SUSTAINABLE FORT CARSON

ANNUAL REPORT 2013

ACHIEVING OUR VISION

Sustaining all of our resources to preserve our ability to effectively train our Soldiers today and in the future is vital to the long-term success of the Mountain Post, its Soldiers, and the surrounding region.

This annual report documents the progress and challenges of our Sustainability and Net Zero goals. As you will read in the following pages, through leadership, passion, partnerships, and policies we continue to make progress toward a sustainable future.

Executive orders and federal mandates require all federal agencies to purchase more sustainably, reduce waste, and maintain, conserve or improve water, air and land, protect wildlife habitat and archaeological and historical resources, which support our goals. Having an installation capable of supporting both current and future mission requirements is a responsibility for all of us at Fort Carson, individually and collectively. At Fort Carson, we strive to exceed requirements by conscientiously integrating Sustainability and Net Zero measures into our routine practices and procedures that are part of how we accomplish the mission.

Throughout Fort Carson's sustainability journey, we have made great progress while serving as a model community and technology demonstration platform offering best practices and lessons learned for implementation in organizations, federal facilities and Army installations worldwide. Fort Carson continues its journey with an eye on the horizon - a sustainable future!

SUCCESS BY THE NUMBERS

45%	Renewable Energy Use
16.3%	Reduction in Energy Use Intensity.
61.9%	Reduction in Water Use Intensity.
47.7%	Waste Diversion Rate.
23	More than 23 miles of running trails, pedestrian lanes and bike paths.
78	High Performance Energy Efficient Buildings Leadership in Energy and Environmental Design (LEED) Buildings constituting one of the largest collections of federally funded USGBC LEED certified projects at a single location.
9,000	In-Processing Soldiers briefed per year (estimated) about sustainability and Net Zero strategies.
24,302	Acres of land set aside by the ACUB program (Army Compatible Use Buffer) as conservation easements to create a significant buffer between training lands and neighboring communities.

THE MIDDLE MILES

I'm not a long distance runner, or any type of runner for that matter, but I would like to draw a comparison between "the middle miles" of running and our Fort Carson sustainability efforts. Dr Pamela Shockley Zalabak, Chancellor of the University of Colorado - Colorado Springs, used the analogy of "the middle miles" first in her keynote address at the 2013 Colorado Sustainability Conference referring to the regional sustainability efforts; and I find that it applies to Fort Carson as well.

I understand that when running in a long distance marathon, participants start with a lot of energy, which is renewed toward the end as the finish line nears. The middle miles - the seemingly long slog between 3 and around 20 miles - present a challenge to many. I can imagine that during this time a runner's concentration fades, the pace slows a bit and the difficult task of staying focused requires a lot of mental as well as physical stamina.

The middle miles exist within our Fort Carson sustainability and net zero initiatives. In the early years beginning about 2002, we brimmed with new ideas and enthusiasm. We plucked "low hanging fruit" and improved our energy and water efficiency, increased recycling, buffered the installation mission from urban encroachment and approached many of our targets. We made a lot of progress - but there's a long road ahead and still much to do.

As we stride along in the middle miles with the desired finish line of 2020 right around the bend, it may seem more difficult to stay on track, focused and committed. Like runners with the finish line in view, now is the time to tap in to that special reserve of energy to propel us towards the goal.

To do that we need determination and momentum, new technologies, innovations and creative ideas that continue to improve our operational efficiencies and maintain proactive stewardship. And - we need a mindset of making decisions today that are mindful of future consequences for those yet to follow.

We understood from the beginning of our journey that we need to recognize the importance of sustainability to the long-term military mission, as well as the economic, social and environmental benefit of Fort Carson and its impact on the region. We need the support of the workforce and the whole community. Most importantly, we need to continue building collaborative relationships with regional partners that help us to leverage each other's resources.

Now, from the viewpoint of a runner in the "middle miles" of the journey, we know this to be true with even greater certainty. Our past successes were built upon collaborations with mutual benefit; so too is our future success. As you read this report on what Fort Carson has achieved during FY13, please consider what you can do in your home, community, place of business and interactions with others that help us all reach a victorious journey's end. It's within our reach!

Onward!!

Mary J. Barber

Installation Sustainability Resource Officer

OUR GOALS 2020

Our vision for 2020 is powered by the recognition of our obligation to ensure that our Soldiers today – and the Soldiers of the future – have the land, water, and air resources they need to train; a healthy environment in which to live; and the support of local communities and the American people. The Sustainability goals for the installation (below) have been continuously refined since their formal adoption in 2002 with input from internal and external stakeholders.

Energy & Water Resources	Sustain all facility and mobility systems from renewable sources and reduce total water purchased from outside sources by 75%.
Zero Waste	Total weight of solid and hazardous waste disposed of is reduced to zero.
Air Quality	Reduce installation greenhouse gases (scope 1, 2 and 3) and other air pollutants to the lowest achievable emission rates.
Sustainable Development	Create a community that encourages social, civic and physical activity while protecting the environment.
Sustainable Procurement	All DOD and Fort Carson procurement actions support sustainability.
Sustainable Transportation	Reduce automobile dependency and provide balanced land use and transportation systems.
Sustainable Training Lands	Training ranges; maneuver lands; and associated air space capable of supporting current and future military training to standard while maintaining and sustaining training resources.

OVERALL GOAL PROGRESS

The color-coded state of each section (red/amber/green) is a snapshot of how well Fort Carson is achieving its desired outcomes for a particular metric or goal. The determination is made by the Installation Sustainability Resource Officer, and presented to the Garrison Commander routinely.

	Status	Outlook
Energy & Water Resources		
Zero Waste		
Air Quality		
Sustainable Development		
Sustainable Procurement		
Sustainable Transportation		
Sustainable Training Lands		

- Success in achieving a goal or successful movement along a predetermined timeline within a goal plan.
- Positive movement toward goal objective or timeline is quantifiable, but not yet achieved.
- Significant impediments to goal objective or timeline exists. Future success in jeopardy.

SUSTAINABILITY & NET ZERO

TRIPLE NET 0

A Net Zero Installation applies an integrated approach to managing energy, water, and waste to capture and commercialize the resource value and/or enhance the ecological productivity of land, water, and air.

Fort Carson's Triple Net Zero strategy is built upon long-standing energy efficiency and sustainability practices, mindset and vision, as well as a long term financial outlook.

NET 0 ENERGY

Reduce overall energy use, maximize efficiency, implement energy recovery and cogeneration opportunities, and then offset the remaining demand with the production of renewable energy from on-site sources.

NET 0 WATER

Reduce overall water use, regardless of the source; increase use of technology which uses water more efficiently; recycle and reuse water, shifting from potable water use to non-potable sources as much as possible; and minimize inter-basin transfers of any type of water, potable or non-potable.

NET 0 WASTE

Reduce, reuse, recycle/compost, and recover solid waste streams, converting them to resource values, resulting in zero landfill disposal.

For more information: *http://army-energy.hqda.pentagon.mil/netzero/*

ENERGY & WATER

- Increase Renewable Energy (EWR1)
- Improve Energy Efficiency (EWR2)
- Reduce Water Consumption (EWR3)

ENERGY ACCOMPLISHMENTS:
Installed new solar and wind renewable energy onsite. • Achieved energy efficient new construction with LEED Silver minimum. • Retrofitted lighting, heating and cooling systems. • Installed meters in buildings. • Completed microgrid demonstration project. • Upgraded community energy plant. • Implemented facility audits and facility manager program.

WATER ACCOMPLISHMENTS:
Installed water efficient fixtures in new construction and retrofits. • Expanded the reclaimed water system expansion. • Expanded the non-potable water system. • Upgraded irrigation systems • Installed Xeriscapes. • Performed Leak detection and repair.

ENERGY & WATER

OBJECTIVE

Increase Renewable Energy Use In Facilities.

PROGRESS

In FY13, the Installation received or offset approximately 45% of its energy needs from renewable sources; 3.5% is generated onsite.

Renewable sources are defined as energy from non-petroleum sources of on-site solar photovoltaic, wind purchases, hydropower and woody biomass (which creates synthetic gas to fuel a combined heat and power system).

A purchase of 80,000 MegaWatt Hours (MWH) per year of wind power was completed in FY13, bringing the installation closer to its FY17 target of 60% facility energy originating from renewable sources.

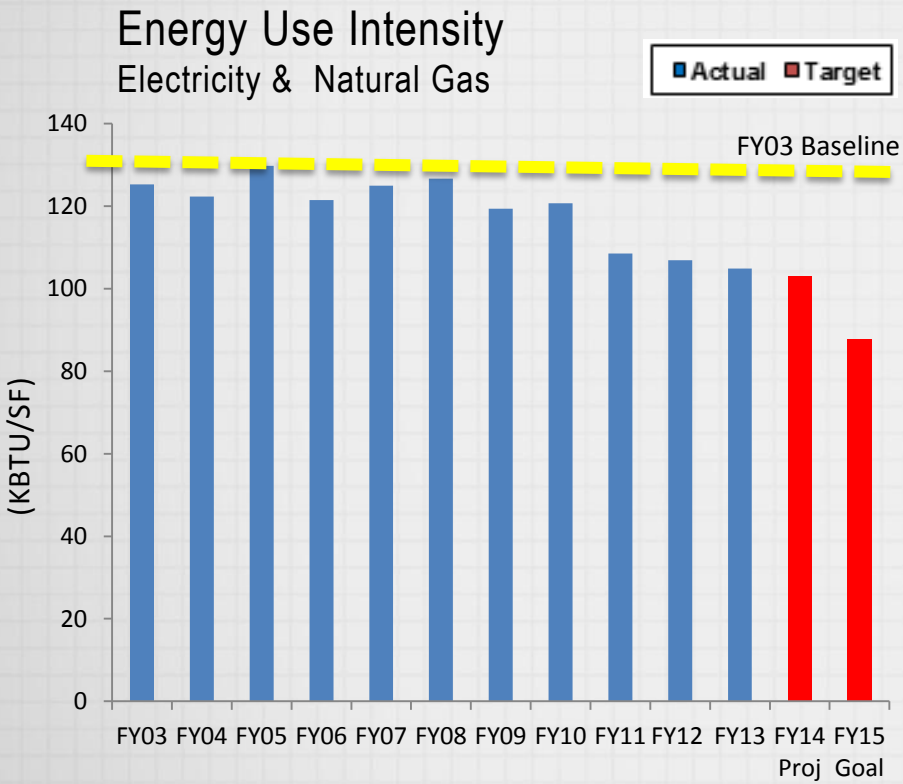
Two additional government owned on-site PV arrays totaling another 1.4 MW will come online in FY14. Thirteen new buildings have solar hot water systems and five buildings have ground source heat pumps.

As a Net Zero Energy Installation, our goal is 100% renewable energy – to generate as much energy as is consumed onsite over the course of a year by 2020.

ENERGY & WATER

OBJECTIVE

Improve Facility Energy Efficiency By Reducing Energy Use Per Square Foot.



• *Energy Use Intensity, measured in thousands of British Thermal Units per square foot (KBTU/SF) is the combined energy use of natural gas and electricity per square foot of floor space. This metric does not include housing, which is privatized, and other exempt facilities.*

PROGRESS

Energy efficiency is expressed using square footage (as opposed to a per capita basis) due to the post's fluctuating population.

Energy Use Intensity• was reduced from a FY03 baseline of 125.3 KBTU/SF to 104.9 KBTU/SF in FY13, which is an efficiency improvement of 16.3%. Energy intensity in FY13 was reduced 1.7% compared to FY12.

While several efforts were initiated to reduce energy consumption, one of the challenges was a heating season that consisted of 16% more heating degree days than the previous year. If the heating days had been the same as FY12, the normalized energy reduction would have been more than 4%.

The installation is challenged to meet its internal target of 20% reduction in energy use intensity for FY14, and 30% reduction by FY17 (as compared to FY03 baseline). However, the installation is on target to meet the federal goal of 30% reduction by FY15 and the Net Zero target of 50% reduction by FY20, both relative to the FY03 baseline.

ENERGY PROGRESS

Progress of the energy program is reviewed monthly in the Directorate of Public Works (DPW) Energy Forum with involvement of the Garrison Commander on a quarterly basis. Fort Carson completed or initiated the following projects during FY13 to reduce the demand for traditional energy through conservation and energy efficiency, expand the supply of renewable energy and develop water conservation strategies:

- Completed lighting retrofits in 41 facilities, boiler replacements in 15 facilities, and window re-commissioning for 10 facilities by using the Energy Savings Performance Contract (ESPC) and funds from the Army Energy and Utility Program.
- Connected 8 additional facilities to the Energy Management Control System (EMCS), improved the HVAC system in several facilities and completed building envelope improvements in 10 facilities.
- The EMCS team reviewed scheduling and set points of several facilities and implemented more efficient scheduling, resulting in a 30% energy reduction in 13 buildings.
- Completed a “Behavior Intervention” pilot study in five buildings focused on increasing energy savings by motivating building occupants to change their energy behaviors. The project was a collaboration between GSA (General Services Administration) , the Department of Energy (DOE), and Department of Defense (DOD). The performance of high priority green building technologies and approaches was also tested.
- Plans to partner with CSU in FY14 on a “woody biomass” project to trade natural wood waste (pallets or used lumber) for energy were finalized. Fort Carson will contribute 10% - 15% of the wood needed to generate this sustainable energy, which is expected to replace about 30,000 tons of coal. Fort Carson plans to purchase the 10,950,000 kwhs of energy projected to be produced from the project, accounting for 5% of total electric use. Less ash and emissions are produced when burning wood as compared to coal.
- A total of 1.7MW of renewable energy was installed at a consolidated photovoltaic site located near the Combat Aviation Brigade footprint.
- The Smart Power Infrastructure Demonstration for Energy Reliability and Security (SPIDERS) microgrid demonstration project was completed. “Smart Grid" elements, such as energy management control systems, switchgear to integrate renewable energy sources and energy storage management were added. Bi-directional charging stations for electric vehicles equipped with 80kw batteries demonstrated how electric vehicles can be used for energy storage. A technical demonstration was performed.

ENERGY PROGRESS

- Installed a new 750 ton chiller to increase the capacity of the chilled water system and improve reliability. In addition, a plate/frame heat exchanger was added to take advantage of free cooling opportunities.

- Continued installing electric and gas meters as part of a pilot site to demonstrate a web based Meter Data Management System (MDMS) used for tracking, trending and opportunity analysis. The data is used to identify scheduling opportunities and develop Energy Consumption Reports to increase occupant energy use awareness for 22 pilot facilities.

- Increased awareness efforts by redeveloping the Facility Manager position to include building energy monitor duties.

- Increased the amount of energy audits and staff assistance visits to facilities. Education and outreach of water conservation opportunities is also covered in audits and post-wide training efforts.

- Continued the development of a Net Zero-ready energy strategy focused on the construction of a central energy plant that could be tied into renewable energy when cost effective.

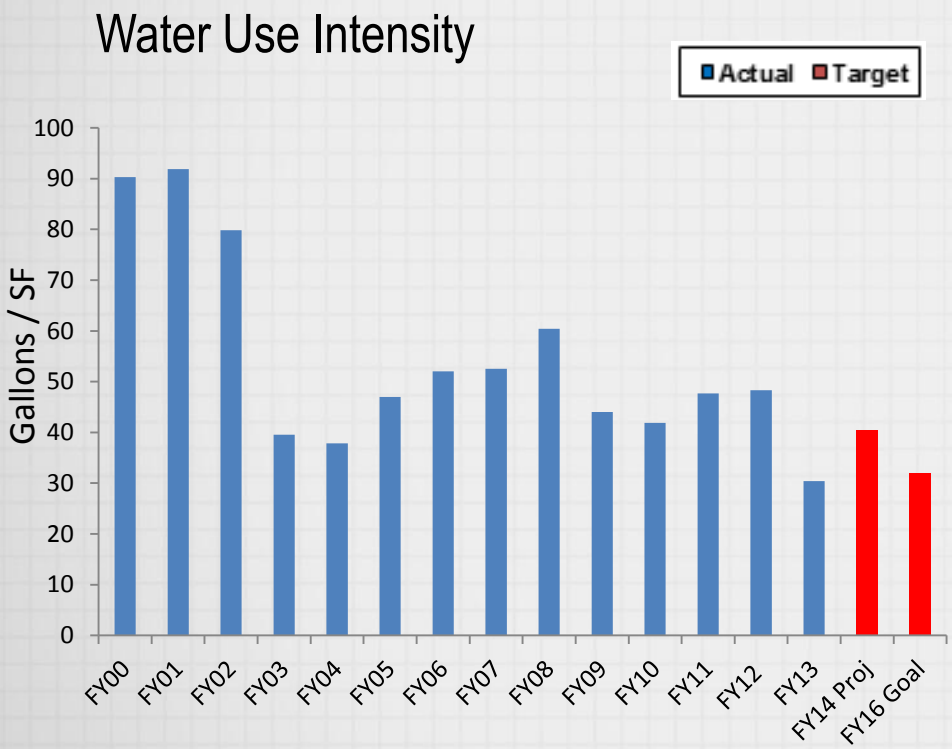
- During FY14 to FY17, Fort Carson intends to improve energy intensity using funds from Army Energy and Utility Program (QUTM) and Energy Conservation Investment Program (ECIP) for several cost effective programmed projects while leveraging the ESPC tool.

- Worked with the Network Enterprise Center to approve a new policy to turn off computers at the end of the work day. This initiative could save as much as $200,000 per year.

ENERGY & WATER

OBJECTIVE

Reduce The Amount Of Potable Water Consumed.



• *Water Intensity is water use per square foot, not including housing, which is privatized.*

PROGRESS

Fort Carson reduced its water intensity significantly to 30.9 gallons per square foot (gal/sf) in FY13. Compared to the FY02 baseline of 79.82 gal/sf, this amounts to a reduction of 61.9%. Thus, the FY14 objective of 45% reduction and FY17 objective of 60% have been achieved ahead of schedule.

In FY13, Colorado Springs Utilities (CSU) declared a Stage I drought situation. Fort Carson responded by implementing a two-day-per-week watering schedule, which significantly reduced consumption. In addition, there were several rain events that kept weather-smart irrigation systems from watering.

As a Net Zero Water Installation, our goal is to reduce overall water use, regardless of the source.

WATER PROGRESS

Fort Carson made significant strides in reducing water consumption to meet Net Zero water reduction goals and to comply with Stage II water restrictions implemented through CSU, the local utility provider. In FY13, several projects were completed to help meet water goals in conjunction with implemented policies that further enhanced water reduction.

- Used the ESPC to implement water conservation measures by replacing fixtures in 77 facilities, including the installation of pint urinals, 1.28 gallons per-flush toilets, and low-flow shower heads for an anticipated reduction of 54,800 kilogallons per year.

- Received $37,500 in rebates for WaterSense® bathroom fixtures from Colorado Springs Utilities.

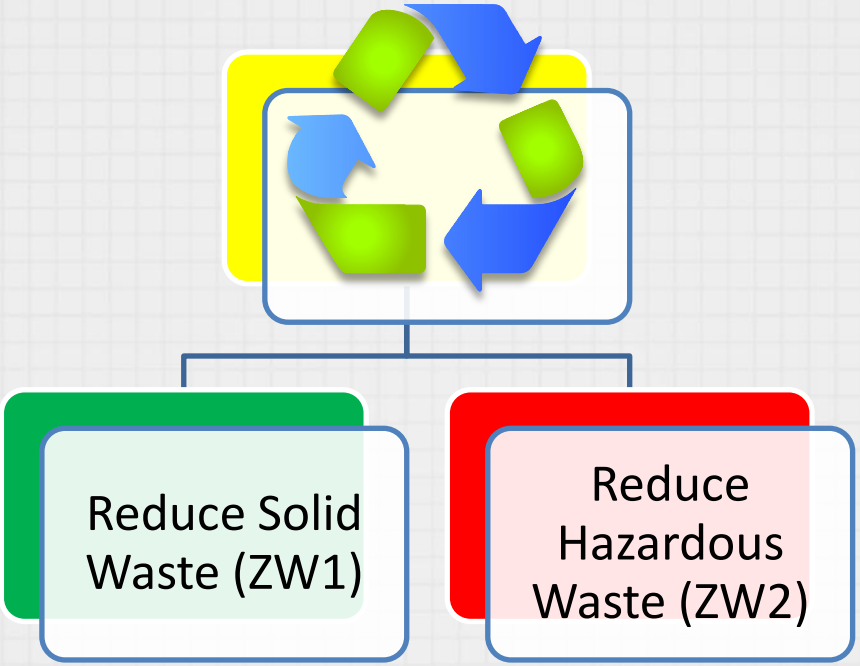
- Partnered with CSU and Balfour Beatty Communities to reduce water use by 30% in response to drought conditions. Fort Carson surpassed the goal of 30% by achieving a 33.4% reduction in water use from April 1 – Oct 31. The Fort Carson Garrison Commander (GC) supported the water restrictions by establishing the 2013 Drought Response Water Policy .

- Finalized the expansion of the non-potable irrigation system to optimize usage of wastewater plant effluent for the golf course, Iron Horse park and the Sports Complex. It is projected to save over 70 MGal/yr of potable water. Execution of the plan is scheduled for FY14.

- Implemented the first full year use of WeatherTrak ® ET (enviro-transpiration) system to control landscape irrigation. The system uses global positioning system technology and weather stations to apply the right amount of water based on current weather conditions. Because of drought conditions in FY13, Fort Carson relied heavily on this new system to help dial back the amount of water applied to the turf when significant rainfall was received. This system was a key player in ensuring the 30% percent summer water reductions were met.

- From FY14 to FY17, Fort Carson intends to improve water intensity using funds from programmed Army Energy and Utility Program (QUTM) and Energy Conservation Investment Program (ECIP) projects as well as leveraging the ESPC tool.

ZERO WASTE



ACCOMPLISHMENTS:

- Expanded single stream recycling in barracks.
- Increased targeted Awareness and Outreach Campaigns.
- Implemented targeted strategies for each waste stream.
- Conducted bi-annual household hazardous waste collection events.

ZERO WASTE

OBJECTIVE Reduce Solid Waste Disposal Through Sustainable Procurement Practices, Reduction In Material Use, Reuse And Recycling.

PROGRESS

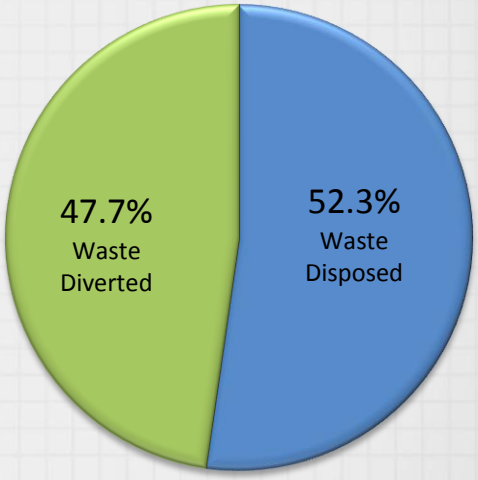
During FY13, 16,259 tons of municipal solid waste (MSW) and 13,745 tons of Construction and Demolition (C&D) debris were generated on post for a total of 30,005 tons of waste. 20,873 tons were diverted from the landfill. The total diversion rate (including C&D) was 69.6%.

Of the 13,745 tons of construction debris generated, all but 633 tons were diverted. Thus, approximately 95.4% of construction debris were diverted from the landfill. This is an improvement of 5% as compared to FY12.

Proceeds from the sale of recycled commodities was $1,125,287; enough to fund recycling program costs and $544,500 in environmental and recreation projects. It cost the installation approximately $976,415 to dispose of waste that was not repurposed or recycled, demonstrating the financial benefits of achieving the Zero Waste goal.

FY13 MSW Diversion and Disposal Rates

Municipal Solid Waste (MSW) does not include C&D (construction and demolition)



During FY13, the municipal solid waste diversion rate was 47.7%. Of the 16,259 tons of municipal solid waste generated on post, not including housing which is privatized, 7,760 tons were diverted from the landfill by recycling or reuse and 8,499 tons were disposed of in a landfill. Landfill tonnage increased 94 tons as compared to FY12.

ZERO WASTE

Progress

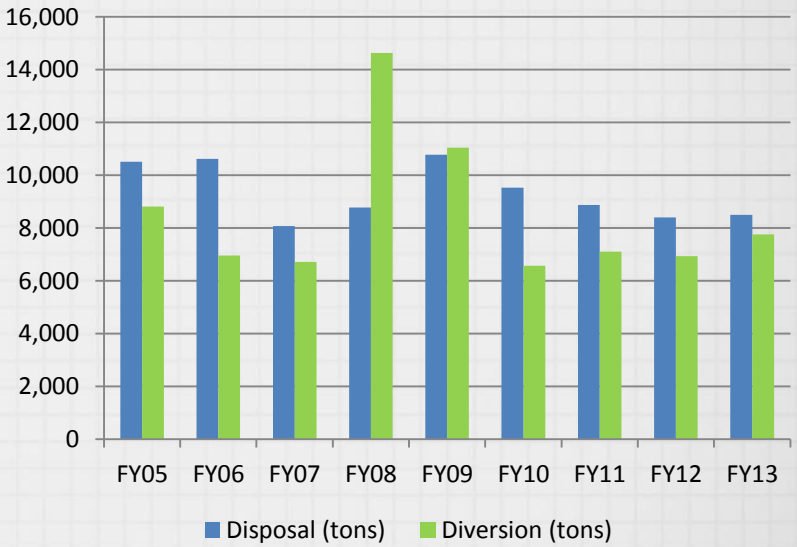
In FY13, the Installation disposed of 8,499 tons of solid waste, narrowly missing the FY13 target of 8,000 tons.

The Installation is on track to achieve the goal objective of 65% diversion rate by FY15, and its ultimate goal of Net Zero Waste by 2020.

Goal success demands that purchasers consider and reduce or eliminate waste that will be created when the useful life of a product or service is over and effectively use, reuse, repurpose, compost or recycle all materials.

Achieving the goal has many benefits such as cost avoidance, maintaining mission capability, elimination of the need for landfills, protection of human health and optimization of the use of limited resources.

Historical MSW Diversion and Disposal Rates



In FY13 the installation disposed of 8,499 tons of solid waste . In FY08 there was a large amount of construction activity. The diversion of construction and demolition debris from the landfill caused the upward spike in diversion as the above chart indicates.

ZERO WASTE

OBJECTIVE

Waste Disposed Of Through The Hazardous Waste Storage Facility (HWSF) Is Reduced Through Sustainable Procurement Practices, Reduction In Material Use, Reuse And Recycling.

PROGRESS

Total waste disposed of thru the Hazardous Waste Storage Facility (HWSF) in FY13 was 65,837 lbs (regulated, universal and non-regulated solid waste). The FY13 target of a 62% reduction in all waste processed thru the HSWF (25,000 lbs) was not met.

- 3,127 lbs of waste entered a landfill – over 95% of processed material or waste was reused or recycled
- 16,500 lbs of batteries recycled
- 8,657 lbs of fluorescent lamps recycled
- 11,000 lbs of off-specification fuel recycled
- 6,750 lbs of latex paint mixed with ash in a solidifier and used as landfill cover
- 19,803 lbs used as fuel in cement kiln operation

WASTE PROGRESS

Waste reduction and diversion can be greatly impacted by strategies to modify behavior of both the general public and facility managers. Fort Carson has identified more than 20 different waste streams generated by the Installation ranging from standard recyclable commodities to such items as porcelain toilets and mattress box springs. Strategies to reduce or reuse the end product of these waste streams have been identified. However, getting waste to the correct location, instead of the landfill, starts with the product user. As a result, many programs exist to reach multiple populations and end-users. Below are recent initiatives.

- The Barracks Single Stream Waste Program generates approximately 72 cubic yards of recyclables per week. After a pilot in 9 locations, the program was implemented in all barracks.
- Fort Carson hosts Pollution Prevention Week each September with a variety of events. In FY13, more than 9,415 pounds of household hazardous waste were collected from military, civilians and visitors. This event creates great awareness about the importance of keeping these waste streams out of the landfill. Due to the success of the event, bi-annual collection events are now planned.
- The Post Recycling Exchange Program began accepting household hazardous waste from Soldiers living on post who have orders to move to a new installation. Household products such as aerosols, batteries, cleaners, and paints and stains are accepted. This initiative helps prevent flammable products from being packed and shipped, or improperly disposed.
- The Unit Recycle Incentive Program continues to motivate Soldiers to recycle and earn money for their units. In FY13 units turned in a total of 130,000 lbs. of material for recycling. A total of $8,450 was awarded in incentives dollars .
- The Composting Program diverts approximately 10,000 lbs. of waste from dining facilities, the commissary, and other buildings on a weekly basis. Currently a pollution prevention opportunity assessment is being performed to determine the feasibility of program expansion.

Upcycle Garden - Staff at the recycle drop-off location near the Post Exchange created an "upcycle" garden display of decorative items that had been discarded. Upcycling results in a new or higher use of recycled items.

SUSTAINABLE PROCUREMENT

- Increase % Of EPA Designated Products & Services Purchased Which Contain Recycled Content (P1)
- Increase Awareness & Knowledge Of Fort Carson Personnel About Sustainable Purchasing (P2)
- Improve The Sustainability Performance Of Key Items & Services (P3)*
- Eliminate Styrofoam® & Non-biodegradable Single Use Plastic (P4)

ACCOMPLISHMENTS:

- Positive changes in government policies and regulations.
- Mandatory training for government purchase card holders on green purchasing.
- Web based tools that make sustainable purchasing easier for end user.
- More sustainable alternatives through mandated sources.
- Revision of Contract language to require sustainable purchasing.

*Specific items and services not identified for action in FY13.

SUSTAINABLE PROCUREMENT

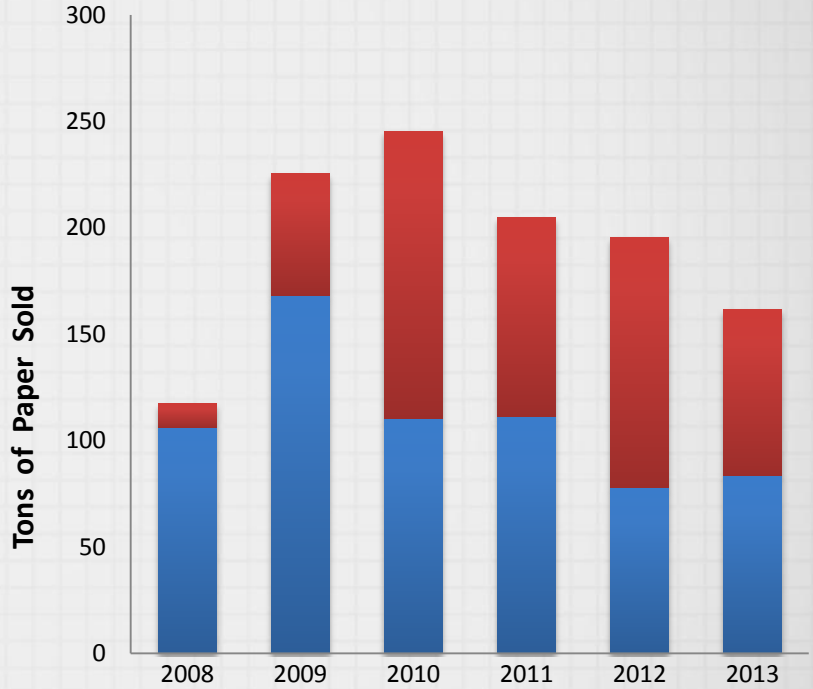
OBJECTIVE

Increase The Percentage Of USEPA Designated Products And Services Purchased Through GSA , DoD EMALL And Envision Xpress Which Contain Recycled Content.

In FY13 sales of paper at Envision Xpress, the Installation's office supplier, decreased approximately 17% to 6,470 cartons (162 tons) from the previous year. According to ConservaTree.org, it takes 24 trees to make a ton of paper. Therefore, the reduction in paper purchases equates to saving 1,164 trees.

The reduction is a result of increased use of digital communications and a 2009 paper policy which mandated the use of at least 50% recycled content and paper recycling. A policy update mandating 100% post-consumer recycled content for printing and copy paper is planned for FY14. Other reduction methods such as limiting paper copies of documents and converting paper forms to digital format are planned.

In FY13 an initiative was implemented to consolidate individual printers, fax machines and copiers in favor of multi-functional devices (MFD).



	2008	2009	2010	2011	2012	2013
50% Recycled Paper in Tons	11	57	135	94	118	78
30% Recycled Paper in Tons	106	168	110	111	78	83
Total Recycled Paper in Tons	117	227	245	205	195	162

Total tons of sales of 30% and 50% recycled paper decreased from 196 tons in FY 12 to 161 tons in FY13. Source: Envision Xpress. 40 cartons of paper = 1 ton.

SUSTAINABLE PROCUREMENT

OBJECTIVE

Increase The Awareness And Knowledge Of Personnel Working For Or On Behalf Of Fort Carson To Make Sustainable Procurement Requests And Decisions. Improve Sustainability Performance Of Key Products And Services.

PROGRESS

Green procurement - the purchase of environmentally preferable products and services - is mandated by Executive Orders and other guidance.

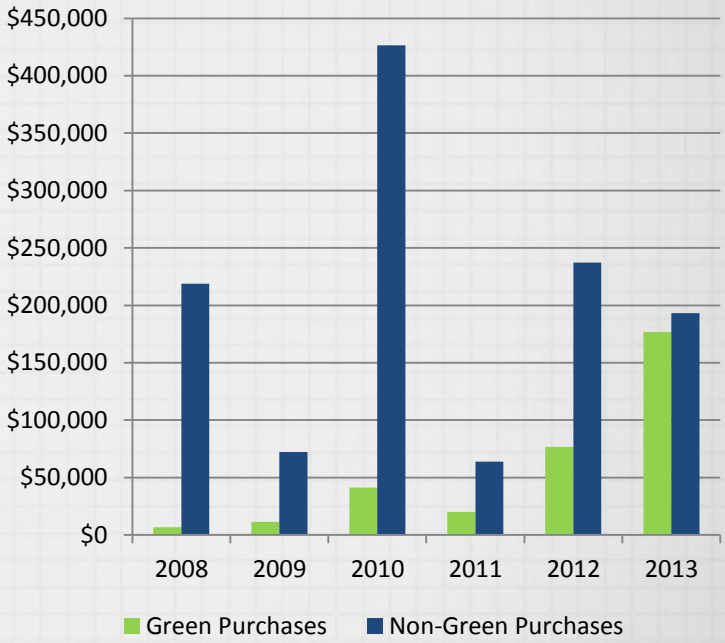
All individuals or agencies who are issued a Government Purchase Card (GPC) receive in depth training on green procurement. Many federal green purchasing resources exist – such as GSA's Green Procurement Compilation - are available that identify key products and services with high sustainability performance to assist decision makers.

There are approximately 400 cardholders on Fort Carson. Their purchases are periodically reviewed for compliance.

All purchases of office supplies must be made through Envision Xpress, whose products are compliant with the Green procurement guidelines.

Overall green purchases on post increased from 3% in FY08 to 48% in FY13. The increase is due to the following factors:

- Mandated product performance standards.
- More offerings of quality green products.
- Better awareness and identification of 'green' products.
- Better performance (quality, durability) of higher priced alternatives, e.g. LED lighting.
- Better cost competitiveness between 'green' and 'non-green' products.



Green Purchases include general office supplies, paper with greater than 50% recycled content, computer products, toner cartridges, cleaning products, and equipment with recycled content. Source: GSA

SUSTAINABLE PROCUREMENT

OBJECTIVE

Eliminate The Purchase, Use And Disposal Of Styrofoam® And Non-Biodegradable Single Use Plastics By 2020 (Except Medical).

PROGRESS

Accomplishments:

- Styrofoam® has been eliminated in the dining facilities and replaced with compostable service ware.
- Dining facilities (DFACs) have converted single serve condiments to bulk dispensing. DFACs confine 'to go' containers to carry out areas.
- Both Army higher headquarters and Fort Carson continue to work with the Defense Commissary Agency (DeCA) and the Army & Air Force Exchange Service (AAFES) to eliminate plastic grocery bags and non-biodegradable containers in their operations.
- AAFES offers a credit for each reusable bag.
- Briefings given to incoming Soldiers discourage use of single use plastic containers.
- Zero waste champions encourage purchasers to select items with minimal packaging and to reuse all packaging material - not only at work but also in their personal lives.

Upcoming Initiatives:

- The Garrison intends to finalize a Green Meetings and Events Policy in 2015. Hosts will be strongly encouraged to eliminate non-biodegradable materials from their activities.
- The Garrison intends to implement a Green Cleaning Policy in 2015. Bulk purchasing or dispensing of bio-preferred cleaning products will help eliminate plastic waste.

SUSTAINABLE TRANSPORTATION

- Reduce Peak Hour Single Occupancy Vehicle (SOV) Commuter Trips (ST1)
- Reduce Petroleum Usage By The Non-tactical Vehicle (NTV) Fleet (ST2)
- Increase The Use Of Renewable/Sustainable Alternative Fuels In The NTV Fleet (ST3)
- Improve Estimated Average Fuel Economy Of The NTV Fleet (ST4)

ACCOMPLISHMENTS:

- Implemented a Post Shuttle.
- Reduction in government fleet.
- Increase of alternatively fueled vehicles.
- Slight decrease in vehicles entering the gate.
- Implemented rideshare and bikeshare programs.
- Extensive trail system.

SUSTAINABLE TRANSPORTATION

OBJECTIVE

Reduce Single Occupancy Vehicles (SOV) For Non Mission Trips.

PROGRESS

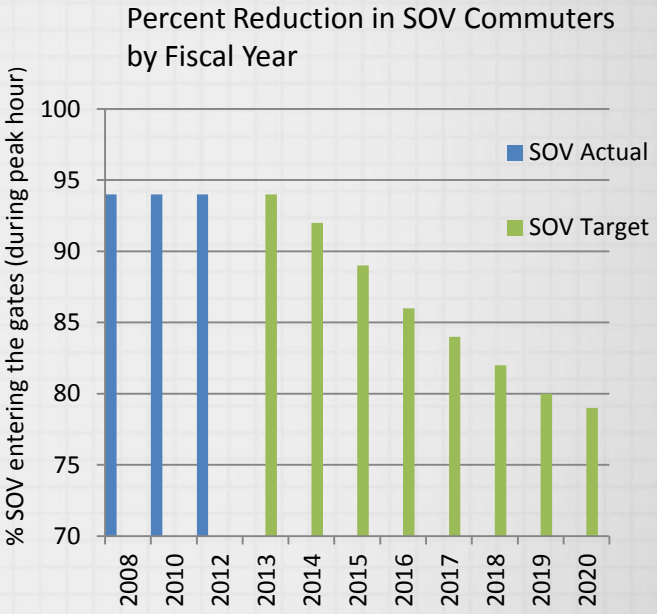
Currently an estimated 94% of Fort Carson commuters drive alone to work; a metric that has remained constant since the first counts were made in 2005. This is a reflection of the percentage of solo drivers within the Pikes Peak region as a whole.

Initiatives undertaken to reduce SOVs including the post shuttle, rideshare programs and the development of an extensive network of bike lanes and trails have not resulted in goal advancement.

Therefore this goal has been revised to reduce SOV commuter trips by 5% by FY15; 10% by FY17 and 15% by 2020. Local circumstances do not discourage solo driving. City transit services do not currently enter the post, creating a "last mile" challenge for riders trying to get to work or services at Fort Carson.

Connectivity to safe, non-motorized infrastructure between the community and the post remains challenging. Substantial commuter incentives, parking fees and/or multi-million dollar investments in alternative mobility infrastructure such as driverless vehicles or personal rapid transit, which could help reach the targets, are largely unsupported at this time. Army tradition and guidelines for conducting Soldier physical training, military transportation regulations and gate security also present barriers.

In spite of significant obstacles to goal progress, Fort Carson continues to build and enhance programs and infrastructure to meet this goal. Reducing SOV commuter trips to Fort Carson will benefit commuters on adjacent roadways and reduce regional air pollution.



Fort Carson desires to reduce the percentage of people commuting alone in their vehicles from 94% in fiscal year 2008 to 79% (or 15%) by FY2020.

No commuter surveys were conducted in FY13.

SUSTAINABLE TRANSPORTATION

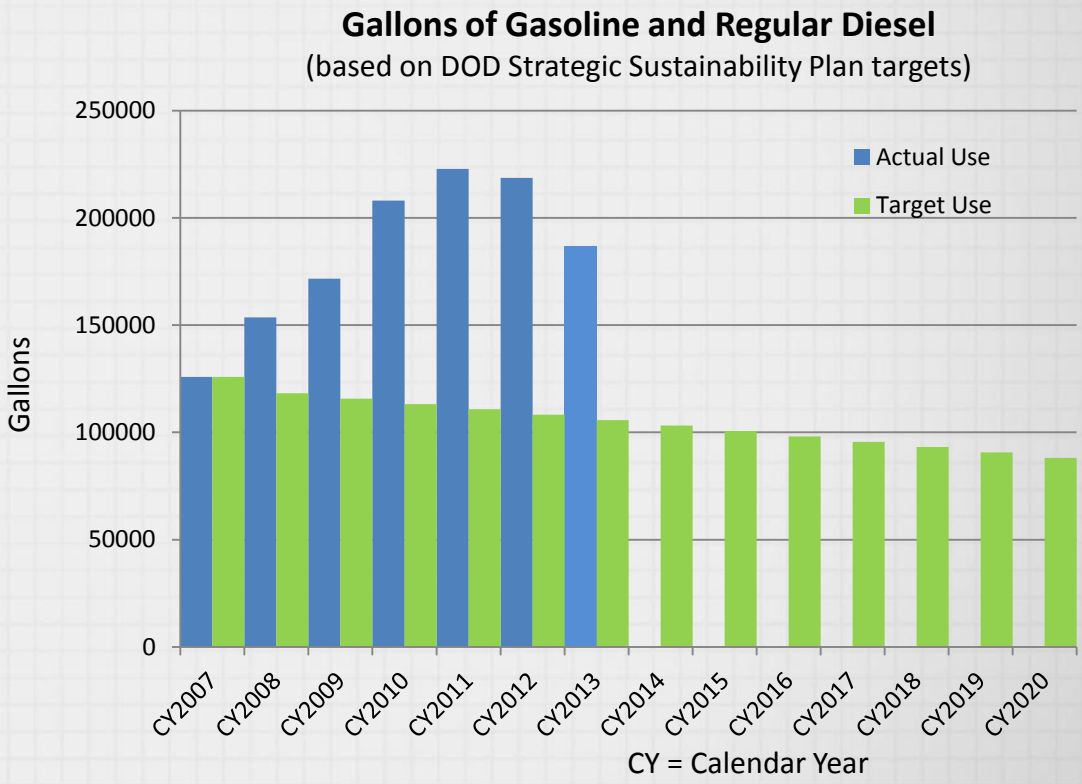
OBJECTIVE

Reduce The Use Of Petroleum Products By The Non-tactical Vehicle Fleet.

PROGRESS

The target for this objective is to reduce petroleum fuel use by the Non Tactical Vehicle (NTV) fleet by 30% by 2020 compared to a 2007 baseline.

Total gasoline and diesel usage for Calendar Year 2013 (CY13) was 186,724 gallons. This is a 14.6% decrease from CY12 however, it exceeds the reduction target of 105,690 gallons.



SUSTAINABLE TRANSPORTATION

OBJECTIVE

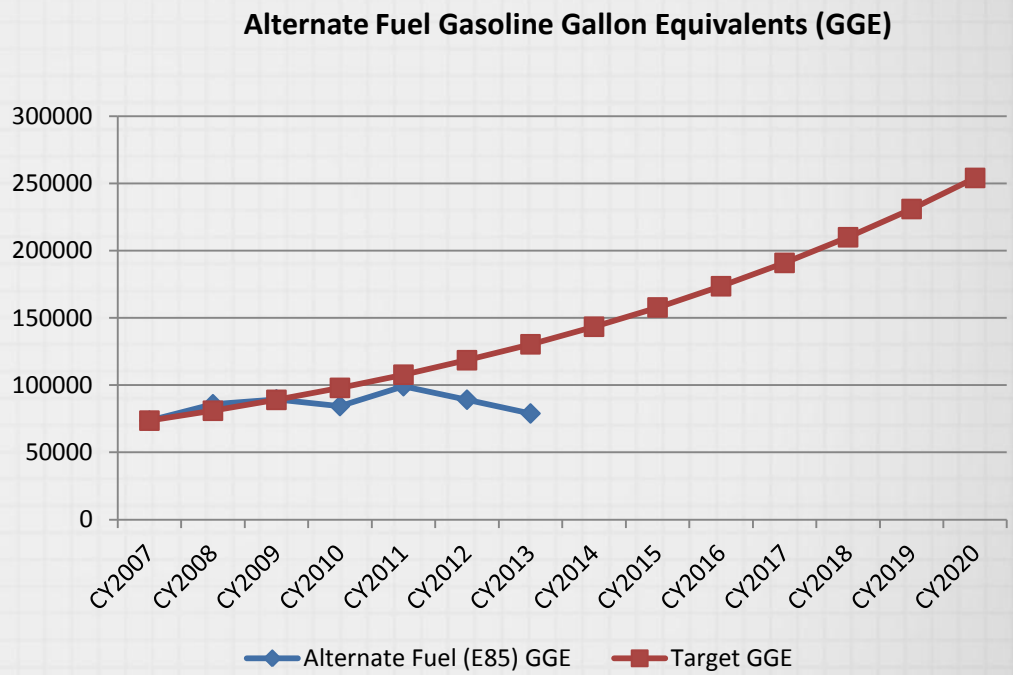
Increase The Use Of Renewable/Sustainable Alternative Fuels.

PROGRESS

The intent for this objective is to increase our use of alternative fuel (such as biodiesel, electricity, natural gas) while reducing petroleum use in non-tactical (NTV) fleet vehicles.

Fort Carson reduced its NTV fleet by about 46% in FY11/FY12. The fleet decreased from 428 in CY12 to 407 in CY13. As of CY13, the NTV alternative (E85, electric or hybrid) fueled vehicle fleet consisted of 7 Electric Vehicles, 0 CNG, 21 Hybrid and 233 E85/FFV. The composition of the fleet showed an increase in AFV from 60% in CY12 to 64% in CY13.

Fort Carson wishes to increase its use of renewable/sustainable fuel by 10% annually compared to 2007 baseline. The ultimate goal is to use the most renewable and sustainable fuel possible for an optimally sized NTV fleet.



Alternative fuel consumption is measured in Gasoline Gallon Equivalents (GGE), *which translates the energy content of fuel into units representing the energy content of one gallon of gasoline. Due to the difficulty of tracking the GGE for EVs, hybrids and the negligible use of CNGs, the GGE represented in the graph is based solely on E85.*

SUSTAINABLE TRANSPORTATION

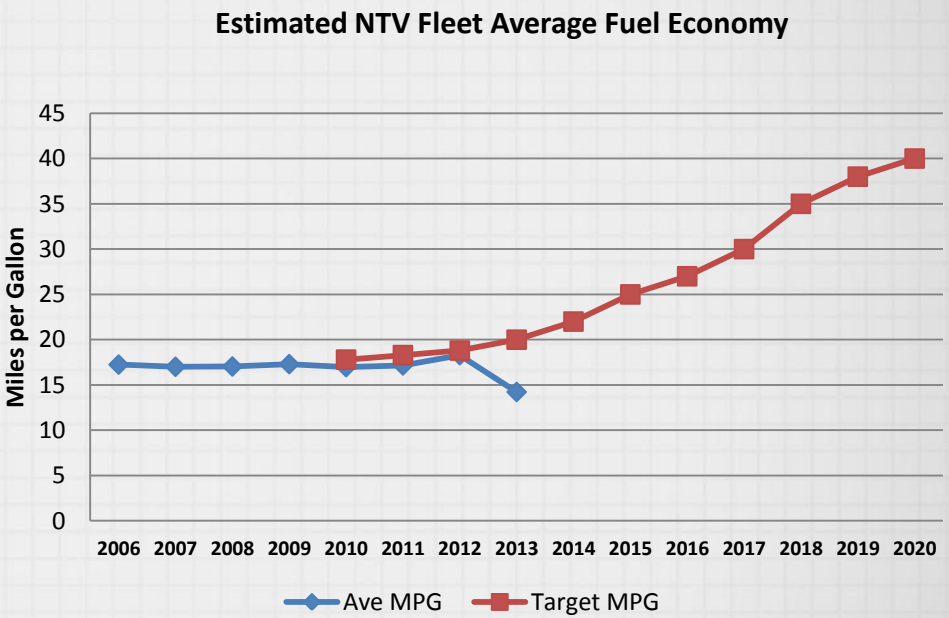
OBJECTIVE

Improve The Estimated Average Fuel Economy Of The Non-Tactical Fleet.

PROGRESS

The target of 40 miles per gallon is based on Corporate Average Fuel Economy (CAFE) standards that require cars and light duty trucks to improve fuel economy to the equivalent of 35.5 miles per gallon (mpg) for model years by 2016 and 54.5 mpg by model year 2025. The purpose of CAFE is to reduce energy consumption and decrease greenhouse gases by increasing the fuel economy of cars and light trucks. It has the added benefit of reducing costs to the consumer at the pump. In FY13, average mpg was 14.23, a 24% decrease from FY12.

Lighter vehicles also have less impact on road and highway infrastructure, but lower fuel tax collections could affect funding for road repair and maintenance.



Source: DOL/GSA list of NTVs; average fuel efficiency based on the EPA estimated fuel economy (www.fueleconomy.gov) for those vehicles in the NTV fleet for which data are available.

SUSTAINABLE TRANSPORTATION

PROGRESS

The Fort Carson Post Shuttle encourages the use of mass transit and ridesharing on post. Less traffic on post improves air quality, which benefits the region.

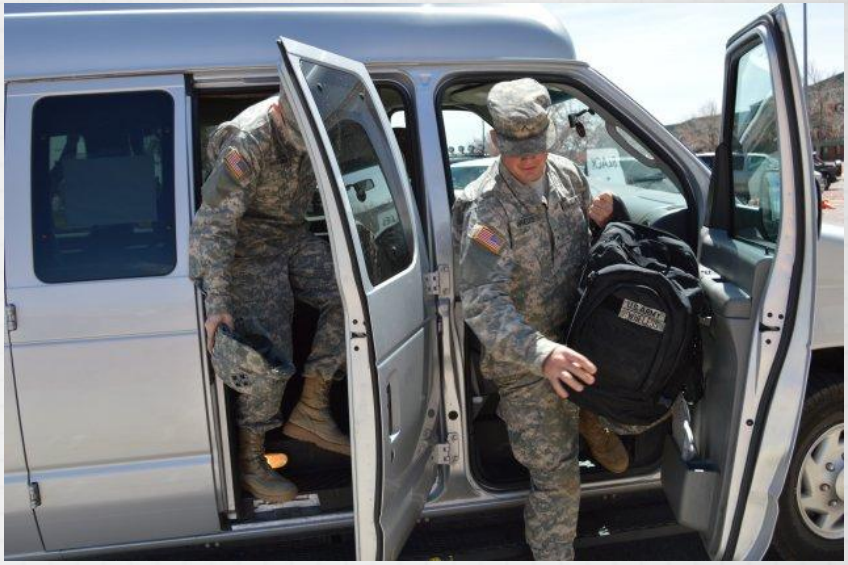
The free shuttle circulates the cantonment and also services the Wilderness Road Complex. It is a fast, convenient and reliable way of getting around post.

The shuttle service began in May 2012 and is operated by Soldiers of the Garrison's Headquarters & Headquarters Company along with drivers from military units.

The shuttle is part of a system of transportation alternatives designed to reduce air pollutants, save fuel, reduce vehicle ownership costs and encourage people to leave their personal vehicles at home.

It provides alternatives for rideshare users and "non-choice" transit riders to move around post. It serves the Soldiers who arrive at Fort Carson without a personal vehicle as well as those who leave their car parked and use the shuttle during the work day.

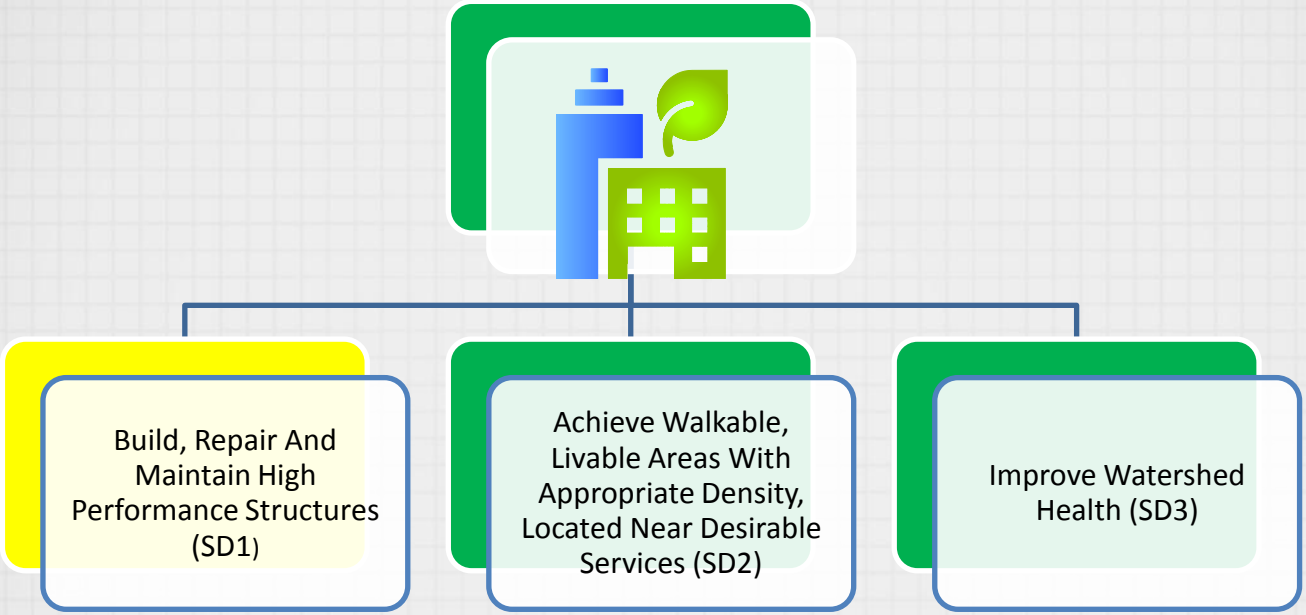
To make the system more robust, initiatives are underway to increase ADA compliant buses, create a transfer point from Pikes Peak Community College to Fort Carson, and connect to other potential shuttle systems in neighboring communities.



The shuttle provides many benefits including:

- Reduce air pollution.
- Mitigate parking demand.
- Cost savings for gasoline and automotive maintenance for Installation personnel.
- Create a sense of place and community, and connect people and places, encouraging expansion of social networks.
- Reduce maintenance frequency on post and on adjacent roadways.
- Less congestion at gates and on-post.

SUSTAINABLE DEVELOPMENT



ACCOMPLISHMENTS:

Implemented Net Zero Ready concept. • Implemented area development plans. • Reduced number of facilities. • Low Impact Development. • Improved Watershed. • Expanded running trails, sidewalk extensions and connectivity. • Continued Storm water permit education, inspection and enforcement. • Continued regional collaboration efforts.

SUSTAINABLE DEVELOPMENT

OBJECTIVE

Build, Repair And Maintain High Performance Structures.

Fort Carson has one of the largest collections of federally funded U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) certified projects at a single location. At present there are over 78 LEED certified buildings with over half of them at the Gold level of performance.

Following are average benefits of building performance:

- 90% of LEED projects reduce water for landscaping by 50%.
- Average energy savings of 33% over code requirements.
- 68% projects divert 75%+ construction material from landfills.

We continue to work with National Renewable Energy Laboratory (NREL), U.S. Army Construction Engineering Research Laboratory (CERL) and the General Services Administration (GSA) to find ways to accomplish better energy efficiency and operation of existing buildings.

The FY20 target is that all new facilities and major renovations of existing buildings on Fort Carson meet at a minimum the Silver Standard of LEED and are constructed to be “Net Zero Ready” to prepare the facility for future technology implementation.

The Installation is on a glide path to meet this goal.

38 LEED Silver

38 LEED Gold

2 LEED Platinum

SUSTAINABLE DEVELOPMENT

Fort Carson's 2nd Platinum LEED Building.

PROGRESS

The Echelons Above Brigade (EAB) Company Operations Facility (COF) project is the 2nd LEED platinum building for Fort Carson and the 5th in the Army.

While LEED Gold was a base contract requirement, the contractor achieved LEED Platinum at no additional cost to the government. The project provided clean-up and reuse of an existing Brownfield site and enhanced community connectivity and development. The 41,520 square foot facility contains a number of innovative and high efficiency systems. Innovation in design and construction include occupancy, vacancy, and day-lighting sensors, efficient lighting systems and innovative programming controls to save energy.

Highlights of the LEED Platinum achievement include:

- 54.6% designed energy use reduction.
- 58.9% designed potable water use reduction.
- 7.5% electricity provided through on site renewable resources (roof mounted photovoltaic field).

SUSTAINABLE DEVELOPMENT

OBJECTIVE

Achieve Walkable, Livable Areas With Appropriate Density, Located Near Desirable Services.

PROGRESS

New construction focuses on energy efficiency and "Net Zero Ready" attributes, which prepare facilities for future technology implementation. Interior space offers flexibility to accommodate a variety of uses. Infill and new development incorporates a walkable campus approach.

During FY13 several high visibility projects were completed:

- Part of the old commissary was converted to a modernized central issue facility closer to the walkable downtown area. The new facility allows an efficient process flow for Soldiers to draw Army-issued individual equipment and other gear from one facility.
- A covered patio area was added to the Hub, Building 1532, to allow for outdoor parties, barbecuing, big screen TV and improved landscaping. These improvements enhance the Community Event Center.
- Several Old Hospital Complex buildings were torn down to make way for more family housing and parks.
- Building 813 was renovated to house the Disability Evaluation System Office to better serve Soldiers and Families.
- Townsend and Northside reservoirs were rehabilitated and remain popular fishing spots.

SUSTAINABLE DEVELOPMENT

OBJECTIVE

Improve Watershed Health By Reducing Erosion, Sedimentation, And Flooding And Improving Water Quality For Fort Carson And Communities Downstream.

Stormwater education is provided on a regular basis to contractors, and on an as-needed or requested basis to partners and stakeholders. Over 1200 individuals were trained in FY13.

To maintain excellent goal progress, DPW is continually looking for new Low Impact Development (LID) technologies and design criteria conducive to Fort Carson hydrologic variables in order to improve the water quality within the Fountain Creek watershed.

A survey was conducted during FY13 of all LID and Post -Construction Best Management Practices (BMP) features on the installation. Of the 85 existing features, 34 were found to be unacceptable to varying degrees. The list was prioritized and provided to the Operations and Maintenance Division to be corrected as funds become available.

Earth Day is used as an opportunity to reach out to children in the community by educating them on the interactions between pollutants and stormwater with an interactive model.

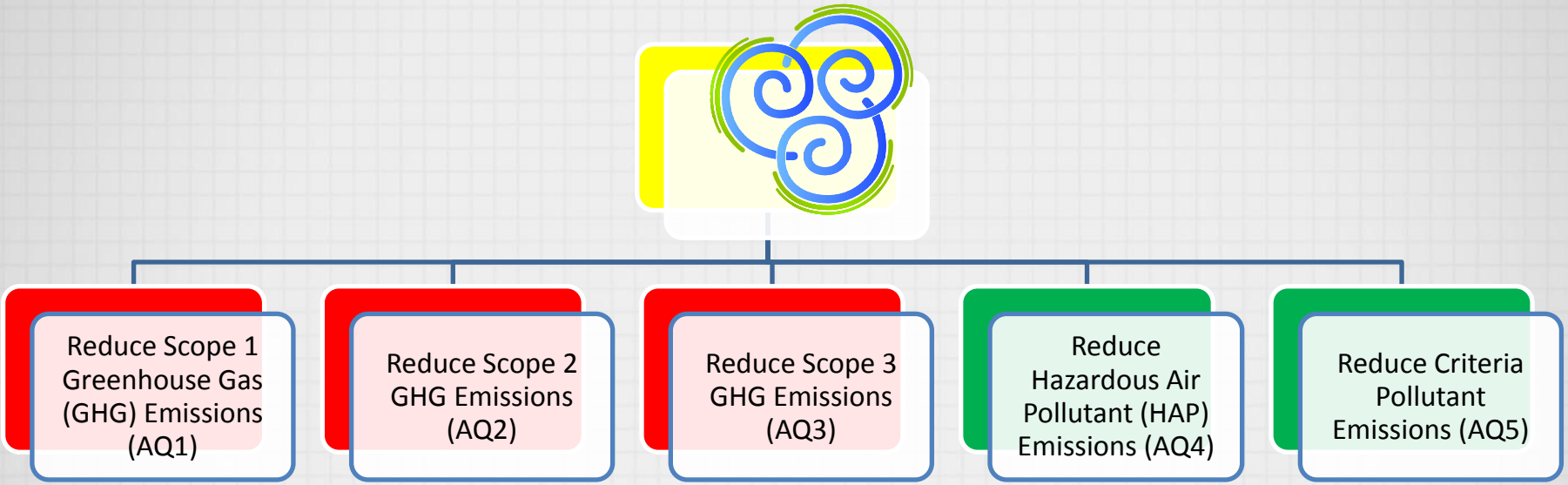
Volunteers help clear drains and ditches several times a year.

Aesthetics, Function and Social Benefits of Low Impact Development

- Uses natural vegetation, landscaping and structural features to manage stormwater.
- Adds value and beauty to public spaces, yards and neighborhoods.
- Provides water quality benefits.
- Saves money by reducing the need for costly stormwater infrastructure.
- Increases natural habitat.
- Calms street traffic and improves public safety.
- Offers pedestrian access.
- Mitigates the impact of urban heat.
- Reduces irrigation demands and energy use.

Fort Carson installed a treatment device at the Recycle Facility in order to improve the water quality from runoff associated with this Multi-Sector General Permit (MSGP) site for industrial discharge.

AIR QUALITY



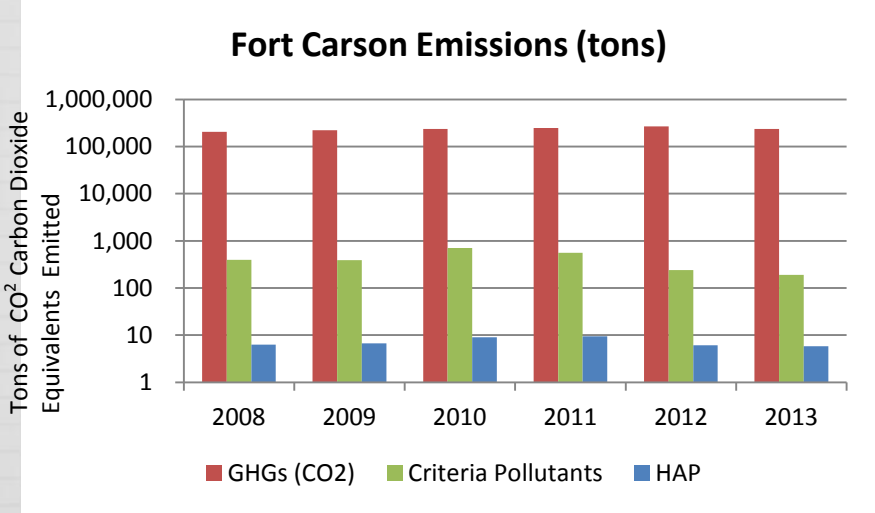
ACCOMPLISHMENTS:

Reduced air pollution via Post Shuttle • Improved building density • Purchase d cleaner burning equipment resulting in decreased emissions. • Reduction in criteria pollutant emissions •

AIR QUALITY

GOAL Reduce Installation Greenhouse Gases (GHG) And Other Air Pollutants.

PROGRESS



In general Criteria Pollutants emissions have remained relatively stable. Criteria Pollutant emissions will continue to increase with the finalization of the CAB build out. Specifically, the inclusion of the Central Energy Plant will increase Criteria Pollutant emissions and Scope 1 GHG emissions.

The air on Fort Carson is the same air the community breathes off the installation, making it an environmental issue that impacts everyone regardless of gates, fences and boundary lines.

The long-term goal for this plan is to reduce installation GHGs and other air pollutants to the lowest achievable emissions rates by 2020.

Original goal targets for the reduction of GHGs and other pollutants were overly enthusiastic. Therefore, targets for GHGs and other pollutants are currently being revised to recognize the population growth the Installation has experienced as well as the increased square footage of buildings due to the number of new facilities constructed.

The following activities and operations conducted on the Installation directly affect air emissions :

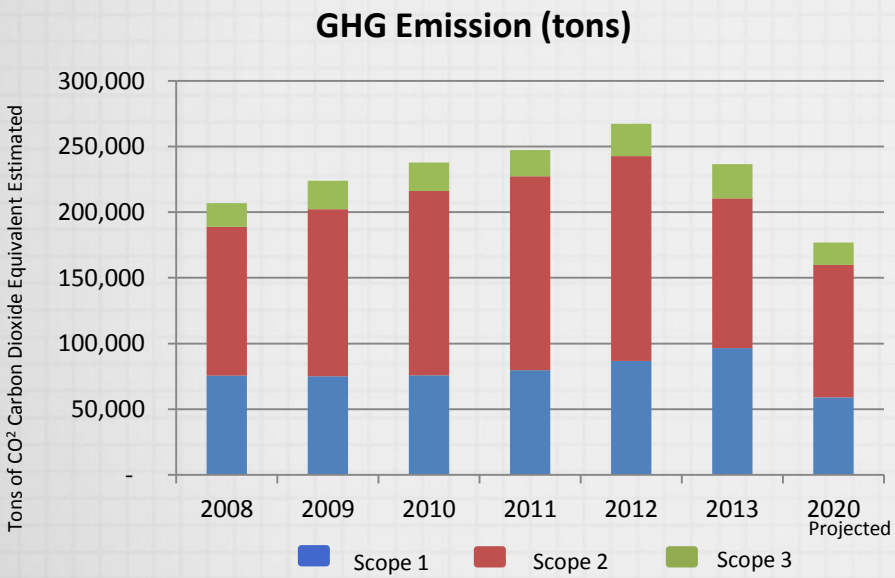
- Facilities heating and cooling operations.
- Materials and resource procurement.
- Facilities construction and maintenance operations.
- Tactical equipment maintenance operations.
- Facilities energy use.
- Military training.
- Employee commuting and on-post transportation.
- Land use management and changes.

AIR QUALITY

OBJECTIVE

Reduce Installation Greenhouse Gases.

PROGRESS



GHGs are measured in tons of CO2 Carbon Dioxide Equivalents emitted. There are 3 categories of emissions: Scope 1 (directly emitted from Fort Carson), Scope 2 (indirectly emitted from Fort Carson from electricity use) and Scope 3 (3rd party emissions as a result of business practices, such as the impact of an employee taking a business trip by plane).

GHGs have remained relatively stable .

Scope 1 GHGs increased 3.2% to 96,556 tons CO2e since the FY08 baseline year of 77,080. Goal progress has not been met because the facility continues to grow and add new sources which contribute to Scope 1 emissions.

In FY13, Scope 2 GHGs decreased 11.5% as compared to FY12. However, reduction has not been achieved per the goal.

Scope 3 GHGs increased 6% in FY13 as compared to FY12. Scope 3 is difficult to accurately measure because it pertains to emission sources not owned or directly controlled by the post. A reduction of 1% of Scope 3 GHG emissions was the FY13 target.

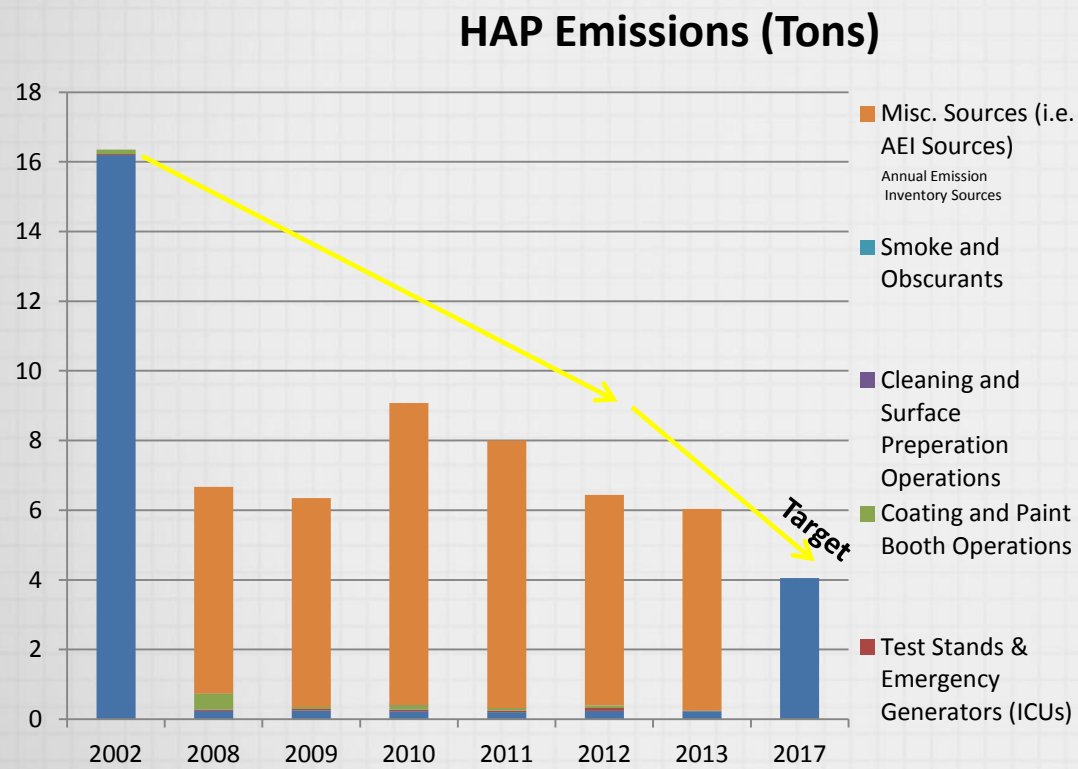
The largest contributors of GHGs are facility utilities. The inclusion of the Central Energy Plant as part of the CAB will increase Scope 1 GHG emissions.

Future improvements to building efficiencies and new heating / cooling system technologies will help decrease Scope 1 and 2 emissions.

AIR QUALITY

OBJECTIVE

Reduce Hazardous Air Pollutant Emissions.



Hazardous Air Pollutants (HAPs) consist of 187 listed chemicals and compound families. The largest contributors of HAPs are Internal combustion units – boilers, generators, chemical use, and operations and maintenance activities.

PROGRESS

Fort Carson was listed as a "Major Source of HAPs" prior to the last permit application in FY03. A major source of HAP emissions means the facility emits more than 25 tons per year of multiple HAPs or 10 tons per year of a single HAP. Through efforts in assessing product content and purchasing, Fort Carson was able to become an area source of HAPs.

In FY13, HAP Emissions decreased 4.13% from FY12. In FY12, the 50% target reduction was met.

Sources of HAPs are paint shop operations, fuel combustion equipment (boilers and generators), miscellaneous chemical/product usage, solvent cleaners and military training activities involving smoke and obscurants and range activities.

Reducing HAPs on a growing installation while still meeting the military mission is a challenge, especially given the CAB build-out and associated emissions and material usage.

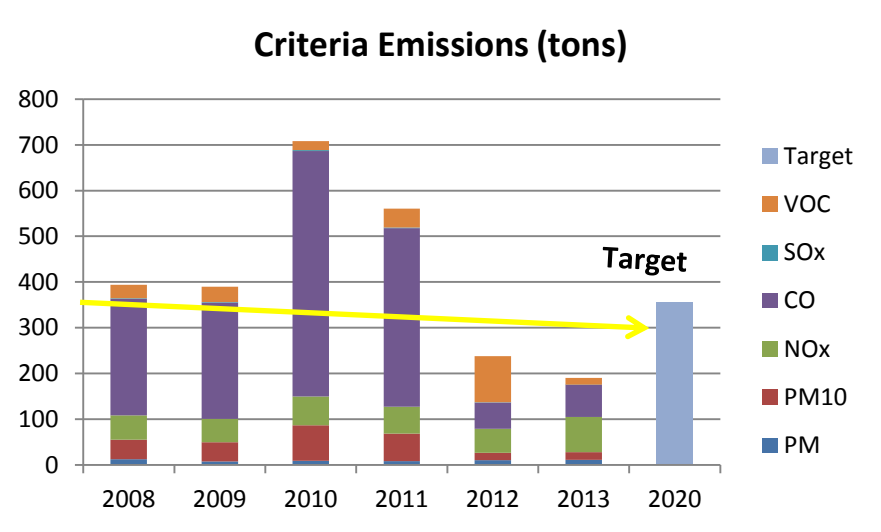
To reduce emissions, Fort Carson is tightening the operations of the Hazardous Material Control Center (HMCC) aggressively monitoring HAP emissions, and promoting initiatives to substitute products containing less harmful chemicals.

AIR QUALITY

OBJECTIVE

Reduce Criteria Pollutant Emissions.

PROGRESS



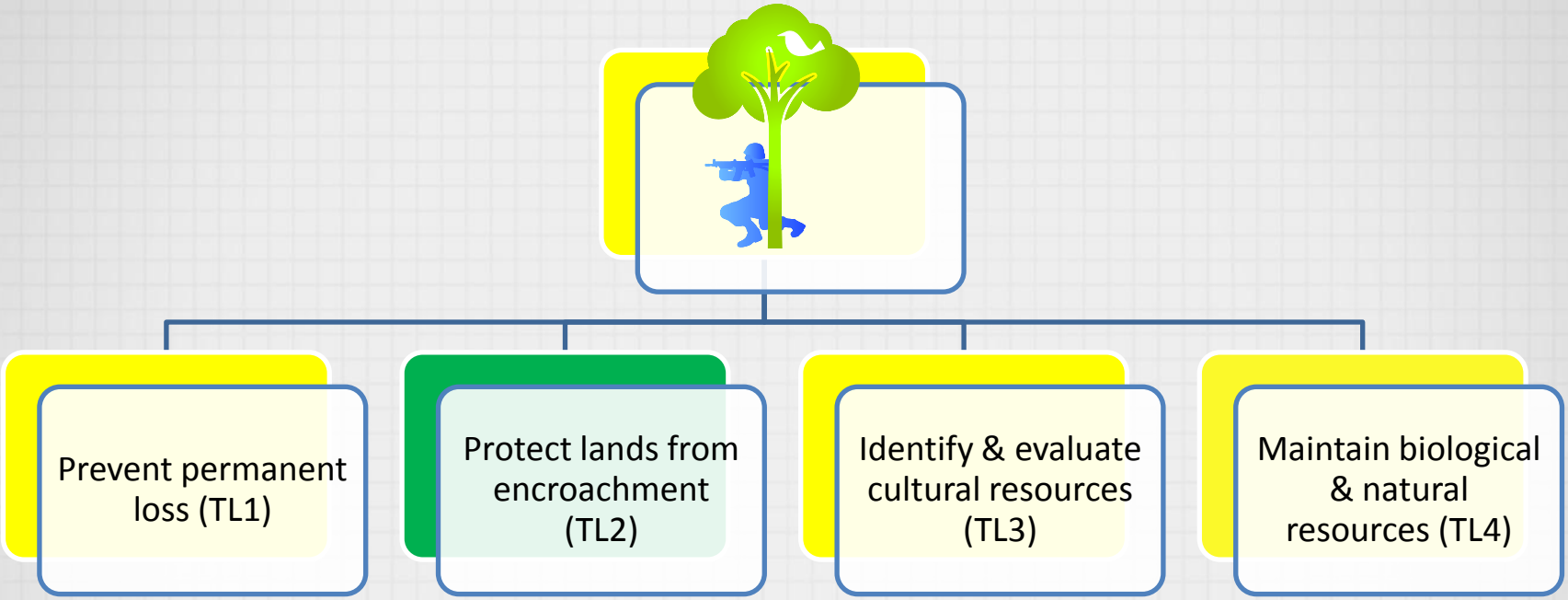
Criteria emissions are driven by the Clean Air Act National Ambient Air Quality Standards, and includes Volatile Organic Compounds (VOCs), Sulfur Dioxide (SO2), Nitrogen (NOx), Carbon Monoxide (CO), Lead, Ozone, and Particulate Matter (PM) . The largest contributor is combustion sources.

In FY13 Fort Carson emitted 195 tons of criteria emissions, which is decrease of 50.4% compared to the 2008 baseline of 393.8 tons. This decrease in facility wide emissions is directly related to prescribed burning activities which were greatly reduced in FY12 and FY13. It should be noted that should prescribed burning activities increase in the coming years, the target emissions will likely increase.

This goal is closely tied to GHG initiatives. Reductions in GHGs will result in reductions of criteria pollutants, although the ratio is not 1 to 1 since numerous criteria sources are not also GHG sources.

To reduce emissions, Fort Carson will continue to enforce Installation Design Guide criteria for adding or retrofitting air emissions sources on the installation.

SUSTAINABLE TRAINING LANDS



ACCOMPLISHMENTS:

Completed programmatic agreement. • Repaired flood damage. • Continued acquisition of property to increase compatible use buffer.

SUSTAINABLE TRAINING LANDS

GOAL

Training Ranges; Maneuver Lands; And Associated Air Space Capable Of Supporting Current And Future Military Training To Standard While Maintaining And Sustaining Training Resources.

PROGRESS

Training activities down range can create a number of impacts to land and cultural resources; water quality; air quality; and the potential for noise nuisances to neighboring landowners.

Fort Carson endeavors to reduce training impacts by:

- Following all environmental program area regulations and requirements.
- Practicing proper spill prevention.
- Conducting training in designated areas.
- Notifying the public of large-scale, irregular training events.
- Practicing maneuver damage control .

By working to prevent permanent loss of training lands from internal development, or damage from training or natural causes, Fort Carson ensures that it can sustain training for years to come.

FY13 PROJECTS

- Due to unusually high levels of rainfall in July and August 2013, Fort Carson experienced extensive damage from flooding. A historic rain event (12 inches of rainfall within a 2 day period) caused a 15 foot high surge of fast moving stormwater. Damage included loss of erosion control structures and the loss of a building. The damage estimate was approximately $4.3 million. The Secretary of the Army supplied emergency funding of $1.4 million to fix the damage, including a ditch that measured 45 feet wide by 25 feet deep.

- While several projects had been planned in FY13, funding was not received. Those projects are now planned for FY15 and beyond, subject to timing of funding. Due to the historic rain events of FY13, additional areas have been identified for erosion control projects and rangeland maintenance.

SUSTAINABLE TRAINING LANDS

A ditch measuring 45 feet wide by 25 feet deep was the results of a historic rain event (in which 12 inches of rainfall within a 2 day period)

SUSTAINABLE TRAINING LANDS

OBJECTIVE

Prevent The Permanent Loss Of Any Training Resource Due To Internal Encroachment, Biological, Natural Resource Or Other Issue.

PROGRESS

Sustaining the actual land that is used for training is vital to the long-term success of the Mountain Post and its Soldiers. That is no small feat when it comes to a land mass area that comprises more than 339,000 acres between Fort Carson and the Pinon Canyon Maneuver Site (PCMS)

In FY13, approximately 296,000 acres of training lands were available for training representing a 13% permanent loss. Approximately 46,000 acres were taken out of inventory due to internal encroachment pressures, such as use of previous training land for solar and wind farms, new building construction and cultural sites.

Reseeding damaged areas, training Soldiers how to use the land in a manner that accomplishes their training requirements while reducing impacts, and pre-planning training exercises are some ways Fort Carson Range Division demonstrates an integral role in ensuring training lands are conserved and properly used.

The Army's Integrated Training Area Management (ITAM) program monitors and assesses the condition of the training lands, determines the best management practices to re-vegetate or rehabilitate areas affected by weather, fire and military training and prevents future damage through maneuver damage education and repair measures that are proven to last.

SUSTAINABLE TRAINING LANDS

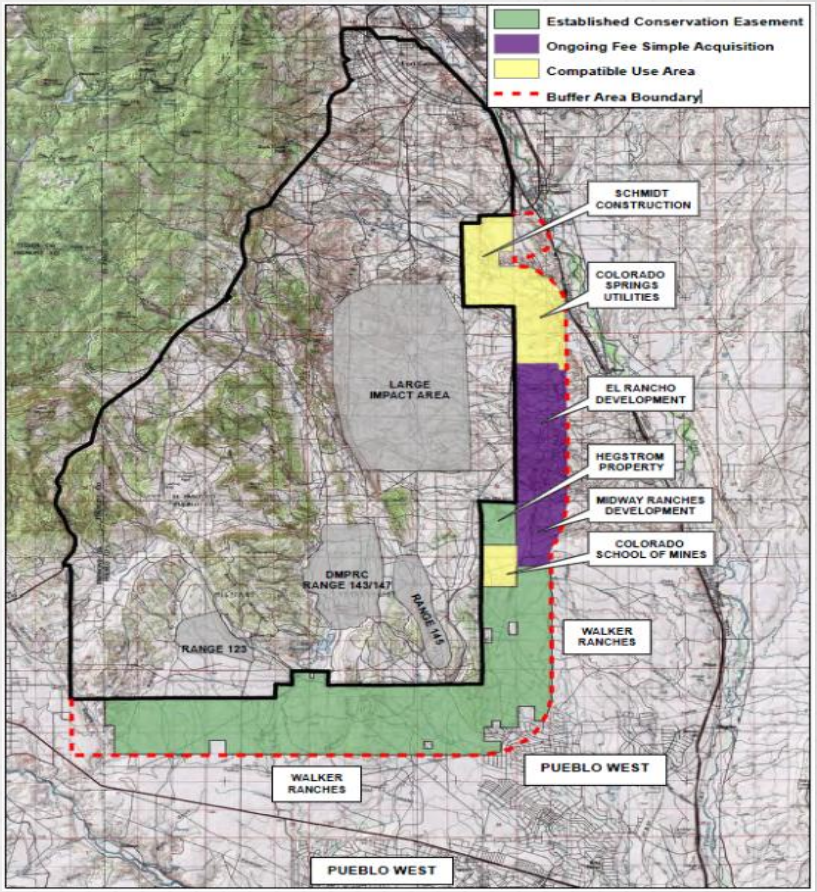
OBJECTIVE

Protect Fort Carson Ranges And Training Lands From External Encroachment By Creating A Contiguous 1½ To 2-mile Wide Proposed Buffer Around A Significant Portion Of The Installation's Southern And Eastern Perimeter.

PROGRESS

Conservation easements limit incompatible development, protect natural resources and buffer military training areas. They also allow landowners to maintain their interests in the property as well as use the land for traditional purposes.

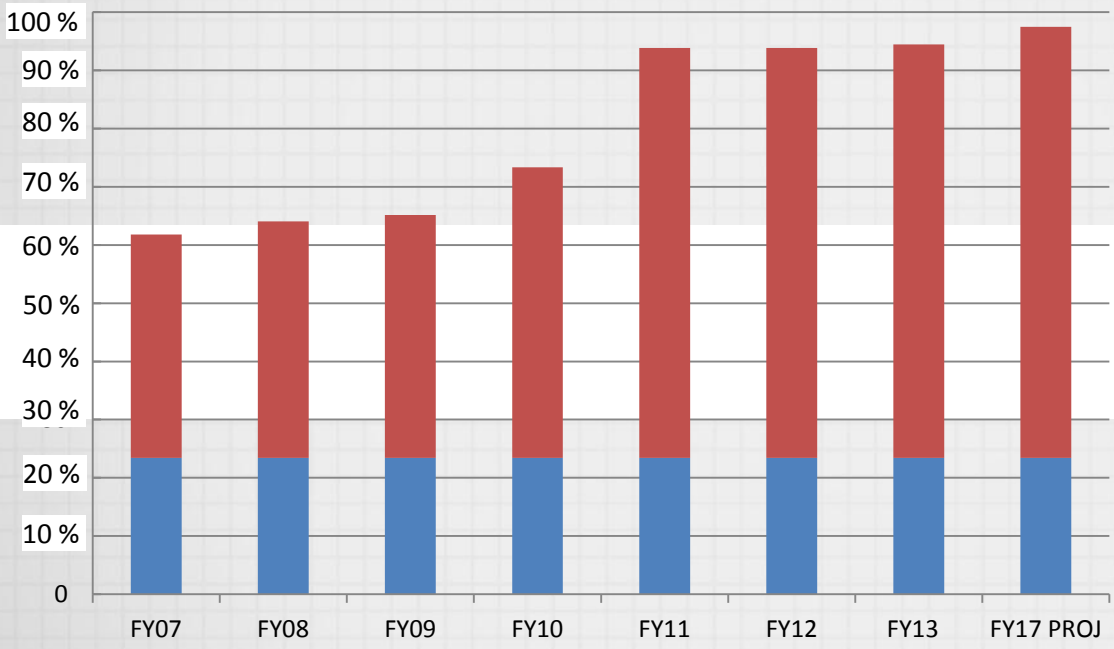
The Army Compatible Use Buffer (ACUB) program finalized conservation easements on land bordering the southern and southeastern boundaries, preserving to date a total of 24,388 acres and limiting encroachment along installation boundaries.



SUSTAINABLE TRAINING LANDS

PROGRESS

Percent of Goal Achieved - Land Area Projected



The installation has achieved 94.14% of its overall compatible use goal of 34,343 acres protected within the 1½ to 2-mile wide external buffer zone separating training ranges from adjacent residential communities.

A total of 24,388 acres of the proposed buffer area is permanently protected. Another 8,040 acres currently has a pre-existing compatible use. Thus more than 81% of the lands within the approved buffer is currently protected.

The compatible use buffer will ensure that the installation can protect and sustain current and future training capabilities.

	FY07	FY08	FY09	FY10	FY11	FY12	FY13 PROJ	FY17 PROJ
Total Acres of Land Protected within the Proposed Buffer	21,226	22,002	22,370	25,185	32,230	32,230	32,428	33,478
Acres of Land Permanently Protected	13,186	13,962	14,330	17,145	24,190	24,190	24,388	25,438
Acres of Land with Pre-Existing Compatible Use	8,040	8,040	8,040	8,040	8,040	8,040	8,040	8,040

SUSTAINABLE TRAINING LANDS

OBJECTIVE

Meet Or Surpass Environmental Management Goals By Identifying, Evaluating And Protecting Cultural Resources On Training Lands In Support Of Current And Future Training.

PROGRESS

It is the responsibility of every Federal agency to establish a preservation program to protect and preserve historic properties which it owns or controls. Fort Carson has a vast amount of historic resources that must be managed for the purpose of identification, evaluation and protection.

Cultural resources inventory of the Pinon Canyon Maneuver Site (PCMS) began in the 1980s. Numerous pedestrian surveys have resulted in the inventory of 219,278 acres (93%) of the 235,896 acres available for inventory, leaving 16,618 acres (7%) to be surveyed. The remaining un-surveyed acreage occurs within a protected interior fence boundary that is designated for dismounted training only, and in canyon areas where both foot traffic and helicopter routes are permitted.

Identification and evaluation of cultural resources discovered on the PCMS have been conducted in accordance with provisions set forth in Sections 106 and 110 of the National Historic Preservation Act (NHPA). Cultural resources include sites having traditional, religious, or cultural significance to one or all 13 Federally-recognized Native American Tribes with a cultural affiliation to PCMS lands.

Historic property evaluation to determine eligibility for inclusion in the National Register of Historic Places (NRHP) was accomplished. The term “historic property” is defined as a resource that has been officially determined to be eligible for inclusion in the NRHP through consultation with the State Historic Preservation Officer (SHPO). In addition, cultural resources that need further evaluation before eligibility can be determined (i.e. needs data sites), or until an official concurrence is received, are afforded the same protection as historic properties.

Site documentation, archival research, and artifact collections are located at the curation facility located on Fort Carson. Specific and detailed information regarding past and present cultural resources work and management strategies are compiled in the Integrated Cultural Resources Management Plan (ICRMP), presently under revision and anticipated for signature in early 2015.

SUSTAINABLE TRAINING LANDS

PCMS Archaeological Sites

Type	Eligible	Not Eligible	Unknown	Unknown, Needs Data	Total
Archaeological Sites					
Historic	45	308	154	25	532
Multi-component	172	283	162	38	655
Prehistoric	240	1,801	784	182	3007
Undetermined	--	56	37	3	96
Total	*457*	*2,448*	*1,137*	*248*	*4,290*

Source: PCMS GIS Cultural Resource Data,

CRMP Geographic Information Systems (GIS) data indicates 4,290 sites and 1,864 isolated finds (IFs) have been recorded on PCMS (see above table). This includes 532 historic sites, 655 multi-component sites, 3007 prehistoric sites, and 96 sites of undetermined age. Of these, 457 have officially been determined to be eligible for inclusion in the National Register of Historic Places (NRHP), 2,448 have been determined to be officially not eligible for the NRHP, and 1,385 either have no official determination or require further work to determine eligibility.

In FY13, a programmatic agreement for the protection of historic properties was initiated between Fort Carson, the Colorado State Historic Preservation Office and the Advisory Council on Historic Preservation. The agreement establishes protection measures and a monitoring strategy for historic properties regarding effects from military training, other activities, and natural processes.

Fort Carson continues to educate Soldiers and their leaders on the importance of historic preservation and protection of cultural resources.

SUSTAINABLE TRAINING LANDS

OBJECTIVE

Maintain Biological And Natural Resources In Sustainable Condition To Support Military Training.

PROGRESS

Fort Carson has an obligation to manage the training lands under its control in such a way as to ensure military readiness while also protecting natural resources and maintaining biological diversity.

The DPW Natural Resources office seeks to build and strengthen partnerships with outside agencies, including the U.S. Fish and Wildlife Service, Colorado Parks and Wildlife (CPW) and the Comanche National Grasslands in order to work cooperatively to maintain healthy ecosystems with viable native populations. The development of a strong partnership with the US Forest Service that helps to reduce costs by sharing contract mechanisms, expertise, equipment and personnel has been beneficial in off-setting the adverse impacts of funding reductions.

Co-operative programs include :

- Invasive species management
- Fire management
- Co-operative forest management
- Trespassing safeguards
- Conservation law enforcement
- Road and shared boundary maintenance

SUSTAINABLE TRAINING LANDS

PROGRESS

Miles of power lines crisscross Fort Carson's training lands, providing essential electricity to the garrison. Electric poles present a threat to wildlife, especially raptors, due to their wide wingspan and predatory nature. Power poles provide ideal perching and hunting opportunities for the birds, especially in the open prairie landscapes of Fort Carson, which limit the opportunity for natural perches.

Strategies to reduce potential raptor electrocution risk have been implemented. The first phase of protection efforts during FY13 was the evaluation of existing poles and the subsequent identification of poles most critical for retrofit. During FY13 inventories were taken of both Fort Carson and Pinon Canyon Maneuver Site. On Fort Carson 1,113 poles were evaluated; 59 demonstrated heavy use, and of those, 13 were deemed critical and in need of immediate attention.

Understanding raptor behavior and the mechanics of how raptor electrocution occurs are essential steps in the implementation of effective protection techniques. In this regard, Fort Carson biologists partnered with the U.S. Fish and Wildlife Service to prepare an Avian Protection Plan, a document which outlines protection techniques for the raptors. Fort Carson also worked with local electric companies to implement some of the proposed techniques, such as the

installation of protective rubber covers over the exposed wires and components on 13 of the highest risk poles. Other remedial actions, such as installation alternative perches, are under consideration. Implementation of these actions is heavily dependent on funding.

In addition to reducing mortality risks from power lines, Fort Carson biologists have initiated several projects to enhance raptor habitat, support raptor protection and monitor raptor populations. They have coordinated with local Boy Scouts to build raptor nest boxes which are installed throughout the garrison, with the exception of air fields and high traffic areas, where raptor activity is intentionally discouraged to prevent accidental collisions.

SUSTAINABLE TRAINING LANDS

FY13 PROJECTS

Directorate of Public Works (DPW) Forestry Section continues to manage the forest by thinning, clearing the understory vegetation and removing fire fuels.

Fort Carson has been a proactive member in the community for years with its forest management and prescribed fire programs, completing many acres of forest thinning designed to improve forest health and reduce the wildfire threat.

Directorate of Public Works Wildland Fire Team member conducts controlled prescribed burn operations to eliminate potential wildland fire fuel.

Fort Carson embraces sustainability as a partnership between our present and our future. We are committed to accomplishing all of today's missions in a way that will allow our successors to accomplish all of tomorrow's missions. In doing so, we pledge to constantly improve the ways we care for, save, replenish and find new and better uses for all of the resources entrusted to us.

SUSTAINABLE FORT CARSON

For more information about Sustainable Fort Carson or the contents of this report call (719) 526-9777 or go to www.carson.army.mil

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