

I. Title

Ensuring Equity in Transportation and Land Use Decisions

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III. Sponsorship/co-sponsorship

This proposed policy statement is being submitted primarily by members of the APHA Environment Section. While we did not have time to seek sponsorship before this first submission, we intend to include a sponsorship letter with the re-submission, following initial JPC review and requested revisions. Also, leadership from the Environment Section policy team has been involved and informed via our communications throughout our entire development process for this policy statement.

IV. Collaborating Units

The following individuals also collaborated on the developed of this proposed policy statement by providing content information, review and guidance in its development, particularly during the early stages:

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V. Endorsement

Following from the first review by the JPC, the authors have already been in contact with the following APHA member units to plan for securing their endorsement for the proposed policy statement (between receiving initial JPC feedback and submitted a revised statement with incorporated JPC comments):

- CHPPD section
- Physical Activity section

VI. Summary

Land use design and transportation systems, and the decisions that lead to them, play a significant role in shaping community health. While many have benefited from these systems, racial minorities, lower income individuals, older adults, people with disabilities, and women have been harmed as well as excluded from the decision-making process. This policy statement examines equity and decision-making for transportation and land use impacting five key health outcome areas: (1) access to health promoting resources, (2) social cohesion and mental health, (3) traffic safety, (4) physical activity, and (5) environmental exposures and climate. Strategies proposed include centering equity in all decision-making; implementing Complete Streets policies in ways that prioritize health for people of color and underserved communities; increasing active transportation options and incentive programs; and instituting fair land use policies, particularly those related to mixed-use development and housing. Each of these strategies are predicated upon (1) an acknowledgement of the history of structural racism in transportation and land use, (2) authentic community engagement, and (3) engaging in a process to ensure staff and government officials better reflect the makeup and needs of the communities they serve. Key concerns for these strategies include worries about promoting gentrification and displacement, overburdening residents with engagement requests, and addressing opinions that equity is already embedded in policymaking, so no further work is necessary. This policy statement provides counter-arguments to these notions, along with a set of action steps to operationalize recommended strategies to provide long term co-benefits for health.

Relationship to Existing Policy Statements

The following APHA policy statements (inclusive of the policy statements they list as supporting) support the purpose of this statement by addressing and advocating on a range of issues and topics related to equity, environment and climate change, and community engagement. However, none of these policies holistically address transportation and land use decision-making as it relates to health equity.

- APHA Policy Statement 20044: [Creating Policies on Land Use and Transportation Systems that Promote Public Health](#)
- APHA Policy Statement 20135: [Environmental Noise Pollution Control](#)
- APHA Policy Statement 20166: [Opportunities for Health Collaboration: Leveraging Community Development Investments to Improve Health in Low-Income Neighborhoods](#)
- APHA Policy Statement 20172: [Supporting the Updated National Physical Activity Plan](#)
- APHA Policy Statement 20183: [The Public Health Impact of Energy Policy in the United States](#)
- APHA Policy Statement 20189: [Achieving Health Equity in the United States](#)
- APHA Policy Statement 20196: [Addressing the Impacts of Climate Change on Mental Health and Well-Being](#)
- APHA Policy Statement 20197: [Addressing Environmental Justice to Achieve Health Equity](#)
- APHA Policy Statement 200712: [Toward a Healthy Sustainable Food System](#)

VII. Rationale for Consideration

This proposed policy statement updates and replaces the existing active APHA policy statement 20099. This update was specifically suggested as a 2019 APHA Policy Statement Gap ["Equity in transportation and land use decisions (update policy statement 20099*)"].

The previous statement 20099 discusses the topic of improving health through transportation and land use policies as significant factors shaping the built environment with three primary impact areas (traffic injuries and fatalities, physical activity and nonmotorized transportation, and air quality), as well as separately examining impact of these policies on health equity and disparate impact on vulnerable

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populations before providing action steps. Rather than examining impact on health equity and the impact on vulnerable populations in isolation, this updated policy statement 'Ensuring equity in transportation and land use decisions' examines equity *embedded within* the content of five key areas: (1) access to health promoting resources, (2) social cohesion and mental health, (3) traffic safety, (4) physical activity, and (5) environmental exposures and climate. This updated policy statement also adds an examination of evidence-based strategies, opposing arguments/evidence, and alternative strategies, as well as suggested action steps and recommendations beyond legislation or formal policy.

VIII. Problem Statement

Historical Inequities in Transportation and Land Use Decision-Making: Land use designs and transportation systems – and the decisions leading to these designs and systems – shape community access to resources, influence exposure to pollutants, and constrain or facilitate healthy behaviors, affecting communities' safe and convenient access to healthcare, employment, food, physical activity, and activities promoting mental health and social cohesion. [1] Inequities resulting from transportation and land use decisions have disparate adverse effects on the health of racial minorities, lower income individuals, older adults, people with disabilities, and women. Structural racism is a significant feature of U.S. history, acting through discriminatory policies including segregation, highway planning, and redlining that still negatively impact communities today, such as a historical lack of home ownership opportunities for people of color (POC), Black Americans in particular, resulting in a persistent racial wealth gap. [2] Marginalized groups are often excluded (implicitly and explicitly) from decision-making processes through inadequate or tokenizing community engagement. To improve health for all, it is critical to consider the needs of those affected when decisions are made. [3] Even more importantly, decision-makers should the racial and social makeup of the communities they serve, from planning and transportation staff to elected and appointed leadership. The decisions that led to the outcomes described in this problem statement were made by mostly white and mostly male staff and leaders with little guidance from other groups. This fact is at the foundation of the inequities borne through built environment decisions.

Access to Health-Promoting Resources: Community access to resources has been determined by planning and zoning decisions that predominantly – and inequitably – distribute resources in wealthier, whiter parts of communities. These resources include parks and recreation facilities, high-quality schools, health care facilities, and grocery stores. Residential land uses have been segregated along racial lines based on federal, state, and local policy and funding decisions in collaboration with mortgage companies and builders. [4, 5] Exclusionary zoning (i.e. density restrictions) and lack of affordable housing prevent many POC from living in whiter neighborhoods and benefiting from the resources and amenities there. [4] Access to health-promoting resources depends not only on land use decisions but also the structure and quality of the transportation system, an individual's physical ability to access transportation infrastructure, and the ability to pay for different transportation options (e.g. private car or public transit). [6] Inherent inequities exist in the structure of most transportation systems because the majority of transportation planning has sought to serve downtowns with the idea that most people are working 9-5 in offices, rather than focusing on people working other types of jobs or schedules. The result has been an imbalanced transportation network that poorly serves lower income and transit dependent residents.

Today, after decades of white flight and redlining, the current suburbanization of poverty brings about a new set of health equity challenges. As urban centers grow, disadvantaged "inner city" residents are displaced to areas with fewer resources, fewer health-promoting land uses, and fewer transportation options. This trend exacerbates the experience of people with vulnerabilities, who already spend more of

their time and income on transportation [7] and have disproportionately lower rates of vehicle ownership. [8] Inadequate infrastructure for active transportation, such as sidewalks, available to these communities can make transportation unsafe or inaccessible.

The urban form resulting from land use and transportation decisions has led to a geographical mismatch of affordable residential areas to employment opportunities, creating barriers to employment, particularly for racial minorities. [9] Other research shows that, rather than a spatial mismatch, prospective workers experience a modal mismatch in accessing employment opportunities; specifically, lack of access to a private vehicle. [10] Low-income women are particularly disadvantaged by lack of access to vehicles, with these women commuting over long distances often outside of peak transit hours and having household responsibilities that require flexible scheduling and multiple stops. [11]

Emerging transportation technologies may provide new travel options, but they also may not be accessible to everyone. Compared to taxi service, ride-sharing services better serve minority neighborhoods in terms of both coverage, wait times, and reliability. [12] However, there is evidence that ride-share operators discriminate against Black riders by cancelling trips, resulting in longer wait times compared to white riders. [13] The reliance on mobile technology and internet access for registration and/or payment is a barrier for some populations, such as people with low digital literacy, older adults, individuals without banking, and immigrants. [14]

Social Cohesion and Mental Health: Social cohesion refers to the strength of relationships and sense of solidarity among members of a community. The relationships foundational to social cohesion are also important for physical and psychosocial health. [15] Rates of social cohesion can predict mortality rates and other health outcomes, and neighborhoods with low social cohesion may have higher rates of, e.g. depression and smoking, and lower rates of walking. [16] Social ties are often a protective factor in health, although the effect can vary based on the strength of the tie and whether it is bridging or bonding. [17] Social cohesion is environmentally mediated, and social networks are shaped by place. [18]

Transportation networks can impact mental health and social cohesion by affecting access to mobility and human interactions. By design, some streets can become barriers to access [19]: lack of sidewalks or crosswalks can physically prevent members of a community from coming together. In addition, race and gender affect peoples' experience in public space, with Black and Latino individuals as well as women experiencing higher degrees of fear of policing, crime, and harassment. [12, 20] Personal safety issues and discrimination factor into all transportation modes: from walking down the street, to choosing to isolate in a personal vehicle, as well as innovative and micro-mobility options. With e-scooters for example, Black people have expressed the concern of being profiled and policed. [21]

Historically, highways, airports, truck routes, and other major transportation projects have often been built through or adjacent to low-income communities and communities of color, truncating neighborhoods and displacing residents. In particular, the destruction of thriving Black neighborhoods in the name of redevelopment, whether transportation or housing, has made lack of social cohesion a racial issue. Displacement of communities of color related to transit investments continues today, creating an

unfortunate tension between a positive community feature (transit) and a negative impact for residents. [22] Additionally, these same communities are subject to ongoing exposures from traffic pollution. [23] Poor air quality, high traffic volumes, and significant noise pollution can make it unpleasant or dangerous to be outside, reducing organic opportunities for the creation and reinforcement of social ties. [12]

In addition to transportation, land use significantly impacts social cohesion and equity. Interactions between land use and transportation influence access to jobs and services, which, outside residential areas, provide the majority of opportunities for people to interact with one another. Access to green space, which tends to be reduced in low-income areas, is associated with social cohesion and strongly linked to several health outcomes. The racial segregation created by land use policies is inherently inequitable and damaging for social cohesion both within and across communities, and once in place, very difficult to undo. [24] Beyond segregation, housing location is a key factor influencing family stability and also generally determines what schools children attend and what public services are available, all of which shape the social fabric and long term health outcomes. Finally, community design, from buildings to street widths and walking environments, influences social connectivity. [25] Where people organically cross paths outside of cars, and where a variety of uses encourages a diverse people to interact with each other, crime rates are lower and social cohesion is higher. [26] Taken together, these experiences both impact and are shaped by the level of social cohesion experienced by individuals and groups.

Traffic Safety: Living in a car-dependent built environment increases exposure to crashes. Over 36,000 Americans were killed in traffic crashes in 2018 and about 4.5 million were seriously injured. [27] Urban fatality per 100 million vehicle miles traveled (VMT) has increased by 18% since 2009. [27] Urban sprawl has been found to be a risk factor for fatal traffic crashes, likely due to higher speeds on suburban streets. [28] Furthermore, hierarchical or dendritic street networks often found in suburban areas are associated with higher crash rates compared to traditional street grids having higher intersection density. [29] Pedestrians and bicyclists comprise 20% of traffic fatalities, up from 14 percent over the last decade. [27] While overall rates of death from traffic crashes decreased in 2018, pedestrian and bicyclist deaths increased. The number of pedestrian and bicyclist deaths are the highest they have been since 1990, and pedestrians killed in crashes involving large trucks increased by 13 percent. [27] Most pedestrian fatalities occur in urban areas, outside of intersections, and at night. [27] Driving in darkness without street lights also increases the probability of fatal crashes. [27]

People who rely on walking for transportation are disproportionately POC and low-income. This means that pedestrians killed in traffic are more likely to be Black, Indigenous, or other People of Color (BIPOC). [30] Drivers are less likely to yield to Black pedestrians attempting to cross the street in crosswalks, suggesting that driver bias may play a role in Black pedestrian deaths. [31] In addition, the number of pedestrian crashes in low-income or minority neighborhoods tend to be higher than higher-income and non-minority neighborhoods. [32]

Physical Activity: Regular physical activity has benefits across the lifespan, yet 80% of adults in the United States do not get recommended amounts of physical activity, putting them at risk of physical and

mental health problems such as high blood pressure, weight gain, and depression. [33] Disparities in physical inactivity exist across racial and ethnic groups, geographic location, and socioeconomic status. The existence of these disparities can be traced largely to decisions made by federal, state, and local governments, including transportation and land use planners, that resulted in inequitable access to health-supporting community environments and economic opportunities. [19]

Physical activity is higher in more “connected” communities that provide safe and reliable access to public transportation, as well as other forms of active transportation like biking and walking. [34] Active transportation can increase population levels of physical activity by building movement into daily life. Obesogenic environments, such as long distances between destinations or street network designs that make it harder for people to walk or bike, create conditions that promote obesity and allow for low physical activity levels. In addition, connected street networks with fewer lanes on arterial roads are associated with reduced rates of obesity, diabetes, high blood pressure, and heart disease among residents [6]. Interventions that pay attention to the ‘five Ds’ (density, diversity, design, destination accessibility, and distance to transit) work to improve physical activity through active transportation in urban environments, but often different solutions are needed for rural environments.

Environmental Exposures and Climate: Environmental exposures related to land use and transportation planning include air pollution, noise, temperature, and green space. [29] As of 2018, approximately one third of Americans live in counties with sub-standard air quality. [35] Higher air pollution concentrations from stationary and mobile sources have been linked to negative health outcomes including cardiovascular and respiratory diseases (e.g. asthma), certain types of cancer, and adverse birth outcomes and childhood development. [35] The use of non-renewable, unsustainable energy sources (such as natural gas); a high volume of non-carpooling, private vehicles which run on fossil fuels; and an increase in wildfires resulting from climate change have all impacted air pollution nationally. [36] Mobile sources emit more than half of the nation’s benzene, toluene, and acetaldehyde, the air toxins of greatest public health concern, as well as approximately 91 additional air toxins that are known carcinogens or have toxicity reference concentrations in the US EPA’s main risk assessment database, the Integrated Risk Information System. [35]

Environmental hazards, including harmful pollutant emissions, have substantial negative impacts on population health and can disproportionately impact already disadvantaged populations. [4] Government-backed segregation through housing and other land use policies has produced racial inequities leading to disproportionate exposure to environmental hazards. For example, formerly redlined neighborhoods are hotter than non-redlined areas. [37] Compared to their white counterparts, communities of color are more likely to have hazardous waste facilities, manufacturing uses or other polluting facilities, such as bus depots, nearby. Communities of color also have homes located near busy roadways (often because these homes are more affordable due to their less desirable location), increasing their risk of high levels of pollutant exposure due to traffic flows and congestion, with exacerbated impacts on children and older adults. [4]

Climate change is one of the largest threats to global health. Increased air and water temperatures from climate change will increase exposure to waterborne and foodborne diseases. Heat-related deaths will increase, particularly in urban areas bereft of adequate vegetation, along with the frequency and severity of allergic diseases. Older adults, children, low-income communities, and communities of color will be disproportionately affected by related health impacts. [38] Utility related foreclosures, energy insecurity, and hazardous heating or cooling alternatives create significant health equity risks. [39] Vast areas of paved surfaces, such as wide roads and surface parking lots, can hinder natural stormwater management and contribute to regular neighborhood flooding. [40] Regular flooding incurs significant individual and community level remediation costs and can cause many negative health outcomes including injury, carbon monoxide poisoning, psychological distress, respiratory illness and more. [40]

In 2018, the U.S. transportation sector accounted for 28.2% of total national greenhouse gas (GHG) emissions, including from passenger cars, sport utility vehicles, pickup trucks, and minivans. [35] Urban sprawl has increased distances residents have to travel to access critical services, increasing VMT and GHG while also increasing commute times, and negatively impacting physical, emotional, and social health. These long distances also increase transit riders' exposure to extreme weather conditions. [1]

IX. Evidence-Based Strategies to Address the Problem

The list of evidence-based strategies presented here is grounded first on a review of two key resources, with specific adaptations and emphasis to focus on centering equity into transportation and land use decision-making. These two resources are (1) strategies rated as 'Scientifically Supported' within the *County Health Rankings & Roadmaps* [41] and (2) strategies supported as 'Recommended' (due to sufficient evidence) through relevant *Community Guide* systematic reviews. [25] Importantly, many of these cross-cutting strategies simultaneously address multiple health impact areas covered within the problem statement, illustrating how one intervention could have multiple co-benefits for health. Depending on how these strategies are implemented, their impact could either increase equity or increase disparities, e.g. if unintended consequences are not adequately accounted for, prevented, and addressed.

Centering equity in all decision-making: First and foremost, equity cannot be viewed as a side effort but rather must be integrated throughout the entire life cycle of any decision-making process, from the preparatory and planning stages through to implementation and evaluation. Racial equity tools, such as the toolkit proposed by the Government Alliance on Race and Equity (GARE), can help decision-makers include explicit consideration for racial equity into policies, practices, programs, and budgets. [42] All phases must also include a focus on authentic community engagement, with many scientifically-supported policies and programs necessarily recommending that community members serve as decision-makers to guide interventions. [41] Built environment interventions often inherently have a strong equity component aimed toward increasing access, although situationally this can be difficult to implement. Rural areas face barriers to "healthy" built environment approaches, such as isolation, longer travel distances, and lack of transportation infrastructure and recreation facilities. [25, 41] Accessibility is also an

important focus for equity in transportation and land use decisions, both through an examination of socio-demographics and mode, and removing barriers to accessing destinations. [43]

Implementing Complete Streets policies and associated bicycle and pedestrian infrastructure:

When it comes to pedestrian planning, municipalities should look to “The Three A’s of Equity” to advance more equitable outcomes: Acknowledgment to recognize transportation inequities, Accountability to establish equity measures, and Application to identify interventions to implement. [44] A starting point can be focusing on policies determining street network connectivity and adopting a Complete Streets approach, which prescribes streets be designed and operated to support safe mobility for all users. [41, 25] Such policies and plans have been shown to reduce vehicle speeds, increase active transportation, increase physical activity [25], and reduce VMT and therefore GHG [41]. Specific interventions in these plans include bicycle and pedestrian infrastructure like dedicated paths, protected bicycle lanes, smart intersection designs, traffic calming measures, and dedicated street lighting to improve safety and access [25, 41, 42]. Resources for supporting these implementations include *Pedestrians First – Tools for a Walkable City* and the *TOD Standard*, both from the Institute for Transportation and Development Policy (ITDP), as well as the *Urban Street Design Guide*, *Designing Streets for Kids Guide*, and *Global Street Design Guide* offered by the National Association of City Transportation Officials (NACTO).

While these policies and plans are geared toward improving access and health for all road users, racial justice movements and emergency response to COVID-19 have highlighted that these efforts must include deliberate community engagement and authentic involvement in planning efforts. As such actions could have the unintended consequence of increasing the attractiveness of an area and increase demand for living there, attention should also be paid to addressing potential rising rents and associated problems including involuntary displacement.

Increasing active transportation and related incentive programs: Transportation and land use policies can be used effectively to encourage active transportation. The *Community Guide* recommends combining “one or more interventions to improve pedestrian or bicycle transportation systems with one or more land use and environmental design interventions” to promote community-wide physical activity. [25] This recommendation is based on evidence from longitudinal and cross-sectional studies that found an association between built environments that are supportive of active transportation and higher levels of “transportation-related physical activity, recreational physical activity, and total walking.” [45]

Active travel programs, such as Safe Routes to School programs and walking school buses, are both demonstrated to be effective in increasing physical activity and should be used in conjunction with infrastructure and environmental changes. [25, 41] Traditionally, Safe Routes to School programs have used an organizing framework of the 6 E’s (Engagement, Equity, Engineering, Encouragement, Education, and Evaluation). However, as of 2020, Safe Routes Partnership has removed Enforcement from their framework as they do not see it as foundational to traffic safety, and recognize that the role of law enforcement is problematic in many communities. [41, 46] Multi-component workplace programs (e.g. bicycle parking, employer-based incentive programs for biking and public transportation) have also been

shown to increase physical activity and reduce VMT and GHG. Although low-income individuals may be interested in transit-based incentive programs, they may not be available or feasible given the mismatch in transit service availability and low-income worker hours and residential location. [47] In addition to incentivizing active transportation, road user pricing strategies, i.e. direct charges for use of roads or charges designed to reduce use of certain vehicles, can reduce traffic volumes and may reduce VMT and potentially dangerous GHG, particularly for those living near highways. [41] However, these types of policies can also have disproportionately negative impacts on workers who rely on private vehicles as a primary form of transport for reasons such as lack of adequate access to safe, reliable, and timely public transportation and housing costs that prevent them from living closer to their job.

Mix of land uses and mixed-use developments: An environment with a mix of land uses increases the diversity and proximity of local destinations, including goods, services, and parks, and facilitates active travel, thereby increasing physical activity and reducing VMT and GHG. [25, 41] Decision-makers need to consider diverse approaches and strategies in order to best promote walking and walkability in urban, suburban, and rural settings for people of all backgrounds and incomes. [41] More compact areas with lower levels of sprawl are associated with higher levels of physical activity. However, these effects can sometimes be very modest, so planners should not rely on compact development as their only strategy for reducing driving and increasing activity. [48] Finally, as with similar concerns discussed in relation to Complete Streets policies, if these policies increase the attractiveness of an area and increase demand for higher-end housing, there is a need to address potential rising rents and associated problems including involuntary displacement through policies such as inclusionary zoning.

X. Opposing Arguments/Evidence

Embedding equity in transportation and land use decision-making implies directly confronting the notion that equity has not been adequately considered and addressed in the past. One broad opposing argument against this confrontation is that current conditions are acceptable and justifiable, as well as that inequities with regards to transportation and land use are a result of individually-controlled behaviors, responsibilities, and choices rather than stemming from system-level issues and influences. However, as also highlighted in APHA policy statement # 20197 on environmental justice, government actions (e.g., redlining) and inaction (e.g., lack of violation enforcement) have created disproportionate inequities in already-vulnerable communities, justifying the need to step in to provide adequate and just responses. A second area of opposing arguments relates to flaws in the evidence-based strategies that can further exacerbate inequities. These arguments include criticisms of community engagement processes, asserting that community members may be overburdened by too many engagement requests and that authentic engagement processes add time and other resource burdens. However, many of the largest built environment inequities stem from inadequate engagement at planning stages. The problem is often a lack of adequate engagement and true community ownership of decision-making, and ultimately buy-in, rather than an overburden of engagement. Improving health for all means that those most affected must

be involved in decision-making. [3] The challenge is for planning and transportation staff and elected officials to find more creative engagement strategies and meet people where they are.

Another related argument is that the actions toward a healthy community can unintentionally exacerbate problems, e.g. through gentrification and de facto segregation as transportation and land use improvements increase attractiveness of an area and create involuntary displacement. However, authentic engagement efforts can prevent some of these issues, and others can be addressed through actions and policies that help keep long-standing residents in their homes through legal protections and preventing overinflated rental prices. [25, 41] Finally, evidence supports that key features specific to the built environment (i.e. density, functional mix, and public spaces and services) may influence health and behaviors and that these effects may be unequally distributed based on the social position of individuals. Such evidence justifies the need for specific attention to equity in related decisions.

XI. Alternative Strategies

Above all, this statement focuses on strategies to ensure equity is accounted for and facilitated through land use and transportation decisions. However, first addressing the underlying cultural, economic, and social barriers to achieving health equity would preclude the need for these strategies specific to transportation and land use. For example, transport exclusion cannot be addressed only via transportation – it requires integration with land use, housing, health, and social welfare programs. [49] Within these areas, alternative strategies would include advocating for and implementing policies (or institutions) that facilitate a diverse set of actions that historically have not been seen as part of these processes. Importantly, although these strategies are labelled "alternative", they are central to reforming the way communities and transportation networks are planned and built – and to ensuring justice for all. Professionals of all sorts – including planners, urbanists, placemakers, civil engineers, artists, culture-bearers, arts and culture practitioners, landscape architects, real estate developers, public health professionals, and public servants – must embrace and advance an equity-focused agenda, such as through adopting and actively pursuing the principles established by Planning for Health Equity, Advocacy, and Leadership (PHEAL). [50] These principles include community health and regeneration, community-based advocacy, and healing through leadership. They aim to break down barriers to health and equity and dismantle oppressive beliefs, values, and practices that negatively impact BIPOC communities, low-income, migrant, and other historically marginalized/under-represented communities. [50] While these principles lead to strategies that are easier said than done, they aim to address the fundamental societal issues that must change in order to promote a culture of health for all.

XII. Action Steps

To achieve the goals of the evidence-based strategies, APHA offers the following recommendations:

1. At all levels, from planners to artists to public servants, and institutionally from government to academic to nonprofits to private companies, centering a past-present-future health equity and racial lens into built environment planning and decision-making must be a priority.

- a. Community residents, public health, labor unions, transportation system employees, social justice leaders, and other diverse stakeholders must be authentically engaged in transportation and land use policy development and planning through engagement and participatory co-creation processes that are participatory, need-driven, and non-performative, extending through the cycle of planning, implementation, and evaluation and leading toward greater scientific legitimacy and public accountability in decisions.
 - b. Transportation and planning agencies should seek to diversify their staff to include BIPOC, women, LGBTQIA+ people, and others who both reflect the identities of their communities and have been historically left out of such roles in government.
 - c. Transportation agencies and partners at all levels of government should work to expand linkages and options between housing, employment hubs, health care facilities, healthy food retailers, and schools, particularly in low-income and BIPOC communities.
 - d. Community development and redevelopment activities should preserve historic, environmental, agricultural, cultural and aesthetic resources.
 - e. Local communities should develop principles for privately-owned public spaces for public use and incentivize private owners to implement them to ensure such spaces do not promote segregation or exclude certain individuals.
 - f. Data analysis and collection must include and benefit BIPOC and vulnerable communities. Public health officials and agencies should work with transportation and city planners to identify and continuously monitor health indicators and performance measures to evaluate how policies and decisions influence health.
2. Communities and local leaders should prioritize and engage with the implementation of Complete Streets plans and related infrastructure and policies to make roadways safe for all users.
 - a. All levels of government should prioritize funding and activities related to roadways to safely accommodate nonmotorized travel for people with disabilities and older adults.
 - b. Racial inequity and injustice in traffic safety must be studied to ensure that traffic fees and fines, enforcement, and other initiatives do not exacerbate or create new inequities.
 - c. Community design must focus on place and not just infrastructure, meaning that building places with and for the needs of all community members should be at the forefront, using context-sensitive design principles along with community input.
 - d. Project budgets should include sufficient time and money for adequate and authentic engagement to take place.
 3. At all levels of government and in the private sector, leaders and organizations must prioritize funding and policies that increase active transportation and related incentive programs, while also accounting for and addressing the needs of low-income and minority workers.

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- a. The President should create an Active Transportation Administration reporting directly to the Department of Transportation (DOT) Secretary to give active transportation a stronger voice within federal government.
 - b. Bike share operators should be required to develop and implement long-term anti-displacement and equitable distribution plans to ensure equitable access to bike share.
 - c. A greater share of federal, state, and local transportation dollars should be invested in safe infrastructure for active and public transportation (including transit operating funds).
 - d. Federal, state, and local policy should create incentives for investing in underserved communities, particularly those without existing infrastructure that supports nonmotorized travel- and transit-oriented development.
4. At all levels of government, fair land use policies and actions must be pursued to ensure equitable and safe access to public and private spaces that promote health and opportunity.
- a. Local government should implement policies to encourage transit-supportive densities, mixed-use, and transit-oriented development with affordable housing and transit options.
 - b. Local governments should pursue policies and decisions that seek to advance racial equity in land use, including removing symbols of racism from public life and spaces.
 - c. Local and state governments should protect streets and public spaces as safe places for peaceful protest and public gathering, implementing policies and measures that protect BIPOC community members from unnecessary violence.
 - d. States and localities should develop cumulative impact maps in order to better identify and prioritize the needs of environmentally-burdened and vulnerable communities.
 - e. The federal government should establish funding to help states better connect residents who have been segregated and cutoff from resources by highways, as well as seek to establish community land trusts for the benefit of residents.
5. Transportation policies and subsequent implementation at all levels of government must prioritize reducing the transportation sector's contributions to global climate change.
- a. Environmental justice goals to reduce disparate exposure to harmful emissions should be honored and advanced in transportation and land use activities.
 - b. Reducing adverse health impacts of goods movement and freight transport on low-income, minority communities and workers should be a priority in planning.
 - c. The federal DOT should partner with the EPA to require states, metropolitan planning organizations, and localities to track and set performance targets for GHG and other harmful emissions.
 - d. For greater accountability, transportation funding should be tied to performance toward community goals and require agencies to monitor their transportation investment effects.

XIII. References

1. Frank LD, Iroz-Elardo N, MacLeod K, Hong A. Pathways from built environment to health: A conceptual framework linking behavior and exposure-based impacts. *Journal of Transport & Health*. 2019;12: 319-335..
2. Shapiro T, Meschede T, Osoro S. *The Roots of the Widening Racial Wealth Gap: Explaining the Black-White Economic Divide*. Waltham, MA: Brandeis University; 2013.
3. PolicyLink. *Sustainable Communities Series Regional Planning for Health Equity*. 2015.
4. Shertzer A, Twinam T, Walsh R. *Race, ethnicity, and discriminatory zoning: Working paper 20108*. 2014.
5. Arnold, CA. *Fair and Healthy Land Use: Environmental Justice and Planning*. Chicago: American Planning Association; 2007.
6. Marshall WE, Piatkowski PE, Garrick NW. Community design, street networks, and public health. *Journal of Transport & Health*. 2014;1:326-340.
7. U.S. Federal Highway Administration (FHWA). *FHWA National Household Travel Survey (NHTS) NHTS Brief: Mobility Challenges for Households in Poverty*. 2014.
8. U.S. Bureau of Labor Statistics. 2010. [Online].
9. Easley J. Spatial mismatch beyond black and white: Levels and determinants of job access among Asian and Hispanic subpopulations. *Urban Studies*. 2018;55,8:1800-1820.
10. Fan Y. The planners' war against spatial mismatch: Lessons learned and ways forward. *Journal of Planning Literature*. 2012; 27,2:153.169.
11. Blumenberg E, Pierce. Multimodal travel and the poor: Evidence from the 2009 National Household Travel Survey. *Transportation Letters*. 2014;6,1: 36-45.
12. Ge Y, Knittle C, MacKenzie D, Zoepf S. *Racial and gender discrimination in transportation network companies*. Cambridge, MA: National Bureau of Economic Research; 2016.
13. Brown A. *Ridehail revolution: Ridehail travel and equity in Los Angeles*. Los Angeles: University of California Los Angeles, Dissertation; 2019.
14. Dillahunt T, Kameswaran V, Li L, Rosenblat T. *Uncovering the values and constraints of real-time ridesharing for low-resource populations*. Denver, CO: CHI Conference on Human Factors in Computing Systems; 2017.
15. PA T. Mechanisms linking social ties and support to physical and mental health. *J Health Soc Behav*. 2011;52,3:145-61.
16. Echeverría S, et al. Associations of Neighborhood Problems and Neighborhood Social Cohesion with Mental Health and Health Behaviors: The Multi-Ethnic Study of Atherosclerosis. *Health & Place*. 2008;14,4:853-65.
17. Granovetter M. The Strength of Weak Ties: A Network Theory Revisited. *Sociological Theory*. 1983;1:201-33.
18. Berkman LF, Clark C. *Neighborhoods and Networks: The Construction of Safe Places and Bridges*. Oxford: Oxford University Press; 2003.
19. National Complete Streets Coalition, Smart Growth America. *Dangerous By Design 2019*; 2019.
20. Pollard TM, Wagnild JM. Gender differences in walking (for leisure, transport and in total) across adult life: a systematic review. *BMC Health*. 2017;17:341
21. Portland Bureau of Transportation. *2018 E-Scooter Findings Report*; 2018. Available at: <https://www.portlandoregon.gov/transportation/article/709719>.
22. Chapple K, Loukaitou-Sideris A. *Transit-Oriented Displacement or Community Dividends? Understanding the Effects of Smarter Growth on Communities*. Cambridge, MA: MIT Press; 2019.
23. U.S. Department of Transportation. Equity. Available at: <https://www.transportation.gov/mission/health/equity>. December 17, 2013. Accessed on November 17, 2019.

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24. Geronimus AT, Thompson JP. To Denigrate, Ignore, or Disrupt: Racial Inequality in Health and the Impact of a Policy-induced Breakdown of African American Communities. *Du Bois Review: Social Science Research on Race*; 2004.
25. Community Preventive Services Task Force (CPSTF). The Community Guide. Available at: <https://www.thecommunityguide.org/findings/physical-activity-built-environment-approaches>. 2020.
26. Jacobs J. *The Death and Life of Great American Cities*, Reissue ed. Vintage; 1992.
27. National Highway Traffic Safety Administration (NHTSA). *2018 Fatal Motor Vehicle Crashes: Overview. NHTSA Traffic safety facts: Research note*. 2019.
28. Ewing R, Hamidi S, Grace J. Urban sprawl as a risk factor in motor vehicle crashes. *Urban Studies*. 2016;53,2:247-266.
29. Mueller N, et al. Urban and transport related exposures and mortality: A health impact assessment for cities. *Environmental Health Perspectives*. 2017;125,1:89-96. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5226698/>.
30. U.S. Centers for Disease Control and Prevention (CDC). Motor vehicle traffic-related pedestrian deaths--United States, 2001-2010. *Morbidity and Mortality Weekly Report*. 2013;62,15:277-282. Available at: <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6215a1.htm>.
31. Coughenour C, Clark S, Singh A, Claw E, Abelar J, Huebner J. Examining racial bias as a potential factor in pedestrian crashes. *Accident Analysis & Prevention*. 2017;98:96-100.
32. Cottrill C, Thakuriah P. Evaluating pedestrian crashes in areas with high low-income or minority populations. *Accident Analysis & Prevention*. 2010;42: 1718-1728.
33. U.S. Department of Health and Human Services. *Physical Activity Guidelines for Americans*. Washington, DC: U.S. Department of Health and Human Services; 2018.
34. McDonald, NC. Active transportation to school: trends among U.S. schoolchildren, 1969-2001. *American Journal of Preventive Medicine*. 2007;32,6:509-16.
35. U.S. Environmental Protection Agency (EPA). *Our Nation's Air 2020*. Washington, DC: EPA; 2020.
36. Clay K, Muller NZ. *Recent Increases in Air Pollution: Evidence and Implications for Mortality. NBER Working Paper No. 26381*. Washington, DC: National Bureau of Economic Research (NBER); 2019.
37. Hoffman J, Shandas V, Pendelton N. The effects of historical housing policies on resident exposure to intra-urban heat: A study of 108 US urban areas. *Climate*. 2020;8,1:12.
38. U.S. Global Change Research Program. *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*. Washington, DC: U.S. Government Publishing Office; 2018.
39. Hernández D. Energy Insecurity: A Framework for Understanding Energy, the Built Environment, and Health Among Vulnerable Populations in the Context of Climate Change. *American Journal of Public Health*. 2013;4,103.
40. Sampson NR, et al. "We're Just Sitting Ducks": Recurrent Household Flooding as An Underreported Environmental Health Threat in Detroit's Changing Climate. *International journal of environmental research and public health*. 2018;16.
41. County Health Rankings & Roadmaps. Strategies. Available at: <https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies>. 2020.
42. Nelson J, Brooks L. *Racial Equity Toolkit: An Opportunity to Operationalize Equity*. Government Alliance on Race and Equity (GARE); 2015.
43. Maertens K, Golub A. Accessibility measures from an equity perspective. Antwerp, Belgium: Colloquium Transport Planning Research; 2011.
44. Berg A, Newmark GL. Incorporating Equity into Pedestrian Master Plans. *Transportation Research Record: Journal of the Transportation Research Board*. 2020;2674,10:764-780, 2020.
45. U.S. Department of Health and Human Services. *Step It Up! Surgeon General's Call to Action to Promote Walking and Walkable Communities*. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General; 2015.

TITLE: Ensuring Equity in Transportation and Land Use Decisions

46. Isidro C. Safe Routes Partnership. Dropping Enforcement from the Safe Routes to School 6 E's Framework. Available at: <https://www.saferoutespartnership.org/blog/dropping-enforcement-safe-routes-school-6-e%E2%80%99s-framework>. June 9, 2020. February 10, 2021.
47. Lachapelle U. Employer subsidized public transit pass: Assessing disparities in access, use, and latent demand. *Case Studies on Transport Policy*. 2018;6,3: 353-363.
48. Stevens M. Does Compact Development Make People Drive Less? *Journal of the American Planning Association*. 2017;83,1:7-17.
49. Lee RJ, Sener RN, Jones, SN. Understanding the role of equity in active transportation planning in the United States. *Transport Reviews*. 2016;37,2:211-226.
50. Planning for Health Equity, Advocacy, and Leadership (PHEAL). PHEAL Principles. State of Place. Available at: <https://www.stateofplace.co/pheal-principles>. 2020.