

# Protecting Our Employees and the Environment

2016 Accomplishments

Office of Administration  
and Resources Management





# Introduction

**The U.S. Environmental Protection Agency (EPA) was created more than 45 years ago to protect America's natural resources for current and future generations.** The EPA's mission – to protect human health and the environment – guides every action and decision that the agency makes. This is true not only in the way that the EPA interacts with the regulated community and other external entities, but in how it manages its internal affairs.

The EPA operates offices, laboratories and research vessels across the country and employs more than 15,000 people, some of whom perform potentially dangerous work on the agency's behalf. Committed to leading by example, the EPA strives to reduce the environmental impacts of its facilities, promote sustainability, and ensure the safety and well-being of its employees. Leading the charge, the Office of Administration's Safety and Sustainability Division (SSD) – part of the EPA's Office of Administration and Resources Management – provides agencywide safety, health and environmental management (SHEM) guidance, tools and resources, which local EPA managers, supervisors, SHEM specialists and employees use to implement responsible best practices in their workspaces.

In 2016, the EPA met (or exceeded) SHEM and sustainability goals, laws and regulations that apply to federal facilities. This report highlights some of the agency's 2016 accomplishments and describes best practices implemented at EPA facilities over the course of the year.<sup>1</sup>

1. Some of the goals presented in this report are tracked over a fiscal year (FY) period rather than calendar year. Thus, some areas reference FY 2016 rather than 2016.

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# Management Systems Provide a Framework for Enhanced SHEM Performance

**Federal agencies are subject to a number of SHEM requirements, and the EPA aims to meet them all, as achieving basic compliance is a firm obligation.**



At the EPA, however, the motivation for excellence runs deeper – rather than just requiring compliance, the agency encourages its offices and laboratories to constantly seek ways to improve SHEM performance and serve as a model for other organizations to follow. Management systems, a set of processes and procedures, provide a framework for achieving SHEM improvements while also improving overall agency business practices, reducing waste, cutting costs, saving resources and enhancing productivity. The EPA has already established environmental management systems (EMSs) at its major offices and laboratories, and it has begun implementing safety and health management systems (SHMSs) as well.

## EMSs Continue to Mature

EMSs establish a methodical approach for fully integrating environmentally responsible best practices into facility operations. Although EPA locations have been implementing EMSs for more than a decade, the SSD examined them closely in 2016

to identify opportunities for improvement. The SSD reviewed EMS conformance review results (collected in 2014/2015), then held regular calls with EMS coordinators to provide training, stimulate dialogue and discuss common challenges. The SSD also collaborated with the Office of Research and Development to provide internal EMS auditor training to 60 EPA employees in 2016. Six training sessions were offered via webinar between March and June 2016, and students completed portions of their facilities' internal EMS audits as part of their homework.

Annually, each EMS reporting location receives a score based on how fully it has implemented various EMS elements (e.g., identifying environmental aspects, implementing operational controls, establishing and achieving objectives and targets, complying with regulatory requirements, offering EMS training). The scores range from green to red, with green representing the highest rating, yellow the middle and red the lowest. The scores are then rolled up to calculate an EMS score for the EPA as a whole. As shown on the next page, the EPA has received a yellow EMS score for two years in a row. The agency is moving toward green, though, as the

	FY 2015	FY 2016
Distribution of EMS Scores:		
Agency Score:	Yellow	Yellow

The pie charts show what percentage of the agency's EMS locations scored green, yellow and red each year. At least 80 percent of sites must score green for the agency to receive a green score as a whole.

*Note: The scoring criteria have changed over time. In FY 2015, scores were assigned based on the EPA's internal EMS conformance review data. In FY 2016, the EPA used new criteria, developed by an Interagency EMS Community of Practice Workgroup, that have been simplified to address the vital aspects of ISO 14001:2015 (i.e., the international EMS standard).*

number of EPA locations that scored green jumped from 58 percent to 73 percent between FY 2015 and FY 2016.

### SHMS Implementation Is Underway

SHMSs establish procedures that enable managers and employees to proactively and efficiently identify, mitigate and control work-related hazards before they cause injuries and illnesses. SHMS can improve the EPA's safety and health performance record, reduce workers' compensation claims and costs, raise employee morale, and foster a strong safety ethic. The EPA has instructed its major offices and laboratories to implement a SHMS that is consistent with the Occupational Health and Safety Assessment Series 18001 standard, and it has identified 12 milestones that must be met to achieve that goal. Throughout 2016, EPA locations worked toward those milestones. In 2017, the SSD will develop a strategy to complete the implementation process.



### Areas of Notable Progress

#### Hazard risk assessments (HRAs):

Between 2010 and 2012, HRAs were performed for all of the EPA's SHMS reporting locations. The SSD has instructed locations to update the HRAs to capture new hazards that could have been introduced. By the end of 2016, most SHMS reporting locations (91 percent) had completed the update.

**SHMS awareness training:** As of December 31, 2016, nearly half of the agency's SHMS reporting locations had provided SHMS awareness training to 80 percent or more of their employees. Such training is critically important, as the success of SHMS hinges on employees' willingness to take an active role in identifying, reporting and mitigating hazards.







## The EPA's Excellent Safety Record Is No Accident

**EPA employees work in offices, laboratories, research vessels and the field.** These settings pose safety risks, which can lead to injuries and illnesses if not managed and mitigated properly. For example, laboratory researchers can be exposed to toxic chemicals or get hurt using equipment. Likewise, EPA field personnel and emergency responders, who collect samples, perform recovery operations, and respond to spills and national disasters under physically demanding situations, can be exposed to contaminants, radioactive materials and biological hazards (e.g., tick-borne diseases, snake bites).

### Putting the EPA's Injury and Illness Data in Perspective

	FY 2016 Data	
	Total Injury and Illness Case Rate	Lost-Time Case Rate
Federal government	3.19	1.69
Federal government (excluding U.S. Postal Service)	2.12	1.13
EPA	0.51	0.4

Source: Department of Labor, [Federal Injury and Illness Statistics for Fiscal Year 2016](#)

Despite the potential dangers associated with the EPA's work, the agency consistently maintains a lower injury and illness and lost-time case rate than the federal government as a whole as shown in the table on this page. This strong safety record is no accident – rather, it is a testament to the strength of the EPA's occupational safety and health programs and strategies, which include SHMS, an injury and illness prevention program, near miss reporting, injury and illness tracking, a self-assessment program, a suite of safety and health programs (e.g., respiratory protection, radiation safety, hazard communication), and comprehensive safety and health training. Moreover, the SSD periodically sends auditors to EPA locations to determine if there are SHEM issues that need to be addressed. In combination, these programs and strategies allow the EPA to proactively identify risks and hazards, mitigate them, and equip employees with the tools and knowledge they need to protect themselves.

### Strengthening the Building Blocks – Updating Guidance and Improving Tracking Systems

The EPA has more than three dozen safety and health guidelines that provide strategies, procedures and management tools to help



## Listening to Employees

EPA employees are encouraged to offer input on safety, and their feedback affects agency actions and decisions. The following provide examples from 2016.

- » In **Region 2**, EPA inspectors were concerned about fugitive vapor exposures at industrial sites. They formed a workgroup to research detection meters and procedures. Based on the workgroup's recommendations, the region purchased four multi-gas meters. Also, when concern arose that field workers could be harmed by sharps and Zika exposures, the region 1) identified a vendor who sells puncture-resistant shoe insoles and 2) obtained authorization to test for Zika through the agency's medical monitoring program.
- » When employees at the EPA's **Environmental Science Center in Fort Meade, Maryland**, asked for anti-fatigue mats, managers conducted a full ergonomic assessment. They learned that employees who use fume hoods stand for very long periods. Therefore, the local SHEM office re-directed budgeted resources and purchased several types of anti-fatigue mats for the facility.

local EPA managers comply with federal safety and health statutes, executive orders (EOs) and regulatory mandates. It also maintains manuals that address safety and health requirements for specific EPA workers. The SSD periodically revisits these documents to ensure that they keep pace with new requirements and industry best practices. In 2016, the SSD worked on updating:

- » **Guideline 13**, Hazardous Materials Transportation
- » **Guideline 23**, Chemical Handling and Storage Program
- » **Guideline 30**, Electrical Safety
- » **Guideline 42**, Hazard Communication
- » **Guideline 46**, Respiratory Protection Program

The EPA provides safety and health training to employees to make sure they know how to stay safe on the job. Local managers and supervisors work together to determine what type of training each employee needs and whether they have completed it. Tracking this information can be a challenge, but the EPA has been modernizing its approach by transitioning to a centralized online tracking system, called the Field Readiness Module, which provides access to real-time information about employees' safety and health training and medical readiness status. Having this information readily available is critical when deciding who to deploy during national response emergencies. By the end of 2016, nine of the EPA's 10 regions, the Office of Land and Emergency Management's Environmental

Response Team, and portions of the Office of Research and Development had transitioned to the new system.

### Managing a Broad Range of Risks

Each EPA facility poses its own risks, depending on the types of operations in place. In 2016, the EPA continued to manage well-known risks that affect every facility, as well as some that only apply to a small subset. Regarding the latter, the SSD arranged to have new nerve agent antidote kits sent to five EPA laboratories that are authorized to process samples containing chemical warfare agents. Also in 2016, to ensure that adequate protective controls were in place, one of the EPA's headquarters offices in Washington, D.C., conducted lead-dust monitoring to determine if lead was escaping from a firing range and affecting EPA-occupied spaces.



### Addressing Common Causes of Injury

The EPA sends out agencywide reminders about common causes of injuries and illnesses. Action is taken at the local level as well. For example, in 2016:

- » To reduce slips, trips and falls, the **National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan**, applied more salt during thawing and freezing weather, reminded employees to be careful when walking in bad weather, removed a floor access panel that posed a tripping hazard, installed a fall barrier between the upper and lower parts of its parking lot, repaired a staircase, and repaved its parking lot and ramp to smooth out uneven surfaces.
- » To prevent exertion injuries, the **National Center for Radiation Field Operations in Las Vegas, Nevada**, reviewed its lifting-related work procedures and released recommendations to staff and supervisors on ways to reduce overexertion risks (e.g., placing heavy items on lower levels).



Though some EPA employees perform potentially dangerous tasks, it is often the run-of-the-mill hazards that hurt workers. For example, in 2016, slips, trips and falls caused about one-third of the EPA's injuries, and multiple exertion injuries (muscle strains from awkward lifting or twisting movements) also occurred. To address these issues, the SSD conducted a slip, trip and fall outreach campaign in 2016 and distributed tips on avoiding muscle strains.





## Encouraging Employees to Pursue Healthier Lifestyles

**The EPA's interest in employee well-being extends beyond safety issues.** Recognizing that its employees are its most important asset, the EPA has implemented a health and wellness program, called *A Healthier EPA*, that promotes fitness and weight management, health education and awareness, health screening programs, nutrition, and other support services (e.g., maternal wellness, smoking cessation, flu shots). The potential benefits are plentiful: participants can reduce their risk of disease, improve their self-esteem, share healthy practices with their families and reduce healthcare expenditures. Also, from a business perspective, the EPA has much to gain, as evidence suggests that worksite wellness programs raise morale, help attract and retain high-quality personnel, reduce absenteeism, and enhance productivity.

### ***A Healthier EPA Meets Its Goals***

In 2016, *A Healthier EPA* was evaluated using two different assessment tools – one internal and the other external. In both cases, the EPA performed well.

» **The EPA's internal assessment.** The SSD distributed a questionnaire to EPA wellness reporting locations to determine

how broadly *A Healthier EPA* is being implemented. The goal for FY 2016 (documented in Version 3 of the *EPA's Health and Wellness Implementation Plan*) was to ensure that 75 percent of the agency's wellness reporting locations were implementing at least 90 percent of the 33 components listed in *A Healthier EPA*. The agency succeeded: 79 percent of its locations crossed the 90-percent implementation threshold.

» **The Office of Personnel Management (OPM) survey.**

Once every two years, the OPM distributes a survey, called WellCheck, which asks federal facilities about their health and wellness services. The survey was released in 2016, and the EPA earned 201 out of 286 possible points (or 74 percent). This was higher than the government-wide average: the federal government as a whole earned 177 points (or 62 percent). Moreover, several EPA locations were identified as top performers in their facility size categories, including the Edison Environmental Center in Edison, New Jersey; the Caribbean Environmental Protection Division in Guaynabo, Puerto Rico; the Region 4 Office in Atlanta, Georgia; the



Region 4 Laboratory in Athens, Georgia; and Region 7 locations in Kansas City and Lenexa, Kansas.

### Agencywide Efforts Pave the Way for Success

The SSD spearheads agencywide initiatives, develops outreach and educational materials for all EPA locations to use, delivers health and wellness tips periodically on the home page scrolling banner of the EPA's Intranet, and keeps an online repository of health and wellness resources. In 2016, the SSD:

- » Supported the agency's Walk to Wellness (see sidebar).
- » Encouraged employees to receive flu vaccines.
- » Sent exercise bands to EPA locations and provided a promotional flier encouraging employees to use the bands.
- » Provided new or updated outreach materials and resources on eating disorders, Lyme disease, high blood pressure, electronic cigarettes, food safety and antibiotic resistance.
- » Created a library of health and wellness webinars (available via the Intranet) on multiple topics (e.g., depression, diabetes, nutrition, heart health and weight management).

In addition, the Office of Administration revised its smoking policy (i.e., EPA Order 1000.9B) in September 2016 to make it clear that electronic cigarettes may not be used in EPA workspaces.

### Local Wellness Coordinators Get Creative

The SSD's agencywide outreach efforts help *A Healthier EPA* operate more efficiently by providing ready-to-use materials that can be quickly distributed or customized for local staff. This frees up



The EPA hosted its fourth annual agencywide Walk to Wellness in spring 2016. Twenty-seven locations took part, and more than 500 employees registered to participate. EPA locations held 1- to 2-mile walks to support the event. Several locations also held other healthy, fun activities in conjunction with the walks (e.g., stretching and yoga demonstrations, healthy potluck lunches, badminton, calorie bingo).

local wellness coordinators to put their time, energy and creativity into local initiatives like the following examples from 2016:

- » **Exercise.** The Gulf Ecology Division in Gulf Breeze, Florida, invited a local instructor to provide monthly lunchtime yoga classes, and one of its employees offered weekly 30-minute drumming-inspired

POUND® classes during lunchtime. Also, the Region 10 Office in Seattle, Washington, offered yoga and Pilates classes to employees.

- » **Fitness challenges and competitions.** Region 3 held a five-week challenge to help employees keep their minds, bodies and spirits in shape. Other locations (e.g., the Region 1 Laboratory in Chelmsford, Massachusetts, the Region 2 Office in New York City) held fitness or weight loss challenges. The Region 10 Manchester Laboratory in Port Orchard, Washington, posted information about local runs, triathlons, and hiking and biking events, and the National Enforcement and Investigation Center (NEIC) in Denver, Colorado, encouraged employees to participate in the Fed Cup 5K, the Urban Wine and Chocolate Run, and the Great Pumpkin Haul obstacle race.

- » **Nutrition.** The Atlantic Ecology Division in Narragansett, Rhode Island, purchased a blender for its lunchroom and provided recipes for healthy smoothies; the Western Ecology Division in Corvallis, Oregon, initiated a “Vegetable/Fruit of the Month” program; and the Region 8 Montana Operations Office in Helena, Montana, encouraged employees to share healthy recipes during holidays.
- » **Screening.** The NEIC in Denver, Colorado, invited a healthcare professional to perform onsite body scan screening. Participating employees received one-on-one consultation and information about their weight, body composition and body mass.







## Promoting Sustainable Building Principles

### The EPA operates offices and laboratories across the country.

In FY 2016, it occupied about 9.7 million square feet of building space. The EPA owns some of these buildings (accounting for 3.3 million square feet) and leases space in others (accounting for 6.4 million square feet). Regardless of the ownership status, the EPA is committed to promoting sustainable building principles and ensuring that its facilities operate in an environmentally responsible, resource-efficient manner. Not only is this good for the environment, but it also makes good business sense, as eliminating waste and ensuring smooth operations saves resources and taxpayer dollars.

### Meeting the *Guiding Principles* in EPA-Owned Buildings

The *Guiding Principles for Sustainable Federal Buildings* present a set of criteria for the government to use to help federal buildings reduce environmental impacts, cut greenhouse gas (GHG) emissions and lower operating costs. As required under EO 13693, the EPA has set a target to ensure that at least 35 percent (by square feet) of the agency's owned buildings that are larger than 5,000 square feet meet the

### GreenCheck: A Useful Assessment Tool

The EPA uses a process called GreenCheck to ensure that projects involving new facilities, leases and significant renovation/construction are properly assessed to determine if they adequately address sustainable building principles.

Any project that needs funding above \$150,000, affects at least 5,000 gross square feet or could add more than 5,000 gross square feet of impervious area must receive a full GreenCheck review. In FY 2016, the EPA used the GreenCheck process to screen six construction projects and lease actions.

*Guiding Principles* by FY 2025. By the end of FY 2016, 25.4 percent of the EPA's owned inventory (by square feet) met the *Guiding Principles*.

### Encouraging Sustainable Practices in Leased Buildings

The EPA does not exercise as much control over operational decisions in its leased facilities as it does in the facilities it owns.



Nevertheless, the EPA has made it clear that landlords and leasing agents must demonstrate a strong environmental ethic and embrace sustainable building principles if they want the EPA as a tenant. The EPA leases much of its space through the U.S. General Services Administration (GSA), and it expects the GSA to provide high-performance sustainable buildings. In FY 2016, the EPA continued to work with the GSA to incorporate sustainable design and energy efficiency in lease procurements and renovations plans.

### Recognition – Green Building Certification and the ENERGY STAR® Building Label

The U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) is an internationally recognized green building certification program. In June 2016, the EPA's Environmental Science Center in Fort Meade, Maryland, became certified under the LEED for Building Operations and Maintenance rating system. With this addition, the EPA now has 17 buildings certified under LEED for Building Operations and Maintenance, 12 buildings certified under LEED for Building Design and Construction, and three buildings certified under LEED for Interior Design and Construction (see next page for details). Additionally, three headquarters office buildings and all 10 EPA regional offices have earned ENERGY STAR status, which is awarded to buildings that score in the top 25 percent of buildings for energy performance.

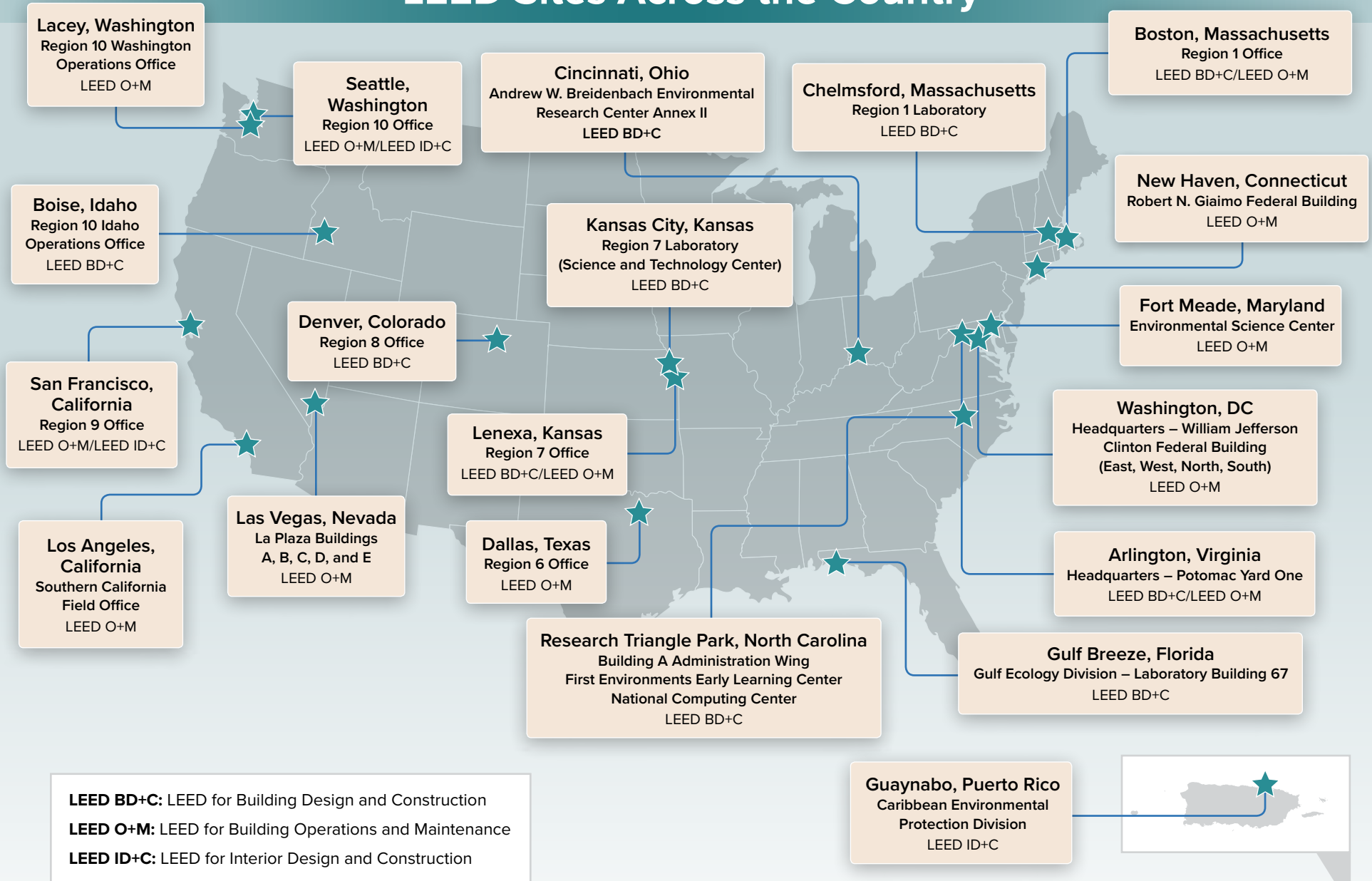
The Environmental Science Center earned LEED for Building Operations and Maintenance certification in June 2016. The facility has performed well in the following areas:

- » **Open space and natural habitat.** The site has 4.63 acres of native and adaptive plants and 11.85 acres of managed meadow, which is more than double the LEED requirement.
- » **Stormwater management.** The facility has a rain barrel, rain garden, infiltration trench and infiltration basin.
- » **Water conservation measures.** Estimates suggest that the facility's water-efficient restroom fixtures (i.e., dual-flush toilets and efficient faucets and showerheads) save about 77,000 gallons of water annually, and a condensate recovery system saves about 660,000 gallons of water annually. Also, the facility's decision to reuse reverse-osmosis-deionized permeate water as boiler make-up water saves about 140,000 gallons of water annually.
- » **Energy conservation measures.** The facility's energy intensity (amount of energy used per square foot) has gone down by 40 percent since 1999. This is due, in part, to lighting upgrades, a boiler burner replacement project and efforts to optimize the building automation system.
- » **Solid waste management.** The facility has implemented many recycling and source reduction practices, allowing it to divert about 70 percent of its solid waste from the landfill.



Visit <https://www.epa.gov/greeningepa/environmental-science-center> for more information.

# LEED Sites Across the Country





## Managing Energy Needs Responsibly

**The EPA strives to manage its energy needs responsibly to eliminate unnecessary waste, reduce energy costs and minimize air pollutants.** The EPA's strategy is two-fold: reduce energy needs as much as possible, and use clean and renewable energy sources when feasible. Progress was made on both fronts in 2016, as the EPA continued to implement new energy-saving projects at its facilities, operate onsite renewable energy sources and support the green power market.

### Energy Conservation Projects Implemented in 2016

In 2016, EPA facilities continued to implement projects that promote energy savings or the use of renewable energy. For example, the National Analytical Radiation Environmental Laboratory in Montgomery, Alabama, replaced two air handler units with more energy-efficient models as part of a multiyear infrastructure replacement project (IRP). Also, the Western Ecology Division in Corvallis, Oregon, started implementing components of its IRP, including a geothermal heating/cooling project. In December 2016, the EPA awarded a contract to install a 1.5-megawatt solar photovoltaic array at the Edison Environmental Center in Edison, New Jersey. This system, once complete, could satisfy up to 40 percent of the facility's electricity demands.

Also in 2016, EPA facilities implemented projects that were designed to reduce the amount of energy used to heat, cool and ventilate their workspaces. For example, the Region 5



*The Center Hill Facility installed a solar/wind-powered light as a prototype in its parking lot. The light has performed well. In its first year of operation, it generated 357 kWh, which exceeded the amount of energy (267 kWh) that it used to illuminate the parking lot.*



Office in Chicago, Illinois, installed variable frequency drives on two condenser water pumps, which prevented the pumps from unnecessarily running on a continuous basis. EPA facilities also focused on reducing the amount of energy used for lighting. Five facilities completed lighting upgrades, replacing existing lights with more energy-efficient products (e.g., light-emitting diodes), and two facilities finished installing occupancy sensors to prevent lights from turning on when they are not needed. Also, in February 2016, the EPA installed a solar/wind-powered light in the parking lot of its Center Hill Facility in Cincinnati, Ohio.

### Green Power Purchases

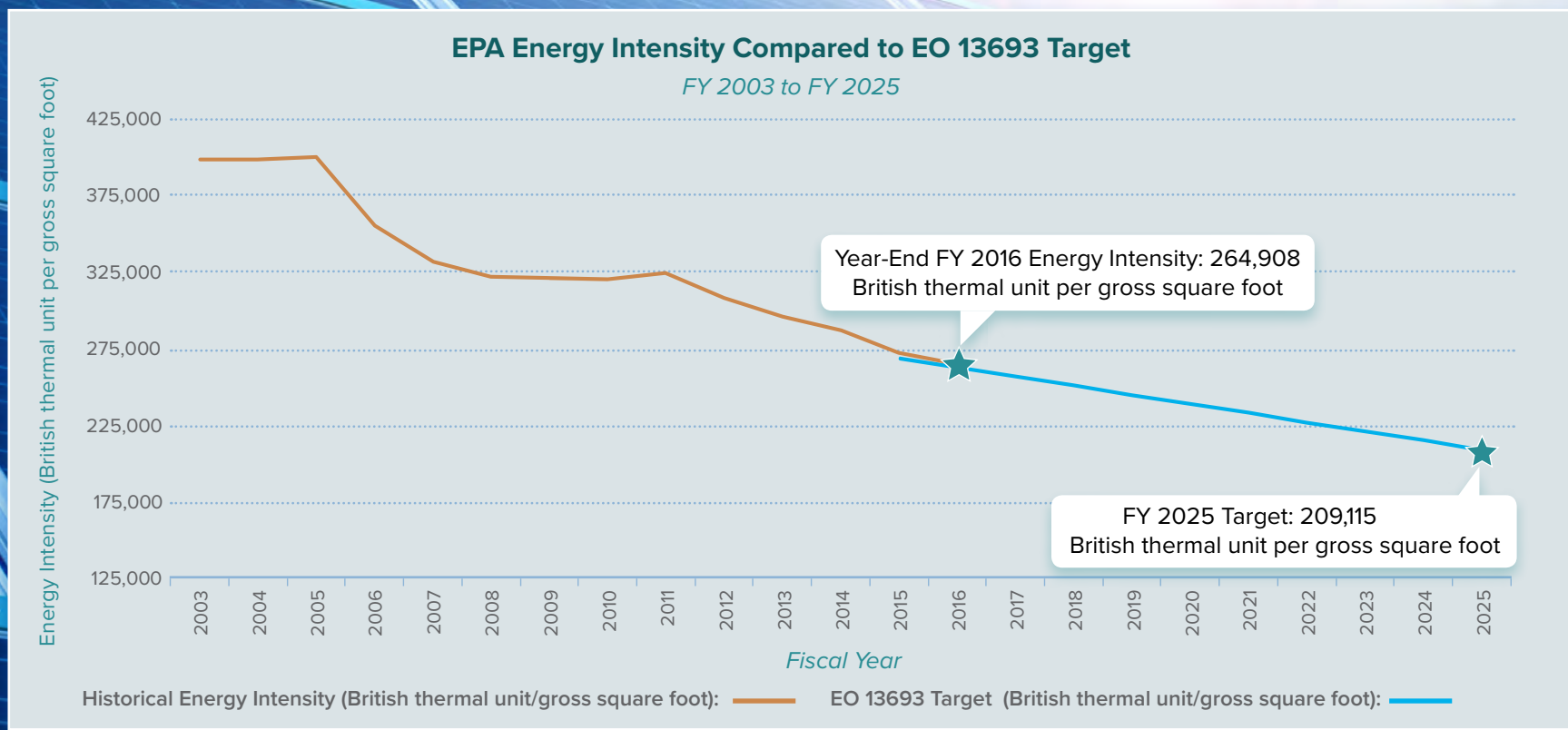
The EPA has a long history of supporting green power markets. Back in 2006, it became the first federal agency to cover 100 percent of its electricity use through green power purchases, and it has continued to do so for 11 consecutive years. In FY 2016, the EPA purchased 235.6 million kilowatt-hours (kWh) of green power in the form of renewable energy certificates (RECs) through a blanket purchase agreement arranged through the Defense Logistics Agency, which supported the generation of renewable energy from wind resources in North Dakota, South Dakota and Oklahoma. Additionally, two EPA facilities purchased green power (totaling 0.4 million kWh) directly through their electric utility companies. Through these combined efforts, the EPA acquired 236 million kWh in delivered green power and RECs, enough to cover all the agency's estimated annual electricity use for the year.

### Performance Check: Is the EPA Meeting Its Obligations?

EO 13693, *Planning for Federal Sustainability in the Next Decade*, and the Energy Independence and Security Act (EISA) of 2007 set goals for the EPA to pursue in the following areas:



- » **Energy intensity.** Using 2003 as its baseline year, the EPA must reduce its energy intensity (based on a select group of reporting facilities) by 47.5 percent by FY 2025. The EPA is well-positioned to meet this goal: by the end of FY 2016, it had already achieved a 34.6 percent reduction (see next page for details).
- » **Advanced metering.** EISA requires federal agencies to install advanced metering equipment for electricity, steam and natural gas to the maximum extent practicable. Toward that end, seven EPA laboratories designed or constructed advanced metering projects in 2016. As of September 30, 2016, 81 percent of EPA laboratories' energy use was measured by advanced metering hardware.
- » **Energy assessments/recommissioning evaluations.** Between July 2015 and June 2016, the EPA conducted energy assessments and recommissioning at the Andrew W. Breidenbach Environmental Research Center in Cincinnati, Ohio, and at its Research Triangle Park campus in North Carolina. This allowed the EPA to comply with EISA's requirement to assess all of the agency's covered facilities over a four-year period.







# Protecting Water Resources – Conservation and Stormwater Management

**Water is a precious resource.** The EPA works to conserve it, keep it clean and prevent wasteful losses. In 2016, the EPA continued to implement its *Water Conservation Strategic Plan*, which prioritizes water-saving initiatives and provides a timeline for completing projects at EPA facilities. The agency also completed several stormwater management projects to prevent runoff.

## Notable Projects Implemented in 2016

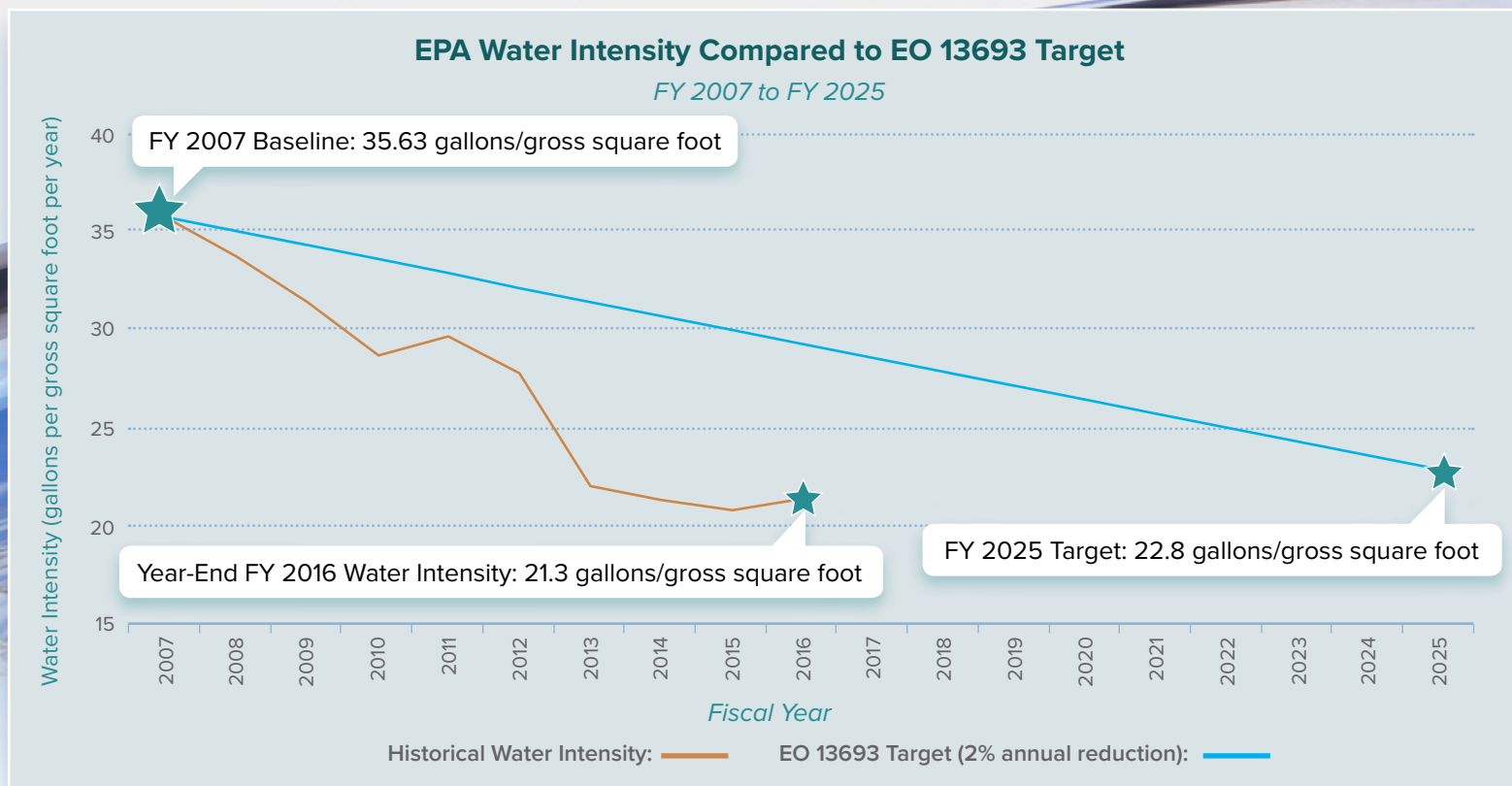
The EPA estimates that the water conservation projects that its facilities implemented in FY 2016 will save about 1.1 million gallons of potable water per year. Notable projects were completed at:

- » **The Edison Environmental Science Center in Edison, New Jersey.** To reduce roof runoff, this location added a central collection spout to a roof gutter. The recovered rainwater is being used in lieu of potable water for initial decontamination of field equipment and vehicles.
- » **The Region 4 Laboratory in Athens, Georgia.** In January and February 2016, this location replaced six showerheads with

WaterSense-labeled models (saving about 8,000 gallons of water per year); replaced a pre-rinse spray valve with a model that flows at 2.2 gallons per minute (saving 600 gallons per year); and installed 2.2 gallon-per-minute aerators on 48 laboratory faucets (saving 8,400 gallons of water per year).

- » **The Region 6 Laboratory in Houston, Texas.** Facility representatives capped sprinkler heads and xeriscaped the building exterior in an effort to reduce irrigation use by 10 to 15 percent.
- » **The Region 7 Laboratory in Kansas City, Kansas.** This location recommissioned its graywater system, repairing and replacing equipment in the process. These improvements, which will help prioritize the use of graywater over potable water, are anticipated to save 286,000 gallons of water annually.
- » **The Robert S. Kerr Environmental Research Center in Ada, Oklahoma.** This location shut off its landscape irrigation system, which is expected to save more than 400,000 gallons of water annually.





» **The Mid-Continent Ecology Division in Duluth, Minnesota.**

This location installed permeable pavers to mitigate stormwater runoff from rain and snowmelt.

**The EPA Exceeds Its Goal**

Compared to an FY 2007 baseline, EO 13693 requires federal agencies to reduce potable water intensity by 36 percent by FY 2025 as shown in the figure above. The EPA is ahead of schedule: by the end of FY 2016, its potable water intensity was 40.1 percent lower than the baseline.

**An Eye on the Future – Seeking Further Improvement**

In FY 2016, the SSD conducted water assessments at six EPA facilities to identify ideas for potential improvements. Assessments were performed at the Western Ecology Division in Corvallis, Oregon; the Pacific Coast Ecology Branch in Newport, Oregon; the Region 10 Manchester Laboratory in Port Orchard, Washington; the Edison Environmental Center in Edison, New Jersey; the Large Lakes Research Station in Grosse Ile, Michigan; and the National Exposure Research Laboratory in Las Vegas, Nevada. Collectively, these water assessments revealed opportunities that could save over half a million gallons of water annually.



## Protecting Pollinators for the Future

**Pollinators, including bees, butterflies, other insects, bats and birds, are critical to our food supply chain and the overall health of the ecosystem.** Unfortunately, some important pollinator communities have declined over the years due to loss of habitat and other factors. To curb these losses, the EPA launched a Pollinator Protection Initiative to identify ways to restore and enhance pollinator populations at EPA facilities.

Between 2015 and 2016, SSD representatives visited 22 EPA locations to assess landscape features, vegetative cover, and pollinator nesting habitats, and to inquire about landscape management practices that affect pollinator communities. Funneling this information into a scoring system, the SSD characterized the EPA's properties as optimal, adequate, or fragile pollinator habitats, and offered recommendations for enhancement. Some improvements that were made in 2016 are highlighted below. Many of the projects share a common thread: they aim to incorporate sustainable or socially responsible practices (e.g., using collected rainwater for irrigation, directing food to those in need) while building stronger pollinator habitats.

» **The Atlantic Ecology Division in Narragansett, Rhode Island.** In June 2016, 16 goats from a local microfarm were brought in to address plant overgrowth.



*Goats clear vegetation for ground-nesting pollinators in Rhode Island.*



The goats removed poison ivy and invasive species, creating space for new pollinator-friendly species and clearing vegetation for ground-nesting pollinators. By using goats rather than conventional gas-powered machinery, the EPA was able to clear the area without releasing emissions. The goats will be invited back in 2017 to clear more area, as the facility intends to convert more than one-third of its lawn into native wildflowers.

- » **The Western Ecology Division in Corvallis, Oregon.** In 2016, this location installed a honeybee hive, planted about 100 milkweed seedlings to create a meadow for monarch butterflies, and established a native prairie with flowering species that attract pollinators. Coupled with actions implemented the previous year (i.e., constructing a “bee hotel” and planting over 650 native plants in a pollinator habitat garden), these efforts are transforming this property into a pollinator-friendly area.



*Butterflies visit NVFEL's new pollinator garden.*

- » **The National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan.** In 2016, this location planted two gardens with pollinator-attracting species, including goldenrod, Joe Pye weed, New England aster, milkweed and spiderwort. To promote responsible irrigation, facility representatives installed roof gutters in 2016 to direct rainwater runoff to rain collection barrels. In 2017, the EPA will install a solar-powered pump to help transfer the water from the barrels to the gardens without wasting energy. Also, two more gardens will be added in 2017 to attract more native bees, beetles and monarch butterflies.
- » **The National Analytical Radiation Environmental Laboratory in Montgomery, Alabama.** In 2016, this location started coordinating with the SSD to pilot a community garden. The garden, which will be established in 2017, will include vegetables and flowers. Produce from the garden will be shared with the Montgomery Area Food Bank to ensure that it reaches those in need.



*Species in bloom at the Western Ecology Division's newly established native prairie.*





# Reducing Waste and Avoiding the Landfill

The EPA strives to reduce the amount of waste it generates and, when possible, to account for life-cycle considerations when acquiring new products. The agency promotes source reduction and reuse, and it employs a variety of waste diversion strategies, including recycling and composting.

## Reducing the Amount of Waste Generated

The [EPA's Waste Management Hierarchy](#) states that source reduction and reuse should be at the top of any waste management strategy, since preventing materials from ever entering the waste stream is the most effective way to reduce impacts. In 2016, EPA locations continued to focus on reducing the following waste streams:

- » **Paper.** The Region 9 Laboratory in Richmond, California, stopped issuing printed data packages, switching to electronic packages in 2016. This shift promises to eliminate a significant percentage of the laboratory's paper use, as its data packages (prepared for every batch of 20 samples) typically range from 50 to 3,000 pages.



Products that meet the Electronic Product Environmental Assessment Tool (EPEAT) criteria are designed to generate less hazardous waste and less solid waste when they are discarded. Throughout 2016, the EPA continued to promote the acquisition of EPEAT-registered electronics. Overall, 96.9 percent of the monitors, personal computers, laptops, multifunction devices, printers, copiers, scanners and televisions that the EPA acquired in FY 2016 were EPEAT-registered.

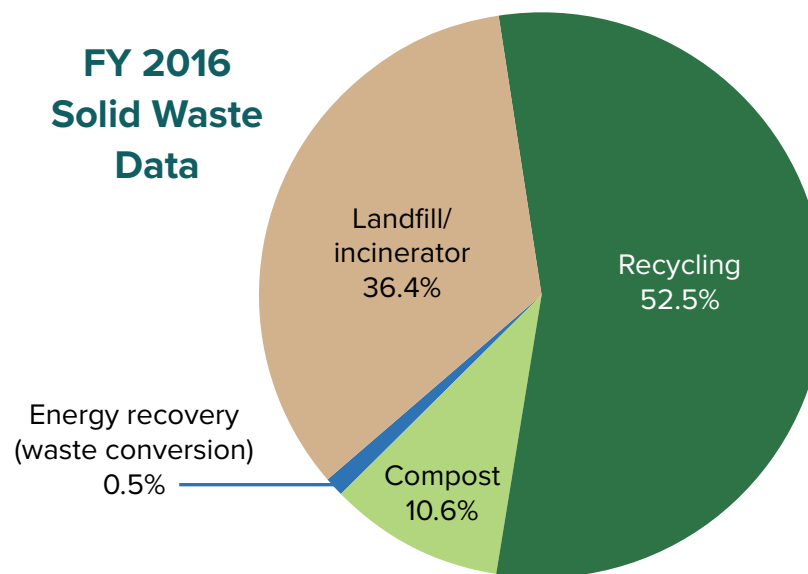
- » **Food.** While many EPA locations have implemented composting programs, it is better to reduce the amount of food waste generated in the first place. Thus, Region 5 organized food pick-ups in 2016 to put holiday party leftovers to good use, and the Region 4 Office's Go4Green Initiatives Team conducted a "Waste to Food" challenge in spring 2016 to build awareness about the EPA's [Food Recovery Hierarchy](#).
- » **Water bottles.** Regions 2 and 5 installed water bottle filling stations in 2016 to reduce the number of plastic water bottles used and then thrown into trash cans and recycling bins.
- » **Laboratory waste and equipment.** EPA laboratories use a variety of chemicals to analyze samples, perform research and conduct other mission-related activities. The EPA expects its laboratories to implement innovative analytical techniques that use less chemicals

and generate less waste. In 2016, the Gulf Ecology Division in Gulf Breeze, Florida, had success in this area. Focusing on its ammonium fluorescence method, it purchased new equipment that uses 50 percent less reagent (i.e., ortho-phthalaldehyde), which in turn generates 50 percent less reagent waste. Throughout 2016, EPA laboratories also donated unwanted equipment and supplies rather than sending them to the landfill. For example, the Region 8 Laboratory in Golden, Colorado, donated items to a local high school. Likewise, the Mid-Continent Ecology Division in Duluth, Minnesota, donated about 365 pounds of plastic laboratory containers and supplies, 233 pounds of glassware, and about 132 pounds of metal goods. Furthermore, EPA laboratories continued to support smart chemical management best practices that prevent chemical overpurchase, such as requiring safety, health and environmental management program managers to pre-approve chemical acquisitions; ordering the smallest possible chemical

### Meeting Federal Goals

EO 13693 challenges federal agencies to divert at least 50 percent of their non-hazardous solid waste from landfills and incinerators; the EPA's internal EMS Agencywide Objectives, Targets and Metrics sets the goal even higher, at 60 percent. In FY 2016, the EPA exceeded both goals, achieving a rate of 64 percent. The EPA's solid waste diversion rate has risen significantly over the past decade, outpacing goals (established in EOs) for federal agencies. The diversion rate passed the 50 percent mark in 2009, rose to 59 percent in 2011, and has ranged between 63 and 65 percent since then (see the [Greening EPA website](#) for historical data).

### FY 2016 Solid Waste Data





quantities; and checking internal inventories to determine if a chemical is already in stock before ordering more.

### **Diverting Solid Waste from the Landfill**

The agency's recycling and composting programs have been well established for years, but some EPA locations made specific improvements in 2016. For example, the Region 1 Laboratory in Chelmsford, Massachusetts, added polystyrene to its recycling program and started recycling non-toxic sample and chemical containers; the agency's Cincinnati, Ohio, location added plastic pipette boxes to the facility's recycling program; and the Atlantic Ecology Division in Narragansett, Rhode Island, began recycling nitrile gloves and the plastic portion of individual coffee containers.

As for composting, headquarters expanded its existing program in 2016; the Region 1 Office in Boston, Massachusetts, conducted composting outreach projects; the Region 3 Office in Philadelphia, Pennsylvania, laid the groundwork for a worm bin composting pilot project; and the Region 7 Laboratory in Kansas City, Kansas, initiated a program. By the end of 2016, 78 percent of EPA locations had active composting programs in place.

### **Putting Construction and Demolition Debris to Good Use**

Seventeen locations generated construction and demolition debris in FY 2016. Eleven of them were able to provide quantitative data on the amounts generated. Collectively, these 11 locations generated 36,496 tons, and they salvaged/recycled 36,362 tons of it (or 99.63 percent).



*EPA representatives (Jamar Jackson, Stephanie Sherony and Mark Seltzer) accepting the 2016 GreenGov Presidential Award.*

EPA headquarters' composting program expanded significantly in 2016. Headquarters' William Jefferson Clinton Complex, which is owned and operated by the GSA, started composting food waste and paper towels in April. Then, in November, the GSA and the EPA launched a compost pilot program in EPA-occupied portions of the Ronald Reagan Building. In recognition of their efforts, [a 2016 GreenGov Presidential Award](#) was jointly awarded to the EPA and GSA in the "Green Dream Team" category.



The Region 9 Office in San Francisco, California, renovated about 214,000 square feet of space in FY 2016. In the process, about 456 tons of construction and demolition debris and materials were generated, 85 percent of which was recycled or salvaged.



# Transportation – Reducing Environmental Impacts and Staying Safe on the Road

**When it comes to addressing transportation-related impacts**, the EPA has two main goals: 1) reduce harmful environmental emissions and 2) prevent employees from having accidents. Several strategies are in place to pursue these goals, as described below.

## Reducing Work-Related Impacts – Travel Less, Travel Smarter

EPA employees travel on the agency's behalf, driving or flying to field sites, meetings, conferences and training events, and they consume fuel and emit pollutants and emissions in the process. To curtail these impacts, the EPA is:

- » **Reducing travel miles.** Ridesharing is one strategy that the EPA uses to reduce the number of miles driven on its behalf. Implemented by several EPA locations, rideshare programs help employees identify co-workers who plan to travel to the same place within the same general timeframe so that they can travel together in one vehicle. Videoteleconferencing (VTC) and Internet-based communication tools (e.g., webinars, online meetings) also play a key role in the agency's travel reduction strategy, as they allow personnel to participate in meetings, conferences and training

## Tracking Petroleum Use, Emissions and Costs

The EPA's travel and fleet management strategies are paying off, as they have reduced petroleum use, emissions and costs.

**Petroleum.** The EPA's petroleum use dipped by 2.3 percent over the past year. Cumulatively, the agency has reduced the amount of petroleum it uses to support its fleet by 38 percent between FY 2005 and FY 2016.

**Emissions.** Using FY 2014 as a baseline, EO 13693 challenges federal agencies to reduce their per-mile GHG emissions by 4 percent by the end of FY 2017, 15 percent by the end of FY 2021, and 30 percent by the end of FY 2025. The EPA is well-positioned to meet the first goal, as it was already at the 3.8 percent reduction mark by the end of FY 2016.

**Cost.** The EPA's annual fleet-related costs (e.g., maintenance costs, depreciation, leasing fees, acquisition costs, fuel costs) decreased by 4.7 percent over the past year. For example, fuel costs went down by \$287,278 between FY 2015 and FY 2016. Looking at a longer period, the agency's fleet-related costs have decreased 29 percent between FY 2011 and FY 2016.



sessions virtually rather than in person. The impacts are significant – for example, Region 4 credited VTC with averting 127,847 business travel miles (air and ground) in FY 2016, which translates to less taxpayer dollars being spent on travel.

- » **Improving fleet efficiency.** The EPA maintains a vehicle fleet that employees use to conduct work-related business. Over the years, the EPA has worked to reduce the size of its fleet and change its composition to include more fuel-efficient vehicles. This effort involves eliminating unnecessary and underused vehicles while replacing petroleum-dedicated and inefficient vehicles with alternative fuel vehicles (e.g., ethanol dual-fuel vehicles) and advanced technology vehicles (e.g., zero-emission vehicles, plug-in hybrid electric vehicles, low GHG-emitting vehicles).

Progress was made in 2016, and the EPA completed a study to help determine the fleet inventory that would be best for efficiency and sustainability. During the FY 2016 vehicle replacement cycle, EPA successfully prioritized the acquisition of fuel-efficient, low-emission models. For example, alternative fuel vehicles accounted for 77 percent of the total non-exempt light-duty vehicles acquired in FY 2016, a rate exceeding the requirement (75 percent) put forth in the Energy Policy Act of 1992. Also, the EPA turned in 11 vehicles without replacement. In fact, the size of the agency's fleet has shrunk by 170 vehicles between FY 2011 and FY 2016.

### Promoting Environmentally Friendly Commuting Options

The EPA supports alternative commuting options. For starters, it allows flexiplace/telework in approved situations, as well as compressed schedules (e.g., allowing employees to work four 10-hour days rather than five 8-hour days) to reduce the number of trips that employees make getting to and from work. Also, about



The EPA's Cincinnati location promotes cycling as a commuting option, tracks cyclist activity and includes biking information in employee orientation. During bike-to-work month (May 2016), bicycle commuters covered 3,800 miles and burned 183,000 calories.



EPA Region 5 has won the Chicago Bike-to-Work Commuter Challenge for three years in a row. Senior managers support cycling as a commuting option, and the region has an active group of cyclists. The region, which offers a bike transit subsidy, maintains a bike maintenance station and has joined a local bike-sharing program, which offers employees discounted memberships.

65 percent of EPA locations promote carpools or vanpools, and 59 percent of them offer subsidized passes for alternative modes of transportation (e.g., subways, trains, buses). Bicycle commuting has also garnered significant support. In fact, nearly all (97 percent) EPA locations provide bike racks or bike storage areas, and in 2016, 38 percent of EPA locations participated in bike-to-work campaigns.

Two EPA locations reserve special parking places for zero-emission vehicles or plug-in hybrid electric vehicles, and others provide charging stations. For example, the Pacific Coast Ecology Branch in Newport, Oregon, provides access to electrical receptacles for car recharging; the Region 7 Office in Lenexa, Kansas, has 12 electric vehicle charging stations, which EPA employees can use free of charge; the Region 6 Office in Dallas, Texas, has electric vehicle charging stations available (for a cost) in its garage; and the Region 6 Laboratory in Houston, Texas, encourages employees to use facility power plugs for personal vehicles. Two other locations were investigating options in 2016: the EPA's Research Triangle Park in North Carolina gathered information about charging stations, and the National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan, joined the Department of Energy's Workplace Charging Challenge.

### Promoting Roadway Safety

More than 3,000 EPA employees drove on the agency's behalf in 2016, covering at least 7.8 million miles. Forty-three motor vehicle accidents occurred, two of which resulted in personal injury. The agency wants to reduce these numbers. To promote motor vehicle safety, the EPA requires employees who drive regularly on the agency's behalf to take initial driver safety training and periodic refreshers. For example, in 2016, 212 EPA employees received an online driver safety course that the GSA



At the local level, EPA offices and laboratories use a variety of methods (e.g., emails, Internet bulletin boards, posters, newsletters) to remind employees to drive safely, wear seat belts and avoid distracted driving. For example, in 2016, the agency's Environmental Response Team in Las Vegas, Nevada, presented videos that addressed distracted driving and provided tips to help employees recognize and avoid distractions.

provided free of charge. More extensive driving-related courses are required for EPA employees who need a commercial driver's license or use trailers to tow mobile laboratories, boats or field equipment. Aside from formal classes, the EPA raises awareness about driver safety through other avenues. In 2016, the EPA provided tips for staying safe on icy roads and emphasized the importance of avoiding distracted driving in its January and April *Wellness Quarterly* editions.





# Acknowledgments

The EPA acknowledges the following staff members for contributing to this publication and for their commitment to improving the agency's safety, health and environmental performance:

- » Assistant and regional administrators
- » Deputy assistant administrators and deputy regional administrators
- » Regional science and technology division directors
- » Program directors
- » Architecture, engineering, asset management and sustainable facilities personnel
- » Energy, water, fleet and laboratory managers
- » Safety, health and environmental management program managers and facility managers
- » EMS, SHMS and wellness coordinators
- » Pollution prevention and recycling coordinators
- » Contract, property management, information technology and purchasing officials

Photos in this report have been provided courtesy of the U.S. Environmental Protection Agency.