



To: Board of Commissioners

From: Jenna Smith, Resource Conservation Manager

Date: July 12, 2018

Re: **2017-2021 Environmental Sustainability Plan - 2017 Results**

2017 marked the completion of the first year of the 2017-2021 Environmental Sustainability Plan (ESP), adopted by the Board on November 21, 2016. At the July 16th board meeting, staff will present a summary of our progress in the seven target areas and highlight related current year accomplishments.

Executive Summary: 2017 ESP Results

With the exception of target four, measuring solar energy capacity, in 2017 KCHA made progress in each of the target areas. As outlined in the following chart, we slightly exceeded our goals in three areas and came in below in the other three. Target four was based on an increase in the installation of renewable energy systems, and no projects were completed last year.

2017 Results:

Sustainability Target Areas	2017 Goal	2017 Actual	% of Annual Goal
1) Multifamily Water Use: Gallons/ Person/Day (GPD)	46.6 GPD	46.2 GPD	101%
2) Multifamily Energy Use: 1k British Thermal Units/Square Foot (EUI)	36.0 EUI	35.0 EUI	103%
3) KCHA Multifamily Greenhouse Gas Intensity (GHG): Kg CO ₂ e/Square Foot	4.420 GHG	4.246 GHG	104%
4) Solar energy capacity: Kilowatts (kW)	195.5 kW	99.7 kW	51%
5) Waste Diversion Rate (% diverted)	43%	42.6%	99%
6) EnviroStars: Percent Certified	60%	52%	86%
7) Alternative Fuel Vehicles: Percent of Fleet	10%	7%	70%

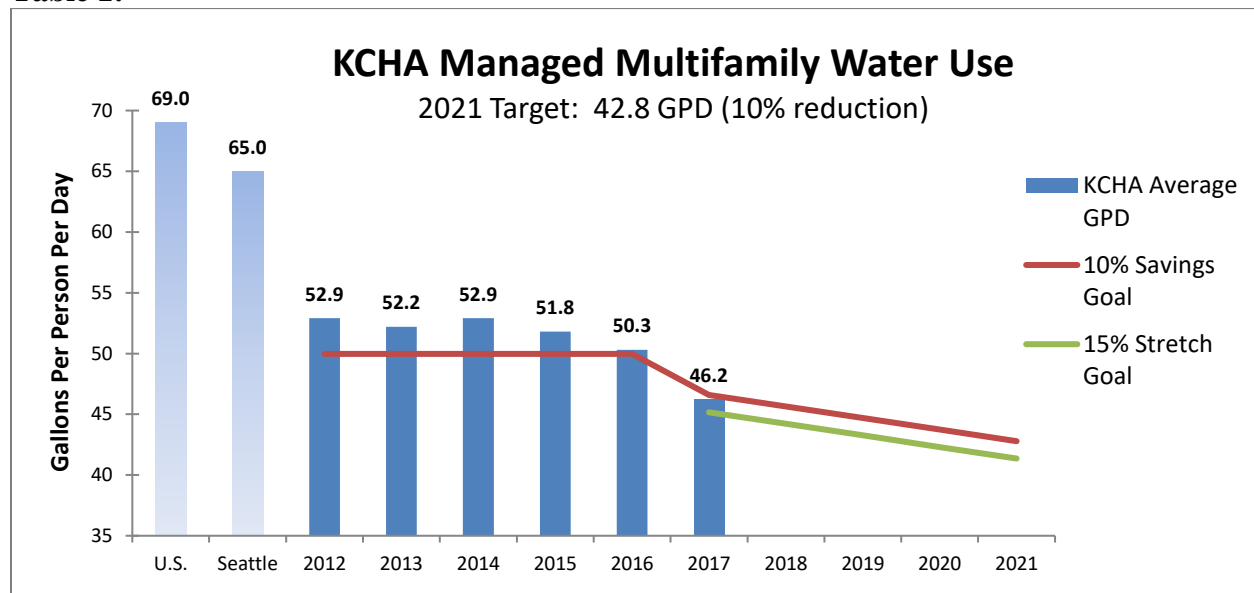
Target Areas Summaries:

Target 1: KCHA Managed Multifamily Water Use (Gallons Per Person Per Day: GPD)

KCHA managed properties’ total water use measured 8% (Table 1) lower in 2017 than the previous year, saving over \$130 thousand in water and sewer utility costs. Since 2012, GPD has declined by 12%, with the largest annual reduction occurring in 2017. Last year, the water efficiency measures installed at 22 Energy Performance Initiative Contract (EPIC) public housing properties (about 1,250 units) had a significant impact on reducing overall consumption. EPIC properties used approximately 20% less than the previous year.

Utility bill monitoring, leak identification, and water efficiency upgrade projects are expected to continue to reduce KCHA managed water use in the coming years. KCHA is also assessing the cost-effectiveness of implementing additional water saving measures at properties that did not participate in EPIC.

Table 1:



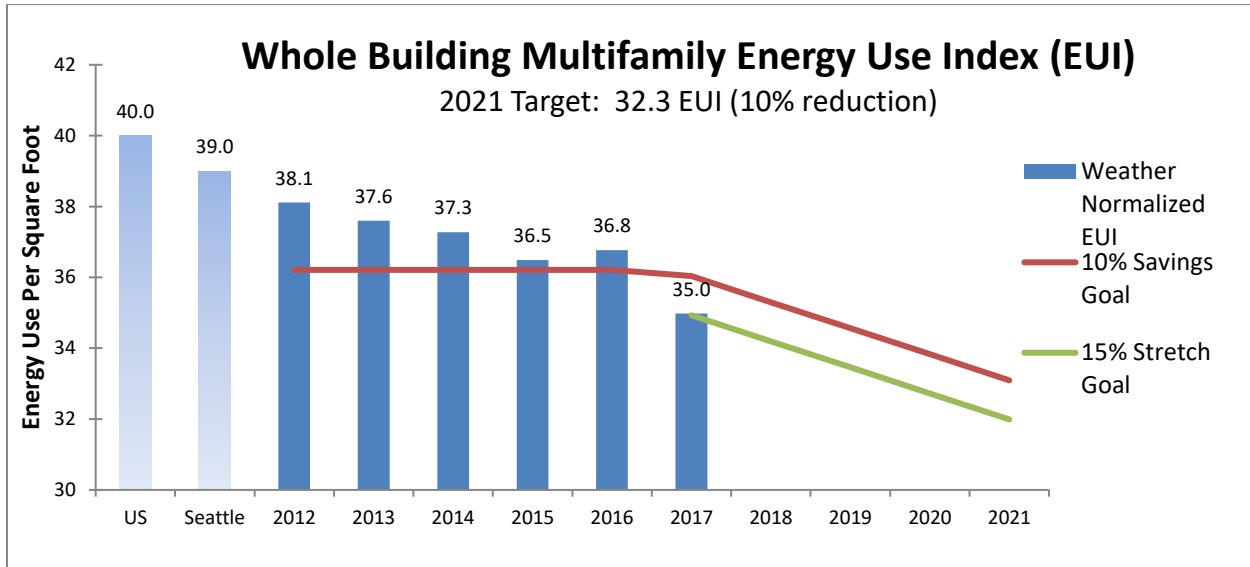
Target 2: Multifamily Energy Use (Energy User Per Square Foot: EUI)

Last year, KCHA exceeded its whole property (common area and resident) multifamily energy use savings target by 3%, reducing EUI by 5% over the previous year (Table 2). Since 2012, EUI has declined by 8% overall. In 2017, nine KCHA properties (654 units) received weatherization upgrades, and 27 public housing properties (1,526 units) received lighting, heating, and/or ventilation energy efficiency upgrades.

The whole property EUI calculation requires a full year of energy consumption to weather-normalize the data in order to accurately measure the results. For this reason, the energy conservation projects that were completed in 2016 and the beginning of 2017 will show a greater impact on 2017 EUI than those completed towards the end of 2017. Since most of the EPIC

energy efficiency projects were completed throughout 2017, KCHA will see some of the impact of those energy efficiency upgrades in the 2018 EUI.

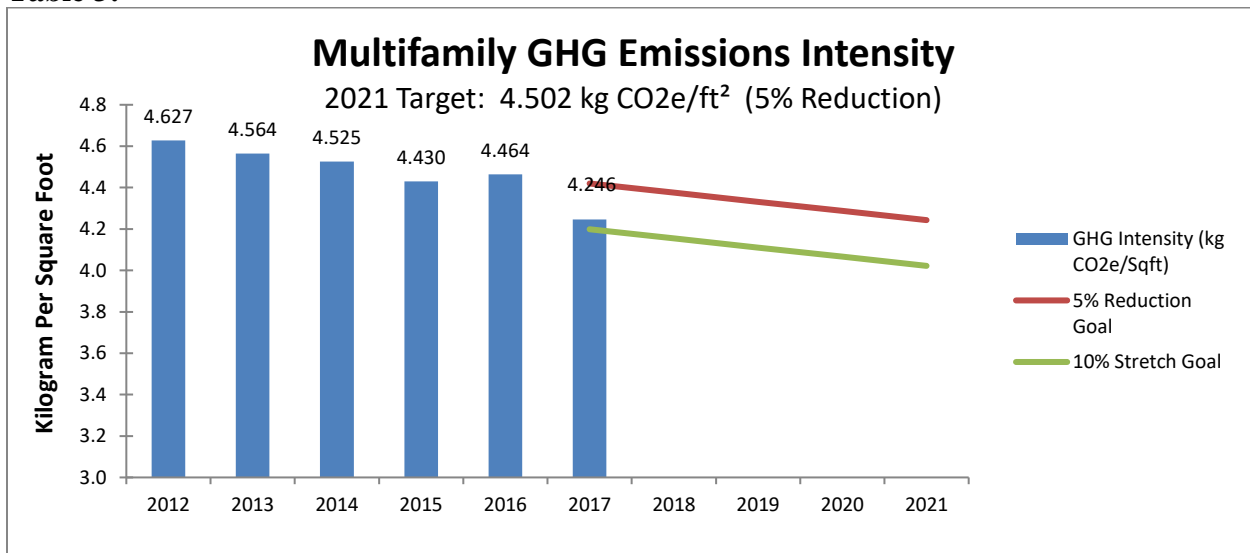
Table 2:



Target 3: Greenhouse Gas Emissions

In 2017, the greenhouse gas emissions per square foot (GHG) from the energy use at KCHA multifamily properties decreased by over 4.9% (Table 3) from the previous year. This decrease exceeded the target goal by 218 grams of CO₂/ft², which is similar to removing over 1,400 passenger vehicles from the road for one year. The GHG emissions intensity is normalized for weather and assumes average energy mix for all energy consumption. In 2018, KCHA hired a Climate Corps Fellow from the Environmental Defense Fund for an 11 week project to build a comprehensive GHG footprint of the entire organization. This work will advance current and future environmental initiatives.

Table 3:

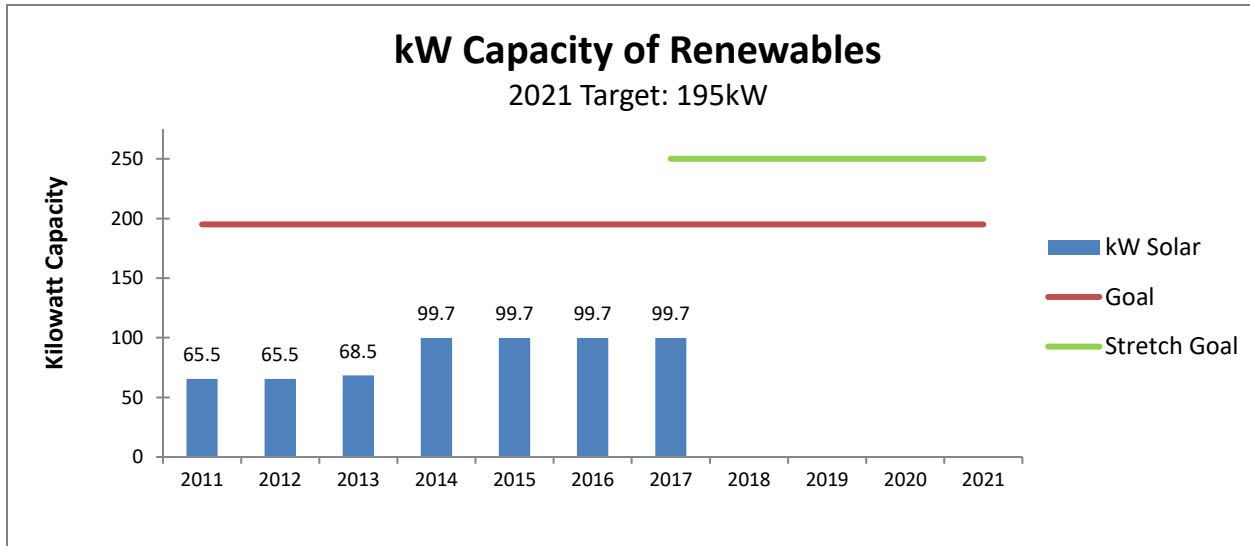


Target 4: Solar Energy Capacity

Last year, KCHA continued to assess opportunities to install more renewable energy systems, however no projects were completed. Currently, KCHA is exploring an opportunity with Access Solar, a local organization that is partnering with low-income property owners to install 550 kW of solar on low-income multifamily properties in Seattle City Light's service area, with some of the benefits of the solar going directly to residents.

From November 2016 to October 2017 (the utility solar program year), KCHA's six solar systems generated about \$10 thousand in electricity savings and over \$12 thousand in rebates from the state's solar energy credit program. Since 2012, the value of the energy generated from the six solar systems, plus the annual rebates received from the state is over \$110 thousand dollars.

Table 4:

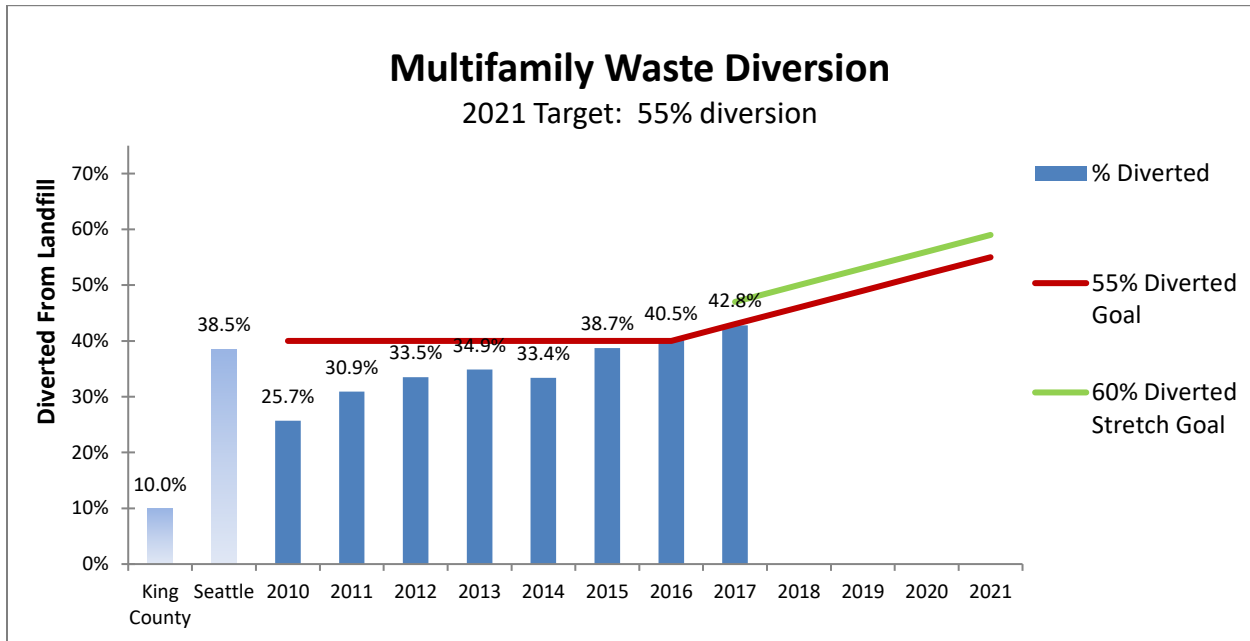


Target 5: Waste Diversion

By the end of 2017, 42.6% of KCHA's residential property waste was being diverted from the landfill to regional recycling and composting facilities (Table 5). This figure combines KCHA managed (44.6% diversion) and vendor managed (40.6% diversion) properties. Currently, all properties subscribe to recycling service, 35 subscribe to organics collection, and 16 encourage residents to compost food scraps.

In the ongoing effort to reduce garbage costs and improve diversion rates (the amount of material recycled vs sent to the landfill), KCHA conservation staff continue to "right-size" garbage and recycling capacity at each property. As a result of increasing recycling service and reducing unneeded garbage capacity in 2017, KCHA saved nearly \$45,000 in reduced solid waste utility charges.

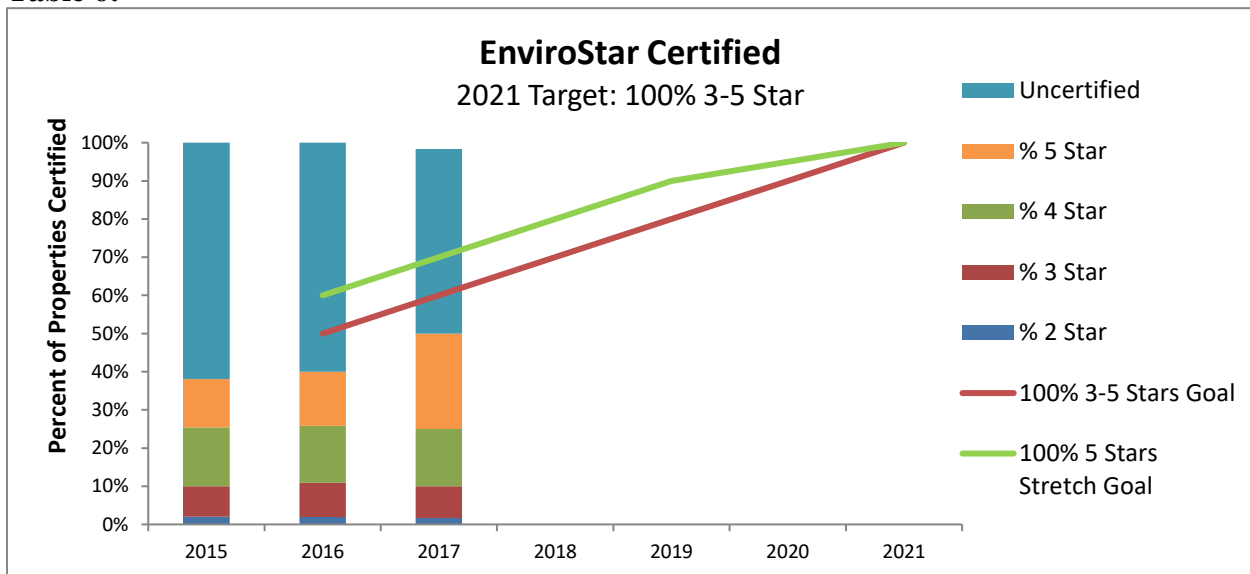
Table 5:



Target 6: EnviroStars

By the end of 2017, KCHA had 62 properties certified in the King County (KC) EnviroStars program. In 2018, KC launched a new version of the program incorporating a broader spectrum of sustainable property management practices for energy, water, pollution prevention, drainage, wastewater, and solid waste. The new program also changed its EnviroStars levels from a maximum of five stars to a maximum of three, which will cause annual targets to be revised. Those changes will be reflected in next year’s annual update. So far this year, ten properties began the certification process, and one has reached the highest goal of becoming 3 Star Certified.

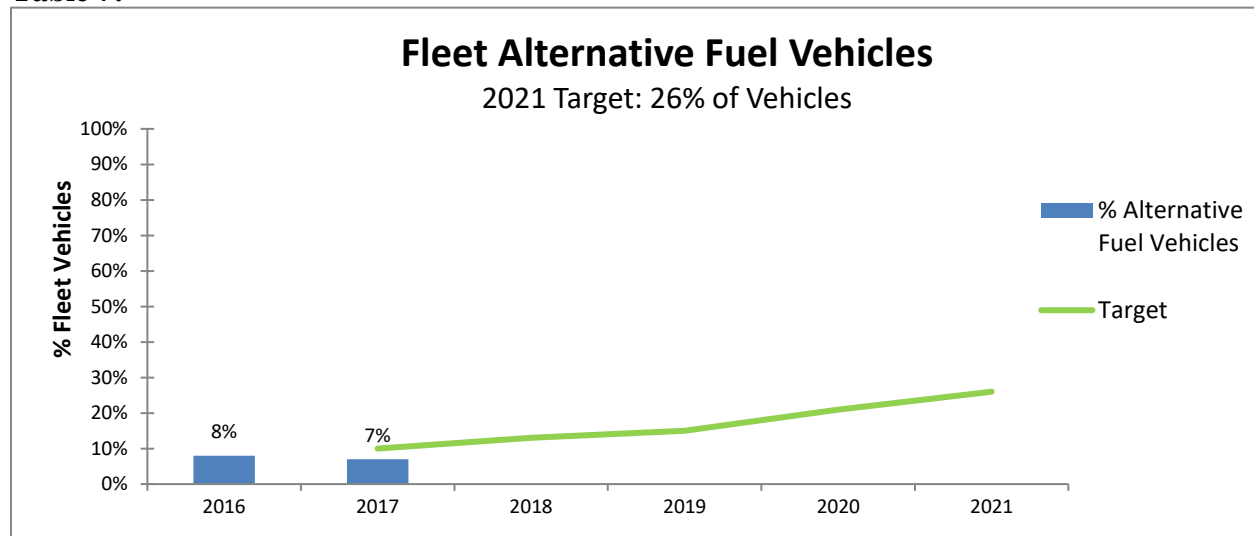
Table 6:



Target 7: Alternative Fuel Vehicles

Currently, 7% of KCHA vehicles use alternative fuels (Table 7). The percent of the fleet utilizing alternative fuels decreased in 2017 due to the purchase of unplanned non-hybrid maintenance vehicles. By the end of 2018, the first year the state requires all local governments to begin purchasing alternative fuel vehicles, KCHA is expected to have roughly 18% of the fleet utilizing more environmentally friendly fuels.

Table 7:



2017 Highlights and Current Year Initiatives:

- **Utility Data Management:** Utility data is the cornerstone of KCHA’s Environmental Sustainability Plan. Over the past few years, the staff have been working to improve the accuracy and data collection processes of the roughly 1,500 water, sewer, electricity, gas, and solid waste utility accounts collected from 40 utility districts. This year, the utility management software was replaced with one that improves access to utility data for property managers, and simplifies the data management process. The software also provides comprehensive tracking, trending, and reporting functions.
- **Utility Rebate & Conservation Programs (Excluding EPIC):** Beyond Weatherization funding and the rebates obtained through EPIC, in 2017 portfolio-wide rebates totaled over \$400 thousand, close to what was received in 2016. Energy and water efficiency incentives came from the Saving Water Partnership, Cascade Water Alliance, Seattle City Light and Puget Sound Energy (PSE). Also in 2017, Birch Creek participated in a first of its kind energy conservation engagement program where PSE worked directly with staff and residents in an effort to save energy.
- **Weatherization:** KCHA’s dedicated Weatherization department performs outstanding work that directly impacts both energy and water outcomes tracked by Resource Conservation staff. Their wide scope includes heating systems (ductless heat pumps and furnaces), insulation (walls, attic, and floor), mechanical ventilation (bathroom fans and energy recovery ventilators), and low cost items (LED bulbs, showerheads, and faucet aerators). In 2017, Weatherization leveraged \$1.6 million to provide energy conservation

measures at nine KCHA sites (654 residential units). In 2018, work is planned for another eight KCHA sites (387 residential units).

- **Energy Performance Initiative Contract (EPIC):** Since EPIC construction began in 2016, \$20 million in energy and water conservation measures have been installed at 39 properties with a total of 2,087 units of public housing. EPIC funding will be utilized to begin the renovation of eleven elevators in 2018. We are projecting HUD paid incentives for KCHA to be \$50.4 million for the next 20 years. The incentives will be used to pay off the debt associated with the EPIC and to fund KCHA operating and repair activities in this portfolio.
- **Partnerships:** KCHA continues to reach out to organizations to partner on environmental initiatives. For example, last year KCHA partnered with the City of Bellevue and the Bellevue Boys and Girls Clubs to establish an environmental educational program for the Spiritwood, Hidden Village, and Eastside Terrace Boys and Girls Clubs. At Valli Kee, KCHA partnered with Kent Youth and Family Services to tackle a litter problem by engaging with children from the property. Also, Cascade Water Alliance provided funding to host the third annual sustainable landscape management training for KCHA staff. Additionally, KCHA is partnering with King County Wastewater, Resident Services, and Housing Management staff to teach residents about what does and doesn't belong in the wastewater system.
- **Recognition:** In 2017, KCHA received two awards for environmental work. Dow Constantine, King County Executive, honored KCHA with the County's Green Globe award for their outstanding achievements in environmental stewardship, and KCHA received recognition from HUD and the Department of Energy for tracking and sharing of energy data. Furthermore, this year KCHA received the Washington State Recycling Association's Recycler of the Year Award for the work with the Bellevue Boys and Girls Clubs.
- **2018 Initiatives:** In the second year of the ESP, initiatives include the Greenhouse Gas project, updating the Environmentally Preferable Purchasing policy, assessing construction and demolition waste practices, and engaging with residents about wastewater and solid waste practices that impact utility and maintenance costs. Staff are also exploring solar incentive and toilet retrofit opportunities, and continuing work started in previous years on assessing landscape management practices.