The INSTITUTE for Public Policy & Economic Development at Wilkes University

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SUSTAINABLE TRANSPORTATION

5/12/2016

Planning, Land use, Transportation, and Infrastructure Task Force

The purpose of this toolkit is to show community leaders both small-scale and large-scale steps to enhance sustainability by providing better transportation options, and further, to implement those options across different regions in order to promote interconnectivity and a unified effort toward sustainable transportation.

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Study prepared by: The Institute for Public Policy & Economic Development

Executive Director – Teri Ooms
Research Analyst – Andrew Chew
Research Assistant – Nimita Patel
Student Intern – Taghreed Faydi (Marywood University), Matthew Salzarulo (University of Scranton)

The Institute's Planning, Land Use, Transportation, and Infrastructure Task Force Members

- Dr. Marleen Troy, Professor, Wilkes University, Chair
- Tom Curra, President, WVIA Public Media
- Pam Fendrock
- Norman Gavlick, Executive Director, Luzerne County Transportation Authority
- Tom Lawson, Vice President, Borton Lawson
- Robert Luciani, Vice President, Prudential Retirement Services
- Lawrence Malski, Director, Pennsylvania Northeast Regional Railroad Authority
- Jill Murray, Ph.D., Executive Vice President/Chief Academic Officer, Lackawanna College
- Amanda Modrovsky, Director Sponsored Programs, Wilkes University
- Kevin O'Donnell, President, CAN DO
- Steve Pitoniak, Lackawanna County Planning Commission
- Lee Puskar, Interim Director, Luzerne County Planning Commission
- Nicholas Semon, Chief Sustainability Consultant, Semon Consulting, LLC
- Rick Williams, Luzerne County Council

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INTRODUCTION

The Institute's 2014 Primer on Sustainable Communities explored the six livability principles established by three federal agencies: the EPA, HUD, and DOT, and what they mean for communities looking to enhance their sustainability. The first of the six livability principles addresses the area of transportation, with the overarching goal of providing more sustainable transportation choices to the community. Increasing transportation options sustainably can "decrease household transportation costs, reduce…dependence on oil, improve air quality, and promote public health."[1]

Local leaders can make an impact by helping to ensure that people who live and work in their communities have access to alternative modes of transportation, such as walking, biking, and public transit. Having fewer workers commuting to work in private vehicles lessens traffic congestion and improves air quality. Walking and biking also have significant health benefits.

The purpose of this toolkit is to show community leaders both small-scale and large-scale steps to enhance sustainability by providing better transportation options, and further, to implement those options across different regions in order to promote interconnectivity and a unified effort toward sustainable transportation. In Northeastern Pennsylvania, there are many different types of communities with widely varying forms – dense urban areas, small towns, growing suburban communities, and rural areas. The sustainable transportation strategies presented in this report are not one-size fits all; as a result, a community seeking to become more sustainable can review these strategies and pursue those that are most feasible for its own situation and which coincide with its sustainability goals.

SUSTAINABLE TRANSPORTATION STRATEGIES

Pedestrian Infrastructure

Walking is both a sustainable and healthy mode of transportation. Some communities are naturally walkable, with sidewalks, denser housing patterns, and mixed uses. For example, most downtown areas have greater levels of walkability, as downtown areas are usually more commercial and thus make walking from store to store easier via sidewalks. Further, downtown areas are generally comprised of many small blocks.[2] This allows traffic to be dispersed around many small areas; this is necessary to create 'safe spaces' for walkers, as less high speed, high volume traffic creates an environment where pedestrians feel secure enough to walk freely.

Traffic calming measures promote more pedestrians in downtown areas. Raised crosswalks and medians are additional ways to promote more pedestrian activity in central business districts.

Other communities can take steps to promote walkability in the ways that downtown areas have, though some may need to employ differing methods. Still, any community can take steps to encourage pedestrian infrastructure in a number of ways.

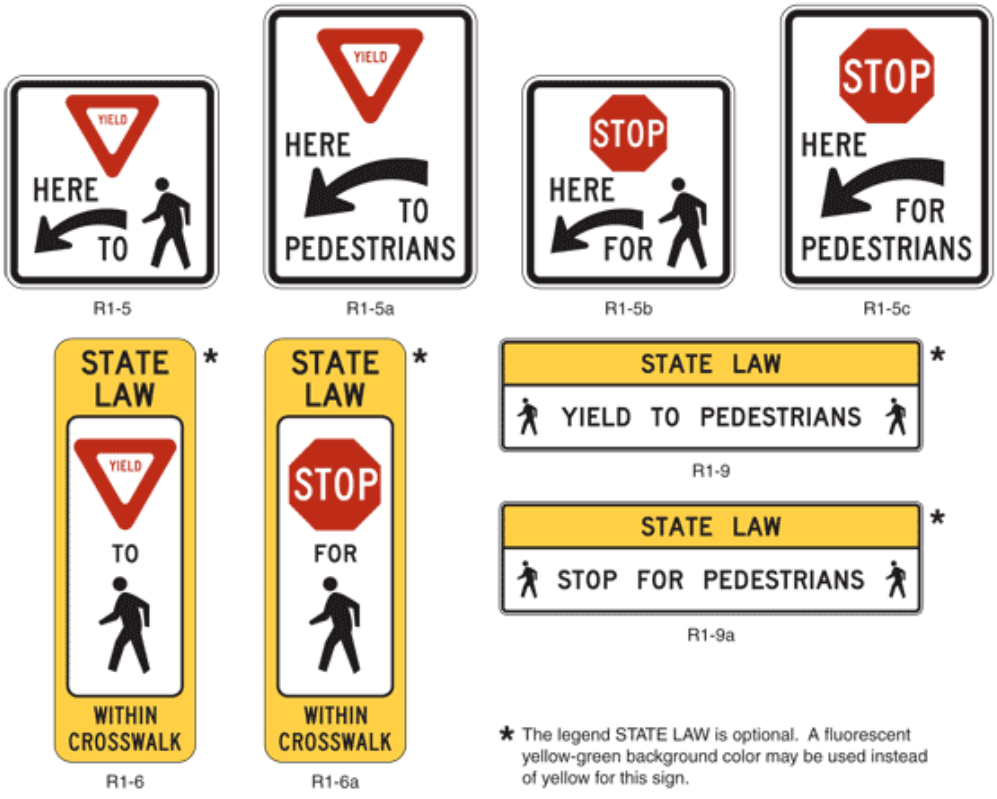
One method of promoting pedestrian infrastructure is a sidewalk ordinance as part of the local zoning or building code. These ordinances are used in many communities nationwide. Communities can require

residential developers to install sidewalks within new subdivisions, and require homeowners to maintain or install sidewalks on their own property. As shown through their implementation in downtown areas, sidewalks are a fundamental element of pedestrian infrastructure which enable walkability. One drawback of this policy is that it places an additional cost burden on developers and homeowners. Communities can explore ways to mitigate this, such as providing additional incentives (increased density, etc.) to developers who install pedestrian infrastructure or providing small grants to homeowners to install sidewalks on their property. Research has demonstrated that sidewalks not only enhance walkability and quality of life, but also may actually have a positive impact on property values in some cases.[3]

Communities can also make improvements to crosswalks and intersections to improve walkability. Improving pedestrian safety by adding crosswalk signage is one way to do this. Small free-standing signs are available for this purpose. The signs indicate, "State Law – Yield to Pedestrians Within Crosswalk."[4] One borough, Mount Pleasant in Westmoreland County, installed 23 of these signs throughout the borough. They were obtained for no cost to the borough from PennDOT and require no maintenance.[5] Another step in promoting alternative transportation is to ensure that pedestrian crossing signals are in place at signalized intersections. In some cases, the timing of signals can be adjusted to make it easier for pedestrians to cross busy roadways. Communities may need to coordinate with PennDOT to pursue these types of changes. Again, these measures will ensure pedestrian safety, which is pivotal to the increase in pedestrian traffic and decrease in vehicular traffic. The image below shows example signage that may be used.

Image Source: Manual on Uniform Traffic Control Devices, Federal Highway Administration

Figure 2B-2. Unsignalized Pedestrian Crosswalk Signs



Bicycle Infrastructure

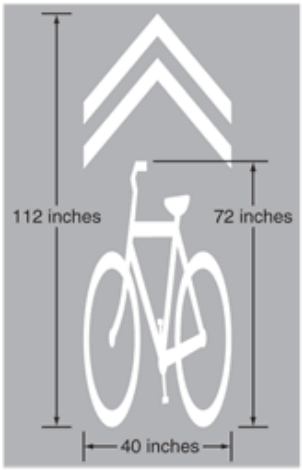
As with walking, cycling is another sustainable mode of transportation associated with less traffic congestion, better air quality, and healthier lifestyles. Bicycling is one mode that has grown in popularity nationwide as a means of both recreation and personal transportation. One survey showed that the number of trips made by bicycle increased from 1.7 billion in 2001 to 4 billion in 2009. That survey also showed that Pennsylvania was among the states with the highest growth of bicycle commuting.[6]

Nearly any community can enhance its transportation sustainability by cultivating opportunities for bicycling. One such method is by using bike lanes or other designated routes of bicycling. Bike lanes are designated lanes on a street or highway for cyclists. They may or may not be separated from the vehicle traffic lanes by buffers. The recommended width of a bike lane is five feet (up to two feet of this width can be a gutter pan, while at least three feet should be "ridable surface.")[7]

In communities not interested in creating bike lanes, or who do not have the resources to restripe or reconfigure existing roadways, "sharrows" are an ever simpler tool. Sharrows, a term for shared-lane markings, use a simple bicycle and arrow symbol placed on a travel lane to indicate to all road users that bicycles may occupy the travel lane. They are appropriate on roadways with a speed limit of 35 miles per hour or lower. In residential neighborhoods, they can help maintain safety by encouraging cyclists to ride the same direction as traffic, alert drivers to the presence of cyclists, and reduce the chance of a bicyclist impacting the open door of a parked vehicle.[8]

Image Source: Manual on Uniform Traffic Control Devices, Federal Highway Administration

Figure 9C-9. Shared Lane Marking



In more rural communities, bicycle infrastructure efforts can overlap with recreation, such as Rails to Trails initiatives or other trails. Rails to Trails seeks to make bike trails out of old railways and connecting corridors in order to help people live healthier lifestyles by traveling from place to place with ease. Because of this, communities pursuing new trail systems should consider how trails could connect to existing clusters of residential, commercial, and industrial uses. As a result, trails can serve multiple purposes: providing recreational opportunities for residents while potentially enabling walking or biking to replace vehicle trips.

There are other elements of bicycle infrastructure that some communities have implemented. Installing bicycle storage racks in business districts and near public buildings (such as schools and libraries)

promotes cycling as a transportation alternative. Further, many bus transit systems including the Luzerne County Transit Authority (LCTA), have equipped their buses with bike racks to promote more sustainable transportation. Thus, not only can citizens reduce greenhouse gas emissions by using public transit, but they can also cut it out completely by combining public transit with bike riding.

Changes to Local Land Use Policies

In addition to the bicycle and pedestrian infrastructure that can be constructed by municipalities, changes to land use policies can also influence the diversity in transportation choices available.

In general, denser patterns of development lend themselves to walkability, ridability, and public transit. Municipalities can implement Smart Growth principles into their zoning ordinances and comprehensive plans to achieve this outcome. According to the EPA, Smart Growth includes "a range of development and conservation strategies that help protect our health and natural environment and make our communities more attractive, economically stronger, and more socially diverse." Among the potential outcomes of smart growth are conservation of historic resources by reinvesting in existing infrastructure and buildings, a range of different housing types, higher quality of life and strengthened local tax base, and neighborhoods that have homes near shops, offices, schools, houses of worship, parks and other amenities, which provide a range of transportation choices including walking, bicycling, public transit, or driving.[9] There are ten basic principles to guide smart growth strategies:

- Mixed land uses
- Compact building design
- Range of housing opportunities and choices
- Walkable neighborhoods
- Distinct, attractive communities with a strong sense of place
- Preserve open space, farmland, and natural beauty
- Strengthen and guide development toward existing communities
- Variety of transportation choices
- Make development decisions predictable, fair, and cost effective
- Encourage community and stakeholder collaboration[10]

Additional materials on Smart Growth strategies are available from the EPA at www.epa.gov/smartgrowth , including the *This is Smart Growth* report, which highlights uses of Smart Growth in cities, suburbs, small towns, and rural areas, and the *Getting to Smart Growth* series, which provides many sample policies to consider.

In some communities, minimum parking requirements may warrant reconsideration. Commercial, industrial, and multifamily residential uses often have corresponding parking minimums under most local zoning codes. However, some academic research has suggested that these minimums are often based on poor data or erroneous assumptions, and often designed for peak demand rather than typical demand.[11] Excessive parking can undermine sustainability in several ways: it encourages vehicular trips as opposed to alternative modes, thereby increasing congestion and reducing air quality; furthermore, the increased amount of land used for parking reduces green space while adding to stormwater problems. Some communities have revised parking minimums, while others have even eliminated them completely, especially in urban areas.

Transit-Oriented Development

Not all communities in Northeastern Pennsylvania have access to regular scheduled transit bus service, and there is no other form of public transit currently. However, those communities that do have regularly scheduled transit busses can use transit-oriented development strategies in order to promote sustainable growth. Transit-oriented development is the key to implementing wider scale green transportation amongst cities.

Transit-oriented development (TOD) is the approach of focusing urban development around public transit facilities. In the past, TOD has largely been an approach used by larger cities, and almost exclusively in relation to rail-based public transit systems. For example, in many metro areas, mixed use development is clustered at a higher density around commuter rail, light rail, or subway stations. Use of TOD with bus systems is newer and has yielded mixed results. Some smaller cities, such as Boulder, Colorado, have seen success by using TOD in conjunction with the region's bus system. Density of the community is the largest predictor of TOD success.[12]

Despite the region's limited opportunities for large scale TOD, an important lesson that any community can learn from TOD is that increasing development opportunities and guiding development towards existing bus routes (through use of zoning, comprehensive plans, and other means) can boost transit ridership, which in turn results in fewer cars on the road greater sustainability overall.

In 2012, The Institute prepared a brief on forming a Regional Transportation Authority to coordinate public transportation in counties, air travel, and regional rail. Not only would this lead to more effective transportation planning, but it would also make it the third largest authority in the Commonwealth paving the way for additional federal funds. The concept was adopted and has move to the planning stage. This leads to another efficiency in transportation.

One important way to begin achieving this bus route development is through Bus Rapid Transit (BRT). BRT strives to increase urban mobility though high capacity, lower cost transportation services which quickly transports passengers to their desired destinations.[13] Through a program like BRT, cities such as Scranton and Wilkes-Barre will be able to provide connecting transportation for commuters, thus moving green transportation outside of individual communities and working toward a large scale, interconnected method of sustainable transportation.

CASE STUDIES

Bicycle Infrastructure in Davis, California

Davis is a small city in Northern California (population just over 60,000). The city made an effort to implement bike-friendly policies and practices, such as safe streets, bike routes and trails, and bike parking. In Davis, an important piece of the bicycle infrastructure is its greenbelts – a network of public park-like spaces that connect neighborhoods for pedestrians and cyclists. These spaces offer multiple benefits, including open space, recreational opportunities for adults and children, and a safe place separate from vehicle traffic to ride a bicycle either recreationally or as a mode of transportation. Alternative transportation in Davis is also supplemented by the city's bus system. Like Davis, communities in Northeastern Pennsylvania interested in sustainable transportation can consider how existing parks, trails, and other public spaces can serve as both thoroughfares for bike and pedestrian transportation in additional to their recreational purposes.[14]

Public Transit in Missoula, Montana

Missoula (population approximately 57,000) is a small city in Western Montana that is home to the University of Montana. Though car transportation is the dominant mode in the city, the city's extensive bus system, the Mountain Line, helps to ensure that people can get around when they cannot or do not want to drive. The bus system has created a strategic partnership with the University to allow students to ride free, and local businesses could arrange for employee discounts.[15] Recently, the Mountain Line took an even bigger step to grow ridership by implementing "zero fare" as a pilot program. Transportation is offered at no cost to riders – the service is funded entirely by community partners including the University, local and county government agencies, the local school district, a hospital, and several major businesses. As a result of the zero fare program, ridership is expected to grow 45 percent over the three year timespan of the pilot program.[16] Such dramatic increases in transit usage is a big step in becoming a more sustainable community.

FINANCIAL AND TECHNICAL RESOURCES

Investing in significant transportation infrastructure at the municipal level can be difficult. Many smaller municipalities have trouble adequately maintaining existing infrastructure, so it is not difficult to see why new projects may not be a priority. However, some projects may have little or no direct cost to municipalities. As stated above, some pedestrian and bicycle infrastructure, such as signage, may be provided by PennDOT. Municipalities will be required to partner with PennDOT on any initiatives that involve a state highway. Furthermore, changes to municipal ordinances that promote sustainable transportation, such as sidewalk ordinances, zoning code revisions, and Smart Growth plans, can have a minimal cost for many municipalities, or may be paid for with funds from the Municipal Assistance Program (MAP).

The Local Share Account (LSA) program is also available for municipalities to invest in public projects, including some infrastructure investment. Both the MAP and LSA programs are administered by the PA Department of Community and Economic Development. More information is available on www.newpa.com

Finally, it is important to consider how partnering with stakeholders like hospitals, higher education institutions, and major businesses could help fund sustainability projects. For example, an institution may be willing to partner with a municipality for improvements to pedestrian and bicycle infrastructure. Local leaders, transit system officials, and institutional and business leaders can also collaborate on ways to enhance transit service, as was done in Missoula, Montana.

ENDNOTES

[1] U.S. Department of Transportation, (n.d.). Livability 101: Six principles of livability.
[2] Speck, Jeff. (2014). "Downtown Walkability Analysis." Speck & Associates, LLC. http://www.athensclarkecounty.com/5777/Downtown-Streetscape-Improvements
[3] Cortright, Joe. (2009). "How Walkability Raises Home Values in U.S. Cities." CEOs For Cities.
[4] Federal Highway Administration. (2009) *Manual on Uniform Traffic Control Devices*. Part 2.
[5] Vernon, Kelly. "Mt. Pleasant adds 23 new pedestrian crosswalk placards" 27 June 2013. *The Mt. Pleasant Journal*.
[6] The League of American Bicyclists. "Bicycle Commuting Data." http://www.bikeleague.org/commutingdata
[7] American Association of State Highway and Transportation Officials. (2012) *Guide for the Development of Bicycle Facilities*.
[8] Federal Highway Administration. (2009) *Manual on Uniform Traffic Control Devices*. Part 9.
[9] Environmental Protection Agency, (n.d.). "About Smart Growth: What is smart growth?" http://www.epa.gov/smartgrowth/about-smart-growth

[10] Environmental Protection Agency, (n.d.). "About Smart Growth: What is smart growth?" http://www.epa.gov/smartgrowth/about-smart-growth
[11] Shoup, Donald C. (1999) "The trouble with minimum parking requirements." *Transportation Research Part A.*
[12] Currie, Graham (n.d.) "Strengths and Weakness of Bus in Relation to Transit Oriented Development." Reconnecting America.
[13] National BRT Institute. (n.d.). http://nbrti.org/
[14] Smart Growth Network (n.d.) This is Smart Growth http://www.epa.gov/sites/production/files/2014-04/documents/this-is-smart-growth.pdf
[15] Smart Growth Network (n.d.) This is Smart Growth http://www.epa.gov/sites/production/files/2014-04/documents/this-is-smart-growth.pdf
[16] Mountain Line (n.d.) "Zero Fare" http://www.mountainline.com/your-future-mountain-line/zero-fare/