

Key Points

- » “Public transportation” refers to a wide variety of options that provide regular and continuing transportation to the public and may incorporate private sector services such as paratransit or ride-sharing.
- » Lack of access to public transportation disproportionately harms those who rely on it, including older adults, individuals with disabilities, and commuters. Among the latter group, women, younger adults, Black workers, and low-income workers are overrepresented to various degrees.
- » New or expanded public transportation options can increase the use of public transit, reducing traffic crashes and air pollution. Expanded access to public transportation can also improve physical and mental health and health equity by increasing access to medical care, healthy food, vital services, employment, and social connections.
- » Several expert scientific bodies have provided guidance for better aligning public transportation and public health goals. Many states and local governments have already taken important steps in this direction.
- » Improved and aligned metrics can help inform decision making on equitable approaches to transportation planning and implementation by addressing issues such as access, convenience, and cost of transit, as well as the links between access to transportation and poverty.
- » Experts have identified safe and thriving public transit options as essential for communities to recover from the COVID-19 pandemic.

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PUBLIC TRANSPORTATION IN THE US: A DRIVER OF HEALTH AND EQUITY

New or expanded public transportation options can improve health and health equity by reducing traffic crashes and air pollution, increasing physical activity, and improving access to medical care, healthy food, vital services, employment, and social connection.

Health, functioning, and quality of life are products of the social and economic conditions in the environments where people are born, live, learn, work, play, worship, and age. **Research suggests** that an estimated 20 percent of a person’s health can be attributed to clinical care, whereas an estimated 30 percent can be attributed to health behaviors such as diet and exercise, and another 10 percent to the physical environment, including air and water quality, housing, and transit. The remaining **40 percent** is related to social and economic factors such as education, employment, and income. Transportation is a **component of the built environment**, with important impacts on public health and health equity.

Transportation policies, planning efforts, and infrastructure investments have historically **emphasized roads** over public and **active transportation**, contributing to health hazards and segregating communities. **New or expanded public transportation** options can increase access to and use of transit and can improve health outcomes by **promoting better air quality, increasing levels of physical activity, decreasing injuries** from motor vehicle crashes, and **improving mental health**. Access to public transportation may also reduce **health disparities** and promote **health equity** by increasing access to **healthier food options, medical care, vital services, and employment** for communities that do not have equal access to these fundamental daily necessities.

Public transportation refers to a wide variety of options, including buses, streetcars, light rail, ferries, and subways that provide “**regular and continu-**

ing” transportation to the public and that may incorporate private sector services such as [paratransit](#) or ride-sharing. The history of public transportation in the US has been shaped by many factors, including

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the [Federal Aid Highway Act of 1956](#), also known as the National Interstate and Defense Highways Act, which emphasized the building of national highway networks. This legislation, along with the increasing availability and popularity of cars, contributed to a diminished public transportation infrastructure by shifting homes and jobs away from central urban areas to the suburbs [by the early 1960s](#). This interstate highway system disproportionately cut through communities of color, contributing to the [racial and economic segregation of cities](#) and concentrated poverty that persist today.

This brief’s primary focus is the relationship between urban public transportation and health and health equity. Access to public transportation in rural settings, although critical for health and well-being, is not addressed here because of distinct considerations such as [longer distances traveled and lower population density](#). In addition, although private sector services, such as [ride-sharing](#), are incorporated into some public transportation systems and can help meet certain needs, this brief is primarily concerned with the potential health and health equity impacts of urban public mass transportation on individuals and communities. This brief also highlights policy and practice interventions that may help states and municipalities better align urban public transportation and public health goals.

■ Who Relies On Public Transportation?

In [2019](#), about 5 percent of all workers in the US commuted by public transportation, with use being most prominent in major cities such as New York, New York; Chicago, Illinois; and San Francisco, California. Although patterns differ somewhat on the basis of whether an area is a [“transit-heavy metro area”](#) or not,

in general, some groups rely more on public transportation for commuting than others, including women, young adults (those ages 25–29), Black workers, and low-income workers. Lack of access to public transportation can disproportionately harm [older people](#) and [people with disabilities](#). It can also [contribute to existing racial and economic disparities](#) by decreasing mobility and forcing individuals to depend on costly car ownership.

■ Public Transportation, Health, And Health Equity

A large and growing body of research indicates that access to public transportation can have important effects on both [health](#) and [health equity](#). An important pathway by which public transportation improves health is through reductions in vehicle miles traveled, resulting in [reduced motor vehicle crashes](#) and [reduced air pollution](#). Motor vehicle crashes are a leading [cause of injury-related death](#) for many age groups. More driving also contributes to more [motor vehicle–related emissions](#), which add substantially to air pollution. Air pollution can [increase cancer risk and can contribute to](#) neurological, cardiovascular, respiratory, reproductive, and immune system damage. Most of these impacts [disproportionately harm](#) people of color and those in lower-income communities, who [are more likely to be exposed](#) to traffic and traffic-related air pollution and to live near high-polluting corridors and highways. Public transportation systems have been associated with [reductions in motor vehicle crashes](#) and [significantly lower emissions](#) per passenger mile compared with single-occupancy vehicles, although increased use of [energy-efficient vehicles](#) and other new technologies may change this calculus in the future.

Public transportation may also affect health more indirectly by [providing access](#) to health-promoting services and supports, including health care itself; research has shown that lack of transportation in general [can result](#) in missed or delayed health care appointments, poorer health outcomes, and increased health expenditures. Inadequate public transportation can also increase [social isolation, particularly for older populations](#) and people with disabilities or others who do not drive. This can increase the risk for

early mortality, depression, and dementia. In contrast, access to reliable public transportation can improve access to healthier food, vital services, employment, and recreational opportunities, all of which are important for health and well-being.

Access to reliable public transportation also promotes physical activity when people walk to and from transit stops. Regular physical activity helps reduce the risk of developing diabetes, metabolic syndrome, heart disease, and stroke. Although chronic diseases such as these are prevalent throughout the US, low-income communities and communities of color are disproportionately affected by them.

How Public Transportation Is Funded

About 18 percent of public transportation funding comes from the federal government through a combination of legislation and federal grants based primarily on national fuel taxes. The remaining funding comes from state and local governments through legislative actions (motor vehicle fuel taxes, state transportation funds, general funds, and automobile-related fees or taxes) and local taxes, fees, and

commission, the Federal Transit Administration, and the Federal Highway Administration. Transportation Improvement Programs have been shown to provide key opportunities to integrate policies and practices that promote health and increase health equity in public transportation planning.

A significant source of funding that affects public transportation is the Fixing America's Surface Transportation (FAST) Act of 2015. The FAST Act was intended to provide a steady source of long-term funding. The legislation focuses on regional transportation and contains elements that align with public health goals, including transit-oriented developments, enhanced economic development initiatives to promote ridership, and improvements to access and connectivity.

Public transportation options consistently face competition for funding from public investments in highways and surface transportation, as well as competition for ridership from taxis and ride-sharing services. After increasing every year from 2010 to 2014, public transportation ridership declined between 2014 and 2018, going from 10.6 to 9.9 billion trips. Public health and safety concerns associated with the COVID-19 pandemic reduced overall travel in the US and led to large declines in public transit ridership in 2020. Compared with April 2019, ridership was down 73 percent nationally in April 2020 across all transit agencies and modes. An estimate from May 2020 suggested that the US would face a funding shortfall of \$48.8 billion between June 2020 and December 2021. The March 2020 Coronavirus Aid, Relief, and Economic Security Act included \$25 billion in funding for transit agencies, which was augmented by the 2021 American Rescue Plan's \$30.5 billion to help US public transportation systems respond to COVID-19 and ensure continuation of services.

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bonds. Programs and activities are then guided by a combination of federal, state, and local policies that affect spending for capital and operational costs.

States are largely responsible for the development of transportation projects through metropolitan and nonmetropolitan planning organizations, which determine how federal and state funds are allocated in their regions. Larger metropolitan planning organizations with regional populations larger than 200,000 people are responsible for developing long- and short-term Transportation Improvement Programs that require approval by the state's transportation

State & Municipal Efforts To Align Transportation & Public Health Goals

The availability of public transportation is one determinant of health that is often considered in the broader context of the urban built environment and community planning. Equitable public transportation planning with meaningful community engagement

can consider factors such as [cost](#), [convenience](#), and impact on [housing costs](#). For example, [zoning policies](#) that separate residential, commercial, and industrial areas may prevent walkable, transit-oriented communities. In contrast, by making a neighborhood more attractive, improved public transportation [may lead to increased rents and property values](#), potentially

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raising [concerns](#) about a [lack of affordable housing](#). Research shows that communities can [take a comprehensive approach](#) to decreasing how far people must travel for employment and needed services by focusing on both accessible transportation and affordable housing options.

[Policy and environmental interventions](#) that create mixed-use communities make it easier for individuals to be physically active and improve their health from increased exercise. For example, [Complete Streets policies](#), which promote streets that safely serve all people—including those who walk, bicycle, take transit, use mobility devices, and drive—can facilitate this by providing [safer access to public transit](#) for all people.

Many states are currently engaging in transportation planning that aligns with public health goals. In 2014, [Florida adopted its statewide Complete Streets Policy](#), which took into account how land use could affect transit ridership and access to transit. To promote cleaner air, fifteen states and Washington, D.C., announced a [Memorandum of Understanding](#) in July 2020 to support sales of electric medium- and heavy-duty vehicles (including [school buses](#) and transit buses), with the goal of 100 percent of them being [zero-emission](#) vehicles by 2050. However, this more expensive technology has [higher lifecycle costs](#) compared with diesel or hybrid buses, so this may not be an option in many communities.

In another example of a locality aligning public transportation and public health goals, the Nashville metropolitan planning organization managed grants received through the Federal Highway Administration Surface Transportation Program to [fund \\$10 million](#) in active transportation projects from 2014 to 2017. These projects expanded public transportation and bicycle and pedestrian routes. [Early findings](#) suggest that there have been changes in commuter patterns, including less dependence on cars and increases in active transportation.

In Maryland, the [Central Maryland Regional Transit Plan](#) was developed collaboratively by regional transit providers, local elected officials, subject matter experts, and members of the public. The plan provides a twenty-five-year “vision of mobility” and calls for the integration of a public health perspective as part of transit planning. The plan also requires that transit projects seek to reduce disparities related to access and supports policies and programs that “improve transit access to economic and social opportunities such as affordable housing, jobs, education, grocery stores, recreation, and healthcare, particularly in underserved communities.”

To improve mobility, reduce congestion, and take advantage of features of newer buses that mimic some of the benefits of train services, some transit agencies including those in [Albuquerque](#), New Mexico; [Atlanta](#), Georgia; [Colorado](#); and [Portland](#), Oregon, are turning to buses and [Bus Rapid Transit](#). Bus Rapid Transit systems have characteristics that make them more cost-efficient and allow them to move faster than regular traffic by having dedicated bus lanes and traffic signal priority and allowing them to carry more passengers than regular buses. Because buses are already common across US public transportation systems, Bus Rapid Transit [requires lower financial investment](#) and can be a more viable option for communities compared with railway systems. Similar to other transit options, buses may also increase [levels of physical activity](#) because people are more likely to walk or bike (instead of drive) at the beginning and end of each bus trip. Adding new or expanding existing bus routes can serve as rapid investments to [improve health outcomes](#) and increase [health equity](#) in communities, in addition to connecting to other modes of public or private transportation.

■ Guidance For Aligning Health And Transportation Goals

Many expert guidance documents have outlined the connection between health and transportation, identified benchmarks and goals, and provided suggestions for improvement. [Healthy People 2030](#) focuses on [reducing deaths from motor vehicle crashes](#), [increasing trips to work made by mass transit](#), and increasing the proportion of [adults and adolescents](#) who walk or bike to get places.

The [Transportation Research Board](#) of the National Academies of Sciences, Engineering, and Medicine developed [A Research Roadmap for Transportation and Public Health](#) to build on the existing literature and provide a plan for funding research during the next decade that would be helpful for decision makers at all levels. The road map recommends that more research be conducted on how public transportation affects the social determinants of health and the health of underserved populations and on equitable access to transportation services. The report also discusses how performance measurement in both sectors can support better health outcomes.

The [Health Impact in 5 Years](#) initiative from the Centers for Disease Control and Prevention (CDC) highlights fourteen nonclinical, community-wide interventions supported by evidence of positive health

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impacts within five years and cost-effectiveness or cost savings over the lifetime of the population or earlier. Introducing or expanding public transportation is one of the Health Impact in 5 Years interventions. In addition, the CDC Foundation published tools for public health professionals that include a [Public Health Action Guide](#) on how public health can partner

with transportation agencies to improve public transportation systems.

The [Coordinating Council on Access and Mobility](#) is a federal interagency partnership that aims to eliminate barriers to transportation for vulnerable populations, including older adults and people with disabilities, especially in rural areas. In 2015, the FAST Act directed the Coordinating Council on Access and Mobility to develop a [strategic plan](#) to outline the roles and responsibilities of each of its member agencies and address outstanding recommendations that had been made by the council. The council proposed changes to federal laws and regulations to improve the coordination of local transportation services.

■ Areas For Future Research

As the evidence linking access to public transportation, health, and health equity continues to grow and as transportation planners [continue to incorporate](#) health considerations into their work, several high-priority areas for future research have become clear.

First, aligned metrics that demonstrate how access to public transportation affects individual and population health outcomes and health equity have been shown to be important in guiding community planning efforts. For example, [A Research Roadmap for Transportation and Health](#) highlights the value of identifying specific population health metrics that may be applied in transportation planning (for example, proximity to housing). More work is needed, however, to help identify additional metrics.

Second, although [state transportation laws](#) may highlight public health concerns or goals, there is a lack of research on how these laws affect local transit decision making. Additional research in this area could provide insight regarding potential roles for public health practitioners to engage in and inform those processes.

Third, more information on the link [between access to transportation and poverty](#) will help to inform equitable approaches to transportation planning and implementation. Public transportation is one tool to help individuals access vital services and opportunities.

Finally, as [communities](#) recover from the COVID-19 pandemic, experts have identified safe and thriving public transit options [as essential](#). The pandemic has led to transit agencies partnering with public health and federal agencies to provide essential services, from [COVID-19 vaccinations](#) to [Wi-Fi-hotspots for re-](#)

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[mote learning](#). Although [research](#) is already underway, the question remains to what extent the COVID-19 pandemic will continue to affect public transportation and how the resulting investment can be sustained so that it plays a vital role in [rebuilding healthier equitable communities](#).

The pandemic exposed [racial injustice and inequity](#) in communities across the US. There is an opportunity now to bolster the [drivers of health and well-being](#), including access to public transportation, to help individuals and communities weather future challenges. As partners work toward identifying meaningful metrics, alternative ways to measure the performance of public transportation (for example, equitable access in addition to ridership) may provide a more informative picture of the US public transportation system in the postpandemic era.

HealthAffairs

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