



# Delaware Statewide



## Pedestrian Action Plan

*Phase 1:  
Policy Analysis  
Document*



July 2007



# Delaware Statewide Pedestrian Action Plan Phase I: Policy Analysis Document

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## Table of Contents

<b>Chapter I: Introduction</b>	<b>1</b>
Executive Order No. 83.....	1
Planning Process.....	2
Advisory Council.....	3
<b>Chapter II: The Importance of Walking and Pedestrian Facilities</b>	<b>4</b>
Walking: A Fundamental Means of Transportation.....	4
Health Benefits.....	5
Travel Choices .....	10
Community Livability .....	12
<b>Chapter III: Issues and Concerns for Pedestrians</b>	<b>15</b>
Pedestrian Safety .....	15
Bicycle Safety.....	18
Walking to School .....	19
Community Connectivity.....	20
<b>Chapter IV: Policies, Regulations and Practices</b> .....	<b>22</b>
Federal Policies, Regulations and Practices.....	22
National Complete Street Initiative.....	24
Complete Streets Illustrations.....	25
State Policies, Regulations and Practices .....	29
Context Sensitive Design.....	31
Other Statewide Activities.....	32
Local Policies, Regulations and Practices.....	35
Summary of Selected County and Municipal Codes for Sidewalks.....	37
<b>Chapter V: Phase I Recommendations</b>	<b>43</b>
Plan Vision .....	43
Goals, Objectives and Recommended Actions.....	43
Next Steps.....	52
<b>Glossary</b> .....	<b>53</b>
<b>References</b> .....	<b>61</b>
<b>Appendices</b>	
Appendix A – Advisory Council on Pedestrian Awareness and Walkability	
Appendix B – Technical Advisory Committee	
Appendix C – Department of Justice, A Guide to Disability Rights Laws	

## Chapter I: Introduction

### Governor's Vision

***“Make walking central to personal mobility and fitness!”***

Governor Ruth Ann Minner unveiled the Livable Delaware Initiative in March of 2001 as a positive, proactive strategy to curb sprawl and direct growth to areas where the State, counties, and municipal governments are most prepared to accommodate growth in terms of infrastructure investment and thoughtful planning. The Livable Delaware Agenda promotes the walkability of communities through principles such as traditional neighborhood design, mobility-friendly design, mixed-use and infill developments. The Governor's vision is to make walking central to personal mobility and fitness.

### **Executive Order No. 83**

As part of the implementation of this strategy, in March of 2006, the Governor signed into effect Executive Order No. 83. The purpose of this order is to develop, adopt, and implement a Statewide Pedestrian Action Plan. This order requires that the Plan address and propose solutions to identified key issues in an effort to make walking a safe, convenient, efficient and comfortable means of transportation.

An Advisory Council on Walkability and Pedestrian Awareness was established to assist the Delaware Department of Transportation (DelDOT) with the development of a Statewide Pedestrian Action Plan. The Council, appointed by the Governor and serving at the Governor's pleasure, represents a broad range of community interests. The Council consists of representatives from the following organizations and interests.

- Division of Planning, Delaware Department of Transportation
- Division of Parks and Recreation, Department of Natural Resources and Environmental Control
- Office of Highway Safety, Department of Safety and Homeland Security
- Delaware Greenways
- American Heart Association of Delaware
- American Lung Association of Delaware
- A civic or homeowners association from each county
- An organization that promotes physical activity, including walking, from each county
- The Public Advisory Committee of the Wilmington Metropolitan Area Planning Council
- The Public Advisory Committee of the Dover/Kent County Metropolitan Planning Organization
- The Delaware League of Local Governments
- The Architectural Accessibility Board
- The physically disabled

### **Executive Order No. 83 Key Issues**

- a. Ensuring that paths and sidewalks are continuous and interconnected where feasible;*
- b. Developing consistent design standards for crosswalks, sidewalks and pathways;*
- c. Clarifying maintenance responsibility for sidewalks;*
- d. Reviewing traffic rules and driver behavior to help support a safer pedestrian environment; and*
- e. Promoting land-use and traffic patterns that encourage walking and reduce air pollution.*

- The visually impaired

A Technical Advisory Committee (TAC) was formed to provide technical assistance in the preparation of this Plan. This Committee is comprised of professionals with knowledge and experience in issues related to pedestrian and transportation planning from the following organizations.

- The Divisions of Planning, Policy, Traffic, Management and Operations in the Delaware Department of Transportation
- The Federal Highway Administration
- The Delaware Health and Social Services
- The University of Delaware Cooperative Extension
- The Delaware Department of Education
- AstraZeneca Pharmaceutical
- The Delaware Authority for Regional Transit
- The Office of State Planning
- Home Builders Association of Delaware
- The Delaware Transportation Management Association

The development of a Statewide Pedestrian Action Plan is part of an ongoing process with an emphasis on achieving the vision of making walking central to personal mobility and fitness. Successful development and implementation of a Plan relies largely upon the collaboration of state, regional, and local agencies, as well as partnership with private organizations and businesses, and most importantly, the citizens of Delaware.

### **Planning Process**

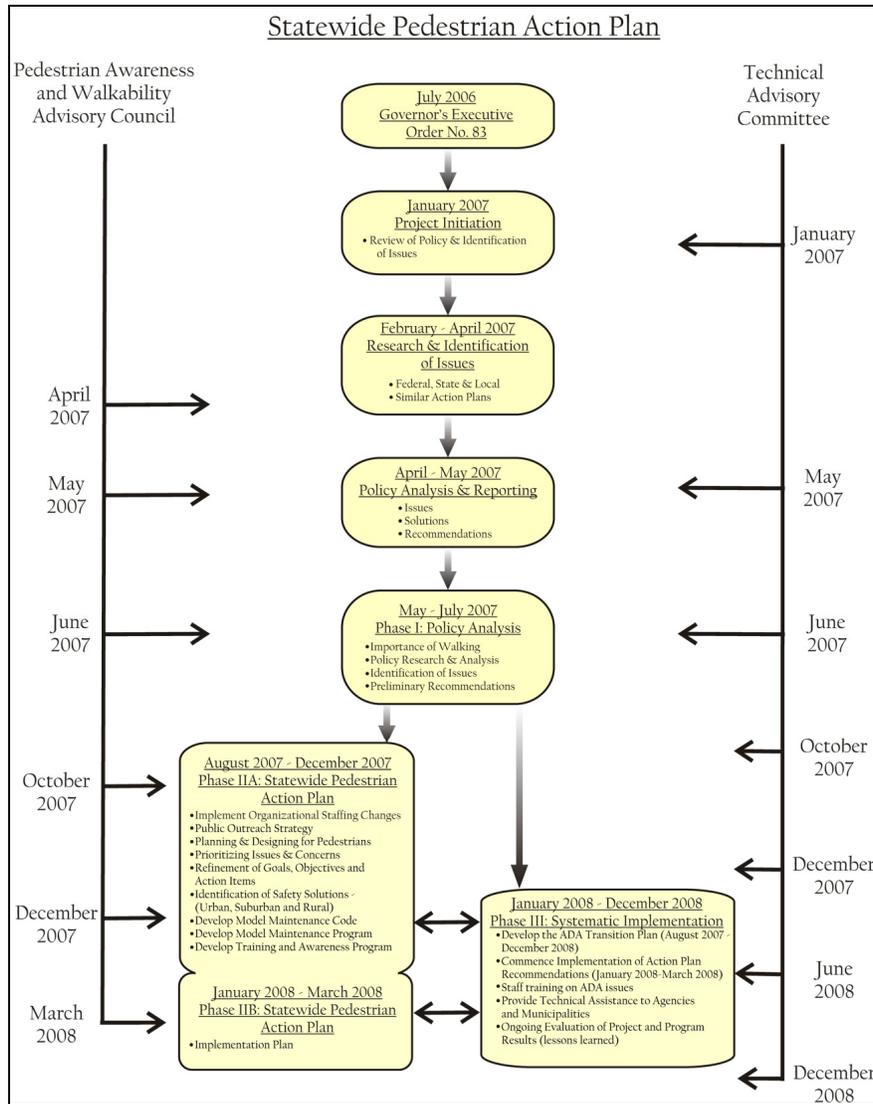
The Statewide Pedestrian Action Plan is being developed in two phases followed by systematic implementation. Phase I consists of policy analysis and Phase II focuses on development of the Action Plan. Phase III, Systematic Implementation will consist of development of a facility inventory and phased Transition Plan. Each phase of project development is depicted on the process diagram outlined on the following page. In the analysis of relevant policies, the benefits of walking and pedestrian facilities are discussed. These benefits include walking and pedestrian activity as a fundamental requirement of daily life, health, transportation, and the community. The most common concerns and issues related to pedestrian safety, access and mobility are outlined in this document. An overview of the policies, regulations, and practices at the federal, state, county and municipal levels is presented as well. This document includes recommendations such as a vision statement to achieve walkability with plan goals and objectives. Additional recommendations are presented in the form of Action Items required to be implemented as part of Phase II of the plan development process.

Phase II of the plan development process includes establishment of baseline conditions for characteristic areas across the state through observation of pedestrian activity, as well as identification of safety and land use development issues. Phase I of this study was designed to support plan development by identifying pedestrian trends and characteristics; identifying plan goals and objectives; and, prioritizing issues and concerns. Phase II will include technical analysis to support changes to policies, procedures and regulations necessary to accomplish specific goals and objectives outlined in this document. A **Best Practice Guide** to be developed during Phase II will outline design standards for pedestrian facilities. The identification of countermeasures, implementation strategies, and evaluation methods will also be addressed in the Statewide Pedestrian Action Plan. Phase III will focus on implementation.

## Advisory Council Involvement

The Advisory Council met routinely throughout the development of this Policy Analysis document in preparation for development of a Statewide Pedestrian Action Plan. Meetings with the Council provided an opportunity to share ideas and information; educate one another about policies, standards and regulations; obtain valuable input from varied interests; and, develop partnerships for successful implementation of strategies that impact local communities and individuals with special needs.

### 1: Planning Process Diagram



## Chapter II: The Importance of Walking and Pedestrian Facilities

### *Why should we walk?*

#### **Walking: A Fundamental Means of Transportation**

Walking is the most fundamental human activity that provides connections between activities and other transportation modes.<sup>1</sup> Walking serves as the most basic means for human functionality. Walking and bicycling are considered forms of active transportation.

Until recently, walking and bicycling had a much more invisible role in transportation planning. Traffic engineering has historically focused primarily on motorized transportation modes.

#### **Facts About Walking**

- Walking does not require any special equipment.
- Walking does not produce polluting waste.
- Walking is free to everyone.
- Walking-friendly places are people-friendly places.
- Walking promotes personal health and fitness.
- Nearly all journeys involve walking to connect to other modes of transportation.
- Safe Routes to Schools and school travel plans help encourage walking to school.
- Improvements to both walking facilities and public transit provide environmental benefits.
- Access to public open space promotes walking.
- Although a fundamental means of transportation with numerous benefits, walking is on the decline.

Walking and bicycling were not considered mobility choices, although motorized travel always involves walking and sometimes bicycling. Once a person is outside the vehicle, that individual becomes a pedestrian and must walk or bike to transit service, a vehicle, a place of work, stores in a shopping mall, a restaurant, or even to get the mail. Everyone is a pedestrian at some point during each day.

Motorized travel has made it possible for development patterns to spread out over a large area. We are able to cover long distances that allow us to live far from work and daily activities. As a result, we have diminished the need to be within close proximity to schools, recreation areas, shopping centers, and even our neighbors, making walking a less practical means of transportation. The very fabric of a traditional community has changed due to our ability to travel great distances. Such dependence on the vehicle has created many

unintended consequences such as sprawl. Sprawl is a result of development and travel patterns with characteristics such as:

- residential developments located far from work and school which makes for long commutes and high energy consumption;
- a decreased interaction within the community and neighborhood which weakens our sense of place and belonging; and
- a lack of nearby destinations and accessible pedestrian facilities which results in walking less generally leads to a more sedentary lifestyle.

As a result of these development patterns, users of non-motorized travel such as walking and bicycling are often ignored. Traffic engineering and design standards of past generations often treated pedestrians and bicyclists as impediments to an “efficient” roadway design. “Efficiency” was measured by how fast the vehicles could move through a corridor in terms of capacity or

<sup>1</sup> Litman, Todd, “Quantifying the Benefits of Nonmotorized Transportation for Achieving Mobility Management Objectives,” Victoria Transport Policy Institute, November 2004, [www.vtpi.org](http://www.vtpi.org).

the number of vehicles that the roadway can accommodate during a given time. “Travel cost” is measured by the value of the time spent traveling in a motor vehicle. Pedestrians and bicyclists tended to “slow down” the traffic and hence lead to the “deterioration” of the performance of a roadway or a “poor” level of service. Pedestrians and bicyclists have often been sidelined in favor of constructing facilities that benefited only motorized vehicular travel. The traffic flow, or the moving speed of vehicles, was and has been the principal concern until recently.

Since the late 1980s, there has been tremendous progress in recognizing the importance of nonmotorized travel. We have rediscovered the many benefits of walking and bicycling. Some of these benefits, however, are sometimes not easy to quantify. Recent research has been able to identify the values of walking and bicycling in terms of physical activities and their associated health benefits, as travel options to all people regardless of backgrounds and social standings, and, creating a more “livable” environment, which was considered to be diminishing due to our dependence on motorized travel.

Recent national polls found that 55% of Americans would like to walk more instead of driving and 52% would like to bicycle more. Therefore, communities are looking for ways to reshape neighborhoods to make it easier to walk and bicycle. Studies suggest solutions that promote walking and bicycling include: improving facilities for walking and biking, installing traffic calming measures to slow driver speeds, creating Safe Routes to School programs to encourage kids to walk and bike to school, focusing development around transit stops, retrofitting sprawling neighborhoods, providing connections between neighborhoods and revitalizing older neighborhoods that are already walkable.<sup>2</sup> Addressing issues of walkability is essential for both personal health and long-term health of our communities.

### Health Benefits



A moderate level of physical activity that includes walking and bicycling has numerous health benefits. Walking is an ideal form of aerobic exercise that can be incorporated into daily activities such as foot trips to work, the store, church and school. Numerous studies have demonstrated that lack of exercise is a major factor contributing to obesity and major illnesses.

Considered one of the biggest public health challenges of our time, obesity has been declared an epidemic by the Centers for Disease Control (CDC). It is the nation’s fastest rising public health problem, especially in children. One in seven (5 million) children is obese, and the majority of American adults (61%) are overweight or obese. Rates of obesity are highest among African-American, Latino, and low-income households. Inactivity and obesity are contributing factors to rising rates of many chronic diseases. Inadequate physical activity is a major contributor to cardiovascular disease, diabetes, hypertension, obesity, osteoporosis and some cancers.<sup>3</sup> Research also indicates that moderate

<sup>2</sup>Smart Growth America, “Measuring the Health Effects of Sprawl ([www.smartgrowthamerica.org/healthreports.html](http://www.smartgrowthamerica.org/healthreports.html))

<sup>3</sup> Richard E. Killingsworth and Jean Lamming (2001), “Development and Public Health; Could Our Development Patterns be Affecting Our Personal Health?” *Urban Land*, Urban Land Institute ([www.uli.org](http://www.uli.org)).

physical exercise increases average longevity by 1.3 to 3.7 years in typical middle-age Americans.<sup>4</sup> A sedentary lifestyle ranks second only to smoking as a lifestyle risk for disease and premature death, contributing to more than 10% of all deaths in the United States, representing direct economic costs of \$150 billion annually.<sup>5</sup> Diabetes is obesity's accompanied epidemic, with rates increased 50% over the past decade. Type II diabetes, once called the adult-onset diabetes, is becoming increasingly common in children.

The Association for the Advancement of Retired Persons (AARP) promotes the importance of physical activities for mature adults in the country by identifying the following health benefits of walking. Walking contributes to:

- **Managing your weight.** Combined with healthy eating, physical activity is key to any plan for long-lasting weight control. Keeping your weight within healthy limits can lower your risks of Type II diabetes, heart disease, stroke, cancer, sleep apnea, and osteoarthritis.
- **Controlling your blood pressure.** Physical activity strengthens the heart so it can pump more blood with less effort and with less pressure on the arteries. Staying fit is just as effective as some medications in keeping down blood pressure levels.
- **Decreasing your risk of heart attack.** Exercise such as brisk walking for three hours a week – or just half an hour a day – is associated with a 30% to 40% lower risk of heart disease in women.
- **Boosting the level of high-density lipoproteins (HDL), known as “good” cholesterol.** Physical activity helps reduce low-density lipoproteins (LDL or “Bad” cholesterol) in the blood, which can cause plaque buildup along the artery walls – a major cause of heart attacks.
- **Lowering your risk of stroke.** Regular, moderate exercise equivalent to brisk walking for an hour a day, five days a week, can cut the risk for both these diseases. In another study, people at high risk of diabetes cut their risk in half by using consistent exercise routines like walking and by lowering fat intake which resulted in a 5% to 7% weight loss.
- **Avoiding the need for gallstone surgery.** Regular walking or other physical activity lowers the risk of needing gallstone surgery by 20% to 31%, found a Harvard study of more than 60,000 women ages 40 to 65.
- **Protecting against hip fracture.** Consistent activity diminishes the risk of hip fracture, concludes a study of more than 30,000 men and women ages 20 to 93.
- **Preventing a variety life threatening or debilitating diseases.** Diseases include: depression, colon cancer, constipation, osteoporosis, and impotence; lengthen lifespan, lower stress levels, relieve arthritis and back pain, strength muscles, bones, and joints, improve sleep, and elevate overall mood and sense of well-being.

According to the 2005 Report Card on Lifestyle and Fitness, prepared by the Governor's Council on Lifestyle and Fitness, adult obesity in Delaware increased from 14.4% in 1990 to 24% in 2003, which is an all-time high. The national prevalence rate for 2004 was 23.1%. This report provides a number of key facts such as:

<sup>4</sup>Oscar H. Franco, et al. (2005), “Effects of Physical Activity on Life Expectancy With Cardiovascular Disease,” *Archives of Internal Medicine*, Vol. 165 No. 20 (<http://archinte.ama-assn.org/cgi/content/abstract/165/20/2355>), Nov. 2005, pp. 2355-2360.

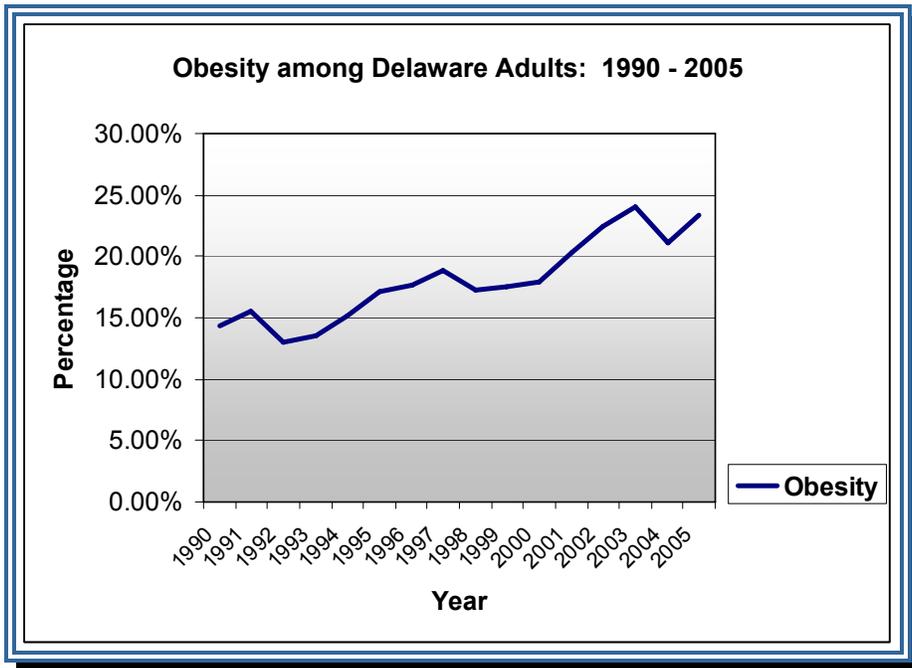
<sup>5</sup>Surgeon General (1999), *Physical Activity and Health*, Center for Disease Control and Prevention ([www.cdc.gov/nccdphp/sgr/sgr.htm](http://www.cdc.gov/nccdphp/sgr/sgr.htm)). This document establishes recommended levels of physical activity.

- Approximately 39.3% of Delaware adults are considered “overweight;”
- Overweight and obesity are increasingly becoming problems for children and young people. Type II Diabetes, which used to be called “adult-onset” diabetes, is now being diagnosed in children;
- The percentage of high school students with BMI (Body Mass Index) at or above the 95<sup>th</sup> percentile for age (roughly the equivalent of obesity for adults) increased from 10.1% in 1999 to 13.5% in 2003, according to the Youth Risk Behavior Survey;
- The percentage of high school students who are overweight increased from 14.5% in 1999 to 16.7% in 2003;
- A supplement to the 2004 survey of Delaware middle school students indicated that nearly 13% had BMIs at or above the 95<sup>th</sup> percentile for their age;
- Another 17% of middle school students were significantly overweight in the study.

• *An adult who has a BMI between 25 and 29.9 is considered overweight.*

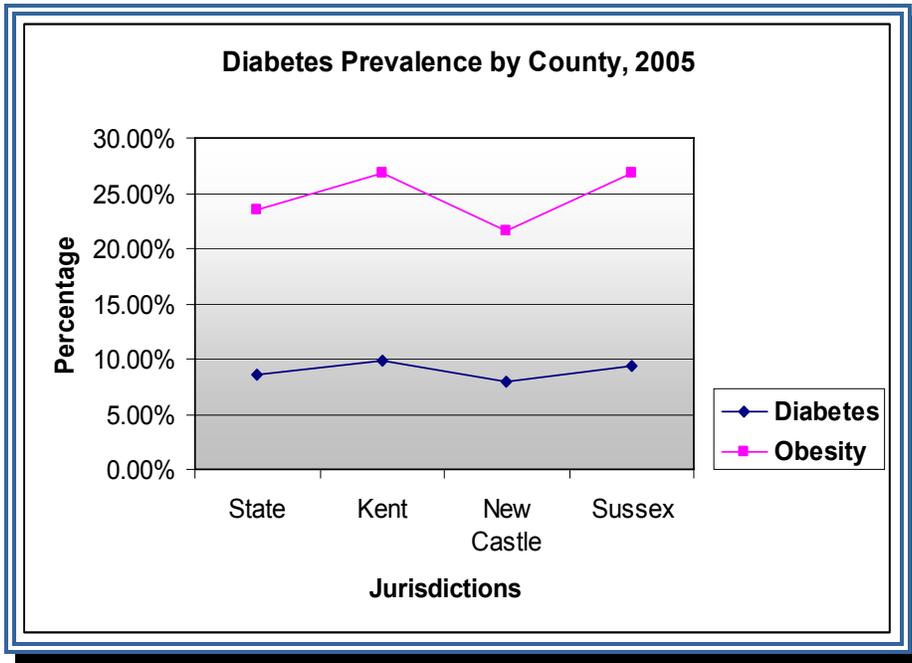
• *An adult who has a BMI of 30 or higher is considered obese.*

**Figure 1: Obesity among Delaware Adults**



Source: Delaware Health and Social Services, Division of Public Health, Behavioral Risk Factor Surveillance System (BRFSS), 2005. The trend line is blue.

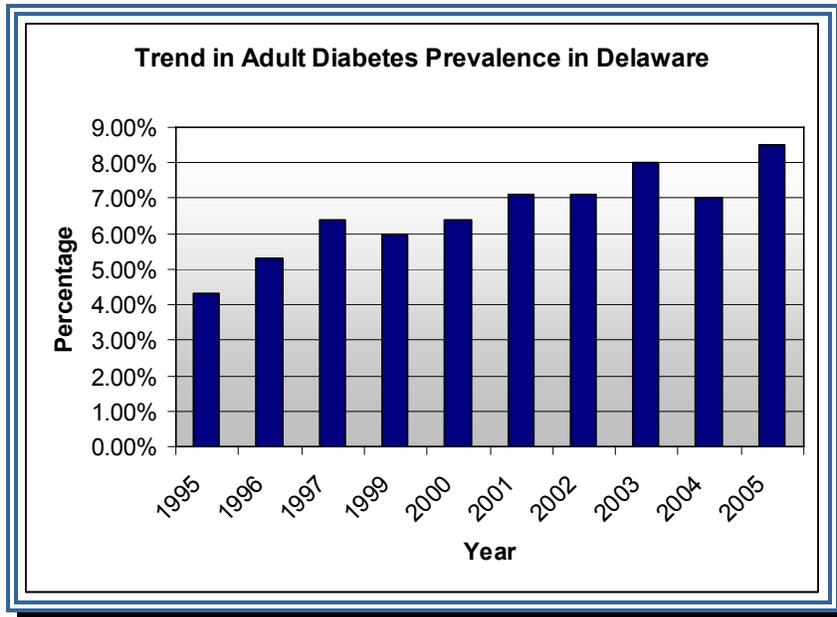
**Figure 2: Diabetes Prevalence by County, 2005**



Source: Delaware Health and Social Services, Division of Public Health, Behavioral Risk Factor Surveillance System (BRFSS), 2005. The trend line is blue.

In Delaware, about 8.5% adults say they have been told by a doctor that they have diabetes. Obesity is a major risk factor for diabetes, and the trends show both obesity and diabetes increasing in the State during the past decade. The prevalence of diabetes among adults in Delaware increased from 4.3% in 1995 to 8.5% in 2005.

**Figure 3: Trends in Adult Diabetes Prevalence in Delaware**



Source: Delaware Health and Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 1995-2005.

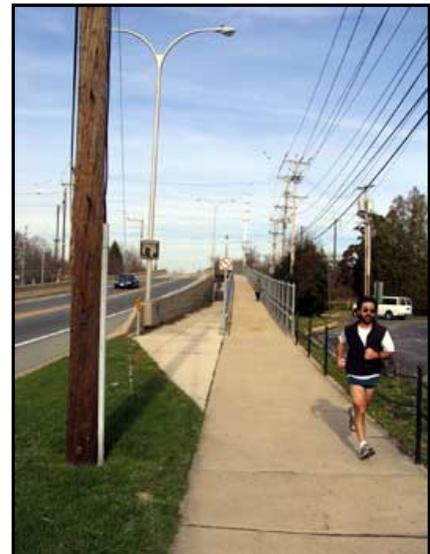
According to the Behavioral Risk Factor Data for Delaware Adults 2005, nearly 14% of adult Delawareans get no physical activity in an average week, and another 41% get some activity, but not enough to meet recommendations for either moderate or vigorous physical activity.<sup>6</sup> Moreover, as discussed in the 2005 Report Card on Lifestyle and Fitness, Delaware students spend significant amounts of time in sedentary activity such as watching television, using computers, and playing video games. Approximately 17% of public middle and high school students say they watch five or more hours of television on weekdays, 29.8% on weekends, and 14.2% spend five or more hours a day using a computer. The rate of not being active increases steadily with age from 7.4% for 18 to 24 year-olds reported participating in no activity to 23.4% among adults age 65 and older.

**Table 1: Risk Factors by County, 2005**

RISK FACTORS	NEW CASTLE	KENT	SUSSEX
Adults getting regular moderate or vigorous activity	45%	42.9%	47.8%
Adult Obesity (BMI 30 or higher)	21.6%	26.8%	26.9%
Overweight (BMI 25-29.9)	39.9%	37.1%	39.8%
Adults with diabetes	7.9%	9.9%	9.4%

*Source: Delaware Health and Social Services, Division of Public Health, Behavioral Risk Factor Surveillance system (BRFSS), 2005 – Select*

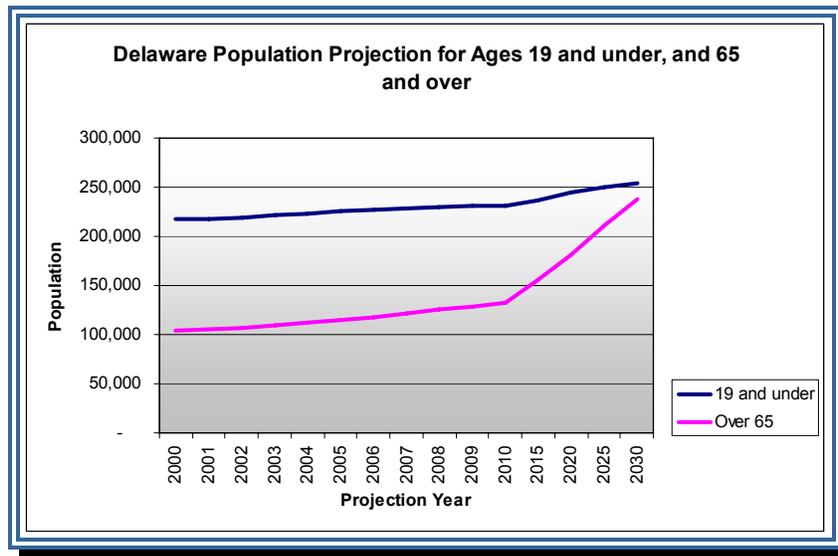
The CDC has pointed to our built environment and the transportation infrastructure as one of the causes of this epidemic. About 40% of U.S. adults were sedentary in 1997, engaging in no leisure time physical activities of any kind, and the number of trips people take on foot has dropped by 42% in the last 20 years.<sup>7</sup>



<sup>6</sup> Based on guidelines defined by the Center of Disease Control, US Department of Health and Human Services.

<sup>7</sup> The Surface Transportation Policy Project, "Transportation and Health Fact Sheet."

**Figure 4: Delaware Population, 2006**



Source: Delaware Population Consortium, *Annual Population Projections*, October, 2006, Center for Applied Demographics and Survey Research, University of Delaware

With the population aging at an accelerated rate and the number of children continuing to increase in an upward trend as projected, the number of people who are in need of special health considerations, as well as other modes of travel other than driving, is anticipated to increase well into the future. While recognizing that improving the health of children, in particular with respect to childhood obesity, is a complex issue that needs an interdisciplinary approach, the Institute of Medicine of the National Academies notes that local governments, private developers, and community groups should expand opportunities for physical activity, including recreational facilities, parks, playgrounds, sidewalks, bike paths, routes for walking or bicycling to school, and safe streets and neighborhoods. Communities should prioritize capital improvement projects to increase opportunities for physical activity. Also, communities should focus on improving the safety of streets, sidewalks, and street-crossings on routes to schools, developing programs to encourage walking and bicycling to school, and building schools within walking and bicycling distance of the neighborhoods they serve.<sup>8</sup>

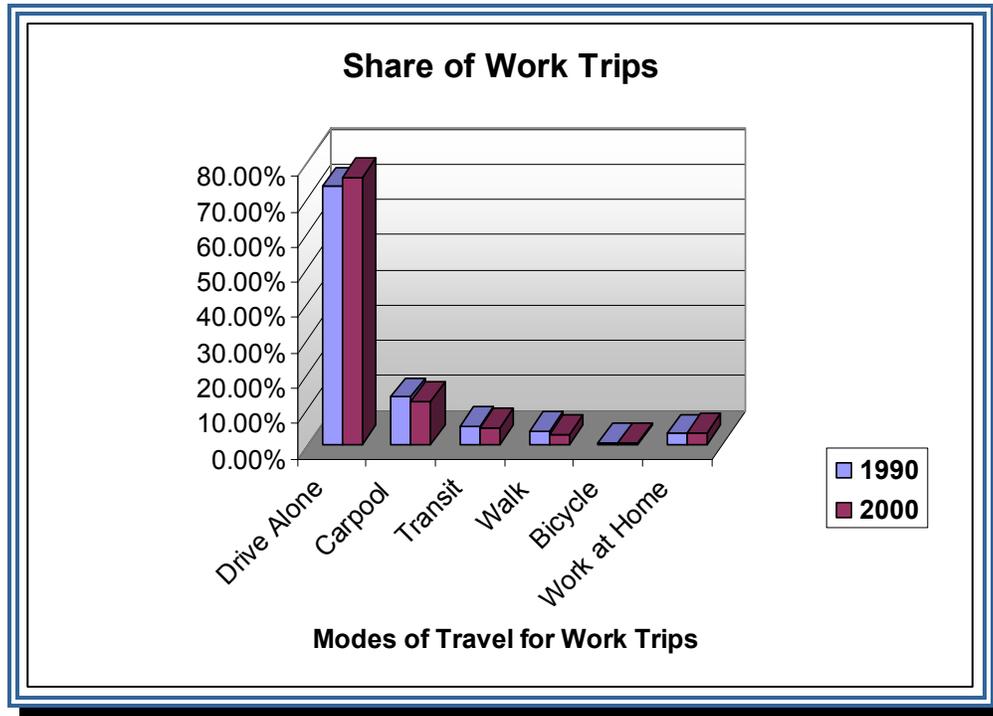
## Travel Choices

Pedestrian and bicycle facilities are necessary to form important connections between activity centers, population centers, shopping areas, parks and tourist attractions across the State. Since all trips have a pedestrian component, creating a pedestrian-friendly environment will help improve mobility for everyone. Moreover, increased walking and bicycling will help reduce traffic congestion, air and noise pollution, wear and tear on roads, consumption of fuel, crashes and property damage, and the need for additional roads, travel lanes, and parking.

According to the 2000 Census, 2.6% of commutes are made on foot, and 54% of all trips under a half mile are made in a vehicle in the South Atlantic Census Division which includes Delaware. Furthermore, the Surface Transportation Policy Project 2003 National Poll found that 55% of Americans expressed an interest in walking more, 84% desired streets designed for slower traffic, and 74% would like to see their children be able to walk to school safely.

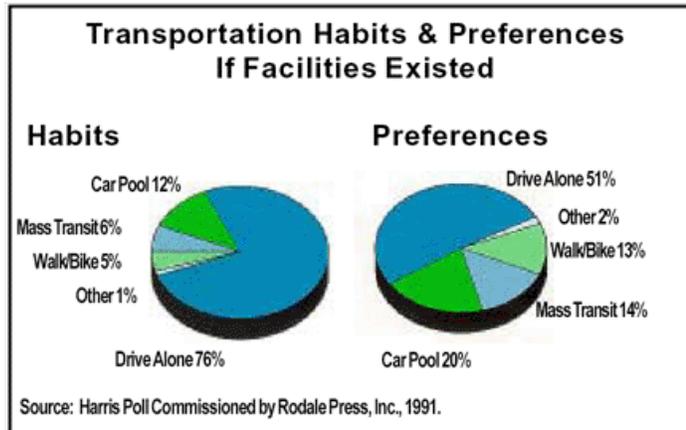
<sup>8</sup> Institute of Medicine of the National Academies, "Fact Sheet, September 2004: *Communities Can Play a Role in Preventing Childhood Obesity.*"

Figure 5: Statewide Shared Trips to Work by Mode, 2000



Source: Journey-to-Work, 2000 Census Supplementary Survey

In *Decoding Transportation Policy & Practice #4* by the Surface Transportation Policy Partnership, it is noted that the *Journey-to-Work* data indicates commuters take, on average, 25.5 minutes to get to work, which is an increase of two minutes from 1990. It also shows that, as more Americans moved to sprawling areas with fewer transportation choices, a greater share of commuters drove alone to work, up from 73.2 percent to 75.7 percent. Working at home or telecommuting, made the largest gains growing from 3.0 to 3.3 percent. Transit share of commute trips declined by 11 percent over the last decade, from 5.3 Percent to 4.7 percent. Walking to work and carpooling also posted declines, with walking decreasing from 3.9 percent of work trips to 2.9 percent, and carpooling's share of work trips declining from 13.4 percent to 12.2 percent.



Improved non-motorized transportation conditions increase travel choice and mobility, which particularly benefits non-drivers. Walking tends to be one of the most affordable transportation modes. People who are transportation disadvantaged often rely heavily on non-motorized transportation for trips made entirely by walking, and to access transit. Pedestrian transportation provides basic mobility.<sup>9</sup>

<sup>9</sup> TDM Encyclopedia, Victoria Transport Policy Institute, www.vtpi.org



As stated in *Mobility Friendly Design Standards: A Framework for Delaware*, a guide prepared by the Institute for Public Administration at the University of Delaware for the Transportation Management Association of Delaware and the Delaware Department of Transportation, the U.S. Census 2000 data indicates that, for example in New Castle County, 21 percent of the over 500,000 population, were 14 years or younger, and therefore not of driving age. Almost 20 percent (13.6 percent of the total population in the State) of residents older than 21 are reported to have a disability and may have difficulty driving. An additional 15 percent

were 65 years of age or older, who may not be as likely to be in the workforce and possibly face limitations on their driving. Another nine percent of the households in the New Castle County did not have access to vehicles. The data shows that walking is vital to a large portion of the population who are dependent on other modes of travel than automobiles. The availability of pedestrian facilities is thus essential.

### Community Livability

Pedestrian and bicycle improvements can help create attractive, safe, and vibrant streets and improve transportation choice. A “Walkable Community,” as defined by Dan Burden, is a *‘community designed for people, to human scale, emphasizing people over cars, promoting safe, secure, balanced, mixed, vibrant, successful, healthful, enjoyable and comfortable walking, bicycling and human association. It is a community that returns rights to people, looks out especially for children, seniors and people with disabilities and takes aggressive action to reduce the negative impacts of sixty-plus years of auto-centric design and uncivil driving practices. It is also a community that emphasizes economic recovery of central neighborhoods, promotes the concepts of recovering and transforming suburban sprawl into meaningful villages, and especially takes ownership and action to protect and preserve open space.’*<sup>10</sup>



**A Walkable Community**, like a livable community, smart growth community, or sustainable community, makes a neighborhood, hamlet, village, town, city or metropolis into a place where many people walk, ride bicycles and use transit, and where anyone who drives a car moderates their behavior in a way where they take nothing from the rights of those who wish to stay healthy and active by taking part in activities outside the car.

**A Walkable Community** is one that is old, historic, well worn, restored sensibly and worthy of protection. A Walkable Community is one that is compact, new, fresh,

<sup>10</sup> Burden, Dan, *How can I find and Help Build a Walkable Community?*, Walkable Communities ([www.walkable.org/article1.htm](http://www.walkable.org/article1.htm)).

*invigorating and teaming with people enjoying their streets, parks, plazas, buildings, and other physical space.*

Streets that are attractive, safe, and suitable for walking are a key factor in community livability. Pedestrian-friendly streets create opportunities for people to meet and interact, helping to create community networks.<sup>11</sup>

The dependency of automobiles tends to impose a variety of environmental impacts, including air, noise, and water pollution, consumption of non-renewable resources, waste disposal, hydrologic impacts, such as increased impervious surfaces, habitat loss, road kills, and aesthetic degradation.<sup>12</sup> A “walkable community” has benefits that include less reliance on cars leading to less traffic congestion, air, and noise pollution; less crime – “eyes on the street,” a better sense of community; increased property value; and more independence for youth, seniors, people with disabilities and the poor. All of these benefits lead to an improved overall quality of life.



**“Walkability” reflects overall walking conditions in an area. Walkability takes into account the quality of pedestrian facilities, roadway conditions, land use patterns, community support, security and comfort for walking. Walkability can be evaluated at various scales. At a site scale, walkability is affected by the quality of pathways, building accessways and related facilities. At a street or neighborhood level, it is affected by the existence of sidewalks and crosswalks, and roadway conditions (road widths, traffic volumes and speeds). At the community level, it is also affected by land use accessibility, such as the relative location of common destinations and the quality of connections between them.<sup>10</sup>**

The urban planning community is learning that encouraging walking and transit use for the purpose of reducing reliance on automobiles is not as simple as building pedestrian friendly neighborhoods.

Analyzing just policies related to pedestrian, bicycle and transit alone may be short sighted. Policy makers, planners and designers must recognize household lifestyles determine where people decide to live and work, what they consider pedestrian-friendly and how they spend their time on a daily basis. According to studies on household lifestyles, residents select locations based upon their desires for certain behaviors such as walking, bicycling or using transit. Therefore, people who are likely to walk choose to live in walkable communities. Studies also suggest that lifestyles are not a rigid set of patterns. Over time, individuals will adapt to change and conditions. So, policies aimed to increase neighborhood walkability and accessibility allows residents to make choices with respect to travel modes. These choices result in the ability to shop closer to home, walk to work, walk to school and drive fewer miles. To some degree community design can affect human behavior.<sup>13</sup>

<sup>11</sup> TDM Encyclopedia, Victoria Transport Policy Institute, www.vtpi.org

<sup>12</sup> Mark Delucchi, “Environmental Externalities of Motor-Vehicle Use in the US,” *Journal of Transportation Economics and Policy*, Vol. 34, No. 2, May 2000, pp. 135-168.

<sup>13</sup> Kevin J. Krizek, “Household Lifestyles and Their Relationship to Land-Use and Transportation Planning, University of Minnesota, Fall 2005.

### Walkability Checklist

The Walkability Checklist is developed by the Pedestrian and Bicycle Information Center and endorsed by the U.S. Department of Transportation, the U.S. Environmental Protection Agency, and Partnership for a Walkable America. It is a tool to help gauge the walkability of a community or how easy is it to walk? It contains questions that allow users to evaluate their neighborhood regarding the conditions of the walking environment. It also provides some answers and solutions to the neighborhood issues identified with the use of the checklist. The Livable Delaware Initiative focuses on creating *Livable Neighborhoods* and encourages the utilization of this Checklist to help assess the walkability of local communities. The Walkability Checklist is available on the website at [www.walkinginfo.org](http://www.walkinginfo.org).



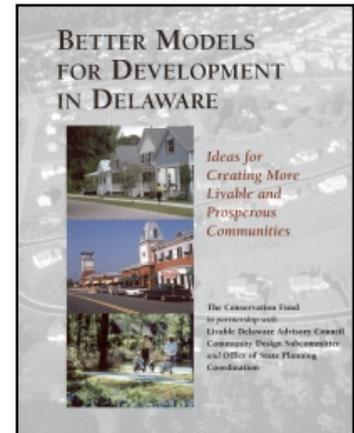
As part of the Livable Delaware Initiative, the state has developed a series of publications referred to as Livable Delaware Guides. These publications provide guidance on a number of topics including Livable Neighborhoods with respect to assessing walkability. The emphasis of this initiative is to improve and encourage walkability.

Delaware cites that *as more people are choosing walking as a way to get exercise and as an alternative to taking another trip in their car, they are finding that pedestrians face many challenges when walking in their community.* The most often cited challenges include lack of sidewalks, unsafe street crossings, and speeding motorists. These challenges prevent parents from sending young children out for a walk or bike ride. Therefore, Delaware has outlined a Walkability Checklist based upon the checklist developed by the Pedestrian and Bicycle Information Center. This checklist is available on the state's website. [http://stateplanning.delaware.gov/livedel/information/in\\_walk.shtml](http://stateplanning.delaware.gov/livedel/information/in_walk.shtml).

### Better Models for Development in Delaware

The Governor's Office released a publication designed to improve guidance and to provide inspiration to local government officials, citizen leaders, and developers as they consider development proposals throughout Delaware. This publication referred to as **Better Models for Development in Delaware** is part of the Livable Delaware initiative. This guide is based upon eleven values for better development. Those values include:

- Value One: Land Features before Land Design
- Value Two: Land Design before Yield
- Value Three: Cluster before Sprawl
- Value Four: Scale before Statement
- Value Five: Neighborhood before Individual Ownership
- Value Six: Community Inclusion before Site Exclusion
- **Value Seven: Pedestrian before Vehicle**
- Value Eight: Sensibility before Fad
- Value Nine: Context before Application
- Value Ten: Land Planning and Architectural Design before Engineering Stress design flexibility and creativity
- Value Eleven: Community Character before Ordinance



## Chapter III: Issues and Concerns for Pedestrians

The lack of appropriate facilities and safety are the primary concerns for pedestrians. Twenty-five percent of walking trips take place on roads without sidewalks or shoulders, whereas bicycle lanes are available for only about 5% of the bicycle trips.<sup>14</sup> There are also many barriers to walking and bicycling such as the lack of street and sidewalk connectivity, street design, site location and design, traffic volume and speed, the lack of travel choice, social norm, time, and perception of crime. Walking and bicycling are healthy, inexpensive, environmentally benign modes of traveling, yet many do not choose this mode of travel due to a variety of safety concerns. The following describes safety concerns with respect to pedestrians and bicyclists.

### **Pedestrian Safety**

According to the *Traffic Safety Facts 2005* and *Traffic Safety Facts 2001: Pedestrians* prepared by the National Highway Traffic Safety Administration (NHTSA), the following safety issues were of concern.

- On average, a pedestrian was killed in a traffic crash every 108 minutes.
- There were 64,000 pedestrians injured in traffic crashes in 2005.
- On average, a pedestrian is injured in a traffic crash every 8 minutes.
- Nearly one-fifth (18 percent) of the children between the ages of 5 and 9 killed in traffic crashes were pedestrians.
- Older pedestrians (ages 70+) accounted for 16 percent of all pedestrian fatalities in 2005. In 2005, the death rate for this age group, both males and females, was 2.88 per 100,000 persons – higher than for any other age group.
- Most pedestrian fatalities in 2005 occurred in urban areas (74%), at non-intersection locations (80%), in normal weather conditions (89%), and at night (67%).

### ***Pedestrian Safety is a Statewide Issue***

- *More crashes occur in urban areas than rural areas. As the urban portions of Delaware continue to grow, it will be important to ensure new developments are built with pedestrian safety in mind.*
- *Crashes frequently occur because drivers fail to yield the right-of-way to pedestrians. Improving crosswalks and other pedestrian facilities can improve drivers' awareness of pedestrian traffic.*
- *Many pedestrian crashes occur where there are no signals. Proper planning can identify how to deal with such crashes and improve crossing conditions.*



- Forty-three percent of the 388 young (under age 16) pedestrian fatalities occurred in crashes between 3 p.m. and 7 p.m.
- Nearly one-half (48 percent) of all pedestrian fatalities occurred on Friday, Saturday, or Sunday: 16.6 percent, 18.3 percent, and 13.5 percent respectively.
- Alcohol involvement, either for the driver or for the pedestrian was reported in 44 percent of the traffic crashes that resulted in pedestrian fatalities.

<sup>14</sup> *Mobility Friendly Design Standards Summit 2 Summary Report*, Institute for Public Administration, University of Delaware, September 2005.

- Of the pedestrians involved in crashes, 32 percent were intoxicated, with blood alcohol concentration of 0.08 grams per deciliter (g/dl) or greater. The intoxication rate for the drivers involved was only 15 percent, less than one-half the rate for pedestrians. In 6 percent of the crashes, both the driver and the pedestrian were intoxicated.
- More than two-thirds (70 percent) of the 2005 pedestrian fatalities were males. In 2000, the male pedestrian fatality rate per 100,000 persons was 2.35 – more than double the rate for females (0.96 per 100,000 persons).<sup>15</sup>

Based on the data review, NHTSA offers the following conclusions.

- Most pedestrian fatalities occur on highways involving a single vehicle.
- Alcohol involvement among pedestrians is a major factor.
- More pedestrian fatalities occur at non-intersection locations.
- More pedestrian fatalities occur on urban roadways.
- Most pedestrian fatalities occur at night.
- Fatality rates among older pedestrians (ages 70+) are the highest.

### **Pedestrian Fatalities by Location and Year**

Based on analysis of data from 1998 to 2005, NHTSA reports that non-intersection locations accounted for over three-fourths of pedestrian fatalities in single vehicle crashes. Over 40 percent of all pedestrian fatalities occur at intersections with no crosswalk. In fact, over half of all pedestrian fatalities at non-intersections were on roads without crosswalks.

### **Pedestrian Fatalities by Related Factors and Year**

NHTSA also reports that approximately 30 percent of the pedestrian fatalities were related to improper crossing of the roadway or intersection. Over one-fourth of the fatalities were related to walking, playing, working, or conducting other activities in the roadway. About 15 percent of the pedestrian fatalities were related to failure to yield right-of-way as a factor in the crash followed by about 14 percent of the fatalities related to darting or running on the road.

**Table 2: Pedestrian Fatalities in Single Vehicle Crashes by Related Factors and Year, 2001-2005**

<b>RELATED FACTORS</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
Improper crossing of roadway or intersection	1,297	1,488	1,351	1,148	1,024
Walking, playing, working, etc., in roadway	1,114	1,181	1,181	1,119	1,021
Failure to yield right of way	647	658	659	727	586
Darting or running into road	521	581	575	500	551
Not visible	423	564	535	521	512
Inattentive (talking, eating, inc.)	139	112	119	122	119
Failure to obey traffic signal, signals, or officer	82	86	70	78	58
Other factors	215	116	139	156	160
None reported	1,283	1,265	1,295	1,416	1,962
Unknown	100	129	134	141	87
<b>Total</b>	<b>4,461</b>	<b>4,808</b>	<b>4,749</b>	<b>4,641</b>	<b>4,881</b>

Source: NCSA, NHTSA, FARS 2001-2005.

<sup>15</sup> National Center for Statistics and Analysis, Advanced Research and Analysis, "Pedestrian Roadway Fatalities," April 2003.

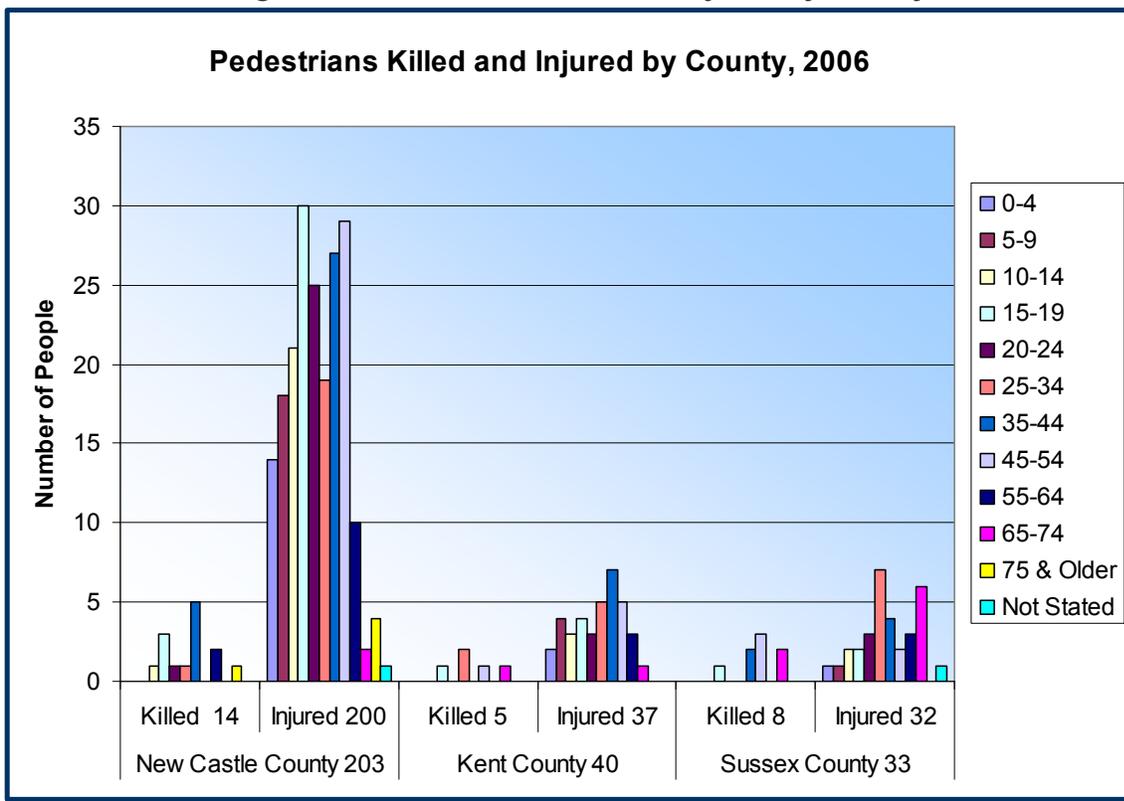
Four of the major factors in the crash when a pedestrian was killed were actions relating only to the pedestrian. These factors were:

- Improper crossing of roadway or intersection, 29 percent;
- Walking, playing, working, or other activities in roadway, 25 percent;
- Failure to yield right-of-way, 14 percent; and
- Darting or running into road, 12 percent.

**Pedestrian Safety in Delaware**

According to the 2006 Delaware’s Annual Traffic Statistical Report prepared by the Delaware State Police, 276 traffic crashes were classified as a pedestrian crash. Twenty-four of the crashes (9%) were fatal crashes which 27 people were killed. Of the pedestrian fatalities in 2006, 11 (41%) were considered under the influence of alcohol or drugs, and 15 were tested for positive Blood Alcohol Concentration (BAC). Fourteen of the fatalities occurred in New Castle County, while five occurred in Kent County and 8 in Sussex County.

**Figure 6: Pedestrians Killed and Injured by County, 2006**



Source: Delaware’s Annual Traffic Statistical Report 2006, Delaware State Police

**Ranking of State Pedestrian Fatality Rates in 2005**

The table on the following page shows the pedestrian fatality rates per 100,000 persons of the US resident population based on 2005 data for the top ten ranked states based on fatality rates. As shown in the table on the following page, Delaware ranked 27<sup>th</sup> in the nation with respect to pedestrian fatality rates.

**Table 3: Ranking of State Pedestrian Traffic Fatalities and Fatality Rates, 2005**

RANK	STATE	PEDESTRIAN KILLED	POPULATION (IN 1,000'S)	PEDESTRIAN FATALITY RATES PER 100,000 POPULATION
1	Florida	576	17,790	3.24
2	New Mexico	61	1,928	3.16
3	District of Columbia*	16	551	2.91
4	Hawaii	35	1,275	2.74
5	Arizona	157	1,177	2.64
6	Nevada	63	2,415	2.61
7	Mississippi	72	2,921	2.46
8	Louisiana	109	4,524	2.41
9	S. Carolina	98	4,255	2.30
10	California	742	36,132	2.05
<b>27</b>	<b>Delaware</b>	<b>11</b>	<b>844</b>	<b>1.30</b>

Source: Traffic Safety Facts 2005, NHTSA. Population – Bureau of Census.

\*District of Columbia is ranked as a state

### **Pedestrians with Disabilities**

Accessibility is about giving access to everyone. An estimated 85% of Americans living to full life expectancy will experience some sort of permanent disability sometime in their lifetime. One-fifth of the people in this country currently have a disability. There is a need for infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel. Transportation is a vital component for independent living. Just like others in society, the disabled depend upon transportation facilities to move about to meet a variety of basic needs as well as for recreation and pleasure.

### **Bicycle Safety**

NHTSA's 2005 Traffic Safety Facts for bicyclists and other cyclists (including riders of two-wheel non-motorized vehicles, tricycles, and unicycles powered solely by pedals, also called pedalcyclists), provides important statistical information on crashes over the years.<sup>16</sup>

In 2005, 784 pedalcyclists were killed and an additional 45,000 were injured in traffic crashes. The deaths accounted for 2 percent of all traffic fatalities, and pedalcyclists made up 2 percent of all the people injured in traffic crashes during the year. The number of fatalities in 2005 was 6 percent lower than the 833 fatalities reported in 1995. Pedalcyclists accounted for 13 percent of all non motorist traffic fatalities in 2005.

The fatalities occurred more frequently in urban areas (69%), at non-intersection locations (70%), between the hours of 5 and 9 P.M. (31%), and during the months of June, July, and August (31%). Nearly one-fifth (17%) of the pedalcyclists killed in traffic crashes in 2005 were between 5 and 15 years old. The fatality rate for this age group was 3.0 per million persons which is about 14 percent higher than the rate for all pedalcyclists (2.64 per million persons). Pedalcyclists 25 years of age and older have made up an increasing proportion of all fatalities

<sup>16</sup> "Traffic Safety Facts 2005 Data: Bicyclists and Other Cyclists," National Center for Statistics and Analysis, NHTSA.

since 1995. The proportion of pedalcyclists fatalities age 25 to 64 was 1.3 times higher in 2005 as in 1995 (59% and 46% respectively).

Alcohol involvement, either for the driver or the pedalcyclist, was reported in more than one-third of the traffic crashes that resulted in fatalities in 2005. In 30 percent of the crashes, either the driver or the cyclists was reported to have a blood alcohol concentration (BAC) of .08 grams per deciliter (g/dL) or higher. Over one-fourth (27%) of the pedalcyclists killed had a BAC of .01 g/dL or higher, and over one-fifth (23%) had a BAC of .08 g/dL or higher.

**Table 4: Ranking of State Pedalcyclist Traffic Fatalities and Fatality Rates, 2005**

RANK	STATE	PEDALCYCLISTS KILLED	POPULATION (IN 1,000'S)	PEDALCYCLISTS FATALITY RATES PER 1,000,000 POPULATION
1	Florida	124	17,790	6.97
2	Arizona	35	1,177	5.89
3	District of Columbia*	3	551	5.45
4	Louisiana	21	4,524	4.64
5	Montana	4	936	4.28
6	N. Carolina	36	8,683	4.15
7	Nevada	10	2,415	4.14
8	Wyoming	2	509	3.93
9	S. Carolina	16	4,255	3.76
10	Iowa	11	2,966	3.71
<b>23</b>	<b>Delaware</b>	<b>2</b>	<b>844</b>	<b>2.37</b>

Source: Traffic Safety Facts 2005, NHTSA. Population – Bureau of Census.

\*District of Columbia is ranked as a state

### **Walking to School**

The Center for Disease Control notes that 90% of children who lived within a mile of school used active transportation, such as walking and bicycling, as their primary mode of travel about 30 years ago.<sup>17</sup> By 2001, only 63% of the children living within one mile of their school either walked or biked. There are several factors that contribute to the drastic decline in walking to school.

### **Walking Distance**

According to the National Center for Education Statistics, the number of schools is decreasing while the number of students is increasing.<sup>18</sup> This results in fewer students living within a mile of their school as compared to earlier times. Recent school policies have been consolidating smaller schools into larger ones that are built outside of communities and population centers in a sprawling campus-like construction style. They are being constructed in locations further from home than small neighborhood schools in the past. Funding on school facilities has also been focusing on new construction in undeveloped areas where land cost is cheaper, rather than on renovation and expansion of existing facilities to conserve land and to reduce infrastructure

<sup>17</sup> 1969 Nationwide Personal Transportation Survey (USDOT, 1972) and 2001 National Household Travel Survey, analysis by the Division of Nutrition and Physical Activity, CDC, Spring 2005.

<sup>18</sup> National Center for Education Statistics – [www.nces.ed.gov](http://www.nces.ed.gov). table 36 (enrollment) and 85 (schools).

costs.<sup>19</sup> Because of the locations of these new schools, there are often times with no, or limited pedestrian infrastructure that will promote walking or bicycling to school. This is a total contrast to the past schools development patterns when school facilities were integrated into existing communities.

### **Safety of Children**

Parents have now become increasingly wary of crimes against children, particularly child abduction. This may or may not have to be supported by statistics of violent crime but the perception of it is sufficient to hinder the willingness of parents to allow their children to walk to school.

### **Traffic Safety Related Issues**

Traffic-related incidents are major safety concerns even though based on statistical comparison of accident data over time between 1995 and 2002.<sup>20</sup> However, a national Safe Kids Campaign survey found that two-thirds of drivers exceeded the posted speed limit in school zones during the 30-minute period before and after school.<sup>21</sup> A national observational survey also found that many motorists at intersections in school zones and residential neighborhoods violated stop signs: 45% by not coming to a complete stop; 37% by rolling through; 7% by not even slowing down.<sup>22</sup>

### **Community Connectivity**

Issues such as traffic congestions and poor air quality associated with sprawling development patterns or the haphazard and isolated pocket residential developments typical of strip malls and big box retailers separated by vast distances in rural and natural areas, are widely recognized. The issues are primarily due to increased dependency of automobiles and the network of highway necessary to support the level of traffic generated by these types of development. There is no interconnectivity other than major highways between these developments. These highways, constructed for high speed and high traffic volume, are not conducive to pedestrian or bicycle facilities, making walking and bicycling extremely dangerous or impossible.

Additionally, connectivity within communities is lacking as well. Roadways within the communities also tend to be designed for quickly moving vehicular traffic only. These roadway layouts decrease the compactness of neighborhoods and cause them to spread out. Communities become “disconnected” within themselves. A traditional neighborhood or “livable” community possesses adequate pedestrian facilities that support not only personal mobility but also public places for people to socialize and interact with one another, thus creating a sense of place. A disconnected community does not provide sufficient, if any, pedestrian facilities as motorized travel dominates the landscape and creates a hostile environment for pedestrians attempting to walk.

### **Connections to Transit**

<sup>19</sup> National Governors Association Center for Best Practices, *Issue Brief*, May, 2007, [www.nga.org/center](http://www.nga.org/center).

<sup>20</sup> Traffic Safety Facts 1995 and 2002 – Pedestrians. *National Center for Statistics and Analysis of the National Highway Traffic Safety Administration*. [www.nhtsa.dot.gov](http://www.nhtsa.dot.gov).

<sup>21</sup> National Safe Kids Campaign: Promoting Child Safety to Prevent Unintentional Injury. Research: Child Pedestrian Safety: The Problem (2002). [www.safekids.org/tier3\\_cd.cfm?content\\_item\\_id=7570&folder\\_id=680](http://www.safekids.org/tier3_cd.cfm?content_item_id=7570&folder_id=680)

<sup>22</sup> Pedestrian Injury Fact Sheet. National SAFE KIDS Campaign (NSKC). Washington DC: NSKC, 2004. [www.safekids.org/tier3\\_cd.cfm?content\\_item\\_id=1150&folder\\_id540](http://www.safekids.org/tier3_cd.cfm?content_item_id=1150&folder_id540).

Pedestrian facilities and public transit go hand-in-hand. Transit users are typically pedestrians first. Connections to transit in urban and suburban communities are an important step to providing alternative modes to vehicular travel. In many instances, multimodal travel may not be a viable choice of transportation in communities with a sprawling development pattern supported by auto dependency. Public transit is not possible due to the lack of necessary population and activity density to support it, as well as the inability for pedestrians to get to these facilities. Streets designed only for automobiles make it difficult for transit as well as discourage pedestrians and bicyclists. Transportation planners and highway engineers have a difficult balancing act developing a transportation infrastructure that meets the design and operational requirements of motor vehicles while providing safe access for walking and bicycling. Many times there is a lack of amenities necessary to foster pedestrian and bicycle travel which therefore reduces the choice to utilize public transit. This lack of continuous and interconnected pedestrian facilities is especially challenging for the disabled who are too often forced to travel in the roadway to reach the bus stop or other destination. This in turn furthers the dependence on automobiles for those with and without a disability; a cycle that continues to be difficult to break.

### **Driver and Pedestrian Behavior**

The Anytown Pedestrian Safety Coalition, recognized by the U.S. Department of Transportation, Federal Highway Administration, is currently conducting a campaign to remind drivers to look for pedestrians and to encourage pedestrians to use crosswalks and follow pedestrian crossing signals. The Coalition has identified the following issues with respect to driver and pedestrian behavior resulting in unsafe conditions for pedestrians.

- Drivers failing to yield for pedestrians in crosswalks.
- Drivers only looking for cars not pedestrians and bicyclists.
- Drivers not paying attention to signs alerting them of pedestrian activity.
- Pedestrians crossing mid-block.
- Pedestrians unaware of pedestrian signal symbols.
- Pedestrians do not look for turning vehicles at crosswalks.
- Pedestrian intoxication.
- Pedestrians misjudging vehicle speeds and false sense of security in crosswalks.

All of these behaviors are critical components of driving and walking. These unsafe behaviors need to be explained in combination with examples given of responsible behavior as part of an annual statewide public service educational campaign to improve pedestrian and bicycle safety.

## Chapter IV: Policies, Regulations and Practices

Part of the research conducted for this phase of study included research and evaluation of policies, regulations and practices at the federal, state and municipal levels. The results of this initial evaluation and analysis will be augmented with a more detailed assessment of policies, regulations and practices in Phase II development of the Statewide Pedestrian Action Plan.

### Federal Policies, Regulations and Practices

In 1990, the U.S. Department of Transportation (USDOT) adopted a new national transportation policy that sought to “increase use of bicycling, and encourage planners and engineers to accommodate bicycle and pedestrian needs in designing transportation facilities for urban and suburban areas,” as well as to “increase pedestrian safety through public information and improved crosswalk design, signaling, school crossings, and sidewalks.” As a result, the National Bicycling and Walking Study (NBWS) was commissioned by Congress in 1991. This study was aimed at providing the basis and research on a variety of pedestrian and bicycling related issues and identifying aspects of the existing practices that needed improvements to be inclusive of pedestrians and bicycle needs in transportation projects. In particular, five specific tasks were outlined by the legislation for this study.

#### **Five Tasks for NBWS**

1. Determine current levels of bicycling and walking and identify reasons why they are not better used as a means of transportation.
2. Develop a plan for increased use and enhanced safety of these modes and identify the resources necessary to implement and achieve this plan.
3. Determine the full costs and benefits of promoting bicycling and walking in urban and suburban areas.
4. Review and evaluate the success of promotion programs around the world to determine their applicability to the role required of the U.S. Department of Transportation to implement a successful program.
5. Develop an action plan, including timetable and budget, for implementation of such Federal transportation policy.<sup>1</sup>

Two overall goals were targeted in the study.

- Double the percentage of total trips made by bicycling and walking in the United States from 7.9 percent to 15.8 percent of all travel trips.
- Simultaneously reduce by 10 percent the number of bicyclists and pedestrians killed or injured in traffic crashes.

Since the study completed in 1994, there has been an increased level of attention to pedestrian and bicycle needs at the state and local levels. This is evident in that all state DOTs now have a designated bicycle and pedestrian coordinator; and that 29 of the 50 states have adopted statewide bicycle and/or pedestrian plans. The study has also established an action plan to further promote walking and bicycling through local planning, education, and providing funding for construction and safety projects.

At the same time as the commission of the National Bicycling and Walking Study in 1991, Congress passed the Intermodal Surface Transportation Efficiency Act (ISTEA), which provided the much needed funding and flexibility for a wide range of transportation projects, including pedestrian and bicycle improvements. These pedestrian and bicycle projects can access funding from the Surface Transportation Program (STP), including Transportation Enhancements and Highway Safety funds, Congestion Mitigation and Air Quality Program

(CMAQ) funds, National Highway System funds (NHS), and Federal Lands Highway funds. Spending federal transportation funds on these two modes rose from \$6 million in 1990 to more than \$238 million in 1997.

### **SAFETEA-LU**

In 1998, Congress passed the Transportation Equity Act for the 21st Century (TEA-21). Spending of federal transportation funds on bicycling and walking improvements declined briefly under TEA-21 as new policies were implemented, but then rose from \$204 million in 1999 to \$422 million in 2003. Under TEA-21, state and local governments were able to choose how much to spend on bicycle and pedestrian safety and facilities. In 2005, Congress passed the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which continues the funding for transportation improvements initiated in the previous Acts. Under this current legislation, pedestrian and bicycle projects are broadly eligible for funding from almost all major Federal-aid, transit, safety, and other programs.

A new program called Safe Routes to School (SR2S) was established by SAFETEA-LU with the purpose of enabling and encouraging children to walk and bicycle to school and making bicycling and walking to school safer and more appealing. The SR2S Program will facilitate the planning, development, and implementation of projects and activities that improve safety and reduce traffic, air pollution, and fuel consumption near schools. There is no match requirement with 100 percent federal funding. The Program also requires each state to have a full time SR2S coordinator dedicated entirely to this effort.

#### **SAFETEA-LU, What does it mean to us?**

This legislation provides funding for pedestrian and bicycle facilities and programs in several ways:

- Using Surface Transportation Program (STP) and Congestion Mitigation Program (CMAQ) funds for construction of facilities and nonconstruction projects related to safe bicycle use on state or federal roads.
- Using National Highway System (NHS) funds to construct facilities on land adjacent to any highway on the NHS.
- Using Federal Lands Highway funds for the construction of these facilities.
- Creating and funding a statewide Bicycle and Pedestrian Coordinators.
- Requiring accommodation of pedestrian and bicycle facilities on bridge projects if feasible.
- Classifying the construction of these facilities as highway projects thus receiving the Federal share as such.
- Considering bicyclists and pedestrians in comprehensive transportation plans.
- Considering safety devices for pedestrians and bicyclists in transportation plans and projects.
- Protecting non-motorized transportation traffic.
- Funding of modification of public sidewalks to comply with the 1990 Americans with Disabilities Act.
- Using Transportation Enhancement funding for the construction of facilities and other safety and educational activities for pedestrians and bicyclists.
- Establishing the Safe Routes to School (SR2S).

### **Americans with Disabilities Act of 1990 and Pedestrian Facilities**

The Federal Highway Administration (FHWA) is responsible for the implementation of pedestrian access requirements from the Americans with Disabilities Act of 1990 (ADA), and Section 504 of the Rehabilitation Act of 1973 (Section 504)<sup>23</sup>. Compliance with Section 504 is one of several legislative acts addressing the disabled. FHWA has oversight over all Federal,

<sup>23</sup> FHWA, *Memorandum – Clarification of FHWA’s Oversight Role in Accessibility*, Office of Civil Rights. September, 2006. [www.fhwa.dot.gov/civilrights/ada\\_memo\\_clarificationa.htm](http://www.fhwa.dot.gov/civilrights/ada_memo_clarificationa.htm)

State, and local government agencies that build and maintain highways and roadways, whether or not they use Federal funds on a particular project. It is also responsible for ensuring that public agencies meet the requirements of the ADA and Section 504 of the 1973 Rehabilitation Act for pedestrian access for persons with disabilities. Under the Department of Justice (DOJ) regulations, FHWA divisions must work with their state DOTs, MPOs, and local public agencies to ensure the ADA and Section 504 requirements are incorporated in all program activities, including design and construction, for all projects within the public rights-of-way regardless of funding source. FHWA is responsible for ensuring accessibility requirements for projects that are not within public rights-of-way, but use funding through FHWA. This includes parking areas, information centers, buildings, shared use paths, and trails. FHWA Divisions have a legal responsibility to work with state agencies or other recipients to ensure ADA and Section 504 requirements are incorporated into all projects using funding through FHWA.

The ADA and Section 504 do not require public agencies to provide pedestrian facilities. However, where pedestrian facilities exist they must be accessible. Furthermore, when public agencies construct improvements that provide access for pedestrians, the completed project also must meet accessibility requirements for persons with disabilities to the maximum extent feasible using sound engineering judgment.

Where sidewalks are provided, public agencies shall provide pedestrian access features such as continuous, unobstructed sidewalks and curb cuts with detectable warnings at highway, street, and railroad crossings. Accessibility standards and guidelines are contained in 28 CFR 35.151(c), referencing 28 CFR Part 36, App. A. ADA Accessibility Guidelines (ADAAG). The FHWA encourages the use of ADAAG standards. For example, if pedestrian signals are provided, they must have a reasonable and consistent plan to be accessible to persons with visual disabilities, and sidewalks and street crossings generally should use the guidelines the Access Board is proposing for public rights-of-way (November 2005 Notice of Availability).

Research into the ADA compliance issues faced by DeIDOT, with respect to improvements and services in the public rights-of-way, revealed several issues that require specialized expertise to balance the complex and sometimes conflicting needs of pedestrians and vehicles in the public right-of-way. Given the complex nature of providing efficient traffic operations, while accommodating special needs pedestrians, consideration should be given to the creation of a Title II ADA Coordinator. The Title II ADA Coordinator would be responsible for the public rights-of-way within DeIDOT and/or other projects receiving FHWA funding. This coordinator would work in conjunction with the State's current ADA Coordinator for Facilities who provides the required ADA compliance services through the Architectural Accessibility Board under the Division of Technical & Support Services. The challenges presented in meeting the competing needs of vehicular and non-vehicular users of the transportation network and compliance with design standards and guidelines are different and require different types of expertise from those required for on-site buildings and supporting improvements.

### **National Complete Streets Initiative**

Federal legislation passed in 1991 called for all states to consider walking and bicycling whenever new roads were constructed or existing roads were reconstructed. This legislation coupled with amendments to the Clean Air Act and the American with Disabilities Act has resulted in subsequent legislation at all levels of government.

In recent years, a national campaign in support of federal legislation to consider walking and bicycling has been undertaken by a coalition called Complete the Streets, which consists of

cities such as: Charlotte, North Carolina; Boulder, Colorado; and, Chicago, Illinois. Other supporters include non-profit organizations such as the American Council of the Blind, the AARP, Paralyzed Veteran’s of America, Council of Citizens with Low Vision International, and the American Association of People with Disabilities. This coalition also includes professional associations such as the American Public Transportation Association, the American Society of Landscape Architects, the Association of Pedestrian and Bicycle Professionals, the Institute of Transportation Engineers, the American Planning Association, and the International City/County Management Association; advocacy groups such as America Bikes, American Walks, League of American Bicyclists, the National Center for Bicycling and Walking, the Thunderhead Alliance, the Bikes Belong Coalition, Walkable Communities, Inc., and Walk & Bike for Life, as well as other organizations such as the National Parks Conservation Association, the Natural Resources Defense Council, Smart Growth America, the Surface Transportation Policy Project, and the Congress for the New Urbanism. This campaign is aimed at promoting the concept of “Complete Streets,” as a fundamental change to the way most streets and roads are designed in the country.<sup>24</sup>

According to the Coalition, a **“complete street” is designed and operated to enable safe access for all users.** Pedestrians, bicyclists, motorists, and riders of all ages and abilities must be able to safely move along and across a complete street. Creating complete streets means transportation agencies must change their orientation from designing and building primarily for cars to designing and building for all modes of transportation. Instituting a complete streets policy ensures that transportation agencies routinely design and operate the entire right of way to enable safe access for all users. Places with complete streets policies take necessary steps to ensure that their streets and roads work for drivers, transit users, pedestrians, and bicyclists, as well as for older people, children, and people with disabilities.

To this end, many state departments of transportation and local jurisdictions have endorsed roadway and development policies that embrace the “complete streets” principles, including the Departments of Transportation in California and South Carolina; states of Florida, Massachusetts, Oregon; cities of St. Louis, San Diego, Sacramento, San Francisco, Boulder, Colorado Springs, Jackson and Charlotte, in addition to other metropolitan planning organizations and counties. The benefits of complete streets, as promoted by the Coalition, includes safety improvement, health benefits associated with walking and bicycling, increased transportation options, and improvements in air quality.

### **Complete Streets Illustrations**

The Complete Street designs have several common elements as illustrated in the following diagrams. Elements such as sidewalks, bicycle lanes, crosswalks, wide shoulders, medians, bus pullouts, special bus lanes, audible pedestrian signals, and other amenities, are common in a Complete Street design. The diagrams have been developed for various landscapes such as urban, suburban and rural. These example concepts and others will be evaluated throughout Phase II of the planning process for the purpose of developing complete street standards and guidelines consistent with recommended policies for various landscapes, functional classifications and other roadway and community characteristics.

<sup>24</sup> Complete the Streets, [www.completethestreets.org](http://www.completethestreets.org)

Figure 7: Pedestrian Facility Elements

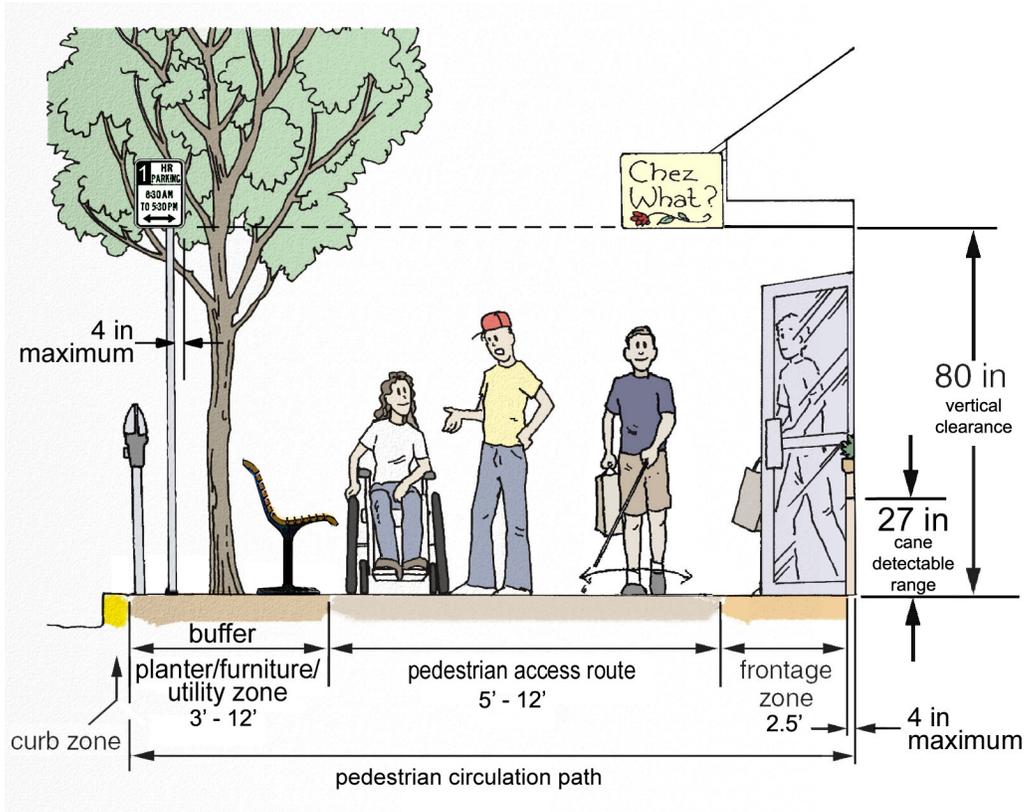
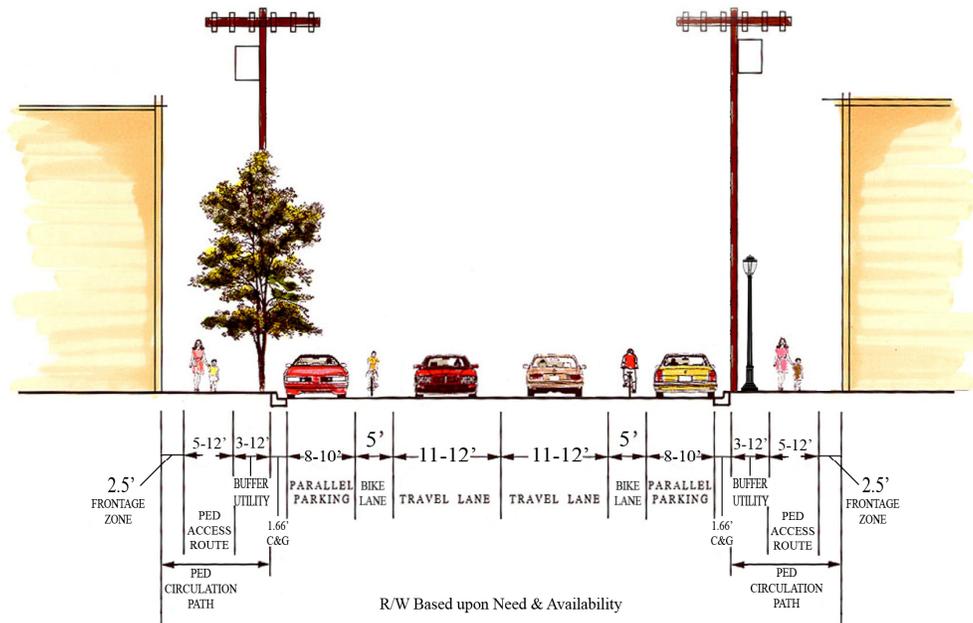
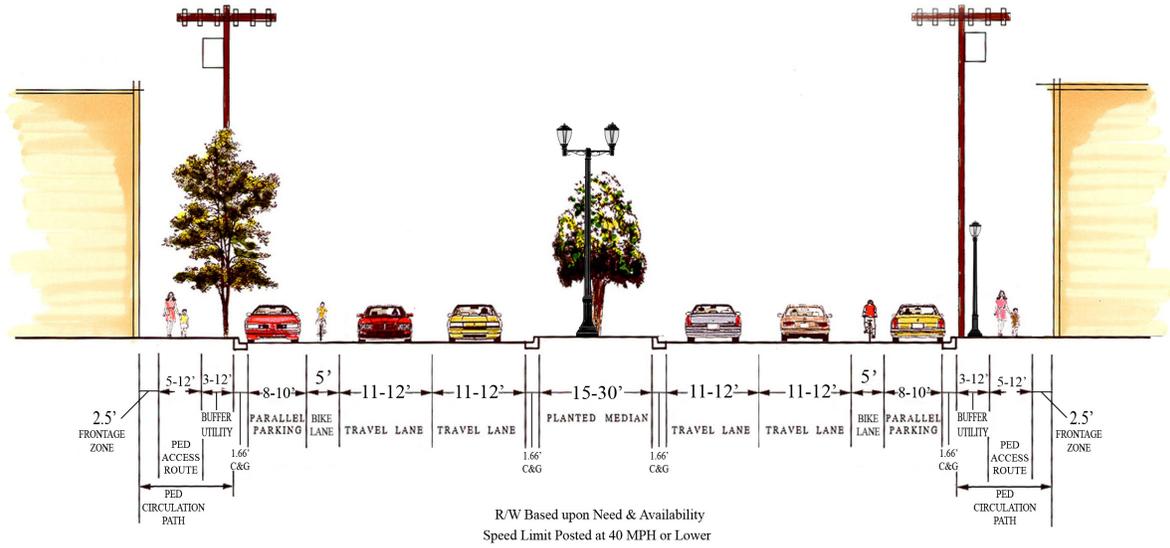


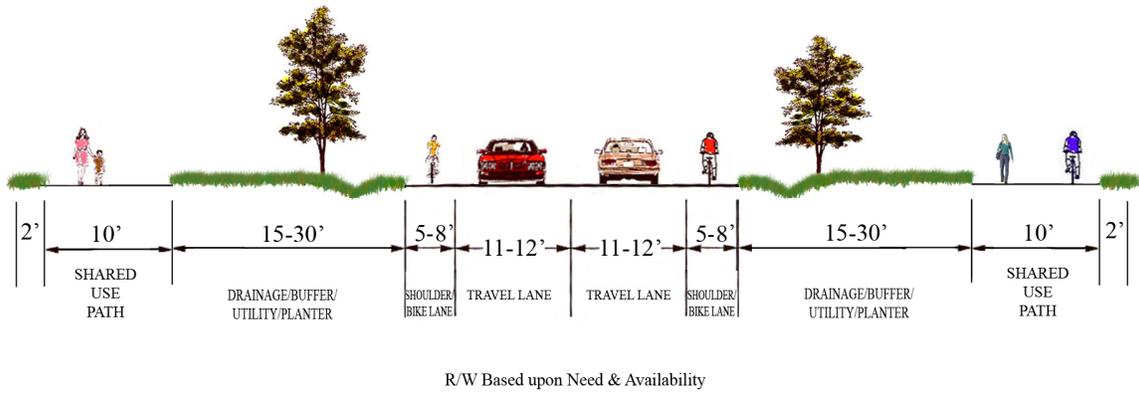
Figure 8: Two Lane Urban Street with Parking



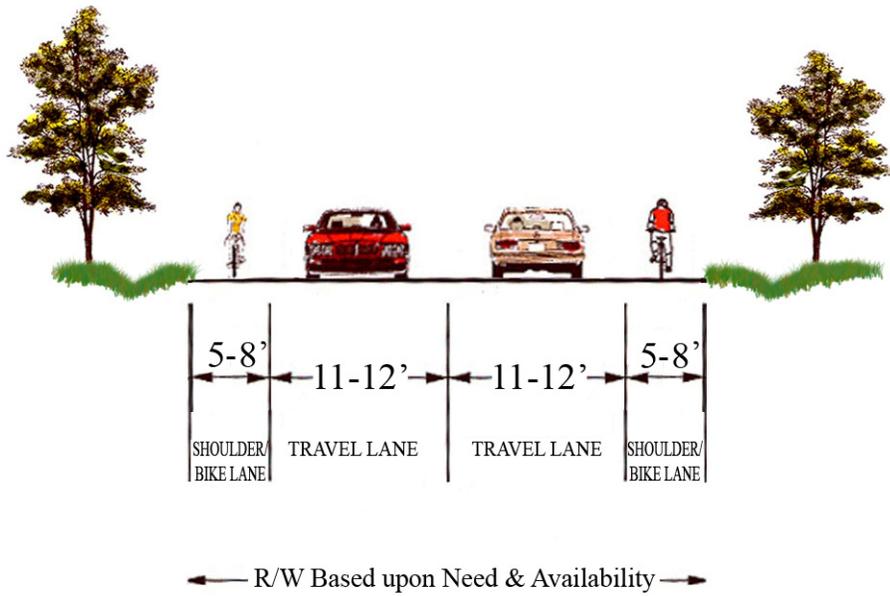
**Figure 9: Four Lane Urban Divided Boulevard with Parking**



**Figure 10: Two Lane Suburban Roadway with Shoulder & Multi-Use Path**



**Figure 11: Two Lane Rural Roadway with Shoulder**



## **State Policies, Regulations and Practices**

The Governor sponsored the development of the Livable Delaware Initiative. This policy is a strategy that seeks to curb sprawl and direct growth to areas where the state, counties, and municipal governments are best prepared to handle development in terms of existing infrastructure investment and thoughtful planning. The Executive Order No. 14 states the goals of this Initiative specific to promoting walking and bicycling include:



- promoting mobility for people and goods through a balanced system of transportation options; and
- improving access to educational opportunities, health care and human services for all Delawareans



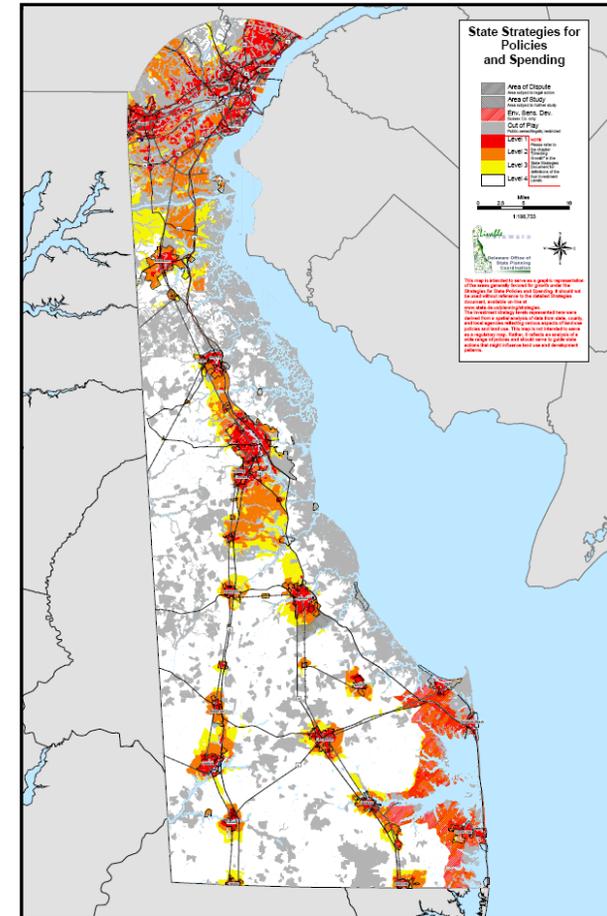
The Livable Delaware Initiative establishes strategies for state policies and spending. These strategies are used to guide State agency operating and capital budget requests, enabling the State government to make appropriate and cost effective investments in all areas of the State in order to promote efficient development patterns, protect agriculture and open space, and discourage sprawl.<sup>25</sup> The fundamental principal is to direct growth where it is appropriate. This has created a system of growth management strategies called Investment Level Areas, which divide the State into Investment Levels 1 through 4. These levels represent various investment policies devised by the State. Levels 1 and 2 are areas where the State investments and policies support and encourage efficient use of existing public and private investments and a wide range of uses and densities, promote other transportation options such as walking and bicycling, and enhance community identify and integrity. Levels 3 and 4 are areas where intense development is not encouraged (Fig. 1). These strategies are aimed at generating sustainable land use patterns that are conducive to alternative transportation modes such as walking, bicycling, and transit.



<sup>25</sup> Office of State Planning Coordination, Delaware Office of Management and Budget, *Delaware Strategies for Sate Policies and Spending – 5 Year Update*, July, 2004.

**Figure 12: Areas of Investment Levels as defined in the Strategies for State Policies and Spending 2004 Update**

<b>Level 1</b>	<b>Strategy</b>
City/town/village areas where population is concentrated, commerce is bustling, and a wide range of housing types already exist; contains core commercial area, several modes of transportation and a variety of housing options.	State policies will encourage redevelopment and reinvestment.
<b>Level 2</b>	<b>Strategy</b>
Rapidly growing suburbs and smaller towns that have, or plan to have, public water, wastewater and utility services. These areas serve as a transition between Investment Level 1 Areas and the State's more open, less populated areas.	Promote well-designed development including a variety of housing types, user-friendly transportation systems, recreation and other public facilities.
<b>Level 3</b>	<b>Strategy</b>
Significant areas of important farmland and natural resources located either adjacent to, or contained within, more rapidly growing areas; regional roadways.	Maintain existing infrastructure. Invest in phased, guided future growth only after Levels 1 and 2 are substantially built out, or when the infrastructure or facilities are logical extensions of existing systems.
<b>Level 4</b>	<b>Strategy</b>
Rural areas with agribusiness, farms, and settlements, typically located at historic crossroads. Also undeveloped natural areas such as forestlands; state and county parks; fish and wildlife preserves.	Retain the rural landscape and preserve open spaces and farmlands. Discourage additional development.



## Context Sensitive Design

As part of the Livable Delaware Initiative, the State adopted a Context Sensitive Design Policy in June, 2001. Context Sensitive Solutions (CSS) or Design, according to the Federal Highway Administration, is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist. The purpose of the State's policy is to plan and design transportation projects that embody this concept and fit well into the communities they serve. Projects designed with this concept will be able to "blend" into the community and improve its aesthetics and functions.

When a community decides to create walkable environments through transportation improvement projects, CSS principles are applied to support and promote livable streets, neighborhoods and communities.<sup>26</sup> These principles include:

- Urban circulation networks should accommodate pedestrians, bicycles, transit, freight and motor vehicles, with the allocation of right-of-way on individual streets determined through the CSS process.
- The larger network, including key thoroughfares, should provide safe, continuous and well-designed multimodal facilities that capitalize on development patterns and densities that make walking, transit and bicycle travel efficient and enjoyable.
- Thoroughfare design should complement urban buildings, public spaces and landscape, as well as support the human and economic activities associated with adjacent and surrounding land uses.
- Safety is achieved through thoughtful consideration of users' needs and capabilities, through design consistency to meet user expectations and selection of appropriate spend and design elements.
- Thoroughfare design should serve the activities generated by the adjacent context in terms of the mobility, safety, access and place-making functions of the public right-of-way. Context sensitivity sometimes requires that the design of the thoroughfare changes as it passes through areas where a change in character is desired.
- System wide transportation capacity should be achieved using a high level of network connectivity and appropriately spaced and properly sized thoroughfares, along with capacity offered by multiple travel modes, rather than by increasing the capacity of individual thoroughfares.

Transportation projects that incorporate these principles help create walkable communities that will exemplify these characteristics:

- Mixed land uses in close proximity to one another;
- Building entries that front directly onto the street without parking between entries and the public right-of-way;
- Building, landscape and thoroughfare design that is pedestrian-scale, providing architectural and urban design detail with size and design appreciated by persons who are traveling slowly and observing from the street levels;
- Relatively compact developments (both residential and commercial);

<sup>26</sup> Institute of Transportation Engineers, *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities*, 2006.

- A highly-connected, multimodal circulation network, usually with a fine “grain” created by relatively small blocks; and
- Thoroughfares and other public spaces that contribute to “placemaking” – the creation of unique locations that are compact, mixed-use and pedestrian- and transit-oriented and have a strong civic character with lasting economic value.

The Delaware’s Context Sensitive Design Policy sets aside five percent of the Delaware Department of Transportation’s (DelDOT) project construction costs for improvements to the community or environment immediately adjacent to all system expansion and system management projects. This policy provides a mechanism through which DelDOT can respond to quality of life issues, such as aesthetics, that are normally not addressed through a transportation improvement project. Specific Livable Delaware Initiative goals that this policy supports include encouraging redevelopment of existing communities, protecting farmlands and critical natural resources, and improving mobility, depending on the type of project and the improvements requested by communities.

### **Other Statewide Activities**

In order to support the Livable Delaware Initiative, DelDOT has since been undertaking major planning efforts and programs to address these goals. One such program is Delaware’s Safe Routes to School (SRTS), which was established in September, 2002, when the Governor signed Senate Bill 353. As directed, DelDOT began developing a program that would enable the Department to work with schools to encourage children to walk and bicycle to school safely. Three years later, similar federal legislation was passed under SAFETEA-LU. Delaware’s legislation authorizes DelDOT to make SRTS grants available for pedestrian and bicycle safety and traffic calming measures in the vicinity of schools.



In addition to the Safe Routes to School program, DelDOT also administers the federal Transportation [www.pedbikeimages.org/DanBurd](http://www.pedbikeimages.org/DanBurd) Enhancement program authorized under the three consecutive federal transportation acts: ISTEA, TEA-21, and SAFETEA-LU. This program establishes guidelines for providing projects that qualify as one of the eligible activities. A Transportation Enhancements project must be related to surface transportation and provide public access. Pedestrian and bicycle facilities that provide a transportation function, as well as programs designed to encourage walking and bicycling by providing potential users with education and safety instructions, are two of the eligible activities.

DelDOT has also adopted sidewalk, bicycle, and bus stop policies in support of the goals of the Livable Delaware Initiative. DelDOT has also modified the project review process as well as the

roadway design manual and subdivision regulations to enhance the provisions for walking and bicycling. Moreover, the Governor issued Executive Order No. 83 to create an Advisory Council on Walkability and Pedestrian Awareness in March, 2006. This Order charges DelDOT to work with the Advisory Council to develop a Statewide Pedestrian Action Plan. The purpose of this Plan is to develop goals, objectives and action items that promote walking as an alternative means of transportation that encourages physical fitness.

Other state agencies also contribute to promoting walking. The Office of Highway Safety (OHS) of the Department of Safety and Homeland Security recognizes that the safety of pedestrians and bicyclists is an integral part of improving the overall roadway system. The Department prepares an annual Strategic Highway Safety Plan that identifies pedestrian safety as one of its priorities. In the FY 2006, the Plan identifies a goal of reducing pedestrian fatalities from 12% in 2004 to 11% in 2006. OHS also works with other state, county, and municipal agencies, as well as education institutions throughout Delaware in a collaborative manner to achieve a higher level of pedestrian and bicycle safety.

The Office of State Planning Coordination (OSPC), which is a part of the Budget Development, Planning, and Administration Section of the Delaware Office of Management and Budget, in collaboration with DelDOT, has been promoting the Livable Delaware Initiative. Through their Livable Guides, it helps define a livable neighborhood as a walkable community. It has incorporated the nationally recognized Walkability Checklist to help evaluate the walking conditions in a community. Through this exercise, developers and residents can identify the things to do and resources available to help improve community walkability, bikability, reducing car usage, improving community open spaces, and the overall quality of life.

**Policy Analysis**

For purposes of conducting the initial analysis of policies, standards and guidelines in this first phase of study, the following state legislation and policies were evaluated. The evaluation is based upon input from the Advisory Council and the Technical Advisory Committee. Both groups provided an identification of key issues and concerns with respect to their knowledge of the legislation, policies, standards and guidelines as well as their application based upon experiences at locations across the state. These key issues and concerns are addressed by preliminary recommendations in Chapter V.

**Table 5: Summary Analysis of State Sidewalk Legislation, Policies, Regulations and Guidance**

Policy, Regulation or Program	Section	Key Issue/Concern
Title 17 Highways, Chapter 1. General Provisions, Subchapter III. Jurisdiction, Powers and Duties of Department	Section 132. General Powers and Duties	Requirement for sidewalks.
Title 10 Courts and Judicial Procedure, Chapter 40. Tort Claims Act, Subchapter II. County and Municipal Tort Claims	Section 4011 Immunity from Suit.	Liability.

**Table 5: Summary Analysis of State Sidewalk Legislation, Policies, Regulations and Guidance (continued)**

Policy, Regulation or Program	Section	Key Issue/Concern
Title 9 Counties, Provisions Affecting All Counties, Chapter 5. Suburban Community Improvements, Subchapter I. Sidewalks, Streets, signs, Drainage, Storm Sewers	Section 535 Suburban Community Streets and Roads	Requirement for sidewalks.
Title 21 Motor Vehicles, Operation and Equipment, Chapter 41. Rules of the Road, Subchapter V. Pedestrians' Rights and Duties	Sections 4140 through 4151.	Pedestrian behavior and motorist behavior, pedestrian safety and education.
Title 16 Health and Safety, Disabled and Partially Disabled Persons, Chapter 95. Delaware White Cane Law	Sections 9501 through 9506.	Accessibility, guidelines, standards and coordination of ADA compliance.
Policy Implement P.I. Number O-02, Sidewalk Policy, 1995	Sidewalk Policy	Inventory of policies, facilities, gaps and/or missing links, connectivity and retrofits.
Policy Implement P.I. Number DTC-05, Bus Stop and Passenger Facilities Policy, 2000	Bus Stop and Passenger Facilities Policy	Bus stop and transit access, bus stop construction and maintenance, standards and guidelines. (Revision pending)
DeIDOT Road Design Manual, Miscellaneous Design, 10.8 Sidewalks, July 2004.	Sidewalk Standards and Guidelines	Accessibility, maintenance responsibilities across jurisdictions, connectivity, retrofitting, crosswalks, mid-block crosswalks, standards and guidelines.
DeIDOT Design Guidance Memorandum Number 1-16, August 2006	Curb Ramps – Design Standards and Guidelines	Standards and guidelines.

**Table 6: Summary Analysis of State Codes for Sidewalks**

Policy, Regulation or Program	Section	Key Issue/Concern
DeIDOT, MUTCD Standards and Supplements	DE – Manual on Uniform Traffic Control Devices, Part 6	Standards and guidelines, preference to pedestrians and crosswalk improvements.
DeIDOT Subdivision Manual	Draft municipal pending adoption.	Interconnectivity, crosswalks, mid-block crosswalks, standards and guidelines using Complete Streets Principles.

## Ensuring Public Participation

The public involvement section of the Federal Highway Administration Bicycle and Pedestrian Transportation Guidance states that public involvement is essential in the development of transportation plans and programs including the bicycle and pedestrian components. Public involvement should include, to the extent possible, input from individuals who will be affected by the transportation plan and programs as outlined in 23 CFR Section 450.212, and those for metropolitan planning organization in 23 CFR Section 450.315(b). A public involvement process must be in place and followed in preparing transportation plans and programs. Bicycle and pedestrian groups should be aware of the opportunity to participate in the development of these public involvement processes and to comment on them before they are adopted. Public involvement will occur at key decision points as described in the public involvement procedures for the planning process.<sup>27</sup>

### Select County and Municipal Policies, Regulations, and Practices

The Institute for Public Administration at the University of Delaware has been leading the effort in pedestrian planning outside any governmental agencies. In partnership with DelDOT and the Transportation Management Association of Delaware, the Institute has been holding Mobility Friendly Design Standards Summits to discuss and highlight the challenges and issues facing local communities and government agencies in planning for these facilities. In 2004, the Institute prepared a document entitled Mobility Friendly Design Standards: A Framework for Delaware. The document provides a review of the key mobility friendly concepts and recommendations for development throughout the country. It serves as a guide to best practices in infrastructure design and land development that integrate the walking and bicycling elements.

The Wilmington Area Planning Council (WILMAPCO) has recently adopted their Regional Transportation Plan 2030 (RTP) in March, 2007. This updated RTP establishes a framework for achieving future transportation goals for the Wilmington region. One of these goals identified in the RTP is to efficiently transport people through promoting accessibility, mobility and transportation alternatives. Some of the strategies include improving facilities for walking by funding and working through the development process to complete projects; working with transportation agencies to improve pedestrian crossing facilities; implementing recommended

### Environmental Justice

From the U.S. Department of Transportation Order on Environmental Justice, in making determinations regarding disproportionately high and adverse effects on minority and low-income populations, mitigation and enhancements measures that will be taken and all offsetting benefits to the affected minority and low-income populations may be taken into account, as well as the design, comparative impacts, and the relevant number of similar existing system elements in non-minority and non low-income areas.

The Delaware Department of Transportation is therefore committed to making Environmental Justice a part of the transportation planning and project development process. We seek to identify and involve environmental justice communities so that the concerns of all citizens are considered in the transportation decision-making process.

Environmental Justice is defined as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic minority groups, should bear a disproportionate share of negative environmental consequences.

<sup>27</sup> Federal Highway Administration, *Bicycle and Pedestrian Transportation Planning Guidance*, August 2003, [www.fhwa.dot.gov/environment/bikeped/inter.htm](http://www.fhwa.dot.gov/environment/bikeped/inter.htm)

walkability enhancements and continuing retrofitting facilities to meet ADA standards; and addressing accessibility and mobility concerns of senior citizens by initiating communication.

The Dover/Kent County Metropolitan Planning Organization adopted a Long Range Transportation Plan Update in May, 2005. One of the fundamental strategies for improving the region's transportation system is to develop and expand other modes of transportation. Some of the recommended actions include initiating public educational programs for health maintenance benefits and safety concepts for bicycling and walking, pursuing strategies to preserve and improve roadway space to accommodate bicycling through designated bicycle lanes and paved shoulders, seeking appropriate accommodations for bicycles as part of the project development and scoping process for all DelDOT plans and private land development proposals, providing assistance to municipalities with developing guidelines for integrating pedestrian facilities into site plans, as well as maintaining and enhancing pedestrian safety throughout the region and the State.

Sussex County initiated its comprehensive plan update in early 2007. One of the focuses is transportation mobility. Some other pedestrian and bicycle plans have either been prepared or are being developed, such as the New Castle County Greenway Plan, and the Wilmington Bicycle Plan. Others are incorporating pedestrian and bicycle elements into their community or roadway design standards, such as the Suburban & Community Street Design Standards Project, 2006, by the Dover/Kent Metropolitan Planning Organization.

Similar to many jurisdictions around the country, there are a limited number of regulations or policies in the county and municipal codes that are dedicated to explaining the specific and detailed standards or requirements pertaining to the planning, design, construction, or maintenance of sidewalks. Most jurisdictions in Delaware have some general requirement for the construction of sidewalks in certain residential and commercial zones, and some form of minimum standard for the sidewalk width. However, most of the provisions are not sufficient to achieve the vision of promoting safe pedestrian travel that enhances mobility and fitness. An overview of local policies, regulations and practices is provided in the tables on the following pages.

Maintenance is another issue for state, county, and municipal governments. Most county and municipal jurisdictions defer the maintenance responsibilities to the adjacent property owners that abut the pedestrian facility even if such facility is within the public rights-of-way. These responsibilities include all repairs, debris and snow removal, and any other maintenance issues that are incurred. Maintenance responsibility, as well as safety and security in some areas, are major contributing factors to the property owners' resistance to installing sidewalks. These perceptions include the financial and physical burden of maintaining and installing the sidewalks, the disruption of planted landscapes or trees, increased litter and debris along the property, increased level of pedestrian access on private land, and reduction of driveway parking capacity, among others. These are some of the challenges that must be addressed in order to provide adequate public facilities that create a healthy and interconnected walking environment.

**Table 7: Summary of Selected County and Municipal Codes for Sidewalks**

Jurisdictions	Construction Requirements/Design Standards/ Site Plan Review	Maintenance
<b>Sussex County</b>	Requires consideration of pedestrian access/facilities: Chapter 115, Zoning, in various residential and commercial uses; pedestrian movement shall be accommodated throughout the site to provide safe connections to parking areas and sidewalks.	Only maintenance requirement, by the property owner/developer
	In Zoning, under article XIII LI-1 Limited Industrial District, the front yard shall be landscaped with trees, grass, shrubs or pedestrian walks and maintained in a neat and attractive condition (by the developer/property owner).	
	In Zoning, article XXII Off-street Parking, any authorized area savings from either a reduction below the required total number of spaces for the development shall be used for open space, landscaping or pedestrian walkways.	
	Chapter 99: Subdivision of Land, among the requirements for approval of a subdivision, one of them is the provision for safe vehicular and pedestrian movement within the site and to adjacent ways.	
<b>Kent County</b>	Chapter 187: Subdivision and Land Development, one of the purposes, to facilitate and accommodate pedestrian and vehicular movement, fire protection, and the rendition of other essential services through a coordinated system and design of streets.	No specific maintenance requirements/language pertaining to maintenance
	Section 187-60 is Sidewalks. It establishes certain design criteria for residential and nonresidential sidewalks.	
	Section 187-61 for Marked Crosswalks, the applicant shall be required to install marked crosswalks, which function to create a visual and tactile connection between barrier-free access curb ramps for the purpose of demarcation of appropriate pedestrian street-crossing locations.	
	Section 187-63, Blocks, a mid-block crosswalk of not less than 10 feet in width may be required where deemed necessary to provide convenient access to schools, playgrounds, shopping centers, and other community facilities.	
	Section 187-66, Active recreation areas. Recreation areas shall be pedestrian-oriented and designed with linkages to existing and planned public walkways and with other existing or planned recreation areas.	
	Article XVII Supplementary Regulations, Transfer of Development Rights, design standards exist for Pedestrian Amenities.	



Jurisdictions	Construction Requirements/Design Standards/ Site Plan Review	Maintenance
<b>New Castle County</b>	Unified Development Code, Section 40.03.523 Off-Street Parking Standards: If the off-site parking is across a collector street, the Land Use Department may require a pedestrian movement such as crosswalks or signalization. Off-site parking shall not be located across an arterial street.	No specific maintenance requirements/language pertaining to maintenance.
<b>New Castle County</b>	Land Development Plan Requirements: Sidewalk locations, pedestrian ways, bikeways, and walkways with construction materials and dimensions indicated, are required for the Exploratory Sketch Plan, Preliminary Plan, and Record Plan.	
	Section 40.21.162 Sidewalks, subdivision and land developments shall contain sidewalks along both sides of the interior streets and accessways. Such interior sidewalks shall connect to existing or proposed sidewalks fronting their sites, unless other permission is granted.	
	In the vicinity of schools and other public facilities, the Department may require sidewalks even where they would not be required by what is described above.	
	Section 40.21.163 Sidewalk Construction Standards, particularly in the provision that states that all sidewalks shall be constructed to DeIDOT standards if the roadway is intended to be dedicated to the State.	
	Section 40.11.130 Traffic Impact Study Requirements, if the proposed rezoning, subdivision, or land development is in an area currently served by transit, or in a corridor where transit service is planned, the traffic analysis shall also identify, significant passenger safety issues, such as crosswalks, highway lanes to be crossed, among other issues and concerns.	
<b>Town of Georgetown</b>	Chapter 194: Subdivision of Land, VIII, Sec. 194-35, Blocks. Crosswalks. Crosswalks may be required to give pedestrian access to schools, churches, business sections and similar community features.	Article III, Street Specifications, Sec. 194-18, Maintenance. The developer will be responsible for streets and sidewalks until final acceptance and official release of the completion guaranty, including repairs, if necessary, and other reasonable provisions for the convenience and safety of traffic. Until final acceptance and official release of the completion guaranty, the developer will be responsible, also, for the removal of snow from streets when necessary for the convenience or safety of traffic.
	Article X, Improvement, sec. 194-49, Required Improvements. The subdivider shall grade and pave residential streets, accessways and alleys, construct or install curbs, gutters, fire hydrants, water mains, sanitary sewers, storm sewers and related improvements and facilities, sidewalks, crosswalks and off-street parking paving, as shown on the approved subdivision plan.	



Jurisdictions	Construction Requirements/Design Standards/ Site Plan Review	Maintenance
<b>Town of Georgetown</b>	Chapter 230: Zoning, Article V: General Provisions, Sec. 230-23, Storm drainage, curbing, and sidewalk requirements. When public safety, traffic patterns or the character of a neighborhood can be improved or enhanced, the Planning Commission may require the installation of storm drainage, curbing and/or sidewalks along any or all proposed or adjacent state, Town or privately maintained roadways as approved by the Planning Commission. Other requirements may increase landscaping, parks, or playgrounds, or the widening or resurfacing of any street for existing or proposed projects or developments located within any district.	
<b>Town of Georgetown</b>	Article XIA RPC – Residential Planned Community, Sec. 230-75.1 Purpose. D (7) Provide and incorporate planning principals to support pedestrian, bike use and transit use within and outside of the community.	
	Sec. 230-75.9, Consideration of factors for approval of RPC District, H. Provision for appropriate integration with existing community, such as street network, sidewalks, pedestrian pathways, and trails, and the general historic land development pattern of the Town.	
	Sec. 230-75.18, Requirements regarding parking, streets, and alleys, B (8) Well-designed and aesthetically pleasing crosswalks, sidewalks, and pedestrian amenities are incorporated in the overall street design.	
<b>City of Lewes</b>	Chapter 167: Streets and Sidewalks, Section 167-9, Wheelchair Ramps. On all sidewalks located at the intersection of any two streets which are constructed or replaced after the date of adoption of this article, wheelchair ramps of sufficient width and slope to permit the use by handicapped persons shall be installed.	No specific references in the City Codes with regards to the maintenance of pedestrian facilities.
	Chapter 170: Subdivision and Land Development, Section 170-21. Streets. P. Sidewalks. Sidewalks shall be provided on both sides of all streets. Sidewalk requirements shall be at the discretion of the Planning Commission. Construction and details of sidewalks are governed by the appropriate sections of the latest edition of the Specification of the Department of Transportation of the State of Delaware and the Americans with Disabilities Handbook.	



Jurisdictions	Construction Requirements/Design Standards/ Site Plan Review	Maintenance
<p><b>City of Lewes</b></p>	<p>Chapter 183: Vehicles and Traffic, Section 183-28.9, Designation of crosswalk; establishment of safety zones. A. The City Council is hereby authorized to: (1) Designate and maintain, by appropriate devices, marks or lines upon the surface of the roadway, crosswalks and intersections where, in his opinion, there is a particular danger to pedestrians crossing the roadway and at such other places as he may deem necessary. (2) Establish safety zones of such kind and character and at such places as he may deem necessary for the protection of pedestrians.</p>	
<p><b>City of Rehoboth Beach</b></p>	<p>Chapter 232: Streets and sidewalks, Article I Sidewalk Construction Standards Sec. 232-5, Width of sidewalk. All sidewalks laid within the city shall have a minimum width of five feet.</p> <p>Chapter 236: Subdivision of Land, Article V. Design Standards, Sec. 236-22 Street Blocks, B. In blocks over 1,000 feet long, pedestrian crosswalks may be required in locations deemed necessary by the Planning Commission. Such walkway shall be 10 feet wide and be straight from street to street. There shall be installed a four-foot walk paved in accordance with City specifications. Lots abutting such a walk shall be treated as a corner lot.</p>	<p>Chapter 232: Streets and sidewalks, Article I Sidewalk Construction Standards, Sec. 232-1. Duty of property owner to repair sidewalk or curbing. A. The owner of any lot in front of which any sidewalk or curbing has been laid or constructed shall, in the event such sidewalk or curbing shall be in any way damaged or broken, cause the sidewalk or curbing to be repaired within five days after such sidewalk or curbing shall have been damaged or broken. If the premises shall be vacant at the time of the damaging or breaking of any such sidewalk or curbing, the owners shall cause the sidewalk or curbing to be repaired within five days after notice by the City Manager, forwarded to such owner by registered mail</p>



Jurisdictions	Construction Requirements/Design Standards/ Site Plan Review	Maintenance
<p><b>City of Dover</b></p>	<p>Article VI. Subdivision - General Requirements and Design Standards. Sidewalks shall be required in all subdivisions in accordance with Chapter 19 {98}, article IV of the Dover Code.</p>	<p>Article I. In General, Section 98-5. Duty of tenants or owners to maintain sidewalks and landscaped areas with the street right-of-way. It shall be unlawful for the owner or occupant of any premises upon a sidewalk to permit or allow snow or ice to remain thereon for longer than 12 hours of daylight after it has ceased snowing, or to permit debris or other materials to accumulate at any time that may prevent pedestrians to pass conveniently and safely. It is the responsibility of the owner or occupant of any premises abutting upon a sidewalk to keep the landscaped area between the sidewalk and the curb line, or where no sidewalk exists between the property line and curb line or paved street, maintained in accordance with the standards set forth in Chapter 114, article II, pertaining to weeds.</p>
	<p>Article IV. Sidewalk Specifications, concerning widths, location, grade, construction materials.</p>	
<p><b>City of Wilmington</b></p>	<p>Article VIII, Pedestrians. Use of crosswalks and safety zones, duty of driver upon approaching blind person with cane.</p>	<p>Article VII. Removal of snow and ice from sidewalks. In case any snow shall fall or ice shall be formed on the sidewalk of any public street in the city, it shall be the duty of the occupant, lessee, owner or agent of the property which fronts or abuts upon any such sidewalk to remove, or cause to be removed, all such snow and ice from that one-half of the sidewalk of the property nearest the building line; and also, to make, or cause to be made, a pathway, no less than two feet in width, from such cleared portion of the sidewalk to the street gutter, by the removal of such snow and ice there from. The removal of such snow and ice shall be done within 24 hours after such snow may cease to fall or after the formation of such ice. <b>(See <i>Schadt v. Latchford</i>, Delaware Supreme Court decision on sidewalk maintenance in February, 2004)</b></p>



Jurisdictions	Construction Requirements/Design Standards/ Site Plan Review	Maintenance
	Division 2. Specifications for curbs and sidewalks. Sec. 42-66 to 42-71	
City of Newark	Article XXII. Pedestrians' Rights and Duties, Sec. 20-188, Pedestrian obedience to traffic-control devices and traffic regulations. Sec. 20-189, Right-of-way in crosswalks. Sec. 20-191, When pedestrian shall yield.	Sec. 26-25. Duty of abutting owner to maintain sidewalks in safe condition. Sec. 26-26. Failure to maintain sidewalks; notification; city engineer's authority; lien. The city engineer shall notify the abutting property owners to repair any sidewalk which, in the city engineer's judgment, is not safe and useable. In the event the owner shall fail to repair such sidewalk within 45 days after notification to do so by the city engineer, the city engineer shall take such steps as are deemed appropriate to repair or reinstall such sidewalk, and the cost of the repair, including an administrative fee equal to 50% of the cost of the repair and installation, shall be assessed against the said owner and shall be due and payable within 60 days after the mailing of assessment notices.
	Sec. 20-192 Prohibited crossing. A) Between adjacent intersections at which traffic-control signals are in operation, pedestrians shall not cross at any place except in a marked crosswalk (no mid-block crossing). B) No pedestrian shall cross a roadway intersection diagonally unless authorized by official traffic-control devices; and when authorized to cross diagonally, pedestrians shall cross only in accordance with the official traffic-control devices pertaining to such crossing movements.	
	Article III. Sidewalks. Sec. 26-18 Intent and purpose of article. The council intends to require the installation of sidewalks along both sides of all streets in the city where such installation is deemed necessary and appropriate. The primary purpose of such installation shall be to provide for pedestrian safety and to provide continuity with preexisting sidewalks.	



## Chapter V: Phase I Recommendations

In order to achieve the Governor's goal of ***making walking central to personal mobility and fitness***, the Delaware Department of Transportation (DeIDOT) has developed a Statewide Pedestrian Action Plan. DeIDOT worked collaboratively with the Advisory Council for Walkability and Pedestrian Awareness, and the multidisciplinary Technical Advisory Committee (TAC) to identify pedestrian issues and concerns with respect to the Five Key Issues identified in Executive Order No. 83. Those issues and concerns were discussed, researched and used to develop a vision statement to guide plan development addressing a variety of pedestrian needs with respect to access, safety and mobility.



### Vision

***Improve the quality of life throughout Delaware by promoting safe and convenient pedestrian travel that enhances personal mobility, accessibility and fitness.***

This vision is supported by goals, objectives and strategies to achieve walkability. Phase I: Policy Analysis provides a guide for the provision of pedestrian facilities along State, county and municipal roadways. The following outlines recommendations of this Phase I planning effort. The Phase II planning effort will include: necessary planning to refine plan goals and objectives; additional research and data collection; and, analysis to support development of the Delaware Statewide Pedestrian Action Plan. Together with the Delaware Department of Transportation, the Advisory Council and the TAC will continue to develop a plan that will address and propose solutions to make walking a safe, convenient, efficient and comfortable means of transportation:

### **Plan Goals, Objectives and Recommended Actions**

#### ***How to Achieve the Vision?***

DeIDOT worked collaboratively with the Advisory Council and TAC to draft plan goals and objectives to make walking a safe, convenient, efficient and comfortable means of transportation for the purpose of fulfilling the vision for pedestrians. In order to achieve this vision, DeIDOT will be undertaking Phase II of plan development and evaluating opportunities for implementation of an initial set of recommendations. Plan goals and objectives have been organized our four key areas that emerged through this phase of the planning process: inventory and plan, standards and guidelines, implementation and education, and responsibility and funding.

**Vision: Improve the quality of life throughout Delaware by promoting safe and convenient pedestrian travel that enhances personal mobility, accessibility and fitness.**

### Inventory and Plan

**Goal 1: Provide and promote pedestrian mobility, accessibility and fitness.**

*Objectives:*

- 1.1 Develop and maintain an inventory of existing pedestrian facilities, and identify all elements that are not ADA compliant.
- 1.2 Develop an ADA Transition Plan for existing facilities to remove barriers or provide reasonable accommodation.
- 1.3 Develop a plan of safe, convenient, continuous and interconnected pedestrian facilities based upon the Complete Streets concept.
- 1.4 Implement an equitable system to identify and prioritize needs.
- 1.5 Promote land use and transportation facilities that encourage walking and environmental stewardship.
- 1.6 Develop organizational structure to address ADA compliance.

### Standards and Guidelines

**Goal 2: Revise and consolidate policies, plans, regulations, standards and guidelines that ensure safe pedestrian access to all transportation facilities.**

*Objectives:*

- 2.1 Incorporate Complete Streets concepts into planning, design, maintenance and operations within the public right of way.
- 2.2 Ensure consideration of all special needs groups such as senior citizens, the disabled and children.
- 2.3 Meet ADA compliance to the maximum extent feasible using sound engineering judgment.
- 2.4 Eliminate physical barriers or provide reasonable accommodations for pedestrian facilities that are functional, aesthetically pleasing and consider long term maintenance.

### Implementation and Education

**Goal 3: Develop education programs and implementation strategies for pedestrian and other transportation facilities.**

*Objectives:*

- 3.1 Use the 4-E's of safe transportation planning – engineering, education, enforcement, and encouragement, to promote safe travel for pedestrians by continuing cooperative statewide public education efforts.
- 3.2 Educate and coordinate within and among all agencies to improve the use of ADA compliant design standards and guidelines for pedestrian facilities.
- 3.3 Review traffic rules, driver behavior and pedestrian behavior to improve pedestrian safety through education.
- 3.4 Minimize institutional and procedural barriers to the implementation of pedestrian facilities.

### Responsibility and Funding

**Goal 4: Identify operation, maintenance, enhancement and funding responsibilities for all pedestrian facilities.**

*Objectives:*

- 4.1 Clarify maintenance responsibilities of the State, counties, municipalities and private parties for all pedestrian facilities.
- 4.2 Develop model maintenance programs for adoption by the State, counties, and municipalities.
- 4.3 Create a sustainable funding mechanism for pedestrian facilities and safety education.
- 4.4 Establish financial incentives to encourage counties and municipalities to create and implement pedestrian facilities.

This phase of the planning process identified potential actions for consideration, further investigation and evaluation. The following section presents the goals to achieve walkability within communities with associated objectives and initial recommended actions.

### Inventory and Plan

#### Goal 1: Provide and promote pedestrian mobility, accessibility and fitness.

##### Objectives:

- 1.1 Develop and maintain an inventory of existing pedestrian facilities, and identify all elements that are not ADA compliant.
- 1.2 Develop an ADA Transition Plan for existing facilities to remove barriers or provide reasonable accommodation.
- 1.3 Develop a plan of safe, convenient, continuous and interconnected pedestrian facilities based upon the Complete Streets concept.
- 1.4 Implement an equitable system to identify and prioritize needs.
- 1.5 Promote land use and transportation facilities that encourage walking and environmental stewardship.
- 1.6 Develop organizational structure to address ADA compliance.

#### Action 1.1

Establish and maintain a Pedestrian Facility Inventory and Needs Study within the public right of way. This Inventory and Needs Study should be designed to identify the locations of pedestrian facilities that require repair or replacement as well as identify all missing links or needed facility extensions.

An inventory of existing pedestrian facilities that determines the condition and accessibility of the pedestrian access route is an essential step in prioritizing pedestrian improvements. Objective data and information obtained through the assessment process will allow for the following.<sup>28</sup>

- Determine if the pedestrian facilities are in acceptable condition and meet adopted specifications and guidelines.
- Identify sections of pedestrian facilities that need accessibility improvements.
- Quantify the extent of the work required.
- Catalog feature and maintenance information.
- Prioritize pedestrian facility maintenance projects.
- Budget for pedestrian facility projects.
- Develop maintenance schedules.
- Create objective pedestrian facility information that can be provided to users in various formats such as signage, maps, and websites.
- Share data and project plans with disability advocacy groups.

#### Action 1.2

Develop a Transition Plan that identifies all deficiencies in pedestrian facilities, programs, services, and activities that serve the disabled and do not meet ADA requirements. This Plan must assess

<sup>28</sup> Federal Highway Administration, "Designing Sidewalks and Trails for Access, Part LL of II: Best Practices Design Guide," 2001.

the needs of persons with disabilities and prioritize the programming of the needed pedestrian accessibility upgrades. The ADA legislation also requires that this Plan be updated periodically as part of the Statewide Transportation Improvement Program (STIP) and Transportation Improvement Program (TIP) process.

### Action 1.3

Promote the concept of Complete Streets. The Complete Streets Policy developed by the National Complete Streets Coalition consists of representatives from a variety of organizations such as: the AARP, American Walks, American Council of the Blind, the American Planning Association, the American Public Transportation Association, the Association of Pedestrian and Bicycle Professionals, the Institute of Transportation Engineers, the National Center for Bicycling and Walking, the National Parks Conservation Association, the Natural Resources Defense Council, and the Paralyzed Veterans of America, among others.

Complete Streets are defined as streets that are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, and bus riders of all ages and abilities are able to safely move along and across a complete street. For example, there are cities such as Chicago, Illinois and Boulder, Colorado, and states such as Florida and Oregon, that have adopted a similar policy based upon this definition of Complete Streets and the following guidance established by the National Complete Streets Coalition.

- Creation of complete streets means changing the policies and practices of transportation agencies.
- A complete streets policy ensures that the entire right-of-way is routinely designed and operated to enable safe access for all users.
- Transportation agencies must ensure that all road projects result in complete streets appropriate to local context and needs.

### Action 1.4

Devise a system to prioritize pedestrian improvements based on the analysis of safety and demographic data within appropriate levels of investment consistent with state, county and municipal policies.

The needs identified through the inventory process based upon an established prioritization system will be planned through the Long Range Transportation Planning (LRTP) process and programmed through the Delaware Department of Transportation Capital Transportation Program (CTP), and STIP or the TIP for pedestrian improvements. Needs should be equitably addressed across the state.

### Action 1.5

Coordinate pedestrian facilities planning with county and municipal land use planning in the context of the environment and the community. Integrate transportation and land use planning at all levels of government by implementing smart growth initiatives and adopting a complete streets policy as described in general in Action 1.3.

## Action 1.6

At a minimum, the following changes to DeIDOT's organizational structures should be considered to address pedestrian needs and ADA compliance.

- Designate a full-time DeIDOT Title II ADA Coordinator.
- Split the current Bicycle and Pedestrian Coordinator position into two positions (Bicycle Coordinator and Pedestrian Coordinator).
- Establish guidelines for coordination between individuals holding these positions and project development/design staff, plan review staff and the Safe Routes to School Coordinator.
- Provide additional technical and support staff as needed.

All positions recommended, regardless of department, must collaborate and coordinate efforts to successfully achieve walkable communities. The following provides a description of duties and responsibilities for each position as well as reference to placement within the existing organizational structure based upon authority, function, relation to existing staff and level of technical expertise.

### **DeIDOT Title II ADA Coordinator**

Designate a full-time DeIDOT Title II ADA Coordinator with staff, to work with the DeIDOT Title VI Civil Rights Coordinator in the Division of Technical & Support Services, Civil Rights Office to address ADA legislation, civil rights and liability issues. The Title VI of the Civil Rights Act of 1964 is the model for several subsequent statutes that prohibit discrimination on other grounds in federally assisted programs or activities, including Section 504 (discrimination prohibited on the basis of disability). In addition, Title II of ADA, as amended, is patterned after Section 504. 42 U.S.C. § 12131, which is patterned after Titles VI and IX (discrimination in education programs prohibited on the basis of sex).<sup>29</sup> The Title II ADA coordinator should therefore be designated with the following responsibilities:

- Ensure development, maintenance and implementation of DeIDOT's statewide ADA compliant Pedestrian Facility Inventory, Needs Study and Transition Plan for the public right-of-way.
- Report to the Title VI Coordinator.
- Establish an ADA Policy consisting of programs, activities and services outlining relevant provisions of Title II of the 1990 ADA and Section 504 of the 1973 Rehabilitation Act.
- Establish and follow a grievance procedure to provide fair and prompt resolution of complaints under Title II of the 1990 ADA.
- Coordinate compliance with the ADA and investigate ADA complaints in the public right of way.
- Negotiate and mediate with responsible parties.
- Identify a liaison for counties, municipalities and special needs groups to educate, address issues and offer guidance.
- Serve as a central resource to all DeIDOT, county and municipal personnel for questions regarding ADA in the public right of way. This will include acting as a liaison when needed with the appropriate federal agencies.

<sup>29</sup> U.S. Department of Justice, *Title VI Legal Manual*, January, 2001. [www.usdoj.gov/crt/cor/coord/vimanual.pdf](http://www.usdoj.gov/crt/cor/coord/vimanual.pdf)

- Coordinate with DART's ADA Compliance Review Team to ensure compliance of improvements to pedestrian facilities adjacent to transit stops.
- Coordinate pedestrian facility improvements identified in the Pedestrian Facility Needs Study and Transition Plan with master plans, transportation plans, CTP projects and maintenance projects.
- Review all DeIDOT construction plans and/or specifications and subdivision plans submitted for access permits for ADA compliance.
- Approve, document and track all locations where it is technically infeasible to achieve ADA compliance.
- Conduct training classes for all levels of governmental staff on how to meet ADA compliance requirements for pedestrian facilities in the public right of way. These classes will address any new federal standards or DeIDOT guidance as they are developed, commonly occurring questions or problems in planning, design, construction, maintenance or operations with a range of examples for potential solutions for difficult situations that can achieve compliance.
- Provide ongoing research to routinely update DeIDOT's standards, guidance and practices.

#### **DeIDOT Pedestrian Coordinator**

Designate a full-time DeIDOT Pedestrian Coordinator within the Department of Planning to work with the Bicycle Coordinator. The current Bicycle and Pedestrian Coordinator position responsibilities should be split between two positions: a Bicycle Coordinator and a Pedestrian Coordinator. The purpose of these two positions is to ensure complete coverage of the essential and unique needs of each of these important components of the statewide transportation system (pedestrians and bicycles). The Pedestrian Coordinator will have the following responsibilities:

- Develop, maintain and implement DeIDOT's statewide ADA compliant Pedestrian Facility Inventory, Needs Study and Transition Plan for the public right-of-way
- Inventory and prioritize all pedestrian facilities that are not accessible.
- Coordinate with DART's ADA Compliance Review Team to prioritize improvements to pedestrian facilities adjacent to transit stops.
- Review and incorporate the pedestrian facility improvements identified in the Pedestrian Facility Needs Study and Transition Plan in master plans and transportation plans, CTP projects and maintenance projects and in all plans submitted for access permits.
- Coordinate with the Title II ADA Coordinator to identify all locations where it is technically infeasible to achieve ADA compliance.
- Serve as the main contact for citizens to request the repair or installation of accessible facilities.
- Review all DeIDOT construction plans and subdivision plans for ADA compliance in the public right of way.
- Provide public outreach and education.

The current responsibilities of the Bicycle and Pedestrian Coordinator specific to bicycles will be the responsibility of the Bicycle Coordinator. The Title II ADA Coordinator, Bicycle Coordinator and Pedestrian Coordinator will work collaboratively with the Safe Routes to School Coordinator and other staff to achieve walkability within communities. The project development and plan review processes should be modified to include a sign-off approval by both the Pedestrian Coordinator and Bicycle Coordinator.

### Standards and Guidelines

#### Goal 2: Revise and consolidate policies, plans, regulations, standards and guidelines that ensure safe pedestrian access to all transportation facilities.

*Objectives:*

- 2.1 Incorporate Complete Streets concepts into planning, design, maintenance and operations within the public right of way.
- 2.2 Ensure consideration of all special needs groups such as senior citizens, the disabled and children.
- 2.3 Meet ADA compliance to the maximum extent feasible using sound engineering judgment.
- 2.4 Eliminate physical barriers or provide reasonable accommodations for pedestrian facilities that are functional, aesthetically pleasing and consider long term maintenance.

#### Action 2.1

In addition to the items identified in Action 1.3, incorporate Complete Street concepts using the following framework for policy development.

- Specify that “all users” includes pedestrians, bicyclists, transit vehicles and users, and motorists, of all ages and abilities.
- Aim to create a comprehensive, integrated, connected network.
- Recognize the need for flexibility: that all streets are different and user needs will be balanced.
- Develop guidelines and standards to address all agencies to cover all roads.
- Apply to both new and retrofit projects, including planning, design, construction, maintenance, and operations, for the entire public right-of-way.
- Make any exceptions specific to each location and sets a clear procedure that requires high-level management approval for exceptions and includes an appeals process.
- Direct the use of the latest and best design standards and guidelines.
- Direct that complete streets solutions fit in with context of the community.
- Establish performance standards with measurable outcomes.

#### Action 2.2

Modify design process and subdivision review process to include sign off approval of Title II ADA Coordinator, Pedestrian Coordinator and Bicycle Coordinator. Work with the Safe Routes to School coordinator to develop strategies that will increase the participation of the Safe Routes to School program by emphasizing the importance and benefits of walking for children.

#### Action 2.3

DelDOT shall promote the use of ADA compliant pedestrian facilities within the context of a Complete Streets Policy through the following.

- Develop model guidelines for use by counties and municipalities in their planning, design, construction, maintenance, operations and permit review processes, and;
- Train county and municipal staffs to incorporate Complete Streets concepts into policies, principles, standards and guidelines.
- Develop an exceptions process that requires an exception specific to each location that is not ADA compliant and establish a clear procedure that requires high-level management approval for exceptions and includes an appeals process.

#### Action 2.4

Develop policies and procedures to locate and provide reasonable accommodations for the disabled in areas determined to be not feasible to provide compliant ADA facilities and approved by the Title II ADA Coordinator. All pedestrian facilities should be designed to be aesthetically pleasing with respect to community context. Consideration must be given to long term maintenance requirements as determined by Maintenance and Operations during the planning and/or design process.

#### Implementation and Education

##### Goal 3: Develop education programs and implementation strategies for pedestrian and other transportation facilities.

###### Objectives:

- 3.1 Use the 4-E's of safe transportation planning – engineering, education, enforcement, and encouragement, to promote safe travel for pedestrians by continuing cooperative statewide public education efforts.
- 3.2 Educate and coordinate within and among all agencies to improve the use of ADA compliant design standards and guidelines for pedestrian facilities.
- 3.3 Review traffic rules, driver behavior and pedestrian behavior to improve pedestrian safety through education.
- 3.4 Minimize institutional and procedural barriers to the implementation of pedestrian facilities.

#### Action 3.1

Work with the Division of Public Health of the Department of Health and Social Services to develop a health education program focusing on the benefits of physical activities such as walking and cycling. Collaborate with all agencies across all levels of government to build consistency and compliance with respect to engineering and enforcement.

Work with the Office of Highway Safety to develop an education program for students K-12 on traffic and pedestrian rules and to raise awareness of pedestrian and bicycle safety. Revise the Driver Manual to add new emphasis on safety instructions to better accommodate pedestrians, bicycles, and special needs groups such as children, the elderly, and the disabled. Continue the statewide pedestrian safety campaign.

**Action 3.2**

Continue the statewide pedestrian safety campaign to promote a change in behavior by drivers, cyclists and pedestrians with the intent to reduce avoidable pedestrian fatalities and injuries. Collaboration with the Office of Highway Safety and other partners is crucial to changing behaviors.

**Action 3.3 and 3.4**

Provide regular training to all levels of government agencies to encourage the use of the latest federal, state and municipal standards and guidelines in the planning and approval of developments that promote safe, convenient and interconnected pedestrian and vehicular travel.



Promote connections between pedestrian travel and other transportation modes through coordination in planning and design efforts with the counties and municipalities. Implement the new DeIDOT Standards and Regulations for Subdivision Streets and State Highway Access to coordinate the review of development proposals in order to improve consistency in the administration of policies, standards and guidelines.



Establish a system to reasonably accommodate pedestrians in all transportation projects. Identify and address institutional barriers to the implementation of convenient, functional and aesthetically pleasing pedestrian facilities.

**Responsibility and Funding****Goal 4: Identify operation, maintenance, enhancement and funding responsibilities for all pedestrian facilities.***Objectives:*

- 4.1 Clarify maintenance responsibilities of the State, counties, municipalities and private parties for all pedestrian facilities.
- 4.2 Develop model maintenance programs for adoption by the State, counties, and municipalities.
- 4.3 Create a sustainable funding mechanism for pedestrian facilities and safety education.
- 4.4 Establish financial incentives to encourage counties and municipalities to create and implement pedestrian facilities.

**Action 4.1**

Review state and local codes that address maintenance responsibilities and revise or recommend revisions as necessary to clarify any confusion in implementation. This level of addressing responsibility at all levels of government will require coordination, cooperation and collaboration.

**Action 4.2**

Consult the maintenance programs in other states that have successful practices in preserving their pedestrian facilities in an acceptable condition. Develop alternative model maintenance

programs that attempt to address the varying staffing and funding level of the state, county and municipal governments.

#### **Action 4.3**

Research all available funding sources at the federal, state, county and municipal levels as well as private resources to help support safety education and finance pedestrian facilities. If a matching fund is required for certain programs, establish a dedicated line item in the Capital Transportation Program for pedestrian facilities.

#### **Action 4.4**

Explore creative funding strategies for pedestrian improvements and education. Examples in other states and jurisdictions include:

- Cost sharing programs where the government agency and the property owners are responsible for the materials and labor, respectively, for repairs or reconstruction of facilities that abut private properties; amending the impact fee structure.
- Develop infrastructure improvements and/or impact fees where the developer is responsible for public improvements including pedestrian and bicycle facilities and, if improvements are not warranted at the time of development, obtain the ultimate right of way dedication and collect a fee in lieu of construction to meet the new construction needs where appropriate in other areas of the state.

#### **Next Steps**

Next steps include implementation of preliminary recommendations identified in this phase of study and conduct Phase II, development of a Statewide Pedestrian Action Plan consistent with FHWA guidelines for development of a pedestrian plan. Phase II plan development activities include: public outreach across the state; planning and designing for pedestrians to include data collection and identification of pedestrian safety issues, pedestrian characteristics and trends, future analysis of legislation, policies, regulations, standards and guidelines; prioritization of issues and concerns; refinement of plan goals and objectives from Phase I efforts; identification of safety solutions including education, design, traffic control devices and maintenance; and, develop a plan for implementation detailing policy, procedural and regulation design changes as well as standards and guidelines, identification of countermeasures to address deficiencies, implementation strategies and evaluation methods. The final phase, Phase III will include systematic implementation consisting of a facilities inventory and a phased Transition Plan. These next steps will include continued collaboration with the Advisory Council on Pedestrian Awareness and Walkability and Technical Advisory Committee. Collaboration with other planning and implementation partners will include MPOs, Counties, Towns, Cities, interest groups and the public at large.

## Glossary

The definitions used in this Glossary are for use with this Plan only and may not correspond with the legal definitions in the reader's jurisdiction. The Glossary was compiled using the American Association of State Highway and Transportation Officials' Guide for the Planning, Design, and Operation of Pedestrian Facilities,<sup>30</sup> and the US Department of Transportation's Designing Sidewalks and Trails for Access Part II of II: Best Practices Design Guide.<sup>31</sup>

### Terms

**Accessible Pedestrian Signal (APS)** - A device that communicates information about pedestrian signal timing in a nonvisual format including audible tones, verbal messages, and/or vibrotactile information.

**Accessible Route** - A continuous, unobstructed path connecting all accessible elements and spaces of a building or facility that meets the requirements of Americans with Disabilities Act ADAAG.

**Alteration** - Modification made to an existing building or facility that goes beyond normal maintenance activities and affects or could affect usability.

**Americans with Disabilities Act of 1990 (ADA)** - Federal law prohibiting discrimination against people with disabilities. Requires public entities and public accommodations to provide accessible accommodations for people with disabilities.

**Americans with Disabilities Act Accessibility Guidelines (ADAAG)** - Provides scoping and technical specifications for new construction and alterations undertaken by entities covered by the ADA.

**Approach** - Section of the accessible route that flanks the landing of a curb ramp. The approach may be slightly graded if the landing level is below the elevation of the adjoining sidewalk.

**Architectural Barriers Act of 1968 (ABA)** - A Federal law stating that buildings and facilities designed, constructed, or altered with Federal funds, or leased by a Federal agency, must comply with standards for physical accessibility.

**Arterial** - Signalized streets that primarily serve through traffic and provide access to abutting properties as a secondary function.

**Assistive Device** - A device that assists users in accomplishing day-to-day functions. For example, a wheelchair is an assistive device to assist a person who cannot walk.

**Audible Warning** - See Accessible Pedestrian Signal. Barrier Curb-see Vertical Curb.

**Barrier Removal** - Removal, rearrangement, or modification of objects positioned or structured in a manner that impedes access. Can include rearrangement or removal of furniture or equipment, installation of curb cuts or ramps, or repositioning items such as telephone kiosks or newspaper boxes.

<sup>30</sup> AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, 1st Edition, January, 2004.

<sup>31</sup> US Department of Transportation, Federal Highway Administration, *Designing Sidewalks and Trails for Access, Part II*, 2001.



**Bevel** - A surface that meets another surface at any angle other than 0 or 90 degrees.

**Bulb-Out** - see Curb Extension.



**Caster** - A wheel that can pivot but is not intended to govern the driving direction; typically used for the front wheels of most wheelchairs and strollers.

**Change of Cross Slope** - An abrupt difference between the cross slope (difference between the elevation of the curb and back of sidewalk) of two adjacent surfaces. A rapid rate of change of cross slope is frequently found on driveway crossing flares and curb ramps without landings. A cross slope that changes so rapidly that there is no planar surface over 24 sq. in. can create a safety hazard.

**Change of Grade** - A difference between the (running) grades of two adjacent surfaces.



**Change in level** - Vertical height transitions between adjacent surfaces or along the surface of a path. Small changes in level are often caused by cracks in the surfacing material. Changes in level may also result when the expansion joints between elements such as curb ramps and gutters are not constructed at the same time. On trails, ruts caused by weather erosion, tree roots, and rocks protruding from the trail surface are common sources of changes in level.



**Clear Space in Crosswalk** - The additional space required to be included in a crosswalk at the corner where the ramp of a diagonal curb ramp meets the street, so that those entering or exiting the base of the ramp can remain within the crosswalk (and not located in the through travel lanes).



**Collector** - Surface street providing land access and traffic circulation within residential, commercial, and industrial areas.

**Commercial Facility** - A facility that is intended for nonresidential use by private entities and whose operation brings about commerce.

**Continuous passage** - An unobstructed way of pedestrian passage or travel that connects pedestrian areas, elements, and facilities to accessible routes on adjacent sites (see Pedestrian Access Route, PAR).



**Cross Slope** -The slope measured perpendicular to the direction of travel.

**Crossing Island** - Pedestrian refuge with the right-of-way and traffic lanes of a highway or street.

**Crosswalk** - That part of a roadway at an intersection that is included within the extensions of the lateral lines of the sidewalks on opposite sides of the roadway, measured from the curbline, or in the absence of curbs from the edges of the roadway, or in the absence of a sidewalk on one side of the roadway, the part of the roadway included within the extension of the lateral lines of the (adjoining) sidewalk (preferably) at right angles to the centerline. Also, any portion of a roadway at an intersection or elsewhere that is distinctly indicated for pedestrian crossing by lines or other markings on the surface.



**Curb Extension** - A section of sidewalk extending into the roadway at an intersection or midblock crossing that (is within the shoulder or parking lane that) reduces the crossing width for pedestrians and may help reduce traffic speeds.

**Curb Ramp** - A combined ramp and landing to accomplish a change in level at a curb. This element provides street and sidewalk access to pedestrians using wheelchairs.

**Design Width** - The width specification that a sidewalk or trail was designed to meet. For sidewalks, the design width extends from the curb to any buildings or landscaping that forms the opposite border of the sidewalk. For trails, the design width is the area generally considered part of the trail (the beaten path or tread width).

**Detectable Warning** - Standardized surface feature built in, or applied to, walking surfaces or other elements to warn pedestrians with vision impairments of hazards (of entering a roadway, railroad, curb line or drop-off).

**Diagonal Curb Ramp** - Curb ramp positioned at the apex of the curb radius at an intersection, bisecting the corner angle.

**Diagonal Technique** - An environmental scanning technique where a visually disabled person holds a cane diagonally across the body in a stationary position, with the cane just above or touching the ground at a point outside one shoulder, and with the handle extending to a point outside the other shoulder. Used primarily in familiar, controlled environments.

**Drainage Inlet** - Site where water runoff from the street or sidewalk enters the storm drain system. The openings to drainage inlets are typically covered by a grate or other perforated surface to protect pedestrians.

**Driveway Crossing** - Extension of sidewalk across a driveway that meets the requirements of the Americans with Disabilities Act Accessibility Guidelines.

**Feasible** - Capable of being accomplished with a reasonable amount of effort, cost, or other hardship. With regard to ADA compliance, feasibility is determined on a case-by-case basis.

**Finished Floor Elevation** - The elevation at which the building foundation meets the prevailing ground surface.

**Firmness** - The degree to which a surface resists deformation by indentation when, for instance, a person walks or wheels across it. A firm surface would not compress significantly under the forces exerted as a person walks or wheels on it.

**Flare** - Sloped surface that flanks a curb ramp and provides a graded transition between the ramp and the sidewalk. Flares bridge differences in elevation and are intended to prevent ambulatory pedestrians from tripping. Flares are not considered part of the accessible route.

**Frontage Zone** - A linear portion of the sidewalk corridor, adjacent to (a building or) the edge of the right-of-way (or property line).

**Furnishings Zone (Buffer)** - A linear portion of the sidewalk corridor adjacent to the curb, that contains elements such as trees, signal poles, utility poles, street lights, street signs, controller boxes, hydrants, parking meters, driveway aprons, planting strips, or street furniture. (This zone also provides a buffer between pedestrians and the roadway).

**Gap** - (1) An opening embedded in the travel surface. Railroad and trolley tracks and concrete joints are common gaps that pedestrians must negotiate. Wheelchair casters and tires of road bicycles can get caught in poorly placed gap openings; or (2) a break in the flow of vehicular

traffic, sufficiently long enough for a pedestrian to cross to the other side of the street or to a place of refuge.

**Grade** - The slope parallel to the direction of travel that is calculated by dividing the vertical change in elevation by the horizontal distance covered, measured in percent.

**Grade-Separated Crossing** - A facility such as overpass, underpass, skywalk, or tunnel that allows pedestrians and motor vehicles to cross each other at different levels. '

**Grate** - A framework of latticed or parallel bars that prevents large objects from falling through a drainage inlet but permits water and some sediment to fall through the slots. Wheelchair casters and tires of road bicycles can get caught in improperly placed grate(s) (that are not designed to accommodate pedestrian and bicycle traffic).

**Guidestrip** - Some type of raised material with grooves that pedestrians with vision impairments use for cane directional cues. For example, guidestrips may be used by pedestrians with vision impairments to navigate a crosswalk, track to an emergency exit, or access the door of a light rail system.

**Gutter** - Trough or dip used for drainage purposes that runs along the edge of the street and curb or curb ramp.

**Hearing Impairment** - Condition of partial or total deafness.

**Intermodalism** - A transportation policy that promotes full development of multiple alternative modes of travel, and encourages the optimization of mode or combination of modes for travel mobility, efficiency, sustainability, economy, and environmental health. The availability, effectiveness, and safety of pedestrian facilities contribute to the achievement of intermodalism.

**Intersection** - Area where two or more pathways or roadways meet.

**Island** - A pedestrian refuge within the right-of-way (usually between) traffic lanes of a highway or street; also used as a loading stop for light rail or buses.

**Kinesthetic** - Sensory experience derived from the movement of the body or limbs.

**Landing** - Level area of sidewalk at the top or bottom of a ramp.

**Local Road** - Road that serves individual residences or businesses, and/or distributes traffic within a given urban or rural area.

**Locator Tone** - A repeating sound informs approaching pedestrians that they are required to push a button to actuate the pedestrian signal. This tone enables pedestrians with vision impairments to locate the pushbutton.

**Long White Cane** - Navigational device used by people with vision impairments to scan the environment for potential obstacles and hazards.

**Maximum Cross Slope** - The highest cross slope of a trail or sidewalk that exceeds the typical running cross slope of the path. The distance over which a maximum cross slope occurs significantly influences how difficult a section of sidewalk or trail is to negotiate.



**Maximum Grade** - The steepest grade that exceeds the typical running grade. The distance over which a maximum grade occurs significantly influences how difficult a section of sidewalk or trail is to negotiate.



**Median Island** - An island in the center of a road that physically separates the directional flow of traffic and can provide pedestrians with a place of refuge and reduce the crossing distance between safety points.

**Midblock Crossing** - A crossing point positioned within a block rather than at an intersection.

**Minimum Clearance Width** - The narrowest point on a sidewalk or trail. A minimum clearance width is created when obstacles, such as utility poles or tree roots, protrude into the sidewalk and reduce the design width.

**Mountable Curb** - See Sloping Curb.



**New Construction** - Project where an entirely new facility will be built.

**Obstacle** - An object that limits the horizontal or vertical passage space, by protruding into the pedestrian access route and reducing the clearance width of a sidewalk.

**Parallel Curb Ramp** - Curb ramp design where the sidewalk slopes down on either side of a landing. Parallel curb ramps require users to turn before entering the street.



**Passing Space** - Section of path or sidewalk wide enough to allow two wheelchair users to pass one another or travel abreast (minimum area of 5 feet by 5 feet).

**Passing Space Interval** - The distance between passing spaces.

**Path or Pathway** - Track or route along which pedestrians are intended to travel.

**Pedestrian** - A person afoot or in a wheelchair.



**Pedestrian-Access Route** - A continuous, unobstructed path connecting all accessible elements or a pedestrian system that meets the requirements of the Americans with Disabilities Act Accessibility Guidelines.

**Pedestrian-Actuated Traffic Control** - Pushbutton or other control operated by pedestrians designed to interrupt the prevailing signal cycle to permit pedestrians to cross a signalized intersection or midblock crossing.

**Perpendicular Curb Ramp** - Curb ramp design where the ramp path is perpendicular to the edge of the curb.



**Places of Public Accommodation** - Facilities operated by private entities that fall within the following 12 broad categories defined by Congress: places of lodging, food establishments, entertainment houses, public gathering centers, sales establishments, service establishments, transportation stations, places of recreation, museums and zoos, social service establishments, and places of education.

**Private Entity** - An individual or organization not employed, owned, or operated by the government.



**Public Entity** - Any state, (county, or municipal) government, department agency, special purpose district, or other instrumentality of a state or states or local government, and any commuter authority.



**Railroad flangeway** - A channel paralleling train or trolley tracks embedded in the travel surface of a road.

**Ramp** - Sloped transition between two elevation levels.

**Reach Distance** - The three-dimensional space within touching or grasping distance of a pedestrian. As a consequence of their seated position, wheelchair users generally have a more limited reach distance than other pedestrians.



**Reasonable Accommodation** - Modifications or adjustments to a program, work environment, or job description that make it easier for a person with a disability to participate in the same manner as other employees.

**Rehabilitation Act of 1973** - A Federal law requiring nondiscrimination in the employment practices of Federal agencies of the executive branch and Federal contractors; requires all Federally assisted programs, services, and activities to be available to people with disabilities.

**Removable Obstacle** - An Item that obstructs the clear passage space but is not fixed immovably to the ground. Examples of removable objects include newspaper vending boxes, rocks, vegetation, trash receptacles, and small planters.



**Right-of-Way** - Real property rights (whether by fee-simple ownership, by easement, or by other agreement) acquired across land for a public purpose, including pedestrian use.

**Running Cross Slope** - The average cross slope of a contiguous section of a sidewalk or trail. Running cross slope is measured by averaging the values of cross slope measurements taken periodically at different points along a given section of sidewalk.

**Running Grade** - The average of many short, contiguous grades.

**Rural** - Areas outside the boundaries of urban areas.



**Section 14 (1994)** - Section of the ADAAG containing proposed accessibility guidelines for public rights-of-way (now reserved).

**Section 504 (1973)** - The section of the Rehabilitation Act (of 1973) that prohibits discrimination by any program or activity conducted by the Federal government.

**Shared Used Path** - A trail that permits more than one type of user and that has a transportation and recreation function. An example is a trail designated for use by both pedestrians and bicyclists.



**Shy Distance** - Area along sidewalk closest to buildings, retaining walls, curbs, and fences generally avoided by pedestrians, (bicyclists and drivers).

**Sidewalk** - A paved pathway (typically) paralleling a highway, road, or street intended for pedestrians.



**Sidewalk Approach** - The section of the sidewalk that flanks the landing of a curb ramp. The approach may be slightly graded if the landing level is below the elevation of the adjoining sidewalk.



**Sight Distance** - The length of roadway visible to a driver or pedestrian; the distance a person can see along an unobstructed line of sight.

**Slip Resistant Surface** - Slip resistance is based on the frictional forces necessary to permit a person to ambulate without slipping. A slip resistant surface does not allow a shoe heel, wheelchair tires, or a crutch tip to slip when ambulating on the surface.

**Sloping Curb** - A curb with a sloping face, usually on the order of 30-to-45 degrees from vertical, that can be traversed in emergency situations.



**Stable Surface** - Stability is the degree to which a surface remains unchanged by contaminants or force is removed the surface returns to its original condition. A stable surface is not significantly altered by a person walking or maneuvering a wheelchair.

**Suburban** - Built up area surrounding a core urban area.

**Surface** - The material on which a person walks or wheels in the pedestrian environment. Sidewalk surfaces generally consist of concrete or asphalt, but commonly include tile, stone, and brick. In addition to concrete and asphalt, trails can be surfaced with dirt, rock, gravel, sand, mud, snow, grass, and other substances.



**Surface Transportation Program (STP)** - A Federal program that provides grants to states for federally funded roadways an enhancement projects.

**Tactile Warning** - Change in surface condition providing a tactile cue to alert pedestrians with vision impairments of a potentially hazardous situation.

**Touch Technique** - Environmental scanning method in which a blind person arcs a cane from side to side and touches points outside both shoulders. Used primarily in unfamiliar or changing environments, such as on sidewalks and streets.



**Transportation Agency** - Federal, state, (county) or (municipal) government entity responsible for planning and designing transportation systems and facilities for a particular jurisdiction.

**Truncated Domes** - Small domes with flattened tops used as tactile warning at (curb ramps adjacent to the roadways), transit platforms and at other locations where a tactile warning is needed.

**Uniform Federal Accessibility Standards** - Accessibility standards that all Federal agencies are required to meet. Includes scoping and technical specifications.

**Universal Design** - The designing of products and environments to be usable by all people, to the greatest extent possible, regardless of age, size, or abilities.



**Urban** - Places within boundaries set by state and local officials, having a population of 5,000 or more. Urban areas are often densely populated and contain a high density of built structures.



**U.S. Access Board (United States Architectural and Transportation Barriers Compliance Board)** - Independent Federal agency responsible for developing Federal accessibility guidelines under the ADA and other laws.

**Vertical Clearance** - Minimum unobstructed vertical passage space required along a sidewalk or trail. Vertical clearance is often limited by obstacles such as building overhangs, tree branches, signs, and awnings (80 inches).



**Vertical Curb** - A steep-faced curb, designed with the intention of discouraging vehicles from leaving the roadway.

**Vibrotactile Pedestrian Device** - Device that communicates information about pedestrian timing through a vibrating surface by touch.

**Vision Impairment** - Loss or partial loss of vision.



**Visual Warning** - Use of contrasts in surface to indicate a change in environment, as at a curb ramp where the sidewalk changes to the street.

**Walk Interval** - Traffic signal phase in which the WALKING PERSON (symbolizing WALK) signal indication is displayed.

**Wayfinding** - A system of information comprising visual, audible, and tactile elements that helps users experience an environment and facilitates getting from point A to point B.



**Width, Sidewalk** - *Total width* of a sidewalk includes obstructions and begins at the edge of a roadway (or back of curb) to the side of a building (or back of sidewalk). *Clear width* is the portion of sidewalk that excludes obstructions and any attached curb. *Effective width* is the portion of clear width that excludes any shy distances.

**Woonerf** - A common space to be shared by pedestrians, bicyclists, and low-speed motor vehicles. These are usually narrow streets without curbs and sidewalks. Plantings, street furniture, and other obstacles are placed so as to discourage and inhibit through traffic movements.

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