



# EPN

## Environmental Purchasing in the NPS

Issue 7  
July, 2017

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## Environmental Purchasing Efforts at Abraham Lincoln Birthplace National Historical Park

While making great efforts to reduce the amount of hazardous chemicals being used for custodial operations, one park in the Southeast Region (SER) has made tremendous strides in expanding their green purchasing practices on a broader scale. Abraham Lincoln Birthplace National Historical Park (ABLI) has a Green Purchasing Program in place. In the past, the Program was focused on addressing the reduction of toxic chemicals present in the park and ensuring staff with credit card privileges were receiving annual training on green purchasing practices and requirements. The park still requires staff with credit card privileges to attend an annual green purchasing training; however, the park has since expanded the scope of their purchasing program and incorporated a life-cycle approach to their purchase decisions. Park staff are now taking a very detailed approach to purchasing by considering the life-cycle of a product

and analyzing how a particular product will affect the park initially and in the future, before making the purchase.

ABLI has successfully tackled the “low-hanging fruit” by eliminating the purchase of highly toxic chemicals and products made from virgin materials by purchasing environmentally preferable products such as recycled-content printing paper, zero volatile organic compound (VOC) paints, and environmentally safe cleaning products. The park is now going beyond purchasing environmentally preferable custodial products and chemicals, to purchasing environmentally preferable materials and products used in infrastructure projects.

Prior to 2011, all of the lights in the park required incandescent or fluorescent bulbs that consumed considerable amounts of energy and cost the park

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## Environmental Purchasing Efforts at Abraham Lincoln Birthplace National Historical Park *continued from Page 1*

The efficiency of central air conditioning systems is rated by a Seasonal Energy Efficiency Ratio (SEER). In general, the higher the SEER, the less electricity the system needs to do its job. SEER is a mathematically determined ratio of the total cooling capacity during normal periods of operation (not to exceed 12 months) divided by the total electric energy input during the same time period. SEER ratings for air conditioning and air-source heat pump systems manufactured today range from 13 SEER to 24 SEER, with the highest numbers indicating the most efficient units that offer the most energy savings year after year.

more money to maintain due to short life-cycles. As a result, park staff had to maintain a larger inventory of new bulbs, and spend more money to recycle the bulbs when they died. In 2011, the park began a project to retrofit all of the light fixtures in the entire park with light-emitting diode (LED) bulbs which are significantly more efficient. The completion of this project in 2012 proved to not only cut down on energy consumption but also to cut down on maintenance costs. The park no longer has to pay the added expense for recycling fluorescent bulbs, and the cost of maintaining an inventory of new bulbs has been significantly reduced due to the long life-cycle of LED bulbs. For instance, that park has only replaced two LED bulbs over the last five years. The park also spent three years completing another retrofit project to reduce water consumption. This included replacing traditional faucets with low-flow, sensor faucets and replacing traditional toilets and urinals with low-flow toilets and urinals. Additionally, the park removed all paper towel dispensers throughout the park and replaced them with Dyson Airblade™ hand dryers<sup>1</sup>. A solid waste analysis determined that

replacing the paper towel dispensers with the hand dryers reduced solid waste generation by 10% over one year.

### **MOST RECENTLY,**

the park has replaced its heating and cooling units with units of the highest efficiency. The new heating units have an efficiency rating of 95% and the new cooling units have a Seasonal Energy Efficiency Ratio (SEER) rating of 21, the highest efficiency available at the time of purchase. The park also recently received funding to replace the carpeting in the auditorium with 4,000 square feet of recycled content carpet. ABLI took on another large project when two seasonal employee housing units were in need of new water heaters. Because these residences were for seasonal employees, the existing 40-gallon water heaters were only being used 3-4 months out of the year, wasting water and energy when the residences were unoccupied. Park staff thoroughly researched high efficiency alternatives to traditional water heaters and eventually found programmable water heaters that monitor water usage and are placed into “vacation mode” when the residence is unoccupied, significantly reducing water and energy use when idle. The park also installed on-demand water heaters for the Maintenance Shop and the Visitor Center/Headquarters staff restroom that only heat water when hot water is needed.

When undergoing construction projects, park staff spend valuable time making sure that the lumber they acquire for these projects is Forest Stewardship Council (FSC) certified and comes from a forest managed specifically for the purpose of making lumber for construction. They also ensure that the lumber they acquire is Scientific Certification Systems (SCS) Environmentally Preferable Product (EPP) certified, specifically SCS EPP certified yellow wood. SCS EPP certified lumber eliminates almost all chemicals used in the traditional pressure-treated lumber process, which reduces the amount of water and energy needed to process this lumber and reduces the park’s life-cycle footprint by purchasing an environmentally preferable product that use less resources to manufacture and process.

### **IN 2012,**

a contractor conducted an assessment of the park’s sustainability footprint and created a report, known as the State of the Parks Report, which quantified the park’s baseline footprint and how much it had been reduced after completing the various energy and water conserving projects mentioned above. The report showed that water consumption at the park in 2012 was 48.9% lower than the 4-year average for 2008-2011, and energy usage (BTUs per gross square footage of buildings) at the park in 2012 was 26.2% lower than the average for the previous 4 years. The park’s consumption rates have since continued to go down, and park staff persistently make thoughtful decisions when researching environmentally preferable alternatives to traditional products and materials.

<sup>1</sup>Mention of specific products or services in this Newsletter should not be construed as endorsement by the NPS.



## Beautiful and Sustainable!

### How the National Park Service is Rethinking Lawn Care: The Turf Stewardship Program



Sustainably managed turf at Fort Scott.

The National Park Service's (NPS) Midwest Region (MWR), together with nine MWR parks, are in various stages of implementing the "Midwest Turf Stewardship Program" (Program). The Program is to improve turf management while reducing pests, risks to humans and the environment, and decrease maintenance costs.

The Program has been conducted through a partnership between the NPS Servicewide and MWR Integrated Pest Management (IPM) programs and [Beyond Pesticides](#) – a non-profit organization dedicated to reducing human and environmental risks from pesticides. This partnership provides a review of current and best management strategies and provides professional guidance, using a "systems approach", to promote excellence in turf management and overall resource stewardship in accordance with NPS policies and IPM practices.

IPM is a decision-making process that coordinates knowledge of pest biology, the environment, and available technology to prevent unacceptable levels of pest damage, by cost-effective means, while posing the least possible risk to people, resources, and the environment.

#### A Public-Private Partnership for Resource Sustainability

This project, which builds on the work of the NPS Servicewide IPM program, was conceived at a meeting between NPS IPM staff and the Beyond Pesticides' Board of Directors in October 2009. With the signing of a General Agreement in 2010, the NPS and Beyond Pesticides began the "Midwest Turf Stewardship Project", an initiative intended to transition three pilot parks from conventional to sustainable turf management practices.

The pilot sites, all National Historic Sites, included Little Rock Central High School (Little Rock, Arkansas), Fort Scott (Ft. Scott, Kansas), and Herbert Hoover (West Branch, Iowa). Since then, the three pilot sites have "graduated" and the project has expanded to include six additional Midwest parks in three additional states. The NPS and Beyond Pesticides envision this program to serve as a model for the entire NPS and as the basis for educating visitors to the national parks about sustainable land management.

This project has the support of several Servicewide NPS programs, including the IPM Program, Biological Resources Management Division; Cultural Landscapes Program with the Olmstead Center for Landscape Preservation; Facilities Management, Sustainable Operations-Green Parks Program; and the Office of Public Health. In addition, it has been supported by

the NPS Midwest Regional Director, and by the superintendents of the participating parks. It is coordinated and managed by the Midwest Region's IPM Program Manager.

At the start of the project and as part of the collaboration, Beyond Pesticides' Executive Director Jay Feldman and board member and turf consultant Chip Osborne, a horticulturalist, visited the three pilot sites, accompanied by the NPS Servicewide IPM Program Coordinator, park superintendents, landscape management staff, and others, including those invited from neighboring NPS sites. Soil samples were analyzed from the pilot parks and specific turf management recommendations for each park were prepared, including correct cultural practices, nutrient amendments and grass seed type. Over the course of the three-year transition period, the NPS Turf Stewardship Project Manager and Beyond Pesticides' staff conducted phone consultations with park personnel to present the findings, make recommendations, and to check in on each park's progress.

#### Conventional Approach versus a "Systems Approach"

NPS policy directs staff to manage pests using an IPM approach. The IPM approach simultaneously focuses on the symptom (the pest) and the problem (improving turf management to ensure resiliency against future pests).

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**Why do we need this change in turf management?** Historically, most NPS managers have used a conventional and generalized approach to recreational and ornamental turf management and pest control in park landscapes. This approach is based upon regular applications of highly water-soluble synthetic pesticides and fertilizers. Unfortunately, these conventional products usually provide a “quick fix” to attain short-term management and pest control results. They do not improve the ecological component of the turf to build in resiliency. Studies have demonstrated that reliance on synthetic products can increase risks to human and environmental health, particularly through direct exposure to the products through drift or through surface or groundwater contamination. Over time, these conventional programs can be costly as they do not address the underlying causative factors of turf problems, such as degradation of optimal soil structure, imbalanced soil chemistry, and unhealthy soil biota, which are casualties of a reliance on conventional turf management techniques, thus requiring continued applications. *Soils are living ecosystems and healthy turf depends upon healthy soils.*

## The “Systems Approach:” Simple as 1,2,3!

In contrast, the “MWR Turf Stewardship Program” meets a park’s various site management objectives by using a science-based “systems approach” that is designed to proactively put a series of practical preventive steps in place to avoid and/or solve turf problems while supporting and strengthening the soil ecosystem to maintain turf health over the long term. This is based upon three concepts:

- 1 Acknowledgement that the soil biomass plays a critical role in fertility;
- 2 Application of natural, non-synthetic, products where their use is indicated by soil testing of live organisms, soil nutrients, and soil texture, together with consideration of site-specific conditions; and
- 3 Application of specific and sound horticultural techniques. It is a “feed-the-soil” approach that centers on natural fertilization from microbial inoculants; compost teas (extractions of beneficial nutrients and organisms) made from locally available organic materials; microbial food sources; and topdressing, as needed, using high quality local compost, if possible.

### Simply stated, the Sustainable Turf Stewardship Program:

- **PROMOTES** a more effective and environmentally preferred method for turf management through a “systems approach”;
- **PRESCRIBES** turf management actions based on soil tests and site assessments;
- **IMPROVES** the soil ecosystem and its health, thus fostering system resiliency;
- **REDUCES** turf management costs and environmental health risks over time; and
- **IMPLEMENTS** NPS policies regarding pest management, pollution reduction, and sustainable practices.

This “systems approach”, together with the application of specific horticultural practices that include appropriate mowing, aeration, irrigation, and overseeding with appropriate turf species, in addition to spot treatment of weeds, if needed, with low-risk herbicides, form the basis of the Program.

### Promoting Excellence in Turf Stewardship While Establishing Resilience

When a sustainable turf stewardship program is put in place, there is a window of time referred to as the transition period wherein turf conditions are changing. It is during this time that the site analysis is conducted and appropriate best management strategies are determined. Organic-based

(non-synthetic), low risk products, and specific horticultural practices are applied to address soil deficiencies which help to minimize this transition time. If, for some reason, a particular management technique is not proving to be effective for the site’s conditions, then adaptive management is employed to address the problem in another way. Addressing the living portion of the soil from the beginning makes the transition to a healthy, resilient turf successful. The length of time for this conversion process has a direct relationship to the time and intensity of the past conventional management practices that have been employed.

While periodic problems can and will arise in any turf system, they are easier to alleviate with a soil that is healthy and has the proper microbiological and chemical balance in place. Implementation of the “systems approach” generally refrains from using synthetic pesticides to address problems as they tend to destroy the soil biota, thus negating their beneficial effects.

### Reaping Rewards Over Time

As a result of using this “systems approach” to sustainable turf management, turf systems are better able to withstand pressures from use, insects, weeds, and disease, as well as from drought and heat stress, as long as good cultural practices continue to be followed, periodic monitoring occurs, and products are chosen to enhance and continually address soil biology. The desired outcome is to see maintenance costs decrease over the transition period and beyond as a self-sustaining turf and its soil ecosystem are established

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and the use of synthetic pesticides and fertilizers should not be necessary.

This approach to turf stewardship complies with and supports federal, Department of the Interior, and NPS policies regarding pest management, pollution prevention, and sustainable practices, thus contributing to the NPS’s “Green Parks Initiative”. In the end, NPS parks, together with their visitors and staff, can enjoy safer, more resilient soil ecosystems and managed turf areas that contribute to the overall health of the environment, while reducing some of a park’s contributions to climate change.

### Vision for the Future: Healthy and Resilient Turf with Lower Environmental Risk and Cost

Implementation of the Sustainable Turf Stewardship Program using the “systems approach” builds a soil environment that is rich in its beneficial microbes and balanced in its chemistry. This promotes the establishment of a strong healthy turf with vigorous root systems, resulting in a significant reduction in watering and significant improvement in human and environmental health and safety. The turf will be able to withstand many of the periodic stresses that affect turf grass while meeting the desired site management objectives.

At present, the NPS IPM program is discussing how to communicate the methodologies and benefits of the Program to the national park system at large through a guidance document that provides details for the implementation of the “systems approach” to sustainable turf management. This may take the form of a collaborative effort between Beyond Pesticides and the NPS’s Cultural Landscapes Program, the Facilities Management Program, and Olmstead Center for Landscape Preservation. Development and distribution of this guidance would set the stage for other parks to also achieve the benefits of sustainable turf management and improved resource stewardship, human health, and visitor enjoyment.



Herbert Hoover National Historic Site. Public picnic area expanded test plot 2.

## Park Updates

Since the start of this project, the three pilot sites (Herbert Hoover National Historic Site, Central High School National Historic Site, and Fort Scott National Historic Site) have “graduated” from the active testing and consultation portion of the Program. They have successfully converted from a conventional system to a sustainable system. Graduation is accomplished once the designated site is purged of all chemical treatments and replaced with holistic treatments that build up the health of the soil. Generally it takes approximately three years to completely purge the site of chemical treatments and reestablish the native soil ecology.

**Herbert Hoover National Historic Site:** After the “graduation” of the Presidential gravesite from the Program in 2013, the Gardener position went vacant till the fall of 2015. The turf at the gravesite is still in generally good health. The main threat is turf grass die off due to fungus from decreased airflow from landscape shrubs and trees. With inactivity other than the occasional aeration, over-seeding, and routine mowing, a large amount of white clover (*Trifolium repens*) has established in the gravesite turf. The park is currently taking actions to reestablish this area in a routine organic turf plan. The park has expanded the Program to two additional areas to see if this approach can work on a larger scale and with increased visitor traffic. The first site is a public picnic area of approximately 95,700 sq. ft. - this area will be maintained as Class “B” turf. The second is the hill that leads up to the Presidential gravesite and is approximately 26,100 sq. ft. and will be also maintained as Class “B”. Both sites currently have heavy pressure from dandelions (*Taraxacum*), broadleaf plantains (*Plantago major*), and white clover (*Trifolium repens*).

After the Gardener position was filled in the fall of 2015, soil samples were collected and an analysis was performed on both sites. By fall of 2016, the park received a list of organic products, their quantities, and an updated turf stewardship plan, as recommended by Osborne Organics, the Turf Stewardship Program’s consultant. In the fall of 2016, one annual season worth of granular/liquid fertilizers and soil amending

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Herbert Hoover National Historic Site. Presidential grave-site hill expanded test plot 1



## Park Updates *continued from Page 5*

**Which turf is the sustainably managed turf at Fort Scott?** They look very similar. The sustainably managed turf (the image on the right) meets the site's management objectives as well as the conventionally managed turf, but with much lower risk to humans and the environment and at lower cost with greater resiliency.

products were applied to play “catch up”. During the growing season of 2017, the same amount of liquid concentrate will be applied half in June and the other in September. Two applications of Renaissance 6-0-6 organic fertilizer will be applied first in late April or early May, and the second in mid to late August. One application of granular humate will be applied in July. Aeration and over-seeding will be performed twice a year in the spring and fall. To address the weed pressure the park is establishing test plots that will use Fiesta® Turf Weed Killer, Halo Post Emergence, and Tenacity® Herbicide to observe the effectiveness of each product and to better analyze which products work best for the site. The park is in the early stage of further expanding the program to include a green space south of the Visitor Center, and at the adjacent “Village Green”, an area that is used for festivals and concerts and which is shared with the town. Because the sites have just begun (or resumed) their new healthy organic routine, the park does not currently have any definitive results or performance data at this time. However, the park does have a protocol in place to collect performance data on these transition areas and it is excited to share these results with fellow parks, as well as to raise visitor awareness of the new green lawn practices. Contributed by Ryan Elliott, Gardener.

### **Fort Scott National Historic Site:**

Fort Scott's “test” plot for the Program was the east half of the Parade Ground, which had been previously managed using conventional turf management strategies. The west half of the Parade Ground continued to be managed in the conventional way as a “control.” In order to fully implement prescriptions provided, the park committed to investing in a plug aerator and compost tea maker. These pieces of equipment have been very economical to operate for the



past seven years. The practice of plug aeration was implemented to the test plot at the start of the program. Seeing the results of alleviating compaction, this practice has been incorporated into the routine maintenance of most manicured lawn spaces of the park (not permitted in archaeological areas). The park also began composting organic (non-synthetic) matter. This compost creates necessary local microbes for use as a fertilizer in the compost tea applications. While financial costs to implement the Program were higher than the park's traditional turf maintenance expenses, eventually costs decreased due to the decreased pricing and reduced need of organic fertilizers, lime, worm castings, humic acid and fish hydrolysate. Each of 50,000 sq. ft. plots were monitored and photographed monthly during the growing season; grass height measurements and weed pressures were recorded with precipitation and temperatures. In spite of persistent drought conditions, monitoring data showed an advantage under the Program. Soil test analyses also indicate that the soil health improved in the test plot. After years of side by side comparison there was a slight data advantage to the test plot. When determining what to do after graduation, the answers to the following question provided direction. Which practice produces the desired results/appearance? Which practice poses the least risk to human health? With a slight data advantage, no visual difference between the control and the test, and the elimination of synthetic products, the answer was obvious.



Today, both halves of the Fort Scott National Historic Site Parade Ground are managed organically, using the Program practices. Contributed by Russell Conner, Facility Manager.

### **Central High School National Historic Site:**

Central High School graduated from the pilot Program in 2014. Overall, transitioning was generally successful over the extended testing phase, but progress was significantly slowed due to periods of unusually high precipitation and excessive heat. In addition, the park faced some challenges from the emergence of some weeds, such as clover and henbit. These species had been suppressed from germinating but were part of a latent weed seedbank that re-emerged during the conversion process. Application of low-risk organic products then began the process of eliminating these species and the residual seed bank. Another initial problem for the park was locating organic fertilizers and compost locally which could meet the desired cost and quality criteria, a greatly reduced problem today with the advent of more advanced products. Unfortunately, for several years since graduation from the Program, the park had been without a Facility Manager and a few key staff, and turf stewardship efforts languished. The park now has a new Facility Manager and expects to resume its sustainable turf stewardship efforts. The primary goals at the park under the Program continue to be to develop and implement a natural, environmentally safe approach to high quality turf management which help protects public and staff health and wellness.

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## Park Updates *continued from Page 6*

In addition to the pilot park projects outlined on the previous page, six other parks have started implementing the Turf Stewardship Program at their own turf test sites.

**Brown v. Board of Education National Historic Site**, which graduated from the Program, has continued to implement Program practices on their open space area. The park reported the practices have been successful in helping them meet their site management objectives.

**Perry's Victory & International Peace Memorial** has been implementing the Program over approximately 25 acres around the memorial for over one year and has two more years of sustainable turf management before that site can graduate. One early result is that turf areas that have experienced disturbance from special events have required significantly less recovery time than before the Program was initiated.

**Hot Springs National Park** has been implementing the Program for approximately two years on a prominent piece of parkland that experiences heavy public use. Selection of this test site was influenced by public concerns about the use of conventional pesticide and the possible ramifications for public safety, especially for children. Subsequently, the park has been applying lower risk turf management techniques and products with good results, and is in its final testing year before graduating.

**George Washington Carver National Monument** has been implementing the Program for approximately two years to its turf test site surrounding an historic structure within the park. The management goal is to establish a more resilient turf that can withstand visitor pressures while presenting lower risks to humans and to the environment. This is their final year of testing before graduation.

**Nicodemus National Historic Site** was making very good progress for a small park with their turf test site under the harsh environmental conditions of the western Kansas plains, but, due to the loss of key Facilities Management personnel, the Program is currently on hold.

**Wind Cave National Park** has been implementing the Program for approximately two years and has been replacing the conventional bluegrass turf at the Visitor Center's front lawn with the more drought resistant buffalograss in order to reduce or eliminate the use of supplemental irrigation, and to create a turf that requires minimum maintenance.

**The Program and its Best Management Practices (BMPs) are also expanding to other Midwest Region parks, as well as to other NPS regions.**

**Tallgrass Prairie National Preserve** has received consultation assistance through the Program to help them bolster the health and establishment of their Visitor Center's buffalograss turf.

**Minuteman Missile National Historic Site** is currently in the process of replacing all bluegrass surrounding its new Visitor Center with a buffalograss/blue grama grass blend, which will be much more drought tolerant and ecologically correct, using Program techniques. The goal is to reduce the need for supplemental irrigation and increase the site's sustainability.

**William Howard Taft National Historic Site** is planning to apply sustainable turf BMPs to the turf area around the historic Taft home, with possible expansion throughout the park.

**Lincoln Boyhood National Memorial** has received consultation assistance through the Program to help them reduce weed pressure in their formal memorial landscape using low risk, sustainable turf management techniques.

**Cape Cod National Seashore** has begun incorporating sustainable turf BMPs on a small area of its adjacent golf course to significantly increase protection of groundwater resources using low risk products and techniques. It is using this project to educate and encourage the public to incorporate sustainable turf management practices into their own turf management at home.

### Want to Know More About the NPS Turf Stewardship Program?

Please contact John H. Sowl, Midwest Turf Stewardship Project Manager; Landscape Ecologist/Regional IPM Program Manager, NPS Midwest Regional Office at (402) 661-1872, or at [john\\_sowl@nps.gov](mailto:john_sowl@nps.gov) or also at [mwrturfsteward@nps.gov](mailto:mwrturfsteward@nps.gov).



Aric Baldwin, Maintenance Worker – Supervisor (Trails), putting biobased oil to use in the backcountry.

## Klondike Gold Rush National Historic Park Goes Biobased!

As a home to many trails, historic structures, and landscapes, maintaining the historical and environmental integrity of Alaska's Klondike Gold Rush National Historic Park is a priority for the park and its Environmental Management System (EMS) team. With the help of an outside consultant in October 2012, the team performed a systematic review to identify the park's impact, goals, and potential legacy projects. One of the goals identified during the review was a green purchasing initiative aimed to:

- Purchase biobased products, which included the acquisition of biobased oils and lubricants; and
- At a minimum, purchase products that are third party certified as a sustainable or green product when biobased alternatives are not feasible or available.

EMS Chairman, Cory Thole, conducted independent research to continue the park's biobased purchases that had occurred prior to his tenure before cross-referencing his findings with [United States Department of Agriculture \(USDA\) BioPreferred Catalog](#). Based on comprehensive data and user testimony available on the manufacturer's website, the EMS team chose to use Renewable Lubricant™ brand oils and lubricants. The first acquisition of biobased

motor oil was made in 2010 and by 2014 the park had completed its transition to 100% biobased oils and lubricants. The effectiveness of the products has been verified by park staff such as the Trails Supervisor, Aric Baldwin, and the Utilities System Repairer and Operator, Scott Logan.

Other biobased products including all-purpose cleaner, siding cleaner, grill and surface cleaner, and green car wash are also currently in use at the park. In addition, the purchasing of biobased products has expanded to all divisions in the park. The janitorial group purchases biobased disinfectants and hand soaps when possible, and the Administration division purchases biobased printer paper and other office supplies; all of which demonstrate the successful integration of biobased purchasing throughout the park.

In 2010, the cost of the biobased motor oil 55-gallon drum was much higher than the cost of standard oil. Still, on behalf of the EMS team, Thole concluded, "The benefit of using a non-fossil fuel based lubricant or oil outweighs any cost increase in our opinion and ultimately we are mandated by executive orders and other policies to reduce our fossil fuel products." Although initially biobased oils and lubricants were more expensive than standard oils and lubricants, the cost has gone down over time. Additionally,

due to Klondike's remote location, purchasing products in bulk helps save on excessive transportation and shipping costs over time. The biobased motor oil drum purchased in 2010, for instance, is just now approaching empty thanks in part to the park's efforts to purchase five, efficient electric vehicles in the past few years.

Recently in support of the park's green purchasing initiative, an intern created a green purchasing website that houses all of the biobased materials that are available for staff to purchase and where they can be purchased. In addition, the EMS team added a page to the park's EMS workbook that includes a library of links and information on other federal environmental programs such as the Environmental Protection Agency's [WaterSense](#) and [ENERGY STAR](#)® programs; electronic resources such as San Francisco's Department of the Environment [SFApproved](#) product search database; the NPS SOCC database; and other tools that help meet the park's Climate Friendly Parks goals.

### Building Public Support

One of Klondike's ongoing missions is public engagement. The EMS team works to inform and involve park visitors and the local community on the park's efforts to reduce their environmental footprint - specifically

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their efforts to strive for 100% biobased chemicals and materials in the park. Currently, the city of Skagway visitors' guide, distributed to the annual 600,000 cruise ship visitors, includes information on the biobased activities at the park. Additionally, the local newspaper, The Skagway News, featured an article in their Skagway Alaskan Visitor Guide titled "Klondike Green Rush" that included information on other sustainable operation practices and activities in the park, and, eventually, the team would like to set up a display in the trail center to showcase the biobased products used throughout the park.

The EMS team has also reached out to the local community directly, bringing samples of biobased products to the railroad and local utility. Unfortunately, the absence of local suppliers has, for now, hindered the effort to bring more biobased products to market in the community. To help address this challenge, one of Klondike's long term goals is to launch a green purchasing agreement with the municipality, local schools, and local private industries to help increase the market availability of

biobased products while reducing the costs of products and the associated shipping. Because Skagway is relatively small, a collaborative purchasing plan is an innovative solution to the likely enduring issues associated with the park's remote location. Should this green purchasing agreement come to fruition, the team would be able to effectively reduce costs while promoting environmental stewardship in their remote corner of the country.

In the nearer term, the EMS team has established a new target for biobased cleaning and janitorial supplies. While some purchased products are biobased, the park would like to expand their use to multipurpose cleaners, degreasers, solvents for parts cleaner, toilet and bathroom sanitation supplies, glass cleaners, floor care products and other related products in accordance with the requirements under the [USDA's BioPreferred](#) program. The team hopes this will result in a reduced impact on the environment and municipal wastewater system, reduced hazardous chemical use, and a safer work and visitor environment.



The biobased green procurement efforts put forth at Klondike are both admirable and replicable. Motivated primarily by a commitment to environmental stewardship, the park's EMS team members all agree that the switch was simply the "responsible thing to do." The team takes pride in their work, their workplace, and their surrounding environment. They hope to change the mentality of their fellow employees, visitors, and community members from "we have to do this" to "we want to do this." EMS Chairman, Cory Thole, had one final piece of advice for his peers struggling to meet biobased goals, "Make decisions and complete objectives not because they are easy, the normal procedure, or because you will be recognized for them, but because they will be appreciated by all future inhabitants of the planet."

## Eliminating Toxic Chemicals to Reduce Environmental Health and Safety Risks

The National Fire Protection Association (NFPA) has a numerical hazard rating system for hazardous materials that establishes the short-term, acute exposures that could occur as a result of a fire, spill, or similar emergency. There are four categories in which a chemical can be rated: Health, Flammability, Instability, and Special Hazards. The rating of each category identifies the hazards of a material and the degree of severity of the health, flammability, and instability hazards. Hazard severity is indicated by a numerical rating that ranges from zero (0) indicating a minimal hazard, to four (4) indicating a severe hazard. Health hazard ratings include: deadly (4), extreme danger (3), hazardous (2), slightly hazardous (1), and normal material (0). Flammability hazard ratings include: [Flash Point] below 73F (4), below 100F (3), above 100F (2), above 200F (1), and will not burn (0). Reactivity hazard ratings include: may detonate (4), shock and heat, may detonate (3), violent chemical change (2), unstable (1), and stable (0). Special hazards may include: if the material has an unusual reactivity with water to caution about the use of water in either firefighting or spill control response; if the material is an oxidizer; if the material is a simple asphyxiant gas such as nitrogen or helium. Though it is not required, one can typically locate the NFPA ratings for a material in Section 16 of the manufacturer-supplied SDS as seen in the image below.

Over the last few years, Grand Portage National Monument, located along Lake Superior in Minnesota, has an initiative to identify and eliminate all chemicals and products throughout the park which have unacceptable risks to the environment and to the health and safety of visitors and park personnel. The park accomplished this by conducting a thorough inventory of each and every

chemical product stored at the park and entering the product information into a Microsoft Excel spreadsheet. Once the inventory was complete, park staff used the product's safety data sheets (SDSs)/material safety data sheets (MSDSs) to document the associated National Fire Protection Association (NFPA) hazard number ratings for fire hazards, reactivity hazards, and health hazards.

16. OTHER INFORMATION	
NFPA Ratings	
Health	1
Fire	0
Reactivity	0
Special	

Then, park staff sorted the inventory from highest to lowest based on

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the NFPA hazard number ratings to quickly and easily identify the chemical products with the highest, and therefore greatest, hazards. Using this information, park staff began working to find safer and environmentally preferable alternatives to these hazardous chemicals. For each product, park staff worked with the appropriate park division that was using the hazardous chemical product to understand their specific needs for its use and to research environmentally preferable alternatives with NFPA numeric hazard ratings that were lower (or even zero) compared to the current product being used.

While most hazardous chemical products have been replaced with more environmentally preferable, and safer alternatives, there have been some items that have not been as easy to replace. One example is diesel fuel additive needed to keep the diesel fuel in the park's vehicle fleet from gelling. Upon much research and trial and error, park staff have been unable to find a suitable replacement to date. Nonetheless they will continue the search and continue to try new and improved products on the market.

Overall, this thorough evaluation process undertaken by park staff has resulted in elimination of several hazardous chemicals and materials from the park. For example, park staff stopped purchasing commercial and industrial grade products such as bleach and glass cleaner due to the higher toxicity content and replaced them with low- or non-toxic cleaners, or with homemade, natural cleaners such as vinegar and water mixtures, and soap and water mixtures.

Although the park has not been able to replace every item with a low- or non-toxic alternative, Grand Portage National Monument's methodology for eliminating hazardous chemicals throughout the park has still been successful and can be easily replicated at parks that also want to find safer, and more environmentally preferable products with which to work.

## Common Learning Portal

On Founders' Day in 2016, the Workforce and Inclusion directorate launched the Common Learning Portal (CLP), a tool that improves the way NPS employees can explore and sign up for learning and performance improvement opportunities. The CLP is a website to help NPS employees, volunteers, and partners learn the information and collaboratively practice the skills they need to improve their performance on the job. This site goes beyond just training classes as it includes informal learning resources, such as best practice reference documents, and collaborative discussion groups. While DOI Learn is a tool for the Department of the Interior (DOI) and beyond to take and track mandatory training courses, the CLP is a gateway to the NPS Learning and Performance Ecosystem. The CLP supports learning by providing an area to search and browse formal trainings such as DOI Learn classes, a searchable digital library of vetted, informal resources, and collaborative online groups about NPS related topics.

The [CLP](#) houses a variety of training programs, videos, guidance documents, and discussion groups on several topics related to career development, facilities management and operations, and resource stewardship and protection. One such topic includes environmental purchasing (EP). The CLP has several resources available to NPS staff related to EP practices including training webinars hosted by the Sustainable Operations and Climate Change (SOCC) Branch. The [Green Purchasing Webinars webpage](#) and the [Environmental Purchasing Made Easy webpage](#) include an overview of the different training sessions available through the SOCC. These webinars cover matters such as the impacts of purchasing on the environment, federal environmental purchasing requirements, and where to find environmentally preferable alternatives to various chemicals and products.

Look for more training on environmental purchasing hosted by the SOCC Branch in July! *Navigating the World of Environmental Purchasing: An In-Depth Look at Biobased Construction Products and GSA Advantage!* will provide a brief overview of the impacts of your EP decisions and current EP requirements, as well as an in-depth learning and case study focused on one park's efforts to use [United States Department of Agriculture \(USDA\) BioPreferred](#) designated biobased products for maintenance and construction activities. The webinar will also provide tips and tricks on how to navigate and locate environmentally preferable products on [GSA Advantage!](#).

**No matter if you are a new or seasoned federal purchaser, we encourage all NPS staff who make purchasing decisions to sign up.**

The same webinar will be offered at the following two times:

- Thursday, July 20<sup>th</sup>,  
2 PM – 3 PM ET
- Wednesday, July 26<sup>th</sup>,  
2 PM – 3 PM ET

To register for training, please click [here](#).