
FORT CARSON 25-YEAR SUSTAINABILITY GOAL PLAN

GOAL: SUSTAINABLE DEVELOPMENT (SD)

Goal Statement:

Create a community that encourages social, civic and physical activity while protecting the environment.

Long Term Vision

Sustainable Development maximizes land use, resource efficiency, health, safety and productivity. The long term goal is to fully integrate sustainable planning and operation into all Master Planning for land use, MCA programs, and third-party construction on Fort Carson. The desired end state is an installation that is developed and managed in accordance with sustainable principles. New development is coordinated with key installation stakeholders and partners. Projects complement each other and site work is coordinated to provide walkable areas that are linked to pedestrian and alternative vehicle corridors. Parking and access for traditional vehicles is provided in an attractive and functional way that emphasizes shared use and flexibility. An integrated approach to stormwater management onsite is taken, and opportunities for regional Low Impact Development and stormwater treatment are implemented. New buildings are constructed to a LEED Platinum standard, and the goal of a NetZero Installation is realized in multiple facilities and complexes. Building renovations and additions are constructed to a LEED standard, support Fort Carson Net Zero goals, and the best ideas for energy efficiency and compliance are incorporated into the designs and operation of these facilities. The goal of mixed-use development is advanced through legislation and guidance retooled to allow and promote such sustainable development. Education of Fort Carson residents and guests is deliberate and dynamic, with the goal to ensure that facilities and infrastructure are operated in a sustainable manner. Fort Carson continues to develop into a more livable, functional, sustainable installation, capable of supporting all military missions while taking care of families and serving the community.

Ownership and Involvement (Resources, Roles and Authority)

Goal Proponent: Directorate of Public Works (DPW)

Goal Lead & Fort Carson Partners:

- Directorate of Public Works (DPW)
- Balfour-Beatty Communities (BBC)
- Directorate of Logistics (DOL)
- Directorate of Resource Management (GRM)
- Army and Air Force Exchange Service (AAFES)
- United States Army Corps of Engineers (USACE)
- Defense Commissary Agency (DeCA)
- Fountain Fort Carson School District 8 (FFC8)
- Medical Department Activity (MEDDAC)
- Dental Activity (DENTAC)
- Directorate of Family Morale Welfare and Recreation (DFMWR)
- Installation Sustainability Resource Officer (ISRO)
- Colorado Army National Guard (COARNG)
- United States Army Reserve Command (USARC)

Off-post Partners:

- Military planners in area
- City of Colorado Springs – Planning
- Pikes Peak Area Council of Governments
- Colorado Department of Transportation
- El Paso County
- Fountain Creek Watershed District
- City of Fountain
- Air Force Installations
- Southern Colorado (SOCO) United States Green Building Council (USGBC)

Significant Sustainability Aspects and Impacts

Fort Carson's Environmental Management System (EMS) cites aspects of activities on the Installation that have significant negative impacts on the environment. All of the significant aspects listed in the Fort Carson Register of Significant Aspects and Impacts are affected by activities associated with this goal. Many of the listed impacts on environment, society, economy and well-being of individuals are directly or indirectly attributed to the physical layout of facilities and infrastructure on Fort Carson. Implementing sustainable development will assist in minimizing specific impacts by:

- Using planning principles that will consistently lead to transportation construction designed to reduce dependence on vehicles
- Efficiently using new and existing infrastructure related to business operations, waste management, demolition, construction and renovation
- Dedicating appropriated and non-appropriated funds to improve efficiency and conserve natural and financial resources in construction
- Including assessments of full life cycle costs to capture long-term benefits of sustainable real property master planning
- Including Low Impact Development principles including stormwater infrastructure and transportation improvements to improve water quality and provide walkable sites.

Legal and Other Requirements

- Energy Policy ACT (EPACT) 2005
- Energy Independence and Security Act (EISA) 2007
- National Environmental Policy Act (1970)
- Net Zero Energy Installation Initiative
- New Federal Executive Order 13514 - Oct 2009 "...The Executive Order builds on and expands the energy reduction and environmental requirements of Executive Order 13423...."
- EO 11988, Floodplain Management
- EO 11990, Protection of Wetlands
- EO 12088, Federal Compliance with Pollution Control Standards
- Clean Water Act (1972)
- (OACSIM Army Sustainable Design and Development Guidelines
- USACE Army LEED Implementation Guide
- High Performance and Sustainable Building
- ISP goal - Sustainable Transportation
- ISP goal - Energy & Water Resources
- ISP goal - Air Quality
- ISP goal - Sustainable Training Lands
- ISP goal - Sustainable Procurement

- ISP goal - Zero Waste
- Army Energy Security Implementation Strategy 2009
- EPA –National Pollutant Discharge Elimination System (NPDES)
- DoD Implementation of Storm Water Requirements under Section 438 of the Energy Independence and Security Act (EISA), 2010

Alignment with Army Strategy

The Army Strategy for the Environment: Sustain the Mission – Secure the Future establishes a long-range vision that enables the Army to meet its mission today and into the future. The strategy commits Army leaders at all levels to certain goals and challenges them to develop innovative methods to achieve them. The Fort Carson Sustainability Program was created as a means to facilitate this mission by establishing goals and the policies, plans and procedures needed to attain those goals. The Fort Carson Sustainability Plan operationalizes the Army's strategy by providing the structure for planning, implementation, and monitoring and measuring progress.

The IMCOM Campaign Plan provides for Sustainable Installations, Energy and Water Efficiency and Security, and Assessment and Sustainment of Essential Base Operations Services in the Installation Readiness Lines of Effort (LOE). The Sustainability Objectives and Targets associated with this goal support all LOE in the IMCOM Campaign, with particular emphasis on accomplishing the Installation Readiness LOE.

Background

The original goal from the Sept 2002 conference related to sustainable master planning was: "Integrated, comprehensive Fort Carson Real Property Master Plan will be prepared and implemented (to include local stakeholders). Regular input to and modification of the plan will be conducted through Real Property Planning Board meetings. "

In the 2010 goal update, two goals were combined - master planning (ISP goal 6) and high performance buildings (ISP goal 7) to create a new goal, "Sustainable Development." This new goal will provide a more cohesive approach to sustainable development, and will use a multi-disciplinary approach by including components of stormwater management, transportation, master planning, and buildings.

The purpose of this goal is to enhance the long-term viability of the Installation and for Fort Carson planners to work in coordination with area planners to create a better region for all. The desire is directed growth in a coordinated and logical fashion that takes transportation, space requirements, stormwater management, shrinking open space and other issues into consideration.

Desired end states related to sustainable master planning from the Sept 2002 conference, and the 2012 goal update sessions related to Sustainable Development, are as follows:

- Fort Carson staff actively working with local community planners.
- Improved walk-ability of Installation neighborhoods and developments.
- Improved vehicle and pedestrian circulation, with a focus on Low Impact Vehicles
- A master plan for Fort Carson that addresses quality of life issues
- Increasing and enhancing Green Infrastructure, and reducing stormwater impacts
- Site development as a major master planning consideration.
- Address aging infrastructure issues using sustainability principles
- All buildings integrated into the master plan

- Better integration of all Fort Carson Partners with respect to Sustainable Development

Challenges & Barriers

- Embracing emerging technology
- Regulatory conflicts
- Equipment
- Balancing Army Standard Design vs. Installation preferences and obtaining customer buy-in
- Meeting required pre-development hydrology due to existing infrastructure and natural challenges
- Availability and affordability of products and services
- Life cycle cost analysis is not consistently incorporated into design processes
- Inadequate reaction time to new customer requirement – short term solutions are sought for long-term customer needs (OMA vs. MILCON)
- Information sharing and communication
- Developing partnerships
- Aging infrastructure and facilities

Training, Education and Outreach

- Sustainability and EMS Awareness Training
- LEED Certification
- Stormwater Program Management provides Fort Carson specific training to:
 - Contractors
 - Partners and stakeholder groups such as USACE and Neighborhood Mayors on an as-needed or requested basis
 - Environmental Protection Officer Training

Communication

Communication examples for this goal include:

- Annual Report Update: written annual hardcopy product that is easy to share and provides concise updates on all sustainability goals. Good report to share with non-technical and lay-people.
- Garrison Commander Sustainability Breakfast: Each month the breakfast is targeted to update the status and provide discussion for one of the goals. A great community leader event that involves technical discussion as well.
- Presentations to outside entities,: numerous opportunities to speak to technical and non-technical audiences. Local community groups, planning agencies, universities, and other governmental bodies.

Document Control

All stormwater permit documents, SWMPS, and training logs are kept in the stormwater program office. These documents are also kept on SharePoint

<https://portal.carson.army.mil/sites/carson/usag/Decam/Stormwater/default.aspx>

Master planning maintains records of design charrettes and other planning documents. Engineering division maintains records of project design meetings and decisions.

Operational Controls

<https://portal.carson.army.mil/sites/carson/usag/Decam/Stormwater/default.aspx>

DPW engineering maintains a library of LEED design documents and checklists.

Monitoring & Measurement

DPW Environmental division – stormwater program maintains some limited stormwater records such as turbidity testing results or monitoring audits.

Nonconformity

ECAT teams inspect and maintain records of recurring issues.

Evaluation of Compliance

- External EPA/CDPHE Inspections
- Annual EMS audit.

Control of Records

Records maintained by DPW in accordance with EMS procedures.

Annual Review

An annual report is generated. Various forums with community show progress and inform public. Presentations given to conferences or sustainability breakfast meetings, and monthly articles provided by the DPW supplement this effort.

Goal Objectives and Targets

Objective SD1: Build, repair, and maintain structures that exemplify the following principals for interior design:

- 1. Shared spaces for occupants**
 - a. At least 1 break room on every floor/wing with no personal coffee pots / refrigerators**
 - b. 50% of classrooms are built with moveable partitions**
 - c. No private printer/work areas**
- 2. Limit private offices to mission essential needs**
- 3. LEED design. Focus on ASHRAE 189.1 energy performance**
 - a. 75% of all office space and common areas are equipped with automatic lighting controls.**
 - b. 75% of office spaces have access to natural daylight**
 - c. All offices have thermal control for occupants**
- 4. Recycling and Zero-Waste receptacles on every floor or wing.**
- 5. New work such as walls, doors and building additions limited to 25% of the budget for each building.**
- 6. Design passive systems that require little to no occupant involvement**

Target by 2020: All SRM projects demonstrate design principles that support Fort Carson Net Zero and sustainability goals. Measurement: number of SRM building projects each year that achieve at least 3/6 SD1 design principals.

Target by 2020: All new facilities and major renovations of existing buildings on Fort Carson will be high performance buildings that meet the Silver Standard of LEED and are constructed to be Net Zero Ready. Measurement: Number of Net Zero Ready buildings constructed each year.

Details on Objective SD1 Target

Measure: SRM Projects achieving SD1 design principals, Net zero Ready Buildings

Scope: Fort Carson Cantonment area

Source: DPW

Baseline: Est. in 2009

Limitations: SRM and MILCON projects operate under differing standards

Verification & Validation: DPW and USACE

Initiatives in Support of Objective SD1 (FY13/FY14)

Initiative SD1.1: Revise and update standard language in Installation Design Guidance (IDG) to encourage and permit design in accordance with LEED and Net Zero, principles.

Participants involved: DPW engineers, Master Planning, Environmental Division, Directorate of Contracting, building occupants.

The IDG is currently under a major revision for 2012.

Initiative SD1.2: All incoming DPW engineering personnel hold or obtain LEED professional accreditation.

Participants involved: DPW (engineers & architects)

DPW engineering division has 9 LEED accredited professionals on staff, with three more projected to achieve accreditation in 2013.

Initiative SD1.3: Educate building occupants about new building features, recycling, and shared spaces. Work with building energy monitors and facility managers to develop effective education and monitoring programs.

Initiative SD1.4: Develop and sustain O&M capability to service and maintain buildings with LEED and other sustainable systems and features.

Participants involved: DPW, Corps of Engineers, users, base operations contractor

Education and training is required of DPW operations staff, services contracts, and building occupants. The goal is to develop a quality, recurring training program.

Objective SD2: Develop walkable, livable areas with appropriate density, located near desirable services. Coordinate development with nearby facilities and develop site plans that provide connectivity to adjacent uses and tie effectively into existing vehicle and pedestrian networks. Prioritize pedestrians and bicycle movement when developing infrastructure. Pursue a program to deconstruct facilities that are not needed or are poor energy performers.

Target by FY2020:

- 1.) DPW creates and executes at least 1 Area Development Plan using these principals each year.
- 2.) Annual facility reduction program is programmed, funded, and executed with a goal of at least 20,000 square feet demolished annually.
- 3.) Develop and execute a pedestrian plan for all MILCON and OMA funded facility renovations and new SRM construction projects.

Details on Objective SD2 Target

Measure: Area Development Plans developed

Scope: Fort Carson Cantonment area

Source: DPW

Baseline: Est. in 2009

Limitations: Codes and requirements often limit ideal development

Verification & Validation: DPW and USACE

Initiatives in Support of Objective SD2 (FY13/FY14)

Initiative SD2.1: Incorporate sustainable master planning principles into planning and project programming decisions and update the Installation Design Guidance.

Participants involved: DPW

IDG is continually generated and wrapped into new revisions.

Initiative SD2.2: Ensure that sustainability features are identified, considered, appropriately costed, and incorporated into MILCON project programming documents during planning charettes, design reviews, and follow-on value engineering studies.

Participants involved: DPW, NEPA, ISRO

Initiative SD2.3: Develop standards for walking, biking, and mass transit and place into the IDG. Ensure that these translate to a pedestrian plan for each major project.

Participants involved: DPW, USACE.

Initiative SD2.4: Develop Area Development Plans each year that target areas for development or redevelopment. Staff these plans as widely as possible to obtain buy-in from stakeholders postwide.

Initiative SD2.5: All construction projects include walking, biking, and mass transit infrastructure IAW IDG.

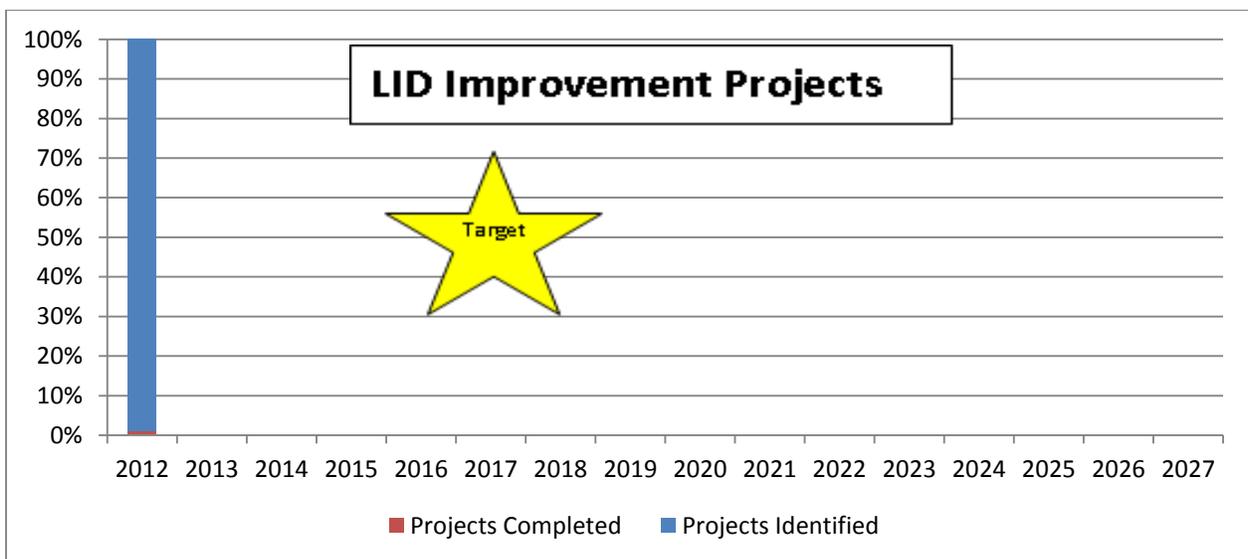
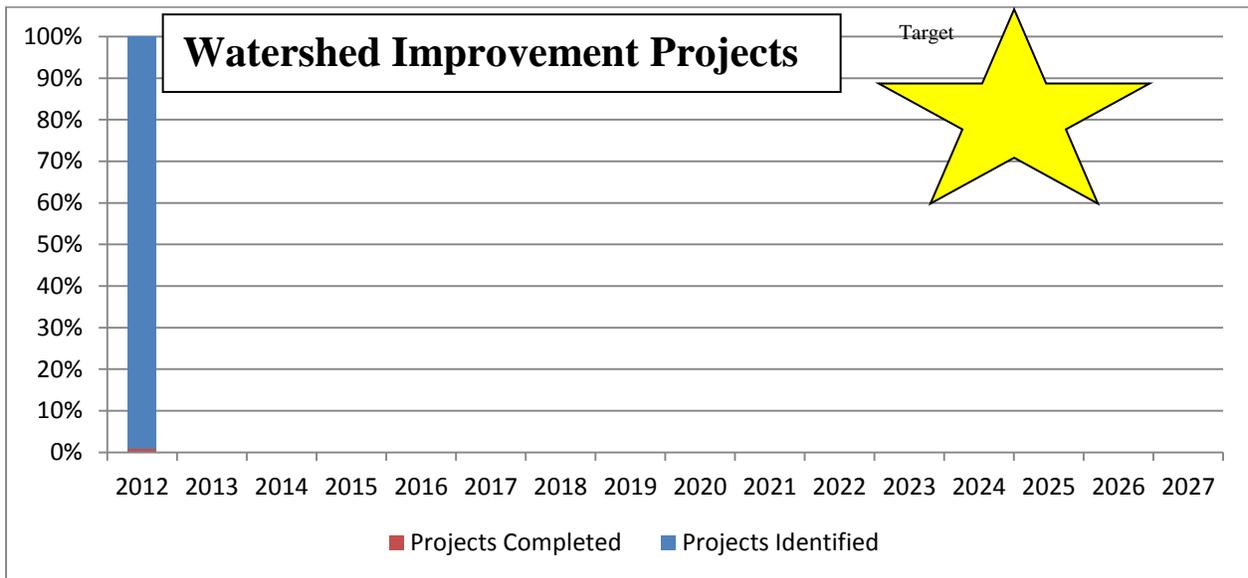
Participants involved: DPW

DPW has developed annual running trails and sidewalks projects that address postwide connectivity issues. Reviews of connectivity are now part of the standard MILCON design review process.

Objective SD3: Improve watershed health by reducing erosion, sedimentation, and flooding and improving water quality for Fort Carson and communities downstream.

Target by FY17:

- 1. 50% of underperforming LID features will be improved.**
- 2. 25% of identified watershed improvement projects will be implemented.**



Details on Objective SD3 Target Graph

Measure: Watershed Project Implementation

Scope: Fort Carson Cantonment

Source: DPW

Baseline: Est. in 2012

Limitations: Funding for non-real property areas

Verification & Validation: DPW

Initiatives in support of objective SD3

Initiative SD3.1: Provide Stormwater education and collaboration events on a regular basis to contractors. Participate on an as needed or requested basis to partners, and stakeholders providing services to Fort Carson and the surrounding communities.

Participants involved: USACE, DPW, AAFES, DECA, FFC8, MEDDAC, DENTAC, DFMWR, BBC, Community Organizations

Initiative SD3.2: Ensure that LID features are identified, considered, appropriately costed, and incorporated into project programming documents during planning charettes, design reviews, and follow-on development studies.

Participants involved: USACE, DPW, AAFES, BBC

Initiative SD3.3: Evaluate existing stormwater Low Impact Development features and develop any required improvements to ensure proper performance.

Participants involved: DPW

Initiative SD3.4: Develop a list of LID technologies and design criteria that are conducive to Fort Carson hydrologic variables and make available.

Participants involved: DPW

Initiative SD3.5: Develop a list of watershed improvement projects, and implement.

Participants involved: DPW, BBC