



District of Columbia
Adrian M. Fenty, Mayor



District Department of Transportation
Gabe Klein, Director

DDOT Sustainability Plan



Sustainability plan

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DIRECTOR'S MESSAGE

As the nation's capital, the District of Columbia is home to over half a million residents and hundreds of thousands of jobs. Our great city attracts millions of visitors every year. Serving such a large and diverse group of constituents is a complex responsibility. The District Department of Transportation (DDOT) is ensuring that efficient and reliable modes of transportation are provided to users of its transportation system. We were the first city in the nation to provide a bike sharing program, which is expanding tenfold this year. We have started various initiatives to improve the natural and physical environment of our city. Our policies and processes, including Context Sensitive Solutions (CSS) and the DDOT Environmental Management System (EMS) are helping us to improve the quality of our operations and projects.

Sustainability has been a key focus since I took office as the Director of DDOT. One of my first accomplishments as the Director was the development of the 2010 DDOT Action Agenda. The Action Agenda set our agency's priorities and laid out actions to meet these priority objectives, which included sustainable living.

To ensure our focus on this objective we have added sustainability as one of the functions of our Planning, Policy and Sustainability Administration (PPSA). The DDOT Sustainability Plan is a product of this focus and the collaborative work of all functions of DDOT. I am very pleased that with the completion of this document, DDOT has a sustainability plan that provides a clear vision for our department to incorporate sustainable practices in all of its activities.



A handwritten signature in black ink, appearing to read 'Gabe Klein', written over a horizontal line.

Gabe Klein
Director



ASSOCIATE DIRECTOR'S MESSAGE

Sustainability can be an over worked and under defined term wielded to validate almost any initiative. Deliberate definition and precise measures are important to clearly articulate the meaning of sustainability for the District Department of Transportation (DDOT). The DDOT sustainability plan serves that purpose.

For DDOT, sustainability does not just mean “green”. It means enduring institutional practices that take the long view of DDOT activities. It allows the agency to preserve the environment and resources for generations to come. This plan outlines the cross-cutting considerations that DDOT assesses in developing transportation plans, policies, designs and organizational practices. In all assessments, DDOT has established measures to chart the agency’s progress and development toward sustainability.

This plan will guide DDOT as it executes its commitment to sustainable practices and policy-making. It will help DDOT coordinate its numerous sustainability efforts and initiate more sustainable practices, policies and programs.

Karina Ricks
Associate Director
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- Verizon Center
- National Portrait Gallery
- American Art Museum
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EXECUTIVE SUMMARY

The District of Columbia enjoys a rich historic heritage and cultural diversity. The uniqueness of Washington, DC is also seen in its transportation infrastructure. Most of the city's downtown core is part of the historic L'Enfant Plan. Developing, maintaining and operating a transportation system in a context where view sheds and street alignments are of national importance provides unique challenges for DDOT. With over 4,000 lane miles of streets, thousands of trees and millions of square feet of public right of way the District Department of Transportation (DDOT) performs diverse functions in order to provide excellent transportation services to its users.

Furthermore, DDOT has a unique role of functioning as a state DOT as well as a city DOT. This makes DDOT responsible for a large array of transportation infrastructure from the Interstate Highways to small alleys. Additionally, the District enjoys a huge population of travelers using a multitude of transportation options including transit, riding, walking and driving. Providing a balanced transportation system with choices for all modes of travel, while maintaining city streets as public places, requires sustainable practices.

The District Department of Transportation (DDOT) defines sustainability as meeting the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability consists of three elements: Environment, Social Structure and Economy. Collectively, these elements provide a foundation for quality of life. These three elements will be further discussed in Chapter 1.

In pursuing sustainability, DDOT recognizes that there is a close relationship between transportation and sustainability. DDOT understands that its projects and programs impact the local environment. Transportation infrastructure changes storm water flows, temperatures, natural habitats and community cohesion. Additionally, land development is influenced by adjacent transportation facilities. Therefore, DDOT is faced with the challenge of providing a sustainable transportation system for the District that enhances the economy and promotes livability while protecting the environment. To this goal, it is DDOT's priority to provide balanced transportation mode choices without compromising safety, accessibility and mobility.

The DDOT Sustainability Plan serves as a guide for decision-making at DDOT so that the District of Columbia remains a safe, multi-modal and healthy city for present and future generations. It was developed to ensure that sustainable practices are incorporated into all agency activities. Based on the DC Green Agenda, the DDOT mission statement and the DDOT Action Agenda, the DDOT Sustainability Plan provides actionable and measurable goals that deepen and refine DDOT's dedication to sustainability.

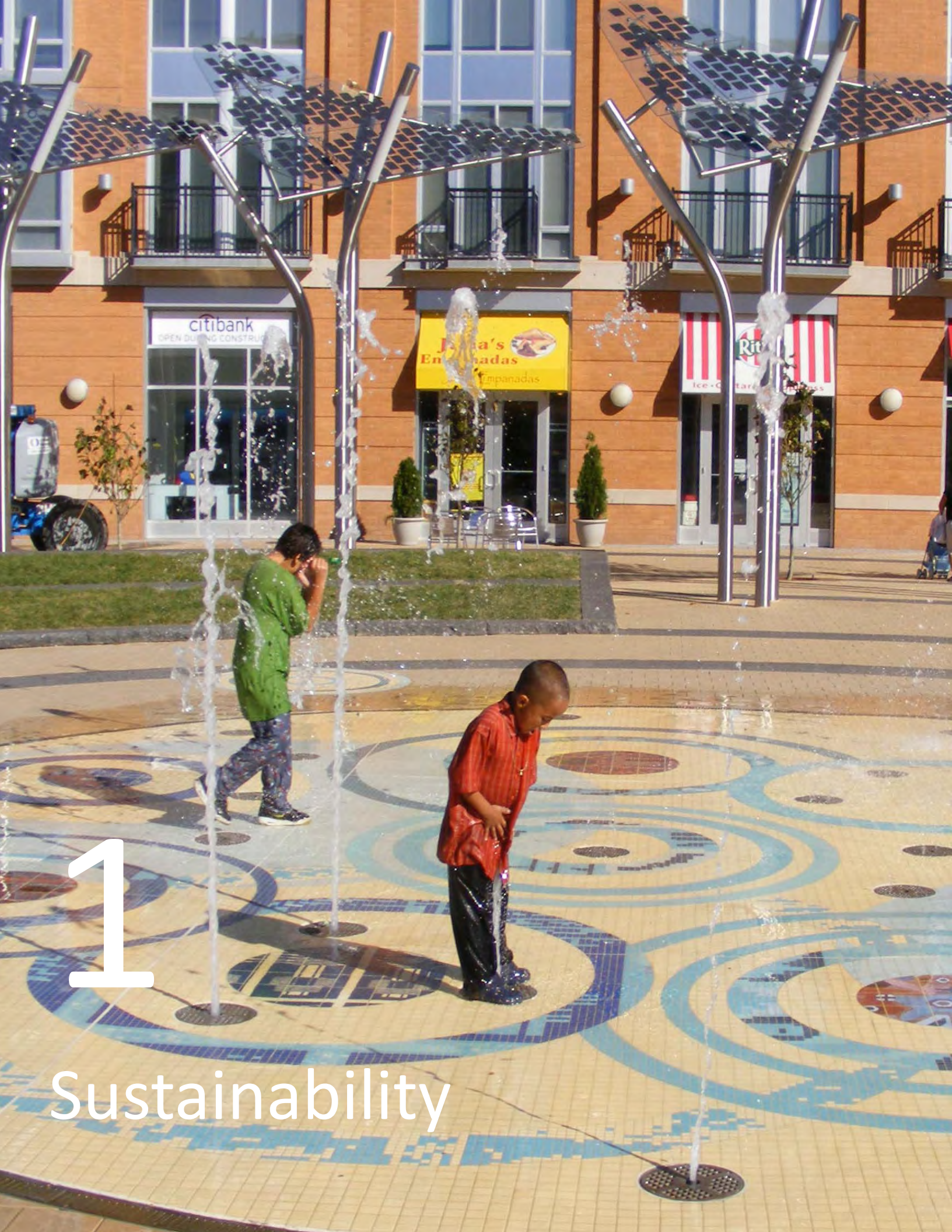
The following chapters discuss eight priority areas that DDOT will focus on to promote sustainable practices in the agency's work. The priority areas are: (1) Promoting Transportation and Land Use Linkage; (2) Improving Mode Choices, Accessibility and Mobility; (3) Effective Cost Assessments in Decision-Making; (4) Supporting Economy; (5) Improving DDOT Operations and Project Development Processes; (6) Protecting the Environment and Conserving Resources; (7) Climate Change Adaptation; and (8) Promoting Livability and Safety. Throughout this plan, recommended actions, measures and targets accompany these priorities. Focusing on these eight priority areas and their respective metrics will help DDOT ensure that its work in the District of Columbia is congruent with its commitment to sustainability.

Faisal Hameed

Division Chief

Project Development, Environment & Sustainability Division

August 14, 2010



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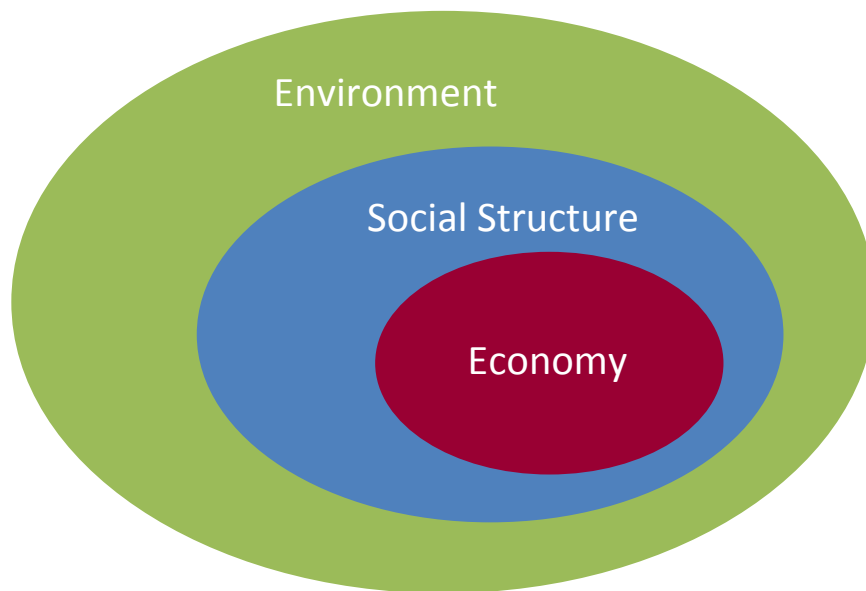
Sustainability

1. SUSTAINABILITY

In order to have a sustainability plan, an organization must first know what sustainability means and how it will relate to the organization. Sustainability is the capacity to endure and the potential for maintaining long-term well-being for humankind. This in turn depends on the well-being of the natural world and the responsible use of natural resources. The most commonly accepted definition of sustainability comes from the Brundtland definition, which states, "...[sustainability is] meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Report of the World Commission on Environment and Development U.N. 1987).



The District Department of Transportation (DDOT) has adopted the Brundtland definition of sustainability. Consistent with this definition, DDOT believes sustainability consists of three elements: Environment, Social Structure and Economy. Environment refers to the natural characteristics of a given area. Social Structure takes into consideration the people, cultures and community aspects of a location. Economy relates to the financial realities that make up a community. When considered collectively, these elements provide the foundation for the quality of life.



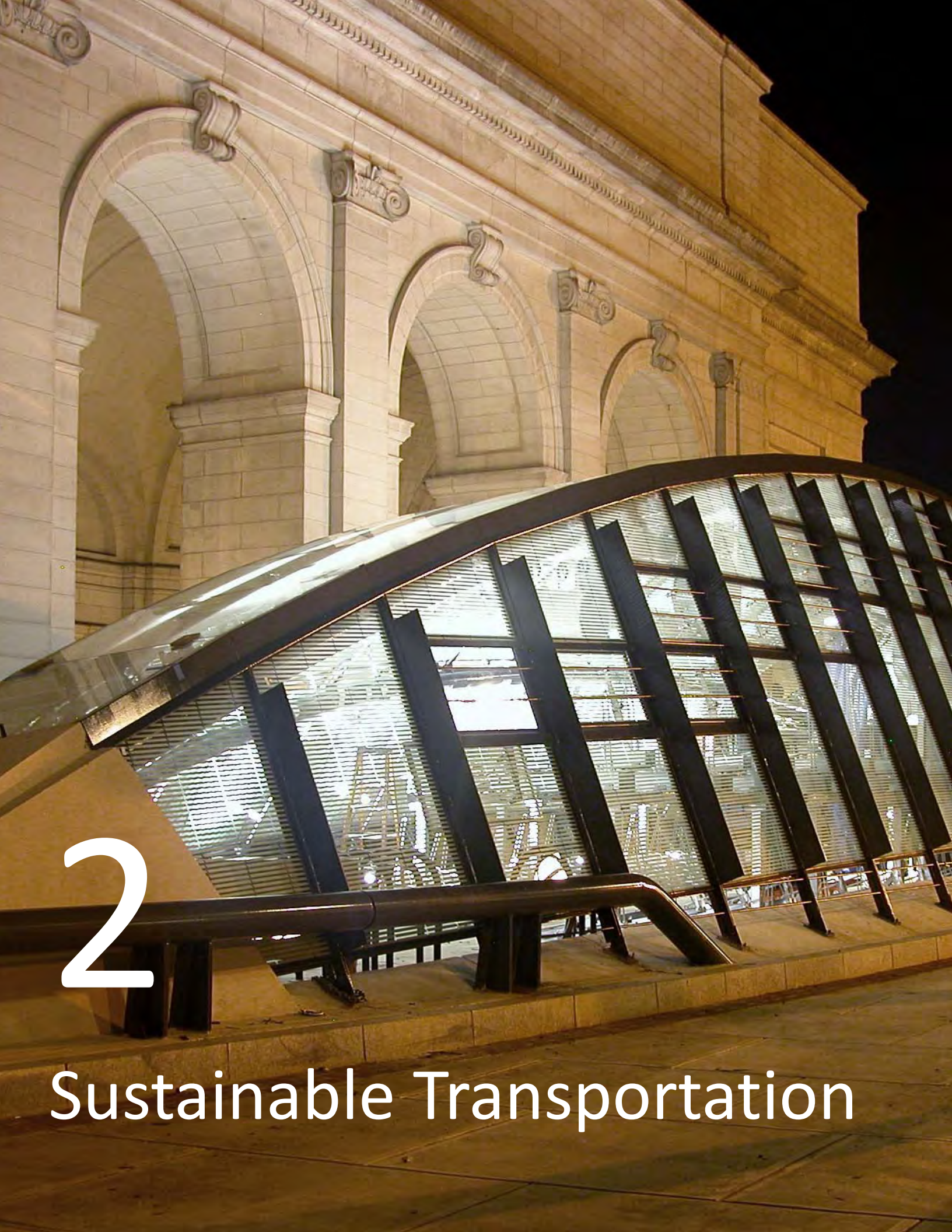
DDOT serves a large population of residents, commuters and tourists. Thus, the District's transportation infrastructure, maintained by DDOT, requires sustainable practices. It is DDOT's goal to incorporate the three elements of sustainability in its activities and decision-making to make the District of Columbia a safe, multi-modal and healthy city for the present and the future.

It is an opportune time for DDOT to implement new and sustainable plans. The transportation network in the District is aging and experiencing increased congestion. It is time for DDOT to think and develop new ways and means to reduce current trends of vehicle dependence, sprawl and energy consumption. According to the American Association of State Highway and Transportation Officials (AASHTO), "America's transportation system has served us well, but

now faces the challenges of congestion, energy supply, environmental impacts, climate change and sprawl that threaten to undermine the economic, social and environmental future of the nation. With 140 million more people [residing in the US] expected over the next 50 years, past practices and current trends are not sustainable” (AASHTO 2007).

Transportation, and the infrastructure that supports it, is a vital element in our lives. Employment, education, leisure and the food supplies all depend on transportation. Though transportation represents only 10 percent of the world’s gross domestic product (GDP), it is responsible for 22 percent of global energy consumption and 25 percent of the fossil-fuel depletion. Transportation produces 30 percent of all global air pollution and greenhouse gases (AASHTO 2009). Because the transportation sector is such a sizeable contributor to these trends, a more sustainable system can provide great opportunities to address sustainability concerns. Specifically, a more balanced mode share can slow the depletion of resources; the continuation of global climate change; the disruption of ecosystems; and the spread of toxic pollutants.





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Sustainable Transportation

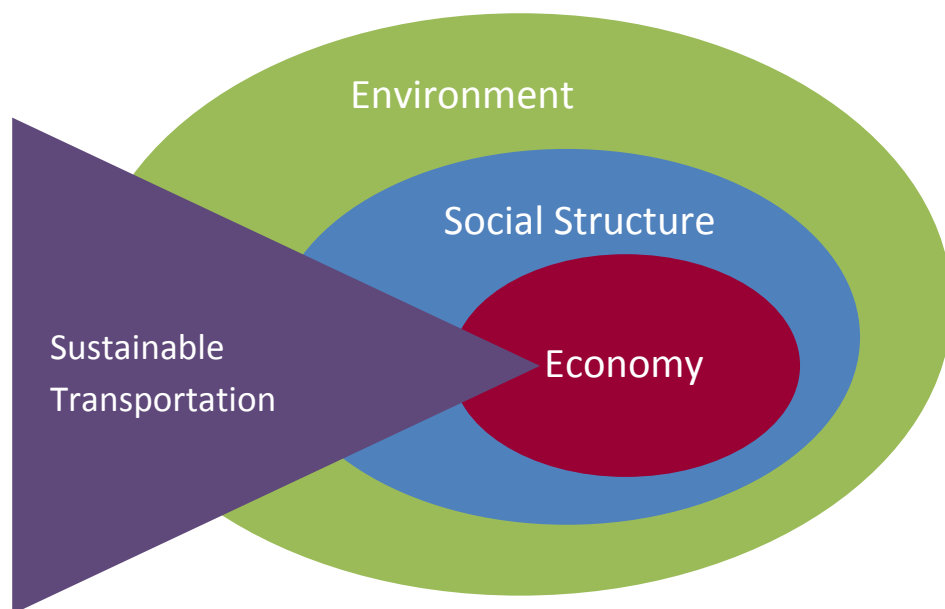
2. SUSTAINABLE TRANSPORTATION

Transportation is an important part of our daily lives and is the lifeblood of the US and global economy. Without transportation, the economy would cease to function. The various modes that we use today require energy and natural resources to maintain and improve our way of life. Balancing transportation needs with the various economic, social, human and environmental considerations requires careful planning.



Applying sustainability to transportation is one of the most important needs of our time. The term “sustainable transportation” is multifaceted. DDOT defines sustainable transportation as a system that provides various mode choices in a balanced manner without compromising safety, accessibility and mobility. A sustainable transportation enhances the economy, promotes livability and protects the environment. Sustainable transportation also recognizes the influence of transportation facilities on the development of adjacent land and the ability of transportation infrastructure to effect the environment by changing the storm water flows, temperatures, natural habitat and community cohesion.

DDOT believes for a transportation system to be sustainable, it must equitably consider the three elements of sustainability. Ensuring that all transportation activities balance environmental, social structure and economic concerns is critical in achieving a high-standard quality of life for District residents.



Additionally, to achieve sustainability it is important to take a holistic approach that integrates the work of multiple sectors (external to transportation). DDOT’s participation in interagency collaboration as it relates to sustainability will be discussed at greater length in Chapter 4.

According to AASHTO, sustainable transportation can be attained by pursuing the following goals:

- Improved accessibility
- Improved mobility
- Improved safety
- Improved equity and affordability
- Reduced pollution, greenhouse gases and ecosystem impacts
- Use of renewable resources
- Appropriate land use
- Community cohesion
- Improved livability





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3

Sustainable DDOT

3. SUSTAINABLE DDOT:

DDOT's Sustainability Plan is a critical piece of a District-wide commitment to sustainability. Recently, the District of Columbia has taken numerous steps to make the city more sustainable. In April 2009, the Green DC Agenda was released which serves as the Mayor's plan to make the District one of the world's most sustainable cities. The Green DC Agenda has seven themes: (1) Homes, (2) Schools, (3) Neighborhoods and Community, (4) Parks and Natural Areas, (5) Transit and Mobility, (6) Business, Jobs and Economic Development and (7) City and Government Operations.

Though DDOT's role in this city-wide initiative lies within the parameters of the Transit and Mobility theme, a sustainable transportation system affects all themes of the Green DC Agenda. Understanding the wide-reaching effects that transportation has on the District, DDOT launched an Action Agenda in 2010 to target its goals as an agency. The Action Agenda is organized around five core values and functions:

1. Safe Passages
2. Sustainable Living
3. Capital Assets
4. Prosperous Places
5. Firm Foundation



The DDOT Action Agenda highlights the following transportation goals for encouraging sustainable living:

- Provide additional transit services
- Promote walking and biking
- Promote efficient vehicle operations and use in the District
- Improve linkage between transportation and land use development
- Improve environmental performance of transportation facilities
- Reduce energy consumption

The DDOT Sustainability Plan is derived from the DDOT Action Agenda and its concepts are guided by the same core values and goals for sustainability. DDOT owns a transportation right of way that represents approximately 22% of the land in the District of Columbia. Specifically, DDOT is responsible for planning, designing, building and maintaining:

- 1,100 miles of streets
- 241 bridges
- 1,600 miles of sidewalks
- 453 miles of alleys
- 144,000 city street trees

This makes DDOT one of the largest landowners in the District and it provides DDOT the unique opportunity to make a large-scale impact on the District through sustainable practices and policies. As DDOT defines sustainable transportation as a system that provides various mode choices in a balanced manner without compromising safety, accessibility and mobility while supporting the economy, promoting livability and protecting the environment. Thus, a sustainable transportation system designed, operated and maintained by DDOT plays a major role in enhancing the quality of life in the District and its attractiveness as a place to live and work.

DDOT has begun a number of initiatives that incorporate sustainability into DDOT practices. For example, DDOT oversees an active Environmental Policy, which commits the agency to the



development of a sustainable transportation system. Details of this policy are provided later in this document. Additionally, the development and implementation of an Environmental Management System (EMS) by DDOT is an integral part of DDOT's commitment to sustainability. EMS provides continual maintenance and improvements to the agency's environmental practices.

Pursuant of the goals laid out in the Action Agenda, DDOT is actively engaged in various programs that focus on alternative mode options within the District transportation systems. For example, DDOT has invested in alternative modes of travel that helped reduce gasoline consumption in the District by more than 1 million gallons. Doing so has prevented the creation of an estimated 360,000 pounds per year of volatile organic compounds and nitrogen oxide, as well as more than 27 million pounds of carbon dioxide, the equivalent of removing 2,200 cars from District roads.



An example of one of these alternative modes of transportation is the DDOT Bicycle Program. The bike program at DDOT has added hundreds of miles of bike lanes in the city and has prompted the start of the nation's first regional bike-sharing program. The Capital Bikeshare,

launched in September, 2010 is a network of 1,100 public-use bicycles strategically located at bike stations across Washington, DC and Arlington, VA.

Also, DDOT has effectively incorporated Context-Sensitive Solutions (CSS) into its project development process. CSS is a collaborative, interdisciplinary approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions (AASHTO).

An example of this is the creation of DDOT's Urban Forestry Administration (UFA). UFA cares for and maintains the District's urban canopy and landscaping. Additionally, DDOT is now working on rededicating street space to planting plots; rethinking the way streets are paved; and developing storm water management practices that reduce runoff. Also, DDOT's parking program made DC the first city in the nation to designate on-street parking spaces for car-sharing vehicles.

Finally, in the past 5 years, DDOT converted all of its street signals to light-emitting diode (LED) technology in an effort to reduce energy consumption. Currently, DDOT is working on testing the LED technology on its street lights.



Additional sustainability initiatives underway at DDOT include Travel Demand Management Programs; Green Alleys; Downtown Circulator Bus Service; Green Highways Partnership; and the introduction of a city-wide Streetcar System. These diverse and wide-ranging programs represent a comprehensive approach to the creation of a more sustainable transportation system.



4

DDOT Sustainability Plan

4. DDOT SUSTAINABILITY PLAN

DDOT’s mission is to “Develop and maintain a cohesive, sustainable transportation system that delivers safe, affordable and convenient ways to move people and goods — while protecting and enhancing the natural, environmental and cultural resources of the District.” For DDOT, sustainable transportation is a transportation system that provides its users with various mode choices in a balanced manner without compromising their safety, accessibility, and mobility while supporting the economy, promoting livability and protecting the environment.



Purpose of the DDOT Sustainability Plan:

The DDOT Sustainability Plan is based on the DDOT mission and Action Agenda. The purpose of the DDOT Sustainability Plan is to ensure that DDOT incorporates sustainable practices in all its activities. This plan serves as a guide for decision-making at DDOT so that the District of Columbia remains a safe, multi-modal and healthy city for present and future generations.



Structure of the Sustainability Plan:

This Sustainability Plan represents an important step in embedding sustainability in all DDOT activities. As discussed throughout this plan, sustainability is built upon three elements: Environment, Social Structure and Economy. In order to incorporate these three elements of sustainability into its activities, DDOT has identified eight priority areas, which will enable the

agency to ensure that the District of Columbia remains a healthy and prosperous city. The eight priority areas are:

1. Promoting Transportation and Land Use Linkage
2. Improving Mode Choices, Accessibility and Mobility
3. Effective Cost Assessments in Decision-Making
4. Supporting Economy
5. Improving DDOT Operations and Project Development Process
6. Protecting the Environment & Conserving Resources
7. Climate Change Adaptation
8. Promoting Livability & Safety

Each of the above priorities are accompanied by certain goals and recommended actions. Each action also has a specific measure and target that includes a timeframe for achieving the target. These measures and targets will be expounded upon later in this chapter.

Review and Monitoring:

Progress made on each priority area will be regularly monitored. A DDOT Sustainability Coordinator will be responsible for collecting performance data and providing analysis to DDOT senior management in the form of an annual report. The annual report will also include implementation plans, corrective actions and recommendations for improvements to a given priority.

The DOT Sustainability Coordinator will perform bi-annual internal reviews and evaluations. Bi-annual reviews will include an internal sustainability audit of DDOT. These reviews will be conducted to determine whether the Sustainability Plan practices are being implemented and maintained as described by this document. Based on the results of these reviews corrective and preventive actions will be identified. An annual report will be provided to DDOT senior management on the status of the Sustainability Plan. This report may include:

- The results of internal audits
- Communications from external parties
- The extent to which sustainability objectives and targets have been met
- Compliance evaluation results
- Status of corrective and preventive actions
- Follow-up actions from previous management reviews
- Recommendations on improvements of DDOT's Sustainability Plan

DDOT's senior management will review the status and performance of DDOT's Sustainability Plan to ensure its continuing suitability, adequacy and effectiveness. The reviews performed by senior management will include assessing opportunities for improvement and the need for changes to DDOT's Sustainability Plan and its goals and targets.

Training and Communications:

The DDOT Sustainability Coordinator will be responsible for ensuring that sustainability-related training needs have been identified for all DDOT personnel. DDOT senior management will assure that sufficient support and resources are available to DDOT sustainability efforts. A training program will be set up to facilitate implementation of this procedure. Elements of this training program will include:

- Training materials describing activities, requirements, responsibilities and supporting information for each sustainability goal;
- The personnel receiving training; and,
- The schedule for initial and follow-up training.

DDOT's Sustainability Coordinator will be responsible for coordinating internal sustainability-related communications. DDOT's sustainability-related internal communications will be used to ensure that employees are aware of the following:

- The Environmental Policy

- DDOT's Sustainability Plan
- The relevance of sustainability to employees' job functions
- Sustainability related procedures, processes and tools associated with employees' work activities.

Sustainability-related information will be maintained by the DDOT Sustainability Coordinator and will include DDOT's Environmental Policy; DDOT Sustainability Plan; Sustainability Goals, Measures & Targets; and reports.

Priority Areas

Smithsonian
Anacostia
Museum
↑

Frederick
Douglass
Historic Site
←

PRIORITY AREAS

1

Promoting Transportation and Land Use Linkage

Land use plays an important role in the way transportation systems are designed and used. Our ability to develop and utilize land efficiently is essential to achieving sustainable urban development. Sustainable transportation systems cannot be achieved without linking efficient land use with transportation systems. DDOT plans and designs its transportation systems for the long term (50-100 years). Therefore, the effects of existing and future transportation systems on land use development patterns must be taken into account in the design and planning process. This ensures that new transportation facilities effectively serve present and future generations.



Integrating land use and transportation planning requires interagency collaboration. For example, among others, DDOT works closely with the DC Office of Planning (DCOP). DCOP is responsible for land use planning for most of the District. Because the District of Columbia is already in a built-out environment, most of the development in the city is infill. Nonetheless, it is critical to continue to work closely with land use plans to ensure that preferred land use management practices, such as transit-oriented development and pedestrian-friendly designs, are used to enhance the efficiency and sustainability of the transportation system.



The “Great Streets” initiative is an excellent example of DDOT’s ongoing efforts to bring together transportation improvements and land use strategies through interagency collaboration. The program applies a multidisciplinary approach to corridor improvement. The “Great Streets” initiative includes public realm investments, land use plans, public safety strategies and economic development assistance. It is a multi-agency effort that includes (among others) DDOT, the Deputy Mayor for Planning and Economic Development (DMPED). The program revitalizes major urban corridors by improving transportation options, increasing streetscape attractiveness and attracting businesses and residents to the area. It also provides environmental benefits through smarter and more efficient use of land resources.

In order to promote sustainability, it is important for DDOT to continue working with other agencies to strengthen the link between transportation and land use as new development takes place. Strategic actions to improve transportation and land use linkages include:

- Partnering with developers to ensure private sector implementation of Transportation Demand Management (TDM) strategies.
- Encouraging good urban design that promotes walkability and enhances pedestrian comfort and safety.
- Changing minimum parking requirements to maximum parking requirements in appropriate areas of the city where transit resources are rich.

GOALS, ACTIONS, MEASURES, and TARGETS

Goal 1: Encourage development projects that promote and support non-auto mobility.

Action	Measure	Target
Partner with developers to ensure private sector implementation of Transportation Demand Management (TDM) strategies.	Percentage of new developments undergoing zoning review that generate TDM plans.	Increase by 15% annually.

Goal 2: Incorporate land use in transportation decision-making.

Action	Measure	Target
Improve use of land use data in transportation planning.	Percentage of projects that use land use data.	100% planning projects.
	Update land use data from DCOP and COG to be used in DDOT planning.	At least once every year.

2

Improving Mode Choices, Accessibility and Mobility

The accessibility and mobility of all modes of transportation are both important elements of a sustainable transportation system. Multimodal transportation systems consist of all modes of transportation, including walking, biking, transit, automobiles, rail and water transportation. A sustainable transportation system balances all modes of transportation and considers inter-modal as well as intra-modal connectivity when systems are being developed.



The inability to easily and quickly add new transportation infrastructure coupled with the growth in passenger and freight travel has led to the need for transportation system managers and operators to pay more attention to managing demands (FHWA 2009). Improving mode



choices, accessibility and mobility are essential for a sustainable transportation system. One of the important ways to achieve this is to implement Travel Demand Management (TDM) strategies and policies. TDM reduces travel demand and is more critical for transportation operations than strategies that increase capacity (supply) of facilities. To improve mobility and accessibility DDOT has focused on providing multimodal transportation options and implementing TDM strategies. Providing more transit, pedestrian and biking options are important elements of DDOT activities that improve modal choices and increase the mobility and accessibility of the transportation system as a whole. Examples of ongoing DDOT efforts include:

- Expanding and increasing transit services, such as designing and constructing a streetcar system and a water-taxi system.
- Developing multimodal transportation projects that consider roadway, pedestrians, bicyclists and transit improvements.
- Implementing TDM strategies, such as car sharing, carpool, vanpool, transit subsidies and parking management programs.



DDOT will continue to enhance multimodal transportation options and implement effective TDM strategies to support non-auto mobility, promote the use of alternative transportation, better manage travel demand and reduce travel time.

GOALS, ACTIONS, MEASURES, and TARGETS

Goal 1: Expand and enhance transit services.

Action	Measure	Target
Improve and expand Circulator bus service.	Percentage of bus stop requests addressed.	95% of bus stop requests addressed within 15 days.
	Average monthly Circulator ridership.	Increase 5% per year.

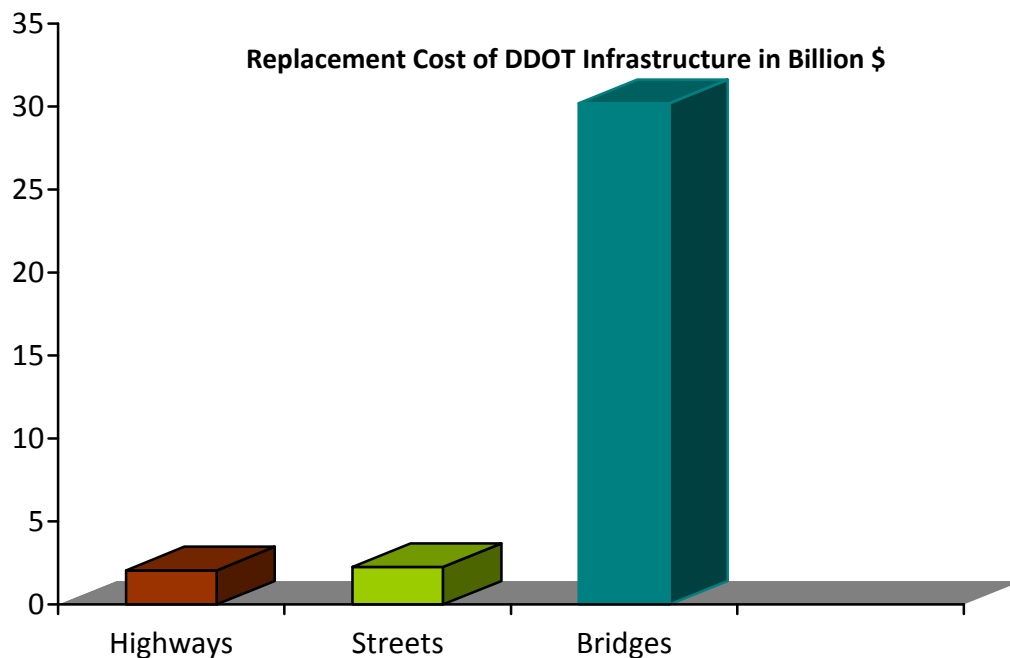
Goal 2: Improve multimodal connectivity.

Action	Measure	Target
Develop multimodal transportation projects.	Percentage of projects that consider roadway, pedestrians, bicyclists and transit improvements.	100% of projects.

3

Effective Cost Assessments in Decision Making

Effective cost assessments in decision-making plays an important role in sustainable transportation systems. Life-cycle cost is one of the most important cost assessment tools available. Life cycle cost includes the full range of costs assignable to an asset (such as a transportation system) or a process (such as industrial manufacturing) over its entire life cycle. Broadly, life-cycle cost is what it costs to plan, design, construct, operate and maintain a facility such as a building, a roadway or a trolley system. This is often referred to as “cradle-to-grave”. Investment plans regarding transportation systems must consider all costs and potential impacts associated with the investments over the entire life cycle of the transportation infrastructure project.



The figure above shows the estimated cost associated with replacing various types of transportation infrastructure owned by DDOT (in billions dollars). Maintaining the



transportation infrastructure in good condition not only makes the infrastructure last longer, but it also helps in keeping replacement costs down. Use of effective cost assessments and life cycle assessments will help DDOT meet its sustainability goals. The type of materials used, the costs incurred to construct and maintain this infrastructure and the life cycle cost assessment will ensure that DDOT projects use sustainable materials. This will keep DDOT's infrastructure in excellent shape in economic climates when financial resources fluctuate.



DDOT has adopted the following practices based on a life-cycle assessment approach to reduce the life-cycle costs of transportation projects:

- Using durable and easily maintained materials in new construction to minimize maintenance and repair costs.
- Whenever possible, reducing, recycling and reusing construction materials without compromising construction safety standards.
- Properly maintaining and preserving transportation infrastructure to prolong the lifetime of assets.

- Ensuring projects are completed on time and on budget.
- Avoiding disproportionately high distributing costs to minority and low-income populations.

DDOT will continue to integrate the life-cycle analysis approach into project development processes and will adopt measures to reduce costs and improve economic efficiency.

GOALS, ACTIONS, MEASURES, and TARGETS

Goal 1: Maximize life span of new construction.

Action	Measure	Target
Use durable and easily maintained materials in new construction.	Percentage of asphalt reused in street resurfacing.	Increase by 5% annually.

Goal 2: Maintain infrastructure in a state of good repair.

Action	Measure	Target
Improve the quality of asset and incorporate asset conditions in decision-making.	Number of lane-miles of roadway with lower PCI rating reconstructed.	15 lane-miles annually.

Goal 3: Reduce project life-cycle costs.

Action	Measure	Target
Reuse construction materials whenever possible.	Percentage of construction material reused in projects.	5% annually.

4

Supporting the Economy

A robust economy is essential for maintaining and improving quality of life, communities and society. Sustainable transportation solutions improve economic vitality with cost-effective infrastructure that minimizes adverse impacts on the environment.



DDOT has spearheaded a number of transportation projects and practices that support sustainable economic growth, including:

- Enhancing transit services and increasing mode choice to provide outstanding access to goods and services.



- Providing safe and reliable transportation systems to support transit-accessible employment and recreation centers.
- Minimizing construction impacts on local businesses and communities by tailoring construction phasing to the needs of local communities and obtaining local input early in projects.
- Implementing transportation improvement projects that are consistent with the District’s planned growth and economic development patterns.
- Improving streetscapes to accommodate and promote retail activity.
- Investing in infrastructure to strengthen local retail and employment districts.
- Creating great open spaces with improved lighting to increase community use and stimulate growth.
- Supporting the creation of mixed-use districts within walking distance of residential areas.

DDOT will continue to develop and implement transportation projects that stimulate economic development while sustaining environmental and social health.

GOALS, ACTION, MEASURES, and TARGETS

Goal1: Build great streetscapes to promote economic vitality.

Action	Measure	Target
Implement the Great Streets program and incorporate the Great Streets principles into all streetscape projects.	Number of miles of streetscape improved.	Increase 2 miles per year.
	Increase in usable open/green space.	0.3% annually.

Goal 2: Target infrastructure investments to strengthen local retail and employment districts.

Action	Measure	Target
Design high-quality, distinctive public spaces that attract visitors.	Percentage increase in sales tax in streetscape areas within a year of construction.	1%

5

Improving DDOT Operations and Project Development

DDOT performs various functions that include roadway operation, streetlight maintenance, public space permitting and transportation infrastructure maintenance and construction. Improving the DDOT operations and the transportation project development process will help DDOT achieve sustainability. In pursuing sustainability, DDOT is committed to developing transportation projects and conducting operations in a manner that protects the environment for present and future generations. DDOT combines sustainability in its operations and project development based on the following principles:

- Undertaking the best project options to minimize negative impacts on the environment.
- Embracing environmentally just and sustainable practices in daily decision-making processes.
- Considering all appropriate economic, environmental and social concerns in the operations of the agency.



To put environmental sustainability into action, DDOT implemented an Environmental Management System (EMS) to ensure environmental considerations are incorporated into our daily operations and project development processes. The DDOT EMS was built on the “Plan-Do-Check-Act” model using the ISO 14001 structure. This structure leads to the continual improvement of performance and efficiency by developing procedures that integrate environmental considerations into ongoing decision-making processes and operations. DDOT EMS requires all DDOT projects to undergo environmental review at every phase of the project development process, including planning, designing, construction and maintenance. Commitments and proposed mitigation measures for transportation projects are tracked so that they are carried out through design and construction. At the end of the year, the results of these reviews are documented in a report along with corrective actions and recommendations.



DDOT EMS also includes DDOT operations to ensure resources are used more efficiently. Detailed information on DDOT EMS can be obtained from the DDOT EMS manual. The



implementation of the EMS will help DDOT protect the environment, prevent pollution, use resources more efficiently, improve environmental performance, enhance compliance, reduce risks, increase efficiency and reduce costs. Implementing EMS ultimately makes DDOT a more sustainable agency as a whole.

GOALS, ACTION, MEASURES, and TARGETS

Goal 1: Identify environmental resources and requirements for new projects in a timely manner.

Action	Measure	Target
Review environmental evaluation form to identify environmental resources and requirements for projects.	Percentage of evaluation form reviews completed (based on the obligation plan or TIP).	100 % annually

Goal 2: Identify and preserve historic resources.

Action	Measure	Target
Identify historic resources and initiate historic preservation coordination with the State Historic Preservation Office (SHPO) early in planning process.	Provide Sec 106 training to DDOT staff.	once every two years.
	Number of projects in which historic resources are identified in planning process	100% annually
	Initiate coordination with SHPO early in the planning process for projects with potential to effect historic resources.	100% annually

Goal 3: Incorporate environmental features in transportation projects.

Action	Measure	Target
Increase environmentally-focused projects and address environmental considerations in project planning and development process.	Number of environmentally-focused projects.	5 projects per year.
	Number of environmental components.	At least 1 component per project annually.

Goal 4: Reduce resource consumption in DDOT operations.

Action	Measure	Target
Reduce consumption of office supplies, paper and electronic equipment.	Quantity of paper.	Reduce paper use by 5% every year.
	Quantity of office supplies (toner, folders, pens, etc).	Reduce supply use by 5% every year.
	Quantity of new electronic equipment.	Reduce the number of individual printers.

6

Protecting the Environment and Conserving Resources

Sustainable transportation provides access to safe transportation options. Sustainable options are consistent with human and ecosystem health and are equitable among all generations. Integrating these considerations into transportation planning is essential to achieve transportation sustainability.



Environmental considerations can be classified in three parts: the natural environment, the physical environment and the human environment.

Natural Environment: The natural environment generally refers to the ecosystem. It includes all living and nonliving things that occur naturally on the earth without human intervention (such as vegetation, wildlife, soil, air and water).

Physical Environment: The physical or built environment consists of areas and components influenced by human activities such as cultural and historic recourses and recreation areas.

Human Environment: The human environment consists of issues and concerns directly affecting human well-being (such as human health, environmental justice and civil rights).



Sustainable transportation practices minimize negative impacts on the natural environment and protect and preserve native habitat and biodiversity. They support historical and cultural preservation, reduce air and water pollution and enhance transportation safety. Sustainable practices avoid disproportionately high or adverse human health and environmental effects on minority and low-income populations and promote equity within and between generations.

Energy and resources are finite. They must be managed responsibly to meet our needs and the needs of future generations. It is important to manage energy and resources so that they are used responsibly and can be replenished or replaced in a sustainable manner. The transportation sector uses more than 10% of total energy consumed in the District. Reducing consumption of transportation-related energy can reduce air pollution and energy costs. Doing so can result in positive environmental and economic impacts: both key elements of sustainability.



As a steward of the environment, DDOT is committed to developing transportation projects and conducting operations in a manner that protects and enhances the District's natural, physical and human environment. Examples of DDOT's ongoing efforts include:

- Improving the health, diversity and expanse of the District tree canopy and encouraging community involvement in the protection of street trees.
- Integrating historic preservation into transportation enhancement projects, where applicable.
- Increasing the use of low-impact development design features in transportation projects to enhance storm water retention capacity and protect local waterways from pollution. An example is using permeable materials for paved surfaces in the right-of-way.
- Enhancing transportation systems and promoting the use of alternative transportation to reduce traffic congestion and improve air quality.
- Improving infrastructure and street designs to provide safe accommodation for all streets users.
- Encouraging minority and low-income populations to participate in DDOT-hosted public meetings and events.



GOALS, ACTIONS, MEASURES, and TARGETS

Goal 1: Reduce air pollution.

Action	Measure	Target
Promote and implement transportation projects that reduce air emissions.	Reduction (in lbs) of pollution due to DDOT projects.	Reduce 5 % annually.

Goal 2: Minimize the environmental impacts of transportation infrastructure.

Action	Measure	Target
Implement Congestion Mitigation and Air Quality Improvement (CMAQ) Program.	Number of vehicles taken off the road through CMAQ Program.	700 vehicles per year.
Use low-impact development approach to manage storm water runoff.	Treat storm water runoff and reduce runoff volume for impervious surface in the right-of-way using low-impact development.	5% annually.

Goal 3: Increase knowledge of and correct application of Equal Employment Opportunity (EEO) laws and processes by DDOT managers.

Action	Measure	Target
Train DDOT managers on EEO laws and process.	Percentage of managers trained in EEO laws and process, including reasonable accommodation process.	100%

Goal 4: Avoid disproportionately high or adverse impacts on environmental justice populations.

Action	Measure	Target
Avoid displacing minority and/or low-income individuals or businesses as part of a right-of-way acquisition process.	Percentage of individuals or businesses displaced as part of a right-of-way acquisition process that are minority and/or low-income or minority-owned.	0%

Goal 5: Reduce impacts on historic resources.

Action	Measure	Target
Work with SHPO to develop a list of projects that can be used as mitigation for any adverse effects that may result from DDOT projects.	Develop the list of projects.	by the end of FY2011.
	Update the list.	annually
	Implement the projects.	at least one project every year .

Goal 6: Reduce energy use.

Action	Measure	Target
Reduce power consumption of office equipment.	Office equipment turned off at the end of the day.	100% off after work.
	Power savings associated with equipment turned off.	Increase 5% annually.
	Carbon emissions reduction associated with power savings.	Decrease emissions 5% annually.

Goal 7: Increase reuse and recycling.

Action	Measure	Target
Increase use of recycled paper and recycled products in office operations.	Percentage of recycled content of paper.	Increase the recycled content of paper by 30%.
	Number of recycled products.	Increase the use of recycled products by 5%.
Increase material reuse and recycling in projects.	Percentage of material recovered and reused/recycled.	Increase 5 % annually.
	Recycle urban wood from street trees and convert into available product.	5% annually.

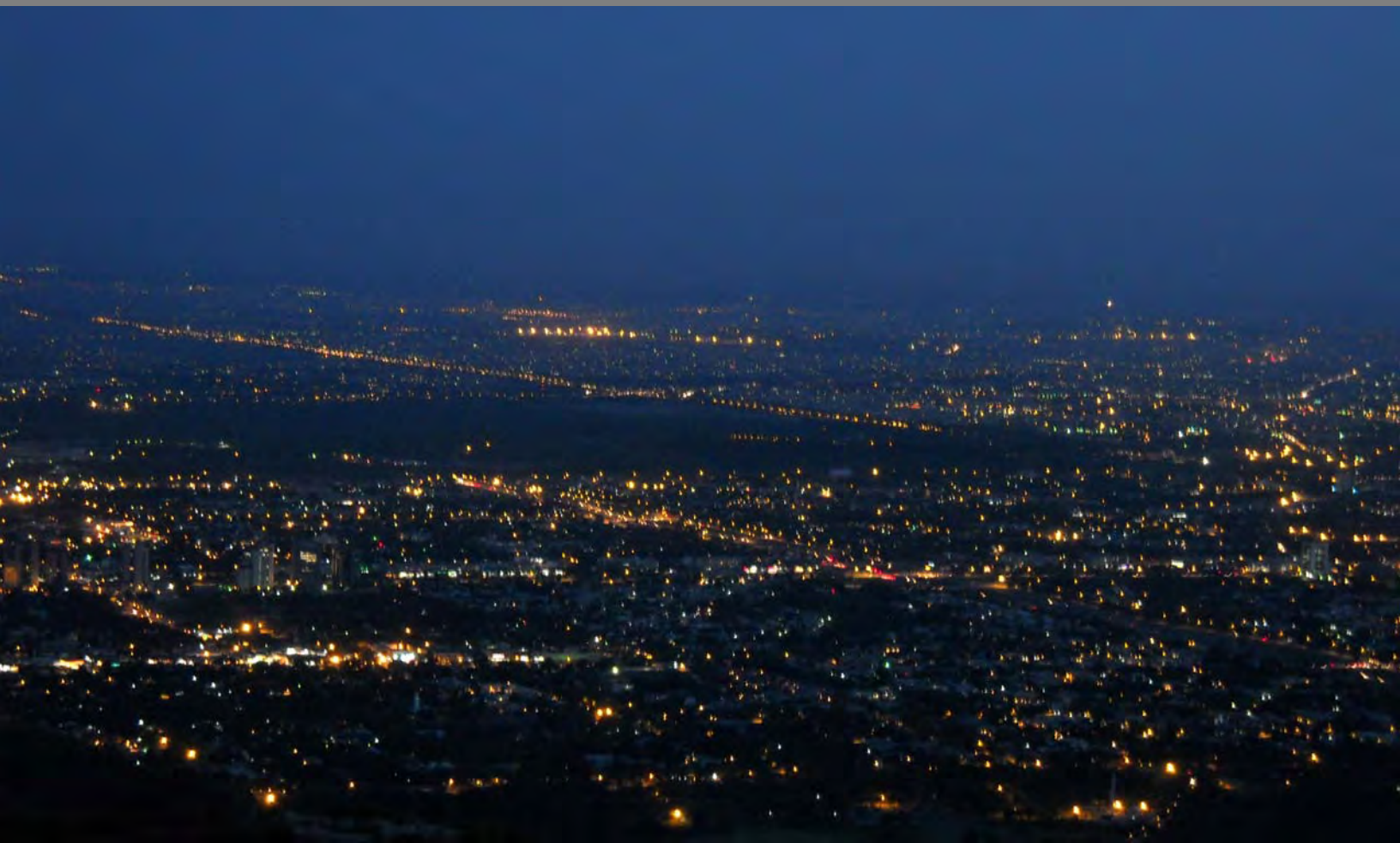
7

Climate Change Adaptation

Climate change is a rising global concern because many elements of the natural and human environment are sensitive to climate variations. Human health, agriculture and food supply, ecosystems and biodiversity, coastal areas and sea level and heating and cooling are all climate-sensitive and may be adversely impacted by changes in global temperatures. Global temperatures are expected to continue to rise as greenhouse gas emissions increase in the atmosphere due to human activities, such as burning fossil fuels.



The transportation sector, a major energy consumer, contributes to more than 35% of the District's carbon dioxide emissions from fossil fuel combustion. Sustainable transportation addresses the challenges of climate change and develops projects that will minimize fossil fuel consumption and reduce greenhouse gas emissions. This will help to preserve the planet for future generations.



Many of DDOT's ongoing efforts and practices discussed in previous sections also serve to minimize climate impacts and reduce greenhouse gas emissions. These include:

- Promoting efficient vehicle operations.
- Enhancing transportation systems to reduce traffic congestion.
- Enhancing and expanding alternative modes of transportation to increase ridership.
- Increasing refueling and recharging equipment and infrastructure to encourage the use of alternative fuels and advanced vehicles.
- Encouraging the integration of transportation demand management (TDM) measures into development projects to support non-auto mobility.
- Incorporating environmental features in transportation projects.
- Increasing material recycling and reuse in projects and office operations.
- Reducing energy consumption from DDOT offices.



DDOT will continue to incorporate climate change considerations into transportation planning processes and will help build transportation systems that support a low-carbon future.

GOALS, ACTION, MEASURES, and TARGETS

Goal 1: Reduce greenhouse gas emissions.

Action	Measure	Target
Promote and implement transportation projects that reduce greenhouse gas emissions.	Reduction of annual greenhouse gas emissions from DDOT projects.	Reduce 5% annually.

Goal 2: Reduce fossil fuel consumption.

Action	Measure	Target
Promote and implement transportation projects that reduce fossil fuel consumption.	Reduction (in lbs.) of fuel consumption related to a project.	At least 2% per project.

Goal 3: Increase use of environmentally sustainable products.

Action	Measure	Target
Purchase energy-efficient and green products where possible.	Number of energy-saving products.	100% of electronic equipment should be Energy Star rated.
	Number of green products.	20% of all office products.

8

Promoting Livability & Safety

Livability is based on the principles of sustainable development. It focuses on environmental quality, economic prosperity and social equality. A livable community is safe, healthy, convenient and affordable.



Livability includes the following guiding principles:

- **Provide more transportation choices:** Develop safe, reliable and economical transportation choices to decrease household transportation costs; reduce our nation's dependence on foreign oil; improve air quality; reduce greenhouse gas emissions; and promote public health.

- **Enhance economic competitiveness:** Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs, as well as expand customer access for businesses.



- **Support existing communities:** Target federal funding toward existing communities – through strategies such as transit-oriented, mixed-use development and land recycling to increase community revitalization. Improve efficiency of public works investments and safeguard rural landscapes.
- **Coordinate policies and leverage investment:** Align federal policies and funding to remove barriers to collaboration, leverage funding and increase the accountability and effectiveness of all levels of government to plan for future growth. This includes making smart energy choices such as locally-generated renewable energy.
- **Value communities and neighborhoods:** Enhance the unique characteristics of all communities by investing in healthy, safe and walkable neighborhoods – rural, urban or suburban.



Livability is community specific. There is no single, universal solution that suits all communities. Achieving livability requires the linkage of transportation and land use via the Context Sensitive Solutions (CSS) approach during the planning process. CSS considers the total context within which a transportation improvement project will exist. As discussed in Chapter 3, it is a collaborative, interdisciplinary approach that involves all stakeholders in developing a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility.

With a long history of extended community involvement, DDOT has integrated CSS into all of its transportation project development processes. DDOT has extended public involvement in discussions of historic preservation. Such collaboration has resulted in the decrease in adverse impacts on the natural parklands and the increase of multimodal transportation options in every transportation project.



The Anacostia Waterfront Initiative (AWI) is a successful case of improved livability in the District. AWI aims to revitalize neighborhoods around the waterfront of the Anacostia River by creating a hub of economic development and bringing thousands of new jobs, residents and visitors to this vital neighborhood. As a multi-agency effort between the federal and District governments, AWI integrates transportation, land use and economic development projects within the area. DDOT, as part of the inter-agency partnership is responsible for developing plans and designs to build an environmentally sustainable transportation system in the area. The transportation system provides multiple transportation options, enhances waterfront access and usage, improves community connectivity, emphasizes history and uniqueness of the area and supports the economic and environmental health of the District.



Safety is one of the top most priorities of DDOT. District of Columbia has one of the lowest traffic fatality rates among all states. DDOT is committed to maintaining its high safety standards for all modes of travel to make its transportation system sustainable.

DDOT is committed to safety. DDOT is continuously working with local and regional organizations to promote programs and technologies to reduce accidents and fatalities on the transportation system. DDOT has developed and implemented a number of initiatives to improve the safety of the pedestrians, bicyclists, motorists and transit riders. These include:

- School Crossing Guards
- Traffic Control Officers
- Safe Routes to School
- Lead Pedestrian Signals
- Pedestrian Countdown Signals
- Safety Audits
- Protected Bicycle Lanes
- Street Smart Campaign
- Safety Trainings
- Smooth Operator Campaign
- High-Visibility Crosswalks



DDOT continues to work toward the livability of the District by:

- Making communities cleaner, healthier, more affordable and more attractive to businesses.

- Providing more transportation options, enhancing safety and lowering transportation costs.
- Protecting and preserving habitats and historic design.
- Helping to address the challenges of climate change.

GOALS, ACTION, MEASURES, and TARGETS

Goal 1: Increase engagement of protected populations in transportation decision-making processes.

Action	Measure	Target
Encourage minority and low-income populations participating in DDOT-hosted public meetings and events.	Percentage of protected populations participating in DDOT-hosted public meeting and events.	Increase by 5% per year (until proportional representation is reached).

Goal 2: Partner with local stakeholders to help protect and preserve assets.

Action	Measure	Target
Launch a tree steward program to encourage community involvement in protecting street trees.	Number of Canopy Keepers.	Increase by 150 per year.

Goal 3: Preserve and Restore Historic Streets and Alleys.

Action	Measure	Target
Preserve the historic alignments and materials of historic streets and alleys.	Number of historic streets and alleys reconstructed where historic alignments and materials are preserved.	90% every year (of the streets and alleys reconstructed).

Goal 4: Increase safety of pedestrians.

Action	Measure	Target
Increase the number of intersections with Leading Pedestrian Intervals Installed.	Percentage of intersections with Pedestrian Intervals Installed.	Increase by 15% per year.

Goal 5: increase multimodal safety.

Action	Measure	Target
Expand Street Smart Campaign.	Decrease in accidents.	10% every year.

REFERENCES:

1. American Association of State Highway and Transportation Officials (AASHTO). *Invest in Our Future: A New Vision for the 21st Century*. 2007.
2. American Association of State Highway and Transportation Officials (AASHTO): "Center for Environmental Excellence: Sustainability website." 2009.
3. District Department of Environment (DDOE). *2006 District of Columbia Greenhouse Gas Emissions Inventory*. 2009.
4. District Department of Transportation (DDOT). *Environmental Management System Guide*. 2008.
5. District Department of Transportation (DDOT). *Environmental Management System Guide*. 2010.
6. European Conference of Ministers of Transportation (ECMT) Organization of Economic Coordination and Development. *Assessment and Decision Making for Sustainable Transport*. 2004.
7. Federal Highway Administration (FHWA). Office of Operations website: "Travel Demand Management." 2009.
8. Hallsmith, Gwendolyn. *The Key to Sustainable Cities*. 2003. New Society Publishers. pp 241
9. Miller, G. Tyler, and David G. Lygre. *Chemistry: A Contemporary Approach*. 3rd Ed. 1991. Wadsworth Publishing. Pp 318.
10. National Academy of Science (NAS). "Sustainability website." 2009.
11. European Conference of Ministers of Transportation (ECMT) Organization of Economic
12. Research Board (TRB), Committee for a Study on Transportation and a Sustainable Environment: "Towards a Sustainable Future; Addressing the Long-Term Effects of Motor Vehicle Transportation on Climate and Ecology". National Academy Press. 1997.
13. United Nations (U.N). "Report of the World Commission on Environment and Development: Our Common Future" (Transmitted to the General Assembly as an Annex to document A/42/427 - Development and International Co-operation: Environment). Gro Harlem Brundtland Commission. 1987.
14. U.S Environmental Protection Agency (EPA). "Sustainability website". 2009.