

Sustainability Program

Colorado Department of Transportation
Sustainability Council
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SUSTAINABILITY MISSION STATEMENT

As part of CDOT's mission to "provide the best multi-modal transportation system for Colorado that most effectively and safely moves people, goods and information", CDOT's Sustainability Program is committed to developing and supporting a sustainable organization and transportation system.

While providing an effective and safe multi-modal transportation system and organization, CDOT will (with the support of the CDOT Sustainability Council):

- ❖ Strive to reduce its emissions, waste, energy use, and water consumption to preserve and enhance human, environmental, and fiscal health.
- ❖ Maximize and promote efficient resource use, reuse, recycling, and repurposing.

All CDOT employees and those working with CDOT are encouraged to become acquainted with and implement the strategies outlined in this document. CDOT will continue to comply with State requirements, continue to improve its environmental performance, and endeavor to be a leader in sustainable efforts.

CHAPTER 1 INTRODUCTION

Since 2005, Colorado Governors have been endorsing and establishing a statewide commitment to sustainability. Because of these mandates and the growing awareness of sustainability's value, the Colorado Department of Transportation (CDOT) is formalizing the concept and goals of sustainability through the development of this Sustainability Program. The objective of the CDOT Sustainability Program is to guide and communicate how CDOT intends to meet the goals outlined in the Colorado Greening of State Government Executive Orders. This document is intended to introduce the concept of sustainability, establish the groundwork for a sustainability program within CDOT, and encourage a sustainable ethic throughout CDOT.

This document and the Sustainability Action Plan will act as a multi-divisional resource for CDOT staff regarding:

- ❖ What the benefits are of implementing sustainable actions,
- ❖ Who to contact regarding sustainability initiatives,
- ❖ Disseminating ideas, providing information, and providing direction for implementation of sustainable actions,
- ❖ Where to locate information on these Executive Orders and CDOT plans.

CHAPTER 2 WHAT IS SUSTAINABILITY?

2.1 DEFINITION

The most commonly recognized and accepted definitions of sustainability are from:

- ❖ A White House Council on Environmental Quality Report from 1981 which stated “If economic development is to be successful over the long term, it must proceed in a way that protects the natural resource base...”
- ❖ The Brundtland Commission of the United Nations in 1987 which stated “development which meets the needs of current generations without compromising the ability of future generations to meet their own needs.”, and
- ❖ The Environmental Protection Agency which explains the concept as “Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations.”

The model and goal of sustainability considers three primary principles: Social, Environmental, and Economic. These principles are evaluated based on the impacts each has on the other with regards to the present and the future.

To summarize and provide clarity on the goals and purpose of CDOT’s Sustainability Program, consider the following statement regarding Transportation and Sustainability from the Federal Highway Administration INVEST (Infrastructure Voluntary Evaluation Sustainability Tool).

“Transportation projects and programs serve many different, and sometimes competing, objectives. “Sustainability” is a concept that enables decision-makers to make balanced choices around these objectives. The three principles of the “triple bottom line” upon which sustainability is based—social, economic, and environmental—capture the broad range of transportation goals and objectives. In times of diminishing economic and natural resources, using sustainable approaches in transportation infrastructure will help us to continue to enhance quality of life and serve the transportation needs of the present without compromising the ability of future generations to meet their needs.”

2.2 SUSTAINABILITY PRINCIPLES

A Handbook for Developing Sustainability Performance Measures was developed for the Transportation Environmental Resource Council (TERC) Sustainability Subcommittee. The TERC is a forum that CDOT and the Federal Highway Administration (FHWA) convened which allows local, state, and federal agencies the opportunity to discuss state transportation decisions and plan for environmental stewardship. As part of the handbook development, TERC member agencies participated in the development process to reach a consensus

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on terminology and definitions that might be used by their respective agencies. The following sustainability principles and categories were the result and are encouraged to be used by agencies.

For more information on the TERC Sustainability Subcommittee handbook and activities, see CDOT's website as referenced in **Chapter 5**.

Community WellBeing - Engage in activities and implement policies that:

- ❖ Provide reasonable access to people, places, goods, and services;
- ❖ Strive for social, interregional and intergenerational equity, meeting the basic needs of all individuals including women, the poor, the rural, and the disabled; and
- ❖ Protect the health, safety and quality of life of all people while recognizing unique community characteristics.

Environmental Stewardship - Engage in activities and implement policies that:

- ❖ Make sustainable decisions that are compatible with, preserve, and enhance the natural environment, reducing environmental impacts;
- ❖ Reduce emissions and waste and encourage energy efficiency and use of renewable resources; and
- ❖ Reduce consumption of energy, materials, land, and other resources.

Economic Vitality and Quality - Engage in activities and implement policies that:

- ❖ Fully account for and reflect social, economic and environmental costs and benefits;
- ❖ Foster economic vitality and opportunities; and
- ❖ Revitalize and enhance existing communities.

The above principles are further supported by a Context Sensitive Solutions (CSS) approach in project design. The FHWA defines CSS as “a collaborative, interdisciplinary approach that involves all stakeholders in developing a transportation facility that complements its physical setting and preserves scenic, aesthetic, and historic and environmental resources while maintaining safety and mobility. Context Sensitive Design (CSD), on the other hand, applies to a transportation project's engineering design features, and may include design features that help the project fit harmoniously into the community, for example, form liners for bridge piers, colored crosswalks, or cubing detail.”

For more information on CSS and CSD, see CDOT's and FHWA's websites as referenced in **Chapter 5**.

2.3 SUSTAINABILITY CATEGORIES

As a subset of the above principles, the following sustainability categories should be considered when evaluating sustainability (in no particular order):

- ❖ Equity & Access (ex. Are CDOT facilities compliant with the Americans with Disabilities Act?),
- ❖ Cultural & Community Development (ex. Is the addition of sidewalks and bike lanes appropriately considered during CDOT project development?),
- ❖ Human Health & Safety (ex. Are CDOT staff appropriately trained to complete their jobs without risk to their health and safety and that of the public?),
- ❖ Land Use (ex. Are CDOT construction projects minimizing their impact to undeveloped lands?),
- ❖ Habitat & Biodiversity (ex. Are CDOT projects avoiding or minimizing their impacts to local ecosystems

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when feasible?),

- ❖ Materials & Resources (ex. Is waste reduced, reused, recycled, or composted when feasible?),
- ❖ Water (ex. Are low flow or no-flush toilets installed when and where feasible?),
- ❖ Energy Emissions (ex. Are CDOT employees minimizing their idling to the full extent possible?),
- ❖ Fiscal Health/Financial (ex. Is CDOT maximizing the cost savings it can achieve when using recycled or reused materials during construction?),
- ❖ Best Business Practices (ex. Are CDOT employees reducing travel for meetings and utilizing video-conference rooms to the extent possible?), and
- ❖ Local Economic Development (ex. Do the appropriate agencies and organizations participate in the transportation planning and development process discussions, to maintain and improve local economies?)

These categories are comprehensive and reflect those used by other organizations. They cover the major sustainability issues involving CDOT and the state transportation system.

2.4 WHY SUSTAINABILITY?

CDOT must be a conscientious and accountable agency that is as efficient, effective, and elegant¹ as possible. As an employer, CDOT is responsible for upholding the health and well-being of its staff members by offering a safe and satisfying work environment. As a service provider, CDOT must be socially and economically responsible to the taxpayers by achieving cost savings on resources, materials, and waste management. As one of the largest state agency consumers of natural resources (coal, oil, crude asphalt, petroleum, water) in Colorado, sustainability reaches beyond wise use and management of fiscal funds. Sustainability encompasses the protection of natural resources and materials for future generations.

Some current examples of sustainability initiatives throughout CDOT are:

- ❖ The use of recycled asphalt shingles and reclaimed asphalt paving (RAP).
 - 134,000 tons of RAP were used on CDOT projects in 2011. RAP contains approximately 4% asphalt binder. This means that CDOT did not have to pay for approximately 5,360 tons of binder in 2011. Depending on the grade of the binder, costs range from \$300 to \$500/ton, so CDOT had potential savings of around \$1.6 million in binder alone. RAP aggregates are typically cheaper than virgin aggregates, so there are additional savings in aggregate costs.
- ❖ CDOT facilities and maintenance yards use biodegradable cleaning solvents instead of petroleum-based solvents that can contaminate the environment (air, soil, and groundwater).
- ❖ Using double-sided default printing on network computers to reduce paper consumption saves CDOT money, in addition to reducing the amount of wood and energy required to make and deliver the paper. Recycled paper still requires energy to manufacture, so paper reduction is the best solution.
- ❖ CDOT Maintenance identified a way to use recycled waste and wash water to produce a salt brine liquid deicer².
 - This reduces the amount of chlorides introduced into the environment compared to magnesium chloride.
 - It is less expensive than magnesium chloride products – CDOT Region 5 saved **\$394,030** in FY11 by using the salt brine deicer.

¹ Part of Governor Hickenlooper's plan to build greater public confidence in good government.

² Salt brine deicer is best suited for use on relatively flat roadways, where the temperatures do not drop below 15-17°F, and where the winds aren't sustained greater than 8 miles-per-hour.

CHAPTER 3 ROLES & RESPONSIBILITIES

3.1 CDOT SUSTAINABILITY PROGRAM MANAGER

The Sustainability Program Manager (Manager) for CDOT is located in the Environmental Programs Branch within the Division of Transportation Development (DTD). The Manager has a broad responsibility to identify opportunities to incorporate sustainability principles into agency decision-making, management, activities, and operations. The Manager is responsible for the development, implementation, and messaging of the Sustainability Program and Sustainability Action Plan. The development of a Sustainability Program includes collaborating with various CDOT staff to determine and establish appropriate performance goals for tracking progress toward complying with the Greening of State Government Executive Orders (See the Sustainability Action Plan).

As the authority on sustainability, the Manager collaborates with the CDOT Sustainability Council (Council) members, CDOT management and staff, and other agency representatives, as necessary, to develop and advance the CDOT Sustainability Program. The responsibility of managing and facilitating the Council is delegated to the Manager from the Director of DTD.

The Manager is a CDOT representative on the Greening Government Council (GGC), which is facilitated by the Greening Government Program Manager of the Colorado Energy Office. As the GGC representative, the Manager is responsible for compiling CDOT data for the Annual Greening of State Government report to the Governor. This includes coordinating with various staff to document accomplishments CDOT has achieved in support of the Greening of State Government Executive Orders.

The Manager is responsible for meeting with the Director of DTD and/or the Executive Director, at least annually, to discuss CDOT's progress towards complying with the Greening of State Government Executive Orders. This will include a summary of the Annual Greening of State Government Report to the Governor.

3.2 CDOT SUSTAINABILITY COUNCIL

The Council is a cross-divisional internal group of employees that represent a variety of staff levels and functional areas throughout CDOT. Council members support the overall Sustainability Program including its plans and performance goals. Council representatives meet and provide oversight of the Sustainability Program and its associated plans. The Council reviews sustainability plans and performance goal items developed by the Manager or designated sub-committees. The Council then recommends policy and practice changes to the Manager and Director of DTD.

Sub-committees will be established, as recommended, by the Manager and Council to:

- ❖ Address specific sustainability projects and initiatives,
- ❖ Educate employees about sustainability efforts and initiatives, and
- ❖ Promote the support, voluntary participation, and integration of these efforts into CDOT.

The plans and initiatives implemented by the Council are structured to ensure compliance with state executive order requirements. The Council implements the requirements of the Greening of State Government Executive Orders and associated regulatory authorities.

CHAPTER 4 SUSTAINABILITY ACTION PLAN

The internal and external sustainability requirements are frequently changing as the concept of sustainability becomes more widely accepted and sustainability goals are developed. The Sustainability Action Plan is meant to keep CDOT current with these regulations while helping CDOT staff understand how sustainability affects their jobs and what sustainable actions they are able to complete in support of CDOT's Sustainability Program. For this reason, the CDOT Sustainability Action Plan will act as a stand-alone guidance document summarizing:

- ❖ Current state and federal regulatory requirements,
- ❖ CDOT initiatives, and
- ❖ Recommendations on the implementation of sustainable actions with regards to sustainability categories.

The Sustainability Action Plan will contain a table that staff can utilize with regards to specific sustainability Strategic Goals (as discussed in the Sustainability Action Plan) and CDOT Focus Areas (Facilities, Planning, Programming, Project Development, Construction, Maintenance, and System Operations).

The CDOT Sustainability Program and Sustainability Action Plan; including related documents, recommendations, and guidance will be available on CDOT's Sustainability website. As a "living" document maintaining a current sustainability reference for CDOT, the Sustainability Action Plan will be reviewed on an annual basis (at least) and updated as needed.

CHAPTER 5 REFERENCES

Colorado Department of Transportation. "Context Sensitive Solutions (CSS)." <http://www.coloradodot.info/programs/environmental/planning-env-link-program/related-information/context-sensitive-solutions.html>, accessed October 15, 2012.

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