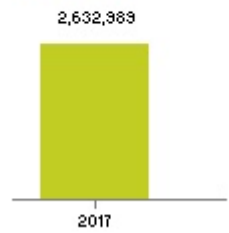


FY 2018 Water Management Plan

Instructions: The FY 2018 Water Management Plan is broken up into multiple sections. This plan represents a comprehensive approach to water reduction - each section has been completed with as much detail as possible.

Agency Specific Information																					
Name of Agency/Agency Contact. Include contact info.	Colorado Department of Corrections Facility Management Services P 719.226.4128 F 719.226.4605 1250 Academy Park Loop, Colorado Springs, CO 80910																				
Agency participation in water goal: Exempt/Non-Exempt	CDOC is non-exempt.																				
# of water meters subject to Executive Order (EO).	CDOC has 22 water meters and 2 wells.																				
Total FY 2017 water spend.	Total FY17 Water Cost: \$2,632,989 <div style="text-align: center;"> Total Cost Summary  <p style="font-size: small;">A bar chart with a single yellow bar representing the total cost for 2017. The value '2,632,989' is printed above the bar. The x-axis is labeled '2017'.</p> </div>																				
Top 10 Facilities with highest water use.	<u>FY17 Water Summary Information:</u> Total FY17 Current Floor Area: 6,940,492 SF Total FY17 Usage: 879,907 kGal Avg FY17 Use/Floor Area Annualized: 0.1268 kGal/SF Avg FY17 Cost/Floor Area Annualized: \$ 0.38/SF <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 80%;">Trinidad Correctional Facility</td><td style="text-align: right;">0.303 kGal/SF</td></tr> <tr><td>Buena Vista Correctional Complex</td><td style="text-align: right;">0.237 kGal/SF</td></tr> <tr><td>Arkansas Valley Correctional Facility</td><td style="text-align: right;">0.142 kGal/SF</td></tr> <tr><td>Sterling Correctional Facility</td><td style="text-align: right;">0.140 kGal/SF</td></tr> <tr><td>Delta Correctional Facility</td><td style="text-align: right;">0.138 kGal/SF</td></tr> <tr><td>Limon Correctional Facility</td><td style="text-align: right;">0.133 kGal/SF</td></tr> <tr><td>Rifle Correctional Facility</td><td style="text-align: right;">0.107 kGal/SF</td></tr> <tr><td>CO Territorial Correctional Facility</td><td style="text-align: right;">0.085 kGal/SF</td></tr> <tr><td>Denver Receiving & Diagnostic Center</td><td style="text-align: right;">0.083 kGal/SF</td></tr> <tr><td>Denver Women's Correctional Facility</td><td style="text-align: right;">0.062 kGal/SF</td></tr> </table> <p>Note: The East Cañon City Prison Complex is not ranked. It has a master water meter and houses multiple prisons.</p>	Trinidad Correctional Facility	0.303 kGal/SF	Buena Vista Correctional Complex	0.237 kGal/SF	Arkansas Valley Correctional Facility	0.142 kGal/SF	Sterling Correctional Facility	0.140 kGal/SF	Delta Correctional Facility	0.138 kGal/SF	Limon Correctional Facility	0.133 kGal/SF	Rifle Correctional Facility	0.107 kGal/SF	CO Territorial Correctional Facility	0.085 kGal/SF	Denver Receiving & Diagnostic Center	0.083 kGal/SF	Denver Women's Correctional Facility	0.062 kGal/SF
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FY 2017 Results

FY 2017 agency water reduction/increase: -0.6% Decrease
Compared to FY16

Explain FY 2017 results including strategies and/or issues that influenced the reduction/increase:

Weather (temperature and precipitation) has the greatest influence on water use at the CDOC, particularly at the facilities in the southern part of the State, where precipitation was slightly greater than in FY16. In FY17 year the Physical Plant personnel have been actively identifying/repairing water leaks within the facilities.

List key strategies outlined in FY 2017 plan, progress to date, and lessons learned*

Strategy 1

Strategy1:

In FY17, our focus was on the first phase of a major project - the East Cañon City Prison Complex (ECCPC) Alternate Water System. The goal of Phase 1, is to put into operation a portion of a water system that is intended to eventually remove all of the Correctional Industries current agri-business operations off of potable water service on the ECCPC. When the Phase 1 portion of the project is complete, it should result in an annual reduction in potable water usage of approximately 7,600 kGal.

Progress to Date:

Phase 1A, the majority of Phase 1 design of the ECCPC Alternate Water System, has been completed. However, the construction portion of the plan was not implemented in FY17. Phase 1B is scheduled for FY18. Phase 1B will include some additional design work, and construction of actual infrastructure which will allow for movement of a portion of the Correctional Industries current agri-business operations off of potable water service on the ECCPC.

Strategy 2

Strategy 2:

Employee Engagement -- The Department has identified greening government champions that represent each management grouping of our correctional facilities, Correctional Industries, Parole, and support areas. Among their other roles, they will be advocates for water conservation measures at each facility, with direction on measures to be considered coming from the Greening Government Leadership Council and the Facility Management Services Utility Management Program.

Progress to Date:

The Department's Green Team meets quarterly to go over Executive Order directives, share ideas, and develop strategies to implement energy efficiency and water conservation initiatives.

Lessons Learned:

Initial meetings were scheduled once a month. Over the course of a year, we found that spacing out the face-to-face meetings, and moving to a quarterly schedule, allows for greater engagement during the meetings. Interim communication and the sharing of ideas and strategies, is handled through newsletters, phone calls and e-mails.

Strategy 3	<p>Strategy 3: Water Conservation through Maintenance Contingency Projects. Facilities periodically ask that contingency projects be funded to address issues that are not able to be covered under normal physical plant operating funds. In FY2017, we addressed two such projects.</p> <ol style="list-style-type: none"> 1. Colorado State Penitentiary (CSP): When an electronic control board for the old toilet flush valves fail, replacement control boards are not available and the cell must be vacated. Request: Replace 32 failing flush valves for the “Combi” units (high-security combination sink/toilet fixtures). 2. Fremont Correctional Facility (FCF): Porcelain toilets are high maintenance in a prison setting due to frequent seal failures of the flexible wax ring. Stainless steel replacement toilets have a secure pipe connection and are better suited to a correctional setting since the steel toilets cannot be broken into sharp shards (weapons) as can porcelain toilets. Request: Replace 100, old, high-flow porcelain toilets in the cell houses with low-flow stainless steel toilets. <p>Progress to Date:</p> <ol style="list-style-type: none"> 1. Colorado State Penitentiary (CSP): The CSP replacement project has been installed, saving approximately 2 gallons per flush, and allowing the cells to remain in operable condition. 2. Fremont Correctional Facility (FCF): As of early FY18, 80 of the 100 replacement, stainless steel toilets have been installed. The remaining 20 toilets will be installed in FY18, as FCF Maintenance staff and offender labor is available.
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FY 2018: Data Management	
	Notes/Comments
<p>Explain the process your agency uses to manage EnergyCAP data</p> <p>Include information on the following: Do you use Bill CAPture? If so, who is responsible for uploading data and under what frequency? If your agency does not use Bill CAPture, how is data uploaded? For each person involved, please explain roles and responsibilities.</p>	<p>DOC does not yet use Bill CAPture. The bulk of the data is entered into EnergyCAP manually by the Energy Analyst. The billing data is entered on a daily basis. The Utility Management Engineer, also enters a portion of the utility data. While both input utility / billing data, resolve billing errors, and coordinate with onsite maintenance staff, the Energy Analyst deals mainly with monthly utility invoices while Utility Management Engineer deals with solar photovoltaic, annual water, and energy/utility performance contract (EPC), and other special utility and utility-related invoices.</p>
<p>Explain your process to analyze and act on water data</p> <p>Explain your agency’s process to review utility bills and rates including frequency and roles and responsibilities. How will billing errors or rate issues be addressed?</p>	<p>The process is as follows. DOC receives a copy of the bill via mail or online portal. We save an electronic copy to the local drive. We put time and date received stamp on the invoice, enter the bill into EnergyCAP, and review the bill for usage abnormalities and billing errors. If there is a spike or drop in usage and it is deemed to be suspect, we check the weather / temperature pattern the number of days (short, normal, or long month)</p>

	<p>reflected on the invoice service period. If the usage pattern is deemed to be suspect (usage is outside of regular pattern for the period, or use per day appears abnormal), we escalate further by notifying the onsite building physical plant manager and / or maintenance staff. Onsite staff then checks on problem(s) (such as leaks, meter issues, etc.) and resolves, if at all possible. Facility Physical Plant staff might let us know that there was a change in building usage / occupancy / or number of events hosted so that we can notate the account going forward. If, on the other hand, there is a billing / accounting / utility meter issue with the bill, we contact the vendor to research the reason for the error, get it resolved, and also have a corrected bill issued. Once all of the billing issues are resolved, we complete the bill markup and approval stamp process within Adobe Pro and save the changes. We email the approved invoice to Accounting Technicians in our Accounts Payable department, who then process the bill for payment.</p>
<p>In this section provide any other information about EnergyCAP, utility data, or water analysis that helps explain your agency's approach to data management. Include any challenges your agency experiences with EnergyCAP or data management.</p>	<p>EnergyCAP's summary graphs and tables provide quick, easy views to assist in analysis to determine if utility cost and use are reasonable.</p>

FY 2018: Capital Improvements	
	Notes/Comments
<p>List planned FY 2018 water efficiency improvements, project budgets, and anticipated water savings.</p>	<p>In FY18 CDOC plans to resume work on the alternate water supply project at the East Cañon City Prison Complex. We anticipate evaluating well pumping capabilities, (including determining the condition of the well, the pump, and the electrical supply -- wiring, panels, controls) as well as connecting the supply system to the water storage tank.</p>
<p>List prioritized but unfunded water efficiency improvements, budgets, and anticipated water savings.</p>	<p>Un-funded water efficiency improvements include installing water saving appliances, fixtures, and replacement valves in offender areas: showers, sinks, toilets. We predict indoor water use efficiencies will result in an estimated 30% reduction in water use, for each retrofitted fixture. The preliminary water fixture replacement cost for one prison on the potential retrofit list came in at \$650,000. Due to significant costs, without designated funding sources, these types of projects can only be phased in as budgets allow.</p>

<p>Describe your agency’s process for identifying, prioritizing, and funding capital improvements.</p>	<p>An ongoing list of proposed planned projects for each Facility are maintained by the Department’s Facility Management Services (FMS) Architecture & Planning Group, based upon identified needs and issues that arise throughout the year. The potential solutions are presented to the Department’s Executive staff for review, prioritization and approval.</p>
<p>Have any of your buildings/accounts recently undergone a formal water audit or are any planned? If so, for which buildings/accounts?</p>	<p>The most recent water audits were part of our Energy Performance Contracting (EPC) projects several years ago. EPC projects involving water measures were performed at the following correctional facilities:</p> <p style="padding-left: 40px;">Territorial (Cañon City, CO) Sterling (Sterling, CO) Arkansas Valley (Crowley, CO) Limon (Limon, CO)</p>
<p>Discuss your agency’s approach to replacing damaged or failing equipment. Is equipment replaced “like for like” or with higher efficiency equipment? Who makes the decision and what criteria is used to make the decision?</p>	<p>Currently, most equipment is replaced like for like at the facility level unless a project is planned to overhaul a system, i.e. low flow toilets.</p> <p>Water billing costs combined with equipment/fixture condition will drive decisions to prioritize water savings projects.</p>
<p>What strategies are available to your agency to fund water efficiency improvements?</p>	<p>Most water conservation projects can only be funded as phased projects as utility cost avoidance funds are available.</p>
<p>What other resources are needed to ensure that water efficiency improvements are part of the strategy to reduce water use in your agency?</p>	<p>Funding and ample staffing levels are the greatest barriers.</p> <p>As of this FY18, Preventive Maintenance Work Orders are being entered in the Computerized Maintenance Management Software to ensure water leak tests are performed on a regular basis.</p>
<p>In this section provide any other information about how your agency identifies, plans for, funds, and implements water efficiency improvements.</p>	<p>If water or sewer flow component rates are higher than average, the Department is investigating and planning for low-flow fixture and/or control valve replacements. Water efficiency measures are also evaluated for feasibility if water use has increased or is higher than the average daily use per offender. In addition, water efficiency measures are evaluated during the Audit Phase for all of our Energy Performance Contracting projects.</p>

FY 2018: Operational Improvements

	Notes/Comments
<p>List planned FY 2018 operational improvements, project budgets, and anticipated water savings.</p>	<p>Location: East Cañon City Prison Complex Project: Alternate Water Phase 1B Preliminary Estimate: \$980,000 <i>(Only a portion of the funds are allocated)</i> In FY18 CDOC plans to resume work on the alternate water supply project at the East Cañon City Prison Complex. We anticipate evaluating well pumping capabilities, both condition of the well, condition of the pump, and condition of the electrical supply (wiring, panels, controls) as well as connect the supply system to the water storage tank.</p>
<p>List prioritized but unfunded operational improvements, budgets, and anticipated water savings.</p>	<p>Location: Buena Vista Correctional Complex BVCC Water Conservation Project Replacement of Toilet, Lavatory, Shower, and Urinal Valves Total Estimated Cost: \$654,300 Phase 1 BVCC Water Conservation North Unit Housing \$266,600 Phase 2 BVCC Water Conservation East Wing \$151,200 Phase 3 BVCC Water Conservation South Unit Receiving \$153,500 Phase 4 BVCC Water Conservation South Unit Receiving \$ 83,000 Anticipated Water Savings: The proposed valve replacements will reduce gallons per flush of existing water closets from 3.5, or greater, gallons per flush to approximately 1.6 gallons per flush, without the need to replace the plumbing fixtures. Each time the toilet is flushed, it will provide a prescribed reduction in water, and the corresponding reduction in water and sewer expense will occur. Preliminary estimates indicate that an annual reduction of up to 48,000 kGal may be possible.</p>
<p>Describe your agency's process for identifying and prioritizing operational improvements.</p>	<p>Routine and preventative maintenance is addressed primarily through Capital Outlay (maintenance budget line) funding. Each CDOC facility is designated a maintenance budget, administered by the Facility Management Services Assistant Director, that takes into consideration a number of factors including age of buildings/infrastructure, building square footage, building use and Facility Unique Physical Plant Expenses (FUPPEs). Facility-based projects including preventative maintenance are addressed on an annual basis through the Annual Physical Plant Assessment</p>

	<p>Process. Appropriations and associated budget allocations for the maintenance line over the past few years are inadequate to fully address routine scheduled maintenance needs. In FY 2017-18, the Department successfully submitted a Decision Item to OSPB for an increase to the maintenance budget. It is anticipated this will help the systems “to hold on” until replacement can occur.</p>
<p>Describe your agency’s strategy for transitioning to non-potable water.</p>	<p>As funding allows, CDOC will complete the non-potable water project at the East Cañon City Prison Complex. Upon completion, we expect to investigate the feasibility of a project at the Denver Complex.</p>
<p>Which positions have responsibility for operation of water-using equipment and the role they play in supporting Greening Government goals and directives? Is there regular communication with the GGLC rep?</p>	<p>Water using equipment is operated at the facility level. Watering of green areas is usually the responsibility of the Physical Plant personnel. Correctional Industries has the responsibility for crop irrigation.</p> <p>Our facility maintenance staff have the responsibility for operation of water-using equipment. Facility maintenance staff are responsible for the upkeep and proper maintenance of water-using equipment to ensure sustainability measures are met. There is communication between facility maintenance staff and the GGLC rep.</p>
<p>What other resources are needed to ensure that operational improvements are part of your agency’s strategy to reduce water use in your agency?</p>	<p>Funding and staffing, ample and sufficient to evaluate, outline, plan, prioritize, procure, and implement operational improvements, are the two largest constraints.</p>
<p>In this section provide any other information about how your agency identifies, plans for, funds, and implements operational improvements.</p>	<p>Many of the Department’s Controlled Maintenance proposed projects have been unfunded for numerous years and result in a Capital Renewal project submittal. Often, this is due to the cost of the project exceeding the \$2 million controlled maintenance top cap and the project requiring a single project phase, as opposed to two, because of the type of critical system improvements that must be completed. This requires reprioritization of the Capital Construction (CC) /Capital Renewal (CR) listing and allows other Controlled Maintenance (CM) projects to move up in priority.</p> <p>All of the CM, CC, CR projects are ranked based upon loss of use of the Facility and relocation of the offender populations if the systems fail.</p>

FY 2018: Employee Engagement

	Notes/Comments
<p>Discuss your agency's approach to engaging employees in reducing water use. Include employee education, communication including email blasts or newsletters, or any other strategies used by the agency to engage employees.</p>	<p>Employees of the CDOC are educated through newsletters and Champions across the department. Employees are also asked for sustainability ideas relating to their work areas along with active educational offender engagement.</p>
<p>Discuss agency policies that support water reduction including flex time or teleworking.</p>	<p>Given the nature of the Department of Corrections' mission, flex time and teleworking are not programs that the Department currently includes as energy efficiency or water reduction policies.</p>
<p>Discuss resource needs or barriers to greater employee engagement.</p>	<p>CDOC facilities are spread across the state, which sometimes makes the sharing of ideas and engagement with all employees a challenge.</p> <p>Because of our mission, safety and security are generally a higher priority than energy efficiency or water reduction policies.</p>
<p>In this section provide any other information about employee engagement in your agency.</p>	<p>Our Green Team Champions consist of subject matter experts along with correctional staff committed to learning and dedicating time in the CDOC sustainability mission.</p>