.<sup>21</sup> The cost in urban land required for this parking is drastic, so much so that there is evidence that parking requirements discourage high-density housing developments because of the quantity of parking these developments would require.<sup>22</sup> The consequences are

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<sup>20</sup> Joseph Stromberg, "Is GPS ruining our ability to navigate for ourselves?" *Vox*, September 2, 2015.

<sup>21</sup> Nathaniel Meyersohn, "This little-known rule shapes parking in America. Cities are reversing it," *CNN Business*, May 21, 2023.

<sup>22</sup> Dante Ramos, "How Parking Ruined Everything," *The Atlantic*, June 4, 2023.

that urban planners and developers lose agency in the design of the urban core and that most American cities are filled with parking garages and pavement.

### **Baby, You Can Drive My Car (I Think?)**

For all of the 20th century, once customers signed the purchasing papers and drove cars off the lot, they had complete ownership of their car; it was theirs to drive, repair, or do anything else with. In the 21st century, however, car ownership reflects an illusion of control; while attitudes surrounding car ownership have remained similar, car ownership itself has begun to change. As technology and proprietary software are increasingly incorporated into modern cars, the lines of ownership have blurred. Consumers no longer have the only claim to their vehicle. Cars have become connected to the internet, and automakers have begun to collect data from them. Most companies have limited transparency about their data collection.<sup>23</sup> The company Nissan, which has surprising transparency, gives a glimpse at the extent of their data collection. Nissan says that information they collect from sources, including their cars, can be used to monitor consumers' "preferences, characteristics, psychological trends, predispositions, behavior, attitudes, intelligence, abilities, and aptitudes."<sup>24</sup> Additionally, specific features of a purchased car are no longer the property of the car owner. Automakers like General Motors hold that software included in their vehicles is subject to copyright.<sup>25</sup> Some manufacturers have even acted on this claim. In 2020, Massachusetts voters approved a "right to repair" law that required

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<sup>23</sup> Frank Bajak, "Carmakers are failing the privacy test. Owners have little or no control over data collected," *The Associated Press*, September 6, 2023.

<sup>24</sup> "Privacy Notice," *Nissan*, July 1, 2023.

<sup>25</sup> Lily Hay Newman, "Who Owns the Software in the Car You Bought?" *Slate*, May 22, 2015.

a car's wireless repair data to be available for service shops to access. Subaru and Kia responded by shutting off software in new vehicles sold in the state, including emergency call and remote start features.<sup>26</sup> This incident serves as a warning of the loss of control drivers face with technology-augmented and internet-connected vehicles.

Tesla has been an industry innovator in the technological development of vehicles. In 2023, Tesla was forced to recall some 363,000 vehicles due to issues with their self-driving technology, a move about which Elon Musk commented, "The word "recall" for an over-the-air software update is anachronistic and just flat wrong!"<sup>27</sup> Internet software updates mean that Tesla remains active in the function of the car long after it is driven off the lot. One of the ways for Tesla owners to access self-driving technology, a major feature of the car, is through a subscription-based payment plan. Drivers who follow the subscription plan are leasing access to the feature, following a model more akin to the relationship a driver has with a rental car than car ownership in the past. Technology even exists that allows car loaners and dealers to remotely disable cars in the case of missed payments.<sup>28</sup> It is not hard to imagine that manufacturers could build a similar feature directly into internet-connected cars that would allow them to be disabled for any reason, representing the ultimate loss of control for an owner.

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For an individual, cars are an expensive investment. In 2023, the average monthly loan payment for a new vehicle is \$725; for context, about 11% of the American median household

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<sup>26</sup> Shira Ovide, "Now That Cars Are Like Smartphones, We Don't Really Own Them," *The Washington Post*, November 10, 2023.

<sup>27</sup> Chris Isadore, "Tesla recalling nearly 363,000 vehicles equipped with 'Full Self-Driving,'" *CNN Business*, February 16, 2023.

<sup>28</sup> Aimee Pichii, "Why the Repo Man Can Remotely Shut off Your Car Engine," CBS News, September 25, 2014.

monthly income.<sup>29</sup> Below the federal poverty line (for a family of four \$30,000), this figure jumps to 29%. This financial burden is incredibly restrictive; to obtain the mobility benefits of cars in cities designed for them, lower-income families have to sacrifice a large portion of their income. Lower-income families, then, are subject to an illusion of control over cars; they offer the promise of personal agency but depose their owners of it through the costs of loans, maintenance, and gas. At the same time, the effects of greenhouse gas-driven climate change stand to have the largest impact on lower socioeconomic populations.<sup>30</sup> The relationship between car ownership and race and class extends to governmental influence, as car and traffic registration and regulation affect the undocumented by criminalizing mobility, and affect documented poor through especially race-related unequal enforcement of traffic laws.<sup>31</sup> Adoption of electric vehicles has the potential to worsen the impact of car dependency on lower socioeconomic classes. The distribution of public charging stations is heavily imbalanced towards higher income areas, and the increased costs of larger batteries have the potential to tie vehicle range with economic means.<sup>32</sup> American urban car dependency is intertwined with inequality in the country. Whether car dependency perpetuates inequality or merely reflects it, there is hope that rethinking American urban mobility could be a more effective way to address inequality than previous efforts.

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<sup>29</sup> Median household monthly income figure calculated from 2022 census data.

Emily Lorsch, "Why Americans Are Struggling With Car Loans," *CNBC*, August 11, 2023.

<sup>30</sup> "Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts." *EPA*. 2021.

<sup>31</sup> Catherine Lutz, "The U.S. Car Colossus and the Production of Inequality," *American Ethnologist* 41, no. 2 (2014): 238.

<sup>32</sup> Andrew Moseman, "The Inconvenient Truth About Electric Vehicles," *The Atlantic*, February 13, 2023.

## Taking the Blue Pill

Much research and development on autonomous vehicles has been made over the last two decades.<sup>33</sup> Autonomous vehicles have many features that negate many of the confining elements of traditional human-controlled vehicles. Integrated autonomous vehicle adoption in cities has the potential to increase safety, reduce road congestion, and allow for more efficient parking. For the individual, autonomous vehicles could be empowering by allowing for increased safety, increased mobility for those who cannot drive, and if implemented in an on-demand system, a reduction of the storage and ownership limitations of cars. These benefits have led some to argue that autonomous vehicles represent a sustainable urban transportation option.<sup>34</sup> Autonomous vehicles represent an illusion of control, however, because they necessitate restrictive infrastructure requirements for cities and a loss of user control for the individual. Without drastic changes to the road network, which has gone mostly unconsidered, autonomous vehicles require prominent lane lines, readable road signs, consistent road surfaces, and mitigation of weather factors at the very least.<sup>35</sup> One proposed method to maximize the potential of autonomous vehicles is linking them together in a collaborative network where each vehicle knows the locations of other vehicles. Implementing such a method reduces outside control over the collective transportation sector and relies on the internet or other forms of wireless connectivity. For the user, the legal implications of autonomous vehicles are not clear. The traditional legal precedent of placing responsibility on the driver in the event of a crash would be mostly inapplicable, although a user could still face liability based on the extent of their control over the

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<sup>33</sup> Faisal et. al., "Understanding Autonomous Vehicles: A Systematic Literature Review on Capability, Impact, Planning and Policy," *The Journal of Transportation and Land Use* 12, no. 1 (2019): 47.

<sup>34</sup> *Ibid*, 53.

<sup>35</sup> "Preparing Infrastructure for Automated Vehicles," *International Transport Forum* (2023): 21-37.

vehicle (failing to take control of the vehicle, for instance).<sup>36</sup> The data collection required by a connected autonomous vehicle network would not only infringe on user's privacy but could also subject autonomous vehicle makers to legal action.<sup>37</sup> Another criticism is that autonomous vehicles represent a lack of agency compared to driving. When imagining a world of autonomous vehicles, one can't help but think of science fiction settings like *The Matrix* where technology has constrained the autonomy of humans. Most of the resistance to autonomous vehicles comes from the driving public. One group, the Human Driving Organization, founded to advocate for the freedom of humans to operate their own vehicles, advocates for a constitutional amendment protecting the right to drive among their founding principles.<sup>38</sup>

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There are some flaws to the idea that an illusion of control causes urban drivers to overvalue the worth of cars. One is that the concept is difficult to apply to ridesharing services. It is true that ridesharing offers some control by allowing for on-demand service and removing the requirement of parking. However, ridesharing services still contribute to traffic and, for everyday traveling, are more expensive than just using a car.<sup>39</sup> The biggest is the assumption that people choose to drive cars because they believe it gives them the most control over their commute. There are other reasons why someone might choose to drive. For a suburban area not served by public transit, there is not a viable mobility option for longer distances that does not involve a car. In addition, traveling from a rural area to a city almost certainly necessitates using a personal

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<sup>36</sup> Jack Boeglin, "The Costs of Self-Driving Cars: Reconciling Freedom and Privacy with Tort Liability in Autonomous Vehicle Regulation," *Yale Journal of Law and Technology* 17, no. 1 (2015): 171.

<sup>37</sup> María L. Kubica, "Autonomous Vehicles and Liability Law," *The American Journal of Comparative Law* 70, no. 1 (2022): 49-50.

<sup>38</sup> "Human Driving Manifesto," *Human Driving Organization*.

<sup>39</sup> Laurie Konish, "Ride-Hailing vs. Car Ownership: Here's Which Really Costs More," *CNBC*, August 27, 2018.

vehicle. Many have little choice. Another reason that one might choose to drive is to haul furniture, groceries, or some other cargo in a size that would be difficult to carry otherwise. Given that with every trip a person might have different motivations, it is impossible to argue that every single trip by every driver is made because of a perception of control. With the prevalence of the idea in America that cars give their drivers more freedom and control, however, it is reasonable to assume that these ideas have a significant impact on at least some mobility decision-making and that correcting the overvaluation would cause a decrease in car usage. In order for car usage to decrease, however, there have to be viable alternatives.

The economic strategy of cost-benefit analysis works in isolation but also in comparison. Instead of deciding only whether to make a certain decision or not, it can be used to decide between alternatives, each with its own costs and benefits. Currently, most American drivers consider the benefits weighed against the costs of owning and primarily using a personal automobile greater than the benefits weighed against the costs of using public transportation. The concept of an automobile illusion of control introduced in this paper argues that urban drivers overvalue the worth of cars, which makes their decision-making process biased. However, there is an additional implication of this concept; it argues that public transportation is undervalued. Most people say they do not use public transportation because of their lack of control; the limited routes and arrival times do not allow them the freedom to leave anytime and reach any destination directly.<sup>40</sup> Public transportation, though, lacks many of the reasons why personal automobiles are restrictive. Certain forms of public transportation, most notably subway and elevated train systems, circumvent any road traffic. An individual user of public transportation never has to worry about parking, and with reasonable rates, a public transportation system will

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<sup>40</sup> Bart Jansen, "Survey: Transit Riders Like Convenience, But Want More Reliability," *USA Today*, November 12th, 2015.

always be more competitive for an individual than the costs associated with owning and operating a car. A comprehensive and affordable public transit system gives an individual personal control; they have the power to reach any destination and return from any location without the external interference that cars are subjected to. Public transportation has been proven effective in other cities around the globe and has the potential to drastically reduce contributions to climate change from the transportation sector.<sup>41</sup> A transition across American cities from cars to public transportation would be monumental, but it could create a sustainable urban future.

President Biden's 2021 infrastructure bill included \$39 billion dollars for public transit and \$66 billion for passenger and freight rail, but it also included \$110 billion dollars for roads and bridges and \$7.5 billion for electric vehicle chargers.<sup>42</sup> The United States continues to be a country driven by the personal automobile. There is a certain degree of helplessness among urban planners and the public who continue to support cars with new developments and technologies under the assumption that the costs required to make public transportation competitive with personal vehicles are beyond the realm of possibility. The knowledge that the gap between the two is not quite as large as it seems could provide the motivation necessary to make the investments needed to make public transportation a competitive mobility option in every city in the United States.

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<sup>41</sup> Deborah L. Blevis, "Transportation is Critical to Reducing Greenhouse Gas Emissions in the United States," *WIRES Energy and Environment* 10, no. 2 (2020): 9.

<sup>42</sup> Katie Lobosco and Tammy Lubby, "Here's What's In the Bipartisan Infrastructure Package," CNN, November 15, 2021.



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