STATEWIDE TRANSPORTATION PLANNING FOR HEALTHY COMMUNITIES

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14. ABSTRACT

This white paper presents insights and a flexible model for State Departments of Transportation (DOTs) that choose to integrate public health considerations into their transportation planning and decision-making. It draws from five case studies of innovative DOTs and their partners, and builds on the project team's previous white paper in this series, Metropolitan Area Transportation Planning for Healthy Communities (2012). The study tests and adapts the project team's "holistic" approach to health in transportation planning and develops a framework for considering health in the statewide transportation planning process. It includes a summary of relevant policies and resources, five innovative practice case studies, and a synthesis of findings and observations of use to DOTs and their health partners. The white paper shows how DOTs can consider health across their wide range of activities, which includes transportation planning, programs, and interagency initiatives.

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The white paper and other resources related to transportation planning research and health are posted on the FHWA-FTA Transportation Planning Capacity Building website (http://www.planning.dot.gov/).

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Executive Summary

Purpose and Approach

This white paper, the second in a series from the Federal Highway Administration (FHWA), presents insights and a flexible framework for State Departments of Transportation (DOTs) that choose to integrate public health considerations into their transportation planning and decision-making. It draws from five case studies of DOTs and their partners, and builds on the project team's previous white paper in this series, which focused on metropolitan planning organizations (MPOs) and the metropolitan area transportation planning process: Metropolitan Area Transportation Planning for Healthy Communities ("MPO white paper"). The audience for this white paper is DOTs that are interested in considering health in their planning and related activities; this paper is also a resource for the health and transportation partners of these DOTs.

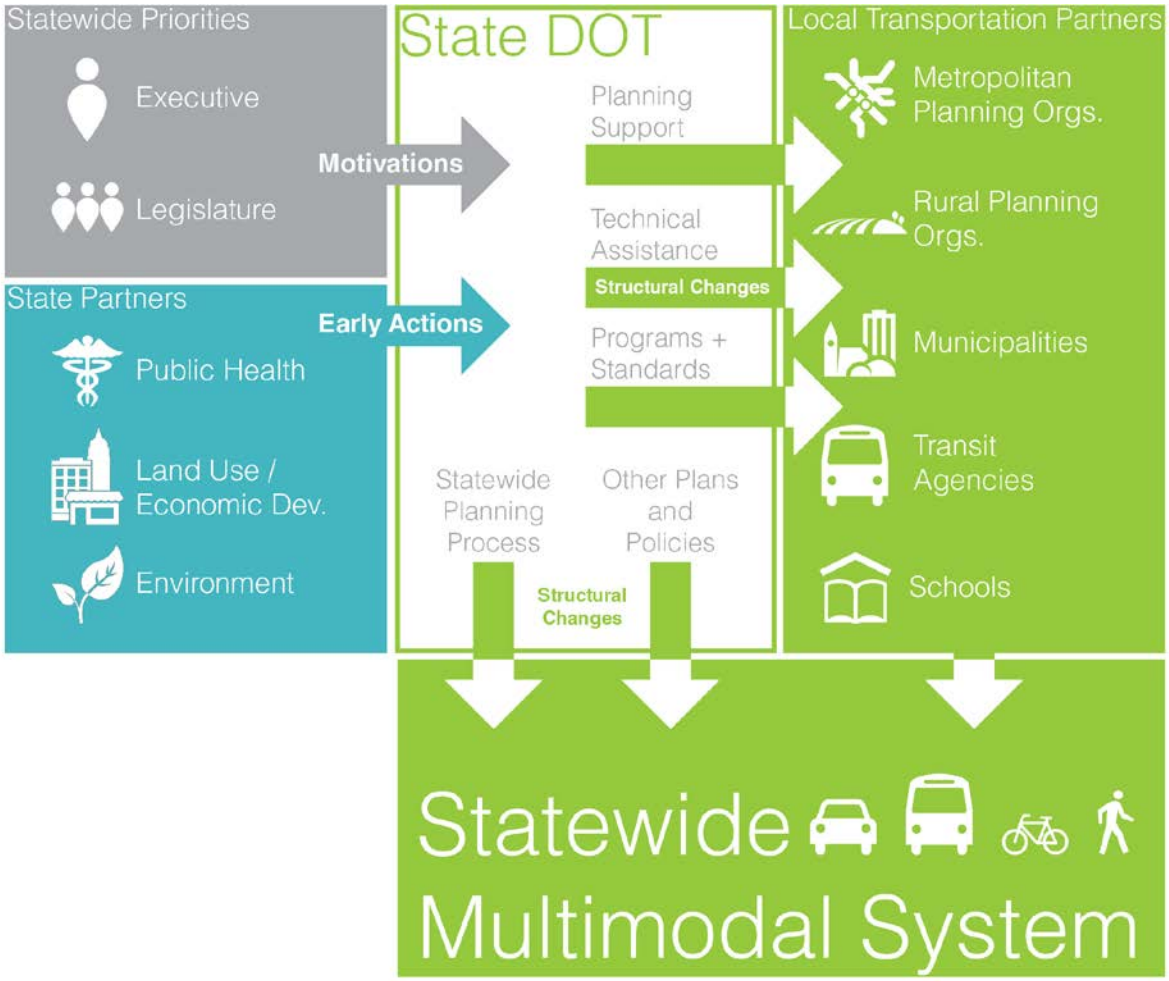
This white paper uses the five case studies to test and adapt the project team's flexible framework, developed for MPOs seeking to consider health, to the context of statewide transportation planning. Both the MPO and DOT frameworks incorporate the federally defined transportation planning process.

In analyzing and drawing conclusions from the case studies for DOTs, the project team refined two aspects of that framework in particular:

Summary Figure A: Holistic Approach to Health and Transportation.

1. **A holistic approach to health:** DOTs successfully considering health in planning, including the case studies in this white paper, are explicit in their recognition of health as a goal and comprehensive in the health topics included. DOTs across the country are already leaders in the well-established topics of safety and air quality, but this white paper focuses in particular on two emerging topics: active transportation and access to healthy destinations (see Summary Figure A).

2. **Framework for considering health in transportation planning**: This white paper expands the project team's framework for considering health in metropolitan area transportation planning to better respond to DOTs and statewide planning (Summary Figure B). While statewide planning shares many similarities with its metropolitan area counterpart, DOTs are integrating health into many programs that are related to transportation planning but not part of the federally defined planning process. The framework presented in this paper identifies key decision points for considering health--including motivations, early actions, and structural changes--both within the formal planning process itself and in related State programs.



Summary Figure B: DOT Health and Transportation Planning Framework. See Chapter 3 for icon credits.

Case Studies

This white paper describes how DOTs and their partners in five States are considering health in their transportation planning and activities. It synthesizes trends, lessons, and opportunities based on these cases and translates them into insights for peer DOTs and partners. The DOTs featured are:

- The California Department of Transportation (Caltrans).
- The Iowa Department of Transportation (Iowa DOT).
- The Massachusetts Department of Transportation (MassDOT).
- The Minnesota Department of Transportation (MnDOT).
- The North Carolina Department of Transportation (NCDOT).

The project team selected these DOTs based on a broader scan of DOTs that are considering public health in a variety of ways. The scan and case studies reveal that DOTs can approach health in a variety of ways, focusing in particular on different topics, programs, or aspects of the planning process. However, the featured DOTs stand out for their comprehensive and explicit consideration of health, consistent with the holistic approach described above. The project team held discussions with staff from these DOTs and their partners in late 2012 or early 2013. The information presented in this chapter reflects the state of activities at that time, unless otherwise noted.

This white paper summarizes key themes from the case studies and their implications for considering health in statewide planning. Building from the geographically and topically broad responsibilities of DOTs, all case study agencies are considering health in statewide planning through related programs and initiatives in addition to the federally defined planning process. These programs include Safe Routes to School (SRTS), Complete Streets, and human service transportation, among others. In addition, these DOTs are collaborating extensively both with traditional transportation partners such as MPOs, local governments, and the U.S. Department of Transportation (USDOT), but also health organizations such as State health agencies, non-governmental organizations (NGOs), and the Centers for Disease Control and Prevention (CDC).

The case studies themselves describe each DOT's definition of health, relationships with partners, health-related programs, and the evolving role of health in the transportation planning process. Each concludes with perspective on the evolution of the DOT's health activities and a timeline of key events.

Conclusion

The case studies and analysis highlight common characteristics of DOTs pursuing health considerations in their planning activities. These include:

- **Supportive Context:** For all five case study DOTs, some combination of legislative initiative, agency leadership, or multi-agency collaboration provided direct or indirect motivation for considering health in transportation planning and activities.
- **Partnerships:** Each case study DOT has an active partnership with the State public health agency and often other State agencies. These health partnerships can enhance existing DOT relationships with transportation partners, such as MPOs, transit agencies, or municipal governments.
- **Role of programs:** Programs are a key way DOTs are addressing health. In particular, Complete Streets initiatives, SRTS programs, and CDC grants have facilitated the discussion of health and transportation at many stages of statewide planning and decision-making.
- **A broad and evolving approach:** The case study DOTs are continuing to explore and define the potential role of health in the statewide transportation planning process, in addition to the programs, partnerships, and other processes that complement statewide planning.

The project team concluded that there are several opportunities to support the evolving approach that DOTs are using to consider health. In particular, MPOs and DOTs may benefit from adapting techniques from each other's approaches, and USDOT and its Federal partners can study the potential role of health data in a performance-based transportation planning process.

Chapter 1: Introduction and Overview

Public health, transportation, and planning professionals increasingly recognize how the built environment affects the physical, social, and mental health of communities. Transportation is an important part of the built environment and significantly influences physical activity and well-being, safety, and the ability of community members to access destinations that are essential to a healthy lifestyle.[1]

Working with partners, State Departments of Transportation (DOTs) play a lead role in planning, programming, and implementing transportation projects. They also meet the joint requirements for statewide transportation planning overseen by two administrations in the U.S. Department of Transportation (USDOT): the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). This responsibility presents tremendous opportunities to capitalize on established and emerging linkages between transportation and public health. FHWA, in its efforts to offer technical assistance to DOT staff and their partners, is examining how DOTs throughout the United States can effectively consider the benefits and impacts of transportation projects on health, helping to achieve healthy communities.

In a 2012 FHWA white paper titled Metropolitan Area Transportation Planning for Healthy Communities ("MPO white paper"), the project team for this study, from the USDOT Volpe Center, examined how MPOs can consider health in transportation planning. This DOT-focused white paper builds from the holistic framework advanced in the MPO white paper (see box, right) and discusses how DOTs can consider community health in transportation planning and programs for the many types of communities they serve.

Metropolitan Area Transportation Planning for Healthy Communities (2012)

The MPO white paper is the first in the FHWA series that includes this current research effort. Similar to this DOT-focused follow-up white paper, it uses a series of case studies to explore how Metropolitan Planning Organizations (MPOs) can effectively incorporate health in transportation planning.

Based in part on these case studies, the white paper defines a "holistic approach" to health that reflects multiple health topics (see Figure 2), and also develops a framework (See Figure 1) for MPOs to use to successfully consider health throughout the transportation planning process.

This "MPO framework" for health is based on the federally defined transportation planning process (See Chapter 2, Figure 3), but focuses on key decision points for considering health. The framework helps explain why and how MPOs might pursue connections between health and transportation planning; where in the planning process these connections can occur; and how these connections can successfully be made.

[1] Cover photo credits, clockwise from top left:
Alta Planning + Design; Eric Fredericks; Caltrans; The Jule, Dubuque, IA

Purpose

The purpose of this white paper is to understand how DOTs and their partners can successfully approach health within the statewide transportation planning process. The framework developed in the MPO white paper (see Figure 1 and Page 1 MPO box) is the starting point for this analysis. The following chapters test and expand upon this framework by applying research from case studies of five DOTs. Each of these DOTs is building from existing leadership in certain health topics, such as safety, to move towards a "holistic" approach (see Figure 2 and Page 1 MPO box) that integrates health as a transportation priority. This white paper draws from these case studies to outline how this holistic approach to health can be integrated into key points in the statewide planning process as well as related programs and activities. In addition, this white paper provides a useful starting point for the health in transportation resource that USDOT and the Center for Disease Control and Prevention are currently developing.

Figure 1: Health and Transportation Planning Framework (Source: MPO White Paper Handout). This framework shows how MPOs and their partners can incorporate health considerations at each stage of the planning process.

The audience for this white paper is DOTs as well as their health and transportation partners that are interested in incorporating direct and substantial consideration of public health into their transportation planning and decisions. Partnerships are a key strategy emphasized throughout. DOTs regularly work with transportation partners at multiple geographic scales, including Federal agencies, MPOs, transit agencies, local governments, and stakeholder organizations. And "non-traditional" partnerships with State and local health organizations are increasing. These relationships can greatly enhance DOT consideration of health in transportation planning. The case studies and synthesis contribute to an expanded understanding of successful approaches that these partnerships might take. This DOT-focused white paper identifies innovations, successes, challenges, and lessons learned that can serve as resources for DOTs and their partners, as well as for FHWA to use in developing technical assistance.

A Holistic Approach to Transportation and Public Health

The project team has defined a holistic approach to health for transportation planning based on the MPO and DOT case studies. The approach has the following characteristics:

- *Comprehensive*. Considers four key priority areas, holistically as well as individually: Safety, Air Quality, Access, and Activity (see Figure 2).
- *Forward-looking*. Includes emerging topics (active transportation and access) and well-established topics (safety and air quality) and is applied to future decisions.
- *Explicit:* Directly references health as a goal for initiatives required to invest in and manage the statewide multimodal transportation system.

Figure 2: Holistic Approach to Health and Transportation. (Source: MPO White Paper Handout)

This "wheel" diagram illustrates the range of emerging and existing priorities that constitute a comprehensive and explicit approach to health.

DOTs across the county have long been leaders in certain topics related to health, such as safety, air quality, and access to human services. The case study DOTs in this white paper are notable in that they expand and move beyond these well-established, health-relevant core responsibilities. The case study DOTs are beginning to explicitly identify a balanced approach to

health as a goal and priority, ensuring that transportation policies, strategies, and investments contribute to healthy communities in a coordinated way.

The four priority areas illustrated in Figure 2 are further described below.

1. Activity: Nonmotorized transportation

Transportation systems that encourage walking or bicycling can help people increase their physical activity, resulting in significant potential health benefits and disease prevention.[2] DOT staff can increase opportunities for nonmotorized or "active" transportation by:

- Planning for infrastructure that is safe, convenient, and attractive to pedestrians and bicyclists.
- Encouraging the use of multiple modes by planning highways and transit services that have strong intermodal connections to active transportation.
- Coordinating and integrating transportation and recreation infrastructure to provide multiple community benefits.
- Providing technical assistance, funding incentives, coordination of Federal and State programs, and guidance to local communities to encourage transportation decisions that support walking and bicycling.

The link between activity and health-related conditions (such as obesity, diabetes, and heart disease) is important for a DOT focus on increasing statewide physical activity. DOT staff can focus on measures of transportation-related outcomes, such as actual or forecast increases in nonmotorized mode share or minutes spent walking or bicycling. Public health partners can then use these transportation data and performance measures in further technical analysis of medical outcomes, such as levels of obesity or to predict changes in community-level morbidity (disease) or mortality (death).[3] Through partnerships with health organizations, DOTs and local transportation partners can plan transportation that advances health outcomes without having to become public health experts themselves.

2. Safety

Users of all modes of transportation should be able to travel safely with minimal risk of injury or death. Injuries related to vehicle crashes are one of the most significant and

[2] See Centers for Disease Control and Prevention, "More People Walk to Better Health," August 2012: http://www.cdc.gov/vitalsigns/walking/.

[3] See Chapter 2 for discussion of potential tools that health agencies, DOTs, and other partners can use to measure health outcomes.

immediate threats to human safety.[4] DOT staff can ensure that safety measures extend to all transportation modes and intermodal connections, so that all system users benefit from a safe transportation system. DOTs can also focus on protecting vulnerable road users, including older and younger residents who rely on walking or bicycling. Reducing the fear of injury associated with walking and bicycling is a key strategy for increasing active transportation and its related health benefits.

To incorporate existing safety leadership into a holistic health approach, DOTs can consider safety within the wider context of overall community health. Existing DOT expertise and measures used, for example, in federally required Strategic Highway Safety Plans, can be strong components of this holistic focus on statewide health.

3. Air Quality

DOTs support planning and implementation of transportation that improves air quality in their State in two primary ways (see Chapter 2):

- Coordinating with the State air quality agency in developing and implementing the State Implementation Plan (SIP) for air quality conformity.
- Ensuring, with MPOs, that conforming projects identified in metropolitan area Transportation Improvement Programs (TIP) are integrated into the Statewide Transportation Improvement Program (STIP).

These required, health-promoting activities can form a strong basis for a holistic approach to health that incorporates air quality.

DOTs have well-established planning procedures to work with MPOs and their partners to meet conformity requirements for the metropolitan areas of the State. DOTs that take the comprehensive approach described in this paper may go further, explicitly recognizing that transportation decisions produce air quality outcomes that affect public health. As a consequence, they may also identify air quality as an important component of transportation planning for healthy communities. For example, a DOT might work with public health partners to use air quality and transportation data as inputs into health-specific analysis of statewide transportation programs or investments.

4. Access: Transportation to places that enable healthy lifestyles

Community design and transportation systems can support or inhibit travel by residents to health-related destinations. These destinations may include stores or markets selling

[4] Motor vehicle crashes are the leading cause of death for every age group between age 11 and age 27. National Highway Traffic Safety Administration, "Traffic Safety Facts: 2011 Data," April 2013, http://www-nrd.nhtsa.dot.gov/Pubs/811753.pdf.

healthy food, medical offices, social service centers, as well as parks, recreation, and sports facilities. Transportation to provide this essential access is primarily planned for and managed at the local and regional level and can be supported statewide through analysis, technical assistance, guidance, funding, and other incentives. Human services transportation is often coordinated at the State level, and is commonly separate from the statewide transportation planning process.

Access to health-related destinations is especially critical for vulnerable populations, such as the elderly and children, as well as low-income and minority populations both in urban and rural communities. These populations often do not have access to a car and rely heavily on transit. DOTs have the opportunity to target resources and develop transportation systems that enable these groups to access healthy destinations.

Community design integrated with transportation can also help people age safely in place, or to safely access all of their nutrition, exercise, and medical needs throughout each life cycle stage. This aspect considers changing mobility, health needs, safety, and the contribution of multimodal transportation systems by offering a broad range of affordable transportation and housing options. Although integrated planning for transportation and community design is typically a local government or MPO responsibility, DOTs can support diverse types of communities statewide through policies and programs.

This white paper focuses on approaches to statewide transportation planning that consider these four topics explicitly and holistically, with an emphasis on active transportation and access as emerging topics that are more commonly addressed on the local and regional scale. It features less emphasis on the well-established topics of air quality, safety, and human services transportation, on which DOTs have shown leadership for many years. This research examines how DOTs can consider these health topics in planning for the statewide multimodal transportation system through collaboration with traditional and non-traditional partners, refinement of institutional roles and responsibilities, and technical analysis.

Methodology

This white paper uses case studies of DOTs to test and adapt the project team's framework for considering health in the transportation planning process, previously developed from MPO case studies, to statewide planning.

The project team first conducted a literature review (Appendix A) and scan of DOT activities (Appendix B). The project team ultimately identified 10 DOTs that focused on at least one health topic through transportation planning, programs, or partner coordination, and selected the following five DOTs as case studies for this white paper:

- California Department of Transportation (Caltrans)
- Iowa Department of Transportation (Iowa DOT)
- Massachusetts Department of Transportation (MassDOT)

- Minnesota Department of Transportation (MnDOT)
- North Carolina Department of Transportation (NCDOT)

These five case studies showcase the range of approaches DOTs have developed to successfully consider health in departmental policies, plans, and activities. Chapter 3 includes additional details on criteria for scanning and selecting the DOTs.

The project team conducted structured discussions (Appendix C) by telephone for each case study with one or more DOT staff members. In some cases, the DOT staff included staff from the State department of health or other State agency in the initial discussion, or they recommended that the project team follow up with health agency contacts. The project team conducted most of these discussions in late 2012 or early 2013. This white paper reflects the state of activities at that time. DOT activities related to health continue to evolve.

Chapter 2 of this study provides background information and describes policies that relate directly to statewide transportation planning and relies on Chapter 2 of the MPO white paper to provide the full regulatory, policy, and stakeholder context for the transportation planning process.

Structure

White paper structure:

- Chapter 1 introduces the white paper and its research purpose.
- Chapter 2 provides a brief overview of relevant regulatory context for linking transportation and health related to DOTs.
- Chapter 3 describes the case study methodology, a synthesis of findings from analysis of the DOT planning process featured in the case studies, and the five case studies themselves.
- Chapter 4 concludes with a summary of findings, compares approaches by MPOs and DOTs, and identifies potential future research opportunities. All findings are drawn from research for this white paper or the preceding MPO white paper.

The appendices consist of a literature review, a summary of the scan of DOT health-related activities, and case study discussion questions.

Chapter 2: Context

This chapter discusses policy, research, and tools relevant to the consideration of health in planning for the statewide multimodal system. Chapter 2 of the MPO white paper provides a more complete context for the metropolitan area and statewide planning process, and is also a useful resource for State Departments of Transportation (DOTs) and their partners that are interested in expanding how they consider the implications of transportation planning on health.

This chapter covers the following topics:

- Key actors and roles in the metropolitan area transportation planning process;
- Regulatory and programmatic framework in which MPOs and DOTs operate;
- Federal programs, initiatives, and funding sources;
- Nongovernmental organization (NGO) advocacy, research, and programs; and
- Data and tools.

In addition, the Federal Highway Administration (FHWA) has developed a brochure titled, Moving Healthy: Linking FHWA Programs and Health. The brochure provides details on FHWA programs, initiatives, tools, and resources that influence or are influenced by health and may be a helpful supplement to the information in this chapter.

The project team also identified many of the programs, processes, and actors detailed in both white papers as important elements in the case studies. The other programs described present opportunities for supporting future efforts to bring health considerations into statewide transportation planning processes nationwide.

Key Actors and Roles

All DOTs interact with a range of Federal, State, regional, and local agencies that play key roles in the statewide transportation planning process. These include FHWA, the Federal Transit Administration (FTA), and other Federal resource, regulatory, Tribal, and land management agencies. Non-profits, advocacy, and other nongovernmental organizations can also play an important role as stakeholders. Other State agencies that can be involved in the transportation planning process include public health departments, as well as air quality, environmental, recreation, and social service agencies. MPOs conduct a separate but complementary metropolitan area transportation planning process that is coordinated with the statewide process, and integrated at key points. DOTs work particularly closely with regional planning organizations (RPOs) and local governments outside urbanized areas to ensure regional goals and priorities are captured in the statewide planning process, and that RPOs consider statewide goals in their planning.

Regulatory and Programmatic Framework

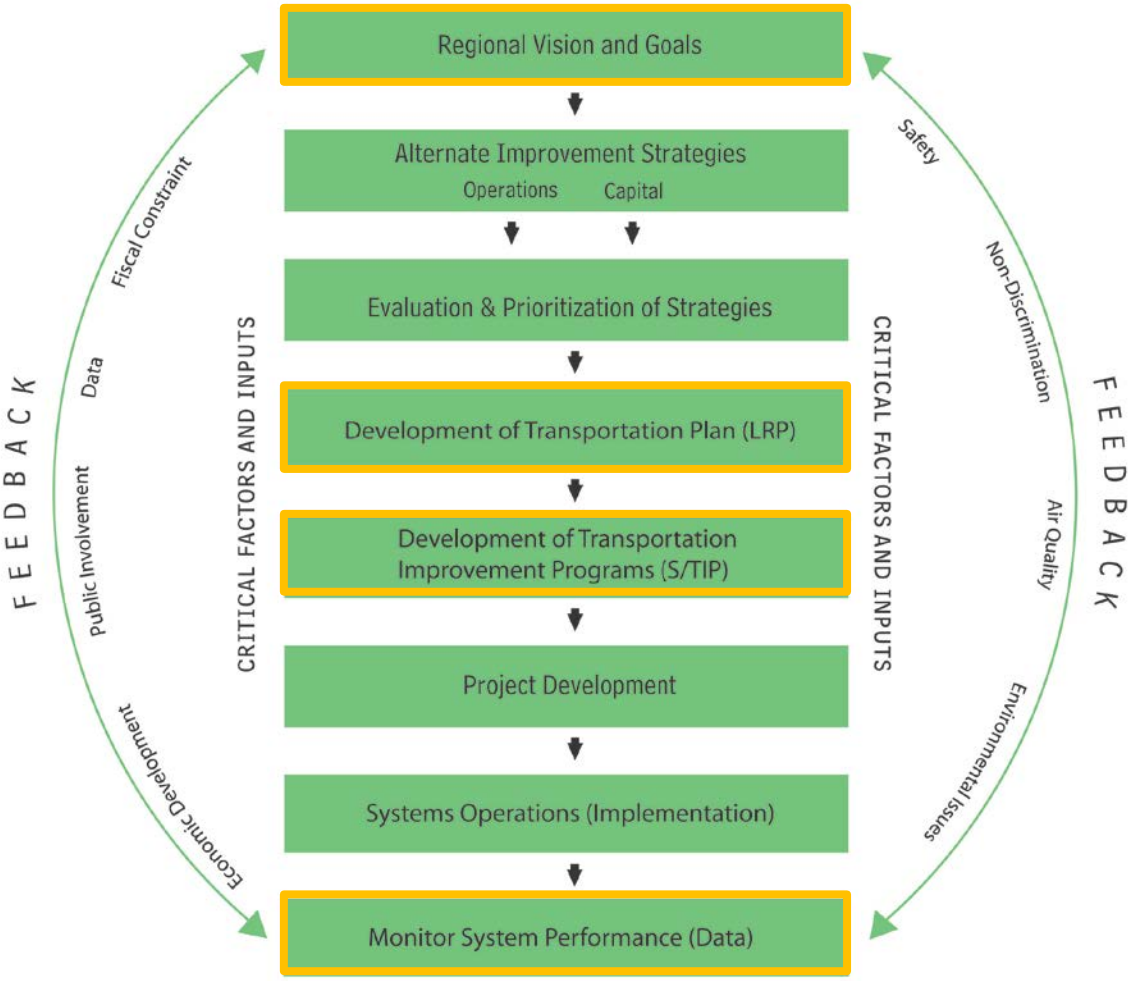
This section describes the Federal requirements for statewide transportation planning and highlights other Federal regulations of specific relevance to DOTs. The MPO white paper provides information on metropolitan transportation planning requirements as well as a range of other Federal regulations, including Title VI (Environmental Justice) and the National Environmental Policy Act (NEPA), that are relevant to health. The Federal regulations covered here and in the MPO white paper provide significant potential support and flexibility for DOTs interested in planning transportation systems, programs, and projects with benefits for public health.

Statewide Transportation Planning Overview

DOTs work with local partners to plan, program, and implement transportation projects. Just as MPOs are responsible for meeting requirements for metropolitan areas over 50,000 in population (23 USC §134), DOTs are responsible for meeting the joint Federal requirements for statewide transportation planning (23 USC §135). These requirements have been specified under successive Federal surface transportation authorizations, beginning in 1991 with the Intermodal Surface Transportation Efficiency Act (ISTEA) and continuing through the current law, Moving Ahead for Progress in the 21st Century Act (MAP-21). FHWA and FTA are responsible for conducting oversight to ensure that statewide and metropolitan area planning processes, led by DOTs and MPOs respectively, meet these requirements.

The well-established, federally defined transportation planning process followed by both DOTs and MPOs is illustrated in Figure 3. This diagram, and particularly the highlighted steps, is the basis of the framework for MPO consideration of health as developed in the companion MPO white paper (see Chapter 1). While MPOs and DOTs engage in similar transportation planning processes, planning is just one of many typical State DOT responsibilities. Unlike MPOs, DOTs are typically responsible for the ownership, design, construction, operation, or maintenance of highway and other State multimodal transportation facilities. They coordinate and develop statewide plans with MPOs and other partners, and are responsible for project selection outside of metropolitan areas. DOTs prepare Statewide Long-Range Transportation Plans (SLRTP), which typically provide policy directions for the statewide multimodal transportation system, and Statewide Transportation Improvement Programs (STIPs), which detail projects that advance the State's goals. SLRTPs and STIPs incorporate metropolitan area plans and Transportation Improvement Plans (TIPs) developed at the MPO level. More details are provided in the section below on the key State planning products.

Figure 3: Statewide Transportation Planning Process. Source: FHWA/FTA TPCB Briefing Book. This chart also describes the metropolitan area transportation planning process. The project team added yellow highlights to note key decision points for DOTs and MPOs considering health.



Statewide Transportation Planning and Health

There is no explicit, federally defined responsibility for DOTs to include broadly based public health in their transportation plans, programs, or projects. Beginning with MAP-21, Federal law does require MPOs and DOTs to consider a series of "planning factors," including economic vitality, safety, energy conservation, and overall quality of life (23 USC §134(h)). Several of these planning factors present specific opportunities for supporting public health goals and outcomes that are consistent with the balanced approach used for this research.

Many health and transportation issues, such as opportunities for active transportation and access to healthy food, are most typically addressed through policies, programs, or projects initiated at the local or regional level. As demonstrated in all of the State case studies, however, this can also be supported through State initiatives.

DOTs have the flexibility to choose to incorporate broadly based health-related policy initiatives or programs into the federally defined transportation planning process by, for example, including a health goal in their SLRTP or public involvement process. In cases where health issues are gaining attention at the State level, DOTs may play a range of leadership roles working with other State agencies; for example, responding to policy direction from a governor or State legislature to bring health into transportation programs. The case studies provide examples of the importance of this high level State direction.

Federal requirements for metropolitan area and statewide transportation planning provide a helpful and flexible foundation that DOTs and partners can adapt to respond to State-specific requirements, policies, goals, priorities, and choices to consider public health.

Also, DOTs have an important coordination role, as they can share health data, analysis, and innovation initiatives among MPOs, RPOs, and their partners. For example, DOTs can provide statewide data on health trends, develop guidance based on pilot efforts, and identify statewide health goals and initiatives. Through their direct responsibility for supporting transportation planning in non-metropolitan areas, DOTs can encourage rural areas to develop transportation strategies that support healthy communities. For example, DOTs can provide training or grant programs for Safe Routes to School (SRTS), or encourage metropolitan areas to coordinate with health partners on planning efforts.

Finally, DOTs and partner State health agencies may have the ability to leverage Federal funds to support the consideration of health in transportation planning. Such Federal programs include one-time opportunities, such as the American Recovery and Reinvestment Act; grant programs such as Community Transformation Grants, described below; and annual formula allocations. Through the Surface Transportation Program and State Planning and Research Program, DOTs can offer research support or technical assistance to MPOs, regional planning agencies, local governments, or others who are working to connect health and transportation. The Surface Transportation Program can fund transportation planning, research and development, and technology transfer activities. The State Planning and Research Program is a set-aside from the Surface Transportation Program and three other Federal programs that provides an 80 percent Federal match for planning and research activities. Both of these funding sources have the flexibility to cover health-supportive transportation activities.

Downtown Raleigh, NC. Source: Alta Planning + Design

DOTs can support health through:

Statewide transportation planning and programs

Coordination of data, goals, and technical assistance with local partners

Partnerships with health agencies to **leverage State and Federal funds**

Statewide Transportation Planning Products

Statewide Long-Range Transportation Plan

Under the Federal planning requirements, DOTs must prepare SLRTPs that include strategies and actions to guide development and management of an intermodal transportation system over a minimum 20-year forecast period for all areas of the State. DOTs are required to develop the SLRTP in coordination with MPOs and in consultation with nonmetropolitan officials, Tribal governments, and as appropriate, Federal land management agencies, public citizens, and representatives from other public agencies and industry (23 USC §135(f)). The SLRTPs must discuss environmental mitigation on a policy or statewide/regional basis and be made available publically. The SLRTPs may include a financial plan, and should identify how the DOT will ensure the preservation and most efficient use of the existing statewide multimodal transportation system. Beginning with MAP-21 (23 USC §135 d(2) and f(7)A), DOTs are required to incorporate a performance-based approach that ties decisions to data and outcomes, with specified Federal goals. The legislation provides flexibility in how DOTs can do this; further guidance is forthcoming.[5]

DOTs have latitude in deciding what to include in an SLRTP. This is reflected in the diversity of formats and trends captured in the FHWA State Plans Database and Report developed in March 2012. The study concluded there are seven major plan types represented across the United States: policy-based, performance-based, needs-based, project-based, fiscally realistic/constrained, vision-based, and corridor-based. Each of these plan types offer different opportunities to incorporate health, whether as a goal, objective, performance target, unit of analysis, or other. The study also identified several trends in SLRTPs nationwide, including emphases on livability, sustainability, and climate change; areas that several of the case study DOTs are connecting to health.

Statewide Transportation Improvement Program

Under the Federal planning requirements (23 USC §135), DOTs must also prepare a financially constrained STIP that covers a period of four years and is updated at least every four years. The same consultation requirements for the SLRTP exist for the STIP. The STIP must include all federally supported expenditures within the boundaries of the State. Projects may only be included if full funding can be demonstrated to complete, operate, and maintain each project. A financial plan may be included to confirm that funding will be available and to support the demonstration of fiscal constraint. The STIP must include, to the maximum extent practicable, a discussion of the effect of the STIP toward achieving performance targets once targets are identified in the SLRTP (23 USC §135(g)4). Projects included in the STIP must also be in conformance with the applicable State air quality implementation plan (if one exists) in ozone, particulate matter and carbon monoxide nonattainment areas (23 USC §135(g)5(d)).

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[5] FHWA. MAP-21 Fact Sheet: Performance Management. http://www.fhwa.dot.gov/map21/pm.cfm.

Building from the State plans database and report, FHWA is currently conducting a study of STIPs intended to describe how DOTs are using STIPs in statewide transportation planning. The goal is to categorize STIPs into a limited number of logical categories and describe more general (non-State-specific) models that relate to multiple STIPs. The focus will be on how STIPs are used. To the extent possible, the project will also include analysis of the planning process DOTs use to develop STIPs, and how development models relate to STIP usage. The study will draw from available documents, the State Plans Database, and documentation from ongoing FHWA reviews of Division Office STIP findings. Once complete, the study will be posted on the FHWA and FTA Transportation Planning Capacity Building (TPCB) Program website. Since successful strategies to integrate health into transportation planning will vary with the type and purpose of the STIP, this report will be a helpful resource to DOTs and their partners interested in considering health.

Other Federal Regulations

All States are required, under 23 USC §148, to have Strategic Highway Safety Plans (SHSPs) as part of their Highway Safety Improvement Program. SHSPs provide a comprehensive and data-based approach to reducing fatalities and serious injuries on all public roads within the State. DOTs must update these plans at least every five years; address the four Es of highway safety (engineering, education, enforcement, and emergency medical services); and describe a program of strategies to reduce or eliminate identified safety hazards. DOTs develop SHSPs in collaboration with partners, including MPOs and local officials in nonmetropolitan areas, to address the State's safety challenges. Although the case studies do not focus on safety, it is an important component of incorporating health into transportation, consistent with the holistic approach defined and applied in this white paper. Funding to implement SHSP projects that benefit the safety of pedestrians and bicyclists is available through core FHWA funding programs, especially the Highway Safety Improvement Program (HSIP), as well as the Surface Transportation and National Highway Performance Programs. FTA funding programs can also help construct facilities that improve the safety of transit users or provide safer access to transit.

The Clean Air Act Amendments of 1990 (CAAA), requires the U. S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment.[6] The primary standards are based upon EPA's assessment of the health risks and impacts associated with each pollutant on at-risk groups, including children, the elderly, persons with respiratory illnesses.[7] EPA has set NAAQS for six criteria pollutants: particulate matter, ozone, carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide. State air quality agencies develop State Improvement Plans (SIPs) to implement these national requirements for the State. These are the basis for determining the conformity of transportation projects and planning documents. Transportation conformity ensures that

[6] Clean Air Act Amendment 42 USC §85: http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf.

[7] See EPA, National Ambient Air Quality Standards, http://www.epa.gov/air/criteria.html.

Federal funding and approval goes to those transportation activities that are consistent with air quality goals and related State commitments.

Federal law does not require DOTs to ensure that statewide transportation planning products such as the STIP and SLRTP conform to the SIP. This is a key difference from the metropolitan area transportation planning process, where MPOs in air quality "maintenance" or "nonattainment" areas must demonstrate that their documents conform to the SIP. However, DOTs still play a key role in conformity. They coordinate with the State air quality agency in developing the SIP, conduct regional conformity analyses for projects not in metropolitan areas, and accept conforming MPO plans and projects into the STIP.

Federal Programs, Initiatives, and Funding Sources

In addition to core FHWA and FTA funds, SRTS, Highway Safety Grants, and Community Transformation Grants are Federal programs that are particularly relevant to the statewide transportation planning process and health. There are also a number of other important Federal initiatives, task forces, and funding programs that provide opportunities for DOTs and partners to produce transportation plans, investments, and strategies that improve public health. These include programs such as the FHWA Nonmotorized Transportation Pilot Program, USDOT Partnerships such as the Partnership for Sustainable Communities, and other Federal initiatives such as the America's Great Outdoors and Let's Move.[8]

Each State also has its own statewide programs, initiatives, and funding sources that may be relevant to transportation planning and health. Statewide policies, such as Complete Streets, are important components of health strategies pursued by many of the case study States. Although the USDOT does not have an official Complete Streets policy, many USDOT and FHWA regulations, programs, and partnerships support the concept of Complete Streets,[9] for example, through technical assistance, capacity building, or research.

[8] These are further described in Chapter 2 of the MPO health white paper.

[9] For more information on these programs, see "Street Design: Part 1—Complete Streets," in FHWA's *Public Roads*, July/August 2010, http://www.fhwa.dot.gov/publications/publicroads/10julaug/03.cfm.

Local and national NGOs can be partners or provide resources for DOTs considering health in their activities.

Photos clockwise from top: Des Moines, IA (Paul Weimer via Flickr), Pedestrian crosswalk (www.bikepedimages.org / Dan Burden)

Safe Routes to School

The establishing legislation for the SRTS program states that its goal is "to make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age."[10] Although MAP-21 combines several bicycling and walking programs and no longer has designated funding for SRTS, SRTS projects are eligible for funding under the Transportation Alternatives Program (TAP).[11] Funding for TAP is administered by both the State and MPOs for larger cities (population of 200,000 or more).[12] Most States have retained the previously required full-time SRTS Coordinator or combined the position with other responsibilities, and are administering SRTS grants under TAP.[13]

Highway Safety Grants

MAP-21 retains previous guidance and grant funding to State highway safety programs, but consolidates and revises some of the programs. 23 USC §402 funds the State and Community Highway Safety formula grant program, which awards grants to States that have submitted a Highway Safety Plan and Performance Plan to FHWA. 23 USC §405 funds the National Priority Safety Program, which supports efforts to address several safety issues, including impaired driving, seatbelts, and distracted driving.[14] Federal safety requirements and funding benefit the health of all users of the multimodal transportation system; for example, the National Highway Traffic Safety Administration (NHTSA) provides guidance for State safety programs with a strong emphasis on the safety of pedestrians and bicyclists.[15]

Community Transformation Grants

The Centers for Disease Control and Prevention (CDC), a component of the U.S. Department of Health and Human Services, has programs and initiatives that focus on the transportation implications of public health. One such example is the Community Transformation Grants Program, which supports community-level efforts to reduce chronic disease, focusing on outcome measures described in Section 4201 of the Affordable Care Act. Through promoting healthy lifestyles, the grants aim to improve health, reduce health disparities, and control health care spending. To date, the program has distributed almost $200 million to 61 State and local government entities, 6 national community-based networks, and 40 small communities

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[10] FHWA. Safe Routes to School Program Legislation. http://www.fhwa.dot.gov/environment/safe_routes_to_school/overview/legislation.cfm.

[11] MAP-21, Section 1122 §213 (b) (3).

[12] FHWA Factsheet: Transportation Alternatives Program. http://www.fhwa.dot.gov/map21/tap.cfm.

[13] Safe Routes to School National Partnership. "MAP-21 Resource Center." http://www.saferoutespartnership.org/national/map-21-resource-center.

[14] Governors Highway Safety Association. "Section 405 National Priority Safety Program." http://www.ghsa.org/html/stateinfo/programs/405_map21.html.

[15] Uniform Guidelines for State Highway Programs http://www.nhtsa.gov/nhtsa/whatsup/tea21/tea21programs/pages/PedBikeSafety.htm.

(populations under 500,000), reaching about 130 million Americans.[16] Recipients use many of the grants to promote healthy and safe physical environments, including through the incorporation of health into transportation planning and projects.

NGO Advocacy, Research, and Programs

In addition to the NGO programs and resources detailed in the MPO white paper, the project team identified further non-profit resources by the AARP (formerly known as the American Association of Retired Persons) and the World Health Organization (WHO).

The AARP Livable Communities initiative identifies the relationship between transportation and health as important to aging in place and focuses on such concepts as Complete Streets and universal design.[17] Under this initiative, AARP, as an institutional affiliate of the WHO Global Network of Age-Friendly Cities and Communities, is developing its own network of age-friendly cities. The WHO program defines age-friendly communities based on eight domain areas, one of which is transportation.[18] Accordingly, AARP considers age-friendly communities to be those with safe environments for active transportation and a variety of transportation options. To date, communities in 10 States have joined the AARP Network: Auburn Hills, Michigan; Austin, Texas; Des Moines, Iowa; Honolulu, Hawaii; Macon-Bibb County, Georgia; New York City, New York; Philadelphia, Pennsylvania; Portland, Oregon; Washington, D.C.; Westchester County, Brookhaven, and Chemung County, New York; and Wichita, Kansas.[19]

Data and Tools

The Integrated Transport and Health Impact Modeling Tool (ITHIM), originally known as the Woodcock Model of Active Transportation, is a tool to estimate health benefits due to changes in physical activity, air pollution, and injuries. Dr. James Woodcock and collaborators originally developed ITHIM to assess greenhouse gas reduction strategies in London.[20] In the United States, staff from the Center for Chronic Disease Prevention and Health Promotion of the California Department of Health (CDPH) used ITHIM to assess emissions in the nine-county San Francisco Bay Area.[21,22] The model has now been calibrated for all major regions of California

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[16] Centers for Disease Control and Prevention. Community Transformation Grant (CTG) Program Fact Sheet." http://www.cdc.gov/communitytransformation/funds/index.htm.

[17] AARP Livable Communities. http://www.aarp.org/livable-communities/.

[18] World Health Organization. Application form to join the WHO Global Network of Age-friendly Cities and Communities. http://www.who.int/ageing/application_form/en/index.html.

[19] AARP's Network of Age-Friendly Communities. http://www.aarp.org/livable-communities/network-age-friendly-communities.html.

[20] See Woodcock J, Edwards P, Tonne C, Armstrong BG, Ashiru O, Banister D, et al. Public health benefits of strategies to reduce greenhouse-gas emissions: urban land transport. The Lancet 2009; 374:1930-1943.

[21] California Department of Public Health, "Health Co-Benefits and Transportation-Related Reductions in Greenhouse Gas Emissions in the Bay Area." http://www.cdph.ca.gov/programs/CCDPHP/Documents/ITHIM_Technical_Report11-21-11.pdf.

and CDPH is working to train MPO and county health department staff in the San Diego, Los Angeles, and Bay Area regions in the use of the model and its integration with their activity-based travel demand models. Dr. Woodcock and the Centre for Diet and Activity Research at the University of Cambridge are continuing to develop the model. According to CDPH staff, ongoing refinement of the model will allow it to monetize health co-benefits and harms based on cost of illness and willingness-to-pay methodologies.[23]

Chapter 2 of the MPO white paper has information on a number of other potentially useful tools, including Health Impact Assessments (HIAs) and the WHO's Health Economic Assessment Tool (HEAT), which is being applied in the U.S. with CDC assistance. HEAT requires two inputs: the number of walking or bicycling trips that a project or program is estimated to generate and the average trip length. The tool then projects an economic value (in dollars) of the project from increased walking and/or biking in a specified community. The dollar value represents the statistical value of life years saved due to health benefits (mortality) of active transportation modes.[24] The tool does not currently estimate the economic benefits of reduced disease incidence (morbidity), and for US locations it cannot currently calculate benefits from walking. Future refinement of the tool may add these features.

HEAT and ITHIM, and other models, could assist interested DOTs, MPOs, and their health partners to begin discussions of health benefits within the transportation planning process. Applications of ITHIM, described by its developers as in its early stages of development, and HEAT are currently limited but will likely continue to evolve.

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[22] Maizlish NA, Woodcock JD, Co S, Ostro B, Fairley D, Fanai A. "Health cobenefits and transportation-related reductions in greenhouse gas emissions in the San Francisco Bay Area." American Journal of Public Health. 2013; 103:703-709. http://www.arb.ca.gov/cc/ab32publichealth/meetings/091310/woodcock_model_health_co-benefits.pdf.

[23] Project team correspondence with Neil Maizlish, CDPH.

[24] World Health Organization. 2012. HEAT - Health Economic Assessment Tool. Accessed 7 June 2012: http://www.heatwalkingcycling.org/.

Chapter 3: Case Studies and Synthesis

Many State Departments of Transportation (DOTs) across the United States are considering public health in their departmental policies, transportation planning and programming, grants, and technical assistance. These activities complement the federally required statewide transportation planning process, as described in Chapter 2. This chapter features case studies on the following five DOTs and their partners:

- California Department of Transportation (Caltrans)
- Iowa Department of Transportation (Iowa DOT)
- Massachusetts Department of Transportation (MassDOT)
- Minnesota Department of Transportation (MnDOT)
- North Carolina Department of Transportation (NCDOT)

The project team held discussions with staff from these DOTs and their partners in late 2012 or early 2013. The information presented in this chapter reflects the state of activities at that time, unless otherwise noted. As stated in Chapter 1, this research is specifically focused on how DOTs take a comprehensive or holistic approach to health topics. Emphasis is placed on the emerging topics of active transportation and access rather than the well-established topics of air quality, safety, and human services transportation, on which DOTs have shown leadership for many years. The case studies and related analysis reflect this holistic approach and focus on the emerging health topics that are not existing core responsibilities for DOTs. The case studies are not meant to comprehensively document all health-related transportation initiatives in each State, which is beyond the scope of this focused white paper.

This chapter:

- Describes how the project team selected five DOTs and developed the content for the case studies;
- Presents an expanded planning and health framework to help understand how DOTs can integrate health into the statewide planning process;
- Provides a synthesis, consisting of themes and examples, to describe how case study DOTs are successfully considering health; and
- Introduces and provides the five case studies.

Methodology

The project team reviewed existing literature (Appendix A) and solicited input from key stakeholders to identify an initial list of candidates for case studies (Appendix B). Stakeholders who were consulted included staff from the National Association of Development Organizations (NADO), the National Association of Regional Councils (NARC), the American Public Health Association (APHA), and the Safe Routes to Schools (SRTS) Coalition. The initial scan yielded 10 DOTs focusing on at least one health topic (food, active transportation, human services, or other) through their transportation planning, programs, or partner coordination. The project team then conducted follow-up research using these States' published planning documents and online materials. This section summarizes common characteristics among the 10 DOTs identified and describes how the five case studies were selected.

DOT Health Topics and Activities

Active transportation—walking and bicycling—is the most prevalent health focus for DOTs and their partners based on the 10 DOTs reviewed. Many of the DOTs reviewed include a range of health topics as some part of their activities and collaborations, including:

- Active transportation (10)
- Access to healthcare (7)
- Health impact assessments (HIAs) (5)
- Access to healthy food (3)

DOT strategies for implementing a health focus, all of which are featured in the case studies and discussed below, include:

- Intra-agency and interagency partnerships;
- Statewide transportation policies such as Complete Streets;
- Integration of health priorities and criteria into the statewide planning process;
- Leverage of SRTS and other Federal programs and funding to support active transportation and other health goals; and
- Technical assistance and funding for municipal, MPO, and rural transportation planning that consider health.

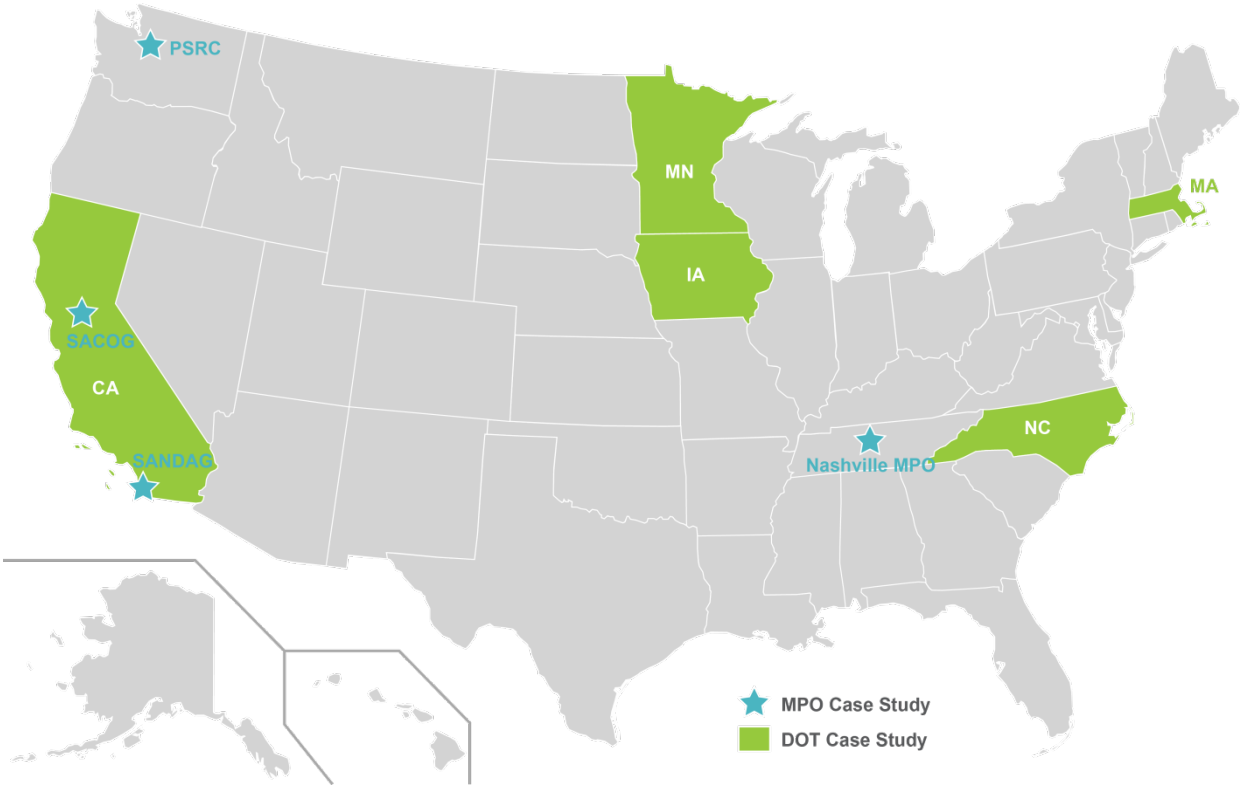
The scan demonstrates that DOTs are largely pursuing the same health topics as their MPO peers, which were the focus of the project team's previous study. And DOTs are doing so in a way that reflects their more numerous responsibilities for policy, coordination, and technical assistance. DOTs are typically larger organizations with a wider set of responsibilities, including but not limited to, statewide transportation planning. As a result, the DOTs studied pursue public health considerations through a variety of activities and programs reflecting their broad role in shaping the statewide multimodal transportation system.

Case Study Selection Process

The project team used the data collected during the research scan to select five case studies that provide a diverse picture of how DOTs and their partners are considering health in the statewide planning process. The project team identified Caltrans, Iowa DOT, MassDOT, MnDOT, and NCDOT based on the following criteria:

- The type and breadth of health-related activities pursued;
- Institutionalization of health considerations through statewide initiatives and partnerships;
- Level of DOT involvement in statewide health activities; and
- Geographic diversity.

Figure 4: Map of case study DOTs. Case study MPOs from MPO health white paper are highlighted in blue.



Case Study Approach

After the project team finalized the list of case studies, it contacted the respective DOTs and scheduled structured discussions on each State's health focus and related activities (see Appendix C for discussion questions). In some cases, DOTs invited representatives from other agencies, such as State health departments, to participate in the initial or separate discussions. The project team asked participants about their agency's perspectives and activities related to health and transportation. This included the agency's definition of health as it relates to its transportation mission, motivations for considering health, health partnerships, and how health is related to statewide planning. The project team conducted follow-up conversations as necessary for additional information and clarification. Each case concludes by summarizing the ongoing evolution in how the State is considering health, highlighting distinguishing characteristics of the State's approach, and listing a summary timeline of key events.

Synthesis and Framework

Below, the project team applies and adapts the health and transportation planning framework (See Chapter 1, Figure 1) to the DOT context and then provides themes and examples to support the framework. The cross-cutting themes are organized by the areas identified in the framework: motivations, early actions represented by partnerships and programs, and structural changes.

Expanded Health and Transportation Planning Framework

Based on the five DOT case studies, the project team determined that the health and transportation planning framework developed in the MPO white paper (see Chapter 1, Figure 1) needs to be expanded to reflect the many DOT activities and partners that contribute to how the statewide multimodal system can consider health.

The expanded framework, as presented in Figure 5, highlights potential partners that can motivate the inclusion of health in transportation planning (grey box) as well as partners that can help execute this goal through early actions (blue box). DOTs (white box) play a central role in working with these partners and incorporating health considerations into transportation decision-making. It does so directly through the statewide transportation planning process, which is analogous to the metropolitan area process that is the focus of the MPO framework. But DOTs are also implementing their health focuses through established relationships with State and local actors such as MPOs and municipal governments (green box, right). The statewide transportation planning process, technical assistance to local communities, and other statewide plans and policies are all important ways DOTs manage the statewide multimodal system (green box, bottom).

Figure 5: DOT Health and Transportation Planning Framework.

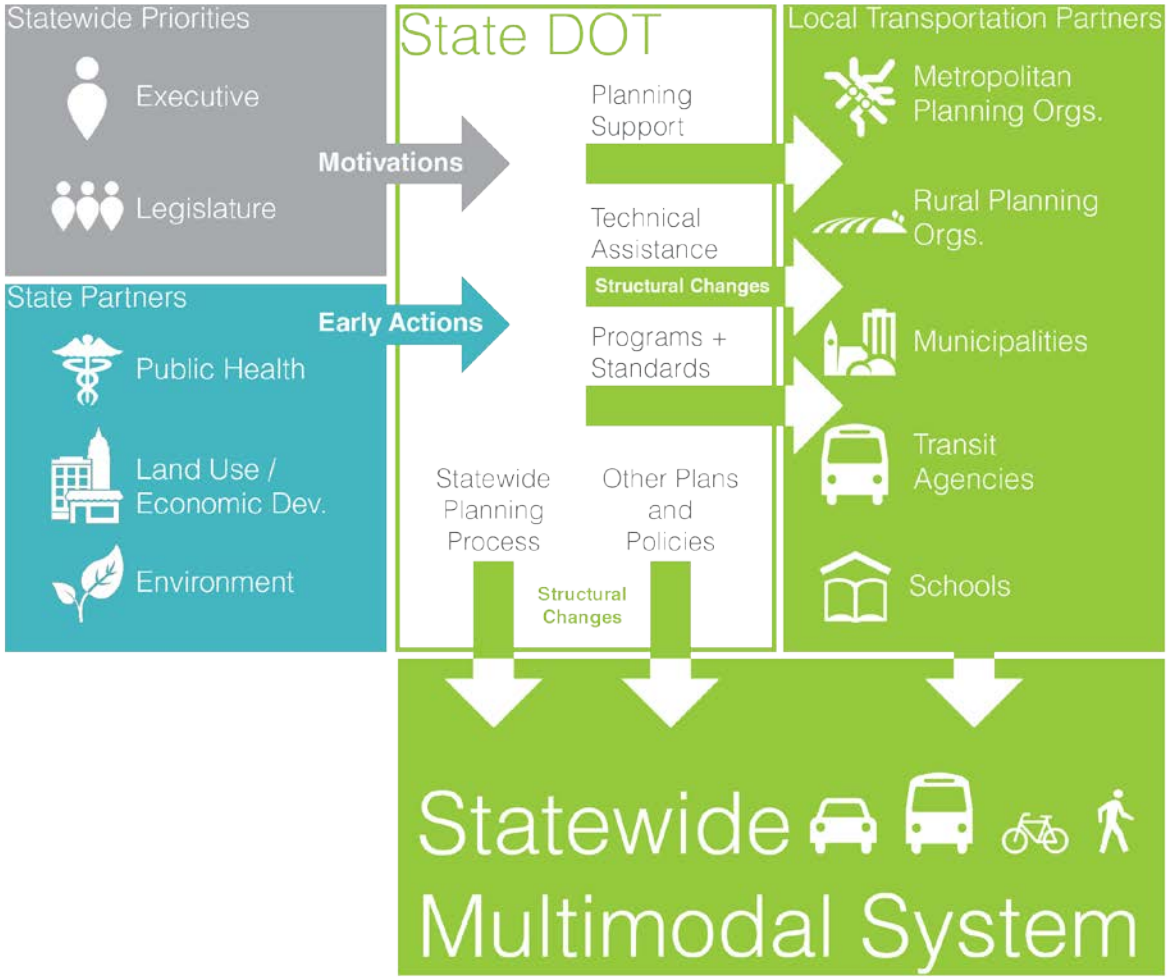


Image Credits--Executive and Legislature: Michal Beňo, from The Noun Project; Public Health, Environment, Schools: OCHA AVMU; Land Use/Econ Dev:Pete Fecteau, from The Noun Project; Rural Planning: Evan Caughey, from The Noun Project; Municipalities: Thibault Geffroy, from The Noun Project;

Motivation

Statewide policies, legislation, or initiatives often form the foundation of how a DOT focuses comprehensively on health. These external influences, when combined with the priorities of the DOT, can shape how DOTs approach health in an explicit and comprehensive manner, including which of the broad range of potential health topics the DOT focuses on; the partners with which it engages; and its methods for integrating health into transportation decision-making.

DOTs are responding to different forms of policy direction outlining health and other related statewide priorities. Some policies may not directly address health but may still be a foundation for the integration of health considerations into the statewide multimodal system.

- Executive-level support for general interdepartmental collaboration bolstered **North Carolina's** Healthy Environments Collaborative (HEC) between NCDOT and other State agencies including the State Department of Health and Human Services (NCDHHS).
- In **Massachusetts**, the legislature directed MassDOT to consider health in transportation. In other case study States, DOTs are responding, in part, to State goals to improve statewide health and control healthcare costs.
- **Caltrans** actively participates in the Health in All Policies Task Force, a group established by executive order in February 2010 to coordinate State agency activities that promote health and sustainability goals in California.

DOTs are tailoring their health focus to complement other State and system-wide goals. There is no one-size-fits-all approach to considering health in statewide transportation planning, and a health focus will not supplant existing DOT priorities.

- In **North Carolina**, the HEC includes the State Department of Commerce and considers how health and transportation investments can promote economic competitiveness.
- This flexibility also extends to the activities of different DOT divisions, including those without direct planning responsibilities. Health activities at the **Iowa DOT** Office of Public Transit, for example, have grown from the agency's longtime work providing medical transportation and trips for the elderly.
- In States such as **Massachusetts and California**, where there are strong DOT sustainability policies and programs, health is considered a key component of these wider sustainability efforts.

A health focus can engage the public and highlight related goals such as safety, air quality, or sustainability. Health matters to members of the public, and DOTs can pursue a health focus to ensure the statewide multimodal system is meeting the needs of its users and communicating with these stakeholders.

- **MnDOT's** Minnesota GO initiative collected community feedback and developed a vision for the State that includes health as a priority. This information helped inform the development of MnDOT's Statewide Multimodal Transportation Plan.
- Similarly, **MassDOT** staff members identified the agency's health focus as an important way the DOT engages with its customers.

Partnerships

DOT partnerships with other organizations such as local governments, other State agencies, community stakeholders, and the USDOT are important to effectively develop and manage the statewide multimodal transportation system. Similarly, every case study DOT is working with health and transportation partners at multiple geographic scales to implement its health focus in a way that is informed, efficient, impactful, and consistent with State and local priorities.

> "Partnering to work together on mutual goals and projects builds trust and leads to learning one another's cultures. Mutual understanding is an important area in which to make progress."

DOTs are building effective partnerships with their corresponding State public health agencies. The common geographic area of responsibility and shared executive leadership and policy direction are natural foundations for these relationships, which can range from informal collaboration to ongoing, structured partnerships. DOT-health agency partnerships can enable data sharing, coordination of local technical assistance, and joint leveraging of State and Federal funds.

- The Healthy Transportation Compact in **Massachusetts** and the HEC in **North Carolina** are examples of DOTs collaborating with their State health agencies through wider executive partnerships that include the joint consideration of public health and transportation.
- **MnDOT** works regularly with the Minnesota Department of Health (MDH) in coordinating activities, whether for promoting walking and bicycling; providing input for MnDOT's visioning effort; or identifying ways to expand technical assistance to MDH grantees that are responsible for transportation activities.

Health partners and their constituents also benefit from working with DOTs. Partnering on transportation-related programs and plans can help public health agencies meet health goals such as obesity reduction, prevention of chronic disease, and improved access to healthcare.

- The Iowa Department of Public Health worked with the **Iowa DOT** Office of Public Transit to create a brochure to educate health professionals about transit options that can assist their patients in traveling to appointments.
- In **California**, data sharing between Caltrans and the California Department of Public Health (CDPH) has allowed CDPH to use household travel survey data to measure increased physical activity from transportation.
- **MnDOT** has supported MDH in obtaining grant funding, which helped establish a MDH SRTS coordinator, whose role, with additional grant funding, expanded to a physical activity coordinator position.

DOTs and State health agencies are coordinating assistance to local communities and jointly leveraging existing resources. This collaboration leads to a more efficient and effective use of Federal and State funds and resources to meet the goals of both agencies.

- State public health agencies in **Massachusetts**, **Minnesota**, and **North Carolina** are using Centers for Disease Control and Prevention (CDC) Community Transformation Grants (CTGs) to fund programs that help local communities improve health by encouraging healthy behavior such as physical activity and healthy eating. DOTs in these States are coordinating with the CTG programs to deliver their own State and USDOT-funded technical assistance, outreach, and programs.
- DOT and State health agency leveraging has particularly enhanced SRTS, data collection, and staff support for local active transportation efforts. For example, **NCDOT** is providing a grant to the NCDHHS to administer regional SRTS support staff that coordinate between schools, local planners, and NCDHHS's own CDC-funded healthy living initiative.

DOTs have drawn upon research to inform and advance their understanding of health, and have been particularly successful in partnering with academic institutions.

- **MnDOT's** research with the University of Minnesota on the relationship between quality of life and transportation resulted in agency discussions about how to address health in transportation activities.
- **NCDOT** and its HEC partners worked with the University of North Carolina-Chapel Hill and North Carolina State University to identify effective opportunities for enhancing health and transportation coordination in the State.

Programs

Similar to MPOs, which are explicitly responsible for and focused on the metropolitan area transportation planning process, DOTs are responsible for the statewide planning process. DOTs also manage and participate in a wide variety of programs and other initiatives that, in coordination with the planning process, enhance the statewide intermodal network. The inclusion of health considerations in these programs and an established strategy that outlines the role of health in DOT activities can be useful tools in implementing a public health focus. These efforts can bring a range of health-related programs into the planning process.

> "Part of the strategy is to raise awareness and help communities build capacity so that they choose to implement complete streets solutions and healthy transportation options, taking advantage of MassDOT programs and resources"
>
> - MassDOT staff member

DOTs can create a health policy to outline how health fits into existing DOT priorities, activities, and responsibilities. DOTs can also incorporate health into wider sustainability or livability directives.

- **MassDOT's** GreenDOT Directive and Implementation Plan, for example, consider health in coordination with other State sustainability priorities and outline how health fits in with these complementary goals.
- **North Carolina** methodically approached the implementation of its emerging consideration of health through a change in its mission statement and the adoption of a health policy. The policy identifies the three broad agency activities NCDOT sees as crucial to its health focus: safety, exposure, and physical activity.

DOTs are considering health across their wide range of activities and responsibilities. Individual DOT offices or divisions will often implement a health focus in different ways depending on the nature of their responsibilities and particular work.

- At **Iowa DOT**, the Office of Public Transit and the Office of Systems Planning are focusing, respectively, on healthcare access and active transportation, the health objectives most relevant to each office's role in the statewide multimodal system.
- Similarly, **Caltrans** emphasizes how health is relevant for a broad range of its responsibilities and existing priorities, including air quality, active transportation, and safety. In addition, the agency is exploring how health outcomes are related to smart growth and climate change adaptation.

Health considerations and partnerships are expanding the audience and impact of existing DOT programs such as SRTS. Every case study DOT has leveraged health considerations to integrate SRTS safety issues into the local and statewide planning process, increase local access to youth health resources, or collect data to guide active transportation decision-making. State and local health partners are crucial in these efforts, and SRTS can be a natural and efficient point for collaboration between DOTs and their health partners.

- In **Iowa,** the Northeast Iowa SRTS Program connected the regional Food and Fitness Initiative's existing physical activity and nutrition efforts with Iowa DOT resources and capacity building networks. This allowed the Program to better integrate youth activity needs with local planning.
- **MassDOT's** expansion of the MySchoolCommute.org travel survey tool will allow the tool to become a part of the performance evaluation for SRTS as well as the State health agency's Mass in Motion program.
- In **Minnesota**, MnDOT recently completed a mapping exercise to identify how children travel to schools adjacent to the State highway system, which will help shape the DOT's walking and bicycling efforts.

Structural Changes

DOTs influence transportation planning in multiple ways. They conduct the federally defined statewide transportation planning process, including development of the Statewide Long-Range Transportation Plan (SLRTP) and Statewide Transportation Improvement Program (STIP) as well as other associated documents. DOTs also develop other important transportation plans, such as modal, congestion, and safety plans; set statewide planning policies; and provide guidance, oversight, and technical assistance for local and regional transportation planning.

DOTs support local and regional planning and are assisting local transportation partners to consider public health in their decision-making. These partnerships with municipalities, regional planning organizations, and others enhance the statewide multimodal transportation system and complement the statewide transportation planning process. Local assistance activities relevant to health can include guidance in developing local transportation plans, grants, and technical assistance.

- In **North Carolina**, for example, NCDOT held a broad stakeholder workshop to develop a methodology to support communities interested in integrating health into their required local Comprehensive Transportation Plans.
- **Caltrans's** grants for related statewide goals such as sustainability and environmental justice can support health in local transportation planning. All case study DOTs also use SRTS grants to coordinate with partner communities.
- Finally, Complete Streets and HIA workshops in **Massachusetts** are an example of DOTs providing tools to local transportation planners and informing communities about the full range of available DOT and partner resources.

DOTs are outlining health-related goals and actions in State planning documents and processes other than the SLRTP and STIP. Including public health in State vision or modal plans can help DOTs consider health in decision-making on transportation projects.

- **NCDOT's** State bicycle and pedestrian plan--WalkBikeNC--and **MnDOT's** Statewide Multimodal Transportation Plan both include health as a key planning criterion. The Minnesota GO vision statement also includes a reference to health to indicate the importance it plays in the State's transportation vision.
- Similarly, **MassDOT's** GreenDOT Policy Directive outlines healthy transportation as an important DOT goal. MassDOT drew from these goals to develop policies with implications for the design and planning of transportation projects: the GreenDOT Implementation Plan, the Healthy Transportation Policy Directive, and the State target to triple bicycle, pedestrian, and transit mode share by 2030.

DOTs are considering Health Impact Assessments (HIAs) in targeted, strategic ways. None of the DOTs in the case studies are currently applying HIAs as a project-level requirement. Instead, some are drawing lessons from the use of HIAs as an optional step and source of information in the project-planning or policy-development processes. These HIAs can help build relationships with public health partners and may provide insight into how health can be considered in statewide transportation planning, for example, through health-related project selection criteria.

- In **North Carolina** and **Massachusetts**, small HIAs of policy decisions have helped DOTs, policymakers, and partners communicate and consider the health effects of transportation priorities, design, and decision-making.

Case Studies

The five case study States and their DOTs differ in a number of ways. Table 1 provides an overview of some of these general characteristics, with the qualification that the context, organizational structure, and definitions behind these data points also vary, so comparisons across States have limited validity. These differences influence how the DOTs operate.

Table 2 provides an overview of the activities and key themes featured in each case study. The table is not a checklist of expectations, and does not necessarily capture the full range of evolving DOT policies and programs.

Table 1: Case Study State Characteristics.

State	Population (2010 Census, in millions)	Number of DOT Staff[25]	Number of MPOs[26]	Miles of Public Roads Owned by State Highway Agency[27]
California	33.9	19,000	19	15,152
Iowa	3.0	2,800	9	8,892
Massachusetts	6.5	10,000	10	2,995
Minnesota	5.3	4,800	7	11,893
North Carolina	9.5	14,000	17	79,466

[25] DOT websites or other State government publications.
[26] DOT MPO Database. http://www.planning.dot.gov/mpo.asp.
[27] http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/state_transportation_statistics/index.html.

Table 2: Summary of Case Study Activities. Activities highlighted in green are described in the "Highlight" column.

Activity	Caltrans	Iowa DOT	MassDOT	MnDOT	NCDOT	Highlight
Executive Health Initiative	X	x				The governor's public-private Healthiest State Initiative seeks to make Iowa the healthiest State in the country by 2016.
Legislative Requirements			x			The Massachusetts legislature established the inter-agency Healthy Transportation Compact (HTC) and directed MassDOT to work with private, State, and Federal partners as part of the "establishment of a healthy transportation policy."
Complementary State Goals (e.g., Sustainability, Serving Seniors, etc.)	X	x	x	x	x	Interest in and responsibility for health at Caltrans spans many priorities and initiatives such as active transportation, reduced air pollution, reduced greenhouse gas emissions, Complete Streets implementation, highway safety improvement planning, and SRTS.
DOT – State Health Agency Partnership	X	x	x	x	x	MnDOT regularly works with the MDH in coordinating activities, whether it is promoting walking and bicycling, providing input for MnDOT's visioning effort, or identifying ways to expand technical assistance to MDH grantees that are responsible for transportation activities.
Formal, Broad Multi-Agency Health Partnership	X		x		x	Caltrans actively participates in the Health in All Policies Task Force, a group established in February 2010 under State Executive Order S-04-10, to coordinate State agency activities that promote health and sustainability goals in California.
Research and Partnerships with Academic Institutions	X			x	x	MnDOT partnered with the University of Minnesota on a study and survey to explore the relationship between quality of life and transportation in Minnesota. These results spurred agency discussions about how to address health in transportation activities.
SRTS – Health Coordination	X	x	x	x	x	An Iowa DOT grant in Northeast Iowa funded an SRTS liaison to coordinate between the rural planning organization, local municipalities, and a key local health partner on promoting rural youth health through physical activity.

Activity	Caltrans	Iowa DOT	MassDOT	MnDOT	NCDOT	Highlight
Assistance to Local Partners Incorporating Health into Transportation Planning	X	x	x	x	x	NCDOT supports rural and metropolitan planning organizations seeking to include health as a planning goal through activities such as the 2012 workshop that outlined a strategy for considering health in rural/metropolitan planning documents.
Leverage Federal Funding	X	x	x	x	x	The Massachusetts Department of Public Health's Mass in Motion program, partially funded through CDC, helps communities create healthy eating and active living strategies. These can include Complete Streets or SRTS. MassDOT coordinates with communities on SRTS options and can reference these health strategies when planning transportation projects with local communities.
Involvement in Health Impact Assessments			x		x	NCDOT has collaborated on a project-level HIA and is including a series of illustrative HIAs of various project types in different geographic settings (e.g., corridor plans or street-scaping in urban, suburban, or rural locations) in its WalkBikeNC Plan.

Case Study: California Department of Transportation

The California Department of Transportation (Caltrans) considers health in many ways, from grant programs to technical assistance. Current activities focused directly and explicitly on health are still in formative stages. These activities are often focused on regional and local implementation and are less visible within the overall statewide transportation planning process. With support from long-standing partnerships with health agencies and active transportation stakeholders, Caltrans is increasingly looking at ways to expand how it integrates health perspectives into its policies, programs, and approach to the transportation planning process. Representatives from Caltrans and the California Department of Public Health (CDPH) stated that health considerations are evolving in transportation from informal and implicit to more formal, comprehensive, and explicit.

Background

Given the size and complexity of California, Caltrans' transportation planning activities focus on interregional transportation and programs that complement and assist regional, local, and Tribal governments through statewide policy, guidance, technical assistance, and grant funds. Structurally, Caltrans' transportation planning functions include air quality, while other environmental functions are housed within the agency's Project Delivery division. Those health-related activities are not addressed in this paper.

Health in Planning Activities at Caltrans

In a broad sense, planning-related functions occur within several Caltrans divisions. Within these divisions, various offices have responsibilities for statewide transportation planning, relationships with Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Agencies, traffic operations, local assistance, and multimodal and freight planning. These offices address health-related matters differently depending on their roles and responsibilities. Many of the activities address and promote health even if the offices do not specifically identify health as a separate area of emphasis or high-level goal. The divisions and offices provide policy direction and guide the practices and activities of Caltrans' 12 district offices across the State.

Wide dispersal of interest in and responsibility for health across Caltrans makes the level of involvement in health-related initiatives subtle but prevalent; such initiatives include support for active transportation and reduced air pollution, Complete Streets implementation, highway safety improvement planning, and Safe Routes to School (SRTS). One example is Caltrans' Active Transportation and Livable Communities (ATLC) Group, which is made up of Caltrans management and external stakeholders and advocates. The ATLC group discusses and recommends solutions and action items pertaining to active transportation and livable

communities concepts. Caltrans also leads a Bicycle Advisory Committee, which encourages the implementation of safe bicycle networks and facilities.

Consideration of health in transportation at the statewide level is supported by high-level policy direction that both considers health directly, and as a sub-topic related to other statewide goals (e.g., through grant programs targeted at environmental justice communities). One of the most prominent examples of Caltrans' participation in health activities is its involvement as a member of the Health in All Policies (HiAP) Task Force, established in February 2010 by executive order to encourage a collaborative approach to improving health and sustainability in California. Under the terms of the executive order, the Strategic Growth Council (SGC), itself established under Senate Bill (SB) 732 in September 2008, established the HiAP Task Force to coordinate State agency activities that promote public health, and the SGC's sustainability goals, which include: increasing the availability of affordable housing, meeting the State's climate change goals, and improved air and water quality, among others.

> "Public health agencies look at opportunities within transportation and vice versa. For example, the HiAP Task Force provides an opportunity to have exploratory dialogues, develop collaborative relationships, and identify decision points. Otherwise, it would be daunting to map out decision points in health and in transportation, and we could not achieve goals on our own. The HiAP Task Force builds on Caltrans's work on Safe Routes to School, Complete Streets, and injury prevention."
>
> - California Department of Public Health staff member

SB 732 is one of several recent bills that the California legislature passed to support sustainable land use and transportation strategies and, indirectly, health. Assembly Bill 32 focuses on improving air quality and requires the State to lower greenhouse gas emissions (GHG) to 1990 levels by 2020. SB 375 aims to coordinate regional planning activities related to land use and transportation and reduce GHG emissions to encourage sustainable communities. SB 391 further requires the development of a statewide transportation plan that integrates considerations related to mobility and accessibility, connectivity, environmental protection, and quality of life. Although health may not be explicitly stated in all of these statewide policies, Caltrans and its partners see it as a key component of their activities; health objectives emphasize increased, safe, and active transportation. These statewide initiatives in turn guide and support a broad range of transportation and health efforts by Caltrans, CDPH, and other State agencies engaged in cross-cutting coordination.

Definition of Health

In the context of the various statewide initiatives, Caltrans and health entities recognize the need to link health outcomes to transportation, including encouraging ways to reduce collisions and increase walking and bicycling. Caltrans and CDPH have increasingly developed programs and participated in activities that address both infrastructure and public health. As mentioned earlier, health is often implicit in Caltrans' activities. For example, Caltrans has a pilot study under way in two locations in the State to test the Smart Mobility Framework. The study will

demonstrate use of smart growth principles, guidance, and performance measures that may result in health-related outcomes. In addition, Caltrans is supporting health outcomes related to climate change adaptation and plans to continue to focus on these outcomes in the future.

Caltrans views one of its roles as helping to provide accessible, affordable, healthy, and safe transportation options, including walking, bicycling, and public transportation. This activity typically involves close collaboration with MPOs, other regional planning organizations, counties, and cities. Many of Caltrans' current initiatives advance this focus on supporting healthy transportation options.

Activities

Partnerships

Cross-cutting partnerships are a key component of Caltrans' activities linking health and transportation planning. The breadth of these partnerships, across a broad range of State agencies, supports much of what Caltrans has accomplished and what it might accomplish in future related transportation and health activities. These partnerships are significant in the development and advancement of transportation systems that contribute to health.

> "From a public health perspective, there are lessons learned and incredible value at the population level from State-level guidance, framing, and leadership, and associated development of lively and appropriate tools and technical assistance. Caltrans and CDPH have collaborated in those ways in a number of instances. This has helped to avoid reinventing the wheel and to accelerate dissemination and adoption of these tools and best practices."
>
> - California Department of Public Health staff member

Caltrans' ATLC group includes representatives from Caltrans management and external stakeholders such as State agencies (e.g., CDPH and the California Department of Housing and Community Development) and advocacy organizations (e.g., the California Bicycle Coalition, California Transit Association, and Rails-to-Trails Conservancy). Formed in 2000, the ATLC group meets quarterly to review Caltrans' policies and programs and provide input on incorporating active transportation measures. Items for discussion, such as Caltrans' Complete Streets Implementation Action Plan (CSIAP) and related tasks, involve activities that support healthy communities.

Through membership on the HiAP Task Force, Caltrans has built a strong partnership with CDPH, which facilitates and staffs the task force. Caltrans also works with 17 other State agencies, departments, and offices on the HiAP Task Force. The California Endowment and the Public Health Institute (PHI), two nonprofit organizations, have also provided funding support for the HiAP Task Force. CDPH, through its Office of Health Equity, partners with PHI to provide staffing for the HiAP Task Force through funds provided primarily from The California Endowment, CA4Health, and Kaiser Permanente Community Benefit. There is currently no dedicated government funding to support the HiAP Task Force; members provide essential in-kind time to support the task force's activities.

In 2010, the HiAP Task Force developed a report for the SGC that recommended policies, programs, and strategies to promote health and sustainability activities in California. In 2011, with task force and stakeholder input, the SGC identified 11 of the recommendations as priorities for near-term implementation. The task force developed implementation plans for each priority recommendation that identified ways to achieve them. For example, the active transportation implementation plan builds upon existing efforts by Caltrans and others to ensure that all California residents have options to walk, bicycle, or take public transit to their destinations. Caltrans is participating in most of these strategies.

One strategy was to hold a workshop on Complete Streets for State agencies. The HiAP Task Force sponsored the Complete Streets: Designing for Pedestrian and Bicycle Safety Orientation Workshop in partnership with the Healthy Transportation Network. Caltrans contributed to the development of the workshop, which was attended by staff from a broad range of State agencies. The workshop included presentations and a walking tour around the workshop neighborhood to underscore, through personal experience, how the built environment impacts walking and bicycling.

Another partnership example that highlights the co-benefits for health and improved transportation is one initiated from the health sector, the recent Let's Get Healthy California initiative. In 2012, by Governor Jerry Brown's executive order, the California Health and Human Services Agency established the Let's Get Healthy California Task Force to develop a 10-year plan for improving the health of Californians, controlling healthcare costs, promoting personal responsibility for health, and advancing health equity. In December 2012, the task force issued its final report, which includes joint health and transportation targets for increasing active transportation for both adults and youth. Assessing progress in meeting these targets relies on data provided by California's Household Travel Survey.

Active transportation, which supports healthy activities like walking and bicycling, is a primary consideration for Caltrans' planning work. Source: Caltrans

A walkabout during the May 2012 Complete Streets workshop sponsored by the Health in All Policies Task Force in partnership with the Healthy Transportation Network. Source: California DPH

"Caltrans' statewide activities complement and support health-promoting transportation planning activities at the regional and local levels."

- Caltrans staff

Programs

Caltrans is involved in a range of programs that provide opportunities to promote health-improvement activities.

Several grant programs support the consideration of health in the transportation planning process. Community-Based Transportation Planning and Environmental Justice grants are awarded on a competitive basis to local communities for transportation planning and public outreach. These grants support eligible activities such as increased walking and bicycling, transit-oriented development, and studies and plans related to topics such as health equity, transportation, and Complete Streets.

SGC also administers two other planning grant programs, Sustainable Communities and Urban Greening, which encourage practices related to transportation, land use, economic development, and conservation to improve Californians' quality of life. Caltrans participated in a multiagency effort to develop the original grant criteria for the two programs and has since provided in-kind services to assist with grant reviews as needed. The programs demonstrate a key element of many of Caltrans' activities—that of collaboration and partnership with a range of agencies to support effective health outcomes.

Caltrans' Division of Local Assistance oversees many of the agency's funding sources, including SRTS funding. The division currently administers two separate SRTS programs. The first—a State-legislated program known as SR2S—provides funding for infrastructure projects located near schools. The second is focused on Caltrans' participation in the Federal SRTS program, which supports both stand-alone infrastructure and non-infrastructure projects close to schools. Non-infrastructure projects are projects that support educating youth on safe bicycling and walking and programs that encourage more students to walk or bicycle to school. Caltrans also funds a statewide SRTS Technical Assistance Resource Center, which provides technical assistance to non-infrastructure projects across the State. The current contract is funded as a joint partnership between the University of California-San Francisco and CDPH. The contract allows Caltrans to focus on encouraging activities that support more active and safe transportation and that serve students in low-income and underserved schools and communities based on CDPH's existing connections, data, and analyses.

As an agency, Caltrans also works to promote health-related activities through its Complete Streets policies. In 2008 Caltrans issued an agency directive encouraging transportation improvements that allow for safe mobility for all users. To further its efforts, in 2010, Caltrans developed the CSIAP, which supports integrated multimodal projects that consider the safety and mobility needs of all users. Caltrans' statewide long-range transportation plan, the California Transportation Plan (CTP), and the CSIAP mutually reinforce each other. The CTP is listed in the CSIAP, and the concept of Complete Streets is fully incorporated into the CTP. The CTP 2040, now in development, will feature Complete Streets as one of Caltrans' programs.

In many cases, Caltrans has found that some of the well-established goals of transportation systems may be similar to the mobility goals of active transportation, as both look at ways to promote how people move safely over roads, interchanges, and other transportation features. Caltrans' relationships with local agencies and municipalities are helping to foster a mutual

understanding of the role of active transportation and how these considerations can be integrated into transportation projects through comprehensive multimodal planning. Caltrans regularly works internally and with regional partners to perform studies related to bicycle and pedestrian travel, goods movement, and local air quality impacts.

Integration of Health into Transportation Planning Process

Many offices within the Caltrans Division of Transportation Planning play a role in the State, regional, or local transportation planning processes and participate in some level of integration of health considerations in statewide transportation initiatives. The degree of involvement often varies among offices. Several offices are very active, and it is their activities that are highlighted here.

Caltrans works directly with its partners to manage and promote the State's regional transportation planning processes. It coordinates the integration of Federal, State, and regional initiatives; much of its work focuses on ways to promote partnerships, visible through activities such as the HiAP Task Force and its implementation plans. Caltrans district offices are well-connected with regional partners; these partnerships vary by region and continue to grow.

Caltrans also monitors State and national research activities related to transportation and public health. As an offshoot of this, Caltrans funded a study of tools used for assessing health effects. Caltrans staff also drafted two National Cooperative Highway Research Program (NCHRP) proposals related to transportation and public health, on tools and on mitigation, respectively. While the NCHRP proposals were not selected for funding, Caltrans is considering other potential research proposals as it continues to follow research developments by others. Caltrans values the role of research in closing knowledge gaps such as those found when addressing the linkages between transportation and health.

Caltrans is responsible for directing and coordinating State projects for the Regional and Interregional Transportation Improvement Programs. As part of this effort, each Caltrans district develops Transportation Concept Reports (TCRs). Updated every five years, the TCRs discuss current conditions of a transportation corridor and support use of long-term planning concepts. Caltrans recently updated its TCR guidance to incorporate Complete Street policies, support bicycle and pedestrian improvements, and consider environmental impacts, particularly air quality.

A new goods movement plan, to be called the California Freight Mobility Plan, is also in preparation. The plan will be consistent with the provisions in the Federal Moving Ahead for Progress in the 21st Century Act for State freight plans. Policy development for the plan is being guided by a Freight Advisory Committee, whose members represent a diverse cross section of public and private sector freight stakeholders, including CDPH and other stakeholders representing freight rail, seaports, shippers, industry workforce, health, and the environment. Development of the plan will include opportunities for public input; stakeholder outreach and public participation efforts will include regional focus group meetings with community action groups known to have concerns about freight-related impacts. These long-range planning efforts represent significant, though implicit, actions that support healthy communities.

Active transportation is another primary consideration for Caltrans' planning work. Active transportation supports healthy activities such as walking and bicycling. Since Caltrans instituted the department-wide Complete Streets directive, the agency has completed work that mainstreams bicycle and pedestrian considerations into transportation planning activities and projects at the local level. The Caltrans Division of Traffic Operations developed the Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians. The guide advises how projects could feature active transportation elements and bicycle and pedestrian improvements. While health considerations may be implicit in these efforts, the focus on active transportation demonstrates a connection to and support for health that carries through to transportation planning, design, and operations activities, and could set the stage for a more explicit future focus.

Finally, Caltrans is integrating health considerations into statewide transportation planning efforts through the CTP. The CTP that was updated in 2007 addressed health in terms of environmental and traffic safety risks and the promotion of the California Blueprint for Walking and Biking (2002). The 2007 CTP included a strategy to educate youth on the health and air quality benefits of traveling by bicycle or foot. In the next update, Caltrans is planning an integrated, connected, and resilient multimodal system that will support a prosperous economy, human and environmental health, and social equity.

Evolution of Activities

Caltrans continues to move toward policy and programmatic changes to incorporate health into transportation planning and decision-making. As mentioned above, Caltrans is currently working on the next update of the CTP. Using three pillars of sustainability (prosperous economy, social equity, and quality environment), the CTP will offer a statewide perspective on ways to address future mobility needs and transportation systems through 2040. A draft of the CTP 2040 is expected to be completed by December 2015 and will address the requirements of SB 391, which calls for a State-level transportation framework, or California Interregional Blueprint (CIB), that integrates transportation and land use considerations. The CIB will complement MPOs' activities in developing Sustainable Communities Strategies under SB 375.

In addition, Caltrans is looking to the future by exploring health outcomes related to climate change adaptation. The agency participates in the multiagency Heat Adaptation Workgroup, a subcommittee of the Public Health Workgroup of the California Climate Action Team, which coordinates statewide efforts to implement global warming emission reduction programs and California's Climate Adaptation Strategy. In October 2013, the Heat Adaptation Workgroup released "Preparing California for Extreme Heat: Guidance and Recommendations," to which Caltrans contributed input, reviews, and edits.

Caltrans recognizes the challenges of addressing new issues, particularly those related to health, and is evaluating ways to highlight existing health-related activities. In many cases, Caltrans is performing health-improvement actions that are not always conveyed as being explicitly, and directly, connected to health. Caltrans noted there is a need for transportation and health stakeholders to engage in dialogues with each other to foster understanding of the transportation planning process and how health can be integrated into the stages of this

process; the agency continues to work with its partners to explore ways to encourage this awareness and integration.

Conclusions

In the process of encouraging active transportation and health-improvement activities, Caltrans is strengthening its partnerships with other State entities. These collaborative efforts are based on agencies' recognition of mutual interests and the expectation that cross-sectoral collaboration will produce results that benefit each partner agency. Communication between transportation and health organizations continues to develop. Focusing on ways to support innovation and research related to transportation and health is helping to bring these stakeholders together and supports best practices that link these fields and advances the State's broad, comprehensive goals. The partnership between Caltrans and CDPH continues to demonstrate how collaboration between transportation and health agencies can achieve effective results.

- **A State DOT can promote health within the context of its existing mandates.** Existing statutes, budgets, regulations, and other mandates provide an existing framework within which State agencies can promote good health in a variety of ways.
- **Health-improvement activities do not need to be a central, top-down function.** Caltrans accomplishes much in the way of promoting health in transportation planning by incorporating health-related planning throughout its policies, programs, and offices.
- **Health can be a significant element of transportation agencies' activities, even when it is not explicitly identified as a goal**. While many of Caltrans' activities may not specifically identify health, Caltrans' planners still address health principles and promote health outcomes in many programs. For example, support for walking and bicycling in the multimodal system through programs such as SRTS and Complete Streets encourages healthy lifestyles and a healthier environment. These activities provide Caltrans with a strong forward-looking focus on continuing the integration of health into transportation activities; Caltrans' CTP 2040 and Smart Mobility Framework are two such activities that demonstrate how health can be addressed in transportation.
- **Collaboration in cross-sectoral workgroups on health-related tasks builds trust and fosters additional collaboration.** Caltrans' participation in the HiAP Task Force has further expanded existing ties with CDPH and with other participating agencies. The relationships that have formed and strengthened have led to further mutual assistance on health-improvement activities.
- **"Learning each other's language" is important for successfully considering health in transportation planning processes.** The transportation and health sectors may not initially understand each other's goals, focus areas, assumptions, and planning and decision-making processes. By working together to advance mutual goals through common activities (e.g., walking and bicycling both to provide transportation alternatives and to improve health), the agencies begin by learning each other's language and policies, and move toward common projects. This form of interaction

supports Caltrans and CDPH's partnerships on an increasing range of state-level guidance, policy, and technical assistance initiatives.

- **Partnerships between transportation and public health agencies can help to leverage existing research and share resources**. For example, Caltrans has benefited from CDPH's research related to the local impacts of pollutants and data on community demographics. This information-sharing has allowed Caltrans to strengthen and build its programs and focus on health, including its SRTS activities. CDPH has also benefited from Caltrans' household travel survey data, which it has used to help measure increased physical activity through active transportation. This broad partnership between Caltrans and CDPH establishes a promising foundation for shared future initiatives related to transportation and health.

Timeline

2000: The ALTC group is established, with participation from Caltrans. The group's name is later changed to "Active" Transportation and Livable Communities.

2002: Caltrans develops the California Blueprint for Walking and Biking.

2006: The California State Legislature passes Assembly Bill 32, which requires the State to lower GHG emissions to 1990 levels by 2020. Caltrans completes the CTP.

2007: Caltrans updates the CTP.

2008: The California legislature passes SB 375, or the Sustainable Communities and Climate Protection Act of 2008. Caltrans sets forth an agency directive that encourages transportation improvements that support safe mobility for all users. The SGC is established under SB 732.

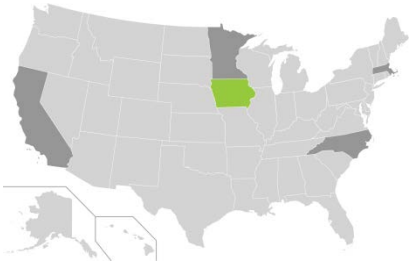
2010: Executive Order S-04-10 establishes the HiAP Task Force and includes Caltrans as a member. The task force develops a report for the SGC that provides recommendations to promote health and sustainability activities in California. Caltrans issues its Complete Streets Implementation Action Plan.

2011: The SGC identifies 11 of the HiAP Task Force's recommendations as priorities for near-term implementation.

2012: The SGC approves the HiAP Task Force's Active Transportation and Complete Streets Implementation Plan. The California Health and Human Services Agency establishes the Let's Get Healthy California Task Force, which issues its final report in December 2012.

2012 - **Present**: Caltrans begins its next CTP update, which it expects to complete by 2015. Caltrans actively participates in the HiAP Task Force and in implementing action steps to advance health and sustainability. The Heat Adaptation Workgroup, a subcommittee of the Public Health Workgroup of the California Climate Action Team, releases "Preparing California for Extreme Heat: Guidance and Recommendations."

Case Study: Iowa Department of Transportation



The Iowa Department of Transportation (Iowa DOT) is integrating public health considerations into its statewide multimodal system through a flexible, decentralized approach that builds from the health priorities of individual DOT offices and programs. This case study describes the health activities of the Iowa DOT Office of Public Transit as well as the Northeast Iowa Safe Routes to School (SRTS) program, which is supported by the Iowa DOT Office of Systems Planning. Both the Office of Public Transit and the partners supporting the Northeast Iowa SRTS program are creatively responding to their constituents' particular health needs: human service transportation and active transportation, respectively. These efforts are consistent with the governor of Iowa's statewide initiative to make Iowa the healthiest State by 2016. Iowa DOT is supporting this statewide policy by responding to the health needs of partners and constituents while adding value through program management and coordination, funding, and technical assistance.

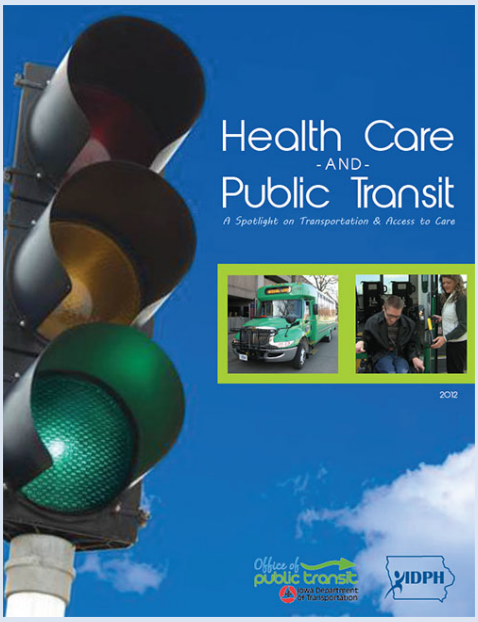
In 2011, Iowa Governor Terry Branstad launched the Healthiest State Initiative, with the goal to move Iowa's national ranking in the Gallup-Healthways Well-Being Index from 19th in 2010 to first in 2016. The campaign is based on the Blue Zones community-based health projects in high-longevity communities worldwide. As part of the program, health insurer Wellmark Blue Cross and Blue Shield and disease management firm Healthways have competitively designated 19 Iowa communities as Blue Zone project demonstration communities. These communities will receive extensive support for improving local public health. Iowa DOT's health access and active transportation efforts support this public-private executive initiative to improve health in Iowa.

In addition, AARP (formerly the American Association of Retired Persons) in April 2012 named Des Moines one of eight Age-Friendly Communities in the United States. The program, part of the World Health Organization Global Network of Age-Friendly Cities, will provide Des Moines access to networking and technical assistance opportunities with other communities.

Iowa DOT Office of Public Transit

The Iowa DOT Office of Public Transit, which administers State and Federal transit grants and provides technical assistance to Iowa's rural and urban transit systems, makes access to health destinations a priority.

The consideration of health in transit planning has been an evolving activity for the DOT and its partners. Since the 1980s, the Office has chaired the Iowa Transportation Coordination Council, which focuses particularly on the health needs of the elderly and disabled. This council brings together State agencies and private organizations such as AARP, the United Way, the American Cancer Society, and disability advocacy groups. Since then, the Office of Public Transit has expanded its consideration of health through collaborative regional transit planning with local authorities and outreach to healthcare providers, especially in rural areas.



Transit brochure for health professionals. Source: Iowa DOT

The Iowa DOT Office of Public Transit coordinates with service providers, health professionals, and users to promote access to health destinations.

Source: Iowa Regional Transit Agency, Urbandale, IA

Partnerships

Iowa DOT and its Office of Public Transit have a strong relationship with the Iowa Department of Public Health (IDPH). Led by the Office of Systems Planning, Iowa DOT provided goals and input to the statewide health plan, Healthy Iowans: Iowa's Health Improvement Plan 2012-2016. The plan identifies transportation as a key means to improve access to health services, and states that Iowa DOT will lead an effort to increase awareness of rural and urban transit services among health professionals.

One key product in this outreach to healthcare professionals is Iowa's "Health Care and Public Transit" brochure. In 2005, the Office of Public Transit and IDPH jointly developed the original version of this brochure, which outlines patients' human service transportation options for an audience of doctors, nurses, and hospital staff. The two agencies updated this brochure in 2012 as part of implementing the Healthy Iowans plan. This version includes new information on resources such as the statewide non-emergency medical transportation brokerage, which is described below.

Similarly, The Office of Public Transit attended the Governor's Conference on Public Health in 2010, 2011, and 2013 to further reach out to medical professionals. The Office also provides public safety and health-relevant transportation news for IDPH's newsletters.

Iowa's Healthiest State Initiative emphasizes public-private collaboration to enhance public health. Currently, the Office of Public Transit is discussing collaboration opportunities with nonprofit organizations. For example, while there is no formal partnership, the Office of Public Transit is in contact with AARP staff about the selection of Des Moines as an Age-Friendly Community. The Age-Friendly Communities program will perform health-related surveys in Des Moines. The Office of Public Transit will examine if this data can be used for planning transportation that serves elderly populations. The Office of Public Transit also held preliminary discussions with the American Cancer Society on providing statewide ride vouchers for cancer patients. According to Office of Public Transit staff, this would be the first program of its kind in the country.

Integration of Health into the Transportation Planning Process

Transit planning for healthy communities is a bidirectional process in Iowa. The Office of Public Transit supports health providers in considering transportation in their planning and decisions, but also supports local transportation planning agencies in coordinating with health partners.

FTA's Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities Program (formerly the Transportation for Elderly Persons and Persons with Disabilities Program under SAFETEA-LU) requires that all projects funded through the program draw from coordinated human service transportation planning. Iowa DOT hence requires Iowa Metropolitan Planning Organizations (MPOs) and rural regional planning affiliations (RPAs) to create coordinated Passenger Transportation Plans (PTPs). Section 5310 projects included in these plans may then

be included in the transit section of MPO and RPA Transportation Improvement Plans (TIPs).[28] Even MPOs and RPAs that do not currently receive Section 5310 funding must complete PTPs, since one of the goals of Iowa's PTPs is to incorporate human service considerations and stakeholder voices into the planning process.

The Office of Public Transit also requires RPAs and MPOs to incorporate the input of local Transit Advisory Groups (TAGs) into annual updates to their PTPs. These TAGs, which meet at least twice annually, must include human service agencies and providers. The Office of Public Transit assists local agencies in bringing human service partners to the table, if necessary. The office's relationship with IDPH is useful in assisting with outreach to these local health stakeholders.

Programs

The Office of Public Transit supports regional mobility managers who coordinate with planners, human service providers, and customers to facilitate access through public transportation. Healthcare access is a particular concern. According to Iowa DOT contacts, Iowa is also the only State with a statewide mobility manager. The statewide manager guides regional mobility managers and serves areas that do not have a regional manager. The statewide and regional mobility managers were funded through SAFETEA-LU's Jobs Access and Reverse Commute (JARC) and New Freedom programs. Although these programs were not continued under MAP-21, the mobility managers are still eligible to be funded locally under FTA MAP-21 formula funds. The Office of Public Transit is continuing to make remaining JARC and New Freedom funds available for mobility manager programs until they are exhausted in Federal fiscal year 2015.

Iowa has a statewide non-emergency medical transportation brokerage for Medicaid members, who call one number to coordinate their trip to health appointments. Some transit agencies also receive grants from the Office of Public Transit to provide rides to members of IowaCare, which covers low-income individuals not otherwise eligible for Medicaid. These grants are State Transit Assistance Special Projects grants, with an 80/20 split between State and local funds.

Iowa DOT Office of Systems Planning / Northeast Iowa SRTS

The Iowa DOT Office of Systems Planning supports SRTS programs throughout the State, but the Northeast Iowa SRTS program is notable for its particular focus on the integration of physical activity goals with rural transportation planning.

Through the Upper Explorerland Regional Planning Commission (UERPC), the area's RPA, Iowa DOT Office of Systems Planning helps fund and coordinate this SRTS program. The program

[28] "Passenger Transportation Plan Requirements for Iowa's MPOs and RPAs," Iowa DOT Office of Systems Planning, November 2011, 4 ; For more information, see "Transit at the Table III," USDOT/Volpe Center for FTA, September 2011: http://www.planning.dot.gov/documents/TransPlanning/TAT_III_CaseStudy_IA.pdf

covers 10,000 students across the 6 counties of Northeast Iowa, an area roughly the size of Connecticut and one of the most rural regions of the State. The program is focused on the health and activity needs of schools and communities in rural places.

SRTS efforts began in Northeast Iowa in 2008 and have grown to include extensive coordination with the Northeast Iowa Food and Fitness Initiative. This organization promotes healthy local food and active living throughout the region and is funded primarily by the W. K. Kellogg Foundation.

The Food and Fitness Initiative became involved with SRTS in Northeast Iowa in 2010 after performing a strengths-and-assets assessment that determined schools were a key community asset related to health. It found that in dispersed communities, schools are often social hubs for children, parents, and extended families. The Food and Fitness Initiative piloted SRTS programs in six schools. It later expanded the number of schools and began to focus on activism supporting active transportation in local plans. The Northeast Iowa SRTS program also complements the Food and Fitness Initiative's Farm to School programs, which educate local students about food production and nutrition.

Early experiences with SRTS in Northeast Iowa highlighted that a full-time staff member was needed to coordinate school activities and community planning across such a large area. In 2010, the Food and Fitness Initiative worked with UERPC to apply to Iowa DOT for a two-year grant for a SRTS liaison position. Since early 2011, the Iowa DOT-funded Regional SRTS Liaison for Northeast Iowa has coordinated across school districts and attended community planning meetings to link activity in schools to planning efforts for the region's transportation system.

SRTS Activities for Rural Schools

When UERPC and the Food and Fitness Initiative applied for Iowa DOT SRTS funds, most of the precedents for SRTS full-time coordinators were in urban or suburban contexts. The Northeast Iowa SRTS program is an attempt to adapt that model to a rural environment. One of the most significant challenges has been adapting to a mindset of using existing assets rather than building a large amount of new infrastructure, which is not a viable financial option in dispersed areas.

The Northeast Iowa SRTS program tailors its programming to the needs of different types of school sites. Where there is already a walking community or where schools are physically integrated into a town, traditional SRTS methods such as the "walking school bus" or "bicycle train" are used. Where distances are longer, the program aims to foster activity where it is able. For example, school buses can drop off students farther from the school entryway than is usual, or bus drop-off points can be created around the school where students can finish their school trip by walking or bicycling.

In very isolated schools where walking or cycling is impractical, the program focuses on integrating healthy activity into the school day. For example, some schools have introduced mileage clubs where students can win rewards for taking many walking steps throughout the day. In other cases, teachers use curricula that incorporate physical activities, such as acting out stories, or use exercise balls as classroom seating.

Integration of Health into the Transportation Planning Process

As the State-designated RPA, UERPC not only hosts the DOT-funded Regional SRTS Liaison on their staff, but also works with communities in the region on developing their local comprehensive plans. The Regional SRTS Liaison attends community meetings and collaborates with schools, local leaders, the public, and the Food and Fitness Initiative to build support for improved active transportation infrastructure. Due to these efforts, recent local plan revisions have included an active transportation component whereas they would not have previously. This has facilitated the implementation of infrastructure improvements to enhance school access.

SRTS efforts and local Complete Streets initiatives have helped begin conversations in places like Northeast Iowa about how street design can affect health. Iowa DOT technical assistance supports these communities in implementing active transportation projects that build on or are part of SRTS programs. The Iowa DOT Office of Design, like many State DOTs, has a road design manual that includes guidelines for, among other topics, accessibility, sidewalks, and pedestrian infrastructure. Since 2005, the State, Federal Highway Administration Iowa Division, and Iowa State University Local Technical Assistance Program (LTAP) have worked together to offer workshops in local communities on these design standards. Iowa DOT staff stated that these workshops respond to an increased demand for active transportation guidance somewhat associated with SRTS programs. The workshops guide municipal engineers in Iowa on designing safe and accessible pedestrian environments. The availability of this guidance has been an asset for SRTS programs in rural communities.

Evolution of Activities

The Northeast Iowa SRTS program is the only rural initiative in the State working on this large, comprehensive scale. A strong, shared vision between the Food and Fitness Initiative and UERPC enables the program to focus on region-wide physical activity needs.

To share SRTS experiences across Iowa, the Iowa DOT Office of Systems Planning has partnered with the Iowa Bicycle Coalition to create an SRTS education and encouragement program. The Bicycle Coalition will draw lessons and share insights from the Northeast Iowa SRTS program in particular, even after the program's Regional SRTS Liaison funding concludes from the DOT perspective at the end of summer 2013. The Iowa DOT grant funding the position requires a final report, which is expected to include a summary of activities and a description of a model for other communities to follow. The groups involved in the Northeast Iowa SRTS program are looking into funding options for the liaison position to continue.

These evaluation and follow-up activities enhance the Northeast Iowa SRTS program's ability to serve as a model of effective practices for other rural regions in Iowa and across the Nation. The Regional SRTS Liaison has presented at the SRTS National Conference and is interested in sharing the region's experience with other rural areas across the country.

Children in the Northeast Iowa SRTS Program. Photos source: Northeast Iowa Food and Fitness Coalition

"Physical isolation of schools in rural areas should not be an obstacle for promoting health."
- Regional SRTS Liaison for Northeast Iowa

Conclusions

In supporting the health efforts of its Office of Public Transit and the Northeast Iowa SRTS program, Iowa DOT enhances the components of the statewide multimodal system that supports physical activity and health access. These efforts especially serve the health needs of children, social service clients, and rural residents. Iowa DOT's health activities, which involve partnerships with nongovernmental organizations as well as multiple levels of government, are consistent with the State's high-level executive focus on creative ways to improve the health of its residents.

- **Individual Iowa DOT offices may have distinct health priorities.** The two Iowa DOT offices featured in this case study are each focusing on the health and transportation issues that resonate most with their different core transportation program missions, partners, and stakeholders.
- **Iowa DOT ensures that rural and regional transportation organizations promoting health are supported through DOT coordination, funding, and technical assistance.** For example, the Office of Public Transit works with stakeholders to integrate health access concerns into regional transit planning. It also assists RPAs, MPOs, and transit agencies in bringing health organizations to the table during this planning process. Similarly, the Office of Systems Planning is not only funding the Regional SRTS Liaison for Northeast Iowa position, but is also supporting efforts to share lessons from the program that can help other rural areas in the State plan for improved access to healthy destinations and active transportation.
- **Iowa DOT partners have also integrated health-related transportation considerations in their health and land-use plans.** Integrated planning is not unidirectional. In addition to coordinating health partners' input into transportation planning, Iowa DOT is also involved in implementing the statewide health plan, which was developed with DOT input. Similarly, the Regional SRTS Liaison for Northeast Iowa works closely with municipalities to coordinate school access needs with local infrastructure and land-use plans. Planning for healthy communities can include participation from health, transportation, education, and land-use agencies as well as nongovernmental organizations.
- **Rural planning organizations are key actors through which Iowa DOT advances health**. Because of their local knowledge and versatility, State-designated regional planning affiliations play an important role in both of the initiatives featured in this case study. They are key partners through which Iowa DOT interacts with local health and transportation actors to advance healthy rural communities. This DOT focus provides important support for combined transportation and health goals in rural areas that lack the planning resources of urban areas with MPOs, and can serve as a useful model for other States seeking to advance rural health.

Timeline

1992: Iowa Interagency Coordination Council for coordinating human service transportation formed out of ad-hoc working group.

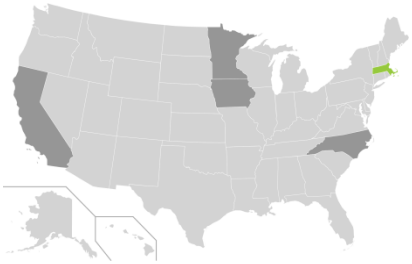
2005: Federal, State, and local coordination creates PTP framework for involving State and local healthcare partners in transit planning.

2010: UERPC and Northeast Iowa Food and Fitness Initiative apply for Iowa DOT Office of Systems Planning SRTS funds to pilot a staff position to coordinate SRTS and active transportation planning across the region.

2011: Governor Terry Branstad launches the Healthiest State Initiative.

2012: Des Moines designated as AARP Age-Friendly Community; initial set of Iowa communities selected as Blue Zone project demonstration sites.

Case Study: Massachusetts Department of Transportation



When the Commonwealth of Massachusetts's legislature merged a number of State transportation agencies to create the Massachusetts Department of Transportation (MassDOT) in 2009, it also established the interagency Healthy Transportation Compact (HTC) and required the new agency to work with private, State, and Federal partners as part of the "establishment of a healthy transportation policy."[29] Building from this legislative mandate, MassDOT seeks to implement its health policy as part of its wider "GreenDOT" initiative and planning goals. This strategy integrates health considerations with other priorities such as sustainability and responsiveness to system users. MassDOT's approach has allowed it to develop and promote a planning framework that incorporates core transportation responsibilities with statewide goals such as a healthy population.

Background

As part of the HTC, MassDOT collaborates with two other State agencies: the Massachusetts Executive Office of Energy and the Environment, and the Executive Office of Health and Human Services. MassDOT works especially close on health issues with the Department of Public Health (DPH) within the Office of Health and Human Services. In addition to the legislative mandate, MassDOT staff has found that executive support strengthens their efforts to mainstream health within the organization and collaborate with other agencies on new initiatives.

Definition of Health

Health and the HTC are key components of MassDOT's wider GreenDOT sustainability initiative. MassDOT's grouping of health with sustainability goals—such as smart growth development and legislatively mandated greenhouse gas emission reductions—reflects its view that not only are these topics deeply related, but a public health focus can make sustainability issues more directly relatable to the public. For example, discussing pollutant emissions in terms of asthma rates or pedestrian infrastructure in terms of increased physical activity benefits may resonate on a stronger and more personal level with citizens and stakeholders.

[29] Massachusetts Healthy Transportation Compact: http://www.massdot.state.ma.us/GreenDOT/HealthyTransportationCompact.aspx.

"Our customers want a transportation system that offers healthy transportation choices." - MassDOT staff member

Walking, cycling, and transit are the three "healthy transportation" modes for which MassDOT is focusing on expanding options. Photos clockwise from top: Massachusetts Governor Deval Patrick opens pedestrian bridge in the Boston area (Massachusetts Office of the Governor); Massachusetts Bay Transportation Authority light rail train (Michael Day); and the Minuteman Bike Trail (Flickr user kfergos).

Activities

Partnerships

MassDOT and its partners have established long-term working relationships that help embed inter-agency viewpoints on health and transportation into each organization's planning and decision-making. Staff from MassDOT served on DPH's Wellness Promotion Advisory Board, which helped develop the Mass in Motion program discussed below. DPH representatives are similarly positioned on MassDOT committees such as the Bicycle and Pedestrian Advisory Board and the Safe Routes to School Task Force. This collaboration fosters information and idea exchange between agency programs. For example, DPH has drawn from the active transportation design standards of MassDOT's Complete Streets policy in working with local authorities to formulate plans to better integrate health into transportation and land-use. DPH staff stated that the release of recommendations on transportation and health by the Centers for Disease Control and Prevention (CDC) encourages and informs their ongoing collaboration with MassDOT.

DPH administers the Mass in Motion Municipal Wellness and Leadership program. Launched in 2009, Mass in Motion is a campaign to promote wellness and reduce obesity through active living and healthy eating in communities throughout the Commonwealth. Mass in Motion currently supports 52 of Massachusetts's 351 municipalities in developing and implementing local strategies to create conditions that encourage active living and improve access to healthy food. Each participating community develops and implements a strategy that can include activities such as establishing local Complete Streets policies, developing active design standards for use in land development reviews, and establishing farmers markets. The program is a public-private partnership supported by State funds, foundation partners, and two 2011 CDC Community Transformation Grants. DPH is developing an evaluation plan for Mass in Motion that is based on health outcomes as well as risk factors such as CDC targets for obesity reduction. These outcomes and metrics also include transportation measures such as vehicle miles traveled. Staff from both agencies stated that in setting these transportation goals for local Mass in Motion implementation plans, DPH assists MassDOT by providing objectives that can be referenced when planning transportation projects with a community.

MassDOT and DPH staffs also coordinate between Mass in Motion and MassDOT's Safe Routes to School (SRTS) programs. SRTS is one of the strategies that communities most often include in their Mass in Motion initiatives. Hence, Mass in Motion connects communities with State SRTS regional coordinators, who provide technical assistance to schools and municipalities. SRTS programs in these communities can also make use of technical assistance offered through Mass in Motion. In particular, Mass in Motion provides support from local nonprofit organizations such as WalkBoston and MassBike.

MassDOT's travel options information program, MassRides, administers SRTS in the Commonwealth. MassDOT and MassRides are seeking to broaden local SRTS partnerships beyond schools and, in the case of infrastructure projects, beyond local departments of public works to include other groups that can further the safety and active transportation benefits of

SRTS. These potential partners include police departments as well as youth recreation programs such as YMCA/YWCA and Boys & Girls Clubs of America.

MassDOT's collaboration with DPH extends to program evaluation as well. The Metropolitan Area Planning Council (MAPC), the State-designated regional planning agency for the Boston metropolitan area, developed MySchoolCommute.org, a simple online web tool for schools in Greater Boston to survey parents about their children's school trips. MassDOT is expanding this resource, which was developed with assistance from WalkBoston and funding from the Barr Foundation, to cover the entire Commonwealth, and the agency is also adding the capacity to produce public reports. DPH will use the tool to evaluate Mass in Motion and SRTS options and impacts. For example, Mass in Motion communities will use MySchoolCommute.org to help prioritize schools in their community that have the greatest potential for increasing active transportation mode shares for school trips. They will also align their data-gathering efforts to bi-annual surveys using MySchoolCommute.org, creating a rich data source for coordinated transportation and health planning, especially for measuring and improving physical activity around schools.

The 2009 legislation creating the HTC requires it to "establish methods to implement the use of health impact assessments [HIAs.]"[30] MassDOT views HIAs as one tool among many to consider health in transportation projects. The MassDOT staff believes that HIAs are currently useful as an optional step in the planning process, and that experience in applying public health considerations to transportation planning and design will, over the long term, inform standards for healthy projects rather than the HIA becoming a regulatory requirement in itself.

Currently, MassDOT is collaborating with DPH on an HIA for a freeway removal in the city of Somerville, just north of Boston. This study, which includes funding from the Health Impact Project, a collaboration of the Robert Wood Johnson Foundation and Pew Charitable Trusts, will serve as the pilot for HIAs in the Commonwealth. MassDOT staff stated that one of the primary goals of this pilot is to determine how health may be considered in existing project development studies.

The pilot experience suggests that, when HIAs are included in the planning process, this analysis can build from existing DOT and partner procedures, data, and expertise. DPH staff involved with the Somerville HIA stated that they were able to draw from their agency's experience assessing health effects associated with environmental exposure from non-transportation actions. The HIA pilot also worked within MassDOT's existing community engagement timeline and framework, which includes the creation of a local working group and a focus on alternatives analysis.

Through support from the Healthy Community Design Initiative at CDC, DPH is also working with its own local and regional partners to conduct HIAs, and it is providing training and technical assistance to increase capacity in these activities. DPH's work with partners, such as

[30] 2009 Transportation Reform Legislation. Chapter 25 of the Acts of 2009, Section 33: http://www.massdot.state.ma.us/portals/0/docs/TransReform_Ch25_Sect33.pdf.

MAPC, has included a policy HIA of State legislation to reduce the urban speed limit from 30 MPH to 25 MPH as well as project-based assessments such as the extension of a river trail in the city of Fall River.

Programs

In 2006, MassDOT's predecessor highway agency developed a Complete Streets policy that applies to all projects using State or Federal funds. Since the creation of the HTC, MassDOT has sought to build local capacity on implementing Complete Streets guidelines. In coordination with DPH, MassDOT conducted a series of workshops in 2011 and 2012 across the Commonwealth to educate local policymakers, civil engineers, and MassDOT staff about the health and sustainability benefits of the Complete Streets design approach and how it can be implemented. The goal of these workshops was to generate local momentum for innovative health and activity solutions rather than simply to stipulate statewide policies.

Integration of Health into the Transportation Planning Process

MassDOT's 2010 GreenDOT Policy Directive outlines three sustainability goals for its transportation planning and other activities: reducing greenhouse gas emissions; promoting the healthy transportation options of walking, cycling, and transit; and supporting smart growth. GreenDOT supplements weMove Massachusetts, MassDOT's upcoming long-range transportation plan (SLRTP). WeMoveMassachusetts recognizes the importance of public health and the role of transportation in facilitating active lifestyles; promotes increased walking and bicycling among its goals; and measures progress toward the build-out of the Bay State Greenway, a statewide network of shared-use paths and connecting on-street bicycle routes.

The GreenDOT Implementation Plan, released in December 2012, lists as one of its three primary objectives to "Promote the healthy transportation options of walking, bicycling, and public transit" and includes a list of tasks and quantitative performance goals projected to 2030.[31] The plan applies to MassDOT as well as the Commonwealth's Metropolitan Planning Organizations (MPOs) and regional transit agencies, and it is also intended as a reference guide for municipalities.

GreenDOT is part of a wider discussion at MassDOT about integrating the State-led performance measurement effort, which is a Federal requirement under the Moving Ahead for Progress in the 21st Century Act (MAP-21), with Massachusetts's own transportation priorities, including health promotion. Integrating public health metrics into the planning process not only implements the State mandate to consider health in transportation projects, but also enhances MassDOT's own view of public health as a tool for engaging the public in transportation planning. Health-related performance indicators have the potential to demonstrate in clear

[31] MassDOT, GreenDOT Implementation Plan, 2012, page 8: http://www.massdot.state.ma.us/Portals/0/docs/GreenDOT/finalImplementation/FinalGreenDOTImplementationPlan12.12.12.pdf

terms how projects in the Statewide Transportation Improvement Program (STIP) or MPO Transportation Improvement Programs (TIPs) affect the well-being of stakeholders.

The GreenDOT Policy Directive states that statewide as well as MPO planning documents will integrate the three GreenDOT goals.[32] According to MassDOT staff, the new Federal requirement for performance-based planning may be an opportunity to support MPOs in adopting planning practices that support statewide GreenDOT goals.

One key tenet of the GreenDOT Implementation Plan is tripling the State's combined pedestrian, bicycle, and transit mode share by 2030. MassDOT sees this policy as a means of meeting multiple goals in the face of scarce resources. One of these goals is to "achieve positive public health outcomes by providing more healthy transportation options."[33] To monitor and plan for this mode shift target, MassDOT is seeking to develop improved mode-neutral performance measures, including health metrics.

Building from the GreenDOT Implementation Plan, the Healthy Transportation Compact, and the 2030 mode shift goal, MassDOT in September 2013 established a Healthy Transportation Policy Directive. The directive requires all State transportation projects to increase bicycling, transit, and walking options. As part of the directive, MassDOT will also review cluster sites where safety incidents involving users of these modes have occurred.

MassDOT is investigating how weMove Massachusetts, its upcoming SLRTP (see above), may consider health issues. The agency is also updating its project initiation forms to reflect GreenDOT goals, and it is considering what health metrics are most useful for future inclusion in its project selection criteria.

MassDOT's SRTS programs allow for schools to play a role in developing transportation projects that promote physical activity. Through SRTS, schools and communities can work with MassDOT engineers to determine infrastructure improvements that enhance active transportation opportunities for students. According to DOT contacts, a team that includes MassDOT planners reviews the projects. These projects are then coordinated with local MPOs and become eligible for inclusion in the STIP using Federal SRTS/Transportation Alternatives Program (TAP) funds. This direct connection between MassDOT's SRTS resource center and its statewide planning process is a planning mechanism that is responsive to both the health needs of local schools as well as MassDOT's wider transportation priorities.

Evolution of Activities

Since the Massachusetts legislature created the HTC in 2009, MassDOT has developed strong relationships with State and local health partners. It has also explicitly defined how health fits

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[32] MassDOT, GreenDOT Policy Directive, 2010, page 5: http://www.massdot.state.ma.us/portals/0/docs/P-10-002.pdf.

[33] Klark Jessen, October 9, 2012 "MassDOT Goal: Triple Bicycling, Transit, Walking," *MassDOT Blog: The Official Blog of the Massachusetts Department of Transportation*: http://blog.mass.gov/transportation/greendot/massdot-goal-triple-travel-by-bicycle-transit-walking/

into its wider GreenDOT sustainability goals, leading to a broad range of transportation and health initiatives.

Local municipalities have reacted positively to the capacity building and outreach activities led by MassDOT and its partners. The agency plans to continue to support local efforts to coordinate health and transportation activities as it implements its GreenDOT goals for healthy transportation.

MassDOT is also further mainstreaming its GreenDOT health and sustainability goals across the agency. For example, MassDOT staff stated that improving the availability of health data may increase the range of performance tools available when planning for statewide goals. Building capacity to manage and present health information as it relates to transportation could present planners with the option to include health considerations in future transportation-related performance measures and project selection criteria. However, MassDOT also seeks to use this data to communicate the value of transportation investments to stakeholders, leadership, and system users in relatable terms. MassDOT staff stated that improved health data and performance measures could help the existing project development process better consider health issues.

Conclusions

Expanding from the Massachusetts legislature's creation of the HTC, MassDOT identified how considering health enhances the DOT's planning, public involvement, and other agency goals and responsibilities. This broad perspective ensures that its focus on health complements these activities and its core mission, and sets the stage for future health-related initiatives.

- **MassDOT's planning for health complements other current goals, such as environmental sustainability and responsibility to its customers.** The GreenDOT Implementation Plan reflects the agency's health and sustainability priorities and operationalizes them into performance goals and actions.
- **MassDOT is exploring how health, as one of a number of State transportation priorities, can be considered as part of the Federal requirement for performance measurement under MAP-21.** Performance management presents an opportunity to consider health in the transportation planning process in a way that promotes transparency and public engagement in planning.
- **Building health planning capacity for local governments and MPOs is key to MassDOT's and its partners' implementation of HTC goals.** MassDOT and DPH recognize the importance of building local understanding of the connections between health and transportation. The agencies' focus has been on HTC activities such as Mass in Motion and Complete Street workshops in individual communities. These efforts highlight opportunities for collaboration between local transportation and public health agencies; they also provide State technical assistance and resource coordination to local partners. In addition, MassDOT is encouraging MPOs to consider health effects in their own plans as part of the implementation of GreenDOT.
- **MassDOT and its HTC partners are piloting HIAs to assess how the project development process might more effectively consider health goals in general.** The

agencies are partnering with local governments and national nonprofits to conduct assessments and perform HIA training. Over the long term, these experiences will inform decision-makers about when a health assessment may be useful and how health goals, such as those in GreenDOT, can lead to more successful transportation projects.

Timeline

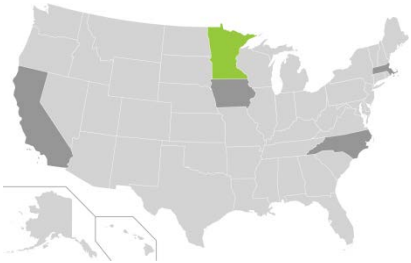
2009: Massachusetts legislature creates MassDOT from other State transportation agencies and outlines HTC; MassDOT begins Mass in Motion program with Massachusetts DPH.

June 2010: MassDOT launches GreenDOT initiative encompassing health, smart growth, and emissions.

2011: MassDOT and partners hold workshops throughout the State on HIAs and on implementation of 2006 Complete Streets guide.

December 2012: MassDOT finalizes GreenDOT Implementation Plan, including goal to triple bicycle, pedestrian, and transit mode share to advance health and other State goals.

Case Study: Minnesota Department of Transportation



Strong working relationships between staff at the Minnesota Department of Transportation (MnDOT) and the Minnesota Department of Health (MDH) help MnDOT emphasize health in the statewide transportation planning process. MnDOT has many activities that address health—such as integrating walking and bicycling into multimodal planning and exploring how to bring health more explicitly into the transportation planning process. MnDOT identified health as a goal in a recent visioning process and is considering performance measures and criteria that will support health-improvement investments and other activities.

Background

In 2010, MnDOT established the Office of Statewide Multimodal Planning. The office is responsible for leading efforts to develop transportation plans, policies, and guidance that advance multimodal planning. The office also supports coordinated planning efforts among MnDOT's modal offices and transportation stakeholders. Since the office's establishment, MnDOT has broadened the scope of its approach to improving health to consider elements such as walking and bicycling, environmental health, and partnerships with health agencies. MnDOT is also incorporating health considerations into transportation planning performance measures and decisions.

Definition of Health

MnDOT is expanding its health focus from well-established air quality and safety measures to include considerations related to improving overall livability. In 2010, MnDOT partnered with the University of Minnesota to conduct a survey among Minnesotans about the relationship between quality of life and transportation. Respondents were asked to complete a questionnaire about the quality of life factors that were important to them and the role transportation plays. The findings, published in "Quality of Life: Assessment for Transportation Performance Measures" (2013), found that respondents considered transportation important to quality of life as it helps connect people to their destinations. In response to the survey, MnDOT held a series of agency discussions to explore how it could continue to promote quality of life through transportation. These meetings helped to inform MnDOT's decision to focus more strongly on health improvement.

Activities

Partnerships

MnDOT works closely with two divisions within MDH to support health-related transportation outcomes: the Office of Statewide Health Improvement Initiatives and the Environmental Health Division. MDH leads the Statewide Health Improvement Program, which focuses on building healthy communities to reduce obesity rates and tobacco use, and support physical activity and healthy eating. The program currently provides funding to 15 grantees. While the program is not directly linked to any of MnDOT's activities, the focus on physical activity and increased walking and bicycling is similar and complementary to the mission of MnDOT's Bicycle and Pedestrian Section.

MnDOT and MDH's partnership helps integrate health activities across MnDOT and MDH. In 2010, with support from MnDOT, MDH received Communities Putting Prevention to Work stimulus funds to hire a Safe Routes to School (SRTS) coordinator. In 2012, MDH obtained Centers for Disease Control and Prevention (CDC) funding through a Community Transformation Grant (CTG) to expand the SRTS coordinator position to an active transportation coordinator position. MnDOT again supported this application.

Based on the work established by the MDH SRTS coordinator, MnDOT hired its own SRTS coordinator in late 2011. While MnDOT does not have a physical activity coordinator at its headquarters, designated staff serve as liaisons to each MnDOT district in Greater Minnesota to provide support and consult on transportation projects involving pedestrian and bicycle elements. MnDOT's Metro District, which focuses on the Twin Cities, also has a bicycle/pedestrian coordinator who works at the project level. By relying on each other for staff support, MnDOT and MDH have been able to leverage resources and exchange expertise, which supports on-going collaboration.

MnDOT and MDH are both actively engaged in groups that support health-improvement activities. MnDOT's Bicycle and Pedestrian Section staffs the State Non-Motorized Transportation Advisory Committee. The committee is the State's central body for developing bicycling goals, objectives, and policies, and provides recommendations for nonmotorized transportation to the MnDOT commissioner. MDH participates as one of several member State agencies. The Bicycle and Pedestrian Section also serves as a member of the Minnesota Active Living Advisory Group, developed in fall 2009 as part of MDH's Obesity Prevention Funding and funded in part by the State of Minnesota. The 12-member group brings stakeholders together on the topic of maintaining good health and implements the strategies of MDH's health-improvement work to promote active living. The group's work centers on walking and bicycling as the most accessible forms of physical activity. MDH coordinates and facilitates the group, whose members include other Minnesota State Departments (e.g., Education, Public Safety, and Tourism), and stakeholders such as Blue Cross Blue Shield of Minnesota, the American Cancer Society, and the American Heart Association.

Other health-focused partnerships include collaboration between MnDOT and the Minnesota Department of Natural Resources to conduct a study and corresponding methodology for

counting bicycle and pedestrian activity on both on and off road facilities. To support the effort, MDH required grantees receiving funds under its Statewide Health Improvement Program to participate in the counts in fall 2012.

Programs

MnDOT and MDH both offer a range of programs that support health-improvement activities, including studies and plans, SRTS initiatives, and grant funding.

MnDOT has supported bicycle and pedestrian research programs for many years. In 2005, the agency's Bicycle and Pedestrian Section produced the MnDOT Bicycle Modal Plan, which promotes the integration of nonmotorized modes into roadway design. In March 2013, the section, along with the eight MnDOT district offices, completed a Statewide Bicycle Planning Study. The study produced a new State bicycle map that identifies regional connections and bicycle facilities to help bicyclists plan longer-distance trips. The study suggests updates to MnDOT's policies and practices to support the consideration of bicycle accommodations in MnDOT projects. The study also recommends potential performance measures that could be used to define a statewide bicycle network. The study will inform MnDOT's Statewide Bicycle System Plan, which began in April 2013.

MnDOT is actively involved in SRTS efforts. The agency recently mapped schools that are adjacent to the State highway system to evaluate how children travel to school. This effort links the policy and program aspects of SRTS with technical data collection to better inform MnDOT's walking and bicycling programs. MnDOT and MDH are also planning to adapt their SRTS program evaluations to consider changes in physical activity and obesity rates.

The MnDOT and MDH partnership encourages MDH grantees, primarily local and county public health agencies, to consider ways to address walking and bicycling. In 2011, MDH received a CTG grant of $3.6 million per year for five years, and selected five grantees to receive this funding. MDH contracts with Regional Development Commissions (RDCs) to support grantees and coordinate with MnDOT to support transportation activities. The CTG funding is designed to support planning related to active transportation.

Integration of Health into the Transportation Planning Process

MnDOT is developing processes and exploring ways to bring health considerations more directly and substantively into its transportation planning process.

Plans

MnDOT organized the Minnesota GO initiative in spring 2011 to provide information for the Statewide Multimodal Transportation Plan. Minnesota GO used scenario planning techniques and public workshops to gather stakeholder input about what Minnesotans envisioned for the State's future. MDH also worked with local stakeholders to provide feedback and elevate the importance of promoting health-improvement activities in Minnesota's overall transportation vision. As a result of this extensive public engagement, the Minnesota GO vision statement highlights the importance of health in the State's transportation activities. The first sentence of the vision emphasizes the connection to health: "Minnesota's multimodal transportation

system maximizes the health of people, the environment, and our economy." Through Minnesota GO, MnDOT established a foundation to expand how health is considered in the planning process.

MnDOT's Statewide Multimodal Transportation Plan presents guidance for transportation decision-making over the next 20 years. The plan offers a framework to support SRTS and bicycle and pedestrian implementation activities; it aims to identify critical connections that will support residents' quality of life and develop priority networks for all modes that promote connectivity and accessibility. One of the plan's guiding principles is to leverage public investments that achieve multiple public purposes, including environmental stewardship, economic competitiveness, and public health. This principle and the focus on health derive, in part, from the Minnesota GO effort.

MnDOT's Office of Capital Programs and Performance Measures is also updating the State Highway Investment Plan (MnSHIP), a 20-year plan to support future capital improvements to the State highway system. The MnSHIP reflects the Minnesota GO vision and the long-range directions of the Statewide Multimodal Transportation Plan. As part of the MnSHIP's development, MnDOT used scenario planning to develop three funding scenarios and evaluate the tradeoffs between each. In considering tradeoffs, MnDOT evaluated how much of its overall funding should support bicycle and pedestrian infrastructure compared to traditional highway investment categories. The MnSHIP supports the priorities identified in MnDOT's State Transportation Improvement Program (STIP), and looks to align future investments with the STIP's principles. MnDOT will be performing updates on other system plans (e.g., aviation, rail) in the future, and similarly plans to consider the Minnesota GO vision. MnDOT expects to include the vision and, by extension, the health focus in these plans.

Strategies and Policies

At the regional level, the MnDOT Office of Statewide Multimodal Planning is currently leading the Corridor Investment Management Strategy (CIMS), a planning and coordination effort to work with partners along major State highway corridors. CIMS takes the visioning elements of Minnesota GO and uses them as a source of information for MnDOT's programming and investments. As part of CIMS, MnDOT offered $30 million in State highway funding for 2014-2015 highway projects that support quality of life, environmental health, and economic competitiveness in the State.

CIMS allows for a more systematic approach to evaluate projects that address needs beyond those related to core highway performance. MnDOT is using several health-related factors in CIMS, including safety benefits, air quality impacts, the health impacts of bicycling and walking, noise, access to preventative/clinical healthcare, and access to recreational facilities to determine project priorities. MnDOT also directs funds for projects that feature Complete Streets elements or provide other benefits to pedestrians and bicyclists. As the CIMS funds are currently a special set-aside, MnDOT anticipates using future solicitations to direct a portion of its program funds toward transportation activities that support health improvements and sustainability outcomes.

While MnDOT's Complete Streets policies are still in development, the agency intends to integrate the Complete Streets approach into its activities to support mobility for all transportation users. MnDOT is currently developing a Complete Streets implementation work plan, which includes tasks to further implement health into its processes and projects. The plan discusses ways to evaluate safety audit and Health Impact Assessment (HIA) applications for use in Complete Streets planning and implementation; review HIA training options and opportunities; collaborate with local governments and MDH on HIAs, health disparities reduction projects, and physical activity programs; develop, collect, manage, and maintain comprehensive data to facilitate Complete Streets planning and design (data that could be used in HIAs and the development of health indicators); and promote health goals in projects to assist in reducing health disparities, encourage physical activity, reduce healthcare costs, and improve health outcomes.

Health Impact Assessments

MnDOT and MDH are partners and active participants in local HIAs. MDH has a dedicated program for HIAs that includes providing technical assistance and capacity building for HIAs within the State. MDH will facilitate the HIA Interagency Workgroup, currently in development, which will explore incorporating HIAs into the work of all State agencies in Minnesota, including MnDOT. MDH was previously a member of the technical team for The Healthy Corridor for All HIAs that focused on transit-oriented development in St. Paul; additionally, as a member of the advisory committee for the Bottineau Transitway HIA, MDH provided data and input, but did not lead either project. MDH and MnDOT view the HIA as a useful tool but do not currently provide specific funding for HIA development. Both agencies are exploring the different avenues of supporting HIA activities in transportation projects, and in the summer of 2013 MDH conducted an HIA training for MnDOT planners.

Evolution of Activities

MnDOT anticipates that CIMS will be a helpful resource in testing criteria that allow health to be considered in the selection of transportation projects. Criteria and related performance measures can assist MnDOT in evaluating health-related outcomes such as improved air quality or increased walking and bicycling, and to justify funding projects that support these activities. MDH's 15 grantees under its Statewide Health Improvement Program, 5 of which also receive CTG funds, are helping to further coordinate health and transportation activities across communities in Minnesota and are building partnerships with the RDCs. Local public health agencies are often involved with their RDCs and can help to bridge transportation and health activities. With the renewal of funding under the Statewide Health Improvement Program, MDH will work with the RDCs and MnDOT to provide a more structured technical assistance and training system for local public health agencies and their partners around active living, walking, and bicycling.

Minneapolis, MN. Source: Doug Wallick via Flickr.

"There is an emerging way to talk about health. For a long time, the focus was on traditional factors related to safety, air quality, and [access to] emergency medical services. MnDOT is working to broaden this discussion, beginning with the [Minnesota GO] vision to look at environmental health." - MnDOT staff

Conclusions

MnDOT is moving beyond traditional considerations in expanding its approach to improving health. Its many new and evolving activities and partnerships demonstrate its growing commitment to broadening the discussion around health in transportation planning and related programs. As a result, the role of health in MnDOT and its transportation partners' decision-making processes is likely to grow.

- **The importance of partnerships has been a crucial lesson for MnDOT.** Since MnDOT does not have dedicated staff focused on integrating health into transportation activities, its partnership with MDH has been invaluable in building connections. The partnership has helped to provide transportation and health professionals with a deeper understanding of each other's fields and encouraged shared planning and project initiatives. MnDOT and MDH's collaboration fosters a two-way, critical connection that advances each sector's overall ability to accomplish core goals and establishes a foundation for future partnership. As MnDOT and MDH continue to collaborate and coordinate on efforts, opportunities also exist to reduce duplication and maximize efforts for mutual human, environmental, and economic health benefits that result from increased walking and bicycling.
- **MnDOT's consideration of health in its planning approaches continues to evolve.** MnDOT's MnSHIP update is the first time the agency has directly addressed pedestrian and bicycle improvements in this plan. Throughout the update, MnDOT relied on stakeholders to provide feedback about how much of its overall funding should go toward bicycle and pedestrian infrastructure. These activities build upon the Minnesota GO visioning effort, which directly supports a focus on health in planning activities. MnDOT plans to use a similar method for its other mode-specific plan updates.
- **Active transportation is a key component of MnDOT's approach to health**. MnDOT's Bicycle and Pedestrian Section performs modal planning for nonmotorized transportation and conducted the Statewide Bicycle Planning Study to identify regional bicycle connections and address bicycle facility implementation at the State and local levels. MnDOT is developing its Complete Streets policies, which will further help to address process improvements and flexibility in design standards for pedestrian and bicycle improvements statewide.
- **Performance measures and data analysis are helpful tools to support health-improvement activities.** MnDOT's SRTS data analysis of school locations in proximity to the State highway system will allow it to identify how best to assist schools in encouraging students to walk or bicycle to school safely. In addition, MnDOT continues to explore the use of performance measures that support health or health-related activities in its planning and selection of transportation projects, building on a long history of work on statewide performance-based planning.

Timeline

2005: MnDOT's Bicycle and Pedestrian Section produces the MnDOT Bicycle Modal Plan.

2010: MnDOT establishes its Office of Statewide Multimodal Planning. MDH receives a Communities Putting Prevention to Work grant from the CDC and establishes a full-time SRTS coordinator.

Spring 2011: MnDOT launches its Minnesota GO visioning process.

Fall 2011: MnDOT adopts the Minnesota GO vision and begins updating the Statewide Multimodal Transportation Plan. MDH receives a CTG from the CDC and transitions the full-time SRTS coordinator to a physical activity coordinator position.

Spring 2012: MnDOT initiates CIMS.

Fall 2012: MnDOT completes the Statewide Multimodal Transportation Plan and starts development of MnSHIP.

Winter 2013: MnDOT announces the solicitation for CIMS.

Spring 2013: MnDOT begins the evaluation of projects in connection with the CIMS solicitation. MnDOT publishes its Statewide Bicycle Planning Study and begins its Statewide Bicycle System Plan.

Summer 2013: MnDOT announces the selection of projects in connection with the CIMS solicitation. MDH conducts an HIA training for MnDOT planners. MnDOT publishes a new statewide bicycle map.

Fall 2013: MnDOT completes MnSHIP. MnDOT issues a technical memorandum on Complete Streets. MDH forms the HIA Interagency Workgroup.

Case Study: North Carolina Department of Transportation

Building from leadership support and interagency partnerships at the staff and executive level, the North Carolina Department of Transportation (NCDOT) has made enhancing health and well-being part of its agency mission. It is integrating this new agency goal into planning and other activities on a statewide and local level. These include a statewide modal plan for bicycle and pedestrian users, assistance to metropolitan planning organizations (MPOs) and rural planning organizations (RPOs) considering health in their plans, and the development of public health data for eventual use in the project selection process.

Background

NCDOT works closely with its partner agencies as part of the North Carolina Healthy Environments Collaborative (HEC). The HEC is a partnership between the North Carolina Departments of Transportation; Health and Human Services (NCDHHS); Commerce; and Environment and Natural Resources (NCDENR). These agencies also draw from expertise at the University of North Carolina (UNC) at Chapel Hill and North Carolina State University (NCSU) to support their ongoing collaboration.

The HEC originated in 2006 when staff at the four State agencies began informally discussing opportunities for greater collaboration. For example, departments like NCDOT and NCDENR have a history of working together on the transportation and environmental decision-making process. The topic of health provided a platform for broadening the conversation to include more State partners. Executive-level support for greater collaboration between State agencies helped bolster the partnership as participating agencies began to develop programs and a joint direction.

Definition of Health

NCDOT has a governor-appointed Board of Transportation, which has supported staff efforts to consider how integrating health can enhance the agency's overall transportation outcomes. In July 2011, the board requested that the agency focus more explicitly on how to better integrate public health considerations into transportation decision-making.

In response, NCDOT engaged NCSU's Center for Transportation and the Environment to study the development of a transportation-public health policy by conducting interviews and research on how other States and MPOs integrated public health into their transportation decision-

making.[34] This research, coupled with guidance from the Board of Transportation, resulted in the board expanding the agency's official one-sentence mission statement in April 2012 to include the clause "to enhance the economy, health and well-being of North Carolina."[35] In the August 2012 issue of the North Carolina Medical Journal, the Secretary of NCDOT at the time co-wrote an article explaining the agency's expanded mission, its relevance to health, and the statewide HEC. As discussed in the article, NCDOT is focusing particularly on the public health benefits of active transportation while considering health's wider positive impacts on communities and the State economy.[36]

NCDOT's Transportation-Public Health Policy, which was adopted by the board in October 2012, identifies three major categories in its approach to health: safety, exposure, and physical activity.[37] While the agency has long considered certain transportation issues within this scheme, such as safety and air quality, NCDOT is examining these issues with a renewed and holistic focus through the connective topic of public health. To this end, NCDOT is working with its HEC partners to advance plans and programs that support active transportation, and is pursuing data that allows for the consideration of health in the statewide transportation planning process, as well as local plans. As described below, implementation of Complete Streets and the statewide bicycle and pedestrian (WalkBikeNC) plan will help further Health Policy goals. The Health Policy also supports the consideration of public health in the local comprehensive long-range transportation planning process, where MPOs and RPOs identify this as an important goal.

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[34] Leigh Lane and Ted Mansfield, "Integrating Public Health and Transportation Policy: A Review of Current Practice," presentation to the Environmental and Policy Committee of the North Carolina Board of Transportation. July 11, 2012.

[35] NCDOT Agency Mission: http://www.ncdot.gov/performance/missiongoals/default.html.

[36] Eugene A. Conti Jr., Paul F. Morris, and Julie A. Hunkins, "The North Carolina Department of Transportation's Vision for Healthy Communities Through Sustainable Transportation," *North Carolina Medical Journal* 73, 4 (2012): 274-277.

[37] Board of Transportation Meeting. October 4, 2012. http://www.ncdot.gov/download/about/board/bot/meetingMinutes/2012/201210_Minutes.pdf.

NCDOT Mission: **Connecting people and places safely and efficiently, with accountability and environmental sensitivity to enhance the economy, health and well-being of North Carolina.**

Photos clockwise from top left: Multi-use path (Alta Planning + Design), Active Routes to School Logo (NCDOT), children in Durham, NC (Alta Planning + Design).

Activities

Partnerships

In 2010, NCDHHS received a Communities Putting Prevention to Work (CPPW) grant from the Centers for Disease Control and Prevention (CDC) that built on past collaboration between HEC agencies. This grant helped fund research by UNC-Chapel Hill's Gillings School of Global Public Health on State policies that support active living and health. This research, based in part on interviews with State staff as well as nine local communities, informed NCDOT and the HEC about health-relevant policies, challenges, and opportunities. NCDOT used the analysis as the basis for an action plan to guide its health focus and integrate this aspect of its mission throughout the organization.

In late 2011, NCDHHS received a Community Transformation Grant (CTG) from the CDC to promote physical activity, eating healthy foods, and a reduction in chronic disease incidence in the State's 10 regions. NCDOT is working closely with NCDHHS to establish how these funds and new staff can be leveraged with programs such as its Bicycle and Pedestrian Planning Grant, which helps municipalities develop comprehensive bicycle and pedestrian plans, and the Active Routes to School (ARTS) initiative.

The Board of Transportation approved the ARTS initiative in December 2012, which integrates community planning and physical activity considerations with Safe Routes to School (SRTS) programs.[38] Under ARTS, NCDOT will provide a grant to NCDHHS to support regional staff. These staff will coordinate between schools, local governments, and HEC partners on safe pedestrian environments, school siting, and active transportation infrastructure. NCDHHS will administer the program and coordinate involvement with its CTG-funded staff, which are seeking to encourage physical activity in each region.

Programs

In addition to its partnerships with other State agencies, NCDOT has sought to integrate health considerations into its internal coordination, guidance to local communities, and project planning support.

Internally, NCDOT is seeking to foster cross-departmental collaboration on health-related subjects. For example, its Public Transportation Division is collaborating with its Bicycle and Pedestrian Division on the Durham Access to Transit Plan. This plan studies bicycle and pedestrian opportunities along transit lines using crash data, field research, and survey responses. The agency may use this study as a model for other State plans studying access to transit.

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[38] North Carolina Board of Transportation meeting minutes, December 6, 2012, http://www.ncdot.gov/download/about/board/bot/meetingMinutes/2012/201212_Minutes.pdf

In 2009, NCDOT adopted a Complete Streets Policy in part to "support… public health goals by increasing opportunities for physical activity through active transportation."[39] In 2012, the department completed planning and design guidelines for the development of Complete Streets, including a "quality of service" measure—instead of traditional level of service—that relates to the presence of design features, signage, and infrastructure that enhances the safety and comfort of active transportation users. In the future, these may inform other, more formal metrics throughout the statewide transportation planning process.

NCDOT partnered with the city of Raleigh in 2012 on a planning project that included the development of a health impact assessment (HIA) as a helpful way to draw connections between transportation, health, and the built environment rather than as a requirement for project-level review. This Blue Ridge Road District Study sought to integrate transportation, public health, land use, and other considerations into planning for the redevelopment of a key urban corridor. Other key partners included UNC and NCDHHS.

Integration of Health into the Transportation Planning Process

NCDOT is integrating its expanded agency mission to emphasize transportation's ability "to enhance the economy, health and well-being of North Carolina" into statewide plans and the technical assistance it provides to MPOs and RPOs.

2040 Plan, the State's Long-Range Transportation Plan (SLRTP) adopted in August 2012, includes this revised mission statement and contains principles emphasizing "quality of life" factors, such as modal choice.

In addition to NCDOT's multimodal planning products, the WalkBikeNC Draft Plan features an explicit health focus, funded in part by the nonprofit Blue Cross Blue Shield Foundation of North Carolina. Health is one of five key pillars of the draft plan. WalkBikeNC also sets out implementation strategies and ongoing health performance measures to assess the effectiveness of active transportation investments in decreasing obesity rates and healthcare costs. These metrics include local rates of physical inactivity and incidence of diabetes; both measures are available in partnership with NCDHHS.[40] The final plan will also include a series of small HIAs performed on a range of project types in different geographic settings across the State (e.g. corridor plans or street-scaping in urban, suburban, or rural locations). These examples, developed with the support of NCDHHS as well as UNC and NCSU partners, illustrate the health impacts that can arise from various project types.

NCDOT is also working with its partners to include health considerations in North Carolina's metropolitan and municipal Comprehensive Transportation Plans (CTPs), if public health is deemed a goal by the local partner. In metropolitan areas, CTPs complement the metropolitan Long Range Transportation Plan (LRTP); a project must be included in the locally and State-

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[39] NCDOT Complete Streets Guidelines: http://www.completestreetsnc.org/wp-content/themes/CompleteStreets_Custom/pdfs/NCDOT-Complete-Streets-Planning-Design-Guidelines.pdf.

[40] NCDOT, WalkBikeNC Draft Plan, p 8-13: http://www.ncdot.gov/bikeped/planning/walkbikenc/.

adopted LRTP to receive funding. In January 2012, NCDOT held a workshop with the Federal Highway Administration (FHWA), NCDHHS, MPOs, RPOs, universities, and other stakeholders to review the CTP process and outline a methodology that could be used to integrate public health considerations when communities have identified public health as a priority.[41] Topics at the workshop included useful public health questions to consider at strategic points in the CTP process, potentially important local stakeholders, data needs, analysis tools, and how to use these tools to inform scenario development and plan recommendations. The next steps for this effort include internal and external outreach and a practitioner's playbook for public health considerations in the CTP.

Evolution of Activities

Given the relatively new focus on health as an explicit priority, NCDOT is currently seeking to finish products such as the WalkBikeNC Plan, execute next steps identified in completed efforts such as the CTP workshop, and continue to build from existing CDC grants through programs such as the ARTS partnership with NCDHHS.

A main objective for NCDOT is to develop better performance measures for public health so that health may have a robust presence in a data-driven project decision-making process. The agency is currently gathering baseline information on potential metrics for public health outcomes, and sees an opportunity for Federal actors to support the creation and management of active transportation data as they currently do with air quality and safety information.

NCDOT has also identified opportunities to use health data from partners. NCDOT is working with NCDHHS to develop survey questions and obtain data via sources that can be used for joint metrics, such as the Behavioral Risk Factor Surveillance System (BRFSS). BRFSS is a national health survey performed by State health departments with assistance from the CDC that includes, for example, a question about how much respondents walked or used a bicycle for transportation. NCDOT and NCDHHS contacts suggested that a potential future joint data effort could be to obtain an accurate estimation of trail and greenway usage in North Carolina, as well as the motivations behind this usage. Challenges remain, however, for the use of partner data. The State Medicaid system is developing a data portal; healthcare resources such as this could be useful for policymakers. Privacy is a concern, however, especially in rural communities where the total number of patients is low.

There are also statewide differences in health indicators between rural and urban areas. The NCDOT staff is hence interested in how to tactically target rural projects to benefit health and other goals, especially given that many of these areas are experiencing shrinking populations and may receive less overall transportation investment in the future.

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[41] North Carolina Department of Transportation, "Workshop Documentation for Integrating Public Health Considerations in the Comprehensive Transportation Planning Process" Notes from workshop held January 19-20, 2012 in Raleigh, NC.

Conclusions

NCDOT has pursued a health focus through close partnerships with other State agencies, local stakeholders, and Federal partners. Its methodical and explicit integration of health into its own transportation mission is notable and such actions have helped bolster these partnerships. As a result, the agency is taking important steps to bring health considerations into the planning process on statewide and local levels.

- **Partly through the initiative of NCDOT staff and Board of Transportation members, the consideration of public health in transportation decision-making is transitioning from informal discussions among staff and stakeholders to an explicit DOT priority.** NCDOT's expanded mission statement emphasizes transportation's role in a healthy and prosperous State and provides a long-term foundation for current and future activities that integrate health into transportation planning and decision-making processes.
- **Academic partners are an asset as NCDOT seeks to determine what policies, plans, and actions will most benefit public health within the State.** In addition to the UNC policy analysis, NCDOT worked with UNC and NCSU to study the practices of other transportation organizations implementing health policies.
- **NCDOT is assisting local decision-makers seeking to include health in their plans.** Its January 2012 workshop with MPOs, RPOs, and stakeholders focused on the potential for integrating health into the long-range comprehensive transportation planning process. NCDOT and its partners are also making resources on health in transportation available to communities through its grant programs, HIA assistance, and SRTS coordinators.

Timeline

2006: Inter-agency Healthy Environments Collaborative organized.

2010: CDC CPPW Grant helps fund research with UNC on State policies that influence health.

July 2011: The NCDOT board requests that the agency focus more explicitly on the public health implications of its activities.

January 2012: NCDOT, NCDHHS, FHWA, and other partners hold a workshop for MPO and RPO partners discussing health in local CTPs.

April 2012: The NCDOT board revises its mission to include the consideration of the economy, health, and well-being of North Carolina.

October 2012: The NCDOT board approves Transportation-Public Health Policy, setting out NCDOT's consideration of health in safety, active transportation, and exposure.

December 2012: The NCDOT board approves the SRTS initiative that integrates planning and health considerations into SRTS programs in coordination with NCDHHS.

Chapter 4: Conclusions and Next Steps

This chapter summarizes main findings from the case studies and analysis and lays out the different health and transportation planning frameworks for metropolitan planning organizations (MPOs) and State Departments of Transportation (DOTs). The chapter then identifies recommendations and suggests next steps for DOTs interested in expanding how they consider health in planning and programs.

Main Findings

The five case studies and the broad scan of additional DOT examples demonstrate that although each DOT may have a unique experience, approach, and set of actors involved in incorporating health in their transportation planning activities, the planning processes, strategies, and challenges are very similar. Each case study DOT incorporates health into its programs and structure at different stages of their planning and to varying degrees. The project team identified a broad range of DOT activities that consider health, including program delivery, technical assistance, coordination with other State agencies (particularly Departments of Public Health), and development of departmental initiatives. These activities occur in parallel with, and may not always be explicitly linked to, the formally defined transportation planning process (see Chapter 2, Figure 3). That process, and its role in DOTs considering health, is addressed in more detail in the next section.

Common characteristics from the DOT case studies include:

- **Supportive Context:** All five case studies operate in environments in which health is being addressed directly or in conjunction with other important topics statewide, supported by legislation, organizational leadership, and multi-agency collaboration. These environments provide motivation, even if the health focus is implicit, such as through a focus on clean air or Safe Routes to School (SRTS) programs, Complete Streets, or smart growth policies that encourage active transportation. The end result is encouragement of transportation decisions that improve health.
- **Partnerships:** All five case studies involve partnerships with the State public health agency and often other State agencies. These partnerships play an important role at the policy, program, and project levels.
- **Role of programs:** Programs are a key avenue for all five case study DOTs to address health. In particular, Complete Streets initiatives and SRTS programs have facilitated the discussion of health and transportation at many stages of statewide planning and decision-making.
- **A broad and evolving approach:** DOTs have been able to integrate health directly into State and local initiatives and plans outside of (but complementary to) the typical statewide planning process. DOTs are exploring ways to directly integrate health into the formal statewide transportation planning framework. For example, DOTs could include health in State Long-Range Transportation Plan (SLRTP) goals, project

evaluation, or the criteria that are used to review candidate projects to fund in the STIP. These activities are at early stages and may be reflected in future plans or STIPs.

This white paper focuses on statewide transportation planning and on the State staff perspective, offering high-level considerations, opportunities, and lessons learned for peer DOTs and partners involved in health and transportation planning and programs. It complements the previous white paper on MPOs and health, and highlights differences on how MPOs and DOTs approach this issue. The study is a resource for interested DOTs and MPOs to use, working with FHWA staff, to explore how health might be considered in transportation planning. This white paper also highlights how other Federal agencies are supporting consideration of health by DOTs through evolving policies, tools, and funding opportunities.

Frameworks

Both white papers examine the different ways that MPOs and DOTs approach health and are successfully considering it in their transportation planning, programs, and other initiatives. Each white paper begins by applying the federally defined transportation planning process to the case study analysis. The research explored how MPOs, DOTs, and their partners are adapting this process and where opportunities exist to consider broadly based aspects of public health in transportation planning.

The basic transportation planning process (see Chapter 2, Figure 3) describes a vertical, top down, and linear process, connecting vision or scenario plans to a 20-year long-range plan with policies, goals, and priorities, to the projects reflected in the Transportation Improvement Program (TIP) or STIP. These projects ideally implement the strategic directions of the plan, for example, by using performance criteria based on the goals to screen, prioritize, or select candidate projects for funding. The resulting transportation decisions – policies, strategies, and investments – are then implemented as part of the metropolitan area and statewide multimodal systems.

In the MPO white paper, the project team adapted the transportation planning process into a framework to evaluate how case study MPOs and their partners are successfully considering broadly based health (see Chapter 1, Figure 1). This DOT white paper assessed the usefulness of the MPO health and planning framework for understanding how the case study DOTs consider health in developing the statewide multimodal system.

This research reached several conclusions on the usefulness of the MPO health planning framework, inclusive of the established statewide and metropolitan area transportation planning process, for understanding how MPOs and DOTs consider health.

1. **MPO Framework:** The MPO health planning framework developed in the MPO white paper proves very useful for understanding and communicating the stages in the planning process where MPOs can consider health. The framework provides valuable insights for interested MPO peers on how they might similarly approach health considerations. The case studies identify examples of how MPOs are beginning to consider health in scenario planning, long-range plan policies and goals, and TIP development. The white paper also identifies stages

for how the case study MPOs consider health in the planning process, ranging from motivations to early actions and structural changes, that can lead to changes in decision-making.

2. **Expanded Framework for DOTs:** As described in Chapter 3, the health planning framework developed for MPOs is limited in explaining how the case study DOTs and their partners successfully consider health. The MPO framework, with a linear flow from vision to long range plan to project selection, must be refined and expanded to be useful for peer DOTs exploring how to consider health. For example, because SLRTPs are often general policy plans, they can provide a limited perspective on how health can be an important element of other important statewide planning processes, plans, and programs. Although an SLRP may not explicitly prioritize a health goal, this might be reflected in statewide safety and congestion plans or rail, port, or nonmotorized modal plans.[42] And although STIPs may not have health-related project selection criteria, the case study DOTs encourage local areas to develop projects with health benefits through policies, technical assistance, or grants. These DOT activities and their results may not be apparent in the SLRTP or STIP, but they do contribute to development of health-related projects that are included in metropolitan area TIPs, local capital improvement plans, transit agency, school district, or social service agency and transit investments and strategies.

   With important and wide-ranging DOT support, these local transportation projects advance healthy communities goals, from improved air quality, to safety, access, and physical activity. These projects become part of the statewide multimodal network, which includes transit, nonmotorized transportation, and human services transportation. Planning for these health related projects involves complex DOT roles and close collaboration with local areas, and is inadequately captured by the basic MPO or DOT statewide framework.

   To better reflect consideration of health in the statewide multimodal transportation system, the project team adopted a more complex and flexible planning framework (see Chapter 3, Figure 5), encompassing other DOTs roles, processes and plans that differ among the case study States. This expanded framework makes it easier to understand how DOTs can play a variety of roles to successfully bring health into the overall statewide transportation system.

3. **Value of DOT Best Practices for MPOs:** The successful approaches case study DOTs use to support transportation that improves community health can provide MPOs with ideas for metropolitan area initiatives. These can include health-supportive regional policies, targeted technical assistance for Complete Streets and SRTS, and funding to improve access to health-related destinations for disadvantaged populations. Although many MPOs have

[42] e.g. Strategic Statewide Safety Plans, Congestion Management Processes, and others. See USDOT/Volpe Center for FHWA, "Trends in Statewide Long-Range Transportation Plans: Core and Emerging Topics," and accompanying database, 2013. http://planning.dot.gov/stateplans/

experience with similar programs, they might consider how to bring these dispersed efforts, often undertaken by local governments, more explicitly within metropolitan area transportation planning. MPOs can incorporate this work into the MPO's collaboratively developed mission, vision, LRTP, or investments as part of a comprehensive regional and multimodal approach to improve community health. These efforts could be connected to explicit health-related goals and metrics for safety, air quality, access, and physical activity. As observed in the MPO white paper, many of the best practice MPOs are in initial phases of integration of health – motivation, partnerships, and early actions. Consideration of some of the DOT initiatives, working with local partners, might be adopted by the MPO as part of structural changes to the planning process.

4. **Value of MPO Best Practices for DOTs:** The approach of case study MPOs can provide DOTs with useful examples of how to directly incorporate health into the established transportation planning process and related products, such as adding health into an SLRTP policy goal, developing health-related performance metrics and targets for the SLRTP, or using health-related criteria in project screening or selection. Although the MPO case studies demonstrate early steps and possible evolution toward a more integrated approach to health in transportation, they also provide useful insights for how interested DOTs might enhance health results by bringing widely ranging initiatives into the statewide planning process.

Next Steps and Recommendations

There will continue to be new opportunities for future Federal coordination and support of broad health considerations in emerging national, State, and local policies and initiatives such as performance-based planning, performance management, and data sharing between health and transportation partners. All case study DOTs are already creatively leveraging Federal funds and programs, including those from USDOT and other agencies such as the Centers for Disease Control and Prevention (CDC). Chapters 2 of this report and the MPO white paper discuss some of these existing Federal resources.

It is an especially opportune time for interested DOTs and MPOs to explore integrating health priorities and data into their transportation planning processes and products. The Moving Ahead for Progress in the 21st Century Act (MAP-21) includes requirements for performance-based planning and performance management that connect decisions to data and measurable outcomes. The legislation provides DOTs and MPOs with flexibility in translating any health-related priorities into relevant performance measures, in combination with the national goals identified in MAP-21.

DOTs in particular have experience translating congestion, asset management, and safety goals into outcome-related performance measures. They can use these measures in plans, investment programs, stakeholder communications, and performance monitoring. However, DOTs are in the early stages of developing and applying performance measures that assess how

transportation decisions accomplish health-related goals, such as improved physical activity or access to health-related destinations.

To successfully consider health in transportation planning, DOTs and MPOs will need to use health-related measures in combination with established transportation measures, such as congestion, roadway condition, or transit capacity, in selecting and assessing projects. For example, transportation planners are able to measure walking and bicycling in terms of mode share or average distances walked. However, they are unlikely to be able to translate changes in physical activity into estimates of improved health outcomes. Tools such as the World Health Organization's Health Economic Assessment Tool are in the early stages of their ability to generate estimates of the economic benefits of improved health indicators from selected transportation decisions. The best way to make progress in this important area of performance measurement is for transportation and health agencies to continue working together, whether at local, State, or Federal levels.

FHWA and USDOT are continuing current efforts to assist interested DOTs and MPOs, working with their transportation and public health partners, to integrate health considerations in transportation planning and decisions. This includes a collaboration between USDOT and CDC to develop an analytical resource for MPOs and DOTs to use to consider health in transportation decision-making. Discussion with the case study agencies suggests that health-related data and performance measures for transportation may be a potential direction for future Federal research. FHWA will continue to coordinate with the Transportation Research Board Health and Transportation Subcommittee and stakeholders such as the American Association of State Highway and Transportation Officials (AASHTO), the Association of Metropolitan Planning Organizations (AMPO), the National Association of Development Organizations (NADO), the CDC, the American Public Health Association, and others on research and activities related to the rapidly evolving topic of health and transportation.

Both the DOT and MPO case studies demonstrate common motivations in terms of health-related statewide, regional, or city-based transportation initiatives and active partnerships with health agencies. There are similar characteristics present in other States and metropolitan areas that could support future successful consideration of health in transportation decision-making. Regardless of where interested DOTs, MPOs, and their partners are in how they consider health, all will benefit from future research, technical assistance, peer exchanges, and capacity building support.

Considering transportation in public health planning and decision-making is also an important goal, as is ensuring that professional groups from both sectors continue efforts to build common terminology and capabilities, understand each other's planning process, and share data and other resources. Collaboration and recognition of mutual interests will help advance the related goals of healthier communities and more effective transportation.

Appendix A: Summary Guide to Relevant Resources

See also Appendix A in the report Metropolitan Area Transportation Planning for Healthy Communities.

Resource	Author	Description	Website
Annotated Bibliography on Health and Physical Activity in Transportation Planning (2004)	Transportation Planning Capacity Building (TPCB) Program (FHWA and FTA Offices of Planning, USDOT Volpe Center)	Annotated bibliography that examines studies and programs that evaluate or demonstrate how health and physical activity concerns can be incorporated into transportation planning processes	http://www.planning.dot.gov/Documents/Health/Bibliography.htm
FHWA Health in Transportation website	Federal Highway Administration	Resources and updates from FHWA and its partners for communities interested in the connections between transportation and health.	http://www.fhwa.dot.gov/planning/health_in_transportation/
State Human Service Transportation Coordinating Councils: An Overview and State Profiles (April 2010)	National Conference of State Legislatures	Survey of state transportation and human service coordination institutions and policies.	http://www.ncsl.org/issues-research/transport/state-coordinating-councils-overview-and-profiles.aspx
Transit at the Table III (2011)	Federal Transit Administration and US DOT Volpe Center	Explores how transit agencies in non-urbanized and rural areas can be more effective partners with state departments of transportation (DOTs) and other entities in the statewide transportation planning and programming process.	http://www.planning.dot.gov/focus_transit_attable.asp

Resource	Author	Description	Website
Transportation-Disadvantaged Populations: Federal Coordination Efforts Could Be Further Strengthened (2012)	Government Accountability Office	Examines existing coordination efforts on both the state and federal level in providing transportation for disadvantaged populations. Makes recommendations for federal actions based on this survey.	http://www.gao.gov/products/GAO-12-647
Innovative State and Local Planning for Coordinated Transportation (2002)	Federal Transit Administration and US DOT Volpe Center	Describes state and local activities coordinating between agencies for human service transportation access.	ntl.bts.gov/lib/19000/19300/19312/PB2002105733.pdf
Creating Healthy Regional Transportation Plans (2012)	TransForm in Collaboration with the California Department of Public Health	Provides overview of CA's Regional Transportation Plans (RTPs), the framework for their creation, the relevance of SB375, and how health can be incorporated. Also provides case studies on health elements in RTPs.	http://transformca.org/resource/creating-healthy-regional-transportation-plans
National Prevention Strategy: Walking	US Surgeon General	Describes the benefits of walking for transportation and provides resources and guidelines for individuals and communities.	http://www.surgeongeneral.gov/initiatives/walking/index.html
America on the Move	USDA National Institute of Food and Agriculture	An initiative to provide resources for individuals and communities on healthy, active lifestyles. Includes a partner database of physical activity studies.	http://www.nifa.usda.gov/nea/food/part/health_part_aom.html

Resource	Author	Description	Website
Comprehensive Planning for Public Health	American Planning Association	Summarizes a survey of local planning department about the inclusion of public health in local comprehensive plans.	http://www.planning.org/research/publichealth/
Public Health and Transportation Case Studies	American Public Health Association	Highlights how governments and NGOs at multiple levels have integrated health priorities with transportation activities and infrastructure.	http://www.apha.org/advocacy/priorities/issues/transportation/casestudies.htm
Federal Resources for Sustainable Communities	Partnership for Sustainable Communities	Discusses livability—including health—resources available to rural communities from HUD, DOT, EPA, and USDA.	http://www.sustainablecommunities.gov/pdf/Supporting_Sustainable_Rural_Communities_FINAL.PDF

Appendix B: Scan of State DOT Health-Related Activities

Case study states are not included below.

	Health Topics			
State	**Access to Food**	**Active Transportation**	**Access to Human Services**	**Safety/Air Quality/Other**
AZ		• Arizona DHS/DOT collaborated on the Active School Neighborhood Checklist as part of SRTS program. The checklist is a "quantitative tool for evaluating the potential long-term health impacts of candidate school sites on the children who will attend them."	• Health and human service organizations consulted during SLRTP development. • SLRTP acknowledges the importance of health access for the state's growing elderly population.	
FL			• Florida Commission for the Transportation Disadvantaged coordinates between multiple State agencies and provides one-call medical transportation information for each county in Florida.	• Department of Health included on development team for SLRTP. • Major recommendation of SLRTP: DOT should collaborate with associated agencies on "community livability" issues, including public health.
ME	• MaineDOT is a member of the Physical Activity and Nutrition Coordinating Council, which includes other State agencies.	• MaineDOT sponsors Healthy Maine Walks, which provides information on walking routes and events. • MaineDOT has a Healthy Trails Initiative to invest $80 million in bike/ped trails and bridges over the next 20 years.	• Some on-demand transit services funded by State Department of Health and Human Services.	

	Health Topics			
State	**Access to Food**	**Active Transportation**	**Access to Human Services**	**Safety/Air Quality/Other**
NH		• NH Department of Health and Human Services sponsors HEAL, a public-NGO collaboration to address obesity. Collaboration with UNH on a Livable Walkable Communities toolkit.	• State Coordinating Council (SCC) includes NHDOT and establishes community transportation regions and coordinates between local providers, regional councils, and State agencies.	• Major policy of SLRTP: "Make transportation investments that preserve and enhance public health, the environment, and quality of life."
NJ	• ShapingNJ is a statewide initiative to promote healthy living and build capacity for healthy programs in State policy.	• SRTS Resource Center for local communities. • NJDOT and Rutgers collaborate on a State Bicycle and Pedestrian Resource Center		• NJ State Development and Redevelopment Plan addresses health and livability.
NM	• New Mexico passed a law (HJM10) in 2007 that creates a food gap taskforce to investigate improved access to healthy and affordable foods for underserved New Mexicans. Topics of investigation included transportation and distribution, and NMDOT was represented on the task force. Final report presented in 2008.	• NMDOT maintains a State Bike Route system across the state.	• Statewide Multimodal Transportation Plan identifies "Strategic Multimodal Transportation Corridors" on which to focus investment. Criteria for selection includes location of healthcare facilities.	

	Health Topics			
State	**Access to Food**	**Active Transportation**	**Access to Human Services**	**Safety/Air Quality/Other**
OH		• In May 2011 ODOT helped host the Healthy Communities Active Transportation Conference with FHWA and the Ohio Departments of Health and Natural Resources.		• Access Ohio 2040, the State's transportation plan, incorporates feedback from poverty law, senior citizens, and bike/ped groups. • Healthy Ohio is a statewide initiative led by the Ohio Department of Health to promote health and wellness.
OR		• Active Transportation is its own section within ODOT, including an active transportation grant program using State and Federal funds.		• LRTP states "It is the policy of the State of Oregon to increase access to...promote health by encouraging development of compact communities" • Oregon Health Authority received grant from CDC to pilot an HIA program. Trainings in HIA are offered to public officials. The HIA Program is also working with Portland Metro and ODOT to assess potential health impacts of Metro's Climate Smart Communities Program.
TN	• An Eat Well, Play More report made suggestions for TDOT to integrate food access, physical activity, and stronger transit into its programs.	• TDOT is a partner in the State's Tennessee Obesity Task force and the associated Eat Well, Play More report, including the Built Environment/Transportation action team. • Tennessee Statewide Nutrition and Physical Activity Plan identifies objectives and strategies for improving active transportation and food access, including encouraging TDOT to adopt a Complete Streets Policy, support SRTS, and coordinate with local authorities on land use.		• In addition to the Tennessee Obesity Task Force, the governor created a Health and Wellness Task Force in March 2012.

	Health Topics			
State	**Access to Food**	**Active Transportation**	**Access to Human Services**	**Safety/Air Quality/Other**
WA	• In June 2010, Gov. Gregoire issued an executive order directing State agencies to collaborate with NGOs to strengthen the State's food policy, programs and address other food-related issues. • June 2010 report, "Access to Healthy Foods in Washington" led by WA State Department of Health identified barriers to food access and potential actions to address, including transportation issues.	• Washington State passed a law in 2007 (SB5186) that "declares an intent to promote policy and planning efforts that increase access. . . for regular exercise in all communities." State agencies offering planning grants must accord preference to municipalities that use urban planning to increase access to physical activity and transportation policy and infrastructure changes to promote non-motorized modes. • Following a requirement in the Complete Streets Bill passed in 2011, WSDOT created a grant program for communities seeking to implement complete streets along state highway routes. • WSDOT provides community design assistance to communities implementing complete streets.	• Agency Council on Coordinated Transportation (ACCT) coordinates between WSDOT, state and local agencies, advocates, and legislators on human service transportation. Led on the creation of regional brokerages for non-emergency medical transportation. • Works with regional bodies to create local Coordinated Human Service Transportation Plans (example). • Coordinating with Oregon DOT on bi-state Trip Planner for participating transit agencies to coordinate provision of trips, especially when special accommodation are required.	• LRTP policy goal: "Environment: To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment." • Washington State passed a law (SB 6099) in 2007, which requires planners and transportation officials to incorporate the recommendations of a HIA into the final design of the SR520 bridge. The law refers to a single project and is not a broad requirement for all projects in the State.
WI			• DOT participation in Interagency Council on Transportation Coordination.	• Wisconsin Health Impact Assessment Online Toolkit (State was recipient of CDC pilot grant on HIAs)

Appendix C: Sample State DOT Discussion Questions

1. How do you define "health" as it relates to statewide transportation planning, and what topics does it include? What was the impetus for the health focus, and how has this definition/consideration evolved over time?

2. How is health incorporated into the statewide transportation planning process and decision-making?
    a. Strategic focus (Vision/scenario plans, State Long Range Plan)
    b. Coordination (with MPOs, RPOs/rural areas)
    c. Stakeholder and public participation/outreach
    d. Technical analysis (data collection, performance measures, models, etc.)
    e. Project selection and funding (STIP)

3. Who are the key decisionmakers in the transportation planning process? What are the key timelines and triggers during the transportation planning process for which decisions are needed?

4. How is health incorporated into other transportation-related programs/initiatives of the DOT or partners?
    a. Grants
    b. Studies
    c. Technical assistance
    d. Human services transportation

5. Have you received health-related requests, including requests for health impact assessments? If so, from whom and how did you respond?

6. Who within the DOT is typically involved in health-related activities? What are their areas of expertise? Does the DOT rely on staff/expertise external to the agency?

7. Who are the key partners for your health and transportation activities and how do you collaborate?
    a. Federal agencies
    b. Other State agencies
    c. MPOs
    d. RPOs/regional/rural entities
    e. Local governments
    f. Local agencies and organizations
    g. Non-government organizations
    h. Other

8. What are the biggest accomplishments or milestones from your transportation and health activities? What are your near-term next steps?

9. What gaps or challenges still exist for incorporating health into your activities? Where do you see targeting improvement for the future?

10. What do you see as the greatest opportunities for other DOTs to engage in transportation planning for healthy communities?

11. What are your lessons learned and what insights would you like to provide to peer DOTs interested in considering health in their planning process?

12. What other DOTs, if any, are you aware of that are successfully integrating health into the statewide transportation planning process or in engaging in broader health-related initiatives

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