

Chapter 1

County Waste Trends Generation and Composition

As a county plans for the comprehensive management of municipal waste it must first gather crucial data. The background and make-up of the communities, along with the lifestyle of the people who live, work and operate businesses there are vital to understand. How people earn a living; where they chose to build their homes; the size of their families; and their general beliefs all impact the types and amounts of waste they generate. It also plays a part in their willingness to reduce or recycle some of those materials.

This chapter provides background on the volume of municipal waste generated and those who produce it in Cumberland County. A combination of tools including, but not limited to: historical data available from the County; data from similar communities and recognized published sources was used to identify current trends and predict future needs.

GENERAL CHARACTERISTICS OF THE COUNTY AND MUNICIPALITIES

Cumberland County is located in south central Pennsylvania. Driving eastward on the Pennsylvania Turnpike, Interstate 76, the County becomes visible immediately after exiting the Blue Mountain tunnel. Rolling hills and tranquil farmlands paint an idyllic picture of a rural and agricultural-based region. This image of Cumberland County is short-lived, however. Converging on the intersections of the Turnpike and Interstate 81, the landscape suddenly changes to a bustling densely populated area. Rich with commercial business, warehouses and upscale homes, this region continues as such to the banks of the Susquehanna River, which forms the eastern border of the County. This glimpse of the County, albeit from the perspective of the highway, is still illustrative of the differences in the make-up and environment of Cumberland. These variances play an important role in planning for municipal waste management and often dictate the types and level of services required in each sector.

FIGURE 1-1 MAP CUMBERLAND COUNTY

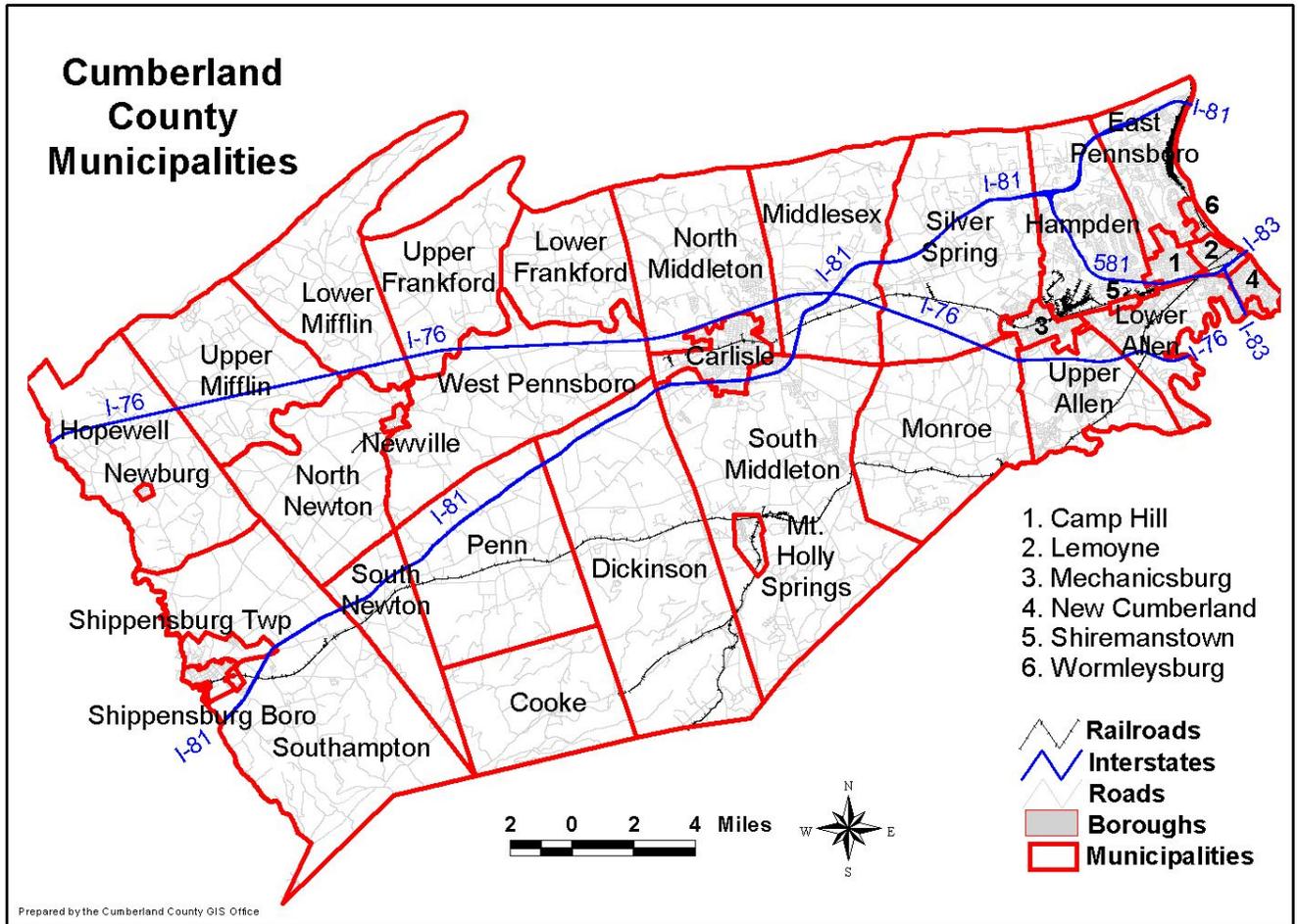


Figure-1 is a map provided by the Cumberland County GIS Office. It shows the layout of the County and its municipalities, which consist of 11 boroughs and 22 townships.

Similar to these differing landscapes, population and population densities vary within the County. According to the Pennsylvania State Data Center, 25.1% of the County’s population resides in areas categorized as rural, while 74.9% live in the urban category. Table 1-1 shows the breakdown of rural and urban populations by municipality.

TABLE 1-1 CUMBERLAND COUNTY POPULATION CHARACTERISTICS BY MUNICIPALITY 2010

Area	Total Population	Urban Population	Percent Urban	Rural Population	Percent Rural
Cumberland County	235,406	176,319	74.9	59,087	25.1
Camp Hill Borough	7,888	7,888	100.0	0	
Carlisle Borough	18,682	18,682	100.0	0	
Cooke Township	179	0		179	100.0
Dickinson Township	5,223	245	4.7	4,978	95.3
East Pennsboro Township	20,228	19,864	98.2	364	1.8
Hampden Township	28,044	27,203	97.0	841	3.0
Hopewell Township	2,329	0		2,329	100.0
Lemoyne Borough	4,553	4,553	100.0		-
Lower Allen Township	17,980	17,620	98.0	360	2.0
Lower Frankford Township	1,732	0		1,732	100.0
Lower Mifflin Township	1,783	0		1,783	100.0
Mechanicsburg Borough	8,981	8,981	100.0	0	
Middlesex Township	7,040	1,359	19.3	5,681	80.7
Monroe Township	5,823	1,467	25.2	4,356	74.8
Mount Holly Springs Borough	2,030	1,906	93.9	124	6.1
Newburg Borough	336	0		336	100.0
New Cumberland Borough	7,277	7,277	100.0	0	
Newville Borough	1,326	0		1,326	100.0
North Middleton Township	11,143	8,001	71.8	3,142	28.2
North Newton Township	2,430	0		2,430	100.0
Penn Township	2,924	0		2,924	100.0
Shippensburg Borough	4,416	4,416	100.0	0	
Shippensburg Township	5,429	5,429	100.0	0	
Shiremanstown Borough	1,569	1,569	100.0	0	
Silver Spring Township	13,657	7,675	56.2	5,982	43.8
Southampton Township	6,359	1,145	18.0	5,214	82.0
South Middleton Township	14,663	9,135	62.3	5,543	37.8
South Newton Township	1,383	0		1,383	100.0
Upper Allen Township	18,059	17,499	96.9	578	3.2
Upper Frankford Township	2,005	0		2,005	100.0
Upper Mifflin Township	1,304	0		1,304	100.0
West Pennsboro Township	5,561	745	13.4	4,816	86.6
Wormleysburg Borough	3,070	3,070	100.0	0	

A further demonstration of the characteristic differences in the communities can be seen in an examination of the population densities. Table 1-2 shows the land area and population per square mile in each municipality. The differential density range tops in Shiremanstown Borough at 4,880 persons per square mile to Cooke Township with a low of 7.9 persons per square mile.

On a countywide basis the population density is 422.6 persons per square mile which is greater than that found in Pennsylvania overall. Distance and travel time have a huge impact on the overall cost of providing waste and recycling collection services. Therefore, understanding these variables is important in developing programs appropriate for any given locale. Figure 1-2 illustrates the differences in population density across the County.

FIGURE 1-2 CUMBERLAND COUNTY POPULATION DENSITY 2009

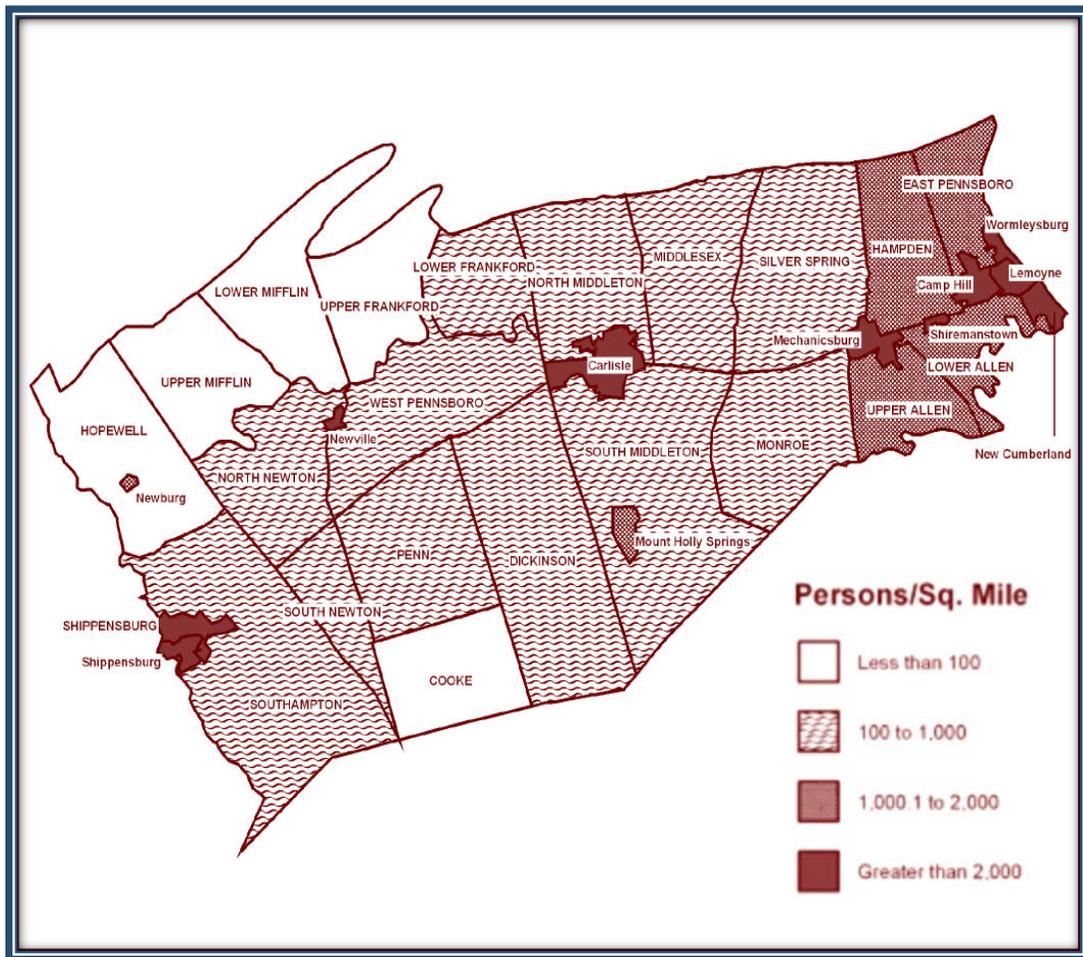


TABLE 1-2 POPULATION DENSITY BY MUNICIPALITY 2009

Area	Square Miles Land*	Persons Per Square Mile	Estimated Total Population
Pennsylvania	44,816.6	281.3	12,604,767
Cumberland County	550.2	422.6	232,483
Camp Hill Borough	2.2	3,458.6	7,436
Carlisle Borough	5.4	3,420.3	18,572
Cooke Township	19.9	7.9	158
Dickinson Township	45.6	117.0	5,336
East Pennsboro Township	10.9	1,823.1	19,890
Hampden Township	17.8	1,537.5	27,321
Hopewell Township	28.1	82.2	2,310
Lemoyne Borough	1.6	2,535.9	3,956
Lower Allen Township	10.3	1,738.4	17,888
Lower Frankford Township	15.0	123.7	1,851
Lower Mifflin Township	24.0	66.4	1,592
Mechanicsburg Borough	2.6	3,370.7	8,730
Middlesex Township	25.9	272.0	7,050
Monroe Township	26.1	223.7	5,848
Mount Holly Springs Borough	1.5	1,268.2	1,915
Newburg Borough	0.3	1,392.3	362
New Cumberland Borough	1.7	4,224.0	7,054
Newville Borough	0.4	2,975.0	1,309
North Middleton Township	23.5	468.7	11,029
North Newton Township	22.5	105.9	2,384
Penn Township	29.2	106.0	3,096
Shippensburg Borough	1.3	3,364.4	4,441
Shippensburg Township	2.5	2,177.8	5,488
Shiremanstown Borough	0.3	4,880.0	1,464
Silver Spring Township	32.5	420.2	13,660
Southampton Township	52.5	128.2	6,724
South Middleton Township	49.5	293.9	14,539
South Newton Township	11.1	117.9	1,309
Upper Allen Township	13.3	1,376.3	18,250
Upper Frankford Township	19.5	95.0	1,856
Upper Mifflin Township	21.9	66.6	1,455
West Pennsboro Township	30.5	182.9	5,578
Wormleysburg Borough	0.9	2,830.1	2,632

REGIONAL DIFFERENCES

The U.S. Bureau of the Census, 2010 Census of Population and Housing shows that Cumberland County has experienced a growth trend since 1990 with a 9% increase in population between then and the 2000 census. The same source indicates that the County continued to see an estimated 10% growth rate through 2010. Where that growth has occurred and will occur in the future has an impact on municipal waste planning.

The Cumberland County Tributary Strategy issued by the Cumberland County Conservation District divides the County into three demographic regions. Each region has distinguishing features that sets it apart from the others.

EASTERN CUMBERLAND

The region known locally as the “West Shore” (of the Susquehanna), is located in the eastern part of the County and contains the densest development, featuring numerous retail complexes. The eastern region consists of the Boroughs of Mechanicsburg, Camp Hill, Lemoyne, New Cumberland, and Wormleysburg. At this point in time, the eastern region is nearing a full development stage. Waste management and recycling services for residential and commercial establishments are prevalent in this region.



CENTRAL CUMBERLAND

The Borough of Carlisle serves as the focal point of the central region of Cumberland County. Surrounding the town are several townships that boast upper-middle class residential development. While Boiling Springs and Mt. Holly Springs Borough have still retained their small town atmosphere, there is significant pressure for commercial and light industrial growth in the central region pushing westward. Waste management services for residential and commercial establishments are widely available in this region but service offerings and methods are inconsistent from municipality to municipality.

WESTERN CUMBERLAND

The most rural area of the County is the western region. In the townships surrounding Newville, Newburg, and Shippensburg, large populations of Mennonite and Amish families still reside and operate traditional working farms. According to the



Conservation District, these farmers are less likely to sell their land for nonagricultural purposes. Therefore, growth in this area is expected to proceed at a slower pace than in other areas of Cumberland County. The exception could be in and around the Borough of Shippensburg, which is home to Shippensburg State University. Waste management and recycling services are available in a more limited sense in this region, and likely are not universally used.

NATIONAL AND STATE PERSPECTIVES ON MUNICIPAL WASTE

Municipal waste includes things we encounter in our homes and at work. On a daily basis, most of us will discard one or more of the following items: newspapers, kitchen scraps, grass clippings, old clothing, cardboard boxes, bottles, cans, appliances, etc. All of these are considered municipal waste. Items from residential, commercial, and institutional establishments such as durable goods, non-durable goods, containers and packaging, food wastes, yard wastes, and miscellaneous inorganic wastes are also included.

Figures 1-3 and 1-4 show a breakdown of the percentage of materials that can be found in the municipal waste generated and that, which is disposed. The illustrations represent data taken from *“Generation, Recycling, and Disposal in the United States: Facts and Figures for 2009”* an ongoing study and series of publications, sponsored by the USEPA, and conducted by Franklin Associates of Kansas. The conclusions in the study are based on data collected from 1960 through the present. Previously this series of reports was titled, *“Characterization of Municipal Solid Waste in the United States”* and has often been referred to as “The Franklin Study.” It has served as the definitive survey on the characterization and composition of the national waste stream.

FIGURE 1-3 USEPA COMPOSITION OF MUNICIPAL WASTE GENERATED 2009

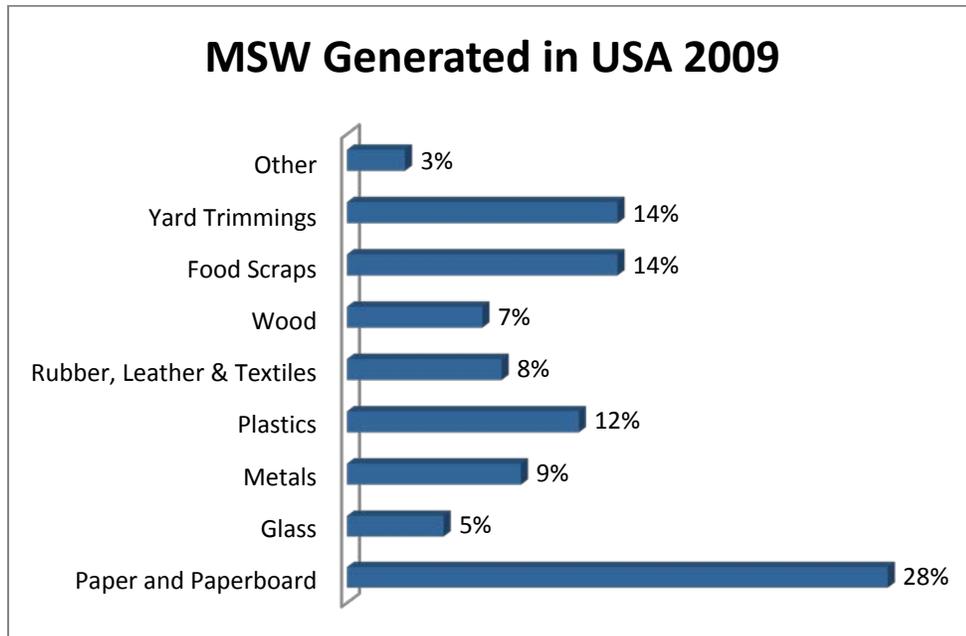
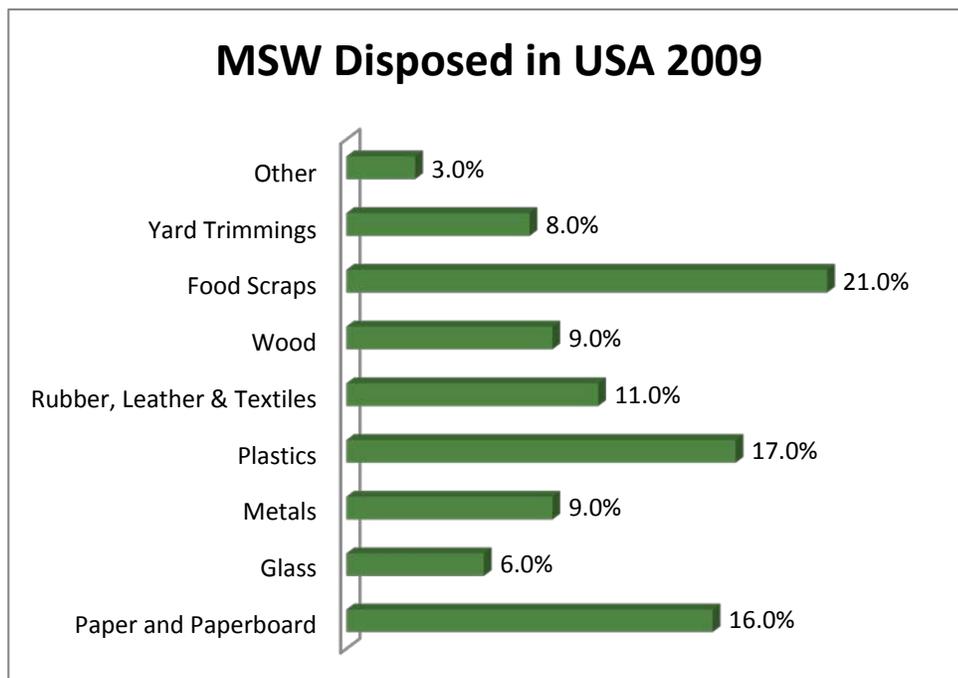


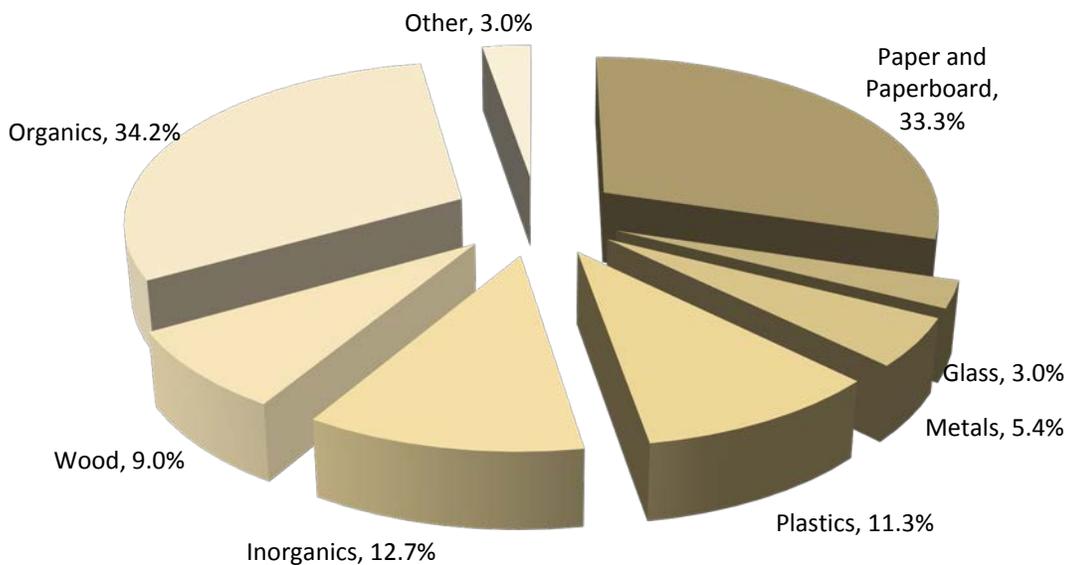
FIGURE 1-4 USEPA MATERIAL COMPOSITION OF MSW DISPOSED 2009



In 2001, the Pennsylvania Department of Environmental Protection performed a statewide municipal waste characterization study of solid waste being disposed in Pennsylvania. The study was designed to estimate the composition of municipal waste disposed in the Commonwealth. According to the findings, organics (food waste, yard waste, etc.) and paper make up the largest segments of the waste stream, followed by inorganics, plastics, metals and glass.

Figure 1-5 represents the findings of the PADEP waste composition study, which was developed by R.W. Beck. It shows the aggregate percentage of materials that were found in the overall waste stream in Pennsylvania. It differs in some respects from the current national averages.

FIGURE 1-5 PADEP COMPOSITION OF MUNICIPAL WASTE DISPOSED 2001



The USEPA graph shows waste generated and disposed on a national level in 2009 and the PADEP graph shows waste disposed in Pennsylvania in 2001. Tables 1-5A and 1-5B show the results of the USEPA and PADEP surveys. Table 1-5A shows materials with wood waste considered an inorganic material and Table 1-5B considers wood waste to be an organic material.

TABLE 1-5A COMPARISON OF NATIONAL AND STATE MATERIALS DISPOSED

<i>Comparison of National and State Materials Disposed (by weight) With Wood Waste included as inorganic rather than organic:</i>		
Material	USEPA (2009 data)	PADEP(2001 data)
Organics	29%	34.2%
Paper	16%	33.3%
Metal	9%	5.4%
Glass	6%	3.1%
Plastics	17%	11.3%
Inorganics	20%	21.7%

TABLE 1-5B COMPARISON OF NATIONAL AND STATE MATERIALS DISPOSED

<i>Comparison of National and State Materials Disposed (by weight) With Wood Waste included as organic rather than inorganic:</i>		
Material	USEPA (2009 data)	PADEP
Organics	38%	43.2%
Paper	16%	33.3%
Metal	9%	5.4%
Glass	6%	3.1%
Plastics	17%	11.3%
Inorganics	11%	12.7%

THE IMPACT OF RECYCLING ON WASTE GENERATION AND DISPOSAL

The results of recycling specific materials in Pennsylvania is readily visible in Table 1-5 A & B as metal, glass and plastics, are less prevalent in the State’s disposed waste stream than they are at the national level. Those materials are commonly found in municipal recycling programs due to the provisions of Act 101, the Municipal Waste Planning, Recycling, and Waste Reduction Act of 1988. The percentages for glass, plastics, and metal could be skewed, however, by a disproportionately higher percentage of other materials disposed. Noticeable are the amounts of paper found in Pennsylvania landfills, at a much higher proportion than the national average. Additionally, the PADEP 2001 data for organics exceeds the 2009 national averages, in spite of the trends that show continued increases in the proportion of food waste in municipal waste disposed nationally in the last decade. It is important to note that Pennsylvania’s Waste Composition Study was conducted in 2001. Since then new methods of collecting and processing material for recycling that allow for greater quantities of paper have become common. Therefore, it is likely that a study done today would show that

TABLE 1-6 ESTIMATED RESIDENTIAL AND COMMERCIAL WASTE BY MUNICIPALITY 2010

Municipality	Population 2010	% County Population	MSW Generated Tons	Estimated Residential Tons	Estimated Commercial Tons
Camp Hill Borough	7,888	3.35%	7526	4064	3462
Carlisle Borough	18,682	7.94%	17825	9625	8199
Cooke Township	179	0.08%	171	92	79
Dickinson Township	5,223	2.22%	4983	2691	2292
East Pennsboro Township	20,228	8.59%	19300	10422	8878
Hampden Township	28,044	11.91%	26757	14449	12308
Hopewell Township	2,329	0.99%	2222	1200	1022
Lemoyne Borough	4,553	1.93%	4344	2346	1998
Lower Allen Township	17,980	7.64%	17155	9264	7891
Lower Frankford Township	1,732	0.74%	1653	892	760
Lower Mifflin Township	1,783	0.76%	1701	919	783
Mechanicsburg Borough	8,981	3.82%	8569	4627	3942
Middlesex Township	7,040	2.99%	6717	3627	3090
Monroe Township	5,823	2.47%	5556	3000	2556
Mt Holly Springs Borough	2,030	0.86%	1937	1046	891
New Cumberland Borough	336	0.14%	321	173	147
Newburg Borough	7,277	3.09%	6943	3749	3194
Newville Borough	1,326	0.56%	1265	683	582
North Middleton Township	11,143	4.73%	10632	5741	4891
North Newton Township	2,430	1.03%	2318	1252	1067
Penn Township	2,924	1.24%	2790	1506	1283
Shippensburg Borough	4,416	1.88%	4213	2275	1938
Shippensburg Township	5,429	2.31%	5180	2797	2383
Shiremanstown Borough	1,569	0.67%	1497	808	689
Silver Spring Township	13,657	5.80%	13030	7036	5994
South Middleton Township	14,663	6.23%	13990	7555	6435
South Newton Township	1,383	0.59%	1320	713	607
Southampton Township	6,359	2.70%	6067	3276	2791
Upper Allen Township	18,059	7.67%	17230	9304	7926
Upper Frankford Township	2,005	0.85%	1913	1033	880
Upper Mifflin Township	1,304	0.55%	1244	672	572
West Pennsboro Township	5,561	2.36%	5306	2865	2441
Wormleysburg Borough	3,070	1.30%	2929	1582	1347
		100.00%	224,604	121,284	103,318

Pennsylvania's paper figures more closely resemble the national trends. Since as a whole, Pennsylvania does not have large scale organics collection and composting operations, it is suspected that the state may continue to exceed the national average in organics disposed. The local impact of designating certain materials for recycling in Cumberland County was an important consideration during the planning process.

SOURCES OF MUNICIPAL WASTE

Every household, business and activity within Cumberland County is a generator of municipal waste to some degree. They include residences, commercial



establishments, government buildings, institutions, and community events. Municipal waste encompasses a wide spectrum of materials, which are produced by the majority of generators. However, there are special categories of municipal waste resulting from select generators. Therefore, it was important for the County to examine the special needs and conditions of all of these entities as it developed the revisions to the Plan.

RESIDENCES

By far, municipal waste is generated in greater quantities by Cumberland County households than by its businesses. According to the USEPA and PADEP studies, at least 54% of municipal waste is generated by a community's residents. In rural communities, the studies show the proportion of residential waste to be even higher. Although Cumberland County has distinctly rural areas, a greater portion of its population and its commercial activity is clustered in urban regions. Therefore, to estimate the proportion of residential and commercial waste generated the USEPA and PADEP studies seem appropriate to use. A breakdown of residential and commercial waste generation is shown in Table 1-6.

BUSINESSES, OFFICES, INSTITUTIONS

Most of the remaining 46% of the general municipal waste stream originates in retail stores, restaurants, offices, prisons, schools, hospitals, nursing homes and similar facilities. Although the manner in which these establishments operate may be different, how their waste is stored and collected for disposal remains the same. In addition, while the amounts of each fluctuate in volume, the types of material found within the waste stream are of similar composition. Therefore, quantifying these wastes as commercial for the purpose of planning and discussion is a logical approach. Following is a brief synopsis of each category considered to be a generator of commercial municipal waste.

TABLE 1-7 FEDERAL, STATE AND LOCAL GOVERNMENT FACILITIES

FEDERAL	STATE	COUNTY and LOCAL
USDA Rural Development	Liquor Stores	Cumberland County Courthouse
US Consolidated Farm Service Agencies	State Department of Highways	County Social and Human Service Agencies
Natural Resources Conservation Services	State Turnpike Commission	Cumberland County Redevelopment Authority
US Armed Forces Recruiting	Department of Agriculture	Cumberland County Recycling and Solid Waste
US Armed Forces Reserves	Department Of Labor & Industry	Cumberland County Prison
U S Army War College	Department of Health	District Magistrates and Justices
US Military History Institute	Department of Public Welfare	Township and Borough Offices
United States Post Offices	Driver's License Center	Municipal Authority Offices
National Weather Service	Pennsylvania State Police	Police and Fire Departments
US Veterans Administration	State Legislator's Offices	Public Libraries
Social Security Administration	State Park Lands	

FEDERAL, STATE, LOCAL GOVERNMENT FACILITIES

A wide variety of government functions are conducted in Cumberland County. Social services, economic development, the military, environmental, agricultural and other agencies are housed here. The day-to-day operations of township, borough and county government as well as state and federal operations are located in offices and other facilities throughout the County. Police and fire departments, municipal authorities, libraries, and even the prison are included. Table 1-7 lists the various categories of government offices found in Cumberland County.

TABLE 1-8 CUMBERLAND COUNTY PUBLIC SCHOOL DISTRICTS

<p>Big Springs School District</p> <p>Big Springs High School Big Spring Middle School Mount Rock Elementary Newville Elementary Oak Flat Elementary</p>	<p>Camp Hill School District</p> <p>Camp Hill Senior High School Camp Hill Middle School Eisenhower Elementary Hoover Elementary Schaeffer Elementary</p>
<p>Carlisle Area School District</p> <p>Carlisle Area High School Lamberton Middle School Wilson Middle School Bellaire Elementary School Crestview Elementary School Hamilton Elementary School Letort Elementary School Mooreland Elementary School Mount Holley Springs Elementary School North Dickinson Elementary School</p>	<p>Cumberland Valley School District</p> <p>Cumberland Valley High School Eagle View Middle School Good Hope Middle School Green Ridge Elementary School Hampden Elementary School Middlesex Elementary School Monroe Elementary School Shaul Elementary School Silver Spring Elementary School Sporting Hill Elementary School</p>
<p>East Pennsboro Area School District</p> <p>East Pennsboro Area Senior High School East Pennsboro Area Middle School East Pennsboro Elementary School West Creek Hills Elementary School</p>	<p>Mechanicsburg Area School District</p> <p>Mechanicsburg Area High School Mechanicsburg Area Intermediate High School Broad Street Elementary School Filbert Street Elementary School Northside Elementary School Shepherdstown Elementary School Shiremanstown Elementary School Upper Allen Elementary School</p>
<p>Shippensburg Area School District</p> <p>Shippensburg Area High School Shippensburg Area Middle School James Burd Elementary School Nancy Grayson Elementary School Rowland School for Young Children</p>	<p>South Middleton School District</p> <p>Boiling Springs High School Yellow Breeches Middle School Iron Gorge Educational Center Rice Elementary School</p>
<p>West Shore School District</p>	
<p>Allen Middle School Cedar Cliff High School Highland Elementary School Hillside Elementary School Lemoyne Middle School</p>	<p>Lower Allen Elementary School New Cumberland Middle School Rossmoyne Elementary School Washington Heights Elementary School</p>
<p>Cumberland Area Vocational Technical</p>	

TABLE 1-9 PRIVATE SCHOOLS LOCATED WITHIN COUNTY PUBLIC SCHOOL DISTRICTS

<p>Big Springs School District</p> <p>Berean Christian Day School Hickory Lane School Hidden Valley School Otterbein School Rocky View Parochial School Running Pump Road Parochial School South Mountain Parochial School</p>	<p>Camp Hill School District</p> <p>Bible Baptist School Good Shepherd Elementary School Trinity High School</p>
<p>Carlisle Area School District</p> <p>Allen Mennonite School Bethel Christian Academy Grace Baptist Christian School Great Hope Baptist School</p>	<p>Cumberland Valley School District</p> <p>Emmanuel Baptist Christian Academy Faith Tabernacle School Oakwood Baptist Day School</p>
<p>East Pennsboro Area School District</p> <p>Harrisburg Academy</p>	<p>Mechanicsburg Area School District</p> <p>Bible Baptist School St Joseph School</p>
<p>Shippensburg Area School District</p>	
<p>Chestnut Grove School Clearfield Parochial School Grace B Luhrs University Elementary School Independent Baptist Christian Academy Living Faith School McKinney School Meadow Run School Middle Run Parochial School</p>	<p>Mount Rock Parochial Oak Grove Parochial School Quarry Hill School Shady Lane Amish School Spring Hill Parochial School Sunset Run Parochial School</p>
<p>West Shore School District</p> <p>St Theresa Elementary School</p>	<p>South Middleton School District</p> <p>Carlisle Christian Academy Iron Forge Educational Center St Patrick School Yellow Breeches Education Center</p>

TABLE 1-10 CUMBERLAND COUNTY INSTITUTIONS OF HIGHER LEARNING

<p>State Related Institutions</p> <p>Shippensburg University of Pennsylvania Penn State Dickinson School of Law</p>	<p>Private Institutions</p> <p>Central Pennsylvania College Dickinson College Messiah College</p>
<p>Business and Trade Schools</p> <p>Barbizon School of Modeling New Horizons Computer Learning Center YTI Career Institute</p>	

EDUCATIONAL INSTITUTIONS

Public school systems represent the largest segment of educational institutions in Cumberland County. Other learning centers also exist. These include colleges, technical and vocational schools, and private schools. Tables 1-8 and 1-9 list the public school systems and the private and parochial schools that are located within those public school districts. Table 1-10 shows the institutions of higher learning.

TABLE 1-11 CUMBERLAND COUNTY RESIDENTIAL CARE FACILITIES

Cumberland Crossings 1 Longsdorf Way, Carlisle, PA 17015	Loyalton of Creekview 1100 Grandon Way, Mechanicsburg, PA 17050	Bethany Village 325 Wesley Dr Mechanicsburg, PA 17055
Chapel Pointe At Carlisle 770 S Hanover St, Carlisle, PA 17013	Forest Park Health Center 700 Walnut Bottom Rd, Carlisle, PA 17013	Claremont Nursing & Rehabilitation Center 1000 Claremont Rd Carlisle, PA 17013
Church of God Home 801 N Hanover St, Carlisle, PA 17013	Sarah A Todd Memorial Home 1000 W South St, Carlisle, PA 17013	Roth Arlene & Book 801 N Hanover St Carlisle, PA 17013
Thornwald Home 442 Walnut Bottom Rd, Carlisle, PA 17013	Country Meadows of West Shore 4905 E Trindle Rd, Mechanicsburg, PA 17050	Manorcare Helath Services 1700 Market St Camp Hill, PA 17011
Jean Webster 801 N Hanover St, Carlisle, PA 17013	Messiah Village Adult Care 1155 Walnut Bottom Rd, Carlisle, PA 17015	Country Manor Adult Community 9 Lantern Lane Shippensburg, PA 17257
Diakon Lutheran Social Ministries 4999 Louise Dr Mechanicsburg, PA 17055	Episcopal Home 206 E Burd St Shippensburg, PA 17257	Essex House 20 N 12th St Lemoyne, PA 17043
Creek View Community 493 Potato Rd, Carlisle, PA 17015	Bridges At Bent Creek 2100 Bent Creek Blvd, Mechanicsburg, PA	Royal Oaks At Ben Creek 2100 Bent Creek Blvd, Mechanicsburg, PA 17050
Yeager's Personal Care Home 103 W Keller St, Mechanicsburg, PA 17055	Messiah Village 100 Mount Allen Dr Mechanicsburg, PA 17055	Green Ridge Village 210 Big Spring Rd, Newville, PA 17241
Gilliland Manor 201 Big Spring Rd Newville, PA 17241	Hollinger Group 4550 Lena Dr Ste 225, Mechanicsburg, PA 17055	HealthSouth Rehabilitation Center 4950 Wilson Lane, Mechanicsburg, PA 17055
Golden Living Center - West Shore 770 Poplar Church Rd Camp Hill, PA 17011	Golden Living Center - Camp Hill 46 Erford Rd Camp Hill, PA 17011	The Woods At Cedar Run 824 Lisburn Rd Apt 522 Camp Hill, PA 17011
United Church of Christ Home 30 N 31st St, Camp Hill, PA 17011	Elmcroft of Shippensburg 129 Walnut Bottom Rd, Shippensburg, PA 17257	Shippensburg Health Care Center 121 Walnut Bottom Rd, Shippensburg, PA 17257

RESIDENTIAL CARE FACILITIES

In the category of institutional generators of municipal waste, also included are the numerous skilled nursing, personal care and assisted living facilities that are found in the County. While these facilities produce municipal waste commonly found in most residences, they also generate materials that require special handling. Due to the nature of their operations, a portion of the municipal waste generated in these facilities falls into a special category known as infectious chemotherapeutic waste. Table 1-11 shows the residential care facilities in Cumberland County.

INFECTIOUS AND CHEMOTHERAPEUTIC WASTE

Hospitals have traditionally been thought of as the primary generators of Infectious and Chemotherapeutic Waste (ICW). In an attempt to control escalating costs, outpatient medical care has grown in popularity and many of the procedures that formerly required hospitalization are now performed in the offices of physicians, dentists, and varying health practitioners as well as other resident care facilities. Therefore, significant amounts of ICW once generated at a hospital are now found at these remote medical facilities.

Although many hospitals continue to operate incinerators or autoclave units for onsite treatment and disposal, the decreasing volume of ICW at hospitals combined with tougher regulatory constraints for permitting and operating the incinerators have resulted in the abandonment of onsite units on some instances. Consequently, commercial transporters and treatment facilities developed in direct proportion to the demand for services.

Hospitals and satellite medical offices in Cumberland County are similar to other facilities in Pennsylvania in the respect that much, if not all, of their Infectious Chemotherapeutic Waste is transported to regional processing and disposal facilities. Table 1-12 shows the estimated volume of ICW generated in Cumberland County. Neither transporters, treatment facilities, nor medical practices are required to report to the County the amount of ICW generated or processed. Therefore, the volume of waste, which is shown in Table 1-12, was calculated using the expected rate of generation by type of facility or medical practice, documented in the *Pennsylvania Infectious and Chemotherapeutic Waste Plan, 1990*.

TABLE 1-12 INFECTIOUS CHEMOTHERAPEUTIC WASTE SOURCES IN CUMBERLAND COUNTY 2009			
Type of Facility	Number of Establishments	Estimated Annual ICW Generation in Tons 2009	Projected Annual ICW Generation in Tons 2020
Hospitals	5	365	409
Physicians	154	13	14
Dentists	92	9	10
Health Practitioners	103	16	18
Dialysis Centers	0	0	0
Outpatient Care Centers	30	5	5
Diagnostic Centers	16	14	15
Home Health Care Services	16	2	3
Veterinary Practitioners	23	5	6
Funeral Homes	12	1	1
Nursing or Residential Care Facilities	59	28	31
Total		458	512

CONSTRUCTION AND DEMOLITION ACTIVITIES

In Pennsylvania, wastes are regulated in some part more by where and how they are generated rather than the actual composition of the material. A prime example of this is Construction and Demolition Waste(C&D). Just as the name implies, this material is generated from construction, renovation, and demolition activities in residential, commercial and industrial establishments. This portion of the municipal waste stream is highly variable and its composition fluctuates on a site by site basis.

Typically, Construction and Demolition waste contains a conglomerate of items, which include asphalt, concrete, earth, sand, trees, steel, brick, lumber, roofing materials, carpet remnants, dry wall, and other similar materials. Loads bound for disposal resulting from construction activities might also include packaging materials such as cardboard boxes, Styrofoam, nylon or plastic strapping, pallets, etc. Although they are not generally included in the official definitions of C&D waste, it is not uncommon for demolition projects to generate lead, asbestos, mercury, liquid paints and stains, pressure treated lumber, etc. These must be removed and disposed according to practices and regulations beyond those for C&D waste.

Because construction and demolition activities vary based on economic and seasonal conditions, the volume of material is less consistent than municipal waste as a whole. Therefore, it is much more difficult to project generation rates and quantities for the long term. Contributing to that difficulty is the lack of universal documented disposal activity. The Pennsylvania Department of Environmental Protection reports that 17.5% of the material disposed in Pennsylvania landfills can be categorized as C&D waste. In 2009, Pennsylvania disposal sites reported that 45,801 tons of C&D waste originating in Cumberland County were disposed at their facilities. This represents approximately 21% of all municipal waste from Cumberland County disposed in Pennsylvania facilities.

It is suspected that the reported figures do not represent the total amount of such material generated in the County. Complicating the tracking of disposal is the manner in which construction demolition waste is handled by the generators. Unlike MSW, C&D waste is not consistently collected and transported by municipalities or through ongoing arrangements with private garbage haulers. Much of it is handled by construction demolition contractors, or homeowners and businesses that generate the waste. Whether due to lack of awareness, regulations controlling self-haulers or enforcement, the material does not always make its way to a proper disposal facility. Some of the material is burned on construction sites and is never accounted. Another common method used by homeowners and contractors is illicit dumping.

On the other hand, all material that does not reach a landfill is not necessarily improperly managed or disposed. A good portion of brick and concrete and other masonry materials are used as clean fill. Resourceful contractors reuse doors, windows, hardware, etc. in other project applications.

Consequently, it is impossible for a county to determine waste generation based on disposal records. A better source may be construction/demolition contractors who could be required to report on waste that they transport for disposal. In some areas, the proper disposal of construction demolition waste is tied to deposits on building

permits and is refunded when documentation is provided. With the advent of the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, there is more demand for the proper handling of C&D material thru processing facilities that recycle many of the components. This practice coupled with potential disposal bans on certain C&D waste could present future opportunities for greater waste diversion in Cumberland County. Consideration of these potential solutions was part of the revision planning process. Further discussion on this issue is provided in Chapter 4.

SEPTAGE AND SEWAGE SLUDGE

An extensive network of public wastewater treatment plants (WWTP) exists in Cumberland County. According to the *Cumberland County Comprehensive Plan, 2003*, all or portions of twenty-six municipalities in Cumberland County are serviced by public sewers. Private homeowners within the remaining seven non-serviced municipalities are expected to use on lot septic systems. The municipalities without public treatment facilities include Cooke, Lower Frankford, Lower Mifflin, South Newton, Upper Frankford, and Upper Mifflin townships. On-lot septic systems are often pumped and the septage is either land applied or transported for treatment.

The overall amount of biosolids generated within the County is estimated to be 23,635.75 tons per year. A breakdown of estimated biosolids generation by municipality is shown in Table 1-13. The estimates are based on a PADEP study of septage and sewage, which indicates that it is reasonable to expect each County household to generate approximately .25 tons of biosolids per year. Table 1-13 also shows which municipalities are serviced by a specific WWTP.

COMMUNITY EVENTS

Attendees and vendors at sporting events, fairs, festivals, and other celebrations leave behind a variety of items that are considered municipal waste. Food scraps, cups, bottles, cans, flyers, boxes, etc. are all generated in varying quantities at these community events. The National Solid Waste Management Association released a technical bulletin in 1985 that listed the amount of waste generated by tourists under a variety of conditions. The bulletin indicated that during a daylong event, depending upon the types of refreshments and activities available at each event, an average of 3 lbs. of waste per attendee per day could be expected. Smaller events and venues may have differing quantities. The types of food served, the manner in which beverages are dispensed and the volume of promotional materials also factor into the equation. Therefore, no precise generation rates are available for event generated municipal waste.

TABLE 1-13 ESTIMATED BIOSOLIDS GENERATION BY MUNICIPALITY 2010

Geography	Served by Wastewater Treatment Facility	Occupied Housing Units	Tons Per Year
Camp Hill Borough	Lemoyne Municipal Authority	3,369.00	842.25
Carlisle Borough	Carlisle Region Water Pollution Control Facility Carlisle Suburban Authority South Middleton Township Municipal Authority	7,724.00	1,931.00
Cooke Township		84.00	21.00
Dickinson Township	South Middleton Township Municipal Authority	2,298.00	574.50
East Pennsboro Township	East Pennsboro Township WWTP Pine brook WWTP Roth Lane Waste Water Treatment Plant	8,316.00	2,079.00
Hampden Township	Roth Lane Waste Water Treatment Plant Pinebrook WWTP East Pennsboro Township WWTP Lower Allen Township WWTP Mechanicsburg WWTP	11,138.00	2,784.50
Hopewell Township	Newburg-Hopewell Joint Authority WWTP	804.00	201.00
Lemoyne Borough	LeMoyne Municipal Authority	1,845.00	461.25
Lower Allen Township	Lower Allen Township WWTP	6,925.00	1,731.25
Lower Frankford Township		633.00	158.25
Lower Mifflin Township		677.00	169.25
Mechanicsburg Borough	Mechanicsburg WWTP	4,387.00	1,096.75
Middlesex Township	Carlisle Region Water Pollution Control Facility Middlesex Township Municipal Authority	2,798.00	699.50
Monroe Township	Mechanicsburg WWTP South Middleton Township Municipal Authority	2,271.00	567.75
Mount Holly Springs Borough	Mt. Holly Springs WWTP	965.00	241.25
Newburg Borough	Newburg-Hopewell Joint Authority WWTP	156.00	39.00
New Cumberland Borough	New Cumberland WWTP	3,424.00	856.00
Newville Borough	Newville WWTP	655.00	163.75
North Middleton Township	North Middleton Authority Carlisle Region Water Pollution Control Facility Carlisle Suburban Authority	4,389.00	1,097.25
North Newton Township	Newville WWTP	803.00	200.75
Penn Township	Newville WWTP	1,197.00	299.25
Shippensburg Borough	Shippensburg Borough WWTP	2,250.00	562.50
Shippensburg Township	Shippensburg Borough WWTP	850.00	212.50
Shiremanstown Borough	Lower Allen Township WWTP	747.00	186.75
Silver Spring Township	Silver Springs Township Authority WWTP Carlisle Region Water Pollution Control Facility Mechanicsburg WWTP Middlesex Township Municipal Authority	5,325.00	1,331.25
Southampton Township	Shippensburg Borough WWTP	2,537.00	634.25
South Middleton Township	South Middleton Township Municipal Authority and Carlisle Region Water Pollution Control Facility and Mt. Holly Springs WWTP	6,034.00	1,508.50
South Newton Township		493.00	123.25
Upper Allen Township	Upper Allen Township Sewage Treatment Plant Lower Allen Township WWTP Mechanicsburg WWTP	6,590.00	1,647.50
Upper Frankford Township		774.00	193.50
Upper Mifflin Township		505.00	126.25
West Pennsboro Township	Newville WWTP	2,158.00	539.50
Wormleysburg Borough	East Pennsboro Township WWTP LeMoyne Municipal Authority	1,422.00	355.50
Total		94,543.00	23,635.75

"Solid wastes" are the discarded leftovers of our advanced consumer society. This growing mountain of garbage and trash represents not only an attitude of indifference toward valuable natural resources, but also a serious economic and public health problem."

**Jimmy Carter,
former President of the United States of America**

