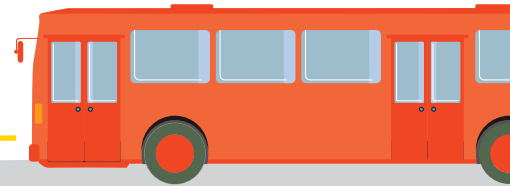


METROPOLITAN PLANNING ORGANIZATIONS & HEALTH 201: BEST PRACTICES & PROMISING OPPORTUNITIES FOR HEALTH



ACKNOWLEDGMENTS

This publication was made possible through funding from Kaiser Permanente National Community Benefit.

Author: Sara Zimmerman
Co-author: Michelle Lieberman

October 2019

Cover and interior illustrations: ID 105045387
© Norbert Buchholz | Dreamstime.com





TABLE OF CONTENTS

Executive Summary	2
SECTION 1 - Introduction.....	3
SECTION 2 -	
Why MPO Actions Matter for Health: The Complex Interconnections Between Transportation and Health.....	5
SECTION 3 -	
Best Practices: Including Health in MPO’s Core Planning and Funding Processes.....	8
A. Long Range Transportation Plans: Including Health in Transportation and Land Use Planning	8
B. Short Term Planning: Including Health in TIPs	12
C. Funding Competitions & Awards.....	12
SECTION 4 -	
Beyond Core Functions: Additional Strategies and Innovative Approaches to Include Health	14
A. Making Health Commitments Through Policies & Plans.....	14
B. MPO Programs and Activities that Support Health	15
C. Supporting and Encouraging Action by Local Jurisdiction	16
D. Catalyzing Additional Policies and Funding Opportunities	17
E. Coordinating Stakeholders: Convening Cross-Sector Groups and Building Partnerships	18
F. Developing Resources, Maps, and Tools to Support Health Considerations	18
SECTION 5 -	
Institutionalizing Health Commitment	19
SECTION 6 - Conclusion	21





Executive Summary

This report provides an overview of approaches taken by **metropolitan planning organizations (MPOs) to advance health, support walking and biking, and create more equitable communities.**

The report details opportunities to support health-oriented decisions within the basic functions of MPOs, as well as setting out the many creative ways that MPOs act to develop healthy, equitable communities. The report includes discussion of how MPOs support active transportation and health. Examples address how MPOs provide for active transportation through core operations, such as the long range transportation plan, and through other functions, such as providing funding to local agencies to build their healthy transportation capacity or creating innovative regional programs supporting safe routes to healthy destinations. The report describes ways that MPO staff and advocates can work together to advance health and equity. A companion report, [Metropolitan Planning Organizations & Health 101: The Nuts and Bolts of Regional Transportation Agencies](#), introduces MPOs to a health audience, providing a detailed overview of what MPOs are and how they function.



Section 1

INTRODUCTION

In this report, we explore some of the innovative and promising ways that metropolitan planning organizations (MPOs) are advancing public health in the United States. We describe how **MPOs are injecting health into their core processes and duties, and provide examples of a wide array of health supportive projects and initiatives occurring in MPOs across the country.**

Why do MPOs matter for health? MPOs are regional transportation entities that are required by federal law for metropolitan regions – urbanized areas with populations of more than 50,000 people. The more than 400 MPOs in the United States play key roles in coordinating between federal, state, and local transportation resources, priorities, and needs, managing and directing decisions about regional transportation planning and investments. These decisions have an enormous impact on our health and upon how equitably health burdens are distributed among racial and income groups.

Why are MPO decisions so significant for public health and health equity? MPO decisions influence:

- Our likelihood of death or serious injury due to traffic collisions
- Our ability to get essential physical activity by walking or bicycling to our everyday destinations
- Our access to jobs, education, recreational areas, and healthy food
- The chances that our children develop asthma, that we develop lung cancer or diabetes, or that we experience miscarriages
- Our ability to survive natural disasters and emergencies
- How equitably or inequitably the health burdens and benefits of our transportation system are distributed
- The extent of transportation's contributions to the unfolding public health crisis brought by climate change

MPOs across the country engage in large and small activities and initiatives that help and harm health. Their decisions may extend our lives, improve our quality of life, and decrease our likelihood of acquiring serious chronic conditions like asthma, diabetes, or stroke – or they may have the opposite effect.

In **Section 2** of this report, we set the stage by describing how transportation and health are connected and how MPOs can approach this intersection. Then, in the following sections, we discuss different opportunities for MPOs to leverage these connections to advance the health and well-being of residents of their jurisdictions.

In **Section 3**, we look at how MPOs are integrating health considerations into their core duties. Under federal law, MPOs have a baseline set of responsibilities, which require them to coordinate, plan, and determine transportation investments at a regional level. Many MPOs advance health significantly by acting entirely within this framework. By including health as an important criterion in planning and investment decisions, MPOs can radically improve the health of our communities. However, MPO activities are not limited to these specified responsibilities, but often serve additional roles that may advance their significance and utility regionally.



In **Section 4**, we explore some of the established and innovative health approaches taken by MPOs that fall outside of MPOs' regularly assigned duties. MPOs across the country are engaging in a wide array of activities that promote health and support communities, ranging from adopting health policies, to providing resources and support to encourage better policies and practices in their local jurisdiction, to conducting specific projects focused on topics like access to healthy food, to coordinating regional partnerships on key health issues. These approaches are actively advancing health and health equity in local communities.

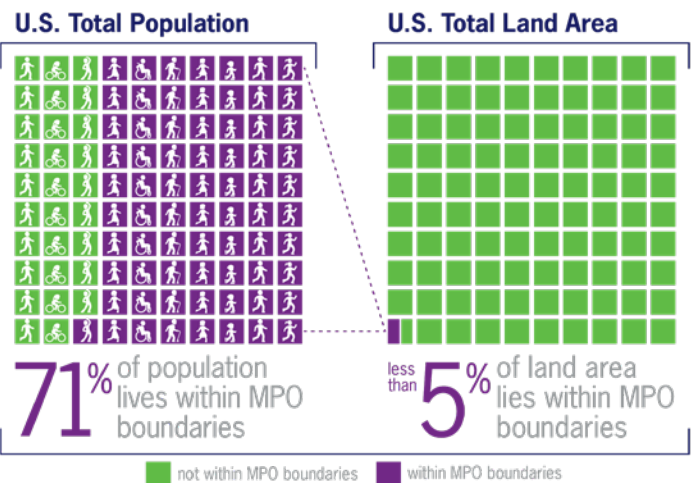
In **Section 5**, we turn to specific actions that MPOs can take to better institutionalize a commitment to health. Staffing, community engagement, and strong relationships with health departments are included in these strategies. We conclude by urging health and transportation stakeholders to closely partner to accelerate healthy planning and implementation.

What are MPOs?

MPOs are urban regional planning organizations that are mandated by federal law, established by the states, and operated by local decision makers.

Under federal law, states must establish MPOs for any urbanized area with a population of over 50,000 people. Federal law provides basic duties for all MPOs, and additional duties for MPOs that serve areas with more than 200,000 residents, known as Transportation Management Areas. **There are more than 400 MPOs across the United States, and more than 70 percent of people in the United States live within the jurisdiction of an MPO.**

Each MPO plays an essential role in planning for its region's future and in making determinations regarding investments of transportation funds to achieve those plans.



Companion Report: Metropolitan Planning Organizations & Health 101: The Nuts and Bolts of Regional Transportation Agencies

Along with this report, we have published a companion report called [Metropolitan Planning Organizations & Health 101: The Nuts and Bolts of Regional Transportation Agencies](#). The companion report provides a thorough introduction to MPOs for a health, equity, or community advocacy audience, supplying a detailed explanation of how MPOs operate, their structure, decision making, and key roles and duties.

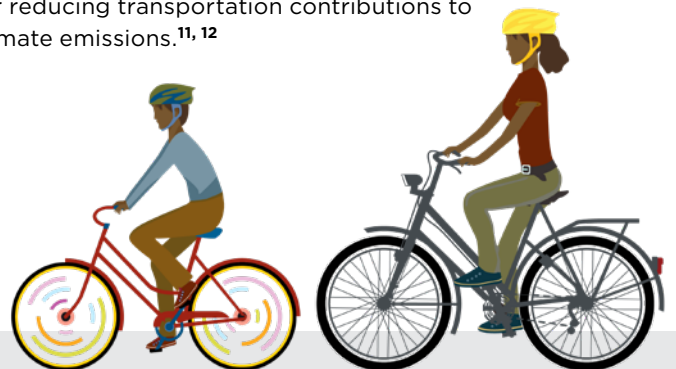
Section 2

WHY MPO ACTIONS MATTER FOR HEALTH: THE COMPLEX INTERCONNECTIONS BETWEEN TRANSPORTATION AND HEALTH

Transportation and health are deeply intertwined. Lack of transportation options and reliance on cars can contribute to poor health outcomes, as people trade lifesaving physical activity for dangerous sedentary lifestyles. **In contrast, access to safe transportation, especially walking, bicycling, and transit, provides opportunities to support individual and community health.**

Transportation influences health in a variety of ways, including:

- **Physical activity:** Physical activity is essential for health, and building physical activity into daily transportation is a crucial way to make higher levels of physical activity the norm. Most Americans do not get enough physical activity, placing them in danger of stroke, heart attack, diabetes, and other chronic diseases.¹ Studies show that people who travel by car are more sedentary, which is associated with chronic disease and premature death.² Planning and design that supports walking, bicycling, and other forms of active transportation allow people to get physical activity as part of their daily routine. In addition, walking and biking also provide benefits to mental health and psychological well-being, including reducing likelihood of dementia and depression.³
- **Traffic injuries and fatalities:** 40,000 Americans die in traffic collisions each year, and many more suffer life-altering injuries.⁴ Low-income people, people of color, and people bicycling and walking are disproportionately affected. By making transportation planning decisions with the goal of zero fatalities and severe injuries (an approach known as Vision Zero), and investing in streets and communities to create slow speeds, separated spaces for bicycling and walking, and strong biking and walking cultures, MPOs' transportation priorities can prevent injuries.
- **Air quality:** Shifting trips from cars to walking and bicycling is an essential step in curbing air pollution and reducing air pollution health impacts. Air pollution from traffic contributes to a wide array of serious health conditions, including childhood asthma onset, the frequency and severity of asthma attacks, cancers, heart disease, miscarriage, and premature death.^{5,6,7} In contrast, walking and bicycling produce virtually no air pollution, and public transportation produces far less pollution per capita. Active transportation can replace some of the most polluting car trips.⁸
- **Climate change:** Transportation emissions, largely from cars and light duty trucks, account for 27 percent of our overall greenhouse gas emissions.⁹ Climate change is already affecting public health and is projected to have far more serious and devastating consequences: increased respiratory and cardiovascular disease, premature death and injury from extreme weather events, increased infectious disease, food security challenges, and more.¹⁰ Investing in communities that support high levels of walking, biking, and public transportation is viewed as one of the most promising strategies for reducing transportation contributions to climate emissions.^{11, 12}



- **Environmental justice:** Transportation policy and planning decisions play a critical role in ensuring equal and fair access to a healthy environment and protecting low-income communities and communities of color from bearing the burden of environmental hazards. Historically, communities of color and low-income communities have been disproportionately affected by poor air quality, lack of affordable transportation access to parks, open space, and other healthy destinations, and exposure to climate change effects such as extreme weather events. By funding safe and comprehensive active transportation networks and transit systems, and reexamining where freight and high vehicle traffic corridors are located, decision makers can contribute to undoing these historical injustices and creating healthier communities for everyone.
- **Emergency safety:** Transportation planning also affects people's ability to get to safety during natural disasters and large-scale emergencies. Emergencies can cause unprecedented traffic congestion on escape routes. Often low-income communities find themselves stranded during emergencies, and need nearby emergency shelters that can be accessed without a motor vehicle. Flooding, hurricanes, and earthquakes all may disrupt the ability of motor vehicles to travel on streets, leading to a new reliance on walking, bicycling, or even boating. Walkable and bikeable communities have more resilience during natural disasters.
- **Health equity:** Transportation provides access to jobs, education, services, and recreational activities – critical determinants of health. Low-income communities and other vulnerable groups such as seniors, persons with disabilities, women, and children and youth, have higher reliance on walking, bicycling, and public transit to get around. In addition, low-income neighborhoods and communities of color are disproportionately affected by poor air quality, noise exposure, and traffic injuries.¹³ Improving public transit and supporting active transportation can improve health equity by directly reducing air pollution, noise, and injury risks and by increasing mobility and accessibility.
- **Access to economic opportunity:** The relationship between transportation access and social mobility is surprisingly strong, outweighing other factors often thought to affect social mobility in a community, including crime, school test scores, or the percentage of two-parent families in a neighborhood.¹⁴ The ability to get to school and work affects decisions about where you work and live, what kind of job you can take, how much money you make, how much of your day is spent on your commute, and how much money you spend on transportation versus other needs. New analyses show that commute time is the single strongest factor influencing the odds of escaping poverty.¹⁵
- **Healthy aging:** Land use and transportation factors can determine whether older adults are able to age in place, in the communities where they feel at home and have history and relationships, which has been shown to reduce social isolation and improve health outcomes.¹⁶ Factors that support healthy aging include having a mix of housing types and easy walking and transit access to healthy food, healthcare, and other essential services.
- **Access to health-supportive destinations:** People need reliable transportation to get to the doctor, the grocery store, parks, and other destinations. Without convenient and reliable transportation, they reduce trips or forego them altogether. In low-income communities, rural communities, and communities of color, which are less likely to have grocery stores and parks close to home and where people are less likely to own a vehicle, it is of particular importance to ensure that it is safe, convenient, and affordable to walk, bicycle, or take public transit to access food, open space, and other healthy destinations.



Although federal law does not specifically identify health as a goal of metropolitan transportation planning, health considerations are interconnected with many of the national goals for federal transportation funding, such as safety and environmental sustainability.¹⁷ In addition, federal regulations require transportation planning to support these health-supportive objectives:

- Increase the safety of the transportation system for motorized and non-motorized users
- Increase the accessibility and mobility of people
- Protect and enhance the environment, promote energy conservation, improve the quality of life
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation¹⁸

Some MPOs consider health simply as a function of these objectives, while others identify health as a crucial independent imperative. Either way, health considerations are integrally connected to MPOs' goals, and transportation decisions unavoidably have an enormous effect on health and health equity in a region. Analyses suggest that MPOs are more likely to address the aspects of health that are more closely related to national goals and objectives.¹⁹ As a result, MPOs are more likely to address safety and air quality, but are less likely to directly or indirectly work toward a goal of increasing people's ability to get physical activity.²⁰ By encouraging MPOs to think more broadly about health as a value and a goal of their activities, staff, advocates, and other stakeholders can ensure that the tremendous influence wielded by MPOs is used to create healthy, thriving, equitable communities.



Section 3

BEST PRACTICES: INCLUDING HEALTH IN MPOS' CORE PLANNING AND FUNDING PROCESSES

MPOs are tremendously influential regional agencies that exercise significant authority over transportation and land use planning in metropolitan areas. But how can they wield this power to advance health? **Perhaps the most significant thing that MPOs can do to advance health is to incorporate health as a key goal in basic MPO duties.**

As discussed in greater detail in our [companion report](#), central responsibilities of MPOs include developing long range transportation plans (LRTPs) and short-term transportation improvement programs (TIPs), as well as allocating and awarding funding. Although there is tremendous room for improvement in how MPOs include health in these planning and investment processes, many MPOs are finding any number of ways to prioritize and center health in these decisions.

MPOs can ensure that short and long-range planning processes incorporate goals, objectives, and projects that advance health. MPOs can develop and use health metrics to assess projects and plans, can model active transportation and health impacts, and can conduct health impact assessments to determine plans' overall impact on health. For funding that is under MPO control, MPOs can direct funds, structure funding competitions, and establish criteria to maximize benefits for health and health equity.

A. Long Term Transportation and Land Use Planning: Including Health in Long Range Transportation Plans

One of the major duties of an MPO is to regularly develop and update a long-range transportation plan (LRTP) for the region. These plans are known by a range of different names in different jurisdictions, including metropolitan area plans, metropolitan transportation plans (MTPs), regional transportation plans (RTPs), and

others. These plans must have time frames (horizons) of at least 20 years, and are updated at least every five years, and every four years for areas that have not met certain air quality standards.²¹ These plans do not just sit on the shelf – they guide federal and state funding. How do MPOs include health in LRTPs? Key elements include:

Health Goals – Establishing health as a goal and including health considerations in vision, goals, and objectives

Health can be spelled out as a core goal in LRTPs. Goals direct objectives, scenarios, overall planning direction, and projects. Although goals may seem very big picture and abstract, analyses show that performance measures and project selection derive from goals.²³ Including public health among key overarching goals for an LRTP

Physical Activity Measures

A 2014 study assessed the LRTPs of 18 large MPOs from around the country, finding only one that contained guidance statements and performance measures addressing all categories of health.²² As a whole, the LRTPs had few goals or performance measures related to physical activity. Interestingly, MPOs with better walking and biking modeling abilities were more likely to have physical activity measures in their plans.

ensures that it functions as a fundamental driver of MPO activities. LRTP goals and objectives should spell out the various means by which transportation activities can help achieve public health goals, addressing not only safety, air quality, and general mobility, but also emphasizing physical activity, access to healthy opportunities and emergency needs, climate change, and other aspects of health.

As discussed further in the sidebar below, the Nashville region's 2040 Regional Transportation Plan included a goal to "help local communities grow in a healthy and sustainable way."²⁴ The South California Association of Government's 2016-2040 LRTP includes a goal to: "protect the environment and health of our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking)." The Mid America Regional Council (MARC), the Kansas City region's MPO, included multimodalism, safety, equity, and environmental protection in the transportation vision for their 2040 Regional Transportation Plan: "A safe, balanced, regional, multimodal transportation system that coordinates with land-use planning, supports equitable access to opportunities and protects the environment."²⁵ Public health is one of ten Kansas City plan goals, with the aim to "facilitate healthy, active living," along with other goals focused on equity, safety, transportation choice, environment, and climate change.²⁶

Health Metrics – Measuring health and including health considerations in performance measures and modeling

In the course of developing LRTPs and TIPs, MPOs gather, analyze, and model data; what is measured influences what is valued, analyzed, comprehended, and prioritized.²⁷ Ultimately, such measures play an important role in which projects are selected for funding. Establishing health-related performance measures is essential for supporting health through MPO activities. Such performance measures and related metrics also advance our understanding of the actual effects of plans and proposed projects. It is important to consider measures that assess direct health outcomes, rather than only proxies. For example, asthma and obesity rates are direct health measures, whereas vehicle miles traveled or walking and biking rates may function as proxies. In Kansas City, MARC included direct health measures in its performance measures for its public health goal, addressing obesity and physical inactivity rates.²⁸ Other performance measures were also important for health, including walking, biking and transit mode share, percent of TIP investments with bike/pedestrian elements, number of fatalities and disabling injuries, TIP investments in environmental justice areas, vehicle miles traveled, ozone levels, and greenways.²⁹

Health Goals in Nashville Area MPO's 2040 Regional Transportation Plan

In Tennessee, the Nashville Area MPO's 2040 Regional Transportation Plan has a goal to "Help Local Communities Grow in a Healthy and Sustainable Way," and a related objective to "integrate healthy community design strategies and promote active transportation to improve the public health outcomes of the built environment."³⁴ The plan integrated health considerations into many aspects of the component

analyses and determinations. As one part of a comprehensive approach to promote the health and wellness of residents in the Nashville area, the plan included an analysis of food environments and community populations, looking at how analysis of how roadways could better connect residents to food retailers. The analysis identified neighborhoods with lower vehicle ownership where residents would particularly

benefit from walking, bicycling, or transit links to food retailers: neighborhoods of color, low-income neighborhoods, and those with high populations of elderly residents. Maps overlaid existing access to food retailers with these neighborhoods to identify gaps, and the analysis was used as part of the project selection process.

Health & Multimodal Scenario Planning in Flagstaff, AZ

Flagstaff Metropolitan Planning Organization's Blueprint 2040 Regional Transportation Plan incorporates health concerns in many places throughout the plan.³³ **Health is one of the overall objectives, and performance measures and targets include mode share, proximity to walk/ bike facilities, and pedestrian/bike/transit level of service.** Walking, biking, transit, and complete streets are built into the modeling, scenario planning, and system assessment. The plan is structured to promote walking and biking friendly activity centers and increased bicycle and pedestrian mode share, explaining that "walking, biking and transit allow for vibrant social engagement that energizes activity centers." Through scenario planning, the recommended approach is a hybrid plan with a strong multimodal focus. Interestingly, health was not included as an option in public surveys, nor was it discussed in the LRTP's context setting, which shows that the region's commitment to multimodalism may not be coming from a health perspective.

Equity and Safety in Portland's Regional Transportation Plan

During the 2018 LRTP process, Portland Metro, the MPO for the greater Portland region in Oregon, had assembled a list of projects for the LRTP. But Metro's initial analysis of the list showed that the projects would not contribute to the LRTP's regional goals for equity, safety, climate or congestion. Community and agency stakeholders were deeply concerned. Responding to sustained advocacy, Metro asked local agencies to resubmit project lists to ensure better alignment with LRTP goals. Local agencies responded by identifying more safety projects and prioritizing bicycling and pedestrian projects to be built in the near term. The final list increased the investments in active transportation projects, with 90 percent of projects located in equity focus areas. For additional information, see our infobrief, [Equity and Safety in Portland's Regional Transportation Plan](#).

Active Transportation Planning – Developing analyses that address regional mode-specific needs, equity implications, and plan for walking and biking networks

A key way that MPOs support health is by developing high-quality active transportation plans. Such plans may be treated as standalone plans or may be integrated as a component of the LRTP. MPOs can develop strong high-quality active transportation plans that are grounded in existing conditions and set out ambitious plans for closing gaps, addressing inequities, increasing mode share, and decreasing fatalities and serious injuries. Such plans enable MPOs to serve their key role of coordinating planning across jurisdictional boundaries, while also supporting active transportation project development and planning at the local level. By incorporating active transportation plans in LRTPs, project lists can be directly informed by regional network prioritization. For example, the Regional Transportation Commission of Southern Nevada (RTC), the MPO for the Las Vegas and Clark County region in Nevada, developed a new Regional Bicycle and Pedestrian Plan, which was adopted in 2017.³⁰ The plan was developed with support from the Southern Nevada Health District, and will be incorporated into the LRTP. The plan includes a prioritization criteria and scoring methodology based upon larger plan goals, which weighed safety, comfort, access to transit, gaps, equity, health, interjurisdictional connections, and more.



Health-Supportive Project Lists – Including projects that contribute to health and reducing projects that undermine health

When LRTPs and TIPs include significant numbers of substantial projects devoted to creating a strong and safe active transportation network and a vigorous and first class public transportation system, they radically change the reality of our communities in ways that promote health. The impact of these decisions can be strengthened by investing in projects that support access on foot, bicycle, or transit to health-promoting venues like schools, healthy food, parks, and more. In contrast, when MPO investments are heavily weighted toward highway widening, new highways, and other projects intended to increase the capacity of roadways to carry motor vehicles, they continue decades of disproportionate investment in cars, reward sprawling development patterns, increase air pollution burdens, and increase the likelihood of severe traffic injuries and deaths for vehicle occupants and people walking and bicycling. One of the key ways to ensure that LRTPs and TIPs include more health supportive projects is by including health factors in scoring processes. For example, the Nashville Area MPO's Project Scoring Methodology for prioritization in the LRTP and TIP included factors focused on multimodalism, safety, and health. Of the 100 total points available in rating projects, 15 were for multimodalism, 20 for safety, and 15 for environment and health.³¹ Scoring must be designed to reward projects that actually better the desired.

Health Evaluations – Assessing health effects of LRTPs, TIPs, and specific projects

A key step that MPOs can undertake is to evaluate the overall effects of their LRTPs and TIPs on health. MPOs can conduct formal health impact assessments (HIAs) or informal determinations of health effects, quantifying positive effects on health, and also looking closely at deleterious effects on health. Without such assessments, MPOs cannot realistically determine whether their planning efforts do more to help or to harm health. It may be easy for an MPO to pat itself on the back for new strides towards health, while ignoring the impact of the vast majority of its transportation investments. Health assessments should evaluate how actions are affecting the different aspects of health that are influenced by transportation decisions, and should quantify how these effects differ

SCAG's Commitment to Public Health

The Southern California Association of Governments (SCAG) is the MPO for Los Angeles County, five other counties, and 191 cities in Southern California. SCAG has made many formal commitments to have a health lens on its own planning and processes and support its member cities and counties in integrating health considerations into their planning and decision-making. Implementation of SCAG's LRTP, the 2012-2035 Regional Transportation Plan/Sustainable Community Strategy, prompted the formation of a public health subcommittee or working group that meets on a regular basis. The group hears from expert speakers, provides input into SCAG's RTP/SCS from a health perspective, and encourages cross-sector collaboration.

SCAG's 2016 Regional Transportation Plan/Sustainable Community Strategy included a Public Health Appendix that provided a framework for integrating public health into land use and transportation planning and explored the potential health outcomes of the plan. It included a public health work plan with three strategies and 13 actions that have since been implemented.³⁵ These included integrating health consideration into SCAG's own processes, as well as supporting cities and counties by providing data, convenings and trainings, and resources around health.

for community members of different demographic groups and in different neighborhoods and areas. Such assessments should include evaluations of access to jobs, parks, healthy food, and other healthy venues by walking, bicycling, and transit. For example, MetroPlan Orlando, the MPO for the Orlando, Florida, region, commissioned a health impact assessment to understand the effects of a proposed bus rapid transit line.³² The findings provided strong support for the bus rapid transit line in light of the strong potential health benefits for people who work or live in the area, and included recommendations for maximizing those benefits for those who stand to gain the most. See more discussion of HIAs and health metrics in Section 4 (F), page 18.

B. Short Term Planning: Including Health in TIPs

MPOs also create lists of projects that are prioritized for funding in the short term by creating documents known as Transportation Improvement Programs (TIPs). TIPs are incorporated in state transportation improvements programs, which form the basis for awards of federal and state transportation funding. Inclusion in a TIP is a prerequisite for most funding, and creates a strong likelihood of funding. Because projects in TIPs must be consistent with the LRTP, as a general matter, projects must have already passed through the LRTP selection process, although sometimes projects may fall within more general categories authorized by the LRTP. In addition, TIPs must reflect the investment priorities of the LRTP, and are designed to take steps toward the goals set out in the performance targets.³⁶ These documents must be fiscally constrained, and must be updated at least every four years.³⁷

TIPs provide another important opportunity for MPOs to promote – or undermine – health. Ensuring that health-supportive projects from the LRTP move into the TIP means that those projects are prioritized for funding in the near term. When highways receive the bulk of the funding, it harms air quality, prioritizes vehicles over active transportation, and increases the likelihood of collision related fatalities. When TIPs prioritize projects focused on walking, biking, and access to healthy destinations, the health benefits move closer to being realized. The Atlanta Regional Council (ARC) developed an exhaustive TIP project evaluation framework, which included separate scoring criteria for eight different project types.³⁸ Mobility, safety, climate change, and environmental considerations were included in scoring for most project types. The goal of the project was to incorporate performance-based planning principles into TIP project selection.³⁹

C. Funding Competitions & Awards

One of the most direct ways that MPOs immediately affect walking and biking in their region is through decisions about funding competitions and funding awards for moneys that they administer. MPOs can prioritize health, equity, walking, biking, and transit projects, and access to healthy destinations in their decision making and in the scoring systems set up for competitive awards. For example, since 2012, MPOs serving areas with populations greater than 200,000 (Transportation Management Areas) have received Transportation Alternatives Program funding to competitively award. This funding is set aside for walking and biking infrastructure and Safe Routes to School initiatives. By prioritizing these funds for projects that strategically advance health and health equity, MPOs can make sure that these scarce funds are as effective as possible in supporting walking, biking, and health.

- **Standalone Dedicated Funding Initiatives:** One approach to ensuring that MPO funding investments are benefiting health is to create a pot of dedicated funding, either focused on health generally or on a more specific issue or need. For example, the Fresno Council of Governments created a Regional Sustainable Infrastructure Planning Grant Program to help encourage local and regional multimodal transportation and land use planning, with climate emissions reductions as a goal.⁴⁰ In the San Francisco Bay Area, the nine-county Metropolitan Transportation Commission (MTC) provides funds directly for a Climate Initiatives Program, which focuses on funding innovative solutions to reducing climate emissions. Funding comes primarily from Congestion Mitigation and Air Quality Improvement Program funds (CMAQ), with some additional regional funding. Efforts have funded work on car sharing, elective vehicle infrastructure and incentives, Safe Routes to School,



commuter benefits, and more. Some of the programs piloted through the initiative have subsequently been permanently established by the state. One ongoing program is the Spare the Air Youth program, which provides mini-grants to high school students for Safe Routes to School leadership, with a focus on students of color, transgender and nonbinary students, and low-income students. Spare the Air Youth also funds additional activities, games, technical assistance, and lesson plans for activities encouraging low and no emissions commutes by students to school.

- Prioritizing Health in Funding:** MPOs can also decide to dedicate a certain percentage of a given funding source for specific types of health supportive projects. For example, since 2010, the Nashville Area MPO has dedicated a portion of its direct suballocation of Surface Transportation Program funding (as well as all of its Transportation Alternatives Program (TAP) funding) to fund projects that support walking, biking, and transit.⁴¹ ChangeLab Solutions has developed a model policy for MPOs to allow a commitment of a portion of TAP funds to support Safe Routes to School efforts in the region that support more students safely walking or bicycling to school.⁴²



Health as a Part of Other MPO Duties

MPOs have a range of additional duties, some of which pertain to all MPOs and others only to larger MPOs. Considerations regarding health and health equity can be included in all of these processes.

- Including Health in Congestion Management Processes:** MPOs serving Transportation Management Areas are required by law to undertake a Congestion Management Process (CMP),⁴³ assessing the performance of the overall transportation system and devising strategies to mitigate traffic congestion.^{44, 45} CMPs may be entirely incorporated into other planning processes such as the LRTP and TIP⁴⁶ or may occur as a standalone process

that influence other processes⁴⁷ Because congestion reduction looks at reducing travel demand and operational approaches, MPOs often see non-motorized transportation improvements as a strategy to mitigate traffic congestion.

- Including Health in Environmental Justice Analyses:** Under Executive Order 12898 on environmental justice, each agency must proactively identify and address “disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”⁴⁸ Along with Title VI of the Civil Rights Act, this EO and the strategies and reports it requires from

each agency means that MPOs conduct regular environmental justice analyses. Traditionally, despite the explicit mention of human health and focus on health equity, environmental justice analyses under EO 12898 have not directly addressed health issues.⁴⁹ However, environmental justice analyses present a clear opportunity to include strong health analyses in MPO practices.

Section 4

BEYOND CORE FUNCTIONS: ADDITIONAL STRATEGIES AND INNOVATIVE APPROACHES TO INCLUDE HEALTH

Beyond integrating health into core planning processes and funding administration, MPOs can further support health by taking a leadership role in bringing together health and transportation stakeholders for collaboration, identifying and implementing best practices, and providing additional resources to member jurisdictions and the public. **This section describes established and innovative approaches that MPOs can and do take to ensure health is an important consideration in planning and transportation decision making and implementation in their regions.**

A. Making Health Commitments Through Policies & Plans

MPOs can make commitments to health that go beyond the basic requirements of state and federal law. MPOs can adopt policies and resolutions that direct their actions and initiatives.

- **Health in All Policies Resolution:** Health in All Policies is an approach to government activities that encourages a formal consideration of the health effects of all actions. Following several years of deepening partnership with the health department, Hillsborough MPO, in the Tampa, Florida region, adopted a Health in All Policies Resolution in 2019.⁵⁰ The resolution notes the influence of decisions made by non-health agencies on community health, the significance of zip code for health and quality of life, and the opportunity for equitable transportation to improve health equity. The resolution commits the Hillsborough MPO to implementing Health in All Policies strategies that consider a wide array of potential health impacts of MPO decisions, including “chronic and acute health outcomes, mental and physical wellbeing, health behaviors such as physical activity, measures of social cohesion and community connectedness, access to healthcare, employment and educational opportunities and the environment.” The resolution incorporates an attached Transportation and Health Indicators Matrix, which draws connections between a variety of goals, bicycle, pedestrian, and transit indicators, and MPO funding pots and responsibilities such as the LRTP and TIP. The matrix was used to assess more than 40 projects for the 2019 LRTP, assessing how each project supported or undermined each of 19 metrics addressed by the Transportation and Health Indicators Matrix.



- Complete Streets Policies & Related Activities:** Hundreds of local and regional governments have adopted Complete Streets policies, which focus on making streets safe and welcoming for everyone who uses them. In Pennsylvania, the Lancaster County Transportation Coordinating Committee undertook a Complete Streets commitment in 2014 to make the streets of Lancaster County safe for people using all modes of transportation and of all ages and abilities.⁵¹ As part of this commitment, the MPO adopted a Complete Streets Policy Statement.⁵² The MPO followed up with a variety of additional activities, working with local municipalities to adopt complete streets resolutions, convening workshops, incorporating Complete Streets concepts into the LRTP, and developing a Complete Streets Design Guidebook to provide guidance. Other MPOs have enacted similar Complete Streets Policies. For example, MARC, the Kansas City MPO, has also adopted a Complete Streets Policy, which it has used as a tool to evaluate projects seeking funding. The Mid-Ohio Regional Planning Commission (MORPC) adopted a Complete Streets policy that established a Complete Streets design review checklist and process, as well as encouraging Complete Streets policies and practices by local jurisdictions.⁵³
- Vision Zero Resolutions:** Vision Zero initiatives are using data and analysis to change street design and functioning with the goal of reducing traffic fatalities and severe injuries to zero. The Alamo Area Metropolitan Planning Organization, the MPO for the greater San Antonio region in Texas, adopted a simple Vision Zero resolution.⁵⁴ The resolution set out its role in regional transportation planning, its support for San Antonio's newly established Vision Zero initiative, and its encouragement of Vision Zero plans for other municipalities.



B. MPO Programs and Activities that Support Health

MPOs can support a wide array of different programs that support active transportation and healthy outcomes. Across the country, many MPOs directly run both well-established and innovative programs that benefit health.

NOACA's Safe Routes to School Assistance Program

The Northeast Ohio Areawide Coordinating Agency (NOACA) is the MPO for the greater Cleveland region, including the five counties of Cuyahoga, Geauga, Lake, Lorain, and Medina. NOACA developed a Safe Routes to School Assistance Program, providing planning, implementation and resource sharing support to communities and schools throughout the region. The assistance includes representation on local Safe Routes to School teams, basic planning support, professional development (workshops, webinars), application support, and information sharing. The program has a special emphasis on reaching out to communities and schools that meet equity criteria, which are eligible for additional planning, engineering and public engagement support. The program is working with three school districts that are developing school travel plans for schools not yet built. Each district is at a different stage of the school siting process, and with NOACA's help, all are working to address walking and biking safety around the new locations.

- Safe Routes to School Programs:** Many MPOs directly staff or host Safe Routes to School programs, creating initiatives that focus not only on street improvements that make it safer to walk or bicycle to school, but also on activities that encourage and educate students so that more students receive the health and educational benefits of walking and bicycling to school. For example, the East Central Wisconsin Regional Planning Commission (ECWRPC) is the regional planning agency for ten counties in Wisconsin, acting as the MPO for two MPO areas in its region and staffing a third MPO. The ECWRPC runs a large and complex Safe Routes to School program, serving 59,000 students in close to 200 schools at dozens of school districts.⁵⁵ The ECWRPC supports local districts in developing Safe Routes to School efforts, provides technical assistance and a range of resources for Safe Routes to School initiatives, and runs regional Safe Routes to School program activities such as a walking school bus program and a variety of walking and biking competitions.

- **Safe Routes to Healthy Food Initiatives:** MPOs can also develop projects that focus specifically on high-importance health issues in their communities. A number of MPOs have established projects focusing on removing barriers to community members' ability to safely access fresh and healthy food by walking, biking, or transit. For example, the Hillsborough MPO in Florida developed a Garden Steps project, which focused on improving community health by creating community gardens with easy walking and biking access in areas of Tampa that were food deserts.⁵⁶ MPO staff, community members, and other partners worked together to develop three new community gardens, install a pedestrian wayfinding project, and engage in outreach and educational activities.



- **Community Education, Outreach, and Tactical Urbanism:** While MPOs are often focused on interacting with staff and elected officials from their member cities and counties, MPOs can also play a role in educating and providing resources directly to community members. For example, the Southern California Association of Governments (SCAG) pooled together funding and staffing resources to create Go Human - a community outreach and advertising campaign with the goals of reducing traffic collisions in Southern California and encouraging people to walk and bike more. SCAG has used billboards and social media to get messages out across the region and provides cities, schools, and community members with lawn signs and banners to display. In addition, SCAG sponsors open streets festival events and tactical urbanism demonstrations to engage community members directly.



C. Supporting and Encouraging Action by Local Jurisdictions

While MPOs are responsible for regional transportation planning, they do not have jurisdiction over the local cities and counties within their boundaries. MPOs collaborate with their cities and counties, incorporating local planning into regional actions, but also relying upon local jurisdictions to take regional planning and policy directions and integrate them into local plans and policies. MPOs can influence local decision making by supporting, guiding, and incentivizing local jurisdictions to implement activities, plans, and policies that support health.

- **Technical Assistance:** One way to do this is by providing technical assistance or feedback on local plans and policies to support local staff that might not have the expertise or capacity to ensure plans and policies are health-supportive. Technical assistance can help a local jurisdiction develop a health-supporting bicycle, pedestrian, or active transportation plan, comprehensive plan, corridor or area plan, or a policy such as a Complete Streets policy. Technical assistance can take the form of a workshop or one-on-one help with choosing projects for and developing strong applications for funding programs such as the Transportation Alternatives Program (TAP). Technical assistance is widely provided by MPOs, though such assistance may or may not have a health focus. The Chicago Metropolitan Agency for Planning (CMAP), which staffs the MPO and serves as the greater Chicago regional planning agency, provides technical assistance to help local governments and others strengthen local food systems.⁵⁷
- **Model Policies & Toolkits:** MPOs can develop resources such as model plan language, model policy language, and toolkits or guidebooks that lead local staff and decision makers through best practices. One example is the Environmental Justice Toolbox being developed by the Southern California Association of Governments (SCAG) alongside its next LRTP update. The toolbox provides recommended practices, approaches, and resources to address potential impacts to environmental justice communities. The toolbox presents policy recommendations to local jurisdictions and can function as a resource document for community organizations when advocating for solutions for environmental justice related community issues.

- **Resources that Support Local Healthy Planning:** As regional leaders with vision, expertise, and data, MPOs are well positioned to assist local jurisdictions in developing health-oriented comprehensive plans and related policies. In the Twin Cities region in Minnesota, the Metropolitan Council developed a regional climate vulnerability report, a local planning handbook, and maps and datasets to support local jurisdictions in addressing climate change in their comprehensive plans.⁵⁸

D. Catalyzing Additional Policies and Funding Opportunities

MPOs can use various tools to support policy changes by localities or more broadly in their regions. In addition to simply supporting or encouraging policy change by local jurisdictions, MPOs can also condition access to the resources under their disposal upon policy adoption. MPOs can also research needs and work with the appropriate decision makers to develop and support new sources of funding for the perennially underfunded modes: walking, bicycling, and transit.

- **Incentivizing Local Policy Change Through Requirements to Access Funding:** MPOs can also incentivize policy changes through the power of the purse, by requiring local jurisdictions adopt or integrate specific health-supportive policies and plans before accessing funding from the MPO. For example, the Metropolitan Transportation Commission (MTC), the MPO for the San Francisco Bay Area, required local jurisdictions to adopt a Complete Streets resolution or revise their comprehensive plan circulation elements to comply with the California Complete Streets Act in order to be eligible for One Bay Area Grant Program funds. MTC provided model policy language and nine required Complete Streets elements to ensure local jurisdictions adopted robust and effective policies. This strategy was very effective, leading 62 jurisdictions within the region to adopt Complete Streets policies.
- **Advocating for Regional Funding:** Depending upon state law, MPOs can also work with state legislatures or local partners to develop regional transportation funding packages. Turning again to MTC as an example, in 2017 MTC worked with the state legislature to authorize a ballot measure that would finance a comprehensive suite of highway and transit improvements through an increase tolls on the region's seven state-owned toll bridges.⁵⁹ In July 2018 voters successfully passed the measure, which will use toll revenues to purchase new BART cars for the Bay Area light rail system, increase transbay bus service, expand ferry service, extend light rail in Sonoma County, and more.



School Site Planning and Access in North Central Texas

The North Central Texas Council of Governments (NCTCOG) serves as the MPO for the 12-county Dallas-Fort Worth region. As the population has grown rapidly in this region, the number of schoolchildren has exploded, creating a significant strain on transportation and school systems.⁶¹ Recognizing how school siting affects transportation options, influencing health, safety, and education, NCTCOG successfully applied for a TIGER planning grant to address school

siting and transportation and encourage interagency cooperation. NCTCOG took a leadership role in bringing together school districts, city planners and transportation professionals, architects, and others to discuss issues, develop resources, and provide training and information to the broader community involved in school planning and design. The collaboration resulted in a formal Regional School Coordination Task Force intended to establish a structured dialogue between

different sectors on topics such as school facility planning and transportation to and around schools, in order to better meet shared goals. Through this collaborative effort, NCTCOG is encouraging community-oriented schools that take advantage of existing infrastructure, enable students to walk and bike to school, avoid hazardous traffic conditions, and promote orderly and efficient development.

E. Coordinating Stakeholders: Convening Cross-Sector Groups and Building Partnerships

Coordinating cooperative engagement around regional needs is a basic MPO responsibility, and MPOs are often in contact with stakeholders from a wide range of sectors. MPOs can leverage these relationships to bring local health, transportation, planning, and other professionals together. These can be cross sector learning and networking experiences or can be solution-oriented collaboratives. In some cases MPOs have taken it a step further to lead convenings around specific regionally significant issues that include health. For example, the Delaware Valley Regional Planning Commission developed a Stakeholder Committee, composed of freight and trucking experts, farmland preservation coordinators, hunger advocates, and the business community, focused on guiding regional food system planning.⁶⁰ The committee meets on a quarterly basis and informs planning efforts.

F. Developing Resources, Maps, and Tools to Support Health Considerations

MPOs have significant capacity for data analysis, geographic information systems (GIS) mapping, and modeling. MPOs gather large quantities of data through their planning processes, and are often a repository for significant amounts of local data, which may include transportation, land use, and demographics information. MPOs can use these capabilities to develop maps, tools, reports, and health impact assessments. These resources can support health considerations in internal MPO processes, in actions and decisions by local cities and counties, and by community members.

- **Mapping Health:** MPOs can develop individual maps or sets of maps that tell a story about health in their region. The San Diego Association of Governments (SANDAG) worked with the San Diego County Health and Human Services Agency (HHSA) to create a Healthy Communities Atlas. The atlas maps existing conditions that affect health outcomes and disparities in the San Diego region. The atlas included maps related to physical activity and active transportation, traffic safety and collisions, nutrition and healthy food access, and air quality. Maps were available in a report and the underlying GIS files were available for anyone to download and use in their own analysis.
- **Analyzing Data to Reveal Health Gaps and Needs:** MPOs can develop reports or other analyses that detail the health implications of available data. The Southeast Michigan Council of Governments (SEMCOG) serves 4.7 million people in the seven-county region of Southeast Michigan. SEMCOG developed a report and a series of interactive maps that measured and benchmarked access to core services in its region.⁶² The report looks at accessibility of jobs, supermarkets, health care facilities, parks, schools, libraries, and fixed-route transit. The analysis measured access to each core service by walking, biking, transit, and automobile, drew conclusions about gaps in service and the equity implications of these gaps, and developed ten recommended policies to improve equitable access to the core services. Interactive maps allow users to explore walking and transit access to various services in different neighborhoods.
- **Conducting Health Impact Assessments:** MPOs can also conduct or fund formal health impact assessments. The Genesee Transportation Council (GTC), the MPO for the Genesee-Finger Lakes region in New York, was interested in conducting a health impact assessment, which it defined as “a structured process that uses scientific data, professional expertise, and stakeholder input to identify and evaluate public health consequences of proposals and suggests actions that could be taken to minimize adverse health impacts and optimize beneficial ones.” Partnering with local nonprofit Common Ground Health, GTC focused the HIA on two projects: the Rochester Bike Share Program and a rural multi-use greenway trail.⁶³ The dual HIAs analyzed a number of health factors and developed specific recommendations to inform programming and future operations. A number of other MPOs have also used HIAs to support analysis and decision making, including Portland Metro, Nashville Area MPO, and the San Francisco MTC.

Mapping Traffic Safety & Equity

The Delaware Valley Regional Planning Commission, the MPO for the nine-county Greater Philadelphia region, used their data capabilities to map collisions alongside “indicators of potential disadvantage.” In a report published in December 2018, the MPO found that census tracts with high percentages of people of color, low-income individuals, and people with disabilities had high crash rates. The report recommended systemic safety measures to improve safety and calm traffic, and incorporating criteria related to communities of color, low-income communities, and people with disabilities into regional safety investment programs.

Section 5

INSTITUTIONALIZING HEALTH COMMITMENT

MPOs can also take a variety of actions to support health that may be less showy, but are deeply significant when it comes to institutionalizing health as a priority. **Without institutionalizing health commitments, the steps that MPOs take to prioritize health may be superseded by new LRTPs or fade away with changes in staff or MPO policy board membership.**

Steps such as the resolutions discussed in the previous section can do much to prevent health from being a flash in the pan. Additional steps to institutionalize health in MPO practices include:

- **Establishing Dedicated Jobs or Roles Focused on Health:** To ensure that health expertise is developed and maintained, MPOs can create specific roles dedicated to transportation and health, or can ensure that staff job descriptions and responsibilities include health as a focus. Many MPOs have active transportation planners. The Nashville Area MPO created a director of healthy communities role in 2011. Other MPOs ensure that health is included in different staff people's responsibilities.
- **Require Real Community Engagement:** A real commitment to health equity requires high quality community engagement. That requires deep, lasting, and respectful relationships, bringing engagement opportunities to community venues and meeting places, using creative community input techniques, and giving community members a real voice in decisions. One method for MPOs to support community expertise and increase input and decision making by community members is through creation of community or equity advisory councils.
- **Include Health Departments on MPO Policy Boards and Advisory Committees:** By creating permanent roles on MPO policy boards or advisory committees for health representatives, MPOs can build health perspectives into processes and decision making. Appointments are also beneficial but less institutional. The Oahu Metropolitan Planning Organization, known as OahuMPO, has a non-voting representative of the Hawaii State Department of Health on its policy board. The Waco MPO in Texas includes public health staff on its bicycle and pedestrian work group. In response to a deepening relationship with the public health department, Hillsborough MPO amended the bylaws for its bicycle/pedestrian advisory committee and its technical advisory committee to create dedicated seats for public health.
- **Develop Deep Relationships between MPO Staff and Health Staff:** Relationships begin with initial contacts and deepen as partners work together toward mutual goals. Sometimes relationships between transportation and health staff develop organically, as one request for data leads to a reciprocal request, to shared analyses, and to in-depth collaborations. Other times, deliberate matchmaking can help: relationships can be jumpstarted by sending teams of health and transportation personnel to jointly attend local or national conferences or assigning them to a limited engagement collaborative project. Metroplan in Orlando began its partnership with county health departments and hospitals through its bus rapid transit HIA, went on to partner on another HIA, and continued advancing its relationships and commitment to health through its LRTP process and performance measures.⁶⁴





How Can MPOs Work With Health Stakeholders?

MPOs and health professionals have the potential to complement each other's skillsets and knowledge areas. Together, they can more effectively ensure that regional decision making supports safe and healthy communities. How can health professionals play to support the work of MPOs around the connections between health and transportation?

- **Health perspective for decision makers:** MPOs can engage health professionals to provide insights and perspectives in a variety of ways. Health professionals can provide public testimony at MPO meetings, meet in person with MPO staff and decision makers, or serve on advisory committees.
- **Trusted messenger:** Health professionals, including doctors, nurses, and public health professionals, are one of the most trusted groups of messengers on many public policy issues. Health professionals can persuade the public of the value of active transportation as spokespeople on the issue, through writing op-eds or letters to the editor, or through other outreach opportunities.
- **Community engagement/public input:** Organizations focused on health can also assist through outreach to community members and meaningful engagement around active transportation financing priorities and concerns. Public health departments and healthcare organizations running programs within communities often have built trust with community members as a result of their ongoing direct interaction with residents. Health professionals may be able to partner with MPOs to ensure that community engagement efforts meet the community where it is at and provide real avenues for input.
- **Health data & contextualization:** MPOs are very focused on transportation data, but may not have easy access to health data or may not engage with it. By providing data related to physical inactivity, air quality, and chronic disease, health professionals can assist MPO staff in including health and equity impacts in analyses of proposed changes. Strong relationships between health professionals and MPO staff can create a two-way street in which MPO staff may also assist health professionals in accessing essential MPO data that will help in understanding regional patterns, challenges, and opportunities.
- **Equity at the forefront:** With a firm understanding of the causes and consequences of health disparities, and a professional commitment to advancing health equity, health professionals are well positioned to articulate the need for strong equity measures. Health stakeholders can help MPO staff make the case that health disparities are often correlated with restricted opportunities for safe walking and bicycling. Health stakeholders can use data to advocate convincingly for the need for strong, equity-focused policies.
- **Evaluation:** Strong evaluation is essential to guide implementation, engage in course correction, identify additional policy or funding needs, and achieve the goals initially set out. Health professionals can help MPO staff prioritize particular efforts for evaluation, help to identify appropriate methodologies, and assist with the actual evaluation process.

Section 6

CONCLUSION

MPOs are deeply influential regional agencies whose actions have enormous impacts on transportation and land use planning in metropolitan areas. By prioritizing health concerns and considerations in core planning and funding decisions, MPOs can use their influence to ensure that transportation investments are accelerating health improvements and contributing to greater health equity, rather than undermining health. MPOs can also advance health and health equity through a large number of additional approaches, engaging in policy, planning, and program decisions that influence their own actions and those of their member jurisdictions.

The experiences of the MPOs featured in this report make one thing clear – MPOs may begin their engagement with health and health stakeholders through any one of an array of approaches, but once one step is taken, it becomes easier to follow up with additional steps, creating stronger commitments to health. With new successes building upon old ones, MPOs and health stakeholders continue to deepen their understandings of the interconnections between health and transportation, and to act upon the opportunities to advance health through transportation approaches.

Although the world of MPOs can feel esoteric and their planning actions may take decades to appear, MPOs make formative decisions about transportation and land use, decisions that are vitally important to the everyday lives of the vast majority of people in the United States. When MPOs prioritize health, they enable us to live longer and have a higher quality of life. MPO decisions enable community members to get physical activity, stay healthy, avoid injury, climb out of poverty by accessing employment and educational opportunities, stay in their communities as they age, meet up with friends, easily access healthy food and recreation, and stay safe in emergencies. When MPOs center health in their work, our communities benefit.



Endnotes

- 1 Regina Benjamin, "Surgeon General's Perspectives: The importance of 60 minutes or more of daily physical activity," Public Health Reports, 2013; 128: 350-51, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3734735/>.
- 2 Laura Sandt et al., "Leveraging the Health Benefits of Active Transportation: Creating an Actionable Agenda for Transportation Professionals," TR News, May-June 2012, <http://onlinepubs.trb.org/onlinepubs/trnews/trnews280.pdf>.
- 3 California Department of Public Health, Health and Environmental Benefits of Active Transportation and Complete Streets, http://sgc.ca.gov/docs/funding/Health_and_Environmental_Benefits_of_Active_Transportation_and_Complete_Streets_12.23.pdf.
- 4 National Safety Council, "Injury Facts: Motor Vehicles," 2019, <https://injuryfacts.nsc.org/motor-vehicle/overview/introduction/>.
- 5 Michael Jerrett et al., "Traffic-Related Air Pollution and Asthma Onset in Children: A Prospective Cohort Study with Individual Exposure Measurement," 2008, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2569108/>.
- 6 Environmental Protection Agency, "How Mobile Source Pollution Affects Your Health," <https://www.epa.gov/mobile-source-pollution/how-mobile-source-pollution-affects-your-health>.
- 7 Marianthi-Anna Kioumourtzoglou et al, "Traffic-Related Air Pollution and Pregnancy Loss," Epidemiology: January 2019, Vol. 30, Issue 1:4-10, doi: 10.1097/EDE.0000000000000918, https://journals.lww.com/epidem/Abstract/2019/01000/Traffic_related_Air_Pollution_and_Pregnancy_Loss.2.aspx.
- 8 Pedestrian and Bicycle Information Center, "Environmental Benefits of Walking and Bicycling," http://www.pedbikeinfo.org/data/factsheet_environmental.cfm.
- 9 U.S. EPA, Sources of Greenhouse Gas Emissions, <http://www.epa.gov/climatechange/ghgemissions/sources.html>.
- 10 CDC, "Climate Effects on Health," <https://www.cdc.gov/climateandhealth/effects/default.htm>.
- 11 Institute for Transportation & Development Policy, "A Global High Shift Cycling Scenario: The Potential for Dramatically Increasing Bicycle and E-bike Use in Cities Around the World, with Estimated Energy, CO2, and Cost Impacts," 2015, <https://www.itdp.org/2015/11/12/a-global-high-shift-cycling-scenario/>.
- 12 SFMTA, "Transportation Sector Climate Action Strategy," 2015, https://www.sfmta.com/sites/default/files/reports-and-documents/2017/12/12-5-17_item_15_transportation_sector_climate_action_strategy.pdf.
- 13 Morency P, Gauvin L, Plante C, Fournier M, Morency C., "Neighborhood social inequalities in road traffic injuries: The influence of traffic volume and road design," Am J Public Health, 2012; 102(6): 1112-19, <https://www.ncbi.nlm.nih.gov/pubmed/22515869>.
- 14 Mikayla Bouchard, "Transportation Emerges as Crucial to Escaping Poverty," New York Times, May 7, 2015, <http://www.nytimes.com/2015/05/07/upshot/transportation-emerges-as-crucial-to-escaping-poverty.html?smid=pl-share&r=1&abt=0002&abg=1>.
- 15 Mikayla Bouchard, "Transportation Emerges as Crucial to Escaping Poverty," New York Times, May 7, 2015, <http://www.nytimes.com/2015/05/07/upshot/transportation-emerges-as-crucial-to-escaping-poverty.html?smid=pl-share&r=1&abt=0002&abg=1>.
- 16 See, e.g., Astrid Kemperman et al., "Loneliness of Older Adults: Social Network and the Living Environment," Int J Environ Res Public Health. 2019 Feb; 16(3): 406, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6388289/>.
- 17 23 U.S.C. 150(b).
- 18 23 CFR §450.306(b).
- 19 Patrick A. Singleton & Kelly Clifton, "Incorporating public health in US long-range metropolitan transportation planning: A review of guidance statements and performance measures," 2014, Transportation Research Board, https://nitc.trec.pdx.edu/sites/default/files/15-2169_Singleton-Clifton_Incorporating-public-health_revised.pdf.
- 20 Patrick A. Singleton & Kelly Clifton, "Incorporating public health in US long-range metropolitan transportation planning: A review of guidance statements and performance measures," 2014, Transportation Research Board, https://nitc.trec.pdx.edu/sites/default/files/15-2169_Singleton-Clifton_Incorporating-public-health_revised.pdf.
- 21 23 USC §134(i)(1)(B), (i)(2)(A)(ii).
- 22 Patrick A. Singleton & Kelly Clifton, "Incorporating public health in US long-range metropolitan transportation planning: A review of guidance statements and performance measures," 2014, Transportation Research Board, https://nitc.trec.pdx.edu/sites/default/files/15-2169_Singleton-Clifton_Incorporating-public-health_revised.pdf.
- 23 Patrick A. Singleton & Kelly Clifton, "Incorporating public health in US long-range metropolitan transportation planning: A review of guidance statements and performance measures," 2014, Transportation Research Board, https://nitc.trec.pdx.edu/sites/default/files/15-2169_Singleton-Clifton_Incorporating-public-health_revised.pdf.
- 24 Nashville Area MPO, "Middle Tennessee: Connected: 2014-2040 Regional Transportation Plan," 2014, http://www.nashvillempo.org/plans_programs/rtp/2040_rtp.aspx.
- 25 Mid America Regional Council, "Transportation Outlook 2040: Regional Transportation Plan: Policy Framework," 2015, http://www.to2040.org/assets/2015_plan/2.0_PolicyFramework_adapt_final.pdf.
- 26 Mid America Regional Council, "Transportation Outlook 2040: Regional Transportation Plan: Policy Framework," 2015, http://www.to2040.org/assets/2015_plan/2.0_PolicyFramework_adapt_final.pdf.
- 27 Patrick A. Singleton & Kelly Clifton, "Incorporating public health in US long-range metropolitan transportation planning: A review of guidance statements and performance measures," 2014, Transportation Research Board, https://nitc.trec.pdx.edu/sites/default/files/15-2169_Singleton-Clifton_Incorporating-public-health_revised.pdf.
- 28 Mid America Regional Council, "Transportation Outlook 2040: Regional Transportation Plan: Performance Measures," 2015, http://www.to2040.org/assets/2015_plan/3.0_PerfMeasure_adapt_final.pdf.
- 29 Mid America Regional Council, "Transportation Outlook 2040: Regional Transportation Plan: Performance Measures," 2015, http://www.to2040.org/assets/2015_plan/3.0_PerfMeasure_adapt_final.pdf.
- 30 Regional Transportation Commission of Southern Nevada, "Regional Bicycle and Pedestrian Plan," 2017, <https://www.rtcnv.com/cycling/regional-bicycle-pedestrian-plan/>.
- 31 Nashville Area MPO, "Appendix C: Project Scoring Methodology," FY 2017-2020 Transportation Improvement Program, 2016, http://www.nashvillempo.org/docs/TIP/2017_2020/NSH_FY1720TIP_FullDoc_Adopted_1116.pdf.

- ³² MetroPlan Orlando, “SR 50 Bus Rapid Transit Health Impact Assessment,” March 2016, <https://metroplanorlando.org/wp-content/uploads/SR50-Health-Impact-Assessment-2016.pdf>.
- ³³ Flagstaff Metropolitan Planning Organization, “Blueprint 2040: Regional Transportation Plan,” 2017, <https://www.flagstaff.az.gov/DocumentCenter/View/50022/RTP-Blueprint-2040?bidId=>.
- ³⁴ Nashville Area MPO, “Middle Tennessee: Connected: 2014-2040 Regional Transportation Plan,” 2014, http://www.nashvillempo.org/plans_programs/rtp/2040_rtp.aspx.
- ³⁵ SCAG, “2016-2040 Regional Transportation Plan/Sustainable Community Strategy,” 2016, <http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx>.
- ³⁶ 23 USC §134(j).
- ³⁷ Jeffrey Scott Lane, Nicole Waldheim, “Transportation Improvement Program Revision Process,” Transportation Research Board, 2011, https://books.google.com/books?id=bhA9L647nvUC&printsec=frontcover&dq=inauthor:%22Jeffrey+Scott+Lane%22&hl=en&sa=X&ved=0ahUKewjm_0_2_eTjAhWoyVQKHcayCxcQ6AEILDAB#v=onepage&q&f=false.
- ³⁸ Atlanta Regional Commission, “The ARC TIP Project Evaluation Framework,” 2018, <https://documents.atlantaregional.com/transportation/projsolicitation/2019/ProjectEvalDocumentation2018Final.pdf>.
- ³⁹ David D’Onofrio, “ARC’s Project Evaluation Framework,” AMPO Presentation, 10/19/17.
- ⁴⁰ Fresno COG, “Regional Sustainable Infrastructure Planning Grant Program,” <https://www.fresnocog.org/project/fresno-cog-administered-grant-programs/>.
- ⁴¹ Nashville Area MPO, “Active Transportation Grant Program,” http://www.nashvillempo.org/plans_programs/tip/ATP.aspx.
- ⁴² ChangeLab Solutions, “Model MPO Resolution Supporting Safe Routes to School,” 2016, <https://www.changelabsolutions.org/product/model-resolution-supporting-safe-routes-school>.
- ⁴³ 23 CFR §450.322.
- ⁴⁴ 23 USC §134(k)(3)(A).
- ⁴⁵ FHWA, “Organizing and Planning for Operations: Congestion Management Process,” https://ops.fhwa.dot.gov/plan4ops/focus_areas/cmp.htm.
- ⁴⁶ See, e.g. FHWA, “Congestion Management Process: Case Studies: Capital District Transportation Committee, Albany, New York,” https://www.fhwa.dot.gov/planning/congestion_management_process/case_studies/cdctc.cfm.
- ⁴⁷ See, e.g. FHWA, “Congestion Management Process: Case Studies: Wilmington Area Planning Council (WILMAPCO), Wilmington, Delaware,” https://www.fhwa.dot.gov/planning/congestion_management_process/case_studies/wilmapco.cfm.
- ⁴⁸ Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 1994, <https://www.hsdl.org/?abstract&did=814852>.
- ⁴⁹ Patrick A. Singleton & Kelly Clifton, “Incorporating public health in US long-range metropolitan transportation planning: A review of guidance statements and performance measures,” 2014, Transportation Research Board, https://nitc.trec.pdx.edu/sites/default/files/15-2169_Singleton-Clifton_Incorporating-public-health_revised.pdf.
- ⁵⁰ Hillsborough MPO, “Health in All Policies Resolution, Health and Transportation Matrix, and Staff Report,” 2019, <http://www.planhillsborough.org/wp-content/uploads/2019/06/HiAP-Resolution-and-Report.pdf>.
- ⁵¹ Lancaster County MPO, “Connections 2040: 2016 Update,” <https://lancastercountypanning.org/DocumentCenter/View/822/Connections2040-2016-Update?bidId=>.
- ⁵² Lancaster County Planning Commission, “Complete Streets Policies: Adoption by Lancaster County and Model for Municipalities,” <https://lancastercountypanning.org/DocumentCenter/View/421/CS-04c-Complete-Streets-Policies?bidId=>.
- ⁵³ Mid-Ohio Regional Planning Commission, “Complete Streets Policy,” 2010, http://www.morpc.org/wordpress/wp-content/uploads/2017/12/CompleteStreets_MORPC_CS_PolicyFINAL2010-03-31.pdf.
- ⁵⁴ Alamo Area Metropolitan Planning Organization, “A Resolution in Support of the Vision Zero Initiative for the City of San Antonio and Other Communities Within the Region,” <http://www.alamoareampo.org/Safety/docs/VisionZeroResolution.pdf>.
- ⁵⁵ East Central Wisconsin Regional Planning Commission, “Safe Routes to School webpage,” <http://eastcentralsrts.org/about-us>.
- ⁵⁶ Plan Hillsborough, “Garden Steps,” <http://www.planhillsborough.org/healthiest-cities-counties-challenge/>.
- ⁵⁷ Chicago Metropolitan Agency for Planning, “Local Food Resources,” <https://www.cmap.illinois.gov/programs/sustainability/local-food/resources>.
- ⁵⁸ Metropolitan Council, “Resilience,” <https://metrocouncil.org/handbook/plan-elements/resilience.aspx>.
- ⁵⁹ Metropolitan Planning Commission, Regional Measure 3, <https://mtc.ca.gov/our-work/fund-invest/toll-funded-investments/regional-measure-3>.
- ⁶⁰ The Delaware Valley Regional Planning Commission, “Stakeholder Committee,” <https://www.dvrpc.org/Food/StakeholderCommittee.htm>.
- ⁶¹ North Central Texas Council of Governments, “Memo Re Task 2a: Review of State Legislation and Policies Related to School Siting,” 2016, https://www.nctcog.org/nctcg/media/Transportation/DocsMaps/Plan/Landuse/Memo_ReviewStateLeg_2016.pdf.
- ⁶² Southeast Michigan Council of Governments, “Access to Core Services in Southeast Michigan,” 2016, <https://semcog.org/access>.
- ⁶³ Genesee Transportation Council, “Health Impact Assessment Planning Tool Gives Better Understanding of How Transportation Can Address Health Disparities,” <https://www.gtcmtpo.org/892>.
- ⁶⁴ APHA, “Health metrics to shape transportation investment,” https://www.apha.org/-/media/files/pdf/topics/transport/2017_tht_florida.ashx?la=en&hash=4E0FBCFED8FE7B31550CA37F14C85EF3BA95E251.



Safe Routes
PARTNERSHIP
Active Paths for Equity & Health

www.saferoutespartnership.org